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The Argument from Logical Principles Against Materialism: A Version of the Argument from Reason

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The Argument from Logical Principles Against Materialism: A Version of the Argument from
Reason

by

Gordon Hawkes

A THESIS

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Abstract

The argument from reason is the name given to a family of arguments *against* naturalism, materialism, or determinism, and often *for* theism or dualism. One version of the argument from reason is what Victor Reppert calls “the argument from the psychological relevance of logical laws,” or what I call “the argument from logical principles.” This argument has received little attention in the literature, despite being advanced by Victor Reppert, Karl Popper, and Thomas Nagel. The versions of it that exist are more outlines than fully developed arguments. My aim in this thesis is (i) to clarify the argument, especially with regard to what issues are at stake; (ii) to develop the argument beyond Popper and Reppert’s initial versions of it; and (iii) to evaluate it as an anti-materialist argument. I have isolated five key premises in the argument: (1) the laws of logic are objectively real, (2) the laws of logic are abstract entities, (3) materialism entails that we cannot have knowledge of abstract entities, (4) knowledge of logical principles is essential for justified rational inferences, and (5) we have knowledge of logical principles. I break down each premise in detail, evaluating each in light of materialist responses. The goal of this thesis, then, is to fill in the gaps, so to speak, in an argument that merits more attention than it has received up until now.

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Table of Contents

I. A Very Brief History of the Argument from Reason	1
Overview	1
A Very Brief History of the Argument from Reason	1
Karl Popper's Argument from Logical Principles.....	8
Thesis Statement.....	9
II. The Argument From Logical Principles.....	12
A. The Argument from Logical Principles.....	12
A1. Popper's Reconstructed Argument	15
The Key Question in Popper's Argument: By What Standards Is It Valid or Invalid?	18
Physicalistic Alternatives to Abstract Non-Corporeal World 3 Objects as the Standards of Logic	20
Popper's Argument in Syllogistic Form	23
Criticisms of Popper's Argument.....	31
A2. Reppert's "Argument from the Psychological Relevance of Logical Laws"	33
Reppert's Argument in Syllogistic Form	34
Reppert's Argument Summary	39
Improvements in Reppert's Argument.....	39
Problems with Reppert's Argument.....	40
B. The Key Premises	41
i. Logical principles are objectively real.	42
ii. Logical principles are non-physical, abstract entities.	42
iii. Causal closure entails that we cannot have knowledge of non-physical entities.....	43
iv. Logical principles play an essential role in the process of rational inference.....	44
v. We know the principles of logic.	44
C. The Form and Type of the Argument	46
i. The Target of the Argument from Reason	46
ii. The Three Stages of the Argument from Reason.....	55
iii. The Type of Argument	57
iv. Logical Contradiction vs. Performative Contradiction	66
D. Three Ways to Object to the Argument.....	68
III. The Ontological Status of Logical Principles.....	70
Overview:	70
A. An Initial Sketch of the Principles of Logic.....	70
B. The Ontological Status of the Principles of Logic and Mathematical Objects Compared (and Contrasted)	73
Part I. Logical Principles Exist and Are Objective.....	76
The Meaning of "Objective" and "Subjective".....	77
Monism, Pluralism, and Instrumentalism	80
Is Logic Revisable?	82
The Case for Objective Logical Principles	86
Nagel's Argument Against Subjectivism and for Logical Realism	89
Summary of Part I	96
Part II. Logical Principles are Non-Physical Abstract Objects	98
A. Overview	98
B. What Are "Abstract Objects"?	100

C. What Are the Principles of Logic According to the Argument?	103
D. The Case for Logical Principles Being Abstract Objects.....	111
E. Alternative Explanations of Logical Knowledge Consistent with Materialism	138
E1. “Logical Conventionalism”: Are Logical Principles Merely Analytic?	143
E2. Psychologism.....	173
E3. Formalism	194
E4. Fictionalism	199
F. Concluding Remarks to Part II	200
III. Conclusion.....	202
IV. The Role of Logical Principles in Rational Inference	205
Overview	205
Part I. Materialism Entails That We Cannot Have Knowledge of Abstract Entities.....	205
A. Definition of Causal Closure.....	206
B. Causal Closure Essential to Physicalism	207
C. The Positive Case for the Premise.....	215
The Plausibility of the Premise	215
The Standard Argument for the Premise.....	220
D. Are Abstract Entities Causal or Acausal?	229
A Problem for Acausal Abstract Entities	235
Two Objections to Causal Abstract Entities	237
Part II: Knowledge of Logical Principles Is Essential for Justified Rational Inferences	
(Internalism)	246
Internalism and Rational Inferences.....	246
Expressions of the Premise	249
Why Is This Premise Essential?.....	252
What Precisely Is the Role Being Played by Logical Principles in a Rational Inference? ..	253
Objection: Strong or “Pure” Externalism.....	255
Evolution as a Way Out?.....	256
V. Our Knowledge of the Principles of Logic.....	259
Overview	259
Part I: “We Know the Principles of Logic”	260
Logical Skepticism.....	263
Descartes’ Logical Skepticism	264
de Sousa and Nozick’s Logical Skepticism	266
The Positive Case for Knowledge of Logical Principles	278
Nagel’s Case Against Logical Skepticism	281
Part II: How Can We Have Knowledge of the Principles of Logic qua Abstract Entities?	289
A Major Objection: Explaining Our Knowledge of Abstract Entities is a Problem for	
Everyone	289
Rational Insight: A Possible Answer to the Objection.....	294
Nagel’s Characterization of “Reason”	298
Arguments for Rational Insight.....	301
Objections to the Faculty of ‘Rational Insight’	306
Conclusion and Reflections	318
Bibliography	321

I. A Very Brief History of the Argument from Reason

Overview

This thesis is focused on an argument against materialism that I am calling the “argument from logical principles.” It is a version of the so-called “argument from reason,” which is closely associated with C. S. Lewis. In this chapter, I offer a very brief history of the argument from reason, and, in doing so, I hope to set the argument from logical principles in context. I also lay out the aim of my thesis.

A Very Brief History of the Argument from Reason

In the recent history of the philosophy of mind, there has been a relatively heavy focus on consciousness and intentionality,¹ and, as a result, there has been a widespread awareness of the challenge they pose for materialism (or, alternatively, physicalism²). However, another salient capacity of the mind – that which Aristotle believed to be unique to human beings – has, in my estimation, been neglected with regard to the challenge it poses to materialism. The feature I am speaking of is, of course, the human capacity for *reasoning*, or our ability to make and evaluate

¹ A quick glance at the philosophy of mind section on PhilPapers.org (however unscientific and anecdotal this methodology is) shows the relative importance of consciousness and intentionality in contemporary research in the field. A search through the category headings reveals that “reason,” “reasoning,” and “rationality” are comparatively unimportant concerns.

² I am using ‘materialism’ synonymously with ‘physicalism’ following the usage of Robert Koons and George Bealer in *The Waning of Materialism* (Oxford: Oxford University Press, 2010); William Hasker, *The Emergent Self* (Ithaca: Cornell University Press, 1999); Karl Popper and John Eccles, *The Self and Its Brain* (London: Springer International, 1977); and others. For those philosophers who make distinctions between the two terms, ‘materialism’ is usually used to refer to the long since abandoned historical views of thinkers like Democritus, Lucretius, Hobbes, and d’Holbach—the sorts of theories that Descartes opposed—with their now defunct commitments to notions like reality being made up of *bits* of matter and causation requiring spatial contiguity, etc. Physicalism, then, is often used in contradistinction to materialism as being consistent with the findings of modern physics, and allows, in theory, whatever entities physics posits as real, allows for causation at a distance, etc. More precisely, then, I am using ‘materialism’ as an umbrella term, that encompasses both of these understandings. See especially Robert Koons, “Epistemological Objections to Materialism,” in *The Waning of Materialism* (Oxford: Oxford University Press, 2010): 281-306, for a definition that is broad enough to encompass both the historical and contemporary positions that go under the labels ‘materialism’ and ‘physicalism’. My concern has not been to determine what usage is most common, but merely to be clear about my own usage, idiosyncratic or not.

rational inferences on the basis of principles of inference. Surely consciousness and intentionality are fundamental aspects of the mind that demand explanation, but it is on our capacity to reason that the whole philosophical and scientific enterprise depends. Any complete, or even merely credible, account of the mind must include a plausible explanation of how it is we are able to engage in reasoning.

It turns out there is a long heritage, stretching back to the ancient Greeks, of arguments against materialism, or against the closely related metaphysical doctrines of *determinism* (for many, a consequence of materialism) and *naturalism* (of which materialism is the most common form), based on their supposed incompatibility with any adequate account of human reason. Such arguments can be found in Plato,³ Epicurus,⁴ Gregory of Nyssa,⁵ Augustine,⁶ Anselm,⁷ Descartes,⁸ and Kant.⁹ An argument from the apparent nature of human reasoning to the falsity of materialism, naturalism, or determinism is not new. But, in contemporary philosophy, reason hardly seems to register, in relative terms, as a serious threat to broadly materialistic explanations of mind.

Despite this general neglect, there has been a steadily growing interest in anti-materialist arguments based on human reason in the last thirty or so years—not necessarily among academic philosophers as a whole—but, in particular, among Christian philosophers and apologists.¹⁰ This

³ Plato, *Phaedo*, 97c-99b.

⁴ Epicurus, Aphorism 40 of the Vatican Collection: “He who says that all things happen by necessity can hardly find fault with the one who denies that all happens by necessity; for on his own theory this very argument is voiced by necessity.” Quoted in Karl Popper, *The Self and Its Brain* (London: Springer International, 1977), 75. See Cyril Bailey, *Epicurus: The Extant Remains* (Oxford: Clarendon Press, 1926), 112-113.

⁵ St. Gregory of Nyssa, *On the Soul and the Resurrection*, trans. Catharine P. Roth (Crestwood, NY: St. Vladimir’s Seminary Press, 1993), 40-41.

⁶ See Augustine, *On Free Choice of the Will*, translated by Thomas Williams (Indianapolis: Hackett, 1993), book 2.6 and 10, 40-41 and 49-50.

⁷ Anselm, *Monologion*, ch. 18.

⁸ Descartes, *Meditations* III and IV.

⁹ See Henry Allison, “Kant’s Refutation of Materialism,” *The Monist* 79 (1989): 190-209.

¹⁰ By ‘apologists’ I am referring to authors and academics who seek to defend Christianity from intellectual attacks, or who seek to provide arguments in its favour. In contemporary Christian culture in the United States, there

interest is owed largely to C. S. Lewis, one of the most popular Christian authors of the past century, and his 1947 book, *Miracles*.¹¹ In a chapter titled “The Cardinal Difficulty of Naturalism,” Lewis lays out an argument against naturalism that the critic, John Beversluis, labeled “the argument from reason.” The label stuck, and, although it is usually associated with C. S. Lewis, many arguments—whether against materialism, naturalism, or determinism—have been retroactively designated with the same name.

Others who published similar “arguments from reason” before Lewis include Arthur Balfour, J. B. Pratt, the biologist J. B. S. Haldane, and A. E. Taylor.¹² After Lewis, versions of the argument were discussed or presented by Norman Malcolm, J. R. Lucas, A. C. Ewing, Warner Wick, James Jordan, and Richard Taylor.¹³ More recent arguments from reason include

is a burgeoning industry in this field. See Paul K. Moser, “New Testament Apologetics, Arguments, and the End of Christian Apologetics as We Know It,” *Philosophia Christi* 17, no. 2 (2015): 385-395, for a discussion of the sociological background of contemporary Christian apologetics.

¹¹ C. S. Lewis, *Miracles: A Preliminary Study* (New York: HarperCollins, 2001).

¹² Arthur Balfour, *The Foundations of Belief* (London: Longmans, Green, and Co., 1895); J. B. Pratt, *Matter and Spirit* (New York: Macmillan, 1922); J. B. S. Haldane, *The Inequality of Man* (Harmondsworth: Penguin, 1937), 157; A. E. Taylor, “Freedom and Personality,” *Philosophy* 14 (1939): 259-80. I owe most of the references to Victor Reppert, *C. S. Lewis’s Dangerous Idea: In Defense of the Argument from Reason* (Downers Grove, IL: InterVarsity Press, 2003); Victor Reppert, “The Argument from Reason,” in *The Blackwell Companion to Natural Theology*, ed. William Lane Craig and J. P. Moreland (Malden, MA: Blackwell, 2009): 344-390; William Hasker, “The Transcendental Refutation of Determinism,” *Southern Journal of Philosophy* 11, no. 3 (1973): 175-183; and William Hasker, *The Emergent Self* (Ithaca: Cornell University Press, 1999). I am also indebted to Brandon Rickabaugh and Todd Buras, “The Argument from Reason and Mental Causal Drainage: A Reply to Peter van Inwagen,” *Philosophia Christi* 19, no. 2 (2017), 381-384, for some of their references to specific passages in the historical works, and for their extensive list of sources in one place. That said, I had compiled most of the sources on my own before their paper was published, and I have included a number of sources that they have excluded, whether purposely or not (e.g., Plato, Epicurus, Dallas Willard, and, most significantly, Karl Popper, whose exclusion seems a significant oversight on their part), and I discovered a novel source in Gregory of Nyssa that I have not seen previously noted.

¹³ Norman Malcolm, “The Conceivability of Mechanism,” *The Philosophical Review* 77, no. 1 (1968): 45-72; J. R. Lucas, *Freedom of the Will* (New York: Oxford University Press, 1970), 114-16; A. C. Ewing, *Value and Reality: The Philosophical Case for Theism* (London: George Allen and Unwin, 1973), 76-8; Warner Wick, “Truth’s Debt to Freedom,” *Mind* 73 (1964): 527-37; James N. Jordan, “Determinism’s Dilemma,” *Review of Metaphysics* 23 (1969): 48-66; Richard Taylor, *Metaphysics* (Englewood Cliffs: Prentice-Hall, 1963), ch. 7. For others see, Eric Mascall, *Christian Theology and Natural Science: Some Questions in Their Relations* (New York: Longmans, 1956), 214-16; Paul Weiss, *Nature and Man* (Carbondale, IL: Southern Illinois University Press, 1947), 23-6; A. C. MacIntyre, “Determinism,” *Mind* 66 (1957): 28-41; Lionel Kenner, “Causality, Determinism and Freedom of the Will,” *Philosophy* 29 (1964): 233-48; Sir Malcolm Knox, *Action* (London: Allen and Unwin, 1968), 68-80; Joseph M. Boyle, Germain Grisez, and Olaf Tollefsen, “Determinism, Freedom, and Self-Referential Arguments,” *The Review of Metaphysics* 26, no. 1 (1972): 3-37.

those put forward by William Hasker, J. P. Moreland, Alvin Plantinga, Dallas Willard, Angus Menuge, E. J. Lowe, Robert Koons, and Thomas Nagel.¹⁴ Other significant discussions of the argument are proffered by Michael Rea, Darek Barefoot, Todd Buras, John DePoe, Edward Feser, Stephen Barr, and Stewart Goetz¹⁵—but these are, in my estimation, more defenses of pre-existing versions than they are unique presentations of the argument.

Despite the many other versions of the argument, Lewis's version occupies its central place in the conversation about the argument from reason today because of its outsized influence. At the time of the original publication, Lewis's argument only received some token philosophical attention. The philosopher Elizabeth Anscombe engaged directly with Lewis's argument both through publishing a rebuttal and by participating in a formal debate with Lewis at Oxford's

¹⁴ William Hasker, "Why the Physical Isn't Closed," in *The Emergent Self* (Ithaca: Cornell University Press, 1999), 58-80; and "The Transcendental Refutation of Determinism," 175-183; J. P. Moreland, *Scaling the Secular City: A Defense of Christianity* (Grand Rapids, MI: Baker Books, 1987), 90-6; *The Recalcitrant Imago Dei: Human Persons and the Failure of Naturalism* (London: SCM, 2009), 67-103; Alvin Plantinga, *Where the Conflict Really Lies* (Oxford: Oxford University Press, 2011), 307-350; *Warrant and Proper Function* (New York: Oxford University Press, 1993), ch. 12; *Warranted Christian Belief* (New York: Oxford University Press, 2000), 227-40, 281-4, 350-1; Cf. Plantinga, *Where the Conflict Really Lies*, 310, fn. 4, for Plantinga's more complete list of versions of his argument; Dallas Willard, "Knowledge and Naturalism," in *Naturalism: A Critical Analysis* (Florence, KY: Routledge, 2000): 24-48; Angus Menuge, "Knowledge of Abstracta: A Challenge to Materialism," *Philosophia Christi* 18, no. 1 (2016), 7-27; Cf. "Beyond Skinnerian Creatures: A Defense of the Lewis-Plantinga Argument Against Evolutionary Naturalism," in *Agents Under Fire: Materialism and the Rationality of Science* (Lanham, MD: Rowman and Littlefield, 2004), 149-172; E. J. Lowe, *Personal Agency: The Metaphysics of Mind and Action* (New York: Oxford University Press, 2008), 179-98; "Substance Causation, Powers, and Human Ontology," in *Mental Causation and Ontology*, ed. S. C. Gibb, E. J. Lowe, and R. D. Ingthorsson (New York: Oxford University Press): 169-171; "Naturalism, Theism, and Objects of Reason," *Philosophia Christi* 15, no. 1 (2013): 33-45; Koons, "Epistemological Objections to Materialism"; Thomas Nagel, *Mind and Cosmos: Why the Materialist Neo-Darwinian Conception of Nature Is Almost Certainly False* (Oxford: Oxford University Press, 2012), 71-95. Rickabaugh and Buras claim Noam Chomsky, "The Case Against B. F. Skinner," *New York Review of Books*, December 30, 1971, 20-6, as a version of the argument, which only emphasizes my point below: what unites the purported "arguments from reason" is their general form, not their emphasis or specific content.

¹⁵ Michael Rea, *World Without Design: The Ontological Consequences of Naturalism* (New York: Oxford University Press, 2002), 177-93; Darek Barefoot, "A Response to Nicholas Tattersall's 'A Critique of Miracles by C. S. Lewis'" (2001), <http://www.secweb.org/index.aspx?action=viewAsset&id=89>; and "A Response to Richard Carrier's Review of C. S. Lewis's Dangerous Idea" (2007), http://www.infidels.org/library/modern/darek_barefoot/dangerous.html; Todd Buras, "On the Failures of Naturalism," *Review and Expositor* 111 (2014): 259-73; John DePoe, "The Self-Defeat of Naturalism: A Critical Comparison of Alvin Plantinga and C. S. Lewis," *Christian Scholars Review* 44 (2014): 9-26; Edward Feser, *Philosophy of Mind: A Short Introduction* (Oxford: Oneworld, 2005), 144-170; Stephen Barr, *Modern Physics and Ancient Faith* (Notre Dame, IN: University of Notre Dame Press, 2003), ch. 21-23; and Stewart Goetz, "The Argument from Reason," *Philosophia Christi* 15, no. 1 (2013): 47-62. See also Ian Markham, *Truth and the Reality of God: An Essay in Natural Theology* (Edinburgh: T&T Clark, 1998).

“Socratic Club,”¹⁶ and Anscombe’s criticisms led Lewis to significantly revise his argument and issue a second edition of *Miracles*. But this revised version generated little, if any, response in academic philosophy immediately afterward—a fact that should not be surprising given that Lewis was writing for a popular-level, Christian audience. Lewis’s argument, however, eventually grew in influence by inspiring later philosophers to make similar arguments. Alvin Plantinga, for example, acknowledges that his “evolutionary argument against naturalism” is a direct descendent of Lewis’s argument.¹⁷

The philosopher who has done the most to represent and promote the argument from reason in the past three decades is undoubtedly Victor Reppert. His book, *C. S. Lewis’s Dangerous Idea: In Defense of the Argument from Reason*,¹⁸ is not only an in-depth study of Lewis’s argument, but also a greatly expanded and heavily revised version of the original. Reppert’s book, along with his many papers on the subject,¹⁹ are in no small part responsible for the recent surge in academic interest in the argument.

Reppert’s most significant contribution to the discussion of the argument from reason has been his insight that Lewis’s argument from reason against naturalism is best understood as a

¹⁶ See Victor Reppert, “The Lewis-Anscombe Controversy: A Discussion of the Issues,” *Christian Scholars Review* 19, no. 3 (1989), for an in-depth discussion of Lewis’s interaction with Anscombe and her criticisms.

¹⁷ Plantinga, *Where the Conflict Really Lies*, 310, fn. 4, writes, “Among the ancestors of my argument are C. S. Lewis’s argument in *Miracles* (1947) and Richard Taylor in *Metaphysics* (1963). I first proposed the argument in “An Evolutionary Argument Against Naturalism,” *Logos* 12 (1991); it has also appeared in many other places, including *Warrant and Proper Function* (New York: Oxford University Press, 1993), chapter 12; The version presented here is the official and final version (I hope)....” See the footnote for the rest of Plantinga’s versions.

¹⁸ Victor Reppert, *C. S. Lewis’s Dangerous Idea: In Defense of the Argument from Reason* (Downers Grove, IL: InterVarsity Press, 2003).

¹⁹ Victor Reppert, “Causal Closure, Mechanism, and Rational Inference: A Response to Keith Parsons,” *Philosophia Christi* 3, no. 2 (2001): 473-483; “Confronting Naturalism: The Argument from Reason,” in *Contending with Christianity’s Critics*, ed. Paul Copan and William Lane Craig (Nashville: B&H Publishing, 2009), 26-46; “The Argument from Reason,” in *The Blackwell Companion to Natural Theology*, ed. William Lane Craig and J. P. Moreland (Malden, MA: Blackwell, 2009), 344-390; “Several Formulations of the Argument from Reason,” *Philosophia Christi* 5, no. 1 (2003): 9-33; “Some Supernatural Reasons Why My Critics Are Wrong: A Reply to Drange, Parsons, and Hasker,” *Philosophia Christi* 5, no. 1 (2003): 77-89; “The Argument from Reason and Hume’s Legacy,” in *In Defense of Natural Theology: A Post-Humean Assessment*, ed. James F. Sennett and Douglas Groothuis (Downers Grove, IL: InterVarsity, 2005), 253-70; and “The Lewis-Anscombe Controversy.”

whole suite of arguments – six, by Reppert’s count. The six distinct arguments that he isolates are

- (i) the argument from intentionality,
- (ii) the argument from truth,
- (iii) the argument from mental causation,
- (iv) the argument from the psychological relevance of logical laws,
- (v) the argument from the unity of consciousness, and
- (vi) the argument from the reliability of our rational faculties.²⁰

This analysis, of course, renders the name “argument from reason” a misnomer. It ought to be “arguments from reason.” But, more importantly, Reppert’s analysis provides clarity when trying to understand the relationships between the various versions of the argument. Alvin Plantinga’s evolutionary argument against naturalism, for instance, is heavily focused on the reliability of our rational faculties; whereas William Hasker’s self-designated “argument from reason” is focused very heavily on mental causation. To classify these two arguments as substantially the *same* argument comes across as somewhat superficial upon a careful reading. While these arguments might have some overlap in content, and while they are similar in their most general form (i.e., “Materialism is false because it cannot account for reason”), they are quite distinct in their *emphasis*.

What is common to all versions of the arguments from reason, then, is their general form. They all start with a supposedly *essential* element or constituent of reasoning (e.g., mental causation, intentionality, etc.), and then claim an in principle incompatibility between that

²⁰ See Reppert, “Several Formulations of the Argument from Reason,” in *C. S. Lewis’s Dangerous Idea*, 72-85.

essential feature of reason and materialism, naturalism, or determinism. Some versions also add a positive conclusion, arguing *to* theism or substance dualism.

The following two examples capture both the common structure of the arguments, but also the clarity that Reppert's categories provide. J. B. Pratt, who wrote prior to Lewis, provides a summary of his argument from reason against materialism:

To say that a thought is even in a minute degree a co-cause of the following thought would be to wreck Materialism. In the process known as reasoning, therefore, it is a mistake to suppose that consciousness of logical relations has anything to do with the result. It is not logical necessity but mechanical necessity that squeezes out our so-called reasoning conclusions.²¹

Using Reppert's categories, we see that Pratt's summary focuses on *mental causation* and the *psychological relevance of logical laws*. If materialism is true, the content of our thoughts, in particular, our awareness of logical relations, has no causal import in determining our conclusions. The implication is, if materialism is true, none of our rational inferences is justified.

E. J. Lowe argues from reason against determinism:

If what [determinists] say is *true*, then the movements of their minds that have led them to say it are simply consequences of certain causal laws governing those movements. Hence, these movements of their minds may at most *replicate* valid reasoning but do not and cannot *constitute* it. Consequently, their belief in the conclusion—that we have no rational free will—is not a *rational* held belief.²²

Like Pratt's argument above, the focus here is clearly on mental causation. This is more clear in context. Lowe writes, "[I]f the movement of the mind from premises to conclusion were purely *causally determined*, then the mind could *not* be said to embrace the conclusion in virtue of

²¹ James Pratt, *Matter and Spirit* (London: Forgotten Books, 2012), 19. Quoted in Brandon Rickabaugh and Todd Buras, "The Argument from Reason and Mental Causal Drainage: A Reply to Peter van Inwagen," *Philosophia Christi* 19, no. 2 (2017), 382.

²² Lowe, "Substance Causation," 171. Emphasis in the original. This example, as well as the previous one, was suggested to me by Rickabaugh and Buras, "The Argument from Reason, and Mental Causal Drainage," 382.

apprehending the support that the premises confer upon the conclusion.”²³ The *content* of our thoughts must be relevant to the conclusions we draw in order for our conclusions to be rational.

Now, whether or not Pratt’s and Lowe’s arguments are defensible is not my concern here. My concern is rather to demonstrate how disparate versions of the argument from reason can be broken down according to Reppert’s categories—his six types of argument.

Karl Popper’s Argument from Logical Principles

Karl Popper was probably the most prominent philosopher in the 20th century to advance a version of the argument from reason.²⁴ Although Popper’s argument seems independent of Lewis’s, both Popper and Lewis, curiously enough, begin their arguments by quoting biologist J. B. S. Haldane’s concise argument against materialism.²⁵ What makes Popper’s version of the argument stand out—specifically, his argument in *The Self and Its Brain*—is that it focuses almost entirely on what Reppert calls the “psychological relevance of logical laws” in our making and evaluating rational inferences. While other versions of the argument from reason, Lewis’s included, address the psychological relevance of logical laws as an essential element of rational inference, they usually address it in a tangential way, whereas in Popper’s version of the argument, logical laws form the core of the argument against materialism. His version of the

²³ Lowe, “Substance Causation,” 170.

²⁴ See Popper, *The Self and Its Brain*, 75-81; and Karl Popper, “Of Clouds and Clocks,” in *Objective Knowledge: An Evolutionary Approach* (Oxford: Clarendon Press, 1972), 206-255.

²⁵ See Popper, *The Self and Its Brain*, 75; and, Lewis, *Miracles*, 22. Popper quotes from Haldane, *The Inequality of Man*, 157: “...if materialism is true, it seems to me that we cannot know that it is true. If my opinions are the result of the chemical processes going on in my brain, they are determined by the laws of chemistry, not of logic.” Popper rightly points out that the latter of the two sentences is not a valid deductive inference. Lewis overlooked this error in Haldane’s argument (though the mistake, arguably, does not materially affect the rest of his argument against naturalism). Lewis incorrectly concludes: “Thus a strict materialism refutes itself for the reason given long ago by Professor Haldane: ‘If my mental processes are determined wholly by the motions of atoms in my brain, I have no reason to suppose that my beliefs are true...and hence I have no reason for supposing my brain to be composed of atoms.’” (*Possible Worlds*, p. 209)” Lewis is quoting from J. B. S. Haldane, *Possible Worlds* (London: Chatto & Windus, 1930), 209.

argument from reason is close to a pure version of the argument from the psychological relevance of logical laws, or what I will call “the argument from logical principles.”

Based on my own survey of the literature on the argument from reason, Popper’s argument, and the argument from logical principles more generally, is comparatively neglected. It has neither received the critical attention, nor the positive development, of other versions. The argument from the reliability of our rational faculties, for instance, is highly developed by virtue of being the focus of Alvin Plantinga’s well-known “evolutionary argument against naturalism,” and, as a result, has also received careful, critical attention.²⁶ Likewise, mental causation and intentionality are major areas of research in the philosophy of mind, so, insofar as a version of the argument from reason focuses on those elements of rationality, it is able to draw on a highly refined background literature. A similar point could be made with regard to the arguments from truth²⁷ and the unity of consciousness, although to a lesser degree. Regardless, there is work to be done in giving the argument from logical principles a thorough and careful analysis as a standalone argument.

Thesis Statement

My thesis aims to provide, or more accurately, to make a *start* toward providing, the careful analysis of the argument from logical principles that is missing from the discussion of the argument from reason. Popper’s argument in *The Self and Its Brain* is the most clear-cut example of this form of the argument from reason, aside from Reppert’s own formulation of it in *C. S. Lewis’s Dangerous Idea*. For this reason, I will start by abstracting a generalized form of the

²⁶ See James Beilby, *Naturalism Defeated?: Essays on Plantinga’s Evolutionary Argument Against Naturalism* (Ithaca: Cornell University Press, 2002), for a book-length discussion of Plantinga’s argument.

²⁷ See, for instance, Greg Frost-Arnold, “Was Tarski’s Theory of Truth Motivated by Physicalism?” *History and Philosophy of Logic* 25 (November 2004): 265-280.

argument from both Popper and Reppert. The next clearest examples are to be found in Thomas Nagel's "Cognition" in *Mind and Cosmos*; E. J. Lowe's "Naturalism, Theism, and Objects of Reason"; Angus Menuge's "Knowledge of Abstracta"; William Hasker's "Why the Physical Isn't Closed" in *The Emergent Self*; and J. P. Moreland's *The Recalcitrant Imago Dei*. But, just as Reppert was able to distill the elements of this specific argument from Lewis's wide-ranging argument in *Miracles*, the argument from logical principles can be found in others, as well, though it is most often implicit, rather than explicit. For that reason, I will draw from any of the relevant arguments from reason in my analysis as they apply. I will approach the argument strictly as an *anti-materialist* argument.

My primary aim in this thesis is not to defend a version of the argument from logical principles or to falsify materialism. Rather, my aim is (i) to clarify the argument, especially with regard to what issues are at stake (e.g., the ontological status of logical principles); (ii) to develop the argument beyond Popper and Reppert's initial versions of it; and (iii) to evaluate it as an anti-materialist argument. In other words, my goal in this thesis is, on one hand, to build the argument up, and, on the other hand, to attempt to tear it down by subjecting it to the strongest (but still fair) forms of criticism I can marshal against it, while seeking to be honest about both its strengths and weaknesses. Of course, there is a limit as to how much back and forth is possible in a project like this (and no doubt there are areas that I have focused too much on, and other areas that I have focused too little). While it would not be possible to address every objection at every step, as part of my method, I have sought to consider as many alternatives as possible, especially those that are considered live options in contemporary philosophy. In practice, I will try to defend the argument as far as possible, but my hope is that by doing so I will make its weak spots more

clear, not less. In short, the aim of this thesis is to analyze the argument from logical principles in depth and to evaluate its merits as an anti-materialist argument.

I will start by abstracting a generalized version of the argument from logical principles from Popper and Reppert. I will lay out the key premises, and establish the target of the argument, the type of the argument, and the distinctness of the argument (Chapter 2). The remaining chapters will be discussions of the issues surrounding each key premise. Chapter 3 will cover the ontological status of logical principles, chapter 4 will cover the role of logical principles in rational inference, and chapter 5 will cover the topic of our knowledge of logical principles.

II. The Argument From Logical Principles

It is one of the characteristics of most late 19th and 20th Century philosophy that it denies the very conditions which alone make philosophy possible. But then it assumes those very conditions in that it rejects them precisely *on the basis of* philosophical arguments. Essences and their accompanying claims about what *must* be the case are inevitable, and the writings of Nietzsche, Derrida, Richard Rorty etc., are full of them. The result is either the surrender of philosophy as a cognitive enterprise, or the surrender of real truth claims about language, consciousness and the world, or the continuation of such claims in bad faith. The latter is the course usually chosen, for example by Wittgenstein, Quine and Derrida.

-Dallas Willard, "Truth in the Fire"

The argument [from reason]...takes a number of forms, but in all instances it attempts to show that the necessary conditions of logical and mathematical reasoning, which undergird the natural sciences as a human activity, require the rejection of all broadly materialist worldviews.

-Reppert, "The Argument from Reason"

A. *The Argument from Logical Principles*

Reason is, to put it mildly, a salient feature of our mental life. We can distinguish between *reason* and *reasoning*. Reason is the faculty that allows us to, among other things,²⁸ recognize truth and falsity and perceive logical relations. Reasoning is the act of making and evaluating rational inferences. Reasoning is the employment of the faculty, the act, the process. Reasoning, it turns out, is the process by which we attain almost all of our knowledge that is not gained by immediate acquaintance. It is through inference that we reach very nearly all of our philosophical conclusions. The great modern edifice of scientific knowledge has been built one inference at a time. Without rational inference, science would not exist. Reasoning, of course, is not solely the domain of intellectuals and academics. Everyone makes regular use of their reason, even if not to the extent that they should. Victor Reppert, with a hint of understatement, writes, "If there are no rational inferences, our mental lives are far from what we all suppose them to

²⁸ I would include, minimally, in those "other things" the capacity to recognize truth and falsity and the capacity to perceive logical relations.

be.”²⁹ Rational inference is essential, not only for almost all of what we claim to know, but also for our common sense view of our own mental life.

But reasoning, like consciousness, creates a riddle or puzzle that is not easy to solve—especially, some would claim, for a materialist conception of mind, which is the dominant view in contemporary philosophy. According to Thomas Nagel,

“...there is a real problem about how such a thing as reason is possible. How is it possible that creatures like ourselves, supplied with the contingent capacities of a biological species whose very existence appears to be radically accidental, should have access to universally valid methods of objective thought?”³⁰

This is the challenge before us, regardless of what overall worldview we subscribe to: How do we explain this ability we have to move from belief to belief in a way that yields true conclusions, and how do we consciously *recognize* that one belief follows logically from another? The power of reason, arguably, is what sets human beings apart from all other species on this planet. It cries out for explanation. The subject of this thesis is an argument that claims, quite controversially, that materialism *cannot*, even in principle, account for reason—which amounts to the conclusion that materialism is either self-defeating or false.

In the previous chapter I set out a very brief history of the argument from reason. In this chapter, I will expand the initial outline by discussing specific examples of the argument from logical principles, with the goal of generalizing the argument in order to (a) amalgamate the arguments into, as much as possible, a plausible version of the argument, and (b) identify the key premises in the argument to set up an in-depth analysis of each. I will also discuss some general

²⁹ Reppert, *C. S. Lewis's Dangerous Idea*, 73.

³⁰ Thomas Nagel, *The Last Word* (Oxford: Oxford University Press, 1997), 4. He continues: “It is because this question seems unanswerable that sophisticated forms of subjectivism keep appearing in the philosophical literature, but I think they are no more viable than “crude” subjectivism.” In the footnote to this passage, he writes, “In general, I’ll use the term “subjectivism” rather than “skepticism,” to avoid confusion with the kind of epistemological skepticism that actually relies on the objectivity of reason, rather than challenging it.”

concerns about the argument—viz., the target of the argument; its form, type, and structure; and the sorts of objections it raises. This chapter will set up the subsequent chapters, which will be comprised of in-depth analyses of the key premises—the case for them, the objections against them, and alternative explanations consistent with materialism.

As mentioned previously, the argument from logical principles is a specific version of the argument from reason. It argues *from* a supposedly essential element of reasoning (our knowledge of logical principles and their role in rational inference) *against* essential elements in materialism. This distinct form of the argument from reason is directly presented in, or can be distilled from, a smaller subset of arguments that have gone under the more general label—in particular, the arguments of Karl Popper, Thomas Nagel, William Hasker, Angus Menuge, C. S. Lewis, Dallas Willard, J. P. Moreland, Victor Reppert, and E. J. Lowe.

For the purposes of developing a generalized version of the argument from logical principles, I will look at two arguments: first, Karl Popper’s argument in *The Self and Its Brain*; second, Victor Reppert’s argument in *C. S. Lewis’s Dangerous Idea*. I will draw on the other examples of the argument only partially in this chapter, but to a much greater extent in the chapters to follow where I lay out their collective defense of the key premises.

Building a Plausible Version of the Argument

Probably the most distinct, standalone version of the argument from logical principles can be found in Karl Popper’s *The Self and Its Brain*. In keeping with any other version of the argument from reason, he concludes that “materialism is self-defeating; it cannot seriously claim to be supported by rational argument.”³¹ His challenge for materialism focuses on our knowledge and use of logical principles in making rational inferences and evaluating arguments. Logical

³¹ Popper, *The Self and Its Brain*, 76.

principles, he claims, must be “abstract non-corporeal World 3” objects. Therefore, if materialism were true, we would be unable to make justified rational inferences, or recognize valid or invalid arguments.

Popper, like C. S. Lewis before him, based his argument on that of J. B. S. Haldane (despite Haldane having recanted his argument as an “error”). Haldane originally argued that “if materialism is true, it seems to me that we cannot know that it is true. If my opinions are the result of the chemical processes going on in my brain, they are determined by the laws of chemistry, not of logic.”³² This argument, as Haldane came to recognize with the development of new technology, has an obvious counter-example: the computer. A computer is a physical system, the operations of which are determined both by the laws of physics (and chemistry) *and* in accordance with the principles of logic.³³ Therefore, the argument is not sound.

A1. Popper’s Reconstructed Argument

Popper acknowledged that Haldane’s argument, as he had written it, was flawed, but he believed it could be revised in order to make it “unexceptionable.” He lays out his argument in the form of a dialogue between the “interactionist” (Popper), and the “physicalist” (a generalized representation of physicalist positions).

Popper concedes that the computer is a physical system that operates in accordance with the laws of logic, but he counters that the computer is “designed by us”—that is, by *rational* minds—meaning that the rationality of the computer is derived from the rationality of its

³² Quoted in Popper, *The Self and Its Brain*, 75.

³³ This claim, that a computer operates in “accordance with the principles of logic”, is disputable. In a sense, that depends entirely on *how the operations of the computer are interpreted*. A waterfall, for example—any waterfall, for that matter—could be interpreted as “operating in accordance with the laws of logic” if we assigned a value or meaning to each molecule of H₂O falling over the edge. “Each molecule of H₂O that falls over the edge means ‘1 is greater than 0’.” Such an arbitrary designation would mean that the waterfall “operates in accordance with the principles of logic,” and unexceptionally so.

designers. Human minds are able to design and construct computers (which require “a great amount of logical and mathematical theory”) because of our knowledge of “World 3 objects”³⁴—a category to which principles of mathematics and logic belong. According to Popper’s ontology, laid out earlier in his book, certain of these World 3 objects are “unembodied,” that is, non-physical.³⁵ In Popper’s terminology, they are not embodied or incarnated in any “World 1” (physical) objects. The “standards of validity”³⁶ or the “standards of logic” are just such non-physical, abstract objects.³⁷ The primary aim of his argument is to demonstrate that logical principles belong to this category of, in his words, “abstract non-corporeal World 3” objects.

The physicalist in the dialogue, in contrast, denies that “non-corporeal World 3 objects” exist. The physicalist claims that World 3 objects, and all other World 3 objects, are physical and physical only. Specifically, the standards of logic are constituted by the “states or dispositions of the brain or people.”³⁸ The physicalist, then, is not a realist about abstract objects.

Both the interactionist and the physicalist, however, appear to affirm the objective reality of logical principles, and their importance for making and evaluating rational inferences. (This is partially ambiguous, since, although the physicalist explicitly affirms the reality of logical principles,³⁹ the physicalist posits materialist explanations of the principles of logic that can be construed as *subjectivist* theories. Also, Popper claims at the end of the dialogue that materialism

³⁴ Popper, *The Self and Its Brain*, 76; 77.

³⁵ For instance, he writes that some World 3 objects are “not embodied or incarnated in World 1 objects.”

³⁶ Ibid., 77.

³⁷ He does include some physical objects as part of World 3. For instance, he explicitly includes physical computers as part of World 3. See Ibid., 76: “Both the computer and the laws of logic belong emphatically to what is here called World 3.”

³⁸ Ibid., 77.

denies the objective reality of logical principles.⁴⁰) Thus, the core dispute in the dialogue is over whether logical principles are abstract objects.

For the rest of the chapter, the back-and-forth dispute between the physicalist and the interactionist focuses on whether the standards of logic can be accounted for in a manner consistent with materialism, or if they must be World 3 abstract objects. It is more or less assumed, rather than explicitly articulated (the intervening logical steps are omitted), that if the standards of logic are, in fact, non-physical, abstract objects, then materialism is self-defeating.

Evolutionary Explanation of Reason

The physicalist argues that reason is explicable within an overall materialist metaphysics by, first, using evolutionary theory to explain its origin, and, second, using “dispositional capacities” to explain what it consists of. The physicalist states,

“Our brains in turn are not really designed – they are largely the products of natural selection. They are so selected as to adapt themselves to their environment; and their dispositional capacities for reasoning are the result of this adaptation. Reasoning consists in a certain kind of verbal behaviour and in acquiring dispositions to act and to speak.”⁴¹

Popper agrees with the physicalist insofar as the evolutionary explanation is taken to explain the *origin* of human reasoning. (He does not argue, for instance, for any kind of teleological or design-based explanation of human minds). Popper’s agreement with an evolutionary explanation, however, given his conclusion, carries with it the implication that he excludes physicalism from the definition of (neo-Darwinian) evolutionary theory. (If physicalism were built in to the definition, as it often is, the definition would thereby, in this context, beg the

⁴⁰ Specifically, Popper writes, “[T]hese standards [that is, logical principles] appear from the materialist point of view as an illusion, or at least as an ideology.” Ibid., 81.

⁴¹ Ibid., 76.

question in physicalism's favour.) But Popper does take issue with the notion that reasoning is nothing more than a "dispositional capacity."

The Key Question in Popper's Argument: By What Standards Is It Valid or Invalid?

Even though he agrees that evolutionary history and different forms of learning explain the *origin* of our capacities to reason, he does not believe that dispositional capacities, shaped and honed by natural selection, exhaust what reasoning *consists of*. Popper writes, "And although the emergence of World 3 can be, partly, explained by natural selection, that is to say, by its usefulness, the principles of valid inference, and their applications, which belong to World 3, cannot all be explained in this way."⁴² The problem with the view that principles of inference can be explained exhaustively by dispositional states, says Popper, is made clear when we ask the question, By what standard are any given states or dispositions declared *valid* or *invalid*? The implication of this question is that we need to refer to an "outside" standard, so to speak—a standard beyond the physical dispositions themselves—in order to determine whether a particular inference made by a human mind (or a particular operation in a computer, or a particular proof in a logic textbook, etc.) is valid or invalid.

Consider the key exchange in the dialogue⁴³ in which Popper makes his central point:

Interactionist Do computers or brains never make mistakes?

Physicalist Of course computers are not perfect. Nor are human brains. This goes without saying.

Interactionist But if so, you need World 3 objects, such as standards of validity, which are *not* embodied or incarnated in World 1 objects: you need them to be able to appeal to the *validity of an inference*; yet you deny the existence of such objects.

⁴² Ibid., 78.

⁴³ The exchange is slightly abbreviated. I have omitted several lines at the ellipses.

Physicalist I do deny the existence of non-corporeal World 3 objects; but I do not quite see your point yet.

Interactionist My point is quite simple. **If computers or brains may fail, what do they fall short of? ... If there is a mistake – mind you a logical mistake – by what standard is it a mistake?**

Physicalist By the standards of logic.

Interactionist I fully agree. But these are abstract non-corporeal World 3 standards.

Physicalist I do not agree. They are not abstract standards, but...

The physicalist goes on in the dialogue to suggest a possible (physical) alternative to abstract non-corporeal World 3 objects as an explanation of what the standards of logic that we appeal to when we judge an inference valid or invalid are.⁴⁴ We will look briefly at the alternatives the physicalist suggests in a moment. But it is important to see what Popper is arguing here. In effect, he appears to be saying that no matter what physical alternative the physicalist comes up with, one could always ask the further question, “By what standard is it valid or invalid?” If that is a meaningful question—that is, if the thing in question is not seen *in itself* to constitute the principle of logic—then that thing cannot *be* the standard of logic itself, but merely something consistent (or inconsistent) with it.⁴⁵ The only candidate for that role, according to Popper, are “abstract non-corporeal World 3 standards.”

⁴⁴ The physicalist in this dialogue accepts that there are standards of logic that we appeal to when we judge an inference valid or invalid. The physicalist, then, is not a relativist or subjectivist about logic, which is an alternative way to reject Popper’s conclusion. The anti-realist about standards of logic denies that there is anything at all to be explained.

⁴⁵ Popper is thinking of deductive standards in the dialogue.

Physicalistic Alternatives to Abstract Non-Corporeal World 3 Objects as the Standards of Logic

The physicalist suggests three alternative explanations of what constitutes the standards of logic: (1) the laws of logic constitute the majority view of logicians (a form of conventionalism about logical standards)⁴⁶; (2) the laws of logic have been determined by what is useful for survival (a form of pragmatism, *a la* William James⁴⁷, about logic);⁴⁸ and (3) the laws of logic could be defined physically by appealing to the functioning of a particular computer or ‘logical’ machine.⁴⁹

Conventionalism About Logical Principles

The physicalist first states that the standards of logic “are not abstract standards, but the standards or principles which the great majority of logicians – in fact, all except a lunatic fringe – are disposed to accept as such.”⁵⁰ This is, arguably, Popper’s representation of *conventionalism* about logical truths⁵¹—roughly, in Paul Benacerraf’s words, “the cluster of views that the truths

⁴⁶ Ibid., 77.

⁴⁷ This is according to Karl Popper’s interpretation of James. Mark Migotti, in a private conversation, indicated that it is a misinterpretation of James’s pragmatism to state that he believed, without appropriate qualifications, “truth is what is useful.” Such a claim appears vulnerable to a straightforward objection, i.e. the question: “Is *that* claim true?” (Does it *correspond* to reality? Or is it merely useful?) But this is, according to Migotti, a failure to comprehend, on the whole, James’s system, and James himself dismisses this simple objection as such.

⁴⁸ Ibid., 80.

⁴⁹ Ibid., 79.

⁵⁰ Ibid., 77.

⁵¹ Popper was a noted critic of conventionalism. The Collier-Macmillan *Encyclopedia of Philosophy* defines the term “conventionalism” as follows:

“Conventionalism is the name usually given to any view that scientific laws and theories are conventions that depend upon our more or less free choice from among alternative ways of ‘describing’ the natural world. The chosen alternative is said to be no truer than others, only more convenient. The view involves more than recognition that the way in which we describe the world depends on our linguistic conventions and **more than the belief that the statements of pure mathematics and logic are ‘true’ by virtue of these conventions.** It involves also the assertion that *any* coherent system of mathematics or logic can be applied to nature. **It is easy to misinterpret conventionalism, and its critics have often done so by regarding it as making scientific conclusions the results of arbitrary decisions. It is doubtful that this is fair to any actually held conventionalistic theory.**” Peter Alexander, “Conventionalism,” in *The Encyclopedia of Philosophy*, ed. Paul Edwards (New York: Macmillan, 1967), 216.

of logic and mathematics are true (or can be made true) in virtue of explicit conventions where the conventions in question are usually the postulates of the theory.”⁵² (I am leaving aside questions as to the accuracy of precision of Popper or Benacerraf’s representation, but it should be noted that Popper’s representation of conventionalism in the dialogue comes much closer to a basic *relativism* than to something like Carnap’s “linguistic conventionalism,” which I discuss in chapter 3.) Popper responds by asking a version of his key question: “Are [the logicians] so disposed because the principles are valid, or are the principles valid because logicians are disposed to accept them?”⁵³ The physicalist (as Popper represents him) cannot concede that the validity of the standards is prior to the logicians affirmation of them because “this would admit the existence of non-corporeal and thus of abstract standards or principles whose existence [he] den[ies].”⁵⁴ Yet the physicalist must, at the same time, give an explanation of the “proper” or “valid” principles.

In short, Popper’s criticism of conventionalism about the standards of logic is to point out that it would need to rely on *deeper* principles, beneath the conventional ones, in order to establish itself.

Pragmatism About Logical Principles

In order to get around Popper’s question, the physicalist next attempts to posit a form of pragmatism about logical principles. As part of this explanation, he returns to the underlying notion that reasoning is a “dispositional capacity” shaped by our evolutionary history. The “valid

Within the article, Popper is listed as a prominent critic of conventionalism: “K. R. Popper also criticizes conventionalism, regarding as its source the inability of some philosophers to believe that the simplicity of nature revealed by physics can be anything but a human creation. **He gives a description of conventionalism that is difficult to recognize as the view of anyone usually considered a conventionalist.**” Ibid., 218.

⁵² Paul Benacerraf, “Mathematical Truth,” *The Journal of Philosophy* 70, no. 19 (November 1973), 676. Benacerraf, it must be noted, concedes that his definition is a rough one: “Once more, I will probably do them all an injustice by lumping together a number of views which their proponents would most certainly like to keep apart.” Ibid.

⁵³ Popper, *The Self and Its Brain*, 77.

⁵⁴ Ibid., 77.

standards” of logic, according to the physicalist, are “certain ways of verbal behaviour, or of connecting some beliefs with others; *ways which have proved useful in the struggle for life*, and which therefore have been selected by natural selection, or learned by conditioning, perhaps in school, or otherwise.”⁵⁵ Along these lines, the physicalist later asks, “Could we not simply accept a suggestion of William James’s and call a theory true if it is useful? And could we not similarly call an inference valid if it is useful?”⁵⁶

Popper, of course, rejects pragmatism, both with regard to truth and with regard to logic. He states that “a theory may be true even if its informative content is negligible, or nil: a tautology like ‘All tables are tables’ or perhaps ‘ $1 = 1$ ’ is true; but it has no useful informative content.”⁵⁷ Likewise, with regard to logic, Popper states that “a valid inference always transmits truth, but not always usefulness. It cannot therefore be shown that every valid inference is a useful instrument, or that the routine of drawing valid inferences is as such always useful.”⁵⁸ In other words, if usefulness truly were the basis of the validity of inferences, then there would not be exceptions to the usefulness of valid inferences.

The Standards Can Be Defined Physically by Appeal to a Particular Computer

Lastly, the physicalist claims that the standards of logic could be defined physically (as opposed to by appeal to non-physical, abstract objects) by appeal to a particular physical specimen, say, a particular computer that is judged to be a good example of logical functioning. Its outputs, given its inputs, would be the gold standard, like the length of rod stored in France used for determining the official length of a metre, only for “valid” and “invalid” inferences. Popper dismisses this suggestion by pointing out that the particular computer in question could

⁵⁵ Ibid., 78.

⁵⁶ Ibid., 80.

⁵⁷ Ibid.

⁵⁸ Ibid.

break down. The implication (though not the explicit claim) is that another “outside” standard of validity would need to be appealed to in that case (not to mention that it would seemingly be required to determine which computer functioned “logically” in the first place, in order to avoid the standard being arbitrary⁵⁹).

Popper’s Argument in Syllogistic Form

In order to aid with generalizing the argument from logical principles based on Popper’s specific argument, the following is a step-by-step summary of Popper’s argument in syllogistic form. Popper’s argument, as it is presented in a short section of his book⁶⁰, cannot be understood fully in isolation. He develops his argument over the course of the first section of the book, establishing key premises before he gets to the short section where he makes his argument.

Popper establishes the first key premise early on in his discussion of what materialism entails:

⁵⁹ The sorts of responses that a physicalist might make with regard to this suggestion would relate to the responses that a conventionalist and pragmatist might make. I cover that discussion in chapter 3.

⁶⁰ See Section 21, “A Revised Form of J. B. S. Haldane’s Refutation of Materialism,” in *The Self and Its Brain*, 75-81.

Premise 1: If materialism is true, then causal closure is true. All forms of “materialism” or “physicalism,” according to Popper, “assert that the physical world – what I am calling ‘World 1’ – is self-contained or *closed*...It is of decisive importance, and I take it as the characteristic principle of physicalism or materialism.”⁶¹ Causal closure of the physical domain, then, is not only an essential premise in his argument, it is, as he re-emphasizes, the “fundamental principle of physicalism.”⁶²

Popper explains what he means by this principle: “By this I mean that physical processes can be explained and understood, and must be explained and understood, entirely in terms of physical theories. I call this the physicalist principle of the closedness of the physical World 1.”⁶³ Based on his understanding of this principle, another key premise follows—or, at least, is implied:

Premise 2: If causal closure is true, we cannot know any non-physical, abstract, World 3 objects. Based on Popper’s definition of causal closure, if materialism is true, then our knowledge and use of logical principles in making and evaluating rational inferences will have to be explained “entirely in terms of physical theories.” The premise, then, is a direct consequence of the fact that there could be no interaction between the physical World 1 and the non-physical World 3. Popper never explicitly states that causal closure entails that we cannot have knowledge of non-physical, abstract objects, but it is implicit in his argument. .

This premise can also be inferred from the following case that Popper makes *for* interaction between World 3 and World 1, something which, he states *explicitly*, the physicalist must deny. In the following passage, Popper references the correspondence between Russell and Frege regarding the latter’s already written, and partially printed, *Grundgesetze*. Russell’s letter

⁶¹ Ibid., 51. Emphasis in original.

⁶² Ibid., 53.

⁶³ Ibid., 51.

made Frege aware of a “self-contradiction involved in its foundation,” which had “been there, objectively, for years,”⁶⁴ leading Frege to write, “Arithmetic is tottering.”⁶⁵ Popper writes:

Thus there is interaction between (a) the physical, or partly physical, event of Frege’s receiving Russell’s letter; (b) the objective hitherto unnoticed fact, belonging to World 3, that there was an inconsistency in Frege’s theory; and (c) the physical, or partly physical, event of Frege’s writing his comment on the (World 3) status of arithmetic.

These are some of the reasons why I hold that World 1 is not causally closed, and why I assert that there is interaction (though an indirect one) between World 1 and World 3. It seems to me clear that this interaction is mediated by mental, and partly even conscious World 2 events.

The physicalist, of course, cannot admit any of this.⁶⁶

Popper makes it clear that the World 3 object is a non-physical, *logical fact*, namely, a “self-contradiction,” that interacts, via the mental world (World 2), with the physical world (World 1)—*something that would not be possible were materialism true*, according to Popper. It seems reasonable, then, to infer that Popper understood knowledge of World 3, abstract objects to be impossible if materialism, and thus, causal closure, were true.

The next key premise in Popper’s argument is his central claim: **Premise 3: The laws of logic are non-physical, abstract (World 3) objects.** He states explicitly, and repeatedly, that logical principles are “abstract noncorporeal World 3 standards.”⁶⁷ His defense of this claim takes the following form: (1) the principles of logic are *objectively* real. That is, they exist independent of what anyone thinks or feel about them. (2) The *only* way for principles of logic to be objective standards that allow us to judge validity is for them to be non-physical, abstract

⁶⁴ Ibid., 56.

⁶⁵ Ibid., 57.

⁶⁶ Ibid.

⁶⁷ Ibid., 77.

objects. That is, no physical explanation can succeed in accounting for the principles of logic. Therefore, (3) they are non-physical, abstract objects.

Sub-premise 3.1: The principles of logic are *objectively* real. We know that the principles of logic are real, according to Popper, because they have causal effects in World 1, the physical world. Responding to the suggestion of pragmatism about the principles of logic, he says that, although “standards belong to World 3, ...they are useful for survival; which means that they have causal effects in the physical world, in World 1.”⁶⁸ And, according to Popper, “[t]his causal action upon World 1 is precisely the reason why I call World 3, including its abstract objects, ‘real’. If you admit that conformity with logical standards is useful for survival, you admit the usefulness of logical standards, and so their reality.”⁶⁹ Here, Popper can be interpreted as arguing against a form of *subjectivism* about logical principles—in particular, the notion that they do not independently exist, but depend on our beliefs about them for their nature. We have to admit to their objective existence, he believes, because logical principles have causal effects, like causing philosophy professors to write *modus ponens* on the chalkboard, or to mark cases of affirming the consequent incorrect on a logic quiz, or to send a letter to a colleague pointing out a contradiction in his work.

There is certainly room for other interpretations regarding this premise, or for adding additional premises. Popper does seem to indirectly, obliquely, touch on other ostensible characteristics of the principles of logic, such as *normativity*, *necessity*, *eternality* or *timelessness*, and *apriority*, but such an interpretation runs the risk of reading into the text what wasn’t intended by the author. Regardless of whether these further characteristics are present or not (I would argue they are —intentionally or not—but only implicitly), the argument’s form

⁶⁸ Ibid., 79.

⁶⁹ Ibid.

would be the same: “The principles of logic are X, Y, and Z (and so on). No physical explanation can account for characteristics X, Y, and Z. Only non-physical, abstract objects could explain them. Therefore, logical principles are abstract objects.”

One reason for refraining from reading all of these additional characteristics into Popper’s argument is that the explicit dispute between the physicalist and interactionist is over whether the standards are *physical* or not—not whether they are, for example, normative, or necessary, etc. The absence of an explicit discussion of these additional characteristics is a shortcoming of Popper’s argument.

Sub-premise 3.2: No physical explanation can succeed in accounting for the principles of logic. (Or: In order for the principles of logic to be objective, they must be non-physical, abstract objects.) Popper’s argument for this premise can be represented both positively and negatively. First, the negative argument. Popper refutes three possible materialist explanations of objective logical principles (discussed above). But the universal negative that *no* physical explanation will succeed is implied by the overall conclusion of his argument. Of course, as I discuss below, it doesn’t follow from the fact that three materialist alternatives are false that *all possible* materialist explanations are false. So the negative argument doesn’t follow.

The positive argument for this premise is simply the reason he gives for the claim that the principles of logic cannot be physical, as I touched on above. No matter what physical process (e.g. a brain process) or artifact (e.g. a computer; a logic textbook) or object—or physical reality of any kind—that one posits as the ground or explanation of logical principles, it would always make sense to ask of that thing, “Is this valid?” So, we would always require some “outside” (non-physical, abstract), objective (not dependent on what anyone thinks or feels about it) standard in order to make such a judgment. Put the other way round, in order for logical

principles to play the role of *objective* standards, they have to be non-physical, abstract objects.

As Popper states, if you want to assert that a brain or a computer has made a mistake, then “you need World 3 objects, such as standards of validity, which are *not* embodied or incarnated in World 1 objects...to be able to appeal to the *validity of an inference*...”⁷⁰

Popper’s argument is open to a major objection here. In short, Popper needs to do a better job justifying this premise—specifically, demonstrating more clearly *why* objective principles of logic *necessitate* them being non-physical, abstract objects. (See “Problems with Popper’s Argument” below.)

Premise 4: If materialism is true, we cannot know the laws of logic. This premise follows logically from premise 2 and premise 3.

Premise 5: Knowledge of the laws of logic is required in order for our rational inferences to be justified. In the preamble of Popper’s argument, he writes that “if our opinions are the result of something other than the free judgment of reason, or the weighing of reasons, of the pros and cons, then our opinions are not worth taking seriously.”⁷¹ I interpret him as saying that, if the stated conditions are not met, our opinions are not *justified*. An unjustified opinion is “not worth taking seriously.” Thus, the stated conditions are required in order for our rational inferences to be justified.

And what are these stated conditions? I interpret “the free judgment of reason” and “the weighing of reasons” as including, at a minimum, (a) perceiving the principles of logic, and (b) perceiving the logical relations between the “reasons” (premises) and the conclusion, and thereby seeing whether the reasons count (or “weigh”) in favour of the conclusion. Put another way, I interpret these conditions as including the ability to perceive whether an inference is valid or

⁷⁰ Ibid., 77. Emphasis in the original.

⁷¹ Ibid., 75.

invalid. Thus, you need to be able to perceive logical relations in order to make justified rational inferences.

More directly, Popper states that “you need World 3 objects, such as standards of validity...to be able to appeal to the *validity of an inference*...”⁷² Knowledge of the principles of logic is required in order to establish whether an inference is valid or invalid, and, by extension, combined with what he writes earlier, that knowledge is required in order for one to be *justified* in making an inference. (This assumes an internalist view of justification with regard to rational inferences.)⁷³

Lastly, the underlying assumption of this premise is revealed in Popper’s conclusion:

“...I think I have shown that materialism has no right to claim that it can be *supported by rational argument* – argument that is rational by logical principles. Materialism may be true, but it is incompatible with rationalism, with the acceptance of the standards of critical argument; for these standards appear from the materialist point of view as an illusion, or at least as an ideology.”⁷⁴

To say that a particular belief cannot be “supported by rational argument” is another way of saying that one cannot make an inference to that belief and be *justified* in making the inference. Why does Popper conclude that our beliefs arrived at via rational inference would not be justified if materialism were true? Precisely because we could not have knowledge of logical principles if materialism were true. Thus, Popper holds that knowledge of logical principles is essential for the justification of our rational inferences.

Premise 6: If materialism is true, we cannot make justified rational inferences, including the inference that materialism is true This premise follows from premise 4 and premise 5. We could not make justified inferences because our inferences would not be made

⁷² Ibid., 77. Emphasis in original.

⁷³ See Chapter 4.

⁷⁴ Ibid., 81. Emphasis added.

with knowledge of the principles of logic. They would not, in Popper's words, be the result of the "free judgment of reason" or the "weighing of reasons."

Premise 7: Therefore, materialism is self-defeating. This is, in effect, a restatement of premise 6. It is also the explicit conclusion of Popper's argument: "...materialism is self-defeating: it cannot seriously claim to be supported by rational argument."⁷⁵ Again, he writes: "[I]f our opinions are the result of something other than the free judgment of reason, or the weighing of reasons, of the pros and cons"—that is, if materialism is true—"then our opinions are not worth taking seriously"—that is, they are not justified." From this he concludes, "Thus an argument that leads to the conclusion that our opinions are not arrived at in this way defeats itself."⁷⁶

The argument in full, then, is:

- (1) If materialism is true, then causal closure is true.
- (2) If causal closure is true, we cannot have knowledge of any non-physical, abstract (World 3) objects.
- (3) The laws of logic are non-physical, abstract (World 3) objects.
- (4) If materialism is true, we cannot have knowledge of the laws of logic.
- (5) Knowledge of the laws of logic is required in order for our rational inferences to be justified.
- (6) If materialism is true, we cannot make justified rational inferences, including the inference that materialism is true.
- (7) Therefore, materialism is self-defeating (and "has no right to claim that it can be supported by rational argument").

⁷⁵ Ibid., 76.

⁷⁶ Ibid., 75.

Criticisms of Popper's Argument

Popper's argument appears to move from the claim that, because the principles of logic are *objective* (exist independent of what anyone thinks or feels about them), they must be abstract, non-physical objects. Granted, Popper does attempt to refute several materialist alternatives, but he concludes his argument as if he has demonstrated that logical principles are, indeed, abstract objects.

This move is too much of a logical jump. First, it is illegitimate to argue that an explanation of *Y* consistent with position *X* is impossible by merely refuting *some* possible explanations of *Y* consistent with *X*. In order to demonstrate that *any* explanation of *Y* consistent with *X* is false, one must show that *all* possible alternative explanations consistent with *X* are false. In the case of Popper's argument, he attempts to refute several possible explanations of the principles of logic offered by the physicalist. But, even if one grants that Popper succeeds in refuting the three alternative explanations offered, he does not claim anywhere to have refuted all materialistic explanations *in principle*. That is, he hasn't shown, or even claimed to have shown, that a materialistic explanation of objective principles of logic is impossible.

The second point follows from the first. Popper must show what it is about the principles of logic that makes them ineligible to be concrete or material objects, dispositions, or "abstract particulars," *beyond the fact that they are objectively real*. If Popper was thinking of specific qualities or characteristics of the principles of logic that necessitate them being abstract objects, he did not make it explicit enough in his argument. In other words, he needed to do a better job defending premise 3 above.⁷⁷

⁷⁷ Premise 3 of my summary of Popper's argument: "The principles of logic are non-physical, abstract objects."

Popper's (Disingenuous?) Conclusion

Popper concludes, “I do not think that I have refuted materialism. But I think that I have shown that materialism has no right to claim that it can be supported by rational argument—argument that is rational by logical principles.”⁷⁸ This limited conclusion seems disingenuous, or at the very least, inconsistent, for a number of reasons.

First, in order for Popper's argument to take the form of a *refutation* of materialism, Popper would only need to add the premise, “We know the principles of logic.”⁷⁹ Given that Popper spent the entire chapter arguing for the essential nature of the principles of logic and why, given that nature, materialism cannot account for them, it seems like an abrupt about face to refuse to affirm that we have knowledge of the principles of logic.

The second reason it seems disingenuous that Popper does not claim to offer a refutation is that he states matter-of-factly later in the book that the causal closedness of the physical “World 1” is “**clearly refuted** by the technical, scientific, and artistic achievements of mankind; in other words, **by the existence of World 3.**”⁸⁰

Lastly, the claim that we know the principles of logic would, arguably, be the most defensible premise in his argument. His opponent, the physicalist in the dialogue, affirms that we have such knowledge—and reasonably so. The denial of knowledge of logic seems self-referentially incoherent.

⁷⁸ Ibid., 81.

⁷⁹ Combined with premise 4 (“If materialism is true, we cannot know the principles of logic”), his argument would take the form of a deductive refutation of materialism.

⁸⁰ Popper, *Self*, 207. In context, he writes, “The main motives of all materialistic theories are intuitive. One such intuitive motive...is the reductionist belief that there can be no ‘downward causation’. The other is the intuition of the causal closedness of the physical World 1 – an intuitively most compelling view which, I suggest, is **clearly refuted** by the technical, scientific, and artistic achievements of mankind; in other words, **by the existence of World 3**. Even those who think that mind is ‘just’ the causal product of self-organizing matter should feel that it is difficult to regard the Ninth Symphony in this way, or *Othello*, or the theory of gravitation.” Ibid.

In Popper's defense, he does claim earlier in the book that "a refutation can always be evaded."⁸¹ Refraining from declaring his argument a refutation might be a pragmatic concession on his part, even though he implicitly agrees with the premise required to make his argument into a refutation. Regardless of his motivation, it seems a strange way to pull up short in attacking materialism, *especially* since Popper claims to refute materialism later on. Popper may have had other motives or reasons for not including the premise that we have knowledge of the principles of logic, but what those motives or reasons are, we can only guess at.

A2. Reppert's "Argument from the Psychological Relevance of Logical Laws"

Next, I want to look at Reppert's version of the argument, which he calls the "argument from the psychological relevance of logical laws."⁸² Although Reppert's argument is derived from Lewis's broader argument in "The Cardinal Difficulty of Naturalism," Reppert significantly deepens and sharpens Lewis's argument, and, in addition, translates it into contemporary philosophical language. A careful study of Lewis's argument in *Miracles* shows that Reppert has, with regard to the argument from logical principles, drawn out what was only implicit—and has added to the original—in order to shape his version.

Reppert's version is very succinct (a total of two pages), but it covers the same ground as Popper's in a more straightforward, direct, explicit manner. Every premise that Popper addresses, Reppert addresses, as well, but he fills in the inferential gaps, making explicit what was only implicit in Popper.

Before offering the six different versions of the argument from reason that he distills from C. S. Lewis's overall argument, Reppert lays out nine elements of reasoning that he

⁸¹ Popper, *The Self and Its Brain*, 53.

⁸² See Reppert, *C. S. Lewis's Dangerous Idea*, 81-82.

believes are essential for its existence, and that must be affirmed in order to claim that someone has “rationally inferred one proposition from another.”⁸³

Of the nine “presuppositions of reason”, three of them are connected directly to the argument from logical principles:

- 4. Logical laws exist.
- 5. Human beings are capable of apprehending logical laws.
- ...
- 7. The apprehension of logical laws plays a causal role in the acceptance of the argument as true (sic).⁸⁴

Speaking of all nine conditions, Reppert writes, “Unless all of these statements are true, it is incoherent to argue that one should accept [physicalistic] naturalism based on evidence of any kind.”⁸⁵ Thus, Reppert sets the stage for his “argument from the psychological relevance of logical laws,” in which he will argue that naturalism cannot meet these three conditions.

Reppert’s Argument in Syllogistic Form

For my purposes, it is expedient to present Reppert’s reasoning in syllogistic form. Reppert’s argument from the psychological relevance of logical laws is as follows:

(1) “Rational inference involves the employment of the laws of logic.”⁸⁶

This premise affirms that logical principles play an essential in rational inference.

Without them, there could be no rational inference.

⁸³ Ibid., 73.

⁸⁴ Ibid. This should read: “...in the acceptance of the argument as *sound* (or *valid*).”

⁸⁵ Reppert, “Confronting Naturalism: The Argument from Reason,” 32.

⁸⁶ Reppert, *C. S. Lewis’s Dangerous Idea*, 81. This is equivalent to condition 7 above: “The apprehension of logical laws plays a causal role in the acceptance of [an] argument as true (sic).”

(2) Therefore, the laws of logic objectively exist.⁸⁷

Like Popper before him, Reppert rejects *conventionalism* about the truths of logic. He argues that it isn't a "coherent idea": "Before convention can be established, logic must already be presupposed."⁸⁸ He concludes that "the reality of logical laws cannot be denied without self-refutation, nor can their psychological relevance be denied without self-refutation."⁸⁹

(3) "These laws are not physical laws."⁹⁰

This premise is roughly equivalent to the claim that logical principles are abstract objects, although Reppert is not as specific as Popper. Reppert writes, "If one accepts the laws of logic, as one must if one claims to have rationally inferred one belief from another belief, then one must accept some nonphysical, nonspatial and nontemporal reality—at least something along the lines of the Platonic forms."⁹¹

The laws of logic are, according to Reppert, "nonphysical, nonspatial and nontemporal,"⁹² and we know this, he claims, because "they pertain across all possible worlds, including worlds with no physical objects whatsoever," and "the laws of logic tell us what must be true in any universe whatsoever."⁹³ Thus, logical principles must be something very like abstract objects.

⁸⁷ Reppert writes, "But logical laws are relevant to the formulation of beliefs. (Implied by the existence of rational inference.)" Ibid., 82.

⁸⁸ Ibid.

⁸⁹ Ibid.

⁹⁰ Ibid., 81.

⁹¹ Ibid.

⁹² Ibid.

⁹³ Ibid.

(4) If materialism is true, then causal closure is true.

This follows from Reppert's definition of both materialism and naturalism, which both include causal closure as an essential condition. Reppert writes, "For our purposes a worldview counts as naturalistic if it posits a causally closed 'basic level of analysis,' and if all other levels have the characteristics they have in virtue of those the basic level has."⁹⁴

Reppert's Subproof

The key section of Reppert's argument against naturalism and materialism can be styled as a subproof:

(5) Suppose we know the laws of logic. Popper writes, "It is further supposed that we know these laws."⁹⁵

(6) Suppose naturalism were true. (Implied)

(7) "[T]he only acceptable physicalist analysis of knowledge [has] to be some kind of causal interaction between the brain and the objects of knowledge."⁹⁶

Reppert clearly takes the causal theory of knowledge to be a direct consequence of causal closure (premise 4) applied to the question of what sorts of explanation of knowledge are possible

⁹⁴ Ibid., 47.

⁹⁵ Ibid., 81.

⁹⁶ Ibid.

(8) “[I]f we know or have insight into the laws of logic, we must be in some kind of physical relationship to the laws of logic.”⁹⁷

Reppert leaves two implicit premises unstated. First, the inference from 5 and 8 by *modus ponens*: We are in a physical relationship to the laws of logic. And, by extension: The principles of logic are physical in some way (which is necessary in order for them to be in a physical relationship). This leads to a contradiction.

(9) Contradiction: Logical laws are physical *and* non-physical.

Reppert summarizes the contradiction: “This [our being in a physical relationship with the laws of logic] is quite impossible if the laws of logic are, as I have contended, nonphysical, nonspatial and nontemporal.”⁹⁸ The supposition that naturalism is true yields a contradiction between premise 3 and premise 8. If we assume naturalism is true, along with supposing that we know the principles of logic, then causal theory of knowledge (premise 7) entails that the principles logic must be physical entities in order for us to have knowledge of them. But, Reppert has already established that the principles of logic are “nonphysical, nonspatial, and nontemporal.” Thus, we must conclude from the subproof that...

(10) Naturalism is false. (From 7-9, negation introduction)

And we can further conclude that...

(11) If we know the laws of logic, then naturalism is false. (From 6-10, conditional introduction)

⁹⁷ Ibid. This premise can be derived from premise 7 by instantiation.

⁹⁸ Ibid.

The contrapositive of this can also be inferred at this point:

(12) If naturalism is true, then we do not know the principles of logic.

The addition of a reasonable premise, which Popper eschews in his own argument, is enough to make the argument a refutation of materialism or naturalism.

(13) We know the laws of logic.

This premise is one of Reppert's necessary conditions for reasoning (i.e., "Human beings are capable of apprehending logical laws"). Granted the truth of the above premises, one can conclude that

(14) Naturalism is false.

But Reppert also concludes that

(15) Naturalism is self-defeating.

He writes, "So philosophical naturalism undermines the laws that are presupposed in the very assertion of philosophical naturalism."⁹⁹ Because Reppert merely "supposes" that we know the laws of logic in the argument itself, it would seem that perhaps he is only arguing to a more limited conclusion like Popper, namely, that naturalism is self-defeating. However, Reppert includes our knowledge of logical principles as a necessary condition of reasoning, which implies that he holds it to be a fact, and, more obviously, he explicitly concludes that naturalism is false in his argument summary.

⁹⁹ Ibid., 82.

Reppert's Argument Summary

Reppert summarizes his version of the argument from logical principles in syllogistic form:

1. If naturalism is true, then logical laws either do not exist or are irrelevant to the formation of beliefs.
2. But logical laws are relevant to the formation of beliefs. (Implied by the existence of rational inference.)
3. Therefore, naturalism is false.¹⁰⁰

Oddly enough, this summary follows a much different structure and emphasis than the argument laid out above. In the full version of his argument, Reppert seems to focus on (a) the fact that logical laws are nonphysical, nonspatial, and nontemporal, and (b) the consequences that follow from causal closure with regard to the possibility of our having knowledge of such nonphysical principles of logic.

His summary, on the other hand, seems to emphasize the *role* or “psychological relevance” of the principles of logic—something that Reppert did not focus on. In fact, I consider his failure to explain clearly the role of the principles of logic to be a problem with his argument.

Improvements in Reppert's Argument

Reppert's argument improves on Popper's with regard to clarity in at least two respects: First, he makes explicit the connection between the causal closure of the physical domain, and a causal theory of knowledge. Reppert makes it clear *why* causal closure would be a problem for

¹⁰⁰ Ibid., 82.

knowledge of abstract objects—namely, the lack of causal connection, presumably necessary for any physicalist theory of knowledge.

Second, Reppert offers a more direct, clearer argument than Popper for the fact that logical principles are nonphysical when he argues that “they pertain across all possible worlds.”¹⁰¹ This is still a *hugely* under-qualified argument, but I see this explicit attribution of an essential characteristic to logical principles that entails they are nonphysical to be a step up from Popper’s indirect claims. That said, it is still far from adequate as a refutation of naturalism.

Problems with Reppert’s Argument

Reppert’s argument, like Popper’s, is more of an argument *template* than it is a well-developed argument. Reppert connects the dots more clearly than Popper did, but, like Popper, Reppert does not adequately justify certain key premises, neither taken in isolation, nor in the face of expected criticisms from naturalists.

For example, as I mentioned, Reppert says little about the actual “psychological relevance” of the laws of logic, in the sense of their role in rational inference, in the section that contains his argument against naturalism. In a later chapter, he does elaborate on their role somewhat. He writes, “Unless the laws of logic can figure in basic explanations, then in the last analysis we never do believe Q because we believe P, believe Q, and believe that P entails Q.”¹⁰² In other words, without the laws of logic, it is never the case that we come to believe the consequent of a conditional because we first believed the antecedent, and, crucially, *recognized the logical* (entailment) *relation* between the antecedent and the consequent. But, this only serves to raise deeper questions about the nature of *justification*. Doesn’t this analysis, a critic could

¹⁰¹ Ibid.

¹⁰² Ibid., 94.

ask, assume an *internalist*, rather than *externalist*, view of justification? If having a reliable epistemic “system” is what justifies an inference, than why would the agent have to have a *conscious* recognition of the principles of logic in order to be justified in making an inference? As I will discuss further in chapter 4, whether one holds to an internalist or externalist view of justification has important consequences for the validity and soundness of the argument. But this is just one of the many issues that Reppert neglects.

The other premise that Reppert fails to justify adequately—especially considering that he does not consider the obvious materialist alternatives—is the claim that the principles of logic are nonphysical, nonspatial, and nontemporal. While he does respond to “conventionalism” (really, subjectivism), many other alternatives went unacknowledged. But even just considering the arguments that Reppert offers in defense of logical principles being nonphysical, they leave a lot to be desired. Most materialists, I assume, would not be impressed by the assertion that the laws of logic apply in all possible universes. No doubt they would agree. But, they would not take that to somehow entail the falsity of causal closure. Theodore Drange’s assessment of Reppert’s argument conveys the level to which most naturalists would be unimpressed with the argument as formulated. Drange writes, “All that is needed to refute [Reppert’s argument] is some naturalist theory of logical laws that would grant that they exist and are relevant to the formation of beliefs.”¹⁰³ I discuss naturalistic (materialistic) theories of logical laws in chapter 3.

B. The Key Premises

Despite some evident shortcomings, when Popper and Reppert’s arguments are taken together, a general outline of the key premises of the argument from logical principles emerges.

¹⁰³ Theodore Drange, “Several Unsuccessful Formulations of the Argument from Reason: A Response to Victor Reppert,” in *Philosophia Christi* 5, no. 1 (2003), 44.

There are at least five key premises that form the core of a generalized argument from logical principles. With few exceptions, each version of the argument from logical principles affirms these premises:

i. Logical principles are objectively real.

This premise affirms that logical principles exist independent of what anyone thinks or feels about them. It is not, strictly speaking, opposed to any form of subjectivism about logic, although, if the additional claim is made that logical principles are *necessary*, then it is opposed to all forms of subjectivism. Among those who have advanced a version of the argument from reason, none has done more to argue in defense of this premise than Thomas Nagel. All of the versions of the argument from logical principles affirm this premise. The positive case for objective logical principles, objections to it, and alternative views consistent with materialism are discussed in Part I of Chapter 3.

The main argument for this premise is their indispensability for rational inference. We all seem to use them, and it seems absurd to deny them.

ii. Logical principles are non-physical, abstract entities.

This is explicit in both Popper and Reppert. They both argue that, in order for the principles of logic to possess their essential characteristics and to play the role they do in rational inference, they must be abstract entities. Both think this is obvious and straightforward. But Menuge actually goes into detail as to *why* logical principles must be abstract objects, by pointing to essential characteristics claiming they are *necessary*, *atemporally valid*, and

normative—characteristics that supposedly cannot belong to physical reality. (E. J. Lowe also offers a sophisticated and detailed defense of this premise.)

The in-depth case for this premise, objections to it, and materialistic alternatives for explaining the existence of objective principles of logic are discussed in Part II of Chapter 3.

The main arguments for this premise involve pointing to essential characteristics of logical principles and denying that anything physical can possess those characteristics, e.g. necessity, normativity, etc.

iii. Causal closure entails that we cannot have knowledge of non-physical entities.

Given that certain prominent naturalists believe that we have knowledge of abstract objects, this is bound to be a controversial premise. But, whether it is put in terms of an incompatibility of a causal theory of knowledge and knowledge of abstract objects, or in terms of the inaccessibility of any non-physical reality given causal closure of the physical domain, this premise is implicit or explicit in every version of the argument from logical principles.

This premises raises questions surrounding the precise definition of causal closure and the nature of knowledge of abstract objects, especially with regard to whether or not such knowledge would need to be causal. For instance, does causal closure entail a causal theory of knowledge? Most advocates of the argument from logical principles appear to think so, and many naturalists agree. This premise, and the issues surrounding it, are closely connected to the next key premise.

iv. Logical principles play an essential role in the process of rational inference.

Without this premise, one could allow that logical principles are abstract objects *and* that we cannot have knowledge of abstract objects. It is precisely because, according to this premise, that we *must* know the principles of logic in order to make justified rational inferences that the argument has force against materialism.

Usually the “essential role” that one’s knowledge of logical principles is supposed to play is *justifying* (if only in part) one’s rational inferences. So, this premise assumes that, without knowledge of logical principles, one is not justified in making a rational inference. Clearly this premise raises questions with regard to what the nature of a rational inference is, how rational inferences are justified, the debate over internalist or externalist views of justification, and more.

Both premises iii. and iv. are discussed in Chapter 4, which covers the role of logical principles in rational inference.

v. We know the principles of logic.

Oddly enough, Karl Popper explicitly refrains from affirming this premise. Had he done so, his argument would have taken the form of a *refutation* of materialism. With him being the exception, all other versions affirm this premise most strongly of all.

And yet, this premise involves one of the major objections to the argument from logical principles: *How* can one know the principles of logic if they are abstract objects? The materialist can direct a similar overall argument back at the critic and demand an explanation of how the claim that we have knowledge of abstract objects is an intelligible, coherent claim.

The issues surrounding our knowledge of the principles of logic are discussed in Chapter 5. Chapters 3 to 5, then, are devoted to analyzing the case that proponents of the argument make for each premise, and to evaluating materialist's objections and materialistic alternatives.

Do these key premises form a “valid” or “strong” argument?

Clearly, if these five premises cannot be fitted into a valid argument, or even an argument in which the conclusion follows with some level of support (or probability) from the premises, then it would not be worth discussing at all. With the exception, perhaps, of premise 2, each of these five premises appears to be at least minimally plausible, taken in isolation, and where “minimally plausible” is understood to mean little more than that reputable scholars have affirmed them in the past and present. The fact that examples can be found for each key premise of prominent naturalists and materialists who have affirmed them speaks to their minimal plausibility. Clearly, though, many materialists would disagree with some or all of the five premises listed, and if they did affirm all five premises, then they would deny the validity of the argument.

Can these premises be fitted into a valid argument? I think, again, that it is at least *prima facie* plausible, which is all that is required at this juncture in order to move forward with evaluating the argument. We can now ask, What sort of argument is the argument from logical principles in the first place?

C. The Form and Type of the Argument

i. The Target of the Argument from Reason

The argument from reason put forward by C. S. Lewis in *Miracles* was aimed squarely at naturalism. But the various arguments from reason have had a range of targets. Thomas Nagel, Karl Popper, J. B. S. Haldane, Immanuel Kant, William Hasker and others argue that reason is incompatible with *materialism* (or physicalism). Epicurus, Werner Wick, James Jordan, and many others argue that reason is incompatible with *determinism*. And C. S. Lewis, Victor Reppert, Alvin Plantinga and many more still argue that reason is incompatible with *naturalism*.

In the case of this last group of philosophers, they define the term ‘naturalism’ in such a way that it is *inclusive of* materialism.¹⁰⁴ This understanding of materialism as a sub-species of naturalism is shared by David Armstrong.¹⁰⁵ But, because they believe their arguments count in favour of *theism*, their conclusions are much stronger than mere anti-materialist arguments. In all of their arguments, they explicitly claim that materialism is caught in the same net they set out for naturalism. This leads to Victor Reppert using “naturalism”, “physicalism”, and “materialism” almost interchangeably.

The Definition of materialism and naturalism

In the version of the argument from logical principles that I have set out, the specific target is materialism—*not* naturalism. Karl Popper and Thomas Nagel, both of whom are

¹⁰⁴ Curiously enough, the central thesis of Michael Rea’s book, *World Without Design*, is that naturalism is *incompatible* with materialism. Rea defines naturalism as a “research program,” claiming that it isn’t a philosophical position at all.

¹⁰⁵ This understanding of materialism as a sub-species of naturalism is shared by David Armstrong. See David M. Armstrong, “Naturalism, Materialism, and First Philosophy,” in *Contemporary Materialism: A Reader*, eds. Paul K. Moser and J. D. Trout (London: Routledge, 1995): 35-50.

decidedly non-theistic,¹⁰⁶ advance versions of the argument against materialism, so this clarification is important. I have another reason, though, for staying well away from making an argument against naturalism.

Naturalism does not admit of a single, universally accepted definition. As Michael Rea writes, “Precise and relatively uncontroversial formulations are simply not available.”¹⁰⁷ Victor Reppert’s definition of naturalism as the view that “the natural world is all there is and that there are no supernatural beings,” is broad enough to encompass almost any variation of naturalism, just as long as one does not inquire as to the precise definition of “natural” or “supernatural.”¹⁰⁸ Naturalism is sometimes understood as an *ontological* commitment (there is nothing but nature and nothing supernatural); sometimes as an *epistemological* or *methodological* commitment—“a commitment to science as the discoverer of what really exists and how we know it.”¹⁰⁹ Charles Taliaferro summarizes the range of definitions neatly when he writes, “Sometimes naturalism is simply another name for a thoroughgoing form of physicalism, while at other times naturalism is simply *any* view of the world that is incompatible with supernaturalism.”¹¹⁰

¹⁰⁶ Strictly speaking, Popper describes himself as an “agnostic” about the existence of God in the introduction to *The Self and Its Brain*, but functionally his philosophy is non-theistic. For Nagel’s views on theism, see chapter 7 of *The Last Word*. He writes, “I want atheism to be true and am made uneasy by the fact that some of the most intelligent and well-informed people I know are religious believers. It isn’t just that I don’t believe in God and, naturally, hope that I’m right in my belief. It’s that I hope there is no God! I don’t want there to be a God; I don’t want the universe to be like that.” Ibid., 130.

¹⁰⁷ Rea, *World Without Design*, 22.

¹⁰⁸ Reppert, *C. S. Lewis’s Dangerous Idea*, 46. Compare this to Lynne Rudder Baker’s description of naturalism: “As befits a reigning worldview, naturalism comes in many varieties, with little in common save (1) a commitment to science as the discoverer of what really exists and how we know it and (2) a repudiation of anything that smacks of the supernatural.” *Naturalism and the First Person Perspective* (Oxford: Oxford University Press, 2013), 3. The absence of the supernatural is the focus of Alvin Plantinga’s definition of naturalism, which he defines as “the thought that there is no such person as God, or anything like God.” Plantinga, *Where the Conflict Really Lies*, ix.

¹⁰⁹ Lynne Rudder Baker, *Naturalism and the First Person Perspective*, 3.

¹¹⁰ Charles Taliaferro, “Naturalism and the Mind,” in *Naturalism*, eds. William Lane Craig and J. P. Moreland (Florence: Routledge, 2002), 134.

Materialism also admits of a range of definitions. Put simply, it is the view that “everything that exists is material, or physical.”¹¹¹ David Armstrong defines materialism as “the view that the world contains nothing but the entities recognized by physics.”¹¹² These definitions run into trouble, however, when one tries to define ‘physical’. Defining the term ‘physical’ presents a problem because modern physics is constantly changing and evolving, with the definition of what counts as physical changing with it. Any appropriate definition would have to be broad enough to encompass future discoveries of physics, while remaining narrow enough to meaningfully restrain the definition.

Materialism can be further broken down into the categories of “reductive materialism” and “nonreductive materialism.” Sometimes in *contrast* to naturalism, it is understood as an *ontological* commitment. Oddly enough, there are some philosophers, such as Nancey Murphy, who identify as both *theists* and materialists.¹¹³

And then there is the closely related, and often synonymous, term (usage varies widely), *physicalism*. There is “micro,” “macro,” “substance,”¹¹⁴ “property,”¹¹⁵ and “ontological”¹¹⁶ physicalism.

¹¹¹ Paul K. Moser and J. D. Trout, “General Introduction: Contemporary Materialism,” in *Contemporary Materialism: A Reader*, eds. Paul K. Moser and J. D. Trout (London: Routledge, 1995), 1.

¹¹² Armstrong, “Naturalism, Materialism, and First Philosophy,” 40.

¹¹³ See, for example, Murphy’s *Bodies and Souls, or Spirited Bodies?* (New York: Cambridge University Press, 2006).

¹¹⁴ Noa Latham, “Substance Physicalism,” in *Physicalism and Its Discontents* (Cambridge: Cambridge University Press, 2001), 152, defines *substance* physicalism, in conjunction with *concrete-event* physicalism, as “equivalent versions of ontological physicalism” that are best understood as “the view that the world is governed by laws of succession with purely physical antecedents.”

¹¹⁵ Ansgar Beckermann, “What Is Property Physicalism?” in *The Oxford Handbook of Philosophy of Mind*, eds. Brian McLaughlin, Ansgar Beckermann, and Sven Walter (Oxford: Oxford University Press, 2009), 152, defines *property* physicalism as “the claim that all mental properties are physical properties”; or, according to Latham, “Substance Physicalism,” 152, “all first-order properties instantiated in the spatiotemporal world are physical properties.”

¹¹⁶ Latham, “Substance Physicalism,” 152, defines *ontological* physicalism as “the view that every token or particular in the spatiotemporal world is a physical particular.”

Most contemporary naturalists espouse commitment to “physicalism” or “materialism.” But, while some naturalists hold that a naturalism that is not materialistic is no longer naturalism, others allow for the existence of immaterial entities. In the anthology, *Naturalism: A Critical Analysis*, J. P. Moreland and William Lane Craig write, “[M]any naturalists (for example, David Papineau) take naturalism most reasonably to require strict physicalism (all individuals, events, properties, relations, and so on are completely physical entities), though others, (for example, John Searle) accept the existence of irreducible, genuinely mental, emergent or supervenient properties or events.”¹¹⁷ W. V. O. Quine, a pillar of naturalism in the 20th Century, famously accepted the existence of abstract objects, which some critics argue committed him to a non-naturalistic position, making him inconsistent in his naturalism.¹¹⁸ David Chalmers claims that property dualism is naturalistic because “everything is a consequence of a network of basic properties and laws, and because it is compatible with all the results of contemporary science.”¹¹⁹ Chalmers, unlike Searle or Quine, explicitly rejects materialism. Lastly, Thomas Nagel goes further than Chalmers and admits teleology into naturalism—something that is decidedly *not* consistent with the contemporary scientific consensus, which eschews any form of *final* and *formal* causes.¹²⁰

Quite obviously, then, despite the similarities between materialism and naturalism, one can and should distinguish between these terms. An important point for this thesis is that, in discussing a range of arguments that attack “naturalism” in one case and “materialism” in

¹¹⁷ William Lane Craig and J. P. Moreland, “Preface”, in *Naturalism: A Critical Analysis*, eds. William Lane Craig and J. P. Moreland (Florence: Routledge, 2002), xiii.

¹¹⁸ See, for instance, Feng Ye, “Naturalism and the Apriority of Logic and Arithmetic,” accessed April 29, 2019, <https://sites.google.com/site/fengye63/naturalismandtheapriorityoflogicandarithmetical/apriorityOfLogicAndArithmetic.doc?attredirects=2&d=1>

¹¹⁹ David Chalmers, *The Conscious Mind* (New York: Oxford University Press, 1996), 128.

¹²⁰ See Edward Feser, “Aristotle, Call Your Office,” *First Things* (October 18, 2012), accessed April 30, 2019, <https://www.firstthings.com/web-exclusives/2012/10/aristotle-call-your-office>, for a discussion of how Nagel has re-introduced the Aristotelian categories of *final* and *formal* causes into his metaphysics.

another, I am—regardless of common distinctions in the usage of those terms—discussing arguments that, at their core, have the *same* target. Out of necessity I will reference quotes from arguments attacking “naturalism” in one instance, and “materialism” in another, but the actual target of those arguments, as I will argue below, can be understood to be, in effect, the same.

What is the way out of this morass of definitions and distinctions? The only way out is simply to stipulate a definition and stick to it. In stipulating a definition of materialism, I will be drawing on definitions offered by Victor Reppert and Robert Koons. Reppert purposely defines materialism in a broad way. He writes,

“...I will be defining materialism broadly, such that it will be very difficult for someone to argue that some form of nonmaterialist naturalism will escape the difficulties I advance for materialism...Any genuinely naturalistic position will be subject to the same objections that I am presenting against materialism, so I will develop my argument in relation to materialism.”¹²¹

Victor Reppert offers the following three conditions for materialism:

1. Mechanism: Reppert writes, “The physical level is to be understood mechanistically, such that purposive explanations must be further explained in terms of a non-purposive substratum.”¹²² William Hasker, who Reppert appears to be following, to some degree, defines mechanism as “the view that fundamental physical explanations are nonteleological.”¹²³ He clarifies “mechanistic causation” as follows:

...in any case of mechanist causation, the *proximate cause* of the effect does not involve a goal, objective, or *telos*; rather, it consists of some disposition of masses, forces, and the like. Similarly, a mechanistic explanation does not say why an event occurred in terms of

¹²¹ Reppert, *C. S. Lewis's Dangerous Idea*, 51.

¹²² Ibid.

¹²³ William Hasker, “What About a Sensible Naturalism?,” *Philosophia Christi* 5, no. 1 (2003), 61. He also thinks that this is the key condition for defining what counts as physical in a “sufficiently flexible” yet still meaningfully constrained way. Hasker writes that “it is possible to assign a meaning to ‘mechanistic’ which is broad enough to accommodate all present (and likely future) physical science, yet narrow enough to impose serious constraints on what can count as ‘physical.’” Hasker, *Emergent*, 62-63.

some goal that was being reached or some purpose or function that was being served; rather, it appeals to antecedent conditions involving only nonpurposive, nonintentional entities.¹²⁴

This condition becomes relevant especially to the discussion in chapter 4 regarding whether or not our knowledge of logical principles violates a condition of materialism. Mechanism might be threatened by some proposals as to how we have knowledge of logical principles (e.g., rational insight). If that is cashed out in a *teleological* way, then mechanism would be violated. What is ambiguous is whether a *non-mechanistic*, but non-teleological explanation would violate mechanism (e.g., a non-causal account of our acquaintance with abstract entities).

2. Causal closure: Reppert writes, “The physical order is causally closed. No nonphysical causes operate on the physical level. The physical level is a comprehensive system of events that is not affected by anything that is not itself physical.”¹²⁵ William Hasker goes beyond claiming that causal closure is a necessary condition for a view to be considered a form of materialism and claims that causal closure of the physical domain is *the* essential characteristic of all forms of physicalism. It is, he writes, “a requirement for all materialists without exception.”¹²⁶

Karl Popper also claims as much. He states that all forms of materialism or physicalism “assert that the physical world...is self-contained or *closed*.”¹²⁷ He continues, “I call this the physicalist principle of the closedness of the physical World 1. It is of decisive importance, and I take it as the characteristic principle of physicalism or materialism.”¹²⁸

¹²⁴ Ibid., 63.

¹²⁵ Ibid.

¹²⁶ Ibid., 61.

¹²⁷ Popper, *The Self and Its Brain*, 51. Emphasis in original.

¹²⁸ Ibid.

For the most part, the common forms of naturalism, determinism and physicalism all share the causal closure of the physical domain in common. The exception would be (a) forms of naturalism that aren't physicalistic, such as the sort of naturalism Nagel proposes in *Mind and Cosmos*; and (b) forms of determinism derived from a non-naturalistic, non-physicalistic worldview, such as theistic forms of determinism.¹²⁹

Hasker thinks that it is causal closure "which renders materialism incapable of explaining rational thought processes,"¹³⁰ but, as we'll see, it isn't clear that this holds true with regard to the generalized form of the argument from logical principles. (That is, there appear to be ways around causal closure in responding to the argument.) One difference is that the argument from logical principles concedes mental causation to materialism.

While Hasker makes causal closure the *target* of his version of the argument, in the argument from logical principles, causal closure also serves another function: it prevents the materialist who holds to a causal account of knowledge from the possibility of holding that we have knowledge of abstract entities. Whether or not causal closure is threatened in the argument from logical principles depends largely on whether abstract entities are understood to be causal or non-causal. I will spend a lot of space on discussing causal closure in chapter 4.

3. Supervenience: Reppert writes, "Other states, such as mental states, (if they exist) supervene on physical states. Given the state of the physical, there is only one way the mental,

¹²⁹ Many followers of the Reformation theologian, John Calvin, are determinists, based on the argument that God's supreme sovereignty and control over the universe would be negated by libertarian free will. As a consequence, most of these theologians are compatibilists about free will.

¹³⁰ Hasker, *The Emergent Self*, 58.

for example, can be.”¹³¹ Supervenience does not factor heavily into the argument from logical principles.¹³²

Robert Koons’ Definition of Materialism

Robert Koons claims that materialism “entails the affirmation of at least four central theses.”¹³³ He affirms the three conditions set out by Reppert and Hasker, but he adds a fourth condition, namely, ontological and metaphysical realism.

1. “Everything that exists and has real causal efficacy or an inductively discoverable nature can be located within space and time. Nature forms a causally closed system.”

2. “All genuine causal explanation has a factual basis consisting of the spatial and kinematic arrangement of some fundamental particles (or arbitrarily small and homogenous bits of matter) with specific intrinsic natures. All genuine explanation is bottom-up.”

3. “These intrinsic natures of the fundamental material things (whether particles or homogeneous bits) are non-intentional and non-teleological. The intentional and teleological are ontologically reducible to the non-intentional and non-teleological.”

4. “The existence, location, persistence-conditions, causal powers, and de re modal properties of the fundamental material things are ontologically independent of the existence or properties of minds, persons or societies and their practices and interests. Ontological and metaphysical realism.”¹³⁴

Koons adds the following comment on explanation in a materialistic universe. He explains that, if materialism is true, “Understanding the world consists simply in decomposing all complex phenomena into their constituent parts and uncovering the causal powers of those parts.”¹³⁵ The

¹³¹ Ibid.

¹³² Where it might be relevant (though I do not discuss it) is with regard to the possibility of a materialist seeking to propose an explanation for abstract entities relying somehow on the notion of supervenience—perhaps in something like an Aristotelian-like view of immanent, instantiated universals—that would help the materialist to escape from the consequences of the argument. This drive-by speculation is not discussed any further in the thesis.

¹³³ Koons, “Epistemological Objections to Materialism,” 281.

¹³⁴ Ibid., 282.

¹³⁵ Ibid.

inclusion of Koons' theses of materialism here are less for discussion than for reference. The argument from logical principles, if it is going to be successful, would need to falsify one of Reppert or Koons' conditions.

Global vs. Local Naturalism

One further comment needs to be made with regard to the definition of materialism. One of the major premises in the argument from logical principles is that principles of logic are *abstract entities*. On some definitions of materialism or naturalism, the mere existence of abstract entities would falsify the view. J. P. Moreland offers a pair of distinctions between “global” and “local,” “weak” and “strong” naturalism:

Roughly, global naturalism is the view that the spatio-temporal universe of natural entities studied by science is all there is. Global naturalists (e.g. Wilfred Sellars) reject abstract objects of any kind, including traditional realist properties. Local naturalists (e.g. Jeffrey Poland) either accept or are indifferent towards abstract objects but they insist that the spatio-temporal universe consists only of entities studied by the natural sciences. Local naturalists reject Cartesian souls, Aristotelian entelechies, and so forth. A distinction also exists between strong and weak naturalists. Strong naturalists (e.g., David Papineau) accept a strict physicalism for the natural world, while weak naturalists (e.g. John Searle) embrace various emergent entities.¹³⁶

These philosophers can all be classified as “materialists” according to the definition given above.

But, some allow for abstract entities, others don't.

For my purposes, I will define ‘materialism’ to allow for the existence of abstract entities. A careful analysis of the conditions listed above shows that the conditions put restrictions on (a) what can have causal powers in the *physical* and *mental* world, (b) the sorts of *causal* explanations allowed, and (c) the natures of *material* things. Koons' condition that “everything

¹³⁶ J. P. Moreland, “Naturalism and the Ontological Status of Properties,” in *Naturalism: A Critical Analysis*, eds. William Lane Craig and J. P. Moreland (London: Routledge, 2000), 78.

that exists *and has real causal efficacy or an inductively discoverable nature* can be located within space and time” does not exclude the possibility of non-spatiotemporal abstract entities because the “and” clause is restrictive. It is those things that have “causal efficacy” or “an inductively discoverable nature” that have to be located in space and time. But, further, some views of abstract entities, such as in David Armstrong’s view or some Aristotelian views, locate them “in” space and time. For instance, in the course of responding to Reppert’s argument, Theodore Drange suggests that abstract objects, including logical laws, fit into a naturalist ontology “in an Aristotelian way as inhering in their instantiations.”¹³⁷

The purpose behind my qualification is to allow the possibility of abstract entities on materialism, so that the argument from logical principles isn’t *merely* an argument from abstract objects. But, if the materialist does allow for the existence of abstract entities (especially in the form of logical principles) the argument from logical principles aims to show that allowing for abstract entities is equivalent to letting the camel’s nose into the tent. There is no meaningful way to allow logical principles *qua* abstract entities into one’s ontology without it leading away from materialism—or so the argument goes.

ii. The Three Stages of the Argument from Reason

William Hasker, who advances a very detailed version of the argument from reason in his book, *The Emergent Self*, believes the heart of the argument lies “in the requirement for the causal relevance of mental states in virtue of their content, and *in particular for the psychological effectiveness of the laws of logic...*”¹³⁸ Thus, for Hasker, the principles of logic and their role in rational inference is central to the overall argument from reason.

¹³⁷ Drange, “Several Unsuccessful Formulations of the Argument from Reason,” 45.

¹³⁸ Hasker, “What About a Sensible Naturalism?,” 59.

Despite his characterization, however, Hasker's version of the argument from reason in *The Emergent Self* focuses primarily on mental causation. In fact, his argument largely parallels the well-worn discussion of the problem of mental causation in the work of Jaegwon Kim and Donald Davidson. However, Hasker does also touch on the argument from logical principles, albeit from a different angle than Popper, Reppert, Nagel, and Menuge.

Regardless of the differences between Hasker's argument and that of others, he provides a helpful summary of the *form* of the argument from reason, which applies equally well to the more specific Argument from Logic. He breaks the argument into three stages. "The first stage," he writes, "sets out what is required if the process of rational inference is to be what we think it is."¹³⁹ For Hasker and the other advocates of the argument, (a) our knowledge of the principles of logic and (b) the principles of logic playing a role in our rational inferences (usually in connection to *justification*) are essential elements of rational inference. "The second stage," he continues, "shows that naturalism—at least, most currently available types of naturalism—is unable to meet these requirements."¹⁴⁰ By "most currently available types of naturalism" Hasker is referring to *physicalistic* forms of naturalism, which would meet the conditions of materialism, viz. mechanism, causal closure, and supervenience, discussed in the section above.

Stages one and two, then, taken together, are a *negative* argument against naturalism or materialism. Most forms of the argument from logical principles are purely negative, and only involve the first two stages. Stage three is the *positive* stage of the argument in which the proponent offers an adequate explanation of reason. According to Hasker, that explanation is theism—a positive conclusion that many advocates of the argument from logical principles

¹³⁹ Ibid.

¹⁴⁰ Ibid.

would reject.¹⁴¹ Hasker writes, “Finally, the argument proposes theism as a worldview which is able (and perhaps best able) to satisfy the requirements for the existence and intelligibility of rational inference.”¹⁴² Clearly, Nagel and Popper are content to offer non-theistic alternatives to materialism, i.e. “natural teleology” and substance dualism, respectively. Thus, the third stage can be understood more generally as simply the stage of the argument in which the alternative to naturalism or materialism is put forward.

This thesis is focused on the first two stages of the argument, which are *negative*. In other words, I don’t discuss in a substantial way any alternatives to naturalism or materialism. Most arguments from reason, it turns out, focus primarily on stages one and two, as well.¹⁴³ The proponent of the negative argument may offer what they believe to be a better explanation of our capacity to reason, but as the range of positions taken by the advocates of the argument show, there is a much broader unity on the negative side of the argument.

iii. The Type of Argument

In the literature surrounding the argument from reason, there is a disproportionately large volume of discussion around the type or classification of the argument. Is it best understood as a Skeptical Threat argument? An argument to the best explanation? Or perhaps a deductive argument? This question is relevant on a number of levels. Some types of argument (e.g., a Skeptical Threat argument) are taken to be disqualified by their general form alone. Others are

¹⁴¹ Hasker’s assessment of the form of the argument is understandable. First, the label ‘argument from reason’ was first placed on C. S. Lewis’s argument for theism in *Miracles*. It was only subsequent to scholars taking an interest in that specific argument that other historical arguments, perhaps anachronistically, were also labeled as arguments from reason. Moreover, the predominant interest in the argument has come from theists like Hasker.

¹⁴² Hasker, “What About a Sensible Naturalism?,” 59.

¹⁴³ Ibid.

considered to be more effective than others. And there is just the straightforward question of what form the argument actually, in practice, takes.

Skeptical Threat Arguments

Alvin Plantinga's version of the argument from reason, which focuses on the reliability of our rational faculties, argues that, if naturalism were true, the probability of our rational faculties being reliable would be low or inscrutable.¹⁴⁴ The form of this argument is what Victor Reppert calls a "Skeptical Threat" argument.¹⁴⁵ The following passage from Plantinga's "evolutionary argument against naturalism"—the most widely discussed version of the argument from reason at present—provides an example of a Skeptical Threat argument:

“Naturalistic evolution gives its adherents a reason for doubting that our beliefs are mostly true; chances are they are mostly mistaken. If so, it won't help to *argue* that they can't be mostly mistaken; for the very reason for mistrusting our cognitive faculties *generally*, will be a reason for mistrusting the faculties that produce belief in the goodness of that argument. This defeater, therefore, can't be defeated.”¹⁴⁶

Naturalism, Plantinga argues, takes us down the rabbit hole of skepticism, a hole from which we cannot emerge. The belief in naturalism “shoots itself in the foot and is self-referentially incoherent; therefore [one] cannot rationally accept it.”¹⁴⁷

Stewart Goetz, however, proposes that a naturalist can reasonably respond to Plantinga's—and any other Skeptical Threat argument, for that matter—in the following way:

“I know I am experiencing pleasure right now and *no* consideration can undermine this knowledge...And it is the same with knowing that *modus ponens* is a valid inference form. And when I think about whether my intuitive and introspective cognitive faculties

¹⁴⁴ See Plantinga's, “The Evolutionary Argument Against Naturalism,” in *Where the Conflict Really Lies*, 307-350.

¹⁴⁵ Reppert, “The Lewis-Anscombe Controversy,” 37.

¹⁴⁶ Plantinga, *Where the Conflict Really Lies*, 346.

¹⁴⁷ *Ibid.*, 314.

are reliable, knowing these things rationally assures me that these faculties are reliable. Hence, while, by hypothesis, I believe that the reliability of these cognitive faculties, given my belief in naturalism and Darwinism, is low, I rightly conclude...that I 'beat the odds'.”¹⁴⁸

In other words, the naturalist is likely to acknowledge the fairly obvious fact that the probability of their cognitive faculties being reliable is low, evaluated in terms of the global probability that creatures such as us, who are capable of truth-preserving rational inference, would arise through strictly natural physical processes. And yet, rather than conclude that one, therefore, has a defeater for his belief that his cognitive faculties are reliable, a naturalist is more likely to conclude that the improbable happened.

Thus, William Hasker seems to be correct when he states that “Skeptical Threat arguments have about them an air of paradox (like that of skeptical arguments generally) that tends to keep them from being taken seriously.”¹⁴⁹ This is not, however, to pass summary judgment on Plantinga’s overall argument. Despite these comments, it may, in fact, still be sound. For the above reasons, however, it is unlikely to be *compelling*. The improbability of our rational faculties being reliable, no matter how great that improbability is on the assumption of naturalism, will not provide a defeater for the naturalist so long as they find some overriding implausibility in the non-naturalistic alternative.

The argument from logical principles is *not* put forward as a Skeptical Threat argument.

¹⁴⁸ Goetz, “The Argument from Reason,” 56-57. Goetz is quoting from Trenton Merricks, “Conditional Probability and Defeat,” in *Naturalism Defeated?*, ed. James Beilby (Ithaca, NY: Cornell University Press, 2002): 173.

¹⁴⁹ Hasker, *The Emergent Self*, 68.

Best Explanation Argument

Victor Reppert, in his earlier presentations of the argument, claimed that the argument from reason is best understood as an argument to the best explanation. He starts from the assumption that human beings reason, and then, given that fact, concludes that “this is best explained in terms of theistic metaphysics as opposed to naturalistic metaphysics.”¹⁵⁰ Although Hasker formerly claimed that the argument from reason was a Best Explanation argument, he changed his mind for the following reason:

the Best Explanation strategy may claim too little. On the face of it, this strategy seems to invite the following kind of response: “It may be true that we naturalists have not, so far, produced a satisfying explanation for the process of rational inference. But there is nothing especially surprising or alarming about this fact. Finding good scientific explanations is hard work and often takes considerable time, and the relevant sciences are still in their infancy. We must simply be prepared to wait a bit longer, until we reach the stage where the desired explanations can be developed.”¹⁵¹

I think Hasker is more or less correct here. Deciding on which explanation is “better” or “worse” depends on the weighing of *all* the reasons for and against each explanation. Presumably the materialist already has very deeply rooted defeaters for any sort of dualistic or theistic explanation, so it seems likely that whatever reasons were offered in favour of the alternative, however strong (unless they were *impossibility* considerations, as I suggest below), the materialist would still weigh those in favour of materialism more heavily. This is not a condemnation of materialists. The same point would apply in reverse. The weighing of what counts as the “Best Explanation” is necessarily subjective.

¹⁵⁰ Reppert, “The Argument from Reason,” 355.

¹⁵¹ Hasker, “What About a Sensible Naturalism?,” 61.

However, because I am only discussing the argument from logical principles as a *negative* argument (the first two stages), it isn't even an option to characterize the argument as a Best Explanation argument anyway. Therefore, I will leave off discussing this type of argument.

Deductive Argument

Stewart Goetz proposes that the argument from reason is best understood as a *deductive* argument in the following form:

- (1) If naturalism is true then we do not reason.
- (2) We reason.
- Therefore,
- (3) Naturalism is false.¹⁵²

This, I think, is the most plausible and most effective form of the argument from logical principles, as well. The claims that (i) our knowledge of the principles of logic is essential for rational inference and that (ii) such knowledge would be impossible if materialism (causal closure) were true, taken together, form an argument for premise 1 of the deductive argument above. The premise that we know the principles of logic plays the same role as the premise, "We reason."

Argument from Ignorance?

Thomas Nagel's version of the argument from logical principles at times appears to take the form of an argument from ignorance. For example, he concludes, "In light of the remarkable character of reason, it is hard to imagine what a naturalistic explanation of it, either constitutive

¹⁵² Goetz, "The Argument from Reason," 51.

or historical, could look like.”¹⁵³ He concludes at several other points throughout the chapter that, because of such-and-such feature of reason,

“[reason] does **seem to be** something that cannot be given a purely physical analysis and therefore, like the more passive forms of consciousness, cannot be given a purely physical explanation either.”¹⁵⁴

And, later:

“a reductive account of reason...is even more **difficult to imagine** than a reductive account of consciousness.”¹⁵⁵

The problem of explaining reason naturalistically, Nagel concludes, will be especially difficult because “the obstacles **seem** enormous. In light of the remarkable character of reason, it is **hard to imagine** what a naturalistic explanation of it, either constitutive or historical, could look like.”¹⁵⁶ Even the constitutive problem of reason is described by Nagel as “**the difficulty of understanding** reason naturalistically.”¹⁵⁷

In other words, he seems to be arguing, “We cannot *imagine* what a naturalistic explanation would look like, therefore, there is no naturalistic explanation.” Even though he does present features of reason that naturalists would concede are difficult to explain, such reasoning would be fallacious. It would be to argue from what we do *not* know (we do not have a naturalistic explanation for reason) to a positive conclusion (e.g., teleology). “I don’t know, therefore, X.”

¹⁵³ Nagel, *Mind and Cosmos*, 86. More quotes of the same character can be drawn from his chapter.

¹⁵⁴ Ibid., 84.

¹⁵⁵ Ibid., 87.

¹⁵⁶ Ibid., 86.

¹⁵⁷ Ibid., 78.

Oddly enough, although Nagel offers such *conclusions*, his argument in *Mind and Cosmos* does not take on that general structure. A more charitable interpretation, and the one that I think is correct (though I merely gesture to it here¹⁵⁸), is to understand Nagel as minimizing what he is claiming for his argument in his explicit conclusions.

How do we avoid making an argument from ignorance? We argue from what we *do* know. All sides, excluding extreme logical skeptics, agree that we *do* reason, and that we are able to reach justified conclusions via rational inference. If this is true, then we can start with that fact and reason from it.

Starting with what we seem to know, and agree to know, the argument from reason is arguably making an *impossibility* argument—an argument that, *in principle*, materialism cannot explain human reasoning, not just that we do not at the present time have in our possession a material explanation of reasoning.¹⁵⁹ We don't have that explanation, but the argument from reason is saying that such an explanation is impossible.

Keith Parsons, a critic of Victor Reppert's argument from reason, offers a response that, perhaps, echoes the sentiments of other naturalists:

¹⁵⁸ In Nagel's defense, the explicit conclusion he comes to is very weak. He doesn't conclude that he has disproven naturalism, but rather only that "...a holistic or emergent answer seems increasingly likely as one moves from physical organisms, to consciousness, to reason." Ibid., 87-88. In other words, reason seems especially difficult to explain naturalistically—even more difficult than the origin of physical organisms and consciousness. Nagel is careful in his choice of words in the explicit conclusions he draws throughout the chapter, and his argument is not, strictly speaking, an argument from ignorance. That said, his heavily qualified conclusions are surprisingly modest compared to tenor of the supporting reasons he provides in favour of the conclusions, lending some justification to that charge against his argument. However, even though his argument avoids being a straightforward argument from ignorance, a naturalist could reply to Nagel by simply saying, "Thank you for clarifying the problem of reason so well for me. You have made it clear that reason will be difficult to explain naturalistically. I accept the challenge, as I have accepted the challenge in all other areas, such as the origin of biological life, and the origin and constitution of consciousness." Nagel does not, first, establish the necessary premises, and, second, connect them in a way, that would entail the falsity of naturalism.

¹⁵⁹ I should note that Nagel does in one instance—but only one instance in the chapter—draw a conclusion that could be interpreted as an impossibility claim, based on the connection between inconceivability and impossibility (leaving aside what sort of impossibility would be implicated, whether physical, metaphysical, epistemic, or logical). He writes, "Rationality, even more than consciousness, **seems** necessarily a feature of the functioning of the whole conscious subject, and **cannot be conceived of**, even speculatively, as composed of countless atoms of miniature rationality." *Mind and Cosmos*, 87. Given the other conclusions he draws, I will assume it is not a strict impossibility claim.

...the honest thing to do when we confront an apparently insoluble mystery is to admit that we do not know. It is obscurantist to ‘explain’ the mystery in ways that only deepen our ignorance. When I am told that consciousness and reasoning are due to the inscrutable and miraculous operations of occult powers wielded by an undetectable entity with unknowable properties that exists nowhere in the physical universe, I just am not enlightened.”¹⁶⁰

With regard to the argument from logical principles, however, the proponent might turn the tables on Parsons and say, “When confronted with the undeniable *fact* that we do reason—that is, that we do have knowledge of logical principles and we do employ them in rational inferences—we must admit that, based on what we know about the conditions of materialism, materialism makes such reasoning impossible. Therefore, the only honest conclusion to come to is that materialism is false.” When Parsons suggests that we are confronted by an “insoluble” mystery, it seems fair to ask—especially given his reference to “the inscrutable and miraculous operations of occult powers wielded by an undetectable entity” and so on—whether he means insoluble *from the perspective* of materialism, or insoluble *allowing for any possible explanation*? It seems perfectly clear that he means the former.

The power of the deductive form of the argument from reason is that it starts from what we *do* know. It starts from the undeniable (the presupposition of the argument) fact that we reason, and draws a conclusion from that. In my conception, the argument from logical principles is best understood as a deductive argument of the same nature as Lewis’s argument in *Miracles*, as interpreted by Stewart Goetz. In place of the premise, “We reason,” the argument from logical principles places the comparably difficult to deny, “We have knowledge of the principles of logic.” As I will discuss in chapter 3, a denial of that premise ends in self-defeat.

¹⁶⁰ Keith Parsons, “Need Reasons Be Causes?: A Further Reply to Victor Reppert’s Argument from Reason.” *Philosophia Christi* 5, no. 1 (2003): 63-75.

An In Principle, Impossibility Argument

Materialism is not in any danger, let alone grave danger, from an argument from ignorance. The difficulty of explaining some phenomenon in terms consistent with physicalism—no matter how overwhelming the difficulty seems—is not a reason to reject physicalism, taken on its own. (It may be the case that an alternative is afflicted with less difficulties, and so is preferable, but it is unlikely that a physicalist would consider the currently available alternatives in that light.) Materialists are aware of the many phenomena that have yet to be explained in a way that is consistent with a materialistic metaphysics.

The argument from logical principles can be understood as claiming that materialism, *in principle*, cannot explain our knowledge of logical principles. Hasker captures the structure of this type of argument:

The objection is not merely that naturalism has not yet produced an explanation of rational inference and the like, as though this were a deficiency that could be remedied by another decade or so of scientific research. The problem is that the naturalist is committed to certain assumptions that preclude **in principle** any explanation of the sort required.¹⁶¹

It is an argument to the conclusion that knowledge of logical principles would be *impossible*, were materialism true. Edward Feser, for instance, defends Nagel against critics and claims that Nagel is, in fact, offering an *in principle*, impossibility argument, in contrast to those who claim Nagel is offering an argument from ignorance.¹⁶² I think Feser gets it slightly wrong about Nagel

¹⁶¹ Hasker, “What About a Sensible Naturalism?” 61.

¹⁶² See, for example, Edward Feser, “Nagel and His Critics, Part V,” (12 August 2015), <http://edwardfeser.blogspot.com/2012/12/nagel-and-his-critics-part-v.html>. Feser is not alone in this interpretation of Nagel. Kristina Musholt, in her review of Nagel’s *Mind and Cosmos*, claims that “Thomas Nagel argues that science is—in principle—unable to explain the mind.” Kristina Musholt, “A Flawed Challenge Worth Pondering,” *Science* 339, no. 6125 (15 March 2013): 1277.

(if only to not acknowledge the *many* conclusions of his that take the form of an appeal to ignorance), but this form of impossibility argument that Feser attributes to Nagel is the form that I think the argument from logical principles ought to take.

It should be noted that an impossibility argument is going to probably take the form of a *deductive* argument for the simple reason that it will include a *necessary* premise or conclusion: e.g., “Materialism makes knowledge of logic *impossible*.” Perhaps one could include such a premise in a probabilistic argument, but it seems to fit better in a deductive structure.

iv. Logical Contradiction vs. Performative Contradiction

The argument from logical principles in its various forms claims that materialism is “self-defeating” or “self-refuting.” This requires clarification.

The statement, “Materialism is self-refuting,” taken literally, is simply false, and demonstrably so. It is possible for there to exist a universe with nothing but physical substances and properties in it. Popper is correct to concede that “materialism may be true,”¹⁶³ understood as a real possibility. There is nothing self-refuting about the notion of such a universe, and there is no logical self-contradiction in the theory of materialism itself.

However, the proponents of the argument from reason are not claiming that materialism, taken as a worldview, is itself self-refuting, even though it sometimes appears that way. J. P. Moreland, for instance, summarizes his argument from reason with the claim that materialism “is self-refuting, for it undercuts the very prerequisites of rational thought itself.”¹⁶⁴ Taken literally, this statement is false. But, understood in context, Moreland is not making a simple logical error. He clarifies the nature of the “self-refutation” of physicalism in the body of his argument:

¹⁶³ Popper, *The Self and Its Brain*, 81.

¹⁶⁴ Moreland, *Scaling the Secular City*, 103.

“[P]hysicalism could be true and the claim that it is true is not self-refuting. The world could have had nothing but matter in it. But if one claims to know that physicalism is true, or to embrace it for good reasons, if one claims that it is a rational position which should be chosen on the basis of evidence, then this claim is self-refuting. This is so because physicalism seems to deny the possibility of rationality.”¹⁶⁵

Therefore, according to thinkers like Moreland, the self-refutation belongs to the *act* of asserting physicalism. There is an incompatibility between the presuppositions supposedly implicit in the act of assertion on one hand and the content of the assertion on the other.¹⁶⁶

One way to clarify the charge of self-refutation being laid at physicalism’s feet is by distinguishing between *logical* contradictions and *performative* or *pragmatic* contradictions. Speaking of the latter, Todd Buras writes, “Such contradictions do not involve self-contradictory propositions. They involve rather a conflict between the content of a proposition and the presuppositions of some action taken with respect to the proposition.”¹⁶⁷ Thus, a performative contradiction leads to self-defeat.

¹⁶⁵ Ibid., 92.

¹⁶⁶ It is important to make the qualification regarding the “*presuppositions* implicit in the act of asserting.” For example, Norman Malcolm argued against the conceivability of a mechanistic explanation of the mind, and claimed, in Hasker’s words, that “there is an incompatibility between ‘purposive explanations’ of human actions and complete explanations of those same actions in nonintentional, neurophysiological terms.” According to Malcolm, a mechanistic explanation of the mind is not logically self-contradictory—that is, it is an internally coherent theory. However, it is self-defeating in practice—that is, it is incoherent to assert the theory. He writes that “the absurdity [of a mechanistic conception of mind] lies in the human act of asserting the doctrine. The occurrence of this act of assertion is inconsistent with the content of the assertion.” Malcolm’s claim appears to be straightforwardly incorrect as stated—even if dualism were true. Even given some form of dualism, the act of assertion is not inconsistent with the content of the assertion. Suppose that Malcolm were drugged by scientists and trained, like Pavlov’s dog, without his conscious awareness, to assert the doctrine of mechanism in response to environmental triggers, say, someone arguing for dualism. For example, were Malcolm to hear a lecture given by Karl Popper on the case for substance dualism, he would automatically stand up and shout, according to his previous conditioning, “All human actions can be fully explained by mechanistic explanation!” Even though Malcolm might be shocked at the words coming out of his mouth, such an act of assertion would be consistent with the content of the assertion. Rather, I believe that Malcolm instead means, more precisely, that it is the assumptions that are supposedly implicit in the conscious, willful act of making the assertion that are inconsistent with the content of the assertion. Those implicit assumptions might include something like the following: “I am making this assertion freely, for a (teleological) reason, not because I am caused to by antecedent physical conditions.” In that case, the content of the assertion would be inconsistent with the agent’s implicit assumptions that Malcolm believes are revealed by the conscious, willful act of making the assertion.

¹⁶⁷ Buras, “On the Failures of Naturalism,” 270.

The claim of the argument from logical principles, then, is that materialism is self-defeating in the sense that the act of reasoning (making rational inferences) in its defense presupposes the ability to make justified rational inferences, but the content of materialism undermines the notion that justified rational inferences are possible. Materialism, or the *advocacy* for materialism, involves a *performative* contradiction.

D. Three Ways to Object to the Argument

Aside from the specific criticisms already directed toward Popper and Reppert, there are three general forms of objections to the argument from reason. In the following chapters, I will address major objections to the argument from logical principles that fit into the following three categories.

First, the critic can dispute the nature of reason or logical principles, or dispute the essential elements of rational inference or the role of logical principles in rational inference.¹⁶⁸ Reppert calls these “error replies”¹⁶⁹ because the critic can accuse the antimaterialist of making an error in affirming the existence of things that can be denied. Subjectivism about logical principles, for example, takes the form of an error reply, since it denies the objective reality and/or the necessity of logical principles in the first place.¹⁷⁰

Second, the critic might dispute the claim that affirming logical principles, as essential elements in rational inferences, commits us to “a dualism of explanations.”¹⁷¹ For example, one might accept that logical principles are essential for reasoning, but reject the view that they must

¹⁶⁸ Reppert, “Some Supernatural Reasons”, 79.

¹⁶⁹ Reppert, “The Argument from Reason,” 350.

¹⁷⁰ See chapter 3, part I; and chapter 5, part I.

¹⁷¹ Reppert, “Some Supernatural Reasons”, 79

therefore be abstract objects. Reppert calls these “reconciliation objections”¹⁷² since the assertion is that the essential element of reasoning (e.g., logical principles) can be reconciled with a materialist ontology. The objection that logical principles are merely analytic truths fits into this category.¹⁷³

Third, the critic can dispute, in Reppert’s words, that “an explanatory dualism commits us to dualism (or a preference for dualism) over materialism.”¹⁷⁴ Victor Reppert calls these “inadequacy objections” because they declare any sort of explanatory dualism (such as theism, substance dualism, teleology, etc.) to be inadequate, regardless of the difficulties that materialism faces. In other words, whatever the difficulties are that materialism faces, the non-materialist explanation faces difficulties of the same or greater degree. For example, one might argue that even if logical principles are abstract objects, that fact doesn’t undercut materialism. Paul Benacerraf’s classic paper, “Mathematical Truth,” is an example of how many philosophers recognize the difficulties facing materialism, and a causal theory of knowledge, with regard to our knowledge of logico-mathematical objects, but who, at the same time, are unwilling to submit to an alternative like platonism because of the “notorious” problems it faces. Furthermore, the objection that the problem of how we know the principles of logic is a problem for *everyone*, not just the materialist, also fits into this category.

¹⁷² Reppert, “The Argument from Reason,” 350.

¹⁷³ See chapter 3, part II.

¹⁷⁴ Reppert, “Some Supernatural Reasons”, 79.

III. The Ontological Status of Logical Principles

Overview:

This chapter discusses two key premises in the argument from logic: first, the premise that the principles of logic are objectively real, and, second, the premise that the principles of logic are non-physical, abstract objects. The chapter is divided into two parts, each dealing with one premise. The first part clarifies what is meant by an “objective” principle of logic, and also addresses *subjectivism*. However, as defined, objective principles are not strictly speaking inconsistent with some forms of subjectivism (the rejection of *necessary* logical principles). The second part addresses the claim that the principles of logic are non-physical, abstract entities. I evaluate the top alternative theories for explaining objective logical principles that are also consistent with materialism—formalism, psychologism, and the view that logical principles are “analytic.”

A. An Initial Sketch of the Principles of Logic

What are the “principles of logic”? Any precise definition would almost certainly beg the question, one way or another, with regard to the epistemological and ontological issues at stake. The argument from logical principles hinges crucially on specific claims about their nature. For instance, the premise to be discussed in the first half of this chapter claims they are real, objective standards, whose nature does not depend in any way on what humans think about them. The premise to be discussed in the second half of this chapter claims they are abstract entities. To attribute specific characteristics to them—e.g., normativity, necessity, eternality, universality, transcendence, etc.—would beg the question in one way or another. And yet, I can presumably offer at least a tentative characterization that avoids overt controversy, since the principles of

logic are, arguably, foundational for the discipline of philosophy, and, as such, constantly referenced as if philosophers understand, at some level, what they are and how to apply them.

A rough way to characterize the principles of logic, then, is to say that they are rules for thinking and reasoning. They are the rules that philosophers point to when they seek to “correct” the arguments of others, or the rules they cite as having followed in their own thinking. Any attempt to critique the arguments contained in this thesis, for instance, would almost certainly be based on some appeal to a principle of reasoning. These principles are what one is appealing to for authority when one states that *X follows from Y*. The unstated background assumption is that the inference from *X* to *Y* is *according to the principles of logic*. Thus, these principles ostensibly guide us in how to make inferences, establishing what counts as a *valid* deductive inference or a *strong* inductive inference. Nothing in this description claims that they are objective or universal. It can even be left open whether or not they are truly normative standards. This characterization is meant simply to describe how we do happen to think of the principles of logic, even if, in fact, they are entirely illusory, conventional, changeable at will, or mere generalizations of how we happen to make inferences.

The phrase “principles of logic,” as I alluded to above, is general enough to encompass both deductive and inductive¹⁷⁵ principles of reasoning—and any other principles of reasoning, for that matter, that would not fit into those categories.¹⁷⁶ In almost every instance of the argument from logical principles, however, the focus is on those principles generally held to be

¹⁷⁵ According to Matthew Allen, *Smart Thinking: Skills for Critical Understanding and Writing*, 2nd edition (Oxford: Oxford University Press, 2004), 89-90, “The difference between deduction and induction is one of the more vexed issues in contemporary logic. Exactly how (and why) we distinguish between them is subject both to erroneous views and legitimate disagreements.”

¹⁷⁶ For example, Ockham’s Razor, or the principle of simplicity, could perhaps be classified as an *abductive* principle, rather than an inductive principle. The precise distinctions between *inductive* and *abductive* are not crucial for the argument from logic. More important is the distinction between *deductive* principles and any other category.

the most basic or fundamental laws of logic, namely, the simplest deductive principles. Thomas Nagel touches on why it is expedient to focus on the most basic, deductive principles:

Most of the reasoning we engage in is not deductive but empirical, moral, and more broadly practical; but ...[s]imple arithmetical or logical thoughts are examples of reason if anything is...and they are pervasive elements of the thought of anyone who can think at all.¹⁷⁷

Deductive principles form the core of all the “principles of sound reasoning”, the most fundamental “laws” on which all the others depend, and they are “examples of reason if anything is.” That is, being the most fundamental, they are the hardest to deny. Also, inductive reasoning is dependent on deductive reasoning, but not the other way around. While inductive principles could, theoretically, be included in all that follows, focusing solely on deductive principles simplifies the discussion. For this reason, I will use the term “principles of logic” throughout this thesis to refer to deductive principles, unless I explicitly indicate otherwise.

In none of the versions of the argument from logic, as far as I have been able to discover, is there a list provided of what counts as the most basic principles of logic. But the most common examples given include the law of non-contradiction, the law of identity, *modus ponens*, *modus tollens*, and transitivity. The Barbara syllogism, the law of excluded middle, and *reductio ad absurdum* are also mentioned often. It is assumed that these are paradigm cases of fundamental logical laws. If a list of the essential logical principles were to be made, it would contain what Robert Koons calls “a minimal logic, the common ground between classical and ‘deviant’ logicians (e.g., defenders of intuitionist, relevantists, substructuralist, paraconsistentist, or quantum logics).”¹⁷⁸ But even such a minimal list would be more than necessary for the purposes of the argument. All that needs to be defended is that there is at least *one* fundamental,

¹⁷⁷ Nagel, *The Last Word*, 55.

¹⁷⁸ Koons, “Epistemological Objections to Materialism,” 295.

objective, deductive principle. For example, Hilary Putnam, in his paper “There Is at Least One A Priori Truth,” defends the “minimal principle of contradiction,” which states that “not every statement is both true and false,”¹⁷⁹ or, in other words, that there is at least one contradiction that is false. Again, regardless of what a “minimal logic” would amount to, for the purposes of the argument from logical principles, all that is needed is *one* deductive principle that fits the ontological bill.

These principles are, not only in the context of the argument from logical principles, but also more generally in the *practice* of philosophy, understood to be indispensable to rational inquiry. The assumption is that *everyone* uses these principles—whatever the specific list turns out to be. Again, that might be a false assumption, and to say that there *are* fundamental laws of logic is roughly one of the questions at issue. So the question to be asked is, Are there objective logical standards to which everyone is beholden?

Before getting to that question specifically, I want to draw a comparison between issues in the philosophy of mathematics and the argument from logical principles as a means of overviewing the issues to come.

B. The Ontological Status of the Principles of Logic and Mathematical Objects Compared (and Contrasted)

In assessing the ontological status of the principles of logic, the parallel with the ontological status of numbers is clarifying. In the case of both numbers and the principles of logic, no one disputes the fact that we find ourselves making reference to a putative class of real entities. That is not to say that people consciously imagine the number 2 existing as a distinct

¹⁷⁹ Hilary Putnam, “There Is at Least One A Priori Truth,” in *Epistemology: An Anthology*, eds. Ernest Sosa, Jaegwon Kim, Jeremy Fantl, and Matthew McGrath, 2nd edition (Malden, MA: Blackwell, 2008), 585.

object, but rather just to say that people, pre-reflectively, pre-philosophically, refer to numbers and logical principles as if they were real—real *things*, or actual parts or features of objective reality. Of course, the popular conception of numbers and logical principles is not itself an argument for what they, in fact, are (if anything), but the inescapable and universal reference to these things, at the very least, points to something that requires explanation. Why do we talk about these things as though they were real? What are their fundamental natures? Do they have objective existence apart from our ways of talking, or are they convenient fictions, mistakenly granted the status of existence through confused thinking?

In the broader philosophical tradition of Platonism, numbers are non-physical, abstract objects, real entities that have a mind-independent, objective existence. This conception of numbers is in line with realist theories of *universals*, where the paradigm cases in contemporary discussion are usually *properties* (e.g., redness), and, more traditionally, *kind* terms (e.g., gold, horse, etc.). But the existence of numbers, understood as real, mind-independent entities, is not an inference *from* a general theory. Instead, numbers are usually taken to be the paradigmatic examples of abstract objects from which such realist theories get their primary justification. In other words, the inference usually runs from the apparent nature of numbers *to* the general theory.

Mathematicians are stubbornly “platonist” in their language and discussion of numbers. And the instinct that leads some mathematicians to conceive of numbers as real—and, thus, to think of mathematics as having an actual subject matter—puts pressure on the subset of those mathematicians who want to avoid a platonist ontology and, in the words of Stewart Shapiro, “the notorious epistemological problems that come with it.”¹⁸⁰ Shapiro summarizes the main

¹⁸⁰ Stewart Shapiro, *Philosophy of Mathematics: Structure and Ontology* (Oxford: Oxford University Press, 1997), 4.

epistemological problem with realism about mathematical objects this way: “If mathematical objects are outside the causal nexus, how can we know anything about them?”¹⁸¹ And yet, Shapiro writes that “the desired continuity between mathematical language and everyday and scientific language suggests realism...”¹⁸² So the mathematician is faced with a dilemma regarding realism about mathematical objects.

The dilemma for the philosophy of mathematics is an almost direct parallel to the issues involved in the argument from logic. There is a class of seemingly real knowledge—in the case of logic, knowledge that is seemingly foundational to the rational enterprise of philosophy, a sort of *sine qua non* of the discipline—that, *prima facie*, appears to be non-physical and abstract (not to mention necessary, “eternal,”¹⁸³ etc.), insofar as it is taken to be real at all. Again, Shapiro expresses the problem with regard to knowledge of mathematical objects *qua* abstract, non-physical objects, succinctly: “If mathematical objects are outside the causal nexus, how can we know anything about them?”¹⁸⁴ To the extent that mathematical objects appear to be non-physical, abstract objects, that puts pressure on any sort of causal (i.e., naturalistic) story¹⁸⁵ of how we come to know them.

But, just as with mathematical objects, there is the same question regarding principles of logic: “If the principles of logic, as abstract objects, are outside the causal nexus, how can we know anything about them?” Proponents of the argument from logical principles will demur that the epistemological problems raised with regard to Platonism about mathematical objects only

¹⁸¹ Ibid.

¹⁸² Ibid.

¹⁸³ Shapiro describes mathematical objects using this word: “Under the suggested realism, this requires epistemic access to an acausal, eternal, and detached mathematical realm.” Ibid. (Of course, the additional descriptor, “detached,” carries with it connotations that betray a view on the “notorious epistemological problems” with Platonism.)

¹⁸⁴ Ibid.

¹⁸⁵ A causal story would, arguably, be necessary for a physicalistic or naturalistic explanation of knowledge, at least for thinkers like Benacerraf and, presumably, Shapiro. Not all naturalists would agree with this, of course.

arise with regard to abstract objects generally if you first assume (a) a causal theory of knowledge, and (b) the causal closure of the physical domain. This leads proponents of the argument from logical principles to conclude, not that one ought to reject realism about the principles of logic or the view that they are abstract objects, but rather that one ought to reject the causal closure of the physical domain and the causal theory of knowledge.¹⁸⁶ One man's *modus ponens* is another man's *modus tollens*.

Key to this argument, then, is first establishing the premise that (i) the principles of logic are objectively real, and (ii) the principles of logic are, in the words of Karl Popper, "abstract noncorporeal World 3 objects." And that latter premise must be established over and against possible alternatives.

Part I. Logical Principles Exist and Are Objective

Strictly speaking, the premise that logical principles are objective is entailed by the more specific premise that logical principles are abstract objects. But the latter premise builds on the strength of the former. The stronger the claim that logical principles are real, objective standards, the stronger the requirement for an explanation of that fact. The belief in the objectivity of some minimal set of logical principles forms the heart of the argument.

The belief that logical principles are real, objective standards has been largely axiomatic throughout the history of philosophy, despite perennial challenges to this view, from the Sophists of Plato's day down to the present. This view, however, has fallen on relatively hard times in the last century or so. It cannot be taken for granted in conversation, in the sense that one cannot assume that one's interlocutor will agree, that there are objective principles of logic that hold for

¹⁸⁶ It becomes clear, then, why the argument from reason, of which the argument from logical principles is a subset, has been used against naturalism, materialism, and determinism—all metaphysical positions that hold to causal closure, and, according to proponents of the argument from logic, all imply a causal theory of knowledge.

everyone, let alone principles that hold “necessarily and universally.” This is true both in the academy and in the wider culture. Regarding this “skepticism about reason,” Thomas Nagel writes, “A vulgar version of this skepticism is epidemic in the weaker regions of our culture, but it receives some serious philosophical support.”¹⁸⁷ I am not primarily concerned here about popular-level subjectivism in its many naïve and confused varieties so much as the “serious philosophical support” it receives.

The Meaning of “Objective” and “Subjective”

Before addressing the arguments for and against objective logical principles, I must clarify the meaning of “objective” and “subjective”, as they are being used here. To say that logical principles are “objective” is to say that they exist independent of what anyone thinks or feels *about* them.¹⁸⁸ If one adds the claim that logical principles are *necessary*, then objective and necessary logical principles are in contrast to the view I will label, following Thomas Nagel, *subjectivism*. Subjectivism is, most generally, the view that the principles of logic can be different for different people; that they depend—for both their existence and their nature—on what an individual agent, or group of agents, thinks about them; or that, ultimately, the principles

¹⁸⁷ Nagel, *The Last Word*, 4.

¹⁸⁸ This term is often taken to be synonymous with “mind-independent,” but that description introduces an unacceptable ambiguity. “Objective,” *as it is being used here*, and “mind-independent” only mean the same thing if the latter term is understood to mean that the existence of something in question does not depend on the mind thinking *about* it. The ambiguity arises with regard to whether the existence of certain entities is *ultimately* mind-independent. First, to take logical principles as the example, some views take logical principles to be determined by the contingent functioning of human minds, *but* while taking them to be independent of what anyone thinks *about* them. In other words, a logical principle is what it is based on the actual way the human mind works, and is not affected in the least by someone disagreeing with this fact. However, in that case, the logical principle is not *ultimately* independent of human minds. It clearly depends on human minds for its nature. Second, something might be independent of human minds—that is, exist regardless of whether any human minds exist—but not be independent of a *divine* mind. And lastly, something might be mind-independent in the ultimate sense—existing independent of *any* mind, human or divine. But this last view leads to other problems regardless of one’s other metaphysical commitments. For instance, if one argued that moral principles are mind-independent in an *ultimate* sense, then, in combination with theism, one would be vulnerable to the classic Euthyphro dilemma, and, in combination with a form of naturalism, one would be vulnerable to the classic problem of how we could ever know such mind-independent principles.

of logic are contingent (even if they do not depend for their existence on what anyone thinks or feels about them).

An important thing to note is that the view that the principles of logic are objective does not entail that they are wholly independent of human *thinking*, in the sense that they are not dependent in any way on how humans happen to think. They could, for example, depend for their nature on the way that humans happen to think based on the contingent structure of human brains, or on the way evolutionary forces happened to have shaped human thought patterns. This sort of view would still allow that the principles of logic, if so constituted, would be independent of what any given person thought *about* them. For instance, if someone thought that the principles of logic were necessary, atemporal, abstract objects—but it turned out that, in fact, our understanding of the principles of logic is determined by *contingent* dispositions shaped by evolution—that individual would be wrong, and *objectively* wrong, since the rightness or wrongness of one’s belief would in no way depend on what one thinks *about* the principles of logic. Thus, the notion of *being objective* is distinct from the notion of *being necessary*. This distinction allows for the possibility that the principles of logic (a) are *objective*, but (b) *not* external to the human mind, in its structure or function (as they would be if they were abstract objects). This is an important distinction to make in order to avoid begging the question against materialists who hold to the objectivity of logic.¹⁸⁹

At risk of overstating the point, the following clarification of the definition of “objective” is essential if the term is to avoid a pitfall inherent in common conceptions of objectivity. To say that something is ‘objective’ is often taken to mean something like, “It exists independent of what anyone thinks.” But thoughts themselves would seem to have, in a sense, objective

¹⁸⁹ I do not have any sort of hard survey data, but my assumption is that *most* materialists would subscribe to objective principles of logic. More important than percentages, however, is avoiding begging the question against such materialists.

existence (viewed from the outside—e.g., my friend’s thoughts exist independent of my thinking), and yet, at the same time, in a different sense, be radically subjective, depending entirely on what one thinks (viewed from the inside—i.e., any given thought’s existence would obviously depend on the thinking of the one who has them in his mind). Thus, there appears to be a paradox regarding the definition of ‘objective’. This is solved by clarifying the definition: something is objective if it does not depend for existence on our thinking *of* or *about* it. Those additional prepositions make all the difference. (For this reason, I have been careful to include this qualifier in my definitions above.)

To say, for instance, that the principles of logic are objective is not to say that they do not depend in any way on one’s *thinking*. Again, it may be the case that principles of logic are objective, *but contingent*, being dependent on the structure of human brains and the structure of human thought. In turn, though, that particular structure of human brains or human thought would not itself depend on what anyone thinks *of* it, making it objective. If such a proposal were true, then, this would mean that the principles of logic *do* depend on how we think; however, they would not depend on how we think *of* them.

“Logical Realism”: Logical principles are objective and necessary

One might be inclined to label the view that logical principles are objective “logical realism.” Conflating these two terms, however, could lead to unnecessary confusion, because “realism” is defined both more narrowly and more broadly than the definition of “objective” already given.

Some definitions of “realism” are *narrower* than the definition I’ve given to “objective.” For instance, Dallas Willard defines realism about logical principles as follows: “the laws of

logic do not in any way depend for their meaning or truth upon any mental fact, and especially upon how a particular individual, culture or species *may or may not actually think about anything*.”¹⁹⁰ Because Willard makes logical principles independent of “any mental fact,” the sorts of “objective” theories discussed above, in which the content of logic could depend on the contingent structure of human thought, would not count as “realist” theories. Likewise, Penelope Rush states that the view that logic is “applicable to a world...*independent of our human thought processes*” is associated with “logical realism.”¹⁹¹ Both of these conceptions of realism would exclude views of logical principles that would count as objective, in particular, those objective theories that make logical principles dependent on contingent “mental facts.”

The broader understanding of “logical realism” would be the view that logical principles “exist” or are “real” in some minimal sense.

For the sake of having a useful term at my disposal, I will define “logical realism” in the *stronger* sense that Willard and Rush give it. In effect, logical realism will be the label that I give to the conjunction of two claims: logical principles are *objective*, and logical principles are *necessary* (not based on any contingent mental facts). Thus, logical realism, so defined, is opposed to subjectivism.

Monism, Pluralism, and Instrumentalism

There are relevant distinctions that exist in the philosophy of logic—or logics, as Susan Haack would have it—that parallel this distinction between objective and subjective and logical

¹⁹⁰ Dallas Willard, “A Realist Analysis of the Relationship Between Logic and Experience,” *Topoi* 22 (2003), 76. Elsewhere, however, Willard gives a more inclusive definition of “logical realism.” Speaking of the relations of contrariety and contradiction, Willard writes, “These and other logical relations are, like truth itself, objective relations. They obtain or do not obtain between propositions regardless of what any individuals or groups may feel or think about them.” “Knowledge and Naturalism,” 41.

¹⁹¹ Penelope Rush, “Logical Realism,” in *The Metaphysics of Logic*, ed. Penelope Rush (Cambridge: Cambridge University Press, 2014), 13. Emphasis added.

realism. I am thinking of the distinctions between logical *monism*, logical *pluralism*, and *instrumentalism*.

According to Susan Haack, logical *monism* and logical *pluralism* are both views of logic which admit that logical systems can be correct, with pluralism allowing that more than one system can be correct. Logical pluralism is not to be confused, then, with the popular level understanding of pluralism in other philosophical domains, e.g., religious pluralism. Logical pluralism does not hold that two *contradictory* systems can both be correct. On a popular level, religious pluralism is often represented crudely to hold that distinct religions that make *prima facie* contradictory claims can all be true at the same time.¹⁹² Instead, logical pluralism is expressed, for instance, by the view that classical logic is incomplete, or that it does not go far enough, and must be supplemented by an extended logic. In that case, both the classical logic *and* the extended logic, which adds to the former, would be correct. Haack states that “the difference between a pluralism which admits classical logic and its extensions (or a deviant logic and its extensions) as both correct systems of logic, and a monism which admits both classical logic and its extensions (or a deviant logic and its extensions) as both fragments of *the* correct system of logic, is only verbal.”¹⁹³ This understanding of logical *monism* and *pluralism* is relevant to the present discussion precisely because it highlights views of logic that admit to there being *a correct overall system* (monism), or set of systems (pluralism), of logic. Thus, both monism and pluralism, on this view, would be consistent with objective logical principles *and* with logical realism. (For her part, Haack seems to eschew any metaphysical commitments about

¹⁹² It isn't my intention to straw man religious pluralism. However, the claim made by many who call themselves religious pluralists is that the major religions of the world boil down to saying the same thing. This seems obviously false, given the contradictory claims made by the major religions. However, their claim is not strictly equivalent to the notion that religions *are* contradictory. Most of these people probably think that all religions truly are consistent in their underlying fundamental commitments (e.g., “Every religion is about love at bottom”—an evidently false claim upon a brief look at the major religions). This is why I qualified the characterization in terms of pluralists being “accused of” saying *x*, *y*, *z*.

¹⁹³ Susan Haack, *Philosophy of Logics* (Cambridge: Cambridge University Press, 2006), 222.

the nature of logic. After listing what she understands to be “formal logics”, she states, “The demarcation is not based on any very profound ideas about ‘the essential nature of logic’ – indeed, I doubt that there is any such ‘essential nature’.”¹⁹⁴)

For the present discussion, the important distinction to make is not between monism and pluralism, since they both admit of a correct overall logic, meaning that, on both views, logic is objective. Rather, the relevant distinction for the present discussion is between the belief that there is an overall correct logic and the belief that there is not, a view that Haack labels *instrumentalism*.

Instrumentalism, as Susan Haack defines it, is the view that “there is no ‘correct’ logic; the notion of correctness is inappropriate.”¹⁹⁵ Instrumentalism, then, can be understood as a synonym of subjectivism, as I am defining it. Haack’s definition allows for another angle from which to define subjectivism about logic: it is the view that there is, ultimately, no ‘correct’ logic. Thus, in making his argument from logical principles, Popper explicitly rejected instrumentalism. He writes, “Logic, the theory of valid inference, is indeed a valuable instrument; but this cannot be made clear by an instrumentalist interpretation of valid inference.”¹⁹⁶

Is Logic Revisable?

A third angle from which to approach the question of objectivity, subjectivity, and logical realism is with regard to the notion of *revisability*. Is logic revisable? Are the principles of logic

¹⁹⁴ Ibid., 4; 6.

¹⁹⁵ Ibid., 221.

¹⁹⁶ Popper, *The Self and Its Brain*, 81.

revisable? W. V. O. Quine famously held that all of logic is revisable.¹⁹⁷ In “Two Dogmas of Empiricism,” Quine writes:

...no statement is immune from revision. Revision even of the law of the excluded middle has been proposed as a means of simplifying quantum mechanics; and what difference is there in principle between such a shift and the shift whereby Kepler superseded Ptolemy, or Einstein Newton, or Darwin Aristotle?¹⁹⁸

This proposal, at first blush, seems to indicate subjectivism (as defined above) with regard to any beliefs whatsoever, let alone logic. Certain of his statements lend support to this interpretation. For example, he writes, “The totality of our so-called knowledge or beliefs,...even of pure mathematics and logic, is *a man-made fabric* which impinges on experience only along the edges.”¹⁹⁹ However, Quine is not proposing that one can revise his beliefs willy-nilly, arbitrarily. The revision is still attached to experience.²⁰⁰ Regardless of Quine’s precise meaning, the purpose here is not to provide an in-depth interpretation. His precise meaning is secondary to the question: Is it plausible to claim that logic can be revised?

The answer depends on what one means by “revision”. There are two distinct senses of the word—one consistent with logical realism, one consistent with subjectivism. Susan Haack provides a description of both senses in the following passage, while expressing her belief that Quine had in mind the former sense and her agreement with Quine that logic is “revisable” that sense:

¹⁹⁷ Thank you to Nicole Wyatt for pointing this out to me in conversation.

¹⁹⁸ Willard Van Orman Quine, “Two Dogmas of Empiricism,” in *From a Logical Point of View*, 2nd edition (Cambridge, MA: Harvard University Press, 1953), 43.

¹⁹⁹ Ibid., 42. Emphasis added.

²⁰⁰ For instance, Quine writes, “Reevaluation of some statements entails reevaluation of others, because of their logical interconnections—the logical laws being in turn simply certain further statements of the system, certain further elements of the field. Having reevaluated one statement we must reevaluate some others, which may be statements logically connected with the first or may be the statements of logical connections themselves. But the total field is so underdetermined by its boundary conditions, experience, that there is much latitude of choice as to what statements to reevaluate in the light of any single contrary experience.” Ibid., 42-43.

Quine is claiming that *logic is revisable*. I think he is right; but the epistemological issues that this claim raises are far more complex than one might suspect from the elegant but rather perfunctory treatment they receive in ‘Two Dogmas’. One needs, first, to get clear what is meant by the claim that logic is revisable – and, equally importantly, what is *not* meant by it. What I mean, at any rate, is not that the truths of logic might be other than we take them to be, i.e. *we could be mistaken about what the truths of logic are*, e.g. in supposing that the law of excluded middle is one such.²⁰¹

Susan Haack’s view, then, is that logic might be revisable in the sense that there are tweaks or changes or revisions that we might make to parts of logic overall *in order to make it more accurate*—that is, in order for our logic to correspond more precisely to the *objective*, mind-independent reality of the truths of logic—but she does *not* understand the claim to mean that the law of excluded middle could suddenly be false because we “revise” our beliefs regarding it. Haack, then, reads Quine as providing a view consistent with objective principles of logic.

Contrary to Haack, Hilary Putnam interprets Quine as espousing the “moderate doctrine” that “there are no truths which it would never be rational to give up; for every truth or putative truth, there are circumstances under which it would be rational to accept its denial.”²⁰² In other words, we *could* be mistaken about what the truths of logic are. If Quine means that *any* principle of logic can be revised, then he is effectively subjectivizing the principles of logic, since there would be no principles of logic that could not be changed from what they are, no Archimedean fixed point from which revisions could be made in Haack’s sense, i.e., making things more accurate.

²⁰¹ Haack, *Philosophy of Logics*, 232. Emphasis in original.

²⁰² Putnam, “There Is at Least One A Priori Truth,” 585. James Conant, “The Search for Logically Alien Thought: Descartes, Kant, Frege, and the *Tractatus*,” *Philosophical Topics* 20, no. 1 (Fall 1991), 124, agrees with Putnam’s interpretation, *contra* Haack. He writes, “In a paper entitled ‘There is at Least One A Priori Truth,’ a relatively recent Putnam sheds his piety and argues that there are, after all, a priori truths in exactly the sense that less recent Putnam and (any vintage of) *Quine* had famously been concerned to deny that there could be.”

What Quine ultimately meant by “revisability” is secondary (although I think Putnam’s view better fits the content of Quine’s writings²⁰³). The primary purpose here is to elaborate on what is meant by the claim that logical principles are subjective. To say they are subjective is equivalent to saying they *are*, ultimately, revisable in the sense that every logical principle, as we currently understand and apply them, can be expunged from our intellectual toolbox. Objectivity, as I am defining it, would also be compatible with this view. Logical realism is the view that the principles of logic are *not* revisable—importantly, *in the sense that they can be other than what they are*—since they exist independent of what any human thinks *about* them, and they are necessary.

Subjectivism, then, can be defined in contradiction to logical realism. The view that I am labelling “subjectivism” can be described by the following conditions, taken in conjunction with one another: (a) logic is revisable in the sense that the laws of logic could be otherwise than we take them to be and there are no logical principles which it would never be rational to give up; (b) there is no ultimately ‘correct’ logic; (c) logic is contingent. Subjectivism is also consistent with the view that there are no objective logical principles, and that logic is a “man-made fabric,” not something discovered. The content of logical laws (if any) depends on the beliefs of the individual or the group (the “culture”), or on contingent “mental facts” of human psychology.

Thomas Nagel sums up the dispute between what he calls “rationalism” (or what I am calling “logical realism”) and subjectivism this way: “The issue, in a nutshell, is whether the first person, singular or plural, is hiding at the bottom of everything we say or think.”²⁰⁴

²⁰³ See, for instance, W. V. O. Quine, *Methods of Logic*, 4th ed. (Cambridge, MA: Harvard University Press, 1982), 2-3.

²⁰⁴ Nagel, *The Last Word*, 3.

The Case for Objective Logical Principles

The principles of logic are either contingent or necessary—there is no middle ground. Either logical realism or subjectivism is true. Thus, if subjectivism is shown to be self-defeating, logical realism, its contradictory, must be true. A survey of all the versions of the argument from logical principles reveals that its proponents all make the claim for objective and necessary logical standards in one way or another. But, we need not discuss the supposed *necessity* of logical principles just yet. Objective logical principles are the bridgehead from which the proponents of the argument launch their attack on materialism.²⁰⁵ The following section is a very brief summary of some arguments for *objective* logical principles, followed by some arguments for logical realism and against subjectivism.

In contemporary philosophy, to say that the principles of logic are objective is, for the moment, a contentious claim. This is evidenced by the sheer number of examples of what Thomas Nagel calls “sophisticated forms of subjectivism.” These forms of subjectivism are spread across philosophical disciplines, and, although some of the following examples are debateable, they include instrumentalism in the philosophy of logic, coherentism in epistemology, pragmatism regarding truth, anti-realism in metaphysics, and so on, not to mention logical skepticism and global relativism. For this reason, Nagel felt the need to author a book length argument in defense of “philosophical rationalism” against *subjectivism*. One the chapters was devoted to demonstrating that logical principles are objective and necessary, that they do not depend on what anyone thinks or feels about them for their reality and that they are not

²⁰⁵ Popper, in fact, makes the bulk of his case for this claim, seemingly assuming that if he can demonstrate the objectivity of logical principles, he has shown that they are non-physical, abstract objects. Of course, more argument is needed to bridge that gap, but it demonstrates how central the objectivity of logical principles is in his argument.

contingent.²⁰⁶ The following section will look at the case that advocates of the argument from logical principles make for objective logical principles.

The case for objective principles of logic, and against (some forms of) subjectivism, can be put quite simply: “Subjectivism about logic is directly self-defeating.”²⁰⁷ Although Nagel’s argument aims to prove *more* than just that there are objective logical principles, the argument would demonstrate at least that much. The basic problem with claiming that logical principles are not objective is that it is a performative contradiction. Without *objective* principles, one has no principles or rational standards by which one can critique others, with the expectation that they are also binding on that other person. There could not possibly be any *normative* force behind one’s criticisms. One is merely uttering sounds, without having any standards in common. The denial of objective logical standards is the denial that others *should* believe the same things about logic.

Reppert offers an argument for what he calls “logical realism” (a term whose meaning is not necessarily identical to my own usage)—and against “nonrealism”. Minimally, it’s clear Reppert is rejecting the lack of objective logical laws. He writes:

...nonrealism about logical laws has a serious problem, posed long ago by Aristotle. If we are nonrealists about logical laws, that is, if we do not suppose that the laws of logic really exist, then we cannot coherently assert that this is so, for if we were to do so, we would have to presuppose the legitimacy of those very logical laws (for example, the law of noncontradiction).²⁰⁸

²⁰⁶ However, Nagel does not take a positive position—at least, not in the book—regarding *what* precisely the principles of logic are in an ontological sense. (Ostensibly, Nagel avoids taking a position because he doesn’t want to support anything like a theistic metaphysical position, but at the same time he sees that accounting for logic is a huge problem for naturalism. Remaining agnostic doesn’t avoid this tension, but it avoids him having to reject naturalism. He says he simply doesn’t *want* theism to be true.)

²⁰⁷ Nagel, *The Last Word*, 77.

²⁰⁸ Reppert, “Several Formulations of the Argument from Reason,” 20. Cf. Reppert, *C. S. Lewis’s Dangerous Idea*, 81-82.

This is a standard argument for objective logical laws, but there is a common flaw lurking beneath the surface. Interpreted one way—as a claim that one is presupposing logical laws in one’s own reasoning, arguments, and critiques, the argument seems to be on solid ground. As I argue in much more detail in Chapter 5, on what basis is the opponent offering a critique if he is not appealing to some (ostensibly) objective rule or standard?

But interpreted another way, this objection involves a logical error. *If* Reppert is interpreted as saying that, for example, one cannot deny the law of non-contradiction without contradicting oneself, this is, as a matter of logic, *false*.

This objection misunderstands what a denial of the law of noncontradiction entails. The law of non-contradiction can be formulated as follows: “Necessarily, ‘A and not-A’ is false.” (Or, put in terms of possible worlds, there is no possible world where ‘A’ and ‘not-A’ are both true at the same time.) Formulated this way, the law entails that contradictions are false in every case. A denial of this law, then, merely entails that not every instance of a contradiction is false.²⁰⁹ The objection, however, as stated above, takes a denial of the law to entail that *any* contradiction is true—including the contradiction between the denial itself and its negation. If that were the case, then it would be self-refuting to deny the law of noncontradiction. But to deny the law of noncontradiction is not to say that *any* contradiction can be true; rather it is to say that at least one contradiction is true (for example, the liar’s paradox).

Now, I think the law of noncontradiction is, in fact, true. I reject the denial. But a defense of the law, it would appear, has to be made on different grounds than that the denial is

²⁰⁹

Thank you to Anders Kraal for pointing out this common reasoning error to me.

straightforwardly self-refuting.²¹⁰ I specifically addressed this point because this error in defending objective logical standards is so common.

Returning to the rejection of objective logical principles, then, we see that the simple argument in favour of objective standards of logic (i.e, they apply to everyone regardless of what anyone thinks about them) is that anyone who denies objective logical principles is, *in the act of denying them*, making a tacit appeal to *some* principle of reasoning (e.g., a counterexample refutes a universal claim) that they expect their listener to agree to, as if it were objective. Thus, an affirmation of objective logical principles is eminently plausible and the argument is on solid ground. Even the person who thinks this claim false would agree that it is very hard to deny, or, perhaps better, *defy* (in the practice of philosophy). It's hard to imagine how anyone could engage in dispute about the conclusion without seeing that they are, by doing so, appealing to normative standards of logic.

Nagel's Argument Against Subjectivism and for Logical Realism

Now I want to turn to some arguments put forward by Nagel. Nagel doesn't merely argue for objective logical principles. He argues for logical realism, or what he calls "rationalism," and against subjectivism.

Nagel starts by pointing out that the most basic mathematical or logical truths are "immune to doubt."²¹¹ We cannot even imagine what it would be like, for instance, for $2 + 2 = 4$ to be false. We can't for a second "get outside" the most basic logical thoughts. And this forms the

²¹⁰ Those who deny the law of noncontradiction are also going to deny the law of bivalence (every sentence is either true or false). Amongst logicians, there would be an expectation or insistence for the law of noncontradiction to be formulated in a non-question-begging way. Thanks to Aaron Thomas-Bolduc for this point. Regarding the insistence against question-begging in the logical realist's arguments—isn't that insistence itself an appeal to a rational standard, a standard of *good* reasoning, *proper* reasoning? How would the non-realist reply to someone who claimed that question begging was good logical form?

²¹¹ Nagel, *The Last Word*, 55.

heart of his argument against subjectivism. If one tries to suppose that any form of subjectivism is true—that is, if one tries to suppose that logical principles could be revised, that they are contingent, that they are part of a “man-made fabric”—then one is trying to “get outside” the principles of logic, to look at them from an external view. But this is impossible, Nagel claims. You can *never* actually think in such a way where you are on the outside looking in at the subjective, changing, contingent principles of logic. Rather, logic is always there in your thought as an inextricable component.²¹²

The subjectivist, however, thinks that logic *could* be revised, that it *is* part of a man-made, or species-made, fabric, and, ultimately, that it could be otherwise than it is. As a way to respond to the above points, the subjectivist might shrug that, of course, we can’t deny the law of non-contradiction or believe $2 + 2 = 5$. That’s just the way things *happen* to be. Our innate programmed responses dictate that we think in such a way.

Nagel points out why such a response is “useless.” *Because the subjectivist wants to say more.* The subjectivist does not stop at saying, “Our innate programmed responses dictate that we think in such a way.” The subjectivist goes on to add his subjectizing qualifier: “We all have to think this way...*but it could be otherwise.*”

It is that extra statement that is the problem. The subjectivist is making a claim about *all* thoughts and *all* statements...with one exception: He does not include his own extra comment within the frame of subjective claims. The subjectivist utters that extra claim from a standpoint *removed from the subjectivized frame of reference.* In this way, the subjectivist cannot help but defeat himself by arguing for subjectivism.

²¹² Ibid., 66.

Thus, there is a fairly simple argument against subjectivism: “Subjectivism about logic is directly self-defeating.”²¹³ All of Nagel’s discussion of subjectivism about logic in *The Last Word* circles around this basic claim. This is a very simple argument, and a very powerful one. The error that I pointed out earlier, which is often made in common arguments against subjectivism about the law of non-contradiction, demonstrates the need for philosophical sophistication when dealing with logic, not to mention the pitfalls of getting into a dispute over logic with a trained logician. They will force your logical error upon your understanding. But no amount of sophistication or lack of it, it would seem, should influence the conviction that *everyone* presupposes common (objective) logical principles. Even the one who would deny this would presumably have to accuse me of error based on some standard they expect I will submit to.

Subjectivism, then, cannot be argued for rationally without absurdity. This is the bedrock of the argument from logical principles. Even if the case against *subjectivism* and for logical realism is judged unsuccessful, the above arguments against subjectivism are powerful considerations in favour of the lesser conclusion of objective logical principles. And yet, on what basis would the arguments above be judged unsuccessful?

There are quite a few philosophical theories that have subjectivism baked right into them, such as coherentism in epistemology (the view that all of logic can be revised). If the case against subjectivism is successful, then any and all theories that implicitly or explicitly affirm subjectivism are also false. Here are several examples.

²¹³ Ibid., 77.

Logical Skepticism

One form that logical subjectivism can take is skepticism. Logical skepticism, in its strong form, which says that we *cannot* know the principles of logic, is, in practice, equivalent to a form of subjectivism. Thus, the case against skepticism is very much aligned with the case against subjectivism. I expand on the arguments above in chapter 5, where I respond to skepticism.

Global Relativism

Although this position might not be popular in academic philosophy, one often encounters on the popular level the position that logical laws, and indeed, *any* beliefs, are true or false relative to an individual's beliefs, or to the common beliefs of a culture. Thomas Nagel labels this "'crude' subjectivism,"²¹⁴ which is manifest in the ubiquitous qualifiers, "for me" and "for us," tacked on the end of any otherwise declarative statement—especially in regard to moral claims.

Global relativism is a doctrine applied to *all* truth claims, not just claims about logic. This broader form of relativism about truth would, of course, encompass logical truths, as well.

Stephen Read, in *Thinking about Logic*, explains the straightforward problem with such a global relativism:

Global relativism is self-refuting, as Plato observed in his dialogue, the *Theaetetus* (170e–171c). It falls to the *ad hominem* objection that, by its own lights, in rejecting it I make it right to reject it. It has to concede that it is false for me; and I—speaking as one who is a relativist—say it is false. So either way, relativism is false.²¹⁵

²¹⁴ Ibid., 4.

²¹⁵ Stephen Read, *Thinking About Logic: An Introduction to the Philosophy of Logic* (Oxford: Oxford University Press, 1995), 6.

Certainly this is a position for which it makes no sense to argue. In a related sense, we cannot *practice* philosophy as if something like global relativism were true. Graham Priest makes this point well in critiquing the views of Richard Rorty on truth and philosophy. Priest writes:

“...Rorty’s view that philosophy is not truth-seeking would seem to be quite self-refuting...Anyone who, it seems, tries to persuade us of something in good faith, and who is not simply playing with us, is presupposing an appropriate notion of truth. They have it right; we have it wrong...This is, in fact, just a special case of a well-known bind that was first observed as long ago as Plato’s *Thaetetus* (171a4-c7). Someone who claims that there is no notion of truth to which assertion must answer can say anything they like. There is therefore no reason to believe them. **They have argued themselves out of the game.**”²¹⁶

Priest gives us a condition for an accurate view of philosophy, which we can apply more specifically to one’s account of logical principles: “Anyone who gives an account of philosophy, and so engages in philosophy, should at least do so in a way that is not at odds with the way they claim philosophy to be.” The same is true of philosophers who want to give an account of logical principles. We might transpose Priest’s condition to the domain of logic and state: “Anyone who gives an account of logic, and so engages in logic, should at least do so in a way that is not at odds with the way they claim logic to be.” And that condition, of course, is precisely what anti-subjectivists claim that subjectivists violate whenever subjectivists *argue* for their position on the basis of *rational arguments*, which tacitly assume objective logical principles by virtue of claiming that their opponents have somehow violated, by implication, *objective* standards and have, therefore, come to unjustified, or false, conclusions that the subjectivist is not bound, by the ostensible *rules of engagement*, to agree with.

²¹⁶ Graham Priest, “What Is Philosophy?,” *Philosophy* 81, no. 381 (April 2006), 200.

Instrumentalism

Since instrumentalism about logic is equivalent to subjectivism, it is worth looking briefly at specific considerations against it, in order to provide a different angle from which to evaluate subjectivism, and to bolster the overall case for establishing the premise.

Susan Haack is inclined to reject instrumentalism for at least two reasons. First, she believes that there is “an extra-systematic idea of validity to which formal logical systems aim to give precise expression.”²¹⁷ In support of this, she cites the long history, from Aristotle to Frege to present thinkers, of trying to create formal systems on the basis of *already* having an initial conception of what counts as good and bad arguments.²¹⁸ In other words, Haack seems to be asserting a sort of *particularism* about logic, as opposed to *methodism*,²¹⁹ as the true description of how logic is done. In other words, although she does not say as much, she seems to be assuming that we start with *real* knowledge of good and bad arguments—that is, of basic logical principles.

But, if the “extra-systematic idea of validity” is synonymous with an *objective* standard of validity to which formal logics must conform, then this reason seems to *presuppose* the very thing to be proved, namely an objective standard of validity. Does Haack beg the question against the instrumentalist? Not necessarily.

If Haack’s statements with regard to extra-systematic validity, and the approach of figures like Aristotle and Frege in constructing logical systems, are understood as considerations in favour of the claim that at least some knowledge of logical principles is *self-evident*, then the

²¹⁷ Haack, *Philosophy of Logics*, 227.

²¹⁸ Ibid.

²¹⁹ The *particularist* claims we start with knowledge of paradigm cases of good and bad arguments and then try to construct a system around our initial judgments that accounts for them accurately, with an allowance for some modifications. The *methodist*, in contrast, holds that a proper system must first be established in order to determine what counts as a good or bad argument.

argument is not question-begging. They are, rather, merely considerations *in favour* of the self-evident view of validity that must be accounted for. Rather than her claim being interpreted as a supporting premise (and thereby begging the question against the instrumentalist), she can be interpreted as demonstrating her conclusion by pointing to what is self-evident. Claims of self-evidence can, of course, be dismissed by anyone who simply denies sharing the supposedly self-evident intuition. The one who argues in favour of the intuition, though, as I see it, would not be begging the question unless they claimed to have *proved* the truth of the intuition, rather than merely inviting the opponent to acknowledge the intuition.

None of this interpretation, however, is suggested by Haack herself and it isn't clear that she would agree with it. Yet Haack is aware that she is in danger of assuming the very thing to be proved in much the same way "as Russell and Moore assumed the correctness of a correspondence theory of truth, and criticised the pragmatist theory on that basis."²²⁰

Haack's second reason for being inclined to reject instrumentalism is, in effect, the complaint that instrumentalism would allow for systems that affirm invalid inferences. She writes that her "inclination" against instrumentalism is strengthened "by some persistent doubts about whether an instrumentalist can have anything sensible to say about how one is to choose between logical systems."²²¹ One might prefer one system over another because it is "fruitful," "convenient," or "appropriate," she writes, but even if the inference from "A" to "A and B" were fruitful, convenient, or appropriate, "this would, or so it seems to me, be *no* reason to prefer a system which represented that inference as valid."²²²

Again, Haack's second reason to doubt instrumentalism, like the first, appears to presuppose the very thing to be proved, since her reason only counts against instrumentalism if

²²⁰ Haack, *Philosophy of Logics*, 228.

²²¹ Ibid., 227.

²²² Ibid., 227-228.

one *presupposes* an extra-systematic idea of validity to which the inference from “A” to “A and B” does not conform. Yet I believe the proposal I made above—namely, that she is pointing toward *self-evident* truths or principles of logic—fits here as well. In regard to the seeming impossibility of affirming the inference from “A” to “A and B”, she adds the qualifier “so it seems to me”. This is not to relativize her claim, but to say, in effect, “I can’t see it any other way.” Regardless of the merits of my proposal that one should consider her points merely as attempts to expose self-evident truths, the question of whether instrumentalism or subjectivism can be accused of self-defeat without begging the question²²³ is an important one, and advocates of the argument from reason provide a range of answers. (See the discussion on logical skepticism, for instance, in chapter 5.)

At the end of the day, Haack is non-committal about whether or not instrumentalism can be refuted. She does not represent her “doubts” about instrumentalism as conclusive, but rather labels them as “suspicions” that she is “inclined” toward.²²⁴ All the same, her arguments do count against the position.

Summary of Part I

The premise that logical principles are objective forms the hard kernel of the argument from logic. Although a rejection of subjectivism is only one step toward the conclusion of the argument from logic, this is the premise that is the hardest to *plausibly* deny, since, as Nagel points out, the person who denies that logical principles are objective does so by relying on none

²²³ Of course, begging the question is a logical fallacy—a violation of logical standards or principles. But, in the absence of objective logical standards, why would begging the question be a problem, let alone invalidate an argument?

²²⁴ Haack does add the following consideration against instrumentalism: “Nevertheless, I think the fact that Rescher, in presenting an instrumentalist position, in the end allows that the requirement that arguments be truth-preserving is overriding may justifiably confirm my suspicions.” *Ibid.*, 228.

other than logical principles *that he tacitly takes to be objective* in arguing against the position. Thus, to deny objectivity to logical principles appears to be directly self-defeating.

Subjectivists and logical realists, however, are perhaps doomed to not see eye to eye on this question, and it is not clear how a realist might *rationally* persuade a subjectivist that they are wrong, other than to accuse them of undermining their own position by their philosophical practice. As one colleague put it, one can try to wrestle the subjectivist to the ground with the principle of non-contradiction, but one gets the feeling that they will always slip through your fingers by changing the subject.

At the very least I hope to have demonstrated that the argument is on plausibly solid ground with its first premise. The argument from logical principles depends first and foremost on the claim of objective logical principles, and next, on logical realism. This is by far the most important premise. The reason is simple. Once you establish that you have some real, objective phenomena in the world, you have something that must be *explained*. Further, we can now ask of logical principles: What are they ontologically? What do they consist of? This premise generates all the leverage for the rest of the argument.

At this point in the argument, even if one affirms the first premise, materialism should still be an option. Thomas Nagel makes just this point. After rejecting subjectivism as a whole, he states, “What I have said so far is consistent with Kantian idealism, physicalistic realism, or any number of views.”²²⁵ I have tried to make the same concession in all that has been written up until this point.

Assuming, for sake of argument, that the principles of logic are objective, we can now turn to the question, “What, precisely, *are* (ontologically) the objective principles of logic?”

²²⁵ Nagel, *The Last Word*, 68.

Part II. Logical Principles are Non-Physical Abstract Objects

A. Overview

In part II of this chapter, I will evaluate the key premise that claims that the principles of logic must be, as Victor Reppert puts it, “nonphysical, nonspatial and nontemporal.”²²⁶ Elsewhere he expands on this by claiming that, if we acknowledge their existence, we must “accept some nonphysical, nonspatial and nontemporal reality, something along the lines of the Platonic forms.”²²⁷ For simplicity’s sake, I will refer to such “nonphysical, nonspatial, and nontemporal” entities as abstract entities, intending to be as general as possible, recognizing at the same time that this locution has a very specific meaning for certain metaphysicians.²²⁸

The key premise, then, that will be evaluated in this section is: “The principles of logic are non-physical, abstract entities.” This premise is a definite answer to the question, What is the subject of logical knowledge? That is, What is logical knowledge *about*? The answer given by this premise in its most general form is the answer given by Reppert: “some nonphysical, nonspatial and nontemporal reality.” Such a nondescript answer, however, is in desperate need of clarification. One more specific option is that these “objects of reason,” as E. J. Lowe calls them, are abstract universals such as logical relations between propositions. This section will look further at the problem faced by the advocates of the argument from logical principles of spelling out in more detail what exactly logical principles are *qua* abstract entities.

This is, in my estimation, the most contentious premise in the argument from logic.²²⁹

This should not be surprising if Dallas Willard is correct when he writes that “logic as a field of

²²⁶ Reppert, *C. S. Lewis’s Dangerous Idea*, 81.

²²⁷ Reppert, “Several Formulations of the Argument from Reason,” 19.

²²⁸ For example, see E. J. Lowe’s “Abstract Entities” in *The Possibility of Metaphysics: Substance, Identity, and Time* (Oxford: Clarendon, 1998), 210-227.

²²⁹ The fact that Popper spent the bulk of his argument attempting to establish this point (and almost no time on any other premise), almost entirely neglecting other necessary premises in his argument, would seem to indicate that he shares this view. As I mentioned above in another footnote, Popper seems to have believed that if he could

knowledge and inquiry remains in chaos at its philosophical foundations. I mean by this that the leading investigators cannot agree—indeed, they *disagree* in dimensions categorical—concerning what the subject of logical knowledge is, and concerning the modes of logical knowledge.”²³⁰ But the disagreement stretches beyond the boundaries of the philosophy of logic. Abstract entities are controversial in themselves, being the subject of perennial debates between realists and nominalists in metaphysics—a debate stretching back to the ancient Greeks. Reppert, Popper, and company all see logical principles as being a particularly powerful exhibit in the case for including abstract entities in one’s ontology.

The arguments for this premise all take a similar form. First, establish essential characteristics or qualities of the principles of logic. Second, argue that such characteristics cannot be physical characteristics, but must be “nonphysical, nonspatial, and nontemporal.” For instance, the principles of logic are claimed to be *necessary* (*contra* subjectivism). This characteristic is appealed to in order to establish that they must, therefore, be non-physical, abstract entities. I will cover a number of arguments that advocates of the argument from logical principles offer for this premise.

There are, of course, materialistic and naturalistic alternatives to the claim that logical principles are abstract entities—alternatives that assume the principles of logic are objective, and that seek to account for that fact. I will briefly survey these views, which include “psychologism,” “formalism,” and “linguistic conventionalism” (the view that logical principles are merely “analytic”).

demonstrate that logical principles are objective or necessary, then he would have demonstrated that they are abstract entities.

²³⁰ Willard, “Space, Color and Sense Perception and Epistemology of Logic,” *The Monist* 72, no. 1 (January 1989), 117.

The premise at issue is that principles of logic are non-physical, abstract objects. Before we look at a defense of this claim, then, it would be fitting to clarify what is meant by “abstract objects”.

B. What Are “Abstract Objects”?

First, the concept of abstractness can be contrasted with the concept of concreteness, a contrast normally drawn in spatiotemporal terms.²³¹ According to Angus Menuge, all abstract objects have in common that “they are not exemplified by any state of affairs within the material world.”²³²

According to E. J. Lowe, if one wants to contrast concrete objects with abstract objects, the obvious suggestion is that “concrete objects are, while abstract objects are not, denizens of space-time (or, which perhaps amounts to the same thing, are/are not subject to causality).”²³³ To put the same point another way, abstract objects are “characterized as existing in neither space nor time and consequently lacking spatiotemporal properties and relations.”²³⁴

There is a problem, however, with designating abstract objects as “those that are not denizens of space-time.”²³⁵ Bob Hale points out that *language* is something that seems plausibly abstract, but at the same time comes into existence and undergoes change.²³⁶ The solution that Lowe suggests is to make a distinction between *concrete particulars* (e.g., American English—

²³¹ Lowe, *The Possibility of Metaphysics*, 212. Lowe explains that “the term ‘abstract’ is used in opposition to the term ‘concrete’, with concrete entities being thought of as existing in space and time, while abstract entities are correspondingly thought of as being non-spatiotemporal in character.” *Ibid.*, 211.

²³² Menuge, “Knowledge of Abstracta,” 7.

²³³ Lowe, *The Possibility of Metaphysics*, 51.

²³⁴ *Ibid.*, 210.

²³⁵ *Ibid.*, 53. He continues: “Now, many traditional candidates for the status of ‘abstract objects’ have been attacked (under the warcy ‘No entity without identity’) precisely because they seem to *lack* determinate identity-conditions—propositions and properties providing notorious examples. But I would contend that their supposed lack of determinate identity-conditions is not a good reason for denying the existence of such entities and is at most a reason for denying them the status of ‘objects’.”

²³⁶ *Ibid.*

that is, the mereological sum of all the particular instances of the language—would be a concrete particular), and *kinds*, which are universals instantiated by all members of that kind. Lowe explains:

[W]e may say that ‘English’, construed as denoting a kind of language, does not refer to an ephemeral and changeable entity, but that what have come and gone and been subject to change are the concrete processes of linguistic communication which, over the centuries of English history, have all qualified as manifestations of English. On this view, in as much as ‘English’ denotes something abstract it denotes a *kind* (a universal), not a particular.²³⁷

It is enough to say that, if proponents of the argument from logical principles wish to establish the reality of a class of entities that pose a problem for materialism, they must, at a minimum, provide a plausible definition—or description—of that class of entities. Reppert’s purely negative description (“nonphysical, nonspatial and nontemporal”) is an attempt at providing the very minimum description necessary. Without entering into further debates about abstract objects themselves, I will assume that a minimally agreeable concept of “abstract” is clear.

How might we distinguish between something being an *object* and being a *non-object*?

Lowe explains this distinction in the course of making another distinction between particulars and universals—a distinction he makes in terms of *instantiation*:

A particular is something (not necessarily an *object*) which instantiates but is not itself instantiated. Universals, on the other hand, necessarily have instances (or, at least, are *instantiable*). But are universals thus conceived to be regarded as *objects*?...By my account, universals will indeed qualify as objects if they have determinate identity-conditions.²³⁸

Without going further into the question of what counts as “determinate identity-conditions,” I will conclude this preliminary discussion of the notion of abstract objects by asking, How

²³⁷ Ibid. See 51-53 for a fuller discussion.

²³⁸ Ibid., 217.

detailed, or specific, does the advocate of the argument from logical principles have to be with regard to the nature of abstract objects?

How Precise Do We Need to Get in our Definition of Abstract?

As E. J. Lowe goes to great lengths to explain, there are some important distinctions that can be made with regard to the senses in which something can be ‘abstract’.²³⁹ That said, the advocate of the argument from logical principles is required to make sense of abstract objects, but the heavy-duty metaphysical work of differentiating between all the possible types of abstract entities, and even senses of ‘abstract’ is not required to make sense of the argument. Some minimal level of clarification as to what abstract entities are like should suffice for the simple reason that every argument has to stop somewhere. Advocates of physicalism, for instance, should be able to clarify, to an adequate degree, the nature of the physical world.²⁴⁰ But one could not reasonably require them to clarify the concept of physical to some level beyond what is minimally necessary to distinguish it clearly from its alternatives (e.g., dualism or idealism). Likewise, in the case of abstract entities, it is reasonable to require realists about such entities to clarify their nature to a minimal level, provided the account is coherent and meaningfully distinguishes them from physicalistic alternatives.

That said, because, as I will discuss below, this argument cuts across the perennial metaphysical debate between nominalists and realists, attacking the conception of an “abstract

²³⁹ See Lowe, “Abstract Entities,” in *The Possibility of Metaphysics*, 248-259, for a full discussion of the issues surrounding the label ‘abstract’.

²⁴⁰ Doing so is not as straightforward as one might expect. See, for instance, Tim Crane and D. H. Mellor, “There is No Question of Physicalism,” *Mind* 99, no. 394 (April 1990): 185-206. For challenges to the typical views of the “physical” in naturalism and physicalism, see Rea, *World Without Design*, for an argument that naturalism is inconsistent with a commitment to materialism; and Travis Dumsday, “Spatial Extension as a Necessary Condition for Being a Physical Object and Why It Matters for Philosophy of Religion,” *Philosophia Christi* 18, no. 1 (2016): 29-46, for an argument that spatial extension cannot be a necessary condition for being a physical object if materialism is true.

object” is an avenue down which the materialist could go in order to avoid affirming this premise of the argument from logic.

If the advocate of the argument wanted to deny such an out, he would need to do the work required in the debate on the realist side of the fence. The philosophers who advance the argument from logic, with the exceptions of E. J. Lowe, Dallas Willard, and Karl Popper, do not spend much, if any, time on the question of what *precisely* the principles of logic are *qua* abstract entities (whether “objects”, “standards”, “relations”, etc.).²⁴¹

C. What Are the Principles of Logic According to the Argument?

In Part I of this chapter, I undertook to characterize the principles of logic in the most general sense possible, in order to avoid begging the question. But at this point in the discussion, it is appropriate to specify as precisely as possible what the advocates of the argument from logical principles claim the principles of logic are.

It turns out, this is a weak point in the arguments of Reppert, Nagel, and Hasker. The vagueness with which they reference “logical laws” and “principles of rational inference” without offering specific clarification as to their precise ontological nature diminishes the force of their arguments. Popper, in contrast, gives his argument follows his laying out his very unique and idiosyncratic ontology, which includes explanations of his conception of the nature of “World 3 objects.”²⁴² E. J. Lowe,²⁴³ Angus Menuge,²⁴⁴ J. P. Moreland,²⁴⁵ and Dallas Willard²⁴⁶ also go to lengths to clarify the specific ontological nature of logical principles.

²⁴¹ See Willard’s “Degradation of Logical Form” for a commentary on the pitfalls of failing to make careful ontological distinctions in logic.

²⁴² See Popper, *The Self and Its Brain*, chapters P1 and P2, 3-50. See also Karl Popper, *Knowledge and the Body-Mind Problem: In Defence of Interaction* (London: Routledge, 1994).

²⁴³ See Lowe, “Naturalism, Theism, and Objects of Reason.”

²⁴⁴ See Menuge, “Knowledge of Abstracta.”

²⁴⁵ Moreland, *The Recalcitrant Imago Dei*, 67-103.

In contrast, Reppert writes that if someone accepts the laws of logic, they must accept “some nonphysical, nonspatial and nontemporal reality—at least something along the line of Platonic forms.”²⁴⁷ In Reppert’s defense, he might be trying to avoid details for the purpose of keeping things as simple and general as possible, in order to include as broad agreement as possible. But, while the lack of detail has the advantage of not committing him unnecessarily to divisive ontological claims, it also undermines the effectiveness of the argument in another way by leaving a term with a central role in the argument vague and unclear—one of the textbook ways that arguments fail.²⁴⁸

Nagel, in *Mind and Cosmos*, focuses primarily on *reason*, the faculty that allows us to perceive the laws of logic, but the laws are still essential to his argument. The closest he comes to characterizing the laws of logic is when he refers to the fact that, somehow, our minds have gotten into contact with the “rational order of the universe.” Here, as elsewhere in the chapter, he evidently conceives of our perception of logical principles as an *a priori* perception of necessary facts of reality. But this does not tell us what the principles of logic are in an ontological sense, beyond the fact that he takes them to be “eternal and necessary”.

William Hasker’s argument in “Why the Physical Isn’t Closed” is an especially egregious example of a failure to identify the principles of logic ontologically. He speaks of “principles of sound reasoning,”²⁴⁹ “principles of rationality,”²⁵⁰ “principles of rational inference,”²⁵¹

²⁴⁶ See Willard, “Knowledge and Naturalism.” Willard is also an interpreter of Edmund Husserl, and Husserl is probably chief among philosophers of the 20th century for making clear distinctions with regard to the elements of thought and logic. Thus, Willard’s broader body of work characterizes this attention to distinctions, even if his argument in “Knowledge and Naturalism” is brief.

²⁴⁷ Reppert, *C. S. Lewis’s Dangerous Idea*, 81.

²⁴⁸ Deductive arguments can fail in three ways: (i) false premises, (ii) invalid structure, and (iii) unclear terms.

²⁴⁹ Hasker, *Emergent*, 71.

²⁵⁰ *Ibid.*, 72.

²⁵¹ *Ibid.*

“principles of inference,”²⁵² and “principles of logic and argument”²⁵³—all of which, presumably, he interprets synonymously—but nowhere does he define “principles of sound reasoning,” or offer an explanation of their ontological status. His failure to define this crucial term and clarify its ontological status is a particular problem in his version of the argument.

The relevant point here is that, in order for the argument from logical principles to be coherent and ultimately successful, it needs to be worked out what the putative ontological entities are at play in the argument. The things that play such a central role in the argument, identified by the label “principles of logic” or “logical laws,” need to be given a *real* definition, that is, their *nature* must be clearly defined. The more clear the ontological status of logical principles is, the more clear it will be how their role in rational inference violates the conditions of materialism.

Furthermore, there needs to be clear distinctions between the entities involved in the whole process of rational inference. For instance, distinctions must be made between the concrete mental events in the mind of the agent, the objective reality (facts, states of affairs, “out there”) that is (theoretically) known, and the propositions and concepts that express the things known.²⁵⁴ The relevance of these particular distinctions becomes apparent when we ask, On what level are the *logical* connections playing a role? With regard to the concrete mental events, we would expect there to be *psychological* laws at play in determining what occurs. Presumably, then, it is on the level of propositions and concepts that the logical laws are relevant, at least for the anti-materialists making the argument from logic.

²⁵² Ibid.

²⁵³ Ibid., 73.

²⁵⁴ For these distinctions, I am drawing on Husserl’s distinctions between at least five strata “within our overall epistemic engagement with entities,” as compiled by Dallas Willard, “Degradation of Logical Form,” *Axiomathes*, nos. 1-3 (1997), 40.

There are at least two basic ontological distinctions that seem inherent in all versions of the argument, even if they aren't explicitly referred to.

First, it appears that something like propositions are required (or at least assumed) in the arguments. Propositions, understood as neutrally as possible, are "units of information."²⁵⁵ But, in the context of the argument, it appears that propositions *qua* abstract universals are required to make sense of the structure of the argument.

Propositions are required to make sense of logical relations, the second key distinction. Relations have to be between things, and logical relations *qua* abstract universals are, presumably, between propositions.²⁵⁶

Even such a seemingly small detail has huge implications for the argument. Are logical relations between propositions, with both entities understood as abstract universals? Or, perhaps, do logical relations occur between mental events within the mind? This is no small point. Suppose that logical relations are understood as being between propositions, a special class of abstract universals. This raises the question, How do we have knowledge of propositions and the relations that are present between them? Or if they are between mental events in the mind, how does their role in rational inference uniquely threaten materialism any more than the general problem of mental causation?

Both propositions and logical relations seem to be assumed in the background of the argument. E. J. Lowe labels these abstract logico-mathematical objects *objects of reason*, "since they stand in *rational* relations to one another, implicated as they are in mathematical and logical

²⁵⁵ Willard, "Degradation of Logical Form," 32, writes, "Information (and misinformation) comes in units, e.g. that 8 is greater than 5 or Sue's dress is red. We shall call these units of information *propositions*."

²⁵⁶ Willard, "Degradation of Logical Form," 32-33, writes, "Each proposition relates to some other propositions in such a way that its truth values (true or false) necessitate one or the other truth value in those other propositions. We shall here speak of such relations between propositions as *logical* relations."

proofs.”²⁵⁷ This label is helpful for distinguishing abstract logico-mathematical objects from all other abstract objects. However, it does not clarify precisely what logical *principles* or *laws* are.

An Attempt at a More Precise Conception of Logical Laws

What are logical laws? In reflecting on what logical laws are, given the assumption that logical knowledge is about abstract entities (e.g., logical relations), one might reason as follows: Logical relations are conceptually simpler than logical laws. Logical laws are, in part, *about* logical relations. Logical relations *qua* universals obtain between propositions, another special class of universals. Because these entities are timeless, eternal, and necessary, the relations that hold between them are timeless, eternal, and necessary. Logical laws (or, more precisely, the expressions of logical laws), in order to fit into this ontology consistently, would be something like descriptions of the logical relations between propositions, and the corresponding consequences the relations have on the truth values of the propositions involved—a description that would be universally, necessarily, eternally true. For example, the logical relation between the propositions *A* and *not-A* is the relation of contradictoriness. But the *law*—or at least the statement of the law—is the claim that *A* and *not-A* cannot both be true, since the relation of contradictoriness entails that the propositions bearing this relation necessarily have opposite truth values. The relation and the truth values of the propositions bearing the relation *always* “behave” that way.

This conception is somewhat simplistic, but it points to the sort of metaphysical theorizing that can be attempted in order to fill in the blanks about the nature of the principles themselves, and it reveals the vagueness or confusion of merely calling a logical law an “abstract entity.” An abstract entity of what sort? It still isn’t clear to me how the logical *law* is itself an

²⁵⁷ Lowe, “Naturalism, Theism, and Objects of Reason,” 38. Emphasis in original.

abstract entity (that is, in terms of what sort of universal it would be). The proposal that it is the proposition that provides the description of the logical relations between propositions doesn't seem to capture its nature.

It turns out that this speculation as to the ontological nature of logical principles is nothing new.²⁵⁸ According to Willard, "Around the beginning of the 20th Century there was a fairly strong consensus within logical theory that the view of logic as formulating objective laws of the logical relations of propositions was the correct view."²⁵⁹ (There is certainly no such consensus today.) Willard concurs with this view, and gives the following more detailed definition: "logical laws are directly and essentially laws of a certain class of universals or "conceptual contents" which we may describe as propositions and the components and complexes thereof. Those laws state the 'eternal' relations which hold between these ideal, timeless entities in virtue of their most abstract natures *as* concepts and propositions (and compounds thereof)."²⁶⁰ Despite his precision, even Willard's definition doesn't specify what the logical law *itself* is ontologically, since it merely claims that the logical law "states" the relations between a certain class of universals. Are the laws themselves a certain class of universals, say, propositions?

Achilles and the Tortoise

Consider one consequence of failing to make these distinctions, found in Lewis Carroll's well-known story about the tortoise and Achilles. In the story, Lewis demonstrates a

²⁵⁸ In philosophy, as in life, there is nothing new under the sun. All the same, it is gratifying to do the work of reflection—even if it is nothing more than confused remembrance of something read before—and discover the same conclusion in others.

²⁵⁹ Willard, "Degradation of Logical Form," 44.

²⁶⁰ Dallas Willard, *Logic and the Objectivity of Knowledge* (Athens, OH: Ohio University Press, 1984), 166. Willard continues, quoting Husserl, "Hence, they are "...grounded purely in the concepts of Truth, Proposition, Subject, Predicate, Object, Property, Ground and Consequent, Relation and Relatum, etc." (LI 172; cf. 144, 192)" *Ibid.*

consequence of confusing a logical *relation* for a logical *proposition*, that is, a premise in an argument. Michael Huemer explains that Carroll “implicitly illustrates the distinction between *premises* in an argument and *rules of inference*.” He writes,

“When a person makes an inference, say, from premises *A* and *B* to conclusion *Z*, it seems that they must be aware of the logical relationship between the premises and the conclusion—that is, it seems that they must know that if *A* and *B* are true, *Z* is; otherwise, they would not accept the inference. Lewis Carroll’s story shows, however, that if we think of this knowledge as an additional premise the person must accept, then an infinite regress ensues.”²⁶¹

Are the principles of logic—understood as the “rules of inference”—additional premises that one must believe in order to justify inferring a conclusion from other premises? That would only be the case if one thought of the principles of logic as logical *propositions*.

The advocates of the argument from logical principles must specify what precisely they take the principles of logic to be. A failure to make distinctions like those above may allow them to hide behind vague descriptions and avoid legitimate criticisms, such as the infinite regress of Carroll’s tortoise and Achilles.

The Failure to Make Ontological Distinctions Is Part of the Discipline of Logic More Generally

Dallas Willard puts a finger on the likely reason that this area of the argument is a particular weak spot, and why the formulations of the argument are sloppy with regard to clarifying the ontological status of the principles of logic. He writes, “The question of the precise subject matter of logical knowledge touches, as we have noted, upon the deepest of epistemological and ontological assumptions. These involve distinctions and relations that are

²⁶¹ Michael Huemer, “Inference in General,” in *Epistemology: Contemporary Readings*, ed. Michael Huemer (New York: Routledge, 2007), 253.

inherently hard to sort out and keep straight.”²⁶² Willard, in his paper, “The Degradations of Logical Form,” makes the case that the discipline of logic as a whole is in a state of disarray with regard to making the sort of ontological distinctions that are necessary for the argument from logical principles. Sorting out these distinctions is a project in itself, but one that any anti-materialist serious about this argument would need to work through. To put the problem another way, if someone wishes to disprove materialism by appeal to logic, then that person better be clear on what logic is about.²⁶³

Why Should We Believe In Abstract Entities in the First Place?

The critic of abstract entities might reasonably ask at this point, “But why should we believe in abstract entities of *any* kind?”²⁶⁴ E. J. Lowe, in answering this question, arguably gives the same reason that any scientist would give for positing a hypothetical entity: “My answer is that we should do so if and only if the postulation of their existence is explanatorily fruitful—though this poses the further question of *how* the existence of abstract entities could explain anything.”²⁶⁵ Of course, this is precisely the reason why philosophers claim that logical principles are abstract objects: they believe such a view *explains* their essential nature. Lowe’s rationale, of course, does not automatically justify belief in abstract entities. Ockham’s razor would still be applicable. But Ockham’s razor only applies to the *unnecessary* multiplication of

²⁶² Willard, “The Degradation of Logical Form,” 45.

²⁶³ Willard makes the case that one cannot completely ignore the subject matter of logic. He writes: We return to Bocheński’s suggestion that logic as a cognitive discipline is *neutral* with reference to whether its subject matter is language, thoughts or objective contents. Surely this cannot be true, and here is why. The factors listed simply are not the same things, however closely intertwined they may be, and *no* discipline can be neutral as to what, basically, it is about, its subject matter. Such neutrality is finally impossible. What one can say, perhaps, is that a significant degree of logical insight and systematization can be attained without settling the issue of what logical relationships between propositions precisely are and essentially involve. But this very clarification and understanding of that very insight will require dispelling the initial “neutrality.” The laws of logic cannot be equally derived from and applied to thought, discourse and objective entities, for these are not only non-identical but vastly different in character from one another. Willard, “Degradation of Logical Form,” 39.

²⁶⁴ Lowe, *The Possibility of Metaphysics*, 210.

²⁶⁵ Ibid.

entities. Lowe believes that they are, in fact, necessary in order to explain logical principles, among other things.

D. The Case for Logical Principles Being Abstract Objects

The claim that logical principles are “nonphysical, nonspatial, and nontemporal—something along the lines of Platonic forms”—is a *massive* claim. This is a perennial area of dispute amongst metaphysicians, and there is no hope of achieving a settled resolution in the following section. This speaks to the first major weakness of the argument from logical principles. Insofar as the argument either (a) explicitly holds logical principles to be abstract objects, comparable to “something along the lines of Platonic forms”, or (b) assumes that they are some sort of non-physical, abstract entity of any kind, without acknowledgement of the host of alternative explanations of logico-mathematical objects that make no reference to abstract, non-physical entities, then the argument has hitched its wagon to a contentious metaphysical theory and the debate it is a part of, and it stands or falls with that theory. Of course, the argument from logical principles could be construed as an argument in favour of abstract objects (e.g., for some form of Platonism) against alternatives—and indeed, some advocates of the argument understand it in that light—but, from another angle, the argument appears to be saddled with the weight of a much broader debate. So, with that qualification in mind, on to the argument for the claim that logical principles are abstract objects.

The arguments made to the conclusion that logical principles are non-physical, abstract objects typically take something like the following form:

1. Logical principles have the essential characteristic *x*.

2. Nothing in physical reality²⁶⁶ has characteristic *x*.²⁶⁷
3. Therefore, logical principles are not in physical reality.

For example:

1. Logical principles are *normative*.
2. Physical reality is not normative.
3. Therefore, logical principles are not physical.

The further assumption, of course, is that if logical principles are not physical, then they are also not concrete, but rather abstract objects. To put this another way based on the definition of “abstract” discussed above, abstract objects are necessarily non-physical. Only concrete objects are physical, although there are logically possible non-physical concrete objects, e.g., souls, angels, God.

Whatever characteristics are attributed to logical principles, materialists must explain them in a manner consistent with the metaphysical and ontological commitments of materialism. And that, E. J. Lowe believes, is precisely the problem. He declares that “physicalists face the seemingly hopeless task of explaining the existence of objects of reason solely by appeal to the existence of the concrete, physical universe in space and time—for the latter alone is what, in their view, exists *fundamentally*.”²⁶⁸ The proponent of the argument from logical principles believes that materialism cannot, in principle, explain the essential characteristics of these

²⁶⁶ That is, anything in space-time, and anything that could be causally connected with other paradigm physical objects according to causal closure.

²⁶⁷ This premise can be softened, and, along with it, the conclusion, by changing the definite statement to a mere seeming or probabilistic claim. E.g., “Physical reality does not *seem* to be consistent with characteristic *x*.”

²⁶⁸ Lowe, “Naturalism, Theism, and Objects of Reason,” 39. Emphasis in the original.

“objects of reason”. Some of the characteristics that logical principles have been purported to possess include being “necessary,” “eternal,” “universal,” “normative,” “transcendent,” “a priori,” “self-evident,” “mind-independent,” “objective,” “non-natural,” “detached,” and “indubitable.”

The materialist has three types of replies he can offer (as discussed in chapter 2). He can (a) deny that the purported characteristic belongs to logical principles—either by not belonging to it *essentially*, or by not belonging to it at all; (b) deny that a strictly physicalistic world is unable to accommodate or explain the characteristic; or (c) charge the anti-materialist with the same problem of accounting for the apparent characteristic of logical principles.

Logical Truths Cannot Be Instantiated in the Physical World

Menuge takes logical relations to be “plausible examples of abstract truths that human beings have discovered.”²⁶⁹ He claims that *modus ponens*, *modus tollens*, and *reduction ad absurdum* are examples of “rules of inference” that are “demonstrably sound and can be stated as logical truths.”²⁷⁰ But, crucially, Menuge claims that these logical truths have *never* been instantiated in a materialistic world: “Whoever first discovered these rules, we can be confident that no truthmaker for them was ever previously instantiated in the world as described by the materialist, and what does not exist cannot be discovered.”²⁷¹ This is equivalent to claiming that logical truths are non-physical, abstract objects.

The materialist would likely respond that principles of logic would be applicable to *any* logically possible world, since the principles are *necessary*, eternal truths, and, therefore, there

²⁶⁹ Menuge, “Knowledge of Abstracta,” 10.

²⁷⁰ Ibid.

²⁷¹ Ibid.

could be no possible world that was not “obedient” to the principles of logic. Therefore, the principles of logic would be “instantiated” in any possible world.

Menuge offers a rejoinder to this response:

...as I am using the term ‘instantiate,’ this is a fallacious argument. Logical truths are indeed *applicable* to any world, in the sense that these truths govern what we (and other rational beings) can coherently *think* and *say* about any world, but it does not follow that they are *instantiated* in every world. For example, there is a possible world in which nothing at all exists, and although there are truths about that world (notably, there is nothing in it), there is nothing *in* that world that could instantiate any truth, including a logical one. In order for logical truths to be instantiated by a world in the sense I intend, there must exist entities *in that world* that can be governed by such truths, such as thoughts and propositions.²⁷²

Again, the materialist might respond to this rejoinder by asking why a materialistic world could not instantiate logical truths. After all, if a materialistic world could give rise to thoughts and beliefs (say, as emergent from the physical brain)—something that Menuge²⁷³, along with Reppert, Nagel²⁷⁴, and others, are willing to concede for sake of argument—why would it not be possible for there to be laws that govern, or describe, the relations of thoughts and beliefs to one another?

Menuge explains why he will not accept the notion that thoughts and beliefs in a materialistic world could have laws that “govern” their relations: “whatever these thoughts turn out to be, it is incompatible with materialism to claim: (1) that they are *governed* by logical

²⁷² Ibid. Emphasis in original.

²⁷³ Immediately preceding his argument, Menuge writes, “Let us grant that some version of nonreductive materialism could explain the emergence of ‘thought.’” Ibid.

²⁷⁴ Nagel writes, “I shall assume that the attribution of knowledge to a computer is a metaphor, and that the higher-level cognitive capacities can be possessed only by a being that also has consciousness...That already implies that those capacities cannot be understood through physical science alone, and that their existence cannot be explained by a version of evolutionary theory that is physically reductive. But the problem I now want to discuss goes beyond this.” *Mind and Cosmos*, 71.

truths²⁷⁵; and (2) that we could in any meaningful sense *discover* those truths.”²⁷⁶ How does Menuge justify these claims?

Menuge, like most of the other advocates of the argument from logic, is going to centre his opposition to materialism on the *nature* of logical truths or principles.

The Nature of Logical Principles

Menuge takes logical relations to be “plausible examples of abstract truths that human beings have discovered.”²⁷⁷ Menuge makes his case for why logical truths are incompatible with materialism based on three characteristics of logical truths: they (1) hold *necessarily*, (2) are *atemporally* valid, and (3) are *normative*.²⁷⁸ Let’s analyze the arguments for these, and other, characteristics, as presented by the advocates of the argument.

i. They hold necessarily

The property that is cited as an essential characteristic of logical principles more than any other is that they are *necessary*. The physical world, it is held, is *contingent*. Therefore, by a simple argument of the form above, it follows that they are not physical. E. J. Lowe makes this argument succinctly: “The key point...is precisely that objects of reason are typically (even if not exclusively) *necessary* beings, whereas all physical things are plausibly only *contingent* beings: and no merely contingent being can explain the existence of any necessary being.”²⁷⁹ In other

²⁷⁵ What is meant by “governed”? Is it the case that materialists would claim that thoughts and beliefs would be *governed* by logical truths? Wouldn’t it be more accurate to say that logical truths would describe the way that those thoughts happen to relate to each other?

²⁷⁶ Menuge, “Knowledge of Abstracta,” 10. Emphasis in original.

²⁷⁷ Menuge, “Knowledge of Abstracta,” 10.

²⁷⁸ Menuge, “Knowledge of Abstracta,” 10-11.

²⁷⁹ Lowe, “Naturalism, Theism, and Objects of Reason,” 39.

words, the physical world cannot explain a necessary logical principle. Thus, logical principles (“objects of reason”) must be non-physical, abstract objects.

Angus Menuge, in keeping with the discussion above, puts his argument for the logically necessary nature of logical truths in terms of instantiation: “[The physical] world is a contingent collection of contingent states of affairs, so whether or not the materialist can account for ‘thoughts’ in some sense, there is nothing *in* the materialist world that could make it the case that those thoughts access and instantiate a *logically necessary* truth.”²⁸⁰

Victor Reppert makes a similar argument, but in terms of possible worlds. He writes,

These laws [of logic] are not physical laws. Indeed they pertain across possible worlds, including worlds with no physical objects whatsoever. So while the laws of physics denote the powers and liabilities of things in the physical world, the laws of logic tell us what must be true in any universe whatsoever.²⁸¹

The fact that the laws of logic are necessary, Reppert believes, is clear from the fact that they hold in “any universe whatsoever.” Reppert emphasizes elsewhere, “Moreover, the logical law according to which one thought follows another thought is true always. It is not local to any particular place or time; indeed, laws of logic obtain in all possible worlds.”²⁸² There is no possible world in which they are not true. Given that these laws are even true in possible worlds with “no physical objects whatsoever,” it follows that they are thereby not physical laws—or physical entities of any kind—but rather, according to Reppert, they are “something along the lines of the Platonic forms.”²⁸³

²⁸⁰ Menuge, “Knowledge of Abstracta,” 10-11.

²⁸¹ Reppert, *C. S. Lewis’s Dangerous Idea*, 81.

²⁸² Reppert, “The Argument of Reason,” 358.

²⁸³ Ibid. If physicalism were true, he asks, “[h]ow could there possibly be states of something that not only do not exist in any particular place or time, but are true in all possible worlds?” (82)

Reppert approaches the problem from a different angle, as well:

It is one thing to suggest that brains might be able to “track” states of affairs in the physical world. It is another thing to suggest that a physical system can be aware, not only that something is the case but also that it must be the case; that not only is it the case but also that it could not fail to be the case. Brain states stand in physical relations to the rest of the world, and are related to that world through cause and effect, responding to changes in the world around us. How can these brain states be knowings of what must be true in all possible worlds?²⁸⁴

C. S. Lewis states the necessity of logical laws very succinctly: “My belief that things which are equal to the same thing are equal to one another is not at all based on the fact that I have never caught them behaving otherwise. I see that it ‘must’ be so.”²⁸⁵ Also, according to Lewis, the perception of the *necessity* of logical relations creates a problem for the claim that rational inference is explicable via any third-person perspective, “psychological point of view.” He writes,

What from the first point of view is a psychological transition from thought A to thought B, at some particular moment in some particular mind is, from the thinker’s point of view a perception of an implication (if A, then B). When we are adopting the psychological point of view we may use the past tense, “B followed A in my thought.” But when we assert the implication we always use the present – “B *follows from* A.” **If it ever “follows from” in the logical sense it does so always.** Moreover, we cannot reject the second point of view as a subjective illusion without discrediting human knowledge.

Objections

Of course, materialists do not, as a group, deny that the most basic logical principles are necessarily true. Most philosophers assume the necessity of basic logical laws in the course of doing philosophy on a day-to-day basis. And yet, in contrast with the arguments above, most materialists *would* deny that logical principles are abstract objects. Is this inconsistent? Any

²⁸⁴ Reppert, “The Argument from Reason,” 380.

²⁸⁵ Lewis, *Miracles*, 30-31.

apparent inconsistency is easily explained: the presupposed *meaning* of “necessary” is not the same across individuals.

In present-day logic, necessity is a modal concept describing one of two ways that propositions and states of affairs can be true (the other being *possibility*).²⁸⁶ If *p* is true necessarily, then it cannot be the case that *p* is false.²⁸⁷ The concept is expressed by phrases like “must be true” or “can’t possibly be false”. This is nothing more than a typical textbook explanation with which few would quibble.

However, the proponents of the argument infer from the apparent necessity of logical principles that they must, therefore, be abstract objects distinct from, or “outside” of, the *contingent* spatio-temporal realm. It is at the point of this inference that most materialists would undoubtedly quibble.

There are a number of alternative understandings suggested by materialists as to how logical laws are “necessary”, including at least the following three options: (1) The “necessity” of basic laws of logic might be explained by their being “analytic”—that is, the laws of logic might be true in virtue of the meaning of their words. (2) Or it might be the case that the most basic laws of logic are such that, psychologically, because of our evolutionary history, we are incapable of doubting them, and, as a result, ascribe to them the status of “necessity,” the impossibility of being false, when, in reality, we simply *cannot imagine* them to be false.²⁸⁸ (3)

²⁸⁶ Thomas Mautner, ed., *Dictionary of Philosophy* (London: Penguin Books, 2005), 393. In classical logic, there were three modalities: *necessity*, *actuality*, and *possibility*.

²⁸⁷ Ibid.

²⁸⁸ See, for instance, Robert Nozick, *The Nature of Rationality* (Princeton: Princeton University Press, 1993), 110-111.

Lastly, it might be the case that logical laws are at the heart of our “conceptual schemes” of the world around us, such that they seem “immune to revision”.²⁸⁹

Of course, there are other accounts. These three, however, demonstrate that materialists have other options available. I will address each option below at different points. Options (1) and (3) I will address in this chapter, and option (2) in Chapter 5.

ii. They are atemporally valid (eternal)

The next most common adjective to be attached to the principles of logic is “eternal”. For example, Nagel labels them “eternal,”²⁹⁰ Reppert says that logical laws are “true always”²⁹¹ and “nontemporal,”²⁹² and Menuge describes them as “atemporal” and “atemporally valid.”²⁹³ In each case, they mean the same thing: there never was a time when they were not true, and there never will be a time when they are not true. To use Menuge’s example, *modus ponens* “did not start to be valid in 1960 and won’t expire in 2020.”²⁹⁴ Greg Jesson, in analyzing the thought of Dallas Willard in relation to Husserl, both of whom argued extensively from the nature of logic against materialism, explains their conception of logical truths by way of making an argument for the eternal nature of logical and mathematical truths:

To grasp what kind of fact [mathematical and logical facts] are, it helps to ask, “When did the Pythagorean theorem become true?” It most certainly did not become true when it was discovered, just as Antarctica did not come into existence when it was discovered. Any date one can suggest for the Pythagorean theorem becoming true seems absurd. Since the Pythagorean theorem is not about the physical universe one cannot maintain

²⁸⁹ This is a description of Quine’s coherentism. See the introduction of his *Methods of Logic*, especially 2-3, for a very brief account with specific reference to necessity. See his “Two Dogmas of Empiricism,” for a fuller account. Quine’s famous claim that “no statement is immune from revision” is found in the latter (43).

²⁹⁰ Nagel, *Mind and Cosmos*, 86.

²⁹¹ Reppert, “The Argument from Reason,” 358.

²⁹² Reppert, *C. S. Lewis’s Dangerous Idea*, 81.

²⁹³ Menuge, “Knowledge of Abstracta,” 10.

²⁹⁴ Menuge, “Knowledge of Abstracta,” 10.

that the Pythagorean theorem became true when the big bang occurred. We are left with only two options: either the Pythagorean theorem is not true, or it is eternally true.²⁹⁵

Thus, logical relations, principles, and truths are abstract objects existing timelessly.

If this is an accurate description of the principles of logic, then there is presumably a problem for materialism. Our minds and the things known by our minds must be *in* space-time in order for there to be a causal relation between them. The problem, according to Menuge, is that “for the materialist, all properties of thoughts must reduce to, or emerge from, the causal order, and this order is exclusively governed by temporal processes and dependencies.”²⁹⁶ But a “logical dependency between intentional contents”, as Menuge calls it, “would hold in a timeless world.”²⁹⁷

The inference follows the same pattern as the inference from necessity: logical principles are atemporal (eternal in the sense that they are outside time); all physical reality is temporal (even if one supposes that the physical universe is eternal in the sense that it had no beginning in the finite past²⁹⁸); therefore, logical principles are non-physical, abstract objects.

The objections that would apply to the notion that logical principles are *necessary*, and that their necessity entails them being abstract objects, would apply here, also. In short, the materialist need only, as Drange suggests, provide an alternative account of logical principles that explains their seeming atemporal validity, etc. (See the discussions of “logical conventionalism,” formalism, psychologism, and fictionalism below.)

²⁹⁵ Greg Jesson, “The Husserlian Roots of Dallas Willard’s Philosophical and Religious Works: Knowledge of the Temporal and Eternal,” *Philosophia Christi* 16, no. 1 (2014), 19-20.

²⁹⁶ Menuge, “Knowledge of Abstracta,” 11.

²⁹⁷ Ibid.

²⁹⁸ Of course, there is scientific evidence in contradiction with this proposal, namely, the evidence for the Big Bang. Also, there are philosophical arguments against the notion of an eternal physical universe. See William Lane Craig, “The Cosmological Argument,” in *The Rationality of Theism*, eds. Paul Copan and Paul K. Moser (London: Routledge, 2003): 112-131, for a survey of some of the scientific and philosophical arguments for the claim that the universe had a beginning in the finite past.

iii. They are normative

In this section, I argue that logic itself is not normative. For instance, the law of noncontradiction merely states that “P and not-P” will always be false. In order to make a normative statement we must add “*You should not* affirm ‘P and not-P’.” Truth is one of the transcendent values, along with goodness and beauty. It is based on the fact that we *ought* to seek and love truth that, as a means to do so, we ought to avoid logical error. So logic is derivatively normative.

Many of the proponents of the argument from reason lay a lot of weight on the normativity of the principles of logic. The claims are that the principles of logic are not merely *descriptive*—telling us how we do, in fact, reason—but *prescriptive*—telling us how we *ought* to reason. Because, by definition, materialism (and naturalism) hold that reality, at its fundamental, base level, is *non*-normative, there is the question as to how materialism could account for normativity in *any* area, let alone for rational norms.

Thomas Nagel comments that naturalism makes it “intelligible” to be an anti-realist with regard to objective, mind-independent moral truths since there would seemingly be no place for them in the evolutionary story. However, the same sort of anti-realism would not be plausible with regard to judgment-independent truths involved in scientific practice, since such anti-realism would undermine the scientific support of evolutionary theory. “There would be something strange to the point of incoherence,” Nagel writes, “about taking scientific naturalism as the ground for antirealism about natural science.”²⁹⁹

²⁹⁹ Nagel, *Mind and Cosmos*, 75.

But there does seem to be a parallel between ethics and epistemology when it comes to normativity, and the undermining effect of naturalism: if it applies to one, would seem to equally apply to the other. William Lycan comments,

It's interesting that this parallel goes generally unremarked. Moral subjectivism, relativism, emotivism, etc. are rife among both philosophers and ordinary people, yet very few of these same people would think even for a moment of denying the objectivity of epistemic value; that is, of attacking the reality of the distinction between reasonable and unreasonable belief. I wonder why that is?³⁰⁰

Of course, Nagel's point provides a possible answer to Lycan's query. Thus, the seeming normativity of reason—of the truths of reason—is, at least *prima facie*, a problem for naturalism (which, by definition, holds that the fundamental level of reality is *non*-normative), perhaps even more so than the seeming normativity of ethics.

Angus Menuge is explicit on this supposed characteristic of logical principles. “Logic is normative,” he writes, “governing what a rational agent ought to think, not what one in fact does think.”³⁰¹ He gives *modus ponens* as a specific example. It is normative, he claims, because “it specifies not what we always do, but what we always *should* think.”³⁰² Menuge spells out the problem for materialism caused by the existence of normative logical principles:

Logical relations tell us what a rational being ought to believe, given his or her other beliefs. Yet at any given time *t*, even if some being in a materialist world has thoughts, there is no materialistic fact of the matter about what that being should believe at time *t+1*. This is because in the materialist world, we have only contingent relations between events, and none of this constitutes (or otherwise necessitates) any normative relations between thoughts.

³⁰⁰ William Lycan, “Epistemic Value,” *Synthese* 62, no. 2: 137; quoted in Reppert, “The Argument from Reason,” 349.

³⁰¹ Menuge, *Agents Under Fire*, 160.

³⁰² Menuge, *Knowledge of Abstracta*, 10.

In a materialist world, there is no ultimate “way things ought to be”. Nothing in the materialist world, Menuge claims, can explain the normativity of logical principles.

Similarly, Werner Wick argues that the “fundamental rules” of logic cannot be empirical (although subordinate ones may) because of their normative nature. He writes, “Thus the principles of logic are in no way empirical; for they constitute a canon prescribing how we ought to speak and think, whether we ever succeed in doing so or not.”³⁰³

Are Menuge and Wick correct? Are logical relations normative?

Are Deductive Logical Principles Normative?

The question is, more specifically, is there anything *uniquely* normative about the principles of logic, in a way that is not simply derivative of the supposed normativity of epistemology? Is this claim about logical principles just a restatement of the more general claim that epistemology is normative?

In one sense, the claim that the principles of logic are normative seems to be obviously true. We *should* reason as best as we can in search of the truth, shouldn’t we? Ensuring that our rational inquiry proceeds according to logical principles is essential to generating justified, true conclusions, and isn’t that, after all, the ultimate aim, *pace* Richard Rorty, of philosophy?

And yet, upon reflection, the claim that the principles of logic are normative seems straightforwardly false. For one thing, the principles themselves do not contain “ought” or “should” imperatives. The law of noncontradiction asserts that statements of the form “A and not-A” are always false,³⁰⁴ not that one *ought not* affirm statements of the form “A and not-A”.

One can reasonably agree, on one hand, that logical principles are the means by which we

³⁰³ Wick, “Truth’s Debt to Freedom,” 536.

³⁰⁴ Irving Copi and Carl Cohen, *Introduction to Logic*, 13th edition (Upper Saddle River, NJ: Pearson Prentice Hall, 2009), 368.

formulate valid deductive inferences, but, on the other hand, at the same time, reasonably deny that they are *normative*. In other words, the principles allow the rational agent to form truth-preserving inferences, and to generate true conclusions from true premises, but the principles themselves are neutral as to whether one *ought* to seek true conclusions.³⁰⁵

The apparent normativity of logical principles, then, seems to come from *beyond* the principles themselves and from what might be called *rational* norms (or perhaps, epistemological norms). It is not my purpose to argue for such norms, other than to say, to lay my cards on the table, that if something like “Seek truth and avoid falsehood” is not a real, genuine norm, I don’t know what is.³⁰⁶ It is the general imperative regarding valuing, seeking, preserving truth that seems at bottom of *why* we ought to follow or “obey” the principles of logic. Thus, as far as I can see, it is with the assumption of this more general norm, namely, that we ought to seek the truth and avoid error, that the principles of logic become—by virtue of their guaranteeing true conclusions from true premises—normative. When Menuge states that “logical relations are *normative* or prescriptive: they tell us what a rational being ought to believe”, this claim is really assuming a deeper, underlying norm—i.e., we ought to believe what is true—as a sort of foundational premise, and then inferring from that premise that, since the principles of logic get us to the truth, we ought to follow the principles of logic. This is derived, not intrinsic, normativity—assuming the deeper, underlying norm is a real, genuine norm.

³⁰⁵ Likewise, an author could affirm the most basic rules of grammar as necessary for communicating meaning clearly, but, at the same time, maybe after reading *Finnegan’s Wake*, decide to one-up James Joyce and write a full-length novel that contained no sentence written in accordance with the basic rules of grammar. The author’s sequel to *Finnegan’s Wake* would only be a violation of a norm if we further assumed that one ought to seek to communicate meaning clearly in their writing.

³⁰⁶ I am reminded of the discussion above of Richard Rorty’s claims about philosophy *not* being a truth-seeking activity, which would seem to create a self-contradictory claim *in practice*. The presupposition that we are to seek the truth is surely at bottom of philosophical practice—and if any would deny that it is (such as Rorty), my guess would be that they would *defend* the alternative as if the alternative were *true* instead (as Rorty does).

By way of illustration, the rules of grammar are often understood to be normative. They prescribe how to arrange the elements of speech in the “correct” or “proper” way. But, arguably, the rules of grammar not normative *in themselves*, but only derivatively, in service of other, more fundamental—even ultimately underived—norms (if such norms exist). So, just as grammar is typically understood to be normative, in a general sense, logic can, in the same way, be understood to be normative. This general sense is, I take it, uncontroversial.

The true question, then, becomes whether there are ultimate, or foundational, or fundamental, norms—such as the traditional values of truth, goodness, and beauty—to which all are subject. Frege, for one, held that these were the aims we *ought* to seek, and, as a consequence, he held that logic was normative, as the means to reaching truth. He writes, “Logic has a close affinity with ethics. The property ‘good’ has a significance for the latter analogous to that which the property ‘true’ has for the former.”³⁰⁷ Also, “Like ethics, logic can also be called a normative science. How must I think in order to reach the goal, truth?”³⁰⁸ And lastly,

“The word ‘true’ set the goal for logic, just as the word ‘beautiful’ does for aesthetics and ‘good’ does for ethics. Admittedly, all sciences aim at truth, but logic is also concerned with it in quite another way. It relates to truth in roughly the way physics relates to weight or heat. To discover truths is the task of all sciences; it is the concern of logic to recognize the laws of truth.”³⁰⁹

Clearly Frege considered logic to be normative, but it is also clear that, for him, it is the value of *truth* that makes them so. This fits with the above analysis.

The question of norms here is no different from the question of norms in ethics. If naturalism can account for norms in ethics, then, by extension, it would seem reasonable that naturalism can account for norms in logic. But if the solution offered by the naturalist is to

³⁰⁷ Quoted in Jan Woleński, “Psychologism and Metalogic,” *Synthese* 137 (2003), 191, fn. 9.

³⁰⁸ Ibid.

³⁰⁹ Ibid.

dispense with norms in ethics, the same solution will not suffice in the area of epistemology without threat, as Nagel points out, of self-defeating incoherence.

The consequence of separating normativity from the logical principles themselves is that the problem becomes general again—the problem of epistemological normativity, equivalent to the problem of explaining normativity in ethics, not specific to logical principles.

Deductive logical principles themselves are not normative *intrinsically*, but rather derivatively. Insofar as we *ought* to care about truth, and to seek truth,³¹⁰ then logical principles will be normative as a consequence.

We reveal that we care about truth, that we value it, that we think we ought to seek to believe what is true and reject what is false, because we argue with others whom we believe to be mistaken.

A Further Argument by Angus Menuge

Angus Menuge, on top of arguing from the necessity, atemporal validity, and normativity of logical relations, argues from the fact that rules of inference (i.e., logical principles) are *infinitely* applicable and we *recognize* them as such. But this means our mind grasps an *infinite* number of truths—which could not possibly be a physical reality, since physical reality is finite.

Menuge argues,

I think we have good reason to think that some of our knowledge is of, or depends on, abstract truths...For example, to understand that a rule of inference is sound *is* to understand that it is necessarily truth-preserving in an infinite number of possible applications. So it seems that anyone who grasps the concept of a valid rule of inference knows that it has an infinite number of true implications (of the form *so-and-so follows*).

³¹⁰ Of course the normativity of truth has to be accounted for. The classic list of the three transcendent values comes to mind: truth, beauty, and goodness.

But these implications are abstract both in themselves (they are propositions) and because they are made true by an abstract relation, not by any concrete fact about the world.³¹¹

I won't offer any in-depth responses here, but it does seem an argument like this could be countered by something like the view that this could be explained by the fact that it *appears* to us that there are infinitely many true implications, even though in reality, that isn't the case. This apparent extension of our mind into infinite conceptual space could merely be a contingent fact about our human psychology, a sort of Potemkin village of seeming infinities set up by our evolutionary development. It might be the (contingent) case that we can't help but have these beliefs. (These views are addressed in following section dealing with materialist alternatives for explaining logical knowledge.)

Reppert's Argument: Logical Laws Exist in All Possible Worlds

Again, as I already quoted above, Victor Reppert offers a direct and simple argument for the conclusion that logical laws existing as abstract objects, or as "something along the lines of the Platonic forms":

These laws are not physical laws. Indeed they pertain across possible worlds, including worlds with no physical objects whatsoever. So while the laws of physics denote the powers and liabilities of things in the physical world, the laws of logic tell us what must be true in any universe whatsoever. Even in possible worlds with no law of gravity, the law of noncontradiction still holds.³¹²

The reason the law of non-contradiction would still hold is clear. It could not be the case in the possible world with no gravity that something exist and not exist, in the same way at the same

³¹¹ Menuge, "Knowledge of Abstracta," 23.

³¹² Reppert, *C. S. Lewis's Dangerous Idea*, 81.

time. Thus, the law, if existent in a non-physical world is itself non-physical. Since it exists in *all* possible worlds, it is also necessary, eternal, and unchanging.

Theodore Drange's Objection to Reppert

In an exchange with Reppert's original "argument from the psychological relevance of logical laws," Theodore Drange offered the following reply to Reppert's argument, from the premise that logical laws hold true in all possible worlds, to the conclusion that logical principles are abstract objects. Drange straight up denies Reppert's claim that logical laws are true in all possible worlds. "One key point regarding my view of logical laws," he writes, "is that they are *not* true in every possible world. That is because they (like all other truths) are propositions, and propositions do not exist in every possible world."³¹³ Drange appears to be suggesting the possibility of a world that *lacks* logical laws, which are taken to be propositions. This seems absurd—as in, impossible to conceive. I can conceive of a possible world where there are no logic textbooks. But I cannot conceive of a world where logical laws understood in a *metaphysical* sense—the underlying possibilities and impossibilities that the laws describe—somehow failing to hold. How could one conceive of a something like a world where things could exist and not exist at the same time? How could Drange conceive of such a thing?

It turns out he can't. And he doesn't think anything of the sort. It turns out Drange is *not* suggesting that logical laws, understood in this *metaphysical* sense, are false in even a single possible world. Rather, he acknowledges that there are "situations" that obtain in all possible worlds, such as "the situation of Q obtaining whenever, first, P obtains, and, second, the situation of Q obtaining whenever P obtains also obtains."³¹⁴ Of this, he states, "That is indeed a situation

³¹³ Drange, "Several Unsuccessful Formulations of the Argument from Reason," 45.

³¹⁴ Ibid.

that obtains in every possible world.”³¹⁵ Understood in this way, Drange is *not* denying, arguably, what Reppert has argued with regard to logical laws. Rather, Drange appears to explicitly *affirm* Reppert’s point. Thus, Drange’s objection is purely verbal. He merely redefined “logical laws” in a way that made them contingent entities. But the *real* laws, the things themselves, he affirms, only he calls them “situations that obtain in every possible world.” How is that phrase not *precisely* a description of Reppert’s “logical laws”? Recall Reppert’s definition: “the laws of logic tell us what must be true in any universe whatsoever.”³¹⁶ Drange’s objection here, then, comes down to nothing.

Lewis’s Arguments for Logical Principles Being Abstract Objects

The closest thing that Lewis gives as an argument for logical principles being abstract objects is the following. Lewis explains the difference between a “Cause and Effect” *because* and a “Ground and Consequent” *because*: “The one indicates a dynamic connection between events or ‘states of affairs’; the other, a **logical relation** between beliefs or assertions.”³¹⁷ He then implicitly makes the argument that the ground-consequent relation, that is, the *logical* relation, is not physical, or, at least, not a part of the causal continuum of Nature. This comes out in the following passage:

Now a train of reasoning has no value as a means of finding truth unless each step in it is *connected with* what went before in the Ground-Consequent *relation*. If our B does not follow logically from our A, we think in vain. If what we think at the end of our reasoning is to be true, the correct answer to the question, ‘Why do you think this?’ must begin with the Ground-Consequent *because*.

³¹⁵ Ibid.

³¹⁶ Reppert, *C. S. Lewis’s Dangerous Idea*, 81.

³¹⁷ Lewis, *Miracles*, 23.

On the other hand, every event in Nature must be connected with previous events in the Cause and Effect relation. But our acts of thinking are events. Therefore the true answer to ‘Why do you think this?’ must begin with the Cause-Effect *because*.”³¹⁸

...But unfortunately the two systems are wholly distinct. To be caused is not to be proved. Wishful thinkings, prejudices, and the delusions of madness, are all caused, but they are ungrounded. Indeed to be caused is so different from being proved that we behave in disputation as if they were mutually exclusive.³¹⁹

Lewis seems to be assuming throughout this line of argument that the logical relations (the Ground-Consequent relation) involved in an act of inference are *not* a part of the causal continuum, and, therefore, by extension, not physical. (Strictly speaking, Lewis does not equate naturalism with materialism. However, this is not a problem for my purposes since his target of naturalism, by his definition, is *more* expansive than, and inclusive of, materialism.)

Lewis’s argument, then, for the claim that the principles of logic are not physical amounts to the following: First, logical relations are causally inert; they do not cause and are not caused. Second, physical events (“every event in Nature”), on the other hand, do cause and are caused. Third, in the act of inference, the agent moves from the “ground” (premise) to the “consequent” (conclusion) on the basis of *seeing* that the consequent follows logically from the ground—that is, from *seeing* the logical relation. (Lewis’s use of the terms “ground” and “consequent” builds into his example the fact that the conclusion follows from the premise, but such would obviously not be the case in all, or even most, acts of inference.) But the movement from ground to consequent in the agent’s mind is not the result of cause and effect. According to Lewis, the two systems are wholly distinct. In keeping with this, he claims: “One thought can cause another not

³¹⁸ Ibid.

³¹⁹ Ibid., 24.

by *being*, but by being *seen to be*, a ground for it.”³²⁰ Thus, the perception of the logical relations (the ‘being-a-ground-for’ and ‘being-a-consequent-of’ relations between the ground and the consequent) is not the perception of a physical entity of any kind, for then that would be a part of the causal continuum of Nature, but the perception of a non-physical entity, ‘outside’ Nature. Therefore, logical relations are not physical.

This argument is merely implicit in Lewis’s overall argument. Rather, it would appear that, relative to the argument from logic, and ignoring other formulations of the argument from reason, Lewis is *assuming* a crucial premise in the argument from logical principles, namely, that the principles of logic are non-physical and not a part of the space-time, causal continuum.

Reppert, then, has gone beyond drawing out an argument in Lewis that is not explicit, and has indulged in interpretive liberties in order to create a formulation of the argument from reason that is, at best, implicit in an inchoate form in Lewis’s *Miracles*.

Nagel’s Arguments for Logical Principles Being Abstract Objects

Nagel’s overall argument is focused on reason itself—by which he means the faculty that, among other things, gives us the capacity to recognize logical truths. His understanding that this function is an essential part—if not *the* essential part—of the nature of reason is clear from remarks he makes in defending the objectivity and foundational authority of our reason: “It is not enough to be able to think that *if* there are logical truths, natural selection might very well have given me the capacity to recognize them. That cannot be my ground for trusting my reason, because even that thought implicitly relies on reason in a prior way.”³²¹

³²⁰ Lewis, *Miracles*, 25. Lewis is leaving it open whether or not some sort of doxastic voluntarism is true, but he is affirming that, regardless, there is a form of rational insight that takes place within the act of inference in the rational agent’s perceiving of one thought being the logical ground for another.

³²¹ Nagel, *Mind and Cosmos*, 81.

Although Nagel does not argue directly that logical truths are non-physical, abstract objects, he does argue that, if such a thing as (the faculty of) reason exists, then it follows that “there are objective, mind-independent truths of different kinds” including “eternal and necessary truths of logic and mathematics”³²². Thus, what makes reason “an instrument of transcendence that can grasp objective reality and objective value,” in part, is the capacity for grasping “objective”, “mind-independent”, “eternal”, and “necessary” truths of logic.

On my interpretation of Nagel, he takes it for granted that logical truths are non-physical, abstract objects. This seems implied by the above claims—especially in light of his aim: demonstrating that reason cannot be explained in a manner consistent with materialism. It is built right into his argument that “reason cannot be explained as a mere extension or complication of consciousness.”³²³ Reason, he believes, is something that does not appear to have even the possibility of a physical explanation—unlike consciousness—and requires explanation at “a different level.”³²⁴ So, while Nagel does not make the explicit claims regarding the non-physical, abstract nature of principles of logic that other thinkers under discussion here do, it is, at the very least, implicit in his overall argument.

Popper and Abstract Objects

Karl Popper writes that, in order to evaluate mistakes of inference, one needs “abstract non-corporeal World 3 standards,”³²⁵ or “World 3 principles.”³²⁶ But what does Popper mean by “World 3”? Popper’s argument from logical principles has to be understood in the broader

³²² Ibid., 85-86.

³²³ Ibid., 81.

³²⁴ Ibid.

³²⁵ Popper, *The Self and Its Brain*, 77.

³²⁶ Ibid., 78.

context of his unique tripartite ontology, which he puts in terms of “World 1”, “World 2”, and “World 3”:

First, there is the physical world – the universe of physical entities...this I will call “World 1”. Second, there is the world of mental states, including states of consciousness and psychological dispositions and unconscious states; this I will call “World 2”. But there is also a *third* such world, the world of the contents of thought, and, indeed, of the products of the human mind; this I will call “World 3”...³²⁷

At first glance, it might appear that Popper is a run-of-the-mill realist about universals, in the Platonist tradition. But this is not the case.

In fact, Popper explicitly rejects most of the core commitments of Plato’s theory of the forms. Popper is an opponent of what he calls “essentialism.”³²⁸ He rejects essences, and does not “attribute any status to the objects or referents of our concepts or notions.”³²⁹ With that, Popper more or less guts Plato’s world of the forms. He writes, “Thus in my opinion, Plato’s ideal essences play no significant role in World 3. (That is, Plato’s World 3...seems to me a mistaken construction.)”³³⁰ Furthermore, in contrast to the eternal, immutable ideas or forms in Platonism, Popper’s World 3 is man-made, although he allows that it has “partial autonomy.”³³¹

It is this partial autonomy that seems to form the grounds for his conceiving them as *abstract*. He writes regarding unembodied World 3 objects, “It is important to realize that the objective and unembodied existence of these problems precedes their conscious discovery in the same way as the existence of Mount Everest preceded its discovery...”³³² It is because they have this sort of independence that points to their being objective and abstract.

³²⁷ Ibid., 38.

³²⁸ Ibid., 43.

³²⁹ Ibid.

³³⁰ Ibid.

³³¹ Ibid.

³³² Ibid., 42.

His conception of “World 3” seems highly idiosyncratic. Consider that he gives as examples of World 3 objects “a problem,” “a theory,” and “an argument.” In comparison to the typical examples given in discussions of abstract objects amongst realists, these are highly complex, multi-part, divisible, intellectual “objects” (in keeping with his usage). The examples typically given are simple, indivisible entities like the properties “being red” or “being square”, or mathematical entities like the number 2. The reason this is relevant is that Popper effectively removes from his ontology those entities that comprise classic examples of abstract objects, namely “essences” or “forms” or “ideas” – “the objects to which general concepts or notions refer”³³³ – and replaces those basic or simple intellectual entities with highly complex intellectual entities, which would presumably include many instances of the former, simpler, entities. I am not here commenting on whether or not “the objects to which general concepts or notions refer”, or *kinds*, or count nouns, should be included in a realist ontology. Rather, the point is that Popper rejects candidates for membership of World 3 that many realist would deem qualified, and accepts for membership entities that are less obviously qualified. Popper comments, “Plato would never have admitted such entities as problems or conjectures – especially false conjectures – into his world of intelligible objects.”³³⁴ Perhaps not. But it also would have been baffling, I suspect, for Plato to see someone advocate for a realm of ideas that contained “theories,” “problems,” and “arguments” as abstract objects, but not simple ideas like “horse” or “human being”.

Curiously enough, even though Popper attempts to distance himself from what he calls “essentialism”, and from Plato’s “ideal essences”, Popper seems to fall into saying more or less the same thing—at least *implicitly* in his explanation of World 3. Consider the following claim

³³³ Ibid.

³³⁴ Ibid., 43-44.

that Popper makes: “Many World 3 objects like books or new synthetic medicines or computers or aircraft are embodied in World 1 objects: they are material artefacts, they belong to both World 3 and World 1.”³³⁵ How can it be possible that a material artefact is not *entirely* a World 1 object? In what way could a physical object like an airplane be more than just a physical object? One assumes that Popper has in mind something like an abstract object that the physical airplane “embodies” or *instantiates*, to use common realist language for the relationship between universal and particular. And what would the physical airplane “embody”, if not the “form” or “idea” or “essence” of *airplane-ness*—that is, given that Popper is claiming that the airplane is both World 1 and World 3. World 3, according to Popper, is the “world of the contents of thought,” so the claim that an airplane belongs to both World 1 (the physical world) and World 3 (the world of the contents of thought) straightforwardly implies some sort of non-physical “essence” or “form” or “idea” or “universal” (the label is of secondary importance) of the airplane that is perceived in thought. Popper might deny that he is referring to an “essence”, but how is what he referring to any different than what realists about universals *mean* by “essence”?

This seeming oversight, and others like it, constitute possible weaknesses in Popper’s ontology. (Oddly enough, though, Popper claims at the very beginning of the book that he was not offering an ontology.³³⁶)

³³⁵ Ibid., 41.

³³⁶ Popper expressed views on ontology are an insight into his aversion to what he calls “hardcore metaphysics”. He writes: “But I wish to make clear, at once, that it is not my intention to raise any “what is” questions, such as “What is mind?” or “What is matter?”. (In fact, the need to avoid “what is” questions will turn out to be one of my major points.) It is still less my intention to *answer* such questions. (That is, I am not offering what is sometimes called an “ontology”.)” *The Self and Its Brain*, 3-4.

This quote tells us several things: First, this is an odd thing for Popper to say at the beginning his book, the purpose of which is, in part, to establish a major ontological claim, namely, substance dualism. Barring some idiosyncratic interpretation of “ontology,” Popper seems to be contradicting himself. For one thing, his distinctions between “World 1”, “World 2”, and “World 3” are all *ontological* distinctions. For another, his argument from logical principles is entirely based on the premise that the principles of logic are *not* physical (that is, part of “World 1”), *nor* are they part of human consciousness and thought (“World 2”), but rather something objective beyond the mind (“World 3”). What is his argument against materialism but a claim that the materialist ontology is false? Popper’s strange claim reminds me of E. J. Lowe’s point that we all do metaphysics (with ontology being at the core

How Does Popper's Ontology Affect His Argument?

My interest in Popper's ontology of abstract objects is primarily in relation to his argument from logical principles, not as a general metaphysical framework.

We are left with the question, How are logical principles to be understood as World 3 objects? On this question, Popper is not clear. There is some confusion in his explanation of World 3 for a number of reasons. As discussed above, Popper claims to have removed "essences" from World 3, but that would seem to include *kinds* such as "airplane", which he claims is both in World 1 *and* in World 3. In Popper's defense, he could be thinking of the "airplane" in his example not as a *kind*, but rather as a complex plan or blueprint of the plane, so to speak, but that raises the question, Why is the airplane not simply part of World 1 and World 2, to the exclusion of World 3? World 3 seems to be related to *objective* entities that can be *discovered*, and this points to World 3 entities being objects that can be shared or held in common.

I'll stop short of offering the classic arguments that realists give for universals, but the relevant point, again, is that Popper is himself arguing for a realm of abstract objects, so it seems odd that he excludes what are classic examples of abstract objects (specifically, universals). Instead, he populates this realm with "theories", "problems", and "arguments"—entities that would, arguably, be contentious even among realists. Any arguments he gives for admitting

of metaphysics) whether we like it or not, no matter our discipline. So we can either do metaphysics self-consciously, increasing the chances that we do it well, or we can do it without reflection, almost assuring that we do it badly.

This aversion to ontology, which is surprising to find in an astute philosopher like Popper who was clearly willing to indulge in "extravagant" ontological entities, seems to say a lot about the atmosphere and perception of ontology in academic philosophy at the time when Popper was writing. I don't want to read too much into it, but, more importantly, this aversion in Popper may have hindered him from taking seriously the work of thinkers before him in the area of ontology (the area that he is, undoubtedly, venturing into), keeping him from making use of pre-established ontological categories, especially those connected with abstract objects. Such a criticism of Popper, however, is highly speculative, as Popper may have been highly aware and familiar with sophisticated work in the ontology of knowledge, including, as just one example, Edmund Husserl's *Logical Investigations*. And yet, Popper's remarks about ontology, combined with his discussion of World 1, World 2, and World 3, leave room for suspicion otherwise.

theories, problems, and arguments to this realm would seem to apply, *a fortiori*, to the entities that Popper explicitly excludes (“the objects to which general concepts or notions refer”)—the very entities that inspired Plato to suggest the realm of the forms in the first place. This is *not* to say that realists should admit these entities if they admit any entities at all. Rather, it’s to question on what grounds Popper excludes them while including suspect entities in their place. It isn’t clear on what principle he excludes the latter while including the former.

As a consequence of Popper focusing on things like *theories, problems, conjectures, false conjectures*, and *arguments* as examples of World 3 objects, Popper doesn’t make it clear how paradigm cases of abstract objects, such as logical principles and mathematical objects, fit into World 3, in comparison to other World 3 objects. Popper affirms the existence of “*unembodied* World 3 objects”, which includes, as he makes clear later on in his argument from logic, logical principles.

The reason the existence of unembodied World 3 objects is so important, Popper says, is that “[i]f unembodied World 3 objects exist, then it cannot be a true doctrine that our grasp or understanding of a World 3 object always depends upon our sensual contact with its material embodiment...”³³⁷ I will discuss the question of whether it is possible for us to know abstract objects in chapter 5, but it is worth noting here that Popper moves from the existence of unembodied World 3 objects to the conclusion that a causal account of knowledge is false. (I discuss this further in chapter 4.)

This move mirrors the move he makes in the argument from logical principles itself, claiming that the principles of logic *must* be abstract World 3 objects, and, therefore, since materialism entails the causal theory of knowledge, they would be unknowable if materialism were true.

³³⁷ Ibid., 43.

E. Alternative Explanations of Logical Knowledge Consistent with Materialism

Although the advocates of the argument from logical principles offer some arguments for the claim that logical principles are abstract entities, the real work that needs to be done is in showing that the alternatives consistent with materialism do not work. Sometimes in philosophy, one of the most effective ways to argue *for* a position is to argue *against* its alternatives. If any of the alternative accounts of logical principles is successful, then all of the arguments given above are necessarily false. Thus, in attempting to refute alternative accounts of logical knowledge, the proponent of the argument from logical principles could go further toward rendering plausible the view that logical principles are abstract entities.

What we want to explore in the following section, then, is the various answers that have been given to the question, “What is logical knowledge *about*?” The answer that advocates of the argument from logical principles want to give says that logical knowledge is about necessary facts of reality in the form of non-physical, abstract entities, including such entities as logical relations between propositions, logical truths (necessarily true propositions), and logical principles.

Introduction to Alternative Materialist Explanations of Logical Principles

If logical principles are objectively real, they must be accounted for in a complete ontology. We have now looked at the case put forward by some of the advocates of the argument from logical principles for the view that logical principles are abstract entities, in a roughly platonic sense.

Thus, Platonism with regard to mathematics and logic is a *realist**³³⁸ view (here in a different sense than “logical realism”), because it claims objective existence for the putative subject matter

³³⁸ The use of “realism” again in a distinct sense is unfortunate, but it couldn’t be helped. Here, realism is simply the view that logical principles are real, existent, and objective, *not* the view that they are necessary.

of mathematics and logic. Realism (in this context, merely the view that the class of objects described exists objectively), however, is only one of three categories to consider. There are also *anti*-realist and *arealist* (or *irrealist*) accounts of the principles of logic. Each of these categories—realism, anti-realism, and arealism—can be understood as a distinct answer to the question, Do logical principles exist in an objective sense—that is, do they exist regardless of what anyone thinks or feels *about* them? Realism says, Yes; anti-realism says, No; and arealism says, That’s a meaningless question.

Platonism, it turns out, is not the only realist view in accounting for logical principles. In what follows, I will look at two realist views that have been championed in the last century or so: psychologism and formalism. I will also address *anti*-realist alternatives, such as fictionalism, and *arealist* (or *irrealist*) views, such as Carnap’s linguistic conventionalism—the view that logical laws are analytic truths.

(It needs to be noted that the terms “psychologism,” “formalism,” and “conventionalism” have been used in ways distinct from how I am using them in this project.³³⁹ I will stipulate each of their definitions in turn.)

Across the board, the champions of these alternative theories almost always represent them as superior to Platonism for the simple reason that they are consistent with naturalism or materialism. Willard comments on the motivation behind these theories in the course of their development in the last century or so. He writes, “Concerns about the bearings of logic on mind and world were sacrificed to the objective of getting rid of “strange” entities, “Platonistic” ones, and accompanying strange ways of knowing – “strange,” at least, to the overwhelmingly

³³⁹ For instance, Craig and Putnam refer to Carnap as a proponent of “conventionalism” and “linguistic conventionalism” respectively; but Willard refers to Carnap as a proponent of “formalism,” a view that is distinct from the referent of the former terms as I am using them here.

empirical and naturalistic inclinations of the 20th Century.”³⁴⁰ As stated, this is not a legitimate objection to Platonism, or realism about universals. “Strange,” “occult,” “mysterious,” “extravagant” and other such barbed adjectives are often used to describe entities that do not fit into a strictly physical universe. But absent any explanation as to why these strange entities are not *possible*, then positing them as hypothetical explanations for the phenomena we observe in the world is in keeping with the usual practice of science. Magnetic fields, beams of light that act like a wave and a particle, gravitational forces, strong and weak nuclear forces, etc., are all hypothetical posits meant to explain salient features of our experience. Just as no one would take seriously the objection that these are “strange” or “occult” entities, we should not take seriously the same objection to souls, abstract universals, rational insight, and so on.

If Aristotle is correct, reason is the definitive feature of human experience. Regardless of whether Aristotle was correct about our species in distinction from others, human reason must be explained, and if an adequate explanation requires positing “strange” entities that do not conform to a materialist ontology, so much the worse for materialism.

Reason *taken as a whole* is not the focus here, though. The question under discussion at present is a little more specific: Can logical principles be accounted for without appeal to abstract entities? In what follows I will look at the major naturalistic explanations of logical knowledge and discuss their merits.

I will start with what Hilary Putnam calls “linguistic conventionalism,” according to which logical laws are analytic truths. This can arguably be labeled an arealist view.³⁴¹ Then I

³⁴⁰ Willard, “Degradation of Logical Form,” 45.

³⁴¹ William Lane Craig, “God and Abstract Objects,” in *The Blackwell Companion to Science and Christianity*, ed. J. B. Stump and Alan G. Padgett, 1st edition (Malden, MA: Blackwell, 2012), 274, for instance, writes, “The classic version of arealism was the conventionalism of Rudolf Carnap.” He cites Rudolph Carnap, *“Meaning and Necessity”: A Study in Semantics and Modal Logic* (Chicago: University of Chicago Press, 1956), 206-17. Ultimately, the categorial distinction is irrelevant to the overall purpose in evaluating this theory, namely, considering whether it provides a satisfactory naturalistic account of logical principles. Craig also identifies : “Some

will look at the alternative realist views, psychologism and formalism. Lastly, I will very briefly address fictionalism, one of many anti-realist alternatives.

One last note before addressing specific theories: One of the key failings of Popper's argument from logical principles is his assumption that, having refuted several materialist alternatives to his own position that the principles of logic are "abstract noncorporeal World 3" objects, he had refuted materialism as a whole. A materialist could very reasonably respond to Karl Popper in the following way: "Even if I agreed with you that you have refuted several common materialist views of the principles of logic, you have not shown that it is not *possible* for materialism to account for the principles of logic in an objective sense. In order for your argument to succeed, you would need to demonstrate that materialism cannot *in principle* explain the principles of logic."

The goal in this section, in which I survey alternative views that are consistent with materialism, is not to address every possible alternative to the view that the principles of logic are non-physical, abstract objects. Rather, the goal in this section is to expose the assumptions that the proponents of the argument are making *against* major philosophical positions prominently held both at present, and in the history of philosophy. Furthermore, the goal is to highlight the challenge before the proponent of the argument from logic: if any of the following alternative positions are true, the argument from logical principles is unsound. The advocate would, ultimately, need to undermine all of the following positions, and demonstrate that any alternative would be false *in principle* in order to refute materialism. However, if the advocate was aiming for a weaker conclusion, she might merely aim to cast doubt on the following alternatives in light of the argument from logic.

nonrealists, notably the philosophers of mathematics Mark Balaguer and Penelope Maddy, would deny that the question "Do mathematical objects exist?" has an answer that is objectively true or false." Craig, "God and Abstract Objects," 275.

On the other hand, there is also the challenge for the materialist. Theodore Drange, in responding to Reppert's argument from logical principles as a whole, claimed that Reppert's argument was problematic because "all that is needed to refute it is some naturalist theory of logical laws that would grant that they exist and are relevant to the formation of beliefs."³⁴² What the following sections will also demonstrate, I hope, is that this is easier said than done.

³⁴² Drange, "Several Unsuccessful Formulations of the Argument from Reason," 44.

E1. “Logical Conventionalism”: Are Logical Principles Merely Analytic?

When one such philosopher (call him ‘R’) denounced the possibility of *a priori* certainty, I asked him, ‘But then how is philosophical criticism and justification possible?’ He replied, ‘We do it all the time.’ That much I knew. But my question concerned the philosophical grounds for those activities. When he began to expand on his answer by saying, ‘Well, it’s analytic to the concept of justification...’, I felt the rub. Where did he get ‘analytic’?”³⁴³

- Mark Notturmo, *Objectivity, Rationality, and the Third Realm*

An important alternative to platonic realism about logical principles (or any closely related proposal where logical principles are objectively real, abstract entities) is the view that the *necessity* and *a priori* justification of logical principles is explained by the fact that they are *analytic* truths. On this view, logical principles are *a priori* and necessary truths solely by virtue of their linguistic features—whether their grammatical structure or the meanings of the terms of which they are comprised. Our knowledge of logical principles, then, is not due to our perceiving necessarily existent abstract entities through some faculty of rational insight. Instead, our knowledge of them, and, indeed, knowledge of *a priori* and necessary truths as a whole, is explained by their being analytic. Analyticity, then, is the ground for the apriority and necessity of logic. In the past century, this view was defended prominently by Rudolph Carnap, as well as by other logical positivists, “the Vienna Circle”, and logical empiricists more generally.³⁴⁴ A contemporary defender of this view is Paul Boghossian (although in a significantly modified form from that of Carnap).³⁴⁵

³⁴³ Mark Notturmo, *Objectivity, Rationality, and the Third Realm: Justification and the Grounds of Psychologism* (Dordrecht: Martinus Nijhoff Publishers, 1985), x.

³⁴⁴ C. I. Lewis, for instance, defended a view similar to, but distinct from, Carnap’s. See chapter 3 of Laurence Bonjour, *In Defense of Pure Reason* (Cambridge: Cambridge University Press, 1998), for a critique of Lewis’s view.

³⁴⁵ See, for instance, Paul Boghossian, “Analyticity Reconsidered,” *Nous* 30, no. 3 (September 1996): 360-391. Also, Paul Boghossian, “Analyticity,” in *A Companion to the Philosophy of Language*, eds. Bob Hale and Crispin Wright (Malden, MA: Blackwell Publishers, 1997): 331-368.

The Motivation of the Analytic Explanation: Eliminate Appeals to Rational Insight

The motivation for the view that logical principles are merely analytic is that it comports well with a naturalistic and materialistic ontology, and it avoids appealing to “mysterious” faculties of the mind that do not fit neatly with materialism. Paul Boghossian, a defender of the analytic account of logic, writes, “The central impetus behind the *analytic* explanation of the *a priori* is the desire to explain the possibility of *a priori* knowledge without having to postulate such a special faculty [of rational insight], one that has never been described in satisfactory terms.”³⁴⁶ Critic Laurence Bonjour makes a similar point, but in terms of knowledge of necessity, rather than the *a priori*. He writes, “The underlying motivation for empiricist doubts is a deep-seated skepticism about the supposed capacity for rational insight into necessity to which the rationalist appeals.”³⁴⁷ And still others say the same.³⁴⁸ The notion that there is a special faculty of rational insight (a key element in traditional rationalism), is deeply antipathetic to a naturalistic or materialistic conception of mind. For this reason, empiricism—much like nominalism—goes hand in hand with materialism.

But, though the materialist and empiricist might like to avoid positing a special faculty of rational insight by which we have the capacity for *perceiving* or *grasping* necessary and *a priori* truths, the materialist and empiricist must still account for our knowledge of the principles of logic³⁴⁹—the clearest cases of necessary and *a priori* truths, if such things exist. The claim that

³⁴⁶ Boghossian, “Analyticity,” 334. Emphasis in the original.

³⁴⁷ Bonjour, *In Defense of Pure Reason*, 17.

³⁴⁸ R. W. Ashby writes, “The effect, and in many cases the intention, of linguistic theories of the *a priori* has been to repudiate rationalistic conceptions of *a priori* knowledge—in particular, the notion that this kind of knowledge is the product of intellectual intuition or insight.” R. W. Ashby, “Linguistic Theory of the *A Priori*,” in *The Encyclopedia of Philosophy*, ed. Paul Edwards, vol. 3 (New York: Macmillan Publishing, 1967), 479.

³⁴⁹ Bonjour writes, “But until very recently most empiricists have also found the existence of *a priori* justification and knowledge, in logic and mathematics at least, quite undeniable. It is thus incumbent on such empiricists to offer an alternative account of this justification, one that from their standpoint is metaphysically and scientifically more palatable than rationalism.” *In Defense of Pure Reason*, 17.

logical truths are merely analytic truths, in opposition to synthetic truths, is seen by many to adequately explain how we know logical truths to be both *a priori* and necessary.

Defining ‘Analyticity’

A problem arises before the analytic explanation of logic can even be evaluated: there are competing, distinct definitions of the concept of analyticity. Additionally, there are well-known difficulties in understanding the notion of analyticity itself.³⁵⁰ Those specific difficulties are not of concern at present, and I will circumvent the problem of competing definitions by the following device. Rather than delving into the finer details of each, I will simply survey the most common definitions, and evaluate them in turn for their suitability as accounts of logical truths. The question to be asked of each definition is, “Is this conception of ‘analytic’ adequate to explain the seeming necessity, as well as *a priori* justification, of logical truths?”

The Problem of Circularity: Definitions of “analytic” in terms of logical concepts, or that tacitly rely on logical principles

Susan Haack, in addressing the question of whether analyticity explains the nature of logically necessary truths, lists four well-known definitions of “analytic”.

(i) The Subject-Predicate Containment Definition

The first definition she lists was put forward by Kant. “Kant defined an analytic truth,” she writes, “as one the concept of whose predicate is included in the concept of its subject...”³⁵¹ The

³⁵⁰ Robert Adams, “Divine Necessity,” *The Journal of Philosophy* 80, no. 11 (Nov. 1983), 743. Clearly, Quine’s criticisms of the analytic/synthetic distinction in his paper, “Two Dogmas of Empiricism,” factor large here.

³⁵¹ Haack, *Philosophy of Logics*, 171. Laurence Bonjour, in explaining Kant’s view, puts the definition in terms of a *containment* relation: “In [Kant’s] version, a judgment of subject-predicate form is analytic when ‘the

statement “all bachelors are unmarried” is analytic because the subject concept, *bachelors*, if we think clearly about it, contains the concepts *unmarried*, *adult*, and *male*, which include the predicate concept, *unmarried*. So the predicate adds nothing to that which is already contained in the subject. It is, then, an (ostensible) example of an *a priori* justified and necessary truth. It is *a priori* justified because once one grasps that *unmarried* is contained in the concept *bachelor*, one sees that the statement is true. No inspection of the marital status of every existent bachelor is required. And, it is necessarily true because there is an identity between the concepts of the predicate and either those contained in the subject or the subject as a whole. The statement can’t fail to be true.

This definition might be a successful explanation of why a statement like “all bachelors are unmarried men” is *a priori* justified and necessary. However, it is ruled out as an adequate explanation of the *a priori* and necessary status of logical principles for at least two reasons. First, it is not helpful for explaining statements that are not in subject-predicate form, such as “Either there is coffee in the pot or there is not coffee in the pot”—which appears to be an obvious tautology.³⁵² The law of excluded middle (“Either *A* or not *A*”), for example, would not fall within the domain of statements or propositions covered by this definition.³⁵³

Second, and more significantly for the present purpose, if this definition of “analytic” is to qualify as a successful explanation of the *a priori* justification and necessity of *all* logical principles, it must not presuppose, either explicitly or implicitly, any logical principles in the definition. However, the definition appears to rely implicitly on the law of identity (“*A* = *A*”).

predicate B belongs to the subject A, as something which is (covertly) contained in this concept A.” BonJour, *In Defense of Pure Reason*, 20.

³⁵² BonJour, *In Defense of Pure Reason*, 21, fn. 21.

³⁵³ The law of excluded middle is doubted by some logicians. The argument doesn’t stand or fall on the assumption of that principle.

Also, this definition assumes something like the logical principle that “all *FGH* are *F*”.³⁵⁴ Thus, the subject-predicate containment definition is not adequate to account for all logical principles, as the empiricist (materialist) would desire.

(ii) The Contradiction-Entailed-by-Its-Denial Definition

Haack attributes a second common definition to Kant, as well: an analytic truth is “one the negation of which is contradictory.”³⁵⁵ A statement or proposition whose negation is a formal, explicit contradiction, of the form “*A* and not *A*”, is as clear an example of an *a priori* and necessary truth as there is, if there is such a thing. The logic of this definition is straightforward. A contradiction can never be true, so the negation of any statement that counts as analytic on this definition would *always* be false. The analytic statement, it follows, would always be true. Hence, its *a priori* justification and necessity.

This definition of analyticity—whatever it does successfully account for³⁵⁶—cannot be taken as an account of the necessity and *a priori* justification of the logical principles that it includes in its definition, for instance, the law of non-contradiction, which holds that a statement that expresses a contradiction (“*A* and not *A*”) is always false. That logical truth is invoked in this definition of analyticity, and so cannot be *explained* by it.

³⁵⁴ Ibid., 34; 49.

³⁵⁵ Haack, *Philosophy of Logics*, 171.

³⁵⁶ Quine attacked this definition of analyticity directly, doubting that it did, in fact, provide a clear, useful notion. Cory Juhl and Eric Loomis, *Analyticity* (London: Routledge, 2010), 85, comment, “Kant’s idea was that analytic claims are those whose denials lead to self-contradiction. But Quine found the notion of ‘non-contradiction,’ in the broad sense needed to clarify analyticity, to be in need of clarification itself, and described the notions as ‘two sides of a single dubious coin.’”

(iii) The Logical Truth Definition

The third definition Haack provides comes from Frege, who “defined an analytic truth as either a truth of logic, or a truth reducible to a logical truth by means of definitions in purely logical terms.”³⁵⁷

The inability of this conception of “analytic” to *explain* logical truths should be obvious: this conception explicitly defines analytic truths in terms of logical truths, and so the former cannot be the explanation of the latter, on pain of a vicious circularity. The dependence is the wrong way around. Some other account would still need to be given of the necessity and *a priori* justification of the logical truths themselves.

...

The previous three definitions are all what Laurence Bonjour calls reductive conceptions of analyticity. Such a conception, according to Bonjour, “explains the *a priori* epistemic justification of some propositions by appeal to that of other propositions, but is thus automatically incapable of saying anything epistemologically helpful about the *a priori* justification of the latter, reducing class of propositions (in this case the propositions of logic).”³⁵⁸ These definitions are all, as we have seen, excluded from providing an explanation of logical principles, because, in each case, logical principles, either explicitly or implicitly, served as the “reducing class of propositions.”

(iv) True by Virtue of Meaning

None of the previous definitions of analyticity suit the purpose of explaining logical principles, but it should be pointed out that neither Kant nor Frege intended to explain logical

³⁵⁷ Haack, *Philosophy of Logics*, 171.

³⁵⁸ Bonjour, *In Defense of Pure Reason*, 34.

truths by way of analyticity. The appeal to analyticity as an explanation of the seeming *a priori* justification and necessity of logical truths came later, in the first half of the 20th Century, with “the Vienna Circle” and logical positivism. This form of empiricism, according to Quine, was “a movement that began with Wittgenstein’s *Tractatus* and reached its maturity in the work of Carnap.”³⁵⁹ And that brings us to the fourth definition of analyticity provided by Haack:

More recently, analytic truths have been characterized as ‘true solely in virtue of their meaning’, synthetic truths as ‘true in virtue of facts’; with truths of logic being thought of as a subclass, true in virtue of the meaning of the logical constants, of the larger class of truths in virtue of meaning.³⁶⁰

Haack presents this definition of “analytic” in the context of evaluating attempts to account for logically necessary truths. But the same definition, and the theory behind it, has been advanced as an attempt to explain the *a priori* justification of putative logical truths, as well. Thus, the theory behind this definition of analyticity is referred to variously as the “linguistic theory of the *a priori*,”³⁶¹ the “linguistic theory of necessity,”³⁶² “linguistic conventionalism,” and the “linguistic doctrine of logical truth.”³⁶³ This view is represented in its most developed and elaborate form in the work of Carnap.³⁶⁴

The linguistic doctrine of logical truth, very roughly put, holds that, once one understands what “not” and “and” mean, one sees why “A and not A” must always be false, purely by virtue of the way we use the words “not” and “and”, and *not* by virtue of any facts about the world. Quine helpfully clarifies: “The suggestion is not, of course, that the logically true sentence is a contingent truth about verbal usage; but rather that it is a sentence which, given the language,

³⁵⁹ W. V. O. Quine, “Carnap on Logical Truth,” in *The Ways of Paradox and Other Essays* (Cambridge, MA: Harvard University Press, 1976), 107.

³⁶⁰ Haack, *Philosophy of Logics*, 172.

³⁶¹ Ashby, “The Linguistic Theory of the A Priori,” 479

³⁶² Boghossian, “Analyticity Reconsidered,” 361.

³⁶³ Quine, “Carnap and Logical Truth.”

³⁶⁴ See esp. *Meaning and Necessity*.

automatically becomes true...”³⁶⁵ Logical truths, then, are grounded in their analyticity, defined as such, without any need for correspondence between expressions of logical truth and extra-linguistic facts.

With regard to the truths of logic, then, if they are adequately accounted for as “analytic” in the sense that they are “true in virtue of the meaning of the logical constants,” then the materialist has an explanation of logical truth that is seemingly consistent with materialism (given a physical account of intentionality, consciousness, etc.). And, as it turns out, this later definition was expressly intended as an explanation of logical truths without reliance on a class of abstract entities, and without appeal to any sort of faculty of rational insight. Juhl and Loomis comment that “Carnap saw in analytic statements a way of eliminating ontological concerns altogether, to the extent these concerns are ‘metaphysical.’”³⁶⁶ Carnap was, of course, hostile, at least in his earlier work, to metaphysics as a whole, understood as a meaningful enterprise.³⁶⁷

The analytic view of logical truths, then, is not a *realist* theory with regard to logical objects existing as abstract entities; but, arguably, it is not an *anti*-realist theory either. At least, Carnap would not have viewed it that way. Anders Wedberg, commenting on Carnap’s views of abstract entities, writes,

By the logic of his own argument, Carnap is forced to declare the ‘ontological’ question concerning the existence of abstract entities a non-cognitive pseudo-question. The affirmative answer: ‘Abstract entities do not exist’, are from a theoretical point of view

³⁶⁵ Quine, “Carnap and Logical Truth,” 108.

³⁶⁶ Juhl and Loomis, *Analyticity*, 129.

³⁶⁷ Carnap rejected metaphysics as meaningless. See Rudolph Carnap, “The Elimination of Metaphysics,” in *Logical Positivism* (Glencoe, IL: The Free Press, 1959): 60-81. (The article was originally published in 1932.) He writes, “In the domain of *metaphysics*, including all philosophy of value and normative theory, logical analysis yields the negative result *that the alleged statements in this domain are entirely meaningless*.” (61) He concludes, “But what, then, is left over for *philosophy*, if all statements whatever that assert something are of an empirical nature and belong to factual science? What remains is not statements, nor a theory, nor a system, but only a *method*: the method of logical analysis.” (77) These statements of Carnap’s were made in the 30’s, but the logical positivism which they express was subsequently rejected, eventually, by mainstream philosophy—although many of the ideas of logical positivism live on in contemporary philosophy under new labels.

equally meaningless. ‘Nominalism’ is as much metaphysical nonsense as conceptual ‘realism’ or ‘platonism’.³⁶⁸

For this reason, Carnap’s view on the question of logical principles is described as *irrealism* or *arealism*.

Does this “true by virtue of meaning” definition of “analytic,” and the theory behind it, successfully account for logical truths?

Quine’s Criticism of Analyticity and Linguistic Conventionalism

The answer to that question, if it is to take recent history of philosophy into account, must, inevitably, go through Quine. Quine famously attacked the notion of analyticity in his paper, “Two Dogmas of Empiricism”, but he also attacked the notion that statements can be “true by virtue of meaning” in both “Truth by Convention” and “Carnap on Logical Truth,” in which he attacked Carnap’s linguistic conventionalism directly.³⁶⁹ Many have found Quine’s arguments to be not only compelling, but unanswerable.

For example, Paul Benacerraf, in his famous paper, “Mathematical Truth,” calls “conventionalism”³⁷⁰ (i.e., the linguistic theory of logical truth) a “dead horse,” believing that Quine has “dealt clearly, convincingly, and decisively with the view that the truths of *logic* are to be accounted for as the products of convention...”³⁷¹ Paul Boghossian and Christopher Peacocke, for their part, also understand Quine to have “decisively refuted the idea that anything

³⁶⁸ Anders Wedberg, “Decision and Belief in Science,” in *Rudolph Carnap, Logical Empiricist: Materials and Perspectives*, ed. Jaakko Hintikka (Dordrecht: D. Reidel Publishing, 1975): 161-181.

³⁶⁹ Carnap’s response to Quine can be found in the same volume in which the essay was originally published in Paul Arthur Schilpp, ed., *The Philosophy of Rudolph Carnap* (La Salle, IL: Open Court, 1963).

³⁷⁰ Benacerraf defines “conventionalism” as “the cluster of views that the truths of logic and mathematics are true (or can be made true) in virtue of explicit conventions where the conventions in question are usually the postulates of the theory.” “Mathematical Truth,” 676. The relevant point is not his definition, but that he takes Quine’s criticisms to be so decisive.

³⁷¹ Ibid. Emphasis in original.

could be true purely in virtue of meaning.”³⁷² Quine summarizes this “decisive” refutation in “Carnap and Logical Truth” as follows:

The linguistic doctrine of logical truth is sometimes expressed by saying that such truths are true by linguistic convention...[but] it is impossible in principle, even in an ideal state, to get even the most elementary part of logic exclusively by the explicit application of conventions stated in advance. The difficulty is the vicious regress, familiar from Lewis Carroll, which I have elaborated elsewhere.³⁷³ Briefly the point is that the logical truths, being infinite in number, must be given by general conventions rather than singly; and logic is needed then to begin with, in the metatheory, in order to apply the general conventions to individual cases.³⁷⁴

Benacerraf’s summary of the criticism, while still brief, expands somewhat on Quine’s point.

...since we must account for infinitely many [logical] truths, the characterization of the eligible sentences as truths must be wholesale rather than retail. But wholesale characterization can proceed only via general principles—and, if we are supposed not to understand any logic at all, we cannot extract the individual instances from the general principles: we would need logic for such a task.³⁷⁵

In “Truth by Convention,” Quine puts the argument in a nutshell: “In a word, the difficulty is that if logic is to proceed *mediately* from conventions, logic is needed for inferring logic from the conventions.”³⁷⁶ Thus, Quine’s criticism of Carnap’s view amounts to the claim, roughly, that the linguistic conventions themselves that are supposed to ground logical truths cannot themselves be expressed and articulated without a prior understanding of logical truths. Although philosopher’s pronouncements about such-and-such theory being “dead” are, strictly speaking,

³⁷² Paul Boghossian and Christopher Peacocke, “Introduction,” in *New Essays on the A Priori*, eds. Paul Boghossian and Christopher Peacocke, 1-10 (Oxford: Oxford University Press, 2000), 4.

³⁷³ See W. V. O. Quine, “Truth by Convention,” in *The Ways of Paradox and Other Essays* (Cambridge, MA: Harvard University Press, 1976): 77-106.

³⁷⁴ Quine, “Carnap and Logical Truth,” 115.

³⁷⁵ Benacerraf, “Mathematical Truth,” 676.

³⁷⁶ Quine, “Truth by Convention,” 104.

irrelevant to the merits of that position,³⁷⁷ I will refrain from beating a supposedly dead horse and move on, for the moment, from both the linguistic theory of logical truth and Quine's criticisms. (I will return to them below.)

Quine's argument is closely related to one found in both Nagel and Reppert in their discussion of materialism's problem in accounting for logical principles.

Logic Is Prior to Language

In *The Last Word*, Nagel argues that logic is more fundamental than language. In other words, our understanding of logic could not be the result of our understanding of the meanings of words because the dependency must be the other way around. We could not understand language to start with if we did not first understand logic. Thus, no linguistic account of logic can, in principle, account for our knowledge of logical principles.

Logic, Nagel writes, is "the system of concepts that makes thought possible and to which any language usable by thinking beings must conform."³⁷⁸ Language must conform to logic in order to even be intelligible. This is (or so it strikes me) at the very least a *prima facie* plausible claim. In order to illustrate it, consider a human-like creature that is on the cusp of being able to use language. This creature, call him Choms, has no vocabulary. But then, in a flash of intellectual illumination, Choms is suddenly able to verbally identify two objects in his environment, a rock and a tree. He can point at the rock and say, "Rock!" and at the tree and say, "Tree!" But for Choms to actually be identifying a particular rock as distinct from any other thing, in a meaningful way, it seems he would already have to have a (logically) prior

³⁷⁷ This thesis, after all, is discussing an argument with *theism* and *substance dualism*—among other theories—as its conclusion. Both theories have been pronounced dead very loudly and very often in the last century or so.

³⁷⁸ Nagel, *The Last Word*, 37-38. His critique applies equally to all forms of psychologism.

understanding that the rock is itself (the principle of identity) and *not* some other thing (the principle of non-contradiction). In other words, in order for Choms to *actually* understand the rock as a distinct object from the tree, he would have to have something like the concept of *that-particular-rock*, but, along with that concept, he would have to *also* have—if not in an occurrent sense, at least in a dispositional sense—the concept of *not-that-particular-rock*. That something like this latter concept has to be a part of Choms’ understanding seems evident from the following: if we were to imagine Choms going around saying “Rock!” and “Tree!” without any discrimination whatsoever, we would not suppose his utterances had any more meaning than the babblings of an infant. What makes his declarative identification “Rock!” meaningful is that it is made with regard to the thing itself, *to the exclusion* of other things.³⁷⁹ A similar analysis could be put forward regarding the logical concept identified by the word “and”. It seems likewise plausible to suggest that the logical concept must precede the language.

Victor Reppert, in criticizing the view that “the laws of logic are true by convention,”³⁸⁰ writes, “Before conventions can be established, logic must already be presupposed.”³⁸¹ By this, Reppert means that logic is presupposed in the use of *any* language. He writes, “[T]he laws of logic are conditions of intelligibility; without them we could not say anything.”³⁸² This is actually a longstanding objection to the linguistic theory of the *a priori*, according to R. W.

Ashby, who puts it this way: “...unless certain fundamental objective necessities are assumed—

³⁷⁹ The illustration can be modified to illustrate Nagel’s point about logic being a condition of thought, also. Suppose Choms has no language, but he can picture objects in his mind. He has a mental image of what we would call a rock, and another of what we would call a tree. In order for Choms to identify the picture of the rock with the rock and not with the tree and not with the mental image of a tree, he has to know that the mental picture is *not* the tree, and vice versa, he has to have some sort of principle operative in his thinking along the lines of Leibniz’s Law, that entails that something unlike (whether in terms of visual appearance, or some other set of properties) is not identical. This is all highly speculative armchair psychology, but it is only intended as a defense of the *plausibility* of Nagel’s initial claim.

³⁸⁰ Given the context, it is not clear whether he is thinking of something like Carnap’s linguistic conventionalism. It is clear, though, that he is referring to any view that would make the laws of logic contingent, and dependent on the way we happen to use language.

³⁸¹ Reppert, *C. S. Lewis’s Dangerous Idea*, 82.

³⁸² *Ibid.*

in particular those expressed by the principle of identity and the principle of contradiction—neither Wittgenstein’s nor Carnap’s nor any other theory can be even expressed or understood.”³⁸³ But Reppert’s reason for this claim, rather than reinforcing it, appears to reveal a problem with the argument. He writes, “Part of what it means to say anything is to imply that the contradictory is false. Otherwise, language simply does not function in a declarative way.”³⁸⁴ Put in this stark, direct way, the claim appears to beg the question against the linguistic conventionalist. Perhaps in *our* language, given the conventions we happen to hold, it’s true that “part of what it means to say anything is to imply that the contradictory is false,” but perhaps, given different linguistic conventions and, thereby, different logical principles, the same would not be true. Reppert can’t merely *assume* that logical principles are not the product of linguistic conventions in order to prove that they are not the product of linguistic conventions.

Interpreted in a more charitable light, Reppert’s point appears to be that if a language permitted contradictions (or denied *modus ponens*, or denied the transitivity of identity,³⁸⁵ etc.), it would be unintelligible. And yet, the fact that we can create a language that permits contradictions and denies other principles of logic—as logicians do all the time—implies, minimally, a disconnect between language and the putative principles of logic, if not the further claim that logical principles are not grounded in language. Nagel makes that further claim when he writes, “To the extent that linguistic practices display principles of reasoning or show us, for example, something about the nature of arithmetical propositions, it is not because logic is grammar but because grammar obeys logic.”³⁸⁶ Thus, according to Nagel, the most basic,

³⁸³ Ashby, “Linguistic Theory of the A Priori,” 483.

³⁸⁴ Ibid.

³⁸⁵ These latter two are Nagel’s examples.

³⁸⁶ Ibid., 38-39. This, Nagel notes, is in addition to “the fact that the consequences of the rules of grammar are determined by logic.” *The Last Word*, 39, fn. 2. Cf. Quine, “Truth by Convention.”

fundamental principles of logic could never, in principle, be modified or critiqued on the basis of our use of language.

Clearly, if this line of reasoning is correct, then it undermines, in principle, any attempt to explain logical truths by way of a linguistic theory. Nagel and Reppert's argument that logic is prior to language can be translated into the form of the objections above based on allegedly circular definitions of "analytic": any attempt to define "analytic", regardless of its content, will inevitably sneak in some sort of logical concept or notion—in this case, *simply by virtue of using language*—with the consequence that any attempt to ground logical principles in analyticity will be viciously circular.

One last point must be made with regard to the form of the argument presented in this section. Reppert and Nagel (not to mention the rock and tree illustration above) are, at bottom, appealing to intuitions about the nature of the principles of logic themselves. Surely at least some philosophers will deny these intuitions, and, with them, the above claims. But if someone were to deny the claim that logic is prior to language, it would seem that they would thereby commit themselves to the notion that a language that permitted contradictions *is*, in principle, intelligible. (Reppert and Nagel claim that logical principles, which, on their view, are prior to language, are the conditions of intelligibility.) Maybe it would not be intelligible to us in the sense that, at this moment, given our current intellectual habits, we could comprehend it, but, in principle, there would be nothing strictly unintelligible about a language in which—to give an extreme case—every declarative statement was an affirmation of both the statement and its contradictory. The only reason such a language would be *in principle* unintelligible is that the intelligibility of language is in fact grounded in logic and logic is not grounded in language.³⁸⁷

³⁸⁷ Possible objections here include positing an alternative condition of intelligibility other than logic.

The overall argument of this section, if granted, would undermine any linguistic theory of logical truth. That said, it would not undermine all nominalist and empiricist alternatives, so it can't be taken as *positive* proof of platonic realism about logical principles. For instance, an advocate of psychologism could affirm that logic is prior to language, insofar as it is a product of the way our brains are wired. At best, Nagel and Reppert will have dismissed one major alternative theory to their own position, namely, something like a platonic realism about logical principles, which is essential for their argument.

Boghossian's Attempted Rehabilitation of an Analytic Explanation of Logical Truth

Leaving aside the claim that logic is prior to all language, and allowing the possibility that some plausible defense of analyticity as an account of logical principles can be made, we can turn to the work of Paul Boghossian, a contemporary defender of the notion of analyticity who responds directly to Quine's criticisms.

Despite agreeing that Quine had "decisively refuted the idea that anything could be true purely in virtue of meaning" (at least in one sense of that phrase), Boghossian points out that Quine has not thereby refuted the notion of analyticity itself, nor that it explains logical truth. Boghossian goes further, though. In his paper, "Analyticity Reconsidered" and elsewhere,³⁸⁸ he attempts, in his own words, "to defend the notion of analyticity from Quine's famous critique and to try to show how it might be used to provide a theory of a priori knowledge, including our knowledge of fundamental logical principles."³⁸⁹ If successful, Boghossian would seemingly re-establish analyticity as a credible option for explaining our knowledge of logic, and would go a

³⁸⁸ Cf. Boghossian, "Analyticity."

³⁸⁹ Paul Boghossian, "Knowledge of Logic," in *New Essays on the a Priori*, eds. Paul Boghossian and Christopher Peacocke (Oxford: Oxford University Press, 2000), 232.

long way to justifying empiricist, nominalist, and materialist rejection of platonic realism about logical principles.

Boghossian's strategy is to divide the notion of analyticity into two distinct concepts, and to show that Quine's attacks are only successful against one of the two distinct understandings of "analyticity". The first understanding, according to Boghossian, is *epistemological*: "a statement is 'true by virtue of its meaning' provided that grasp of its meaning alone suffices for justified belief in its truth."³⁹⁰ Thus, on this notion, one can have *a priori* justified beliefs based purely on understanding the meaning of the terms. Boghossian labels this the "analytic theory of a priori knowledge."³⁹¹

The second understanding of analyticity is *metaphysical*: "a statement is analytic provided that, in some appropriate sense, it *owes its truth value completely to its meaning*, and not at all to 'the facts.'"³⁹² The metaphysical notion amounts to the claim that "the *truth of what the sentence expresses* depends on the fact that it is expressed by that sentence, so that we can say that what is expressed wouldn't have been true at all had it not been for the fact that it is expressed by that sentence."³⁹³ Whereas the epistemological notion of analyticity explained how we could be *a priori* justified in believing something, the metaphysical notion seeks to explain *necessary truth*, grounding it in linguistic conventions. Hence, Boghossian labels this the "linguistic theory of necessity."³⁹⁴ While Boghossian goes on to defend the epistemic notion of analyticity ("the analytic theory of a priori knowledge"), he registers his "whole-hearted

³⁹⁰ Boghossian, "Analyticity Reconsidered," 363.

³⁹¹ Ibid., 360.

³⁹² Ibid. Emphasis in original.

³⁹³ Ibid., 365. Emphasis in original.

³⁹⁴ Ibid.

agreement with Quine that the metaphysical notion is of dubious explanatory value and possibly also of dubious coherence.”³⁹⁵ Thus, he believes the linguistic theory of necessity is untenable.

Although Boghossian does not subscribe to the linguistic theory of necessity, it is still worthwhile to look at the reasons against it, and, as I hope to make clear later on, the reasons against it will count against *any* analytic theory of knowledge of logical principles.

Against the Metaphysical Notion of Analyticity, or the “Linguistic Theory of Necessity”

Boghossian provides an argument against the linguistic theory of necessity in the form of a series of rhetorical questions. “What could it possibly mean,” he asks, “to say that the truth of a statement is fixed exclusively by its meaning and not by the facts?”³⁹⁶ He illustrates what he considers the absurdity of this notion by the following illustration:

Are we really to suppose that, prior to our stipulating a meaning for the sentence

Either snow is white or it isn’t

it wasn’t the case that either snow was white or it wasn’t? Isn’t it overwhelmingly obvious that this claim was true *before* such an act of meaning, and that it would have been true even if no one had thought about it, or chosen it to be expressed by one of our sentences?³⁹⁷

Thus, Boghossian concludes that the linguistic theory of necessity is “futile”.³⁹⁸ But this argument can be expanded upon.

Among the defenders of the argument from logical principles, E. J. Lowe also attacks the notion that analyticity could explain modal knowledge as a whole. His arguments, in conjunction

³⁹⁵ Ibid., 364.

³⁹⁶ Ibid.

³⁹⁷ Ibid., 365. Emphasis in original.

³⁹⁸ Ibid., 387-388.

with those of Robert Adams, form a relatively strong set of considerations that count against the notion that necessary truths can be explained in terms of being analytic truths.

Lowe and Adam's Arguments Against the Linguistic Theory of Necessity

Despite Boghossian's somewhat harsh dismissal of the view, one must allow that there are some possibilities and impossibilities that follow directly from the meaning of a word. It is not possible, for instance, for a man to be both married and, at the same time, be described accurately as a bachelor. The meaning of 'bachelor' *just is* "unmarried man." But, it does not follow from this that our knowledge of *all* possibilities can be grounded in the meanings of words.

Along these lines, E. J. Lowe argues that we can't ground all possibilities in the meaning of words "because there are possibilities and impossibilities concerning the meanings of words themselves, which cannot without absurdity be taken to be grounded in the meanings of words."³⁹⁹ For example, there is a sense in which it *is* possible for a bachelor to be married, and "the sense in which it *is* possible for a bachelor to be married has nothing whatever to do with the meanings of words."⁴⁰⁰ Likewise, there is a sense in which it is possible for a human being to run a marathon in under two hours that has nothing to do with the meanings of words.⁴⁰¹ "These are 'real' possibilities," Lowe writes, "which are grounded in the natures of the things, not in the meanings of the words that we use to describe things."⁴⁰²

³⁹⁹ E. J. Lowe, "Metaphysical Knowledge," in *Philosophical Methodology: The Armchair or the Laboratory?*, ed. Mathew C. Haug (London: Routledge, 2014), 138.

⁴⁰⁰ Ibid.

⁴⁰¹ Ibid. The point is Lowe's, the example mine.

⁴⁰² E. J. Lowe, "Metaphysical Knowledge," 138.

It appears that Lowe is stating, without saying as much, the distinction between *de dicto* and *de re* modality.⁴⁰³ His claim, then, amounts to saying that, while analyticity (“true by virtue of meaning”) might account for some *de dicto* necessary truths, it does not account for *de re* necessary truths. For this reason, many philosophers deny that there are any *de re* necessary truths, since they could not be accounted for linguistically.

In his essay, “Divine Necessity,” Robert Adams makes a similar case to Lowe’s that necessity cannot be understood, at the end of the day, as being merely analytic. However, he does not rely on the claim that there are *de re* necessities. Instead, he argues that any analysis of analytic truth—regardless of definition—will *presuppose* modal notions such as necessity, and therefore, to explain necessary truths in terms of analytic truths will be viciously circular.

For example, if we take as an example of a necessary truth one whose negation is a formal contradiction, we see that it is necessary because it can’t be false. It can’t be false because its negation is a contradiction, and a contradiction can’t be true. But this doesn’t explain what “necessary” means, because, Adams writes, “when we say that a contradiction is *necessarily* false, surely we are saying more than just that it is a contradiction. This ‘more’ is precisely what we want explained, but it is not explained by saying that a necessary truth is one whose negation implies a contradiction.”⁴⁰⁴ If Adams’ point is correct, then clearly it will not work to explain necessity in terms of analyticity, where an analytic truth is defined as one whose negation is a contradiction (or implies a contradiction⁴⁰⁵). Necessity is presupposed in the explanation.

But what of other examples (and definitions) of analytic truths, such as conceptual analytic truths and “theorems of formal logic”? Adams offers a similar analysis for each. The

⁴⁰³ See Michael J. Loux, “Modality and Possible Worlds,” in *Metaphysics: Contemporary Readings*, 2nd ed. (New York: Routledge, 2008): 151-159, for a discussion of this distinction.

⁴⁰⁴ Adams, “Divine Necessity,” 743.

⁴⁰⁵ Adams also discusses this further case. See *Ibid.*, 743-744.

theorems of formal logic, which are said to be true by virtue of their logical form, and thus analytic, are one type of analytic truth. Adams rejects the claim that their analyticity explains their necessity, since, he writes, “what make a system of formal logic good or valid or semantically satisfactory is at least in part the necessary truth of all its theorems (or of all substitution instances of its theorems).”⁴⁰⁶ It would be circular to explain their necessity in terms of analyticity.

If one objected that a valid system of logic need not presuppose the notion of necessary truth, and instead merely claimed that “it is enough for the validity of a logical system if all its theorems and all their substitution instances are *in fact true*,”⁴⁰⁷ Adams claims that such an analysis of “necessary truth” is implausible. It is not enough to claim that the meaning of “necessary truth” can be explained by the actual fact (rather than *necessary* fact) that all instances of a certain logical form are true. Adams concludes, “For when we say that all the instances of a certain logical form are *necessarily* true, we surely mean more than that they *all are* true. We mean that they can’t be false.”⁴⁰⁸ It is the latter property that must still be explained.

A conceptual analytic truth such as “All husbands are married” is also presumably a necessary truth. The usual explanation given for its necessity is that by ‘husband’ we *mean* “married man.” But, Adams demurs, this is not enough to explain its necessity, because by ‘God’, we *mean* “the Creator of the universe.”⁴⁰⁹ The latter, however, is neither an analytic, nor a necessary truth, because God could have refrained from creating anything. Thus, Adams concludes, we must distinguish “the sense in which by ‘husband’ we *mean* ‘married man’ from

⁴⁰⁶ Ibid., 744.

⁴⁰⁷ Ibid. Emphasis added.

⁴⁰⁸ Ibid., 745. Emphasis in original.

⁴⁰⁹ Ibid.

the sense in which by ‘God’ we *mean* ‘the Creator of the universe’”⁴¹⁰ in order to explain why the former is both analytic and necessary and the latter is not. Even if we suppose that one need not presuppose necessity in the “correct analysis” of “All husbands are married,” it seems to Adams that when one says that it is a necessary truth, one is saying more than that it is a correct analysis. They are saying that it *can’t be false*. But this property of being unable to be false—a property which conceptual analytic truths share with logical analytic truths—seems equivalent to being necessarily true. So, again, the analyticity of conceptual truths is not enough to explain necessity.

Lastly, Adams briefly addresses the view that a truth is analytic if it is true “solely by virtue of the meanings of its terms.”⁴¹¹ He thinks this “criterion, cut loose from any precise conception of analysis, is so vague as to be useless for any serious argument (not to mention that it may presuppose the notion of necessity).”⁴¹² It is fairly clear how Adams would proceed to argue that this definition of analytic also presupposes necessity: he would attempt to demonstrate that within the notion of, say, a logical truth being true “solely by virtue of the meanings of its terms,” there would be included (however subtly) the conception that this truth *can’t be false*. But such a claim is equivalent to saying it is *necessarily* true.

At the very least, the above considerations, taken as a whole, raise very serious doubts that any account of necessity in terms of analyticity could be successful. But why, as I hinted above, would this create a problem for Boghossian, who wants only to defend an analytic theory of *a priori* knowledge, and not an analytic theory of necessary truths?

⁴¹⁰ Ibid.

⁴¹¹ Ibid. 747.

⁴¹² Ibid.

Logical Truths Are Necessary Truths

Boghossian, along with Quine, Lowe, and Adams, rejects the linguistic theory of necessity. But he still wants to defend an account of our knowledge of “fundamental logical principles” in terms of analyticity—albeit an analytic theory of *a priori* knowledge. There is a straightforward problem with Boghossian’s rejecting any analytic theory of necessity in principle, while trying to hold on to an analytic theory of our knowledge of logical principles. The problem stems from the fact that logical truths are necessary truths, if there are any necessary truths at all.

How can Boghossian account for our knowledge of logical principles simply by accounting for *a priori* knowledge? Supposing his analytic theory of *a priori* knowledge is successful, if logical truths are not only *a priori* justified, but also *necessary*, it would seem, at least *prima facie*, that he must also give an account of our knowledge of necessity in order to fully account for our knowledge of logical principles. But he denies in principle that there can be an analytic theory of necessity. Thus, if it can be shown (assuming it requires demonstration) that knowledge of logical truths presupposes modal notions, or *includes* modal notions in their conception, then merely giving an account of *a priori* justification in terms of analyticity will not be enough to fully account for our knowledge of logical principles in terms of analyticity.

One might seek to evade this problem by denying (a) that logical principles are necessary, or (b) that our understanding of logical principles presupposes modal notions. Both views, however, seem implausible. Bob Hale, in his paper, “Basic Logical Knowledge,” argues against skepticism about (logical) necessity. He writes, “If there is such a thing as logical necessity at all, [basic logical knowledge] is surely the fundamental case of it.”⁴¹³ (I will not

⁴¹³ Bob Hale, “Basic Logical Knowledge,” in *Logic, Thought and Language*, ed. Anthony O’Hear (Cambridge: Cambridge University Press, 2002), 279-304.

argue for this point here, as I have addressed it at length above.) He believes that knowledge of logical principles is knowledge of *necessity*. And this relates to (b). He writes,

As I have characterized it, the object of a piece of logical knowledge is some proposition to the effect that any inference in accordance with a certain specified rule must have a true conclusion if its premises are true, i.e. it is knowledge that a certain rule is (not merely always, but) *necessarily* truth-preserving. So it is modal knowledge.

Our common concepts of validity and invalidity seem dependent on, and seem to require a prior understanding of, the modal notions of necessity and possibility (both of which can be stated in terms of the other). As it is commonly stated, an argument is deductively valid if it is *impossible* for the conclusion to be false if the premises are true. Logical principles, in turn, seem likewise dependent on modal notions. The very thing that makes them *principles* is the fact that they are without exception.⁴¹⁴ Thus, we can phrase them in terms of being necessary. For example, the law of transitivity:

Necessarily, if $A=B$ and $B=C$, then $A=C$.

This presents a problem for any attempt to define logical principles as merely “analytic” in the sense that the necessary truth of the principles drops out of the meanings of the words involved. That is, our understanding of logical principles *as necessary* cannot be explained as the result of those principles being analytic. The modal notion of necessity is already built in to the principles themselves. In order to understand the meanings of the words involved in a description of the

⁴¹⁴ Obviously, every principle of logic has been challenged some philosopher or another, but I am presupposing that at least *some* principles of logic are true without exception. For example, Hilary Putnam takes the “minimal principle of contradiction” to be a necessary truth:

law of non-contradiction—“Any sentence of the form ‘A and not-A’ *must* be false.”—one would have to have an understanding of the word “must”, which expresses the notion of necessity.

Not only would it be circular to try to explain the necessity of logical principles in terms of the meanings of the words, but, more to the present point, it would not be a significant philosophical result to explain the principles of logic as analytic if the modal notions built in to the principles were left unanalyzed. In other words, Boghossian, by leaving an explanation of necessity out of the equation, cannot hope to fully account for our knowledge of logical principles merely by explaining their *a priori* justification. It is above all else the necessity of the principles of logic that needs explaining. Why would these principles not only be true in all cases, but also, why would it be impossible for them to be false?

These considerations, admittedly, seem to come close to begging the question. However, they only do so against someone who denies that logical principles are, in fact, necessary, and who denies that it is impossible for them to be false (such as Quine). But against someone like Boghossian, who agrees that analyticity cannot account for necessity, *and* who rejects epistemic relativism regarding logical principles (that is, he cannot easily deny that logical principles are necessary), they are significant difficulties that must be answered. Boghossian, for his part, deems it “unfortunate” that the prevailing view is that “there is no way to embrace the epistemic concept of analyticity without also embracing its metaphysical counterpart,”⁴¹⁵ but even if he is correct that they can be disentangled, if the above considerations are correct, then his defense of the analytic theory of *a priori* knowledge cannot hope to be a complete account of our knowledge of logical principles.

⁴¹⁵ Boghossian, “Analyticity Reconsidered,” 366.

The Analytic Theory of A Priori Knowledge

It is still worth looking at Boghossian's arguments for the analytic theory of *a priori* knowledge, which he puts forward expressly as an account of our knowledge of logical principles. Doing so, in my judgment, reveals that he does not deal with any of the substantive difficulties for an analytic account of logic already raised.

Before looking at the substance of Boghossian's attempt to explain our knowledge of fundamental logical principles through an analytic theory of *a priori* knowledge, there is a problem that, although acknowledged by Boghossian, goes unanswered, and it seems to render the details of Boghossian's case irrelevant—or at least, relatively insignificant—until it is dealt with.

Boghossian explicitly makes a major assumption in order to get his case off the ground. He assumes that there is an answer to what I'll call "Frege's worry"—an argument against the possibility of explaining logic in terms of something more fundamental. Frege did not think there could be a "substantive epistemology" for logic, and, thus, he took logic's apriority for granted.⁴¹⁶ Boghossian summarizes Frege's worry as follows:

'Explaining our knowledge of logic' presumably involves finding some *other* thing that we know, on the basis of which our knowledge of logic is to be explained. However, regardless of what that other thing is taken to be, it's hard to see how the use of logic is to be avoided in moving from knowledge of that thing to knowledge of the relevant logical truth. And so it can come to seem as if any account of how we know logic will have to end up being vacuous, presupposing that we have the very capacity that's to be explained.⁴¹⁷

In other words, any attempt to explain logic will end up being viciously circular, assuming the very thing to be explained. This is no insignificant worry. Rather, it is, in form and substance,

⁴¹⁶ Boghossian, "Analyticity Reconsidered," 367.

⁴¹⁷ Ibid., 374.

very close to the arguments already raised against analyticity acting as an explanation of, or a ground for, logical principles. As Nagel stresses in *The Last Word* and *Mind and Cosmos*, it would seem that we cannot “get behind” logic, or find something more fundamental, because it is presupposed in all of our attempts to explain it. If Boghossian is not going to explain why Frege’s worry is misplaced or where it goes wrong, despite its straightforward and seemingly valid argument, whatever follows the assumption, no matter how compelling, will not have answered the chief difficulty of any linguistic account of logical principles.

...

Boghossian lays out his analytic theory of *a priori* knowledge with reference to the views of Wittgenstein and Carnap. The classical view of how we know the principles of logic—which largely held sway until relatively recent times, but which has declined in popularity due in no small part to the influence of Wittgenstein and Carnap—held that our most basic logical knowledge is *immediate* in some sense, that is, it is not mediated by anything else. We know logical principles through rational insight or intuition—by which their truth is immediately present to our consciousness. Boghossian calls this “Flash-Grasping.”⁴¹⁸ But Boghossian, following Wittgenstein and Carnap, rejects Flash-Grasping in favour of “Implicit Definition,” which is a linguistic explanation of our *a priori* knowledge of logical principles that makes no appeal to rational insight. Implicit Definition is given the following description: “It is by arbitrarily stipulating that certain sentences of logic are to be true, or that certain inferences are

⁴¹⁸ He defines the term as follows: “We grasp the meaning of, say, ‘not’ ‘in a flash’ – prior to, and independently of, deciding which of the sentences involving ‘not’ are true.” “Analyticity Reconsidered,” 375. He combines Flash-Grasping with the doctrine of Intuition, in order to summarize the historically influential (really, traditional rationalist) epistemology of logic. He defines the doctrine of Intuition as: “This grasp of the concept of, say, negation, along with our intuition of its logical properties, explains and justifies our logical beliefs involving negation – e.g., that ‘If not not p, then p’ is true.” Ibid.

to be valid, that we attach a meaning to the logical constants.”⁴¹⁹ It is from Implicit Definition that Boghossian thinks one can derive all *a priori* knowledge of logic.

What sets Boghossian’s case for an analytic theory of our knowledge of logical principles apart from the linguistic theories of both Carnap and Wittgenstein is that Boghossian does not think that Implicit Definition entails either “logical *Non-factualism*” or “logical *Conventionalism*,” whereas both Wittgenstein and Carnap did. Logical Non-Factualism, according to Boghossian, is the view that “the sentences of logic that implicitly define the logical primitives do not express factual claims and, hence, are not capable of genuine truth or falsity.”⁴²⁰ Logical Conventionalism is the view that the truths of logic, while factual, are not objective, but ultimately *subjective*, determined by our conventions.⁴²¹ Defined this way, it’s clear that both views are subjective about logical principles, and, in Boghossian’s words, “imply an epistemic relativism about logic.”⁴²² This subjectivism is clearly fatal for both views, and, if such consequences are entailed by Implicit Definition, it is likewise untenable.

But Boghossian makes a case that Implicit Definition does not entail either Non-Factualism or Conventionalism, and it is essential for his case that he is able to do so. However, it would seem that his arguments in both cases do not succeed.

Implicit Definition and Non-Factualism

Boghossian argues that Implicit Definition does not entail Non-Factualism by providing an example of a sentence that implicitly defines an ingredient term and which also makes a

⁴¹⁹ Boghossian, “Analyticity Reconsidered,” 376.

⁴²⁰ Ibid., 377.

⁴²¹ Ibid.

⁴²² Ibid.

factual statement. He cites Kripke's example of the introduction of the term 'meter'. One might stipulate that the following sentence is true:

[1] Stick **S** is a meter long at **t**.⁴²³

Boghossian writes, "Suppose that stick **S** exists and is a certain length at **t**. Then it follows that 'meter' names that length and hence that [1] says that stick **S** is that length at **t**, and since it is that length at **t**, [1] is true."⁴²⁴ By this example Boghossian believes he has demonstrated that there is "no inconsistency whatsoever between claiming that a given sentence serves to implicitly define an ingredient term and claiming that that very sentence expresses something factual."⁴²⁵

Likewise, he sees no problem in stipulating that a particular logical principle implicitly defines a logical constant used in the principle, *and* that the principle expresses a factual statement that can be true or false.⁴²⁶

But there is a problem with this analogy. In the first instance of the meter stick, he is attributing a name to an already existent property, i.e., the property of being a certain length. Certainly, this might prove Boghossian's point that it does not *necessarily* follow "from the fact that a given sentence **Q** is being used to implicitly define one of its ingredient terms, that **Q** is not a factual sentence."⁴²⁷ But, having refuted that universal negative, he has not thereby proved the more specific, positive point that using a logical principle to implicitly define a logical constant entails that the logical principle itself is factual. The fact that *some* sentences which implicitly define an ingredient term also make factual statements (that can be genuinely true or false) does

⁴²³ Ibid., 379.

⁴²⁴ Ibid.

⁴²⁵ Ibid.

⁴²⁶ Ibid.

⁴²⁷ Ibid., 378.

not entail that *all* sentences which implicitly define an ingredient term also make factual statements. And, clearly, examples could be given of sentences that involve implicit definition that are *not* factual. What Boghossian needs to demonstrate is that logical principles belong to the category of factual statements—something he has not done.

The question that needs to be asked is, What *makes* any given sentence that implicitly defines one of its terms factual? In the case of the sentence about the meter stick, it is immediately clear what *makes* the sentence factual—namely, the stick being real and being a certain length, and that length being designated by the term ‘meter’. But, on the Implicit Definition view, what is supposed to make a given statement of a logical principle, which by “arbitrary stipulation” is said to be “true”, a *factual* statement? What is it about the world that makes, say, the law of non-contradiction a factual statement? It can’t simply be that it is a false statement. If the logical principles in question are false, we can’t have knowledge of them, and it is our *knowledge* of logical principles that Boghossian is trying to explain. And it can’t be that logical principles exist as abstract entities. Boghossian’s appeal to Implicit Definition is precisely intended to avoid any ontological commitments involving logical principles existing as abstract entities, and to avoid positing a faculty of rational insight that allows us to perceive those entities. So what is it that makes a logical principle that implicitly defines a logical constant within it a factual statement that can be genuinely true or false? Boghossian does not say.

Boghossian demonstrates that Implicit Definition does not entail Non-Factualism in every case. But this is a trivial result. By doing so, he only allows for the *possibility* that Implicit Definition as an explanation for how we know logical principles *a priori* does not entail that logical principles are non-factual statements. He needs to demonstrate positively that statements of logical principles involving implicit definition—not statements involving mid-sized physical

objects—are factual. His case comes down to the assertion that he sees no “inconsistency” between supposing that a logical principle implicitly defines a logical constant contained in it and that that principle also makes a factual statement. He offers no additional reasons for why we ought to believe that a given logical principle, on his view, makes a factual statement.

E2. Psychologism

The next important naturalistic (and materialistic) alternative explanation of logical knowledge is psychologism. Psychologism is usually positioned in opposition to formalism.⁴²⁸ Psychologism is a realist view because it affirms the existence of logical principles, but it locates them not in a non-physical, abstract realm, but instead in the *concrete* workings of the human⁴²⁹ mind. Probably the most prominent representative of psychologism about logic in the last century was W. V. O. Quine. This section will look at the case for and against psychologism about logic.

What Is “Psychologism”?

Psychologism is “a philosophical ideology based on psychology” that “includes any attempt to ground philosophical explanation in psychological phenomena.”⁴³⁰ Historically, the term has meant many things, and has been the subject of much dispute, but for much of its history has been a term of abuse.⁴³¹

The history of the term “psychologism” provides a fascinating window into the rhetorical practices of academic philosophers and the sociological factors that influence the rise and fall of a theory (both of which have particular interest relative to argument from logic, given the current standing of non-naturalistic positions such as substance dualism and theism). After its emergence in Germany in the latter half of the 19th Century, the term originally “had a purely descriptive

⁴²⁸ Willard, “A Realist Analysis of the Relationship Between Logic and Experience,” 72.

⁴²⁹ Conceptualism, in contrast, would place logical objects in the concrete workings of the *divine* mind.

⁴³⁰ Dale Jacquette, “Introduction: Psychologism the Philosophical Shibboleth,” in *Philosophy, Psychology, and Psychologism: Critical and Historical Readings on the Psychological Turn in Philosophy*, ed. Dale Jacquette (Dordrecht: Kluwer Academic Publishers, 2003), 1-2. See this chapter for an in-depth discussion of the history of the term and the various forms of psychologism.

⁴³¹ Dale Jacquette, “Psychologism Revisited in Logic, Metaphysics, and Epistemology,” in *Philosophy, Psychology, and Psychologism: Critical and Historical Readings on the Psychological Turn in Philosophy* (Dordrecht: Kluwer Academic Publishers, 2003), 245.

content and denoted the view that all philosophy, including logic, is applied psychology.”⁴³² But then Frege and Husserl attacked the theory, and the term “psychologism” quickly became an epithet of opprobrium, an accusation to be avoided.⁴³³ Dale Jacquette writes, “In the semantic McCarthyite antipsychologistic hysteria of the times, there was no protection in declaring oneself a card-carrying antipsychologist by discovering and denouncing other thinkers as guilty of psychologism. The leading antipsychologists were themselves pilloried in print for latent psychologistic tendencies.”⁴³⁴ Indeed, even Frege and Husserl—both ontological dualists, rationalists, anti-empiricists, who were ardent anti-psychologists if there ever were any—were accused of psychologism.⁴³⁵ In what follows, I hope to avoid any such fallacious appeals to emotion or authority.

Logical Psychologism

Our concern in this section is not with psychologism in the broadest sense, but with psychologism in the narrower sense, as applied to logic. Logical psychologism is “the doctrine that logic is based on empirical generalizations about how people think,”⁴³⁶ or that “the familiar laws of logic are empirical laws governing the actual course of mental events, and that they are derived inductively from observations of such events.”⁴³⁷ In other words, logic is grounded in

⁴³² Jan Woleński, “Psychologism and Metalogic,” 190.

⁴³³ Ibid.

⁴³⁴ Jacquette, “Psychologism the Philosophical Shibboleth,” 4.

⁴³⁵ Woleński, “Psychologism and Metalogic,” 190. See also Martin Kusch, *Psychologism: A Case Study in the Sociology of Philosophical Knowledge* (London: Routledge, 1995); and Dallas Willard, “The Paradox of Logical Psychologism: Husserl’s Way Out,” in *Husserl: Expositions and Appraisals*, eds. Frederick A. Elliston and Peter McCormick (Notre Dame: University of Notre Dame Press, 1977): 10-17.

⁴³⁶ Richard M. Gale, “Propositions, Judgments, Sentences, and Statements,” in *The Encyclopedia of Philosophy*, ed. Paul Edwards, Vol. 5 & 6, 494-505 (New York: Macmillan Publishing, 1967), 497.

⁴³⁷ Willard, “A Realist Analysis of the Relationship between Logic and Experience,” 73. Elsewhere, Willard defines it as follows: “Logical Psychologism is the view that the non-normative statements made by logicians engaged in their business both are about, and draw their evidence from the examination of, the particular conceivings, assertings, and inferences of particular persons—a range of facts commonly thought to belong ultimately to the science of psychology alone.” Willard, “The Paradox of Logical Psychologism,” 10.

psychology. This view was adopted and defended by such philosophers as John Stuart Mill, Theodor Lipps, Wilhelm Wundt, Christoph von Sigwart, and Moritz Schlick.⁴³⁸

Psychologism is usually positioned in opposition to formalism, another naturalistic account of logic. (Both views reject that a non-physical, abstract realm is required to account for our knowledge of logic.) Psychologism, like formalism, is a realist view because it affirms the existence of logical principles, but, unlike formalism, it locates them in the concrete workings of the human⁴³⁹ mind.⁴⁴⁰ Thus, psychologism in logic claims that “what the laws of logic are about, what they are true of, are regularities governing the course of individual thoughts and beliefs in the individual human mind.”⁴⁴¹ In other words, the laws of logic are empirical laws that govern the way our minds work, that is, the course of mental events.⁴⁴²

For example, take the law of non-contradiction. Understood in terms of logical psychologism, the law of non-contradiction is not about (necessary, eternal, non-physical) relations between propositions (abstract universals); rather, it is about the empirical fact of the matter that, given the right circumstances (e.g., one’s mind is not clouded by drugs or other psychological interference, and the subject is “rational”), one cannot believe A and its contradictory, not-A, at the same time. In this sense—to take an example from Husserl—the laws of logic are like the laws of chemistry:

Just as the chemical formula $2\text{H}_2 + \text{O}_2 = 2\text{H}_2\text{O}$ only expresses the general fact that, in suitable circumstances, two volumes of Hydrogen combine with one volume of Oxygen to form two volumes of water, so the logical formula $\text{MaX} + \text{MaY} = \text{YiX} + \text{XiY}$ merely

⁴³⁸ Richard Tieszen, “Husserl’s Logic,” in *The Rise of Modern Logic: From Leibniz to Frege*, volume 3 of *Handbook of the History of Logic*, eds. Dov M. Gabbay and John Woods (Amsterdam: Elsevier, 2004), 223. Also, Jacqueline, “Psychologism the Philosophical Shibboleth,” 5.

⁴³⁹ Conceptualism, in contrast, would place logical objects in the concrete workings of the *divine* mind.

⁴⁴⁰ Willard, “A Realist Analysis of the Relationship Between Logic and Experience,” 72.

⁴⁴¹ Ibid.

⁴⁴² Ibid., 73.

express the fact that in suitable circumstances, two universal affirmative judgments with a common subject, produce two new particular judgments in consciousness.⁴⁴³

Logic, then, can be said to be a part of an empirical science. It is but “one chapter in the book of psychology.”⁴⁴⁴

Psychologism Defeated?

As alluded to above, the criticisms offered by Frege and Husserl were regarded by many at the time as being decisive. Although it was Frege who initially set out criticisms of psychologism in a rather harsh review of, curiously enough, *Husserl's* 1891 work, *Philosophy of Arithmetic* (Husserl's thinking at the time was deeply enmeshed in the psychologism that was then prevalent in Germany), Husserl later echoed Frege's criticisms in his “Prolegomena to Pure Logic,” found in his 1900 work, *Logical Investigations*. Michael Dummett comments that “while Frege's objections to psychologism had made little impact, that of Husserl's assault on it was overwhelming: the *Prolegomena* came close to killing off the influence of psychologism within German philosophy...”⁴⁴⁵ For instance, Husserl scholar, Dallas Willard (who is also quite obviously sympathetic to Husserl's criticisms) writes, “Probably there has never been given a more thorough hammering of a philosophical position than that which Husserl gave to Psychologism in the ‘Prolegomena’ showing it to be false by its false consequences and to be groundless by identifying and refuting the premises from which it is derived.”⁴⁴⁶ For the first half of the 20th Century, then, the standing of psychologism was very low, and the stigma attached to

⁴⁴³ Edmund Husserl, *Logical Investigations* (New York: Humanities Press, 1900-1901), 131-132. Quoted in Willard, “A Realist Analysis of the Relationship Between Logic and Experience,” 73. Husserl, in the passage quoted, is himself quoting G. Heymans.

⁴⁴⁴ Willard, “A Realist Analysis of the Relationship Between Logic and Experience,” 72.

⁴⁴⁵ Michael Dummett, “Preface,” in *The Shorter Logical Investigations*, by Edmund Husserl, translated by J. N. Findlay, ed. Dermot Moran (London: Routledge, 2001), xxi.

⁴⁴⁶ Willard, “A Realist Analysis of the Relationship Between Logic and Experience,” 73. The “Prolegomena” is a reference to Husserl's *Logical Investigations*, Volume I, “Prolegomena to Pure Logic.”

it was high. According to Willard, because of the perceived finality of the criticisms leveled against psychologism, “During the late 1950s and early 1960s, to make any significant association of logic with psychology was a dreadful *faux pas*, one almost utterly beyond redemption.”⁴⁴⁷ But one particular philosopher dragged psychologism back onto the stage, though under a new name.

Psychologism Resurrected

On September 9, 1968, in Vienna, at the Fourteenth International Congress of Philosophy, W. V. O. Quine delivered a paper titled, “Epistemology Naturalized: or, The Case for Psychologism.” The published paper dropped the subtitle, but Quine’s defense did much to rehabilitate the reputation of psychologism, now under the label of “naturalized epistemology.”⁴⁴⁸ Put simply, naturalized epistemology is the reduction of epistemology, traditionally an independent discipline of philosophy, to psychology, a science. A further assumption within naturalized epistemology is that psychology itself can be naturalized—that is, made consistent with naturalism (and physicalism).⁴⁴⁹ Thus, strictly speaking, given this further assumption, naturalized epistemology would be a form of psychologism. Psychologism, as the

⁴⁴⁷ Willard, “The Case Against Quine’s Case for Psychologism,” in *Perspectives in Psychologism*, ed. Mark Notturmo (New York: E. J. Brill, 1989), 286.

⁴⁴⁸ Willard comments, “It is fair to say that [Quine’s essay] substantially contributed to the monumental change of attitude that has since taken place with regard to the relationship between logic and psychology.” *Ibid.*, 288.

⁴⁴⁹ E. J. Lowe, “Metaphysical Knowledge, 130, in a highly critical assessment, defines naturalized epistemology as follows: There are, however, other people besides cultural and historical relativists who seek to undermine the credentials of metaphysics, traditionally conceived as a universal discipline of a non-empirical character, concerned with the fundamental structure of reality. For instance, there are those philosophers who adhere to what is often known as the programme of ‘naturalized epistemology.’ The thought here is that any kind of knowledge that is attainable by human beings, including anything that might deserve to be called ‘metaphysical’ knowledge, must be compatible with our status as a kind of natural creature – in fact, a species of animal – that has arisen through wholly natural processes of biological evolution. Moreover, any inquiry into the nature of such knowledge must, it may be alleged, be part of a more general scientific inquiry into the cognitive capacities of creatures of our kind. Thus, epistemology – the theory of knowledge – is properly to be conceived of as being a part of the natural science of human psychology, which must in turn have a biological and ultimately a purely physical foundation.

broader category, would include any position that involves the reduction of epistemology to psychology. *In theory*, psychology need not be strictly naturalistic; but, *in practice*, it is often *seen* to be by its practitioners (whether or not it is in fact⁴⁵⁰).

Quine's Case for Naturalized Epistemology

Quine's case for psychologism in his essay, "Epistemology Naturalized," according to Willard, "chiefly consists in despair of anything other than psychology to guide us in understanding how evidence *works* in providing us with our view of reality."⁴⁵¹ BonJour summarizes Quine's case in much the same way: "The rationale offered by Quine for [naturalized epistemology] is basically that the epistemological project, as traditionally conceived, has failed more or less irredeemably and hence must be replaced by a more viable substitute."⁴⁵²

But Quine should not be read as explicitly rejecting traditional epistemology *qua* rationalism—the view that direct rational insight into non-trivial, necessary truths or necessary facts of reality (i.e., synthetic *a priori* truths) is possible. He simply ignores it as a serious option. Not only does Quine not make any explicit case against epistemological rationalism, he doesn't even mention it in the set up of his case. Instead, Quine claims, in Jaegwon Kim's words, that "the classical epistemological project, conceived as one of deductively validating physical

⁴⁵⁰ It should not be assumed that the mere assent to physicalism or naturalism by contemporary scientists, in this case psychologists, entails that their theorizing is strictly naturalistic. For instance, Riccardo Manzotti and Paolo Moderato, "Neuroscience: Dualism in Disguise," in *Contemporary Dualism: A Defense* (New York: Routledge, 2014): 81-97, make the case that most contemporary neuroscientists—who, as a rule, explicitly reject dualism and affirm naturalism—implicitly embrace dualism. Since the problem of reducing mental concepts to physical concepts is a huge problem for contemporary materialism, there is no good reason as of now to assume that psychology, which deals primarily with mental concepts, is going to be able to represent them in a strictly naturalistic way. If Manzotti and Moderato are correct about neuroscience, there is all the more reason to believe that psychology, insofar as it overlaps and draws on neuroscience, employs inherently dualistic explanations, as well.

⁴⁵¹ Willard, "The Case Against Quine's Case for Psychologism," 288.

⁴⁵² BonJour, "Against Naturalized Epistemology," 285.

knowledge from indubitable sensory data, cannot succeed.”⁴⁵³ Quine’s conception of the traditional epistemological project is *empirical*.⁴⁵⁴ Thus, he presupposes a denial of rationalism, not even giving it the respect of an open rejection.⁴⁵⁵

The view that Quine does openly reject, and contrast his own to, is that of Carnap, who sought a “rational reconstruction” of “physicalistic discourse in terms of sense experience, logic, and set theory.”⁴⁵⁶ But even if Carnap were able to account for meaning (“the conceptual side of epistemology”), there would remain “the impossibility of strictly deriving the science of the external world from sensory evidence.”⁴⁵⁷ Since Carnap’s approach is a failure—and rationalism was never even on the table, given the assumption of empiricism—Quine suggests psychologism as the only option remaining:

But why all this creative reconstruction, all this make-believe? The stimulation of his sensory receptors is all the evidence anybody has had to go on, ultimately, in arriving at his picture of the world. Why not just see how this construction really proceeds? Why not settle for psychology?⁴⁵⁸

⁴⁵³ Jaegwon Kim, “What Is ‘Naturalized Epistemology’?” *Philosophical Perspectives* 2 (1998), 386. Emphasis added. Kim’s initial summary is somewhat misleading. He claims that Quine’s attack on traditional epistemology is “based on the claim that the Cartesian foundationalist program has failed—that the Cartesian ‘quest for certainty’ is ‘a lost cause’.” Ibid., 385. Quine doesn’t address the “Cartesian foundationalist program” (Kim’s words), rather he states that “[t]he Cartesian quest for certainty had been the remote motivation of epistemology...” “Epistemology Naturalized,” 530. But the sentence immediately prior makes it clear that Quine doesn’t have specifically in mind something like a traditional *rationalist* conception of attaining certainty through rational insight into *a priori* truths, or something like a foundationalism on the basis of self-evident truths: “The hopelessness of grounding natural science upon *immediate experience* in a firmly logical way was acknowledged.” Ibid. Emphasis added. Quine is clearly assuming empiricism. The broader context makes this even more clear: Quine is addressing Carnap’s rational reconstruction from sensory evidence.

⁴⁵⁴ He explicitly reaffirms two “cardinal tenets of empiricism” that he believes are “unassailable.” First, “whatever evidence there *is* for science *is* sensory evidence,” and, second, “all inculcation of meanings and words must rest ultimately on sensory evidence.” W. V. Quine, “Epistemology Naturalized,” in *Epistemology: An Anthology*, eds. Ernest Sosa, Jaegwon Kim, Jeremy Fantl, and Matthew McGrath, 2nd edition (Malden, MA: Blackwell, 2008), 530.

⁴⁵⁵ No elaborate speculation is required as to how Quine might proceed in arguing against rationalism. When it comes to claims of direct “insight” or rational “intuition” (a direct awareness of something immediately present to one’s consciousness), an opponent, like Quine, can merely shrug their shoulders and deny that they share the intuition. Also, as a naturalist, Quine would likely reject rational insight as non-naturalistic.

⁴⁵⁶ Quine, “Epistemology Naturalized,” 530.

⁴⁵⁷ Ibid. In Willard’s words, Carnap would be unable “to *prove* sentences about physical objects from observation sentences (plus set theory) by acceptable logic.” “The Case Against Quine’s Case for Psychologism,” 289.

⁴⁵⁸ Quine, “Epistemology Naturalized,” 530.

Up to this point, then, he makes his case for psychologism effectively by way of elimination—without, I might add, doing the actual work of eliminating a major alternative, rationalism, by way of argument.

Quine goes on to make a case for the indeterminacy of translation, and concludes that, once indeterminacy is embraced, it “seals the fate of any general notion of propositional meaning or, for that matter, state of affairs.”⁴⁵⁹ Thus, logic cannot be about relations between propositional meanings.⁴⁶⁰ In place of propositional meaning is “empirical meaning and nothing more.” He explains how this meaning is supposed to work in terms of psychological stimulus and response:

A child learns his first words and sentences by hearing and using them in the presence of appropriate stimuli. These must be external stimuli, for they must act both on the child and on the speaker from who he is learning. Language is socially inculcated and controlled; the inculcation and control turn strictly on the keying of sentences to shared stimulation.

Thus, based on the assumption of the indeterminacy of translation, and empirical meaning, a new view of epistemology emerges: “Epistemology, or something like it, simply falls into place as a chapter of psychology and hence natural science. It studies a natural phenomenon, viz., a physical human subject.”⁴⁶¹

⁴⁵⁹ Ibid., 533.

⁴⁶⁰ Willard, “The Case Against Quine’s Case for Psychologism,” 289.

⁴⁶¹ Quine, “Epistemology Naturalized,” 533.

The Strongest Reason in Favour of Psychologism: The Connection Between Logical Laws and Real Life

If one is not already a convinced empiricist (although most materialists would be), or does not subscribe to the indeterminacy of translation, Quine's argument in favour of psychologism is surprisingly bare. However, psychologism can be supported from a different angle.

Probably the strongest reason in favour of psychologism is the fact that logical principles play such an important role in *actual* thinking and reasoning, that is, in the real, concrete, temporal mental processes that take place in the human mind. These mental processes are psychological if anything is. One cannot transcendentalize the actual reasoning of the concrete individual, located necessarily in time and space. In other words, there is an obvious sense in which logic has to be connected to real life. Willard puts the point this way: "One of the most serious objections to anti-psychologistic treatments of the laws of logic has always been that such treatments cannot do justice to the practical *use* to which logical laws are actually put, if not in the direction, then at least in the critique of everyday thinking, talking and writing."⁴⁶² Grounding logical laws in psychology has the advantage of removing any mystery as to how those laws are actually relevant to, and part of, everyday thinking. There is still the question, of course, of what exactly logical laws *are* in psychological terms, but their use—and their seeming *causal* relevance—is rendered less mysterious, if not entirely explicable.⁴⁶³

Jaegwon Kim summarizes the reason behind the view that many philosophers now have regarding "the importance of systematic psychology to philosophical epistemology"⁴⁶⁴:

⁴⁶² Willard, "The Case Against Quine's Case for Psychologism," 287.

⁴⁶³ This is a major critique of logical platonism, and this topic is discussed further in Chapter 4 and Chapter 5 of this thesis.

⁴⁶⁴ Jaegwon Kim, "What Is 'Naturalized Epistemology'?" *Philosophical Perspectives* 2 (1998), 394-95.

“Traditional epistemology is often condemned as “aprioristic,” and as having lost sight of human knowledge as a product of natural causal processes and its function in the survival of the organism and the species.”⁴⁶⁵

I will say no more about the reasons in favour of psychologism. The reasons given in support are widely varied, and the conception of the relationship between psychology and epistemology also widely varies in the literature, but, in the midst of differences, there is unity around the naturalistic approach.⁴⁶⁶ What is at issue here is neither pinning down the “correct” verbal definition of the term “psychologism,” nor labelling this or that philosopher as a psychologist. The key question that must be asked, relevant to the argument from logical principles is: Is a naturalistic account of logical principles, where logical principles are grounded in (materialistic) psychology, possible? Can they be derived inductively from the observation of the actual course of mental events in human thinking?

Objections to Psychologism

There is no better place to look for objections to logical psychologism than those put forward by Edmund Husserl in his “Prolegomena.” As Willard writes, “If his arguments were good in the first decade of this [past] century, they are still good today.”⁴⁶⁷ Husserl offers three main arguments against psychologism, and these are located in sections 21 and 23 of the “Prolegomena,” as well as a fourth, which can be found in sections 31-39.

Just to be clear on what specifically Husserl was attacking, he conceived of psychologism in logic as “the claim that the non-normative statements central to the discipline of logic—the laws of logic...—are *essentially about*, and draw their *evidence from the examination of*, the

⁴⁶⁵ Ibid., 395.

⁴⁶⁶ Ibid.

⁴⁶⁷ Willard, “The Case Against Quine’s Case for Psychologism,” 287.

particular conceivings, assertings, and inferences of particular persons.”⁴⁶⁸ Overall, he charges that this view distorts the meaning or sense of the laws of logic, making them into something they are not.⁴⁶⁹ Any psychologistic construal of logical principles would require that they are “[i] *vague* and [ii] *inductively based* claims which, because they are inductively based, [iii] *presuppose the existence of experiences* of conceptualization (representation), judgment, and inference.”⁴⁷⁰ On the other hand, according to Husserl, logical principles are “[i] rigorous or exact laws [ii] supported by immediate insight and deductively organized, [iii] with no implication of the existence of minds or cognitive acts of any sort.”⁴⁷¹ Thus, since the nature of the laws of logic does not match the nature of anything like what could be derived from within psychology—from psychological investigation and theorizing, through our observations of mental events—these laws cannot be rooted in psychology. The laws of logic and the laws of psychology are different in *kind*. We will look at each of the three claims contained in this summary separately.

Argument #1: The laws of logic are exact; the laws of psychology are vague

The first argument that Husserl makes against psychologism about logic is likely the weakest of the set. He claims that the laws of logic are exact and rigorous, whereas the laws of psychology are vague.⁴⁷² According to Willard, “A concept or term is vague when for a

⁴⁶⁸ Willard, *Logic and the Objectivity of Knowledge*, 149. Emphasis in original.

⁴⁶⁹ Ibid., 150.

⁴⁷⁰ Ibid. Emphasis in original.

⁴⁷¹ Ibid. Emphasis in original.

⁴⁷² In my analysis of Husserl’s arguments against psychologism, I am drawing heavily from the following sources: Nicola Abbagnano, “Psychologism,” in *The Encyclopedia of Philosophy*, ed. Paul Edwards, vol. 5 & 6 (New York: Macmillan Publishing, 1967): 520-521; Martin Kusch, “Psychologism and Sociologism,” in *Philosophy, Psychology, and Psychologism: Critical and Historical Readings on the Psychological Turn in Philosophy*, ed. Dale Jacquette (Dordrecht: Kluwer Academic Publishers, 2003), 132-33; Dallas Willard, “A Realist Analysis of the Relationship Between Logic and Experience,” *Topoi* 22 (2003): 69-78; and Dallas Willard, *Logic and the Objectivity of Knowledge* (Athens: Ohio University Press, 1984), 143-166.

significant range of cases it is unclear whether or not it applies.”⁴⁷³ As an example of vagueness in scientific laws, Husserl mentions the laws of meteorology. One can make generalizations, for example, about the connections between high pressure air masses and the level of humidity and temperature in a given area, but these generalizations are informed by other conditions that may be present. So, for instance, one can make a generalization about weather systems over the Pacific coast of British Columbia, and the presence of Chinook winds in Calgary, AB, but whether or not the generalization will *actually* apply will depend on “ill-defined or even unspecifiable ‘circumstances’.”⁴⁷⁴ Likewise, the laws of psychology are generalizations that hold “only under assumption of an indeterminate background of conditions.”⁴⁷⁵ While Husserl specifically mentions the “laws” of the association of ideas, we can input as an example any contemporary psychological “laws.” They will inevitably have the character of vagueness in their application to behavioural and psychical events.⁴⁷⁶

At issue, then, is whether or not logical laws are vague. Are there some (at least *one*) logical laws that are exact and rigorous, as Husserl claims? Although there are some laws of logic that are less clear than others, or instances where determining which law of logic applies is less clear than other instances, Husserl held that logical laws, “at least in part, ...are so exact that they cannot be guaranteed by an empirical element...”⁴⁷⁷ It turns out, though, that Husserl does not provide any *demonstration* that the laws of logic are not vague, but merely asserts it, and this leads some to accuse Husserl of begging the question.⁴⁷⁸

⁴⁷³ Willard, *Logic and the Objectivity of Knowledge*, 150.

⁴⁷⁴ Willard, *Logic and the Objectivity of Knowledge*, 150.

⁴⁷⁵ Willard, “A Realist Analysis of the Relationship between Logic and Experience,” 73.

⁴⁷⁶ Willard, *Logic and the Objectivity of Knowledge*, 151.

⁴⁷⁷ Abbagnano, “Psychologism,” 521

⁴⁷⁸ Kusch, “Psychologism and Sociologism,” 133. Also, Willard, *Logic and the Objectivity of Knowledge*, 151, writes, “Husserl’s claim here appears to be mere assertion on his part, or else to beg the question by an assertion about the ‘true sense’ of logical laws. Nothing is given here to *show* that logical laws are to be regarded as *essentially* laws of cognitive acts.”

Dale Jacquette interprets Husserl's critique as saying that "logic cannot be reduced to psychology because of an inherent difference in their respective attainable degrees of precision."⁴⁷⁹ As a response to this critique, Jacquette points out that "[e]quivalent exactitude in any case is not a prerequisite for reducing one science to another. Biology is inexact when compared to chemistry... Yet most theorists agree that biology is fully reducible to chemistry."⁴⁸⁰ It isn't clear, however, that Jacquette interprets Husserl correctly here. Husserl, for his part, did not think it made sense to ask under what empirical conditions a law of logic is true. This, it would seem, is because Husserl conceived of logical laws as different in *kind*, not in *degree*, from the empirically derived laws of psychology. But that leads to the second argument against psychologism.

Argument #2: The laws of logic are known *a priori*, not *a posteriori*, and are certain, not probable (as they would be if derived from psychology)

Martin Kusch summarizes Husserl's second objection to psychologism in the following syllogism:

If laws of logic were psychological laws, then they could not be known *a priori*. They would be more or less probable rather than certain, and justified only by reference to experience. *But*, laws of logic are known *a priori*; they are justified by apodictic self-evidence, and certain rather than probable. And *therefore*, laws of logic are not psychological.⁴⁸¹

Characterizing the objection from a different angle, Willard writes, "If the laws of logic were psychological laws, then the evidence which we have for them would have to be based upon a careful analysis of cognitive experiences and justified by its result. In fact, this has never actually

⁴⁷⁹ Jacquette, "Psychologism the Philosophical Shibboleth," 9.

⁴⁸⁰ Ibid., 10.

⁴⁸¹ Kusch, "Psychologism and Sociologism," 133.

been done, neither in Husserl's day or at any other time."⁴⁸² Willard gives as an example Quine himself. "When one examines any of Quine's expositions or proofs of logical laws," Willard writes, "one finds that they are presented as *theoretically complete without a single reference to, or invocation of support from, any psychological matter of fact.*"⁴⁸³ Further, he goes on,

Surveying the actual literature of logic, where is there so much as a single demonstration of a single logical law in a single logic text or treatise that, in the familiar manner of demonstrations in logic, rests the truth of the law upon psychological facts and regularities?⁴⁸⁴

The claim that logical laws are not empirical (but rather *a priori*) is supported by our universal practice in learning and teaching them. As Willard puts it, "No one thinks of proposing to examine four more cases of *modus ponens* to see if they might have true *p* and *if p then q*, but a false *q*, or looking to see if the factual conditions of thought might permit the *q* to be false."⁴⁸⁵ Willard takes this to be the strongest point in Husserl's critique.

Jacquette responds by claiming that "the question of whether or not there is a difference between logic and psychology on the grounds of aprioricity can be regarded as circular."⁴⁸⁶ He continues, "If logic is part of or reducible to psychology, and if logic is *a priori*, then part of psychology is also *a priori*."⁴⁸⁷

In response to Jacquette, though, it is fair to ask, "What is meant here by 'part of psychology'?" Could a naturalist or physicalist, who is appealing to psychologism as a means to

⁴⁸² Willard, *Logic and the Objectivity of Knowledge*, 161.

⁴⁸³ Willard, "The Case Against Quine's Case for Psychologism," 292.

⁴⁸⁴ Ibid., 288. He continues, "The evidence supporting the familiar logical laws taught in standard courses in formal logic is complete. And it is completely free of statements of empirical laws or facts of any kind, including the psychological." Ibid.

⁴⁸⁵ Willard, "A Realist Analysis of the Relationship between Logic and Experience," 73.

⁴⁸⁶ Jacquette, "Psychologism the Philosophical Shibboleth," 10.

⁴⁸⁷ Ibid.

get around rational insight and abstract entities, be consistent while appealing to direct, unmediated *a priori* intuition as being “a part of psychology”?

For example, suppose we allow the definition of psychology to include not only things like *a priori* justified beliefs, as Jacquette suggests, but also accounts of the non-physical mind perceiving abstract entities, or the soul exercising volition. Many would demur that *that* definition of psychology is no longer psychology in the sense inherent in psychologism as a theory. *That* definition of psychology would certainly no longer be a *physical* science.

And here’s the real problem with this response. The important thing is not the *verbal* definition of psychology or psychologism, but the *real* definition of logical principles. What is their nature? What accounts for logic being *a priori* justified? What is it about the *nature* of logic that accounts for it being *a priori* justified?

Now, the story told by the rationalist about the nature of logical principles does not provide the justification—the justification for belief in the truth of the principles is already there, from the principles themselves. That’s just the meaning of *a priori* justification.

Argument #3: No factual import

Husserl’s final critique of psychologism is the fact that logical principles have no factual import. In other words, “They would remain true if no minds existed.”⁴⁸⁸ Logical laws come “with no implication of the existence of minds or cognitive acts of any sort,”⁴⁸⁹ whereas psychological laws “*presuppose the existence of experiences* of conceptualization (representation), judgment, and inference.”⁴⁹⁰ Logical laws “do not concern the reality of psychic

⁴⁸⁸ Willard, “A Realist Analysis of the Relationship between Logic and Experience,” 73.

⁴⁸⁹ Willard, *Logic and the Objectivity of Knowledge*, 149.

⁴⁹⁰ Ibid.

life and of other facts (unlike the laws of nature, which are merely probable) but concern necessary relations independently of facts.”⁴⁹¹

Naturalized Epistemology Is a Form of Scientism

As a further critique, E. J. Lowe identifies naturalized epistemology as a form of *scientism*,⁴⁹² “the doctrine that such legitimate metaphysical questions as there are belong to the province of the empirical sciences.”⁴⁹³ He defines naturalized epistemology as the view that “all human knowledge—including any metaphysical knowledge that we may lay claim to—is a product of our biological nature as cognizing animals, and is hence to be studied by the methods of the life sciences, including psychology and evolutionary theory.”⁴⁹⁴ In other words, by definition, naturalized epistemology excludes metaphysics, as traditionally practiced, as a legitimate discipline for gaining knowledge of the world.

Lowe does not hold back in his assessment of scientism, and, by extension, naturalized epistemology:

In my opinion, both types of devotee of scientism...exhibit a blinkered dogmatism which is the very antithesis of genuine philosophy. Both fail to see that science *presupposes* metaphysics and that the role of philosophy is quite as much normative as descriptive—with everything, including science, coming within its critical purview.⁴⁹⁵

⁴⁹¹ Abbagnano, “Psychologism,” 521

⁴⁹² Elsewhere Lowe defines scientism as “the belief, *inter alia*, that philosophy, and more particularly metaphysics, can throw no light on the general ontological question of *what there is*, beyond that already thrown by the empirical sciences and, especially, fundamental physics.” Lowe, “Naturalism, Theism, and Objects of Reason,” 37. Emphasis in original.

⁴⁹³ Lowe, *The Possibility of Metaphysics*, 5.

⁴⁹⁴ Ibid.

⁴⁹⁵ Ibid.

Lowe then elaborates on why science must depend on metaphysics:

Metaphysics deals in *possibilities*. And only if we can delimit the scope of the *possible* can we hope to determine empirically what is *actual*. This is why empirical science is dependent upon metaphysics and cannot usurp the latter's proper role.⁴⁹⁶

The issues here require a lot more analysis than what is here, but Lowe's point is worth noting.

Quite obviously, not everyone is convinced by the arguments of Husserl and others. Dale Jacquette writes, "The decisive refutation of psychologism as an approach to the philosophy of logic, philosophical semantics of meaning, and philosophy of mathematics in my view has yet to be given."⁴⁹⁷ However, psychologism, in my judgment, does face an uphill battle based on the objections laid out above. It remains that psychology *seems* like a radically different science than logic. Here is Kant expressing the classical response to psychologism (albeit long before "psychologism" as a formal theory or approach had been put forward⁴⁹⁸):

Some logicians, to be sure, do presuppose *psychological* principles in logic. But to bring such principles in to logic is just as absurd as to derive morals from psychology, i.e., from observations concerning our understanding, we would merely see *how* thinking does take place and *how* it *is* under various subjective obstacles and conditions; this would lead then to cognition of merely *contingent* laws. In logic, however, the question is not about *contingent* but about *necessary* rules; not how we think, but how we ought to think. The rules of logic must thus be derived not from the *contingent* but from the *necessary* use of the understanding, which one finds in oneself apart from all psychology.⁴⁹⁹

If defenders of psychologism like Quine and Jacquette are to make it generally plausible, then they need to respond directly to the hardest criticisms, like this from Kant. Because psychology and logic seem so radically different, the onus is on the psychologist to show that psychologism

⁴⁹⁶ Ibid.

⁴⁹⁷ Jacquette, "Psychologism the Philosophical Shibboleth," 9.

⁴⁹⁸ This is, of course, anachronistic. Psychologism was put forward as a formal theory or approach to philosophy long after Kant.

⁴⁹⁹ Immanuel Kant, *Lectures on Logic*, translated by J. M. Young (Cambridge: Cambridge University Press, 1992), 529.

can explain all the salient features of our rational experience, and, most importantly, the case cannot rest, like Quine's, on the mere supposition of the failure of the rationalist explanation simply because that explanation is not naturalistic.

An example of the sort of philosophical rhetoric surrounding these issues that is not helpful—on either side (or, How to beg the question against a platonic objection to psychologism)

We've already looked briefly at the issue of how psychologism became a dirty word in some philosophical circles in the past, a view considered so clearly bankrupt that, with the wave of a hand, one needed only to refer to the fact that it had soundly been refuted in the past by some philosophical luminary or another. But, again, any supporter of psychologism should rightly ignore such a response. And yet, the issue at hand is the fact that, for many philosophers, their commitment to psychologism (or some other naturalistic alternative account of logical knowledge), and their dismissal of non-naturalistic alternatives, is rooted in a prior deep commitment to naturalism—a commitment that sometimes appears to be dogmatic and question-begging.

G. P. Baker and P. M. S. Hacker, in *Frege: Logical Excavations*, provide a concrete example. They epitomize the reasons why a philosopher who is committed to psychologism primarily because it is consistent with naturalism will not be impressed with the critiques of someone like Frege. First, they state that Frege's criticism of psychologism, which, in their opinion, is "shallow" and amounts to a "tirade," "relies on the *assumption* that there is accessible to us an objective domain of mind-independent entities."⁵⁰⁰ Allowing their assessment to be true,

⁵⁰⁰ G. P. Baker and P. M. S. Hacker, *Frege: Logical Excavations* (Oxford: Basil Blackwell, 1984), 50-51. Emphasis in original. Quoted in Jacquette, "Psychologism the Philosophical Shibboleth," 5-6.

Frege would be begging the question against psychologism by assuming platonism. However, Frege could, of course, support his “assumption” with arguments (surely no one would deny that he held to platonism for *reasons*), and, in fact, he did—arguably, even in the context of making his arguments against psychologism.⁵⁰¹ Regardless, appeals to the nature of logical laws *against* psychologism are conversely arguments *for* platonism, in many cases. Logical laws are the paradigm examples of objective, “mind-independent entities,” based on their apparent characteristics (e.g., they are universal, transcendent, eternal, normative, etc.), which we’ve covered at length above. If Frege were to successfully demonstrate this point, it would be a direct refutation of psychologism. But even if Frege were to defend this assumption, it would not be enough for Baker and Hacker.

They make it clear that the real problem is not the lack of reasons given for supposed platonic assumptions, but rather the set of metaphysical commitments in which Frege roots his criticism: “The distinctive amalgam of Cartesianism and Platonism in Frege’s thinking,” they write, “must characterize any reasoning that could be called an extension of *his* arguments against psychologism. It would also *deprive any such reasoning of real philosophical value.*”⁵⁰² This is a strong claim against “Cartesianism” and “Platonism”. But surely Baker and Hacker would not commit the same error that they accuse opponents of psychologism of making, and dismiss Cartesianism and Platonism with a derisive wave of the hand, with undefended assumptions, and with illegitimate appeals to authority? They continue:

Both the Cartesian myths about the realm of the psychological and the Platonic myths about the logical generate deep philosophical confusions, and hence these central

⁵⁰¹ Also, see Jan Woleński, “Psychologism and Metalogic,” 181, for an excerpt of Frege’s argument against psychologism based on the fact that “If we conceive logical laws as psychological, we are unable to regard them as universal rules concerning how one should think.” *Ibid.*, 179.

⁵⁰² Baker and Hacker, *Frege*, 62. Quoted in Jacquette, “Psychologism the Philosophical Shibboleth,” 6.

ingredients of Frege's thinking are themselves in dire need of philosophical investigation and clarification.⁵⁰³

These are strong claims against Cartesianism and Platonism that, if Baker and Hacker are going to meet their own conditions, must be justified with argument, not with mere assertions, as if everyone already knew such claims to be undeniable facts. But Baker and Hacker's attitude toward Cartesianism and Platonism is identical to the sort of illegitimate dismissal of psychologism that Baker and Hacker criticize in Frege, as demonstrated in the sentences immediately following. They reveal an almost dogmatic blindness towards those views, as if there could not possibly be any substantial arguments or considerations in their favour. Furthermore, their rhetoric is in keeping with a political smear job, not sober-minded philosophy. They continue:

The only conceivable sources of light must be alien to his framework of thought. Consequently, we must conclude that Frege's **crusade** against the incursions of psychology into logic is now **largely obsolete**. His way of drawing the distinction between logic and psychology is mistaken in detail and **dangerous** in its wider implications. Only somebody who shares a large measure of his Cartesian and Platonist **mythology** will find any seeds of the **Tree of Knowledge** scattered in his **antipsychologistic polemic**.⁵⁰⁴

To say that the "only conceivable sources of light" in solving the "confusions" surrounding Cartesianism and Platonism must be alien to Frege's (Cartesian and Platonist) "framework of thought," is, in effect, to say that it is *inconceivable* that Cartesianism and Platonism can be supported by clear reasons or arguments that are consistent with their overall metaphysical framework. That's just plain silly. It doesn't take seriously the serious arguments of countless serious-minded philosophers over the history of philosophy. No matter how careful their analysis

⁵⁰³ Ibid.

⁵⁰⁴ Ibid.

of Frege's views, this conclusion is stronger than any amount of argument could warrant, evidenced by the fact that proponents of Cartesianism and Platonism provide answers to all the major objections to those positions.⁵⁰⁵ None of this, of course, assumes that either Cartesianism or Platonism is ultimately defensible.

Also, the use of emotional, pejorative terms like "crusade," "dangerous," "mythology," and "polemic" reveals the writers' prejudice.⁵⁰⁶ Even the reference to the "Tree of Knowledge" seems to hint that Frege's views were somehow tainted by religion. But, arguably, it is Baker and Hacker who are religiously adhering to a form of dogmatic naturalism.

In summary, philosophers who are going to argue against logical platonism cannot merely treat it like psychologism was treated in the past.

Conclusion

None of the above entails that psychologism has been refuted. The point that counts strongest in psychologism's favour is the fact that we see that logic is intimately involved in our rational processes. That has to be captured by any plausibly complete account of logical knowledge. Psychologism appears to allow for that salient feature. But the objections that face psychologism are heavy indeed, and its difficulties put the difficulties facing the abstract entities proposal into perspective.

⁵⁰⁵ For example, one of the chief objections against Cartesianism is the so-called interaction problem. (See Chapter 4 for a brief discussion.) As it is often formulated, it is nothing more than a question-begging restatement of the principle of causal closure. *Why*, the dualist can rightfully ask, should it be impossible that immaterial and material substances causally interact? What reasons can you give? Given that we can conceive of God creating the universe *ex nihilo*, speaking it into existence—true or not—this objection cannot plausibly be defended on grounds of conceivability or inconceivability.

⁵⁰⁶ For a fascinating study of how W. V. O. Quine was able to spin empty rhetorical flourishes laden with *ad hominem* into philosophical hay in his celebrated essay, "On What There Is," see Graham Priest's "The Closing of the Mind: How the Particular Quantifier Became Existentially Loaded Behind Our Backs," *Review of Symbolic Logic* 1, no. 1 (2008): 42-55. Priest demonstrates that much of Quine's argument rests on nothing more than sneering language.

E3. Formalism

The next realist alternative to some form of Platonism about logical principles is *formalism*. Formalism is a realist theory that locates logical truths in concrete instances of language, such as sentence-tokens.

Formalism has developed over the past century or so, and, unsurprisingly, comes in a variety of forms. Dallas Willard describes Formalism at the turn of the last century:

The main point of Formalism in the late 19th and early 20th Century was to think of the laws of logic as “laws” of an algorithm or system of written symbols that were formed and transformed according to rules which considered only the shapes and relative spatial positions of the symbols.⁵⁰⁷

Formalism has developed, though, and can be understood most generally as an answer to the question of what logical knowledge is about. According to Dallas Willard, formalism answers that question by saying, “Logical knowledge is about *sentences*, and it is (in some essential and significant measure) gained by sense perception.”⁵⁰⁸ A paradigmatic representative of formalism over the last century is Benson Mates,⁵⁰⁹ who, in his textbook, *Elementary Logic*,⁵¹⁰ makes it clear that “*sentences* [are] the objects with which logic deals.”⁵¹¹ He explicitly rejects traditional alternatives, such as “statements, propositions, thoughts, or judgments,” as the subject matter of logic. The problem with these alternatives, he states frankly, is “they do not exist.”⁵¹²

Hence, formalism is a realist view of logical objects, because it affirms their existence, and it locates them in concrete instances of language—making it distinct from both Platonism (for

⁵⁰⁷ Willard, “A Realist Analysis of the Relationship between Logic and Experience,” 71.

⁵⁰⁸ Willard, “Space, Color and Sense Perception and Epistemology of Logic,” 118.

⁵⁰⁹ Ibid., 132.

⁵¹⁰ My thanks to Ali Kazmi for directing me to this resource.

⁵¹¹ Benson Mates, *Elementary Logic*, 2nd ed. (New York: Oxford University Press, 1972), 10.

⁵¹² Ibid.

which logical objects are abstract) and psychologism (which locates the concrete objects of logic in human minds).

Mates's View, Motivated by Metaphysical Implications

Mates makes it clear that his view of logic is self-consciously determined with regard to the metaphysical implications, and the rejection of abstract entities is one of his central concerns. Mates' view, then, is a direct rejection of the claims of the argument from logical principles. One of the key issues, for Mates, is how we become acquainted with the subject matter of logic. "A sentence," Mates writes, "at least in its written form, is an object having a shape accessible to sensory perception, or, at worst, it is a set of such objects."⁵¹³ Thus, it is straightforward how we can have causal interaction with a sentence. The same cannot be said for *propositions*.⁵¹⁴ According to Mates, "They are so-called abstract entities and, as such, are said to occupy no space, reflect no light, have no beginning or end, and so forth."⁵¹⁵ In order to perceive the *structure* of propositions, upon which their logical properties depend, he writes, "one is advised not to rely upon sensory perception at all, but instead to look directly upon the proposition by means of the 'mind's eye'."⁵¹⁶ This suggestion is unhelpful because "we are left once again with the problem of how in practice to ascertain the structure of propositions expressed by given sentences."⁵¹⁷ So, in Mates' formalism, there is a clear rejection of "so-called abstract entities" and an implied rejection of something like a faculty of rational insight, as distinct from sensory perception.

⁵¹³ Ibid., 10.

⁵¹⁴ Mates is clearly deeply skeptical, if not outright hostile, to even the notion of such entities, as evidenced by his qualifications: "Propositions, *we are told*, are the senses or meanings of sentences." Ibid. Emphasis added.

⁵¹⁵ Ibid.

⁵¹⁶ Ibid., 11.

⁵¹⁷ Ibid..

I will address two objections to formalism, one from E. J. Lowe and one from Husserl.

E. J. Lowe's Objection to Formalism

E. J. Lowe offers a very succinct objection to formalism in the course of setting out his version of the argument from logical principles. The critic of abstract entities in logic—in this case, a formalist—might suggest that we don't need abstract entities like propositions, and, instead, might think, as the formalist does, that “we can make do with purely *concrete*, contingently existing entities of certain kinds—for instance, *sentence-tokens*, uttered or inscribed in some actually existing language...”⁵¹⁸ Of course, this is precisely the position of Mates in *Elementary Logic*. Lowe argues that this ontological position with regard to logic will not do:

The problem with this specific suggestion, however, is that *truth is closed under entailment*—that is to say, whatever is entailed by any truth is itself true, with the implication that there are *infinitely many truths*—and yet the number of actually existing sentence-tokens in any language, however large, is inevitably only finite. And similar suggestions fall prey to similar objections.⁵¹⁹

How does this criticism affect formalism? First, it is a direct refutation of a foundational claim of formalism. Mates, and other formalists, do not believe that propositions *qua* abstract entities, or any other such mysterious abstract entities of that sort, exist. Lowe's proof demonstrates that they must. Supposing that propositions *do* exist, though, does not refute formalism *as an account of logical knowledge*. It does, however, render it like a warship adrift at sea, with no engines and no rudder. It is a sitting duck that one more argument would sink.

⁵¹⁸ Lowe, “Naturalism, Theism, and Objects of Reason,” 43. Emphasis in original.

⁵¹⁹ Ibid., 43-44.

Husserl's Objection to Formalism

One of the chief critics of formalism, early on, was Husserl. Husserl, however, as a critic of formalism, did not denigrate or eschew formal or symbolic techniques in the practice of logic. Rather, he insisted on their necessity.⁵²⁰ Many remarkable “formal” systems of logic have been developed, and have proven immensely useful—such as the “Boole/Schröder Algebra” in Husserl’s day, and Russell and Whitehead’s system in *Principia Mathematica*.⁵²¹

But, for Husserl, there is a remaining problem beyond the systems themselves: “Why do such algorithms work? and What is it that enables them to do what they do in providing knowledge of various domains of reality?”⁵²² Husserl saw that knowledge and mastery of an algorithmic system and the *techniques* of logic did not equate to understanding of the *nature* of logic.⁵²³ Husserl takes a shot at Boole in order to make this point: “One can be an outstanding technician in logic, while being a very mediocre philosopher of logic, and again, one can be an outstanding mathematician, while being a very mediocre philosopher of mathematics. (Boole provides an outstanding example of both.)”⁵²⁴

Husserl’s critique of formalism consisted of at least these three significant points. First, “calculation is not deduction.”⁵²⁵ Formalism equates to a certain extent the formal calculations in the system (e.g., manipulating symbols according to rules) with *deduction*. But here is the problem, put crudely: a monkey can be trained to operate an abacus, but the movement of the

⁵²⁰ Willard, “A Realist Analysis of the Relationship between Logic and Experience,” 71.

⁵²¹ Ibid.

⁵²² Ibid.

⁵²³ Thanks to Joseph McDonald for first introducing me to this distinction.

⁵²⁴ Edmund Husserl, *Early Writings in the Philosophy of Logic and Mathematics*, translated by Dallas Willard (Dordrecht: Kluwer Academic Publishers, 1994), 570. Quoted in Willard, “A Realist Analysis of the Relationship between Logic and Experience,” 71. This criticism can be softened to the more general claim that one need not have a fully worked out philosophy of logic or mathematics in order to *do* logic and mathematics. In support of this more general claim, Herbert Bohnert writes, “The progress of mathematics will not be greatly hindered by lack of agreement on the ultimate ground of its truth, nor facilitated by agreement.” “Carnap’s Logicism,” in *Rudolph Carnap, Logical Empiricism: Materials and Perspectives*, ed. Jaakko Hintikka, 183-216 (Dordrecht: D. Reidel Publishing, 1975), 212. This view is challenged in Dallas Willard’s paper, “Degradation of Logical Form.”

⁵²⁵ Willard, *Logic and the Objectivity of Knowledge*, 138.

mind that we term ‘deduction’ is something distinct from moving beads together and apart. Calculation is a “rule governed process of transposing and replacing signs with signs,” but deduction is the “natural process of thought in which epistemic progression, or coming-to-know-on-the-basis-of-other-truths-known, consists.”⁵²⁶ These two things are clearly distinct and separable.

Second, not only is calculation not deduction, formalism doesn’t even offer a theory of deduction.

And lastly, according to formalism, one can manipulate symbols according to the rules in order to “prove” things in the system, but “the calculus [i.e., “a method for the symbolic derivation of a conclusion within a certain sphere of knowledge”] is not, nor does it provide, its *own* logic.”⁵²⁷ Willard writes, “As Husserl cleverly states it in his 1893 altercation with Andreas Voigt, ‘...the logic of algebra is to be derived from no algebra of logic.’”⁵²⁸

Conclusion

What these critiques of formalism show, like the critiques of psychologism, is that the traditional account of logical knowledge in terms of acquaintance with abstract entities seems more plausible when placed next to such counterintuitive theories. The strength of formalism is the fact that it avoids the metaphysical baggage that the materialist wants to avoid at all costs, but its weaknesses appear to be that it does not capture the essence of logical principles—either their nature or our experience of them.

⁵²⁶ Ibid., 137.

⁵²⁷ Ibid., 140

⁵²⁸ Ibid., 140.

E4. Fictionalism

In order to avoid the conclusion that logical principles are necessarily existent abstract objects, one could deny that they exist at all. This is the anti-realist response. But, as we've seen, this response leads to subjectivism, which is directly self-defeating.

As a variation of the denial of logical principles, one might propose some form of *fictionalism*, the notion that the laws of logic are convenient fictions that we posit, but which have no basis in objective, mind-independent reality. Aside from the subjectivism that results—which already disqualifies the position, if the arguments above are correct—such a view is self-defeating in another way.

Fictionalism about any putative kind of object holds that they are merely imaginary objects of the mind, or of thought.⁵²⁹ But, according to E. J. Lowe, “to deny that *anything at all*—even something mind-dependent—is *thought about* in logico-mathematical inquiries is to advance the barely comprehensible doctrine that logic and mathematics have no genuine *subject-matter* at all: that they are not really *about* anything (numbers and sets, for instance) and that logicians and mathematicians are consequently prey to some strange delusion in supposing otherwise.”⁵³⁰ Such a view is ultimately untenable.

Similar anti-realist proposals, regardless of how sophisticated or complex, run into the same problem. At the end of the day, if the claim is that there are not, ultimately, objective logical principles that exist, then the charge of self-defeat will soon follow, and the anti-realist must find a way around that charge—although that doesn't seem possible.

⁵²⁹ Lowe, “Naturalism, Theism, and Objects of Reason,” 44.

⁵³⁰ Ibid.

F. Concluding Remarks to Part II

Although my analysis of naturalistic alternatives to logical Platonism have been brief and comparatively cursory—and that cannot be helped given the scope of this project—my hope is that the preceding sections of the second half of this chapter make it clear that the question of whether logical principles are abstract entities is not a trivial debate. There is an almost bottomless pit of issues to dig into. The anti-materialist that wants to make an argument from the premise that logical principles are abstract entities must take alternatives such as formalism, psychologism, and linguistic conventionalism seriously.

In order for an attack on those views to be successful, especially in terms of persuading materialists, one would probably need to make a stronger argument along the lines of saying that formalism, psychologism, and linguistic conventionalism cannot possibly account for logic, rather than a weaker argument along the lines of saying that they are less plausible than Platonism. My guess is that Platonism would *always* be less plausible than a naturalistic option in the mind of a materialist. In other words, the anti-materialist cannot make this argument with half-measures if it is going to be effective. But this is a point regarding strategy in the debate.

The more relevant question is where the naturalistic alternatives stand in comparison with (what I have been calling) logical platonism. It is worth noting a remark made by Dallas Willard, who was both a platonist and defender of all the key premises in the argument from logic, in the course of evaluating “Formalism” and “Linguisticism” (by which he means a broad category of naturalistic views, which includes Quine’s naturalized epistemology, that is, psychologism). Willard concedes simply, “To show Formalism or Linguisticism to be wrong would be an incredibly difficult task.”⁵³¹ Elsewhere he states that there is a difficulty in even specifying the dispute over these views because “[b]oth involve points in the philosophy of mind which are

⁵³¹ Willard, “Degradation of Logical Form,” 50.

among the most difficult in all of philosophy.”⁵³² And yet, despite this strong qualification, he writes that, on either of those views, “[t]he great ‘advantage’ was only that ‘Platonism’ was ruled out.”⁵³³ But, at the end of the day—and what is surely to the great *disadvantage* of these views—“the status of logic as a science of objective and totally invariant structures of thought – and, indirectly, of the world which thought grasps – was, simply, lost.”⁵³⁴ Willard’s analysis should not be controversial. If logical principles are grounded in, or derived from, contingent rules of sentences or contingent patterns in our thinking that psychology discovers, then they themselves must be contingent.⁵³⁵ And yet Willard humbly conceded that to disprove these views would be extremely difficult.

In light of this, unless someone advancing the argument from logical principles is willing to dive into the details of the debate over psychologism, formalism, linguistic conventionalism, etc., then the argument will only be potentially persuasive to those thinkers who are already persuaded of something like a Platonist view. But that group does not contain many thinkers who are still naturalists or materialists. That said, the strength of the argument from logical principles is dependent on the extent to which these alternative accounts of logical knowledge are shown to be false, inadequate, or inferior to the “platonic” account.

Despite this challenge, I would venture that accounting for logical principles is an obvious weak point in naturalism and materialism. This is not to say that it has been shown conclusively that logical platonism (logical principles as abstract entities) carries the day. Yet logical principles are nonetheless the sort of things that, under careful consideration of the nature of logical principles in our epistemic practice, do not fit easily into a naturalistic or materialistic

⁵³² Willard, *Logic and the Objectivity of Knowledge*, 177.

⁵³³ Willard, “Degradation of Logical Form,” 46.

⁵³⁴ Ibid.

⁵³⁵ For more on this, see my discussion in chapter 5.

metaphysics. Given a trivial or cursory examination, one might find evolutionary or psychological accounts of how logical principles function in the human mind to be plausible, but this can only be an initial plausibility, which does not hold up under scrutiny. Again, as Dallas Willard writes, it isn't that there hasn't yet been a successful naturalistic account of logical principles, the problem is that it doesn't even appear to be possible.

This is the anchor of the whole argument. In my evaluation, it is the most controversial premise, and the main battleground in the debate. If one grants that logical principles are abstract entities, it will be very hard to then account for logical knowledge in a materialistic universe.

While one could argue that allowing abstract entities is *already* to concede that materialism is false, that is not strictly true according to the three conditions stipulated in the definition being used in this thesis. The mere existence of abstract entities does not violate causal closure, mechanism, or supervenience. However, accounting for our knowledge of abstract entities is a problem, as we'll see in chapters four and five. For this reason, I think that this is the premise that the advocate of the argument from logical principles needs to make the priority, and I believe it would be the point on which the materialist opponent would put up the most resistance.

III. Conclusion

In presenting his own version of the argument, E. J. Lowe writes that “the only feasible strategy for atheistic physicalists, it seems, is to *deny* that objects of reason exist at all—or at least to deny that they exist *of necessity*—and to try to *explain away* all appearances to the contrary.”⁵³⁶ This statement summarizes the division of this chapter. The first part discussed the materialist strategy of denying the objective existence of the principles of logic altogether (i.e.,

⁵³⁶ Lowe, “Naturalism, Theism, and Objects of Reason,” 43. Emphasis in original.

subjectivism), and the second part discussed the strategy of rejecting that they are (necessary) abstract objects by proposing contingent alternatives.

Thus, the argument from logic, up to this point, is an argument, in key premise 1, against subjectivism and, in key premise 2, an argument against nominalism, empiricism (indirectly), any form of naturalized epistemology, and a strictly physical global ontology.

While it might be the case that the second premise is the anchor of the overall argument from logic, and the strong point of the argument, logical Platonism happens to generate some of the biggest problems for the argument. For instance, if logical principles are causally inert abstract entities, how could we have logical knowledge at all? More generally, how can we have knowledge of causally inert abstract entities? This is, of course, one of the major objections to platonism, to be addressed in chapter 5.

One of the weaknesses of the argument from logical principles, albeit, perhaps only a rhetorical weakness, is that it depends on many contentious premises. As we've seen in this chapter, it depends on both the existence of objective logical principles, and on the existence of abstract entities. Thus, it is both an argument against subjectivism and nominalism, and an argument *for* objective and necessary logical principles in the form of non-spatiotemporal abstract entities. Logical principles and their role in philosophical practice, the argument claims, are a powerful piece of evidence against both subjectivism and nominalism, but that does not change the fact that those are two perennial views in philosophy which have had representative schools from the beginnings of ancient philosophy onward. As we'll see in the following chapters, the argument also takes on other major positions, especially in epistemology (e.g., empiricism, externalism, etc.).

That said, the question of psychologism alone, of formalism alone, of analyticity alone—these are all potentially major areas of investigation, not easily dismissed. Clearly, those issues have not been settled conclusively in this chapter. However, it is clear that there is a tension between the materialist's strong inclination away from any hardcore metaphysics and finding a plausible account of logical knowledge.

What I hope to have demonstrated in this chapter is that the question of the ontological status of logical principles is a *major* area of critical inquiry, and, if my own experience is indicative, a very challenging one. This has to count against the argument from logical principles with regard to it being a neat and tidy argument. And yet, neither of these considerations count against it with regard to its soundness.

The substantive issues in the debate between subjectivists and their opponents, and between formalists, psychologists, and “linguistic conventionalists” have not been settled by any means, but I also hope to have shown that the key premises under discussion are at least *plausible*.

IV. The Role of Logical Principles in Rational Inference

Overview

There are two halves to this chapter, both having to do with the role of logical principles in rational inferences. The first half addresses the claim that the causal closure of the physical domain (by definition, an essential element of materialism) makes interaction with (and, therefore, knowledge of) abstract entities impossible. In other words, the principles of logic, being *non-physical* abstract entities, could not possibly play a causal role in rational inferences, construed as a series of (physical) events consistent with materialism.

The second half of the chapter addresses the claim that the principles of logic *must* play a causal role in rational inferences in order for beliefs reached by inference to be justified.

Thus, if one assumes the truth of the previous key premises, these two premises, taken together, are meant to expose an unacceptable tension supposedly found within materialism. On one hand, materialism removes the possibility of the principles of logic playing any role in our rational inferences; but, on the other hand, the principles of logic *must* play a role in order for our inferential beliefs to be justified.

Part I. Materialism Entails That We Cannot Have Knowledge of Abstract Entities

The next key premise in the argument from logical principles is the claim that materialism⁵³⁷ entails that we cannot have knowledge of non-physical, non-spatial, atemporal, abstract entities. Causal closure denies the possibility of any *causal* connection between the (physical) mind and non-physical abstract entities; and *mechanism*, stipulated earlier as an

⁵³⁷ Note that it is *materialism*, not causal closure, that entails that we cannot have knowledge of abstract entities, because causal closure, strictly speaking, does not exclude the possibility of *non-causal* connections between the mind (even if it is physical) and non-physical, abstract entities. However, such a connection is almost surely opposed by other essential conditions of materialism, especially the requirement of *mechanistic* (non-teleological) explanation.

essential condition of materialism, denies the possibility of a *teleological* explanation of any proposed connection. The connection between the mind and abstract entities, if any such connection exists, would have to be explained either mechanistically, which would be impossible because of causal closure, or by some sort of non-causal or quasi-causal connection. But a *non-causal* connection poses problems for a materialist ontology. Either way, our having knowledge of abstract entities seems inconsistent with materialism.

A. Definition of Causal Closure

As stipulated earlier, causal closure of the physical domain is an essential element of materialism. But, to start with, what precisely does causal closure mean? Jaegwon Kim, in a widely cited definition, states that causal closure means that “any physical event that has a cause at time t has a physical cause at time t .”⁵³⁸ Elsewhere, he elaborates on this principle:

Pick any physical event...and trace its causal ancestry or posterity as far as you would like; the principle of causal closure says that this will never take you outside the physical domain. Thus, no causal chain involving a physical event ever crosses the boundary of the physical into the nonphysical: If x is a physical event and y is a cause or effect of x , the y too must be a physical event.⁵³⁹

Thus, never has an immaterial soul had influence over a physical body; no God has ever interacted with (let alone created in the first place) the physical universe; and no abstract entity has caused a rational inference to go one way or another. Souls, God, angels, demons, abstract

⁵³⁸ Jaegwon Kim, “The Myth of Nonreductive Materialism,” in *Supervenience and Mind* (Cambridge: Cambridge University Press, 1993), 280.

⁵³⁹ Jaegwon Kim, *Philosophy of Mind*, 3rd edition (Boulder, CO: Westview, 2011), 214.

entities--all would be, by definition, relegated to having no causal role in the universe (supposing that any of them even exist).⁵⁴⁰

The first definition cited above, left on its own, is ambiguous as to whether there could still be some sort of non-physical cause in the physical world, since it would be possible for there to be an event that has *both* a physical cause *and* a non-physical cause at time *t*.⁵⁴¹ But, by stipulating in his elaboration that, in the course of tracing the “causal ancestry” of any event, “this will never take you outside the physical domain,” Kim has added an exclusionary condition that eliminates there being *any* non-physical causation. (This is the principle of *causal exclusion*.) It is this latter, stronger understanding of causal closure that is assumed in the following discussion.

B. Causal Closure Essential to Physicalism

Causal closure is not an ancillary commitment within the broader commitment to materialism. It is essential to materialism. Thus, to reject causal closure is to reject materialism. Consider the following passage in which Jaegwon Kim argues that to reject causal closure would be equivalent to conceding dualistic interactionism. The passage emphasizes how inextricable causal closure is from materialism:

Most physicalists will find the Cartesian model unacceptable if not incoherent; they accept the causal closure of the physical not only as a fundamental metaphysical doctrine but as an indispensable methodological presupposition of the physical sciences. If you reject it, you are buying into the Cartesian picture, a picture that no physicalist could tolerate. For it depicts the mental domain as an ontological equal of the physical domain;

⁵⁴⁰ See the discussion of a naturalistic ontology in Chapter 2. Some naturalists see no importance in deciding on the existence or non-existence of such things based, I suspect, on their assumption that because of causal closure, these things would be causally irrelevant to our universe anyway.

⁵⁴¹ See Helen Steward, “Review of *The Emergent Self*,” *Mind* 111, no. 441 (Jan. 2002): 114-119, for a criticism of Kim’s first definition, and a discussion of the definition of causal closure in relation to William Hasker’s argument from reason.

the two domains coexist side by side, causally interacting with each other, and there is no reason to call such a position physicalism rather than mentalism.”⁵⁴²

Peter King, a defender of dualism, comments on this passage and points out correctly that Kim’s move from the rejection of causal closure to “Cartesianism” is invalid, “[u]nless ‘Cartesianism’ is being used to mean nothing more than ‘non-physicalism’—in which case the move isn’t invalid, but is little more than tautological.”⁵⁴³ However, King’s more important point is that Kim “presents the relationship between the choice of the physicalist position and the acceptance of causal closure as almost vapidly circular.”⁵⁴⁴ Thus, Kim gives no independent reason to accept causal closure. But the relevance for our discussion here is not to say that the circularity is in any way vicious; rather, the circularity is indicative of the importance of causal closure to materialism. The two are inseparable for Kim.

Chalmers, Property Dualism, and Causal Closure

As evidence of how deeply embedded causal closure is in contemporary naturalistic conceptions of science, even David Chalmers, a naturalist who has given up a strict, global physicalist ontology (he is a property dualist), feels it necessary to make clear that he does not reject causal closure. He writes,

Nothing about the dualist view I advocate requires us to take the physical sciences at anything other than their word. *The causal closure of the physical is preserved*; physics, chemistry, neuroscience, and cognitive science can proceed as usual.⁵⁴⁵

⁵⁴² Kim, *Philosophy of Mind*, 147-148.

⁵⁴³ Peter King, “One Man’s Meat Is Another Man’s Person,” accessed April 30, 2019, <http://users.ox.ac.uk/~shil0124/papers/persons.pdf>, fn 11.

⁵⁴⁴ Ibid.

⁵⁴⁵ Chalmers, *The Conscious Mind*, 170. He continues, “In their own domains, the physical sciences are entirely successful. They explain physical phenomena admirably; they simply fail to explain conscious experience.” Ibid. Similar to Chalmers, the nonreductive materialist, John Searle, also accepts the causal closure of the physical. He writes that “there is a causal reduction. Consciousness has no causal powers beyond the powers of the neuronal (and other neurobiological) structures.” John Searle, *Freedom and Neurobiology: Reflections on Free Will*,

These comments reveal that Chalmers sees the causal closure of the physical as *more fundamental* to naturalism than a strict global physical ontology. While he gives up the “completeness of physics,” he does not want to leave the naturalist camp. Arguably, Chalmers’ position would still count as “materialist” based on the definition provided in chapter 2.⁵⁴⁶

Because Chalmers subscribes to causal closure of the physical domain, he faces what he calls the “paradox of phenomenal judgment.” How can consciousness, which is non-physical, be causally or explanatorily relevant to our judgments seemingly based on our conscious states? In terms of the argument from logical principles, he also faces the problem of *rational* judgment: if the physical domain is causally closed, it is not clear how the principles of logic *qua* abstract entities are relevant to his rational inferences.

Chalmers’ view, then, would make his position just as vulnerable to the argument from logical principles as any purely materialist view. He does not have a solution to the causal problems that arise from a conjunction of denying that consciousness is physical on one hand and affirming the causal closure of the physical domain on the other hand. Rather than propose any sort of solution, he states rather conveniently that “the question of whether consciousness is *causally* irrelevant in the production of behavior is a complex metaphysical issue that is best left open.”⁵⁴⁷ However, Chalmers’ position is especially vulnerable to the argument from reason advanced by William Hasker, whose argument takes Chalmers’ famous zombie argument as a

Language, and Political Power (New York: Columbia University Press, 2007), 50. Quoted in Menuge, “Knowledge of Abstracta,” 8.

⁵⁴⁶ It’s not clear how Chalmers’ property dualism avoids being just another version of epiphenomenalism under a different label. Chalmers’ addresses this challenge in his book, *The Conscious Mind*, in a section titled “Is This Epiphenomenalism?” He writes, “A problem with this view I have advocated is that if consciousness is merely naturally supervenient on the physical, then it seems to lack causal efficacy.” Chalmers, *The Conscious Mind*, 150.

⁵⁴⁷ Ibid., 177.

foundational premise. (Against a more standard materialism, Hasker's argument is only as effective as the zombie argument itself.)

Chalmers exhibits a seemingly breezy attitude to this challenge. He thinks that "However the metaphysics of causation turns out, it seems relatively straightforward that a physical explanation of behavior can be given that neither appeals to nor implies the existence of consciousness."⁵⁴⁸ This explanation, however, would need to include the ubiquitous human behaviour of making rational inferences. But providing a physical explanation of making rational inferences, in a way that explains justification and logical knowledge, is, arguably, *not* "relatively straightforward." Chalmers, however, acknowledges that his conviction that a physical explanation will come through in the end is grounded in his commitment to the principle of causal closure. "We certainly do not know the details of the explanation now," he concedes, "but if the physical domain is causally closed, then there will be some reductive explanation in physical or functional terms."⁵⁴⁹

Causal Closure Might Be an Empirical Principle, But It Is Not Derived Empirically

King makes a significant point regarding causal closure well worth weighing in the context of the debate between physicalism and dualism. Causal closure is not derived empirically, but rather is a "methodological principle." Kim also alludes to this point, calling it a "presupposition." It is, King writes, "an article of the physicalist faith, part of the physicalist disciplinary matrix, to use Kuhn's term, or of the hard core of the physicalist research programme, to use Lakatos's..."⁵⁵⁰ In fact, King argues at length that materialists have not only failed to give any empirical reasons as to why one ought to accept causal closure, but, in most

⁵⁴⁸ Ibid., 177.

⁵⁴⁹ Ibid., 178.

⁵⁵⁰ King, "One Man's Meat Is Another Man's Person."

every case, have failed to even attempt it. “No experimental or observational evidence is offered,” King writes, “against a causal connection between really distinct substances (what could constitute such evidence?); it’s simply claimed that a certain (theoretical) notion of causation makes mental-physical causation difficult to understand.”⁵⁵¹ King goes on to present some empirical experiments that could conceivably (eventually, in theory, if technology advanced far enough) be done that would empirically test the claim of causal closure. Thus, King’s argument can be summarized as follows: causal closure might be an empirically verifiable principle, but it is not derived empirically in the contemporary physicalist literature.

King’s point is supported by the fact that some philosophers, such as Donald Davidson, view the causal closure of the physical domain as not an empirical principle at all, but rather as a synthetic *a priori* principle.⁵⁵² It is hard to see how causal closure could be defended as a synthetic *a priori* principle, however, given that so many philosophers find non-physical causation conceivable. At the very least, it would be a very different sort of synthetic *a priori* principle from the usual purported examples. A statement of causal closure seems nothing like “ $7 + 5 = 12$ ” or “The ball cannot be all red and all green at the same time.” Those statements have an immediate appearance of being *necessary*, and a sense of indubitability. Causal closure, on the other hand—and here I can only state my own internal conviction—carries with it no such air of necessity or indubitability.⁵⁵³ Of course, any appeal to the synthetic *a priori* is an appeal to an insight or intuition, and, thus, one can deny Davidson’s claim by denying that one shares in the intuition. In the case of the principle of causal closure, a denial of it carries with it no threat of

⁵⁵¹ Ibid.

⁵⁵² Steven Yalowitz, “Causal Closure of the Physical in the Argument for Monism,” *Stanford Encyclopedia of Philosophy* (2012), accessed April 30, 2019, <https://plato.stanford.edu/entries/anomalous-monism/causal-closure.html>.

⁵⁵³ One can of course make similar claims about “ $7 + 5 = 12$ ”—as Descartes famously doubted even basic arithmetic. I address Descartes’ famous doubts of basic arithmetic in chapter 5 and address why his skepticism appears to be not only mistaken, but incoherent with regard to basic arithmetic.

logical or performative self-defeat, as, arguably, the denial of other purported examples of *a priori* truths does.

There is another objection open to the anti-materialist, though: Synthetic *a priori* knowledge and justification is incompatible with materialism. It is a *major* problem for materialism to account for *a priori* justification and knowledge, even when that justification and knowledge is construed as being merely “analytic,” as I argued in chapter 3. Accounting for *synthetic a priori* knowledge and justification, as opposed to merely *analytic*, is an even bigger challenge. Many naturalists and materialists deny the possibility of synthetic *a priori* justification and knowledge in the first place because it appears to rely on “mysterious” and “occult” notions of rational insight or intuition. In other words, Davidson’s position appears to only be open to *rationalists*, whereas most (or almost all) materialists are *empiricists*, a position that denies that we can have synthetic *a priori* knowledge.⁵⁵⁴

Temporal Causal Closure

A distinction can be made between causal closure with regards to the *physical* domain on one hand, and causal closure with regards to *time* on the other hand. In light of this distinction, one can ask whether or not the anti-materialist faces a distinct problem in the latter case from that in the former. The same challenge of explaining causal interaction between physical and non-physical things can be raised with regard to causal interaction between temporal and atemporal things: How could something ‘outside’ time interact with something ‘in’ it?⁵⁵⁵

⁵⁵⁴ See chapter 5 for a fuller discussion of these issues.

⁵⁵⁵ Someone might object even to the concept of something existing “outside” space and time. E. J. Lowe, *The Possibility of Metaphysics*, 212, explains why he sees no problem with the notion: “How *could* an object exist ‘outside’ space and time? (‘Outside’ is a spatial preposition, so that this way of talking can at best be metaphorical.) I do not think there is any very deep problem here, however. To exist *in* space and time is not to have a special kind of *existence*—for the notion of existence, like that of identity, is univocal. Rather, it is just to have certain sorts of properties and relations—spatiotemporal ones. Numbers don’t have spatial extension (a ‘square’ number, after all,

The notion of the atemporal (i.e., eternal) interacting with the temporal is, of course, a widespread commitment among classical theists, though it is not a universal commitment. Some theologians argue that God entered *into* time when he created the universe, and whether that idea violates the commitment to strictly temporal causation would depend on how it is construed. It seems that if one means that God, understood to be “outside”⁵⁵⁶ of time, creates time and space *ex nihilo*, and only then, subsequent to the initial point of creation, enters into time, this would still be a case of atemporal causation, at least in the initial creative act. For there to be *no* atemporal causation, it would seem that the theist would have to conceive of God as being in time eternally.

The question at issue is whether or not atemporal causation makes sense. Is temporality a necessary component of the notion of causation itself?

Since most of those who advance the argument from logical principles propose that abstract entities are atemporal, it is important for them to clarify how we can have knowledge of entities outside of time as well as those outside of (physical) space. If the basis of the claim that we could not possibly have knowledge of entities outside of time (the temporal grasping the atemporal) is that temporality is a necessary element in the concept of causation, then this claim will be challenged by any effort to show how we can have knowledge of *acausal* (causally inert) entities. The challenge of how we can have knowledge of acausal entities is a major challenge for the argument from logical principles. (See below in this chapter.)

The anti-materialist can, as an initial response, concede that the notion of something ‘outside’ (a spatial metaphor) time causally interacting with something ‘in’ time is hard to

isn’t square in *shape*), nor do they undergo change: and it is facts like these, if any, which justify our description of them as not existing ‘in’ space and time.”

⁵⁵⁶ The word ‘outside’ is in scare quotes because it is a spatial term, but the view is that God is not spatial or temporal, so there is a sense in which it is incorrect to say he is “outside time,” since the description is still spatial.

understand. But is it inconceivable? Is it impossible? If temporal causal closure is not an empirical principle, then, to be consistent, one would have to uphold it as an *a priori* principle. If temporal causal closure is, in reality, a necessary truth that we can perceive *a priori*, then the argument from logical principles is unsound, and there can be no causal interaction with abstract entities. However, the same objections can be made to this claim as were made above to Davidson's claim that causal closure is a synthetic *a priori* truth.

Arguably, it isn't an analytic truth or a tautology because it is a claim about the world, not just a claim about the meanings of words. Although temporality might be a part of the concept of causation, this is a claim about *the way the world really is*, and *not* just about how, because of the meaning of such-and-such word, this word must mean such-and-such. In other words, this case seems like saying that a ball cannot be all red and all green all over at the same time, and not like saying that all bachelors are unmarried. The former is arguably synthetic, the latter arguably analytic (again, if sense can even be made of the definition of "analytic"⁵⁵⁷). Thus, if this is the case, this objection would only be open to those who are *rationalists*—those who allow that we can have *a priori* insight into the necessary facts of reality—something that most naturalists would have a hard time squaring with a naturalistic epistemology.⁵⁵⁸

Like the causal closure of the *physical* domain, however, it isn't clear why one ought to conclude that spatiotemporal causal closure is a necessary fact of reality, especially in light of the evidence advanced by the anti-materialist that the physical is *not* closed. This is not to say that the anti-materialist has demonstrated as much, but it is to say that if the materialist were to answer the argument from logical principles with an appeal to an apparently *a priori* claim about causal closure, this would seem to beg the question against the argument.

⁵⁵⁷ See the discussion of the definition of "analytic" in chapter 3.

⁵⁵⁸ See chapter 5.

Causal closure faces other objections, independent of the argument from logical principles.⁵⁵⁹ While it is not in the scope of this project to deal with those objections, insofar as causal closure forms a “hard core of the physicalist research programme,” it is incumbent on materialists to answer those independent objections.

C. The Positive Case for the Premise

The premise being evaluated here—“Materialism entails that one cannot have knowledge of non-spatiotemporal abstract entities”—is, in my estimation, the least controversial of all the premises in the argument. It seems like a straightforward, uncontroversial premise. All the same, there are at least three reasons that count strongly in favour of the plausibility of this premise.

The Plausibility of the Premise

First, the plausibility of this premise is supported by the fact that materialists and naturalists throughout the history of philosophy have typically been nominalists. They have traditionally denied the existence of non-physical, abstract entities (from which it trivially follows that we could not have knowledge of abstract entities), presumably because of their commitment to the metaphysical principle of causal closure and their desire to maintain a naturalistic ontology. “The tie between nominalism and materialism,” Howard Robinson writes, “is an ancient one.”⁵⁶⁰ Plato vividly describes this connection in a well-known passage from the *Sophist* (246 A-C):

⁵⁵⁹ E. J. Lowe, “Substance Causation, Powers, and Human Agency,” 167, for instance, argues that some definitions of causal closure are clearly false, and that others beg the question against dualism.

⁵⁶⁰ Howard Robinson, *Matter and Sense* (Cambridge: Cambridge University Press, 1982), 50. Quoted in Moreland, “Naturalism and the Ontological Status of Properties,” 67.

- Stranger:* What we shall see is something like a battle of gods and giants going on between them over their quarrel about reality.
- Theaetetus:* How so?
- Stranger:* One party is trying to drag everything down to earth out of heaven and the unseen, literally grasping rocks and trees in their hands, for they lay hold upon every stock and stone and strenuously affirm that real existence belongs only to that which can be handled and offers resistance to the touch. They define reality as the same thing as body, and as soon as one of the opposite party asserts that anything without a body is real, they are utterly contemptuous and will not listen to another word.
- Theaetetus:* The people you describe are certainly a formidable crew. I have met quite a number of them before now.
- Stranger:* Yes, and accordingly their adversaries are very wary in defending their position somewhere in the heights of the unseen, maintaining with all their force that true reality consists in certain intelligible and bodiless forms. In the clash of argument they shatter and pulverize those bodies which their opponents wield, and what those others allege to be true reality they call, not real being, but a sort of moving process of becoming. On this issue an interminable battle is always going on between the two camps.

More recently, Wilfred Sellars wrote that “a naturalist ontology must be a nominalist ontology.”⁵⁶¹

Of course, Sellars’ claim can (and has been) disputed. Certainly, *global* naturalism is, by definition, incompatible with the existence of non-physical, abstract entities since it denies the existence of *any* non-physical entity. *Local* naturalism, on the other hand, would allow for abstract entities, while still insisting that the spatio-temporal universe consists only of entities studied by the natural sciences.⁵⁶² W. V. O. Quine famously allowed for the reality of sets, leading some critics to charge that in doing so he abandoned a naturalist ontology. But Quine himself, arguably, viewed himself well within the naturalist camp. How naturalists wish to define themselves is, of course, a merely semantic matter, and it is not being suggested here that materialism is incompatible with realism about abstract entities *solely for the reason that* most

⁵⁶¹ Wilfred Sellars, *Naturalism and Ontology* (Atascadero, California: Ridgeview Publishing, 1979), 109. Quoted in Moreland, “Naturalism and the Ontological Status of Properties,” 68.

⁵⁶² See the discussion of *global* and *local*, *strong* and *weak* naturalism in Chapter 2.

materialists are nominalists. Rather, the fact that materialists have largely been nominalists indicates that they, as a rule, agree there is an incompatibility between abstract entities and materialism, and this grants substantial plausibility to the premise.

The essential elements of materialism are (i) causal closure of the physical domain, (ii) mechanism (non-teleological explanation only), and (iii) supervenience. These conditions allow for non-physical realities, such as epiphenomenal qualia, or even, possibly, abstract entities. However, causal closure of the physical domain prevents any posited non-physical realities from having any causal efficacy, or causal relevance in the universe. This is precisely why epiphenomenalism is so widely rejected (and why property dualism faces “the paradox of phenomenal judgment”). How could consciousness have any causal relevance if epiphenomenalism were true? It is a deeply counterintuitive, if not inconceivable, position.⁵⁶³ Thus, even if one’s naturalism or materialism is softened to allow for the existence of abstract entities, it remains unclear how one could give an account of our *knowledge of* abstract entities in a way that is consistent with causal closure and mechanism. The thrust of the premise is that such knowledge would be impossible given the essential conditions of materialism. In short, the majority of materialists already concede this premise.

Second, the premise is also given credibility from the fact that naturalistic accounts of epistemology tend towards strong *externalism* about knowledge or justification. Externalism is the view that knowledge or justification is “grounded entirely in what is external to the mind, and hence [is] not internally accessible to the subject.”⁵⁶⁴ A *strong* externalism would be a pure or

⁵⁶³ As Jerry Fodor writes, “...if it isn’t literally true that my wanting is causally responsible for my reaching, and my itching is causally responsible for my scratching, and my believing is causally responsible for my saying. . . . if none of that is literally true, then practically everything I believe about anything is false and it’s the end of the world.” “Making Mind Matter More,” *Philosophical Topics* 17, no. 1 (Spring 1989), 77.

⁵⁶⁴ Robert Audi, *Epistemology: A Contemporary Introduction to the Theory of Knowledge* (New York: Routledge, 2003), 238.

unrestricted externalism, meaning that knowledge and justification are not grounded, even in a partial way, on internal variables.

How is externalism relevant to the premise in question? The ostensible motive behind *strong* externalist theories in epistemology is to avoid mysterious “internal” relations that are incompatible with naturalism, by being either teleological relations (a violation of mechanism), or causal relations between non-physical entities (a violation of causal closure). Thus, in J. P. Moreland’s words, “Externalist theories in epistemology either implicitly (e.g. reliabilist theories) or explicitly (e.g. causal accounts) center on the notion of causality.”⁵⁶⁵ Since abstract entities are non-physical (I leave aside for the moment the question of whether they are causal or acausal), they would, by virtue of causal closure, be ineligible for being included in the causal story of reliabilist or causal accounts of knowledge and justification.

Again, this is not an argument for the premise, but rather a point made to bolster its initial plausibility. In order to make it an argument for the premise, one would need to argue that materialism or naturalism *entails* externalism. (J. P. Moreland does argue for just such a conclusion.⁵⁶⁶)

Third, this premise is often directly supported by naturalists who argue that mathematical objects cannot be real. In other words, this premise falls in line with familiar positions taken by naturalists regarding the nature of our putative knowledge of mathematical objects. Reppert writes, “The fact that we cannot be causally connected to numbers if they are real is often given as a reason why we should not be realists about numbers.”⁵⁶⁷ Since a causal connection is ruled out by causal closure, our knowledge of them would, the assumption goes, have to be some sort

⁵⁶⁵ Moreland, “Naturalism and the Ontological Status of Properties,” 75. See Audi, *Epistemology*, 227-235, for a discussion of reliabilism and the causal theory of knowledge, both being represented as naturalistic options in epistemology.

⁵⁶⁶ See Moreland, “Naturalism and the Ontological Status of Properties,” 74-75.

⁵⁶⁷ Reppert, *C. S. Lewis’s Dangerous Idea*, 81.

of mysterious non-causal connection. But, as we saw in Chapter 3, the impetus behind empiricist attempts to explain *a priori* knowledge and justification as being merely “analytic” (or definitional or trivial or tautologous) is to avoid any such metaphysically embarrassing appeal to powers of rational insight implied by the rationalist epistemology. Thus, many materialists deny that we have *real* knowledge of actually existent mathematical objects for the very reason that such mathematical knowledge would appear to violate the ontological *and* epistemological commitments of materialism.⁵⁶⁸

Paul Benacerraf’s famous paper, “Mathematical Knowledge,” makes the case for this claim. Benacerraf writes that “accounts of truth that treat mathematical and nonmathematical discourse in relevantly similar ways do so at the cost of leaving it unintelligible how we can have any mathematical knowledge whatsoever...”⁵⁶⁹ But why would it be “unintelligible” how we can have any mathematical knowledge whatsoever? Simply put, because of the conjunction of two conflicting assumptions or claims.

First, according to Benacerraf, if we treat mathematical terms (e.g., sets, numbers, etc.) similar to nonmathematical terms, then this treats them as if they referred to *real* things. If numbers are *real* things, then they are something like non-physical, abstract objects. In other words, it implies mathematical platonism. But platonism conflicts with the second assumption.

Benacerraf holds to a causal theory of knowledge, and he takes this to exclude the possibility of knowledge of platonic objects. “I favor a causal account of knowledge,” he writes, “on which for *X* to know that *S* is true requires some *causal relation* to obtain between *X* and the

⁵⁶⁸ Dallas Willard, “Degradation of Logical Form,” 45, writes, “Concerns about the bearings of logic on mind and world were sacrificed to the objective of getting rid of ‘strange’ entities, ‘Platonistic’ ones, and accompanying strange ways of knowing – ‘strange,’ at least, to the overwhelmingly empirical and naturalistic inclinations of the 20th Century.”

⁵⁶⁹ Benacerraf, “Mathematical Truth,” 671.

referents of the names, predicates, and quantifiers of *S*.”⁵⁷⁰ The problem, then, is that platonic objects are, in Stewart Shapiro’s words, “outside the causal nexus.”⁵⁷¹ There could be no causal relation between those mathematical objects and our (physical) minds, as Benacerraf’s causal theory of knowledge requires.

Why does the causal theory of knowledge conflict with mathematical platonism? Why can there be no causal relation between the platonic objects and our physical minds? For one of two reasons: (i) either because of an assumption of causal closure of the physical domain, or (ii) the assumption that abstract objects are *acausal*. (Admittedly, this is a distinction with little practical difference.) Without one of those assumptions, there is no dilemma. The “notorious epistemological problems” that Benacerraf ascribes to mathematical Platonism, then, depend strongly on the assumption of a causal account of knowledge *and* either the assumption of causal closure of the physical domain or the assumption that abstract objects are acausal. There is good reason to believe Benacerraf makes both of those assumptions.⁵⁷²

The Standard Argument for the Premise

Based on these three reasons, the premise is surely plausible. But is there an argument for it that avoids *ad verecundiam*, and goes beyond merely citing what most materialists and naturalists think? Angus Menuge provides a succinct summary of the standard argument for this premise: “If abstracta are real and knowable..., this is a problem for materialism, since it standardly claims that knowledge depends on a causal relation, but also insists on the causal

⁵⁷⁰ Benacerraf, “Mathematical Truth,” 671. Emphasis added.

⁵⁷¹ Shapiro, *Philosophy of Mathematics*, 4.

⁵⁷² Penelope Rush interprets Benacerraf as follows: “Benacerraf argued that even our best theory of knowledge could not account for knowledge of mathematical reality just so long as that reality was conceived of in the usual mathematical realist way: as abstract, acausal, and atemporal. Part of the problem, as Benacerraf saw it, was that the stuff being posited as independently real is not sufficiently like any stuff that we can know, and if it were, it would not be the sort of thing intended by the mathematical realist in the first place.” Rush, “Logical Realism,” 14-15.

closure of the physical world.”⁵⁷³ In other words, even if abstracta exist, materialism would preclude our knowledge of them based on the conjunction of two claims : (1) the requirement that, in order to have knowledge of something, one must be in a causal relation with the object of knowledge; and (2) the impossibility, given causal closure of the physical domain, that any independent non-physical reality can have causal efficacy, or, to say the same thing in another way, be in a causal relation with anything physical—a causal relation required by (1) in order for something to be known.

Thus, the standard argument for this premise (“Materialism entails that we cannot have knowledge of abstract entities”) can be broken down into three sub-premises:

1. Given materialism, knowledge entails causal relations between the subject (the knower) and the objects of knowledge (the known).
2. Abstract entities are outside space and time, i.e., they are non-physical.
3. Causal closure, an essential feature of materialism, entails that there could be no causal relations (or interaction) between abstract entities and our brains.
4. Therefore, materialism entails that we cannot have knowledge of abstract entities.

Since sub-premise 2 is assumed at this point in the argument (see chapter 3), and sub-premise 3 is true by definition, the controversial premise is sub-premise 1.

⁵⁷³ Menuge, “Knowledge of Abstracta,” 7. Stephen Parrish, *The Knower and the Known: Physicalism, Dualism, and the Nature of Intelligibility* (South Bend, IN: St. Augustine’s Press, 2013), 223, offers an example of an argument in support of this premise that is not, ultimately, persuasive or helpful, because it relies solely on rhetorical questions: “...given *physicalism*, consciousness is believed to be simply physical objects existing and acting in a certain manner. How then does it exist as something that grasps the very nature of the abstracta that it finds instantiated in the physical universe? How does a mere arrangement of matter, having matter in motion, achieve the ability to grasp universals? I see no clear answer to these questions. Why should something that comes into the world unplanned, and which apparently, given *physicalism*, has no real purpose, do something as great as grasp the nature of abstracta?”

Does Materialism Entail a Causal Account of Knowledge or Justified Belief?

Does materialism entail that, in Menuge's words, "knowledge depends on a causal relation"?

Both Victor Reppert and J. P. Moreland explicitly claim as much.⁵⁷⁴ Reppert states matter-of-factly that, if materialism is true, "*the only acceptable* physicalist analysis of knowledge would have to be some kind of causal interaction between the brain and the objects of knowledge."⁵⁷⁵ J. P. Moreland writes that, on (materialistic) naturalism, "knowledge or justified belief entails a causal connection between the subject and object..."⁵⁷⁶

Reppert and Moreland are not claiming that the only acceptable materialistic or naturalistic account of knowledge must be what is known in epistemology as *the causal theory*—a specific account of knowledge as "appropriately caused true belief."⁵⁷⁷ To be sure, the causal theory of knowledge is advanced precisely on the grounds that it is consistent with naturalism, but their claim is broader than that. It could also include, for instance, *reliabilism* (knowledge as "reliably grounded true belief"⁵⁷⁸), another naturalistic theory that focuses on causation, but implicitly so.

Leaving aside the question of specific theories of knowledge and justification, Reppert and Moreland's claim is that, in order for an account of knowledge or justification to be consistent with materialism, it must involve *only* causal connections between the subject and object, or, to put the same point negatively, it must exclude any non-causal connections.

⁵⁷⁴ E. J. Lowe also comments on this, but apparently doesn't take the same hard line as Reppert and Moreland. He writes that "causal theories of knowledge... would appear to rule out knowledge of the existence of causally impotent objects. My own view, as I shall make clearer later, is that some abstract₁ objects—notably some universals—need to be invoked for explanatory purposes, even if it cannot be said that they themselves possess causal powers or enter into causal relations." Lowe, *The Possibility of Metaphysics*, 213. Todd Buras, "On the Failures of Naturalism," 269, appears to side with Reppert and Moreland, but his point is somewhat ambiguous: "The causal closure principle requires that the physical events on which one's beliefs depend have complete **mechanistic** explanations and therefore complete physical causes."

⁵⁷⁵ Reppert, *C. S. Lewis's Dangerous Idea*, 81. Emphasis added.

⁵⁷⁶ J. P. Moreland, *Universals* (Montreal & Kingston: McGill-Queen's University Press, 2001), 121.

⁵⁷⁷ Audi, *Epistemology*, 228.

⁵⁷⁸ *Ibid.*, 229.

The materialist already concedes that all causal connections are physical. That just is the definition of causal closure. Thus, it is uncontroversial for Menuge to claim that the principle of causal closure “means that the materialist cannot exceed these limitations by appeal to *causal* interactions with entities beyond the material world, such as a Platonic horde or ideas in the mind of God.”⁵⁷⁹

But does materialism entail that all physical connections (that is, connections with physical objects, e.g., the brain) are necessarily causal connections? That is, are *non-causal* connections with the mind—e.g., a non-causal connection between abstract entities and the physical brain—ruled out by materialism?

Mechanistic Explanation

In order to show that if materialism is true, all physical connections are causal connections, one might reason as follows.

On materialism, human minds are physical things located in space and time.⁵⁸⁰ The sorts of connections that they could have with possible objects of knowledge would be limited to the sorts of connections that physical things can have, *consistent with materialism*. But, physical connections, on materialism, are limited to those types of connections describable by physics—that is, “scientifically describable *efficient* causal relations.”⁵⁸¹ (To say otherwise is to concede that there are elements of reality that we can know that

⁵⁷⁹ Menuge, “Knowledge of Abstracta,” 9. Emphasis added. Moreland echoes Menuge when he writes that “the abstract objects of *a priori* knowledge are causally inert, and even if one tries to specify a causal or quasi-causal relation in which they stand to epistemic subjects, that specification will go far beyond the resources of naturalism.” Moreland, *The Recalcitrant Imago Dei*, 78.

⁵⁸⁰ The structures, processes, and states of human minds will be physical structures, processes, or states, or they will be some combination of the physical subvenient base structures, processes, or states and any elements that supervene on those physical structures, processes or states. (Any supervenient entities would lack causal efficacy, and any mental causation would be a one-way street from the physical to the non-physical, the subvenient to the supervenient).

There is a strong case to be made against non-reductive physicalism, epiphenomenalism, and property dualism on the basis of the causal irrelevance of the supervenient elements of the mind, but I include these varieties of materialism to make it clear that the materialist cannot escape from the claim that materialism entails a causal account of knowledge by appeal to some sort of non-reductive view.

⁵⁸¹ Moreland, *Universals*, 121. He writes, “On [materialism], human persons are material objects and various epistemically relevant states (e.g. perceptual states) are to be understood in terms of human persons (i.e. certain physical objects) standing in scientifically describable efficient causal relations with the “objects” of those states.”

do not, in an ultimate or foundational sense, fall under the purview of physics.) Thus, non-causal connections, if such things exist, are not possible for physical things to enter into, given materialism.

This line of reasoning, however, seems based on a premise that isn't explicit in the definition of materialism. Surely *final* causes, or *teleological* causal relations, are excluded as possibilities by materialism. That is entailed by the stipulated condition of mechanism, which allows for mechanistic, non-teleological explanations only. But does the condition of mechanism rule out non-causal connections?

The condition of mechanism (in Reppert and Hasker's definitions of materialism) requires mechanistic, or non-teleological, causation. But there is an ambiguity here. It appears to be a purely negative definition, merely excluding teleological causation, and it does not specifically require that mechanistic causation to be the *only* means by which the human mind is connected to the world. Thus, if the materialist proposes a *non-causal* connection, or *quasi-causal* connection, it isn't clear that the condition of mechanism would exclude this possibility. (Also, there would not be a violation of *causal* closure in the proposal of a non-causal connection with causally inert abstract entities.)

Robert Koons' defines the condition of mechanism from a subtly different angle, but even his definition is ambiguous for the present purpose. He writes, "All genuine causal explanation has a factual basis consisting of the spatial and kinematic arrangement of some fundamental particles (or arbitrarily small and homogenous bits of matter) with specific intrinsic natures."⁵⁸² Taken only this far, Koons' characterization of this condition is also ambiguous because it is specific to *causal* explanations. A non-causal explanation would be exempted.

⁵⁸² Koons, "Epistemological Objections to Materialism," 282.

However, Koons adds, “All genuine explanation is bottom-up.”⁵⁸³ This is somewhat cryptic given what we are seeking to answer: Does materialism allow for non-causal connections? If Koons means *all* explanations, of anything and everything, ultimately consist of “the spatial and kinematic arrangement of some fundamental particles,” his condition would exclude non-causal connections. But if he means all *causal* explanation must be bottom-up, which is a reasonable interpretation given the context, then it does not exclude non-causal connections.

Of course, some philosophers argue explicitly that any sort of non-causal or quasi-causal connection violates materialism. As J. P. Moreland writes, “[T]he abstract objects of *a priori* knowledge are causally inert, and even if one tries to specify a causal or quasi-causal relation in which they stand to epistemic subjects, *that specification will go far beyond the resources of naturalism.*”⁵⁸⁴ Crucially, though, he does not specify *how* the proposal goes beyond the resources of materialism. That said, elsewhere Moreland makes it clear that he understands materialism to require “combinatorial” explanation, whereby one must explain everything by means of pointing to the arrangement of, and efficient causal relations between, the fundamental, nonpurposive, nonintentional, nonconscious elements of reality. Given such a stipulation, a non-causal connection of the sort that traditional realists propose with regard to our knowledge of causally inert abstract entities seems out of bounds for materialism.

A non-causal connection, offered as an explanation of our logical knowledge, seems decidedly *non-mechanistic*, even if it is not a clearly teleological causal explanation. A materialist could simply dispute this by allowing for some third category of explanation, neither mechanistic nor teleological. One could argue that since there would be no *causal* relation—whether efficient or teleological—between the (physical) knower and the (non-physical) thing

⁵⁸³ Ibid.

⁵⁸⁴ Moreland, *The Recalcitrant Imago Dei*, 78.

known, a non-causal connection (whatever that amounts to) between an abstract entity and the mind of the knower would not, strictly speaking, be excluded by materialism.

But this leads to, as I see it, the real problem with the proposal of a non-causal connection for any consistent materialist.

Pandora's Box of Epistemic Powers

A non-causal account of knowledge would seemingly be just the sort of mysterious connection, inexplicable in physical, mechanistic terms that materialists condemn in non-naturalistic metaphysical theories, such as interactionist dualism. To see why the suggestion of a non-causal connection with abstract entities is contrary to the spirit of materialism, consider the parallel between it and the rationalist's proposal of a faculty of *rational insight* by which we have direct, unmediated knowledge of necessary facts of reality. As I will discuss in chapter 5, modern empiricists reject mental powers such as rational insight precisely on the grounds that they are mysterious, inexplicable, non-naturalistic, occult powers. A non-causal connection between a mind and an object of knowledge would appear to be in this same category—if it isn't the exact same thing. Both rational insight and a non-causal connection with abstract entities do not appear to be compatible with the ontology of naturalism or materialism. (This appears to be the assumption inherent in Nagel's version of the argument, namely, that it is our capacity for rational insight that violates a materialist ontology.)

The materialist who wishes to deny that materialism entails that we cannot have knowledge of abstract entities faces a dilemma. On the one hand, if he embraces non-causal connections between minds and abstract entities as a means of explaining our knowledge of abstract entities while maintaining causal closure, then he effectively removes any grounds for

objecting to mental powers like rational insight that are anathema in naturalistic epistemology. But, on the other hand, if he rejects non-causal connections, then he concedes that, given materialism, knowledge entails a causal connection between the subject and object of knowledge. Embracing the first horn seems to give away the store to the non-materialist, opening the door for all sorts of non-naturalistic epistemic powers. Embracing the second horn grants that materialism entails a causal relation between the knower and the thing known, which, as a consequence, grants the overall disputed claim, namely, that materialism entails we cannot have knowledge of abstract entities. Moreland expresses the problem for the materialist who wants to claim that we can have knowledge of abstract entities, despite causal closure:

...any attempt to account for knowledge of abstract objects will have to be given in terms of some mysterious, even mystical, aphysical “grasping connection” and such an entity and the sort of subject required to have the capacity to employ it cannot be part of an appropriate naturalist ontology.⁵⁸⁵

The cost of denying that materialism entails that knowledge must be accounted for, at bottom, strictly in terms of causal connections appears to be very high for the materialist.

For the materialist, who places such emphasis on mechanistic explanation of phenomena, the suggestion of non-causal connections also seems *ad hoc*, if not fully inconsistent with materialism. Moreland and Craig argue this point, claiming that any version of naturalism that countenances abstract entities, and, more relevant to the present point, our *knowledge of them*, becomes *ad hoc* in doing so:

Those versions of naturalism that countenance abstract objects and knowledge thereof...do so at the price of appearing *ad hoc*, of giving up the claim that science and science alone is adequate to explain (or is superior to non-naturalistic attempts to explain) everything in one’s ontology, of weakening and trivializing what it means to “locate”

⁵⁸⁵ Moreland, *Universals*, 121.

these entities, in contrast with naturalist successes in location paradigm case macro-entities such as solidity.⁵⁸⁶

The (materialistic) naturalist, then, that allows for both abstract entities *and* for our having knowledge of them would appear to be giving up materialistic distinctives, and, by doing so, conceding a lot of ground to dualism.

Furthermore, the allowance of our knowledge of abstract entities by the naturalist would presumably open the door to all kinds of possible, non-causal connections between the non-physical and physical realms. On what principled basis would the naturalist now be able to resist such proposals? Pandora's box of non-causal connections and explanations would be seemingly opened. This would undermine materialism as a metaphysical view in contradistinction with dualism to such a degree as to seemingly violate the condition of *supervenience*. There would be an independent non-physical realm (that is, a non-physical reality not inextricably tied to a subvenient physical base) in existence in parallel to the physical realm that we could have knowledge of.

Do anti-materialists allow for non-causal connections?

As it turns out, the claim that we have a non-causal connection with abstract entities is roughly the sort of proposal that many realists make with regard to how we have knowledge of them. As alluded to above, the conception of the capacity of rational insight is often construed as something like a direct, non-causal connection. But anti-materialists, of course, are not committed to anything like the claim that everything, at bottom, must be, at least in theory, describable by physics in terms of efficient causal relations. Angus Menuge, for instance, suggests that our knowledge of abstract entities reveals irreducible powers of the human soul.

⁵⁸⁶ Craig and Moreland, "Preface," xiv.

D. Are Abstract Entities Causal or Acausal?

Up until this point, it has been left open whether abstract entities are causal or acausal. Certainly the traditional view is that they are acausal. But, it turns out, that some of the main advocates of the argument from logical principles hold that they are, in fact, causal in the course of making their arguments.

The significance for the argument is clear, on several levels. If logical laws *qua* non-physical abstract entities, conceived of as existing “outside” space and time, are causal, then causal closure would be violated if they play a causal role in rational inferences. But if abstract entities are causally inert, as they are traditionally conceived to be, then Reppert’s argument does not, strictly speaking, falsify causal closure, and it raises the question of how we can have knowledge of them. Furthermore, as E. J. Lowe points out, “For some metaphysicians, possession of causal power is the very hallmark of real existence (and is one reason, for instance, why some have denied the existence of the void or absolute space).”⁵⁸⁷ There arises the further question of why we should believe that such acausal, abstract entities exist. Penelope Rush summarizes the problem nicely:

This realist conception of logic raises many questions, among which I want to pinpoint only one: how logic can at once be independent of human cognition in the way that mathematics might be; and relevant to that cognition. The relevance of logic to cognition – or, at the very least, the human ability to think logically – seems indubitable. So any understanding of the metaphysical nature of logic will need also to allow for a clear relationship between logic and thought.⁵⁸⁸

So which is it? Are logical principles and logical relations, as abstract entities, causal or acausal?

The proponents of the argument from logical principles differ on this point. They take one of

⁵⁸⁷ Lowe, *The Possibility of Metaphysics*, 213.

⁵⁸⁸ Penelope Rush, “Logical Realism,” 13.

three positions: the principles of logic are (i) acausal or (ii) causal, or (iii) they are agnostic on the question.

Acausal

The traditional view, as stated, is that abstract entities are acausal. E. J. Lowe articulates the standard view when he writes that “the hallmark of abstract₁ entities...is that they do not exist in space or time and lack causal powers.”⁵⁸⁹ J. P. Moreland concurs that “the abstract objects of *a priori* knowledge are causally inert.” Dallas Willard and Robert Koons are also in this camp. This is the the standard metaphysical position. However, Tim Juvshik points out in his paper, “Abstract Objects, Causal Efficacy, and Causal Exclusion,” that “this claim is rarely explicitly argued for.”⁵⁹⁰

Causal

Popper’s View

In contrast, some philosophers hold that abstract entities are causal. Of all the philosophers who make the argument from logical principles, Popper is the one who most clearly defends that position. Writing of how materialists cannot do justice to World 3 objects, “especially with the *logical relations* existing between them,”⁵⁹¹ Popper gives as an example a description of the exchange of letters between Frege and Russell over the self-contradiction in the foundation of Frege’s *Grundgesetze*. Russell pointed out to Frege the self-contradiction that “had been there, objectively, for years.” Thus, Popper argues, the World 3 object—in this case

⁵⁸⁹ Lowe, *The Possibility of Metaphysics*, 225. Elsewhere, “abstract objects are not, denizens of space-time (or, which perhaps amounts to the same thing, are/are not subject to causality).” Ibid., 51.

⁵⁹⁰ Tim Juvshik, “Abstract Objects, Causal Efficacy, and Causal Exclusion,” *Erkenntnis* 83 (2018), 805.

⁵⁹¹ Popper, *The Self and Its Brain*, 56. Emphasis in the original.

the logical relation of contradiction—cannot be reduced to a World 2 (the level of the mind) or mental object. The inconsistency was *discovered* by Russell, and this led him to write to Frege, and Frege to write back. So, Popper claims, a World 3 object *causes* World 1 (physical) effects.⁵⁹² Popper concludes, “These are some of the reasons why I hold that World 1 is not causally closed, and why I assert that there is interaction (though an indirect one) between World 1 and World 3. It seems to me clear that this interaction is mediated by mental, and partly even conscious, World 2 events.”⁵⁹³

Later in the book, in the context of making his anti-materialist argument from logic, Popper states that “[logical] standards belong to World 3, but they are useful for survival; which means that they have causal effects in the physical world, in World 1.”⁵⁹⁴ Popper even makes it clear that he is not merely thinking of the subject interacting with the instance of a universal in a physical object, rather than with the abstract entity itself. “If unembodied World 3 objects exist,” he writes, “then it cannot be a true doctrine that our grasp or understanding of a World 3 object always depends upon our sensual contact with its material embodiment...”⁵⁹⁵

Popper, then, undoubtedly understood logical principles and logical relations, as “abstract noncorporeal World 3” objects, to be causal.

Hasker’s View

Hasker’s argument depends on the premise that the principles of logic are “causally effective”⁵⁹⁶ or “causally relevant”⁵⁹⁷ in determining the conclusions reached in a rational

⁵⁹² Popper writes, “Thus there is interaction between (a) the physical, or partly physical, event of Frege’s receiving Russell’s letter; (b) the objective hitherto unnoticed fact, belonging to World 3, that there was an inconsistency in Frege’s theory; and (c) the physical, or partly physical, event of Frege’s writing his comment on the (World 3) status of arithmetic.” Ibid., 57.

⁵⁹³ Ibid., 57.

⁵⁹⁴ Ibid., 79.

⁵⁹⁵ Ibid., 43.

⁵⁹⁶ Hasker, *The Emergent Self*, 73.

⁵⁹⁷ Ibid., 72.

inference. He writes that “good reasons and principles of rationality need to be thought of as causally relevant to what happens in the world.”⁵⁹⁸ Elsewhere, his conclusion is that it is a fatal problem for materialism that the “principles of sound reasoning have no relevance to determining what actually happens” in the physical world.⁵⁹⁹ Thus, based on these points, it would seem that he is in agreement with Popper.

However, Hasker fails to clarify his conception of their ontological status and their role in his argument. Hasker appears, at different points, to conflate the “principles of sound reasoning” with “mental facts”⁶⁰⁰ and even “good reasons,”⁶⁰¹ which implies that he conceives of these principles as *beliefs* (whether occurrent or dispositional) in the mind of the agent, rather than as abstract entities external to the agent (like Popper, whose argument he references in the chapter).⁶⁰² Given the complete absence of discussion about the ontological nature of the “principles of sound reasoning,” Hasker has not clarified whether he views these principles as abstract entities, which are traditionally understood to be *non-causal*, in which case they quite obviously have no causal effects in the world.

Thus, Hasker’s argument faces a sort of dilemma borne out of his failure to define this key term: If the principles are abstract entities, how are they playing a causal role? If the principles are “mental facts” or beliefs or “good reasons”, then how can they play the role of

⁵⁹⁸ Ibid. Elsewhere, his conclusion is that it is a fatal problem for materialism that the “principles of sound reasoning have no relevance to determining what actually happens” in the physical world. Ibid., 71.

⁵⁹⁹ Ibid., 71.

⁶⁰⁰ “Could there be a more dramatic demonstration of the fact that, given the closure of the physical, mental facts are irrelevant to the physical course of events?” Ibid.

⁶⁰¹ The conflation of “good reasons” with the “principles of sound reasoning” reveals itself in the context of the entire argument, especially on pages 69-71.

⁶⁰² Of course, within the category of abstract entities, these principles could be further distinguished. Are they *propositions*? Are they logical *relations*? Are they *properties* of logical relations? Are they some other sort of complex universal? Hasker offers no clarification on this.

being the *objective, normative* standards by which one is able to evaluate arguments, as he would have them do?⁶⁰³

To be fair to Hasker, he could argue that it is our *knowledge* of the principles of logic, viz. mental events, states, or dispositions in the mind, that must have causal influence.

Regardless, his argument is seriously muddled by not being clear on the ontological nature of the principles in question.

Reppert's View

Reppert's stance is also somewhat ambiguous, though he seems at times to indicate that they must be causal. Reppert presents an early formulation of his argument from the psychological relevance of logical laws in his paper, "Causal Closure, Mechanism and Rational Inference":

...rational inference involves the employment of the laws of logic. These laws are not physical laws, because they obtain across possible worlds, including worlds with no physical objects whatsoever. The laws of logic, unlike the laws of physics, do not denote the powers and liabilities of things in the physical world. The laws of logic exist even though they do not exist at any particular place or time. But if there are genuine reasoners, then not only must something nonphysical (i.e., the laws of logic) exist, but it must have something to do with what beliefs are caused in the world of space and time. This seems impossible if physics is a closed, mechanistic system.⁶⁰⁴

From this description of the argument, it is first of all clear that Reppert is conceiving of the laws of logic as abstract entities, outside space and time. Even though he seems to imply that they must be causal, it is still slightly ambiguous. They have "something to do with" what beliefs are "caused." That seems to indicate they are causal. But he doesn't explicitly state that *they* are the cause. Someone who took an acausal view could say the same thing.

⁶⁰³ See Hasker's discussion of the assessment of an argument and the role that the principles play on pages 72-73.

⁶⁰⁴ Victor Reppert, "Causal Closure, Mechanism, and Rational Inference", 474.

When he lists what he considers to be the essential conditions for rational inference (“these conditions must obtain if that rational inference has taken place”), one of those conditions is: “The apprehension of logical laws plays a *causal* role in the acceptance of the conclusion of the argument as true [sic].”⁶⁰⁵ Again, at first glance, this seems to indicate that he conceives of the logical laws as causal, but, after reading it carefully, it’s clear that it only states that the “apprehension” of the logical laws—that is, the *mental* event in “World 2”, as Popper would put it—that must play the causal role.

Elsewhere in the same paper, Reppert writes, “If scientists and philosophers never reach conclusions on the basis of explicit reasoning in which the content of their beliefs and *the way in which they are logically connected plays a critical causal role*, then it is the end, if not of the world, at least of those enterprises.”⁶⁰⁶ This passage seems to be the closest thing to saying that it is the logical *relations*, i.e., abstract universals—“the way in which they are related”—that must play the causal role.

To further add to the ambiguity, Reppert is following, interpreting, and revising Lewis’s argument from the book *Miracles*, and, in the course of Lewis’s argument, and Reppert’s interpretation of him, the same ambiguity persists, although it would seem at times that they conceive of logical relations as being causal. For instance, Lewis writes that “One thought can **cause** another not by being, but by *being seen to be*, a ground for it.”⁶⁰⁷ This seems to be a straightforward case of mental-mental causation—one thought causing another. But Reppert goes on to comment: “the object that is known **determines** the positive character of the act of knowing. But in rational inference *what we know is a logical connection*, and a logical

⁶⁰⁵ Reppert, “The Argument from Reason,” 356.

⁶⁰⁶ Reppert, “Causal Closure, Mechanism, and Rational Inference,” 480.

⁶⁰⁷ Lewis, *Miracles*, 16-17. Quoted in Reppert, *C. S. Lewis’s Dangerous Idea*, 63-64.

connection is not in any particular spatio-temporal location.”⁶⁰⁸ Put this way, it creates a picture where the logical law “determines” the thought, and that thought of the logical law can be the cause of another by *being seen to be* the ground for it. But, strictly speaking, none of this is inconsistent with what someone who holds to the acausal view might say.

At the end of the day, the safest assumption is that Reppert understands them to be *acausal*. He is explicit that he conceives of them as being “something like Platonic forms,” and the standard Platonic view is that they are acausal. Insofar as he *argues* as if they are causal, though, this is a problem in his argument.

Agnostic

Menuge is explicit that he is open to either possibility. He thinks that either a causal or non-causal story can be told to explain how we have knowledge of abstract entities. “In my view,” he writes, “it is not absurd for a nonmaterialist to allow that souls and abstract objects can causally interact (although the idea of a direct, noncausal perception is also appealing).”⁶⁰⁹

A Problem for Acausal Abstract Entities

Obviously, there are many objections to abstract entities; hence, nominalism. But there are some objections to abstract entities that are specific to whether or not they are causal or acausal.

First, suppose abstract entities are acausal. This is metaphysically superfluous to some philosophers. They see no reason to posit entities that have no causal effects in the world. In other words, why posit abstract entities if they make no causal difference? For example, D. M. Armstrong writes, “If any entities outside this [spatio-temporal] realm are postulated, but it is

⁶⁰⁸ Reppert, *C. S. Lewis's Dangerous Idea*, 64.

⁶⁰⁹ Menuge, “Knowledge of Abstracta,” 12, fn 14

stipulated further that they have no manner of causal action upon the particulars in this realm, then there is no compelling reason to postulate them.”⁶¹⁰ Of course, this is the critical view of Popper, as well. In the course of making his argument from logical principles in *The Self and Its Brain*, Popper writes, “...the abstract World 3 property of a computer which we can describe by saying “its operations conform to logical standards” has physical effects: it is “real” (in the sense of section 4 above). This causal action upon World 1 is precisely the reason why I call World 3, including its abstract objects, “real”.”⁶¹¹ Earlier on, at the beginning of the book, Popper suggests that “the entities which we conjecture to be real should be able to exert a causal effect upon the *prima facie* real things; that is, upon material things of an ordinary size; that we can explain changes in the ordinary material world of things by the causal effects of entities conjectured to be real.”⁶¹² Given this claim, how might a traditional realist respond? In other words, why should someone posit entities that have no causal efficacy in the world?

E. J. Lowe provides a response. He makes the case that “some abstract₁ objects—notably some universals—need to be invoked for explanatory purposes, even if it cannot be said that they themselves possess causal powers or enter into causal relations.”⁶¹³ However, he acknowledges that this raises further questions. If we are going to posit such abstract entities, “we should do so if and only if the postulation of their existence is explanatorily fruitful—though this poses the further question of *how* the existence of abstract entities could explain anything.”

Another response is open to the anti-materialist here. It might be the case that claiming that only causally efficacious entities can exist begs the question against the non-naturalist by

⁶¹⁰ D. M. Armstrong, *Universals and Scientific Realism Volume 1: Nominalism & Realism* (Cambridge: Cambridge University Press, 1978), 130.

⁶¹¹ Popper, *The Self and Its Brain*, 79.

⁶¹² *Ibid.*, 9.

⁶¹³ Lowe, *The Possibility of Metaphysics*, 213. Lowe goes on to explain his case more fully later in that same chapter.

defining existence in a way that is more or less a restatement of naturalistic metaphysics. An independent reason for *why* causal efficacy is a condition for existence is needed.⁶¹⁴

The biggest objection to acausal abstract entities is the epistemological “causal impotency” objection: we could not know a causally inert abstract entity. I address this objection in Chapter 5.

Two Objections to Causal Abstract Entities

The Interaction Problem

If we suppose that abstract entities are causal, it is inevitable that something like the so-called “Interaction Problem,” the most common objection raised against substance dualism, will arise as an objection to the possibility of our having knowledge of non-causal entities. Most famously, Princess Elizabeth of Bohemia raised this objection to Descartes’ theory of mind/body dualism. If physical and mental substances are so radically distinct, how can they interact? Interaction between the physical and non-physical seems inexplicable. Likewise, interaction between a non-spatiotemporal entity and our minds seems equally inexplicable.

William Hasker calls the interaction problem the most over-rated objection in the history of philosophy.⁶¹⁵ Hyperbole, to be sure, but perhaps not by much. A parallel can be drawn

⁶¹⁴ J. P. Moreland, “Naturalism and the Ontological Status of Properties,” 77, writes, “Finally, while some naturalists eschew questions about the nature of existence itself, others have formulated a definition of existence based on a naturalist epistemology and consistent with the Grand Story. Thus, Bruce Aune defines *a exists* as “a belongs to the space-time-causal system that is our world. Our world is, again, that system of (roughly) causally related objects...” [Bruce Aune, *Metaphysics: The Elements* (Minneapolis: University of Minnesota Press, 1985), 35] Along similar lines, D. M. Armstrong says that for any entities, the following question settles the issue of whether or not those entities can be said to exist: “Are these entities, or are they not, capable of action upon the spatio-temporal system? Do these entities, or do they not, act in nature?” [Footnote: D. M. Armstrong, “Naturalism, Materialism, and First Philosophy,” *Philosophia* 8 (1978): 263. Cf. *Universals and Scientific Realism Volume 1: Nominalism & Realism* (Cambridge: Cambridge University Press, 1978), 126-135. Subsequently, Armstrong has modified and weakened this formulation of his criterion of being: Everything that exists makes a difference to the causal powers of something. See *A World of States of Affairs* (Cambridge: Cambridge University Press, 1997), 41-3.]

⁶¹⁵ Hasker, *The Emergent Self*, ch. 4.

between several responses to the interaction problem and the objection to interaction with non-spatiotemporal entities.

First, a case can be made that the interaction problem straightforwardly begs the question against substance dualism, and against physical/non-physical interaction in general.⁶¹⁶ (If we conceive of the interaction between our minds and abstract entities as interaction between a temporal, non-physical mind and a non-temporal, non-physical entity, this point can be applied to that situation as well.) The demand for an explanation of *how* physical/non-physical interaction works seems to couch the challenge in *mechanistic* terms. Quite obviously, the interaction would not work like *physical* interaction. But the challenge also makes an assumption that physical/physical interaction is not mysterious. In reality, physical/physical interaction—that is, causation—is not as simple or explicable as the materialist might want to believe, as Hume’s famous critiques of the notion demonstrate. So, it would be a simple error to expect the sort of causal connection between the mind and abstract entity to be explicable in comparable terms to mechanistic causation. As far as I can see, the only reason to assume the impossibility of such a causal connection is the presupposition of materialism.

Second, it is not required in scientific theorizing to explain *how* something is the case in order to be justified in claiming *that* it is the case. Consider the wave-particle duality of light. This is a well-established theory, and physicists are confident saying *that* it is the case without being able to say *how* it is the case. Furthermore, it will not do to fault dualism for not offering further explanation of the “how” with regard to mind/body interaction. All explanation has to come to an end at some point, with an appeal to brute facts. In defending dualism on this point,

⁶¹⁶ Ben Dupré, *50 Philosophy Ideas You Really Need to Know* (London: Quercus, 2007), 29-30, offers a particularly egregious example: “...the need for such interaction immediately casts doubt on the Cartesian picture. It is a basic scientific principle that a physical effect requires a physical cause, but by making mind and matter *essentially* different, Descartes appears to have made interaction impossible.”

Keith Yandell writes, “It is not at all clear, physicalist prejudices aside, why brute mental-physical or physical-mental connections should be objectionable because they are brute, whereas brute physical-physical connections are not objectionable.”⁶¹⁷ This isn’t to claim that an explanation of physical/non-physical interaction is impossible; rather, it is merely to claim that it is not a requirement for being justified in appealing to physical/non-physical interaction. In the same way, one can be justified in claiming *that* there is a connection with abstract entities without being able to explain *how* the connection obtains.

Lastly, supposing that physical/non-physical interaction is somehow more mysterious or complex, etc., if materialism has not already provided an adequate explanation of the phenomena in question—whether it is the apparent mind/body connection, or, in this case, logical knowledge—then one cannot object on the grounds that a materialistic metaphysics is more economical, simple, and tidy in comparison to an appeal to “mysterious”, “occult”, “eery”, “spooky” powers and entities. An appeal to Ockham’s razor is not warranted *if the phenomena has not already been explained adequately in simpler terms*.

Some might find the notion of non-physical “interaction” or causation unintelligible. Likewise in the case of the mind perceiving abstract objects. Those who claim as much should be taken at their word. If one cannot comprehend something, they cannot comprehend it. Opponents need not accuse those who claim to not share their intuitions of being liars. However, everyone would benefit by keeping in mind a point made by Graham Priest with regard to evaluating the intelligibility of a theory:

What is intelligible is not theory neutral. From the perspective of Newtonian science, it is incomprehensible how time can run at different rates for different observers; from the perspective of the Special Theory of Relativity, it is perfectly intelligible. To find the

⁶¹⁷ Keith Yandell, “A Defense of Dualism,” *Faith and Philosophy* 12, no. 4 (October 1995), 552.

unintelligible intelligible, one merely has to work one's way into the different theoretical framework.⁶¹⁸

Priest's point makes sense of why substance dualism is so easily dismissed as implausible by many philosophers, if not the vast majority of academic philosophers in North America, but so easily accepted by theistic philosophers. If one is in the habit of thinking of causation in *physicalistic* terms, then the notion of non-physical entities having causal effects on the physical is very strange indeed. But for theists, who believe in a supreme being that, according to classical theism, is the non-physical uncreated creator of the physical world, the notion of non-physical entities having causal effects on the physical world is built right into the worldview. Likewise, Priest's point explains why the argument from reason has gained a relatively wide acceptance within theistic circles in academic philosophy, whereas it has been almost entirely ignored outside those circles, with the exception of a scant few.

The Temporal Interaction Problem

Although a defense can be made for the notion of physical/non-physical causal interaction, there arises again the parallel, but distinct, problem of temporal/eternal interaction. Can sense be made of an eternal entity having causal powers in the temporal realm? Clearly this has import for classical theists who believe an eternal being, God, created the universe *ex nihilo*. If God is atemporal, and he created the temporal world, then atemporal causation would be possible. But if atemporal causation is impossible, then the notion of an eternal, creator God is necessarily false.

However this issue falls out with regard to theism, a distinction can be made with regard to personal and non-personal causes. The issue of causation with regard to an atemporal *personal*

⁶¹⁸ Priest, "The Closing of the Mind," 42.

being is distinct from that with regard to an atemporal *non-personal* entity. This same distinction could be made along the lines of *abstract* and *concrete* entities. A personal being like God would be a concrete object—even if eternal and non-physical. The number 2 would be *abstract*.

Laying my cards on the table, I find the notion of a concrete, atemporal personal being having causal powers much less of a conceptual problem than an abstract, atemporal entity having causal powers. In the first case, the personal being could *choose* to cause something. But in the case of an abstract entity, if it were both atemporal and causal *in the temporal realm* at the same time, it would presumably be eternally *causing* its effects because it would lack volition to cause at one time and not at another. This point seems to count in favour of conceiving of abstract entities as acausal.

Regarding the notion of an atemporal, personal being choosing to act, a critic could easily ask what it would mean to “choose” to act *outside* of time. This is a fair question. For my own part, I have trouble to make sense, that is, to conceive clearly and distinctly, of what it would be like to be an atemporal causal agent. My point, however, is not to argue for atemporal causation in either case, but merely to state the relative conceivability of the two distinct notions.

The claim that there are atemporal entities—e.g., an atemporal logical principle—is based in the perceived need for something that applies universally across time, or that transcends time. The paradigm examples are the normative standards of objective morality or the principles of logic and mathematics. The claim is that they are unchanging, true even in a possible world without time and space. If the arguments in chapter 3 in favour of necessary, eternal standards of logic are sound, there are atemporal entities. However, their mere existence does not in any way make sense of the notion of atemporal causation.

Thus, the above discussion has settled little. But, if the notion of atemporal, abstract entities having causal powers is dismissed, this merely shifts the ground of the argument. The argument from logical principles can still go forward by assuming that abstract entities are acausal.

Causal or Acausal? Moving Forward

The question of whether abstract entities are causal or acausal is a major sticking point for the argument from logical principles. Where it has especial importance is with regard to specifying what condition of materialism is supposedly violated by our having knowledge of the principles of logic, and by employing them in our rational inferences.

If abstract entities are non-physical and we have causal contact with them, then causal closure is violated and materialism is false. But if they are acausal, it is less clear what condition of materialism would be violated (assuming the materialist embraces a non-causal account of knowledge and justification). The anti-materialist needs to specify how the proposal of a non-causal connection with abstract entities (of the sort that realists already propose) violates materialism, and, to do that, the argument must either expand its definition of materialism to exclude the possibility of the sorts of proposals that realists make regarding how we can have knowledge of causally inert abstract entities, or it must demonstrate how such a proposal is opposed to materialism as already defined.

Whether or not abstract entities—in particular, logical principles and logical relations—are causal or acausal, the argument from logical principles can go forward, though it must address the qualifications offered above. If they are causal, then our knowledge of, or interaction with, logical principles would clearly violate causal closure. But, this creates for the anti-

materialist the major problem of making sense of the notion of a *causal*, but non-spatiotemporal abstract entity. Especially with regard to temporal/atemporal causation, this is a problem. Thus, the version of the argument that understand the principles of logic to be causal faces this hurdle.

If they are non-causal, the conflict with materialism is not so straightforward, but there are still possible problems for materialism. Our knowledge of acausal abstract entities would either violate *mechanism* (depending on how that condition is construed) or it would consist of a way of knowing that, if allowed by the materialist, would open pandora's box of epistemic powers and remove any grounds for the usual principled objections against dualism. How could a materialist, for instance, concede a non-causal way of knowing abstract entities while denying physical-mental interaction? Both are attempts to explain the phenomena, but the former proposal, as an attempt to save the overall metaphysical view, appears *ad hoc* with relation to all the other commitments of materialism. In the case of abstract entities being causally inert, it would appear that the most plausible view is that it is rational insight—the a priori insight into logical relations and logical principles in the course of a rational inference—that would falsify materialism, rather than some sort of causal interaction with the non-physical principles of logic. There are, however, also problems with the acausal view. In particular, the major problem for the acausal view is how we could have knowledge of causally effete objects. I address that objection in chapter 5.

Two Further Objections

There are two other objections that a materialist who is a realist about abstract entities⁶¹⁹ might raise at this point. First, whatever difficulties materialism has in accounting for our knowledge of abstract entities, any non-materialist metaphysics would have the same

⁶¹⁹ The materialist might, for instance, hold to immanent universals.

difficulties—or worse. This objection concedes that it is a problematic mystery how we know abstract entities, but claims that the mystery is not unique to materialism.

The second objection goes the opposite direction and piggy-backs on the explanation realists give for how we have knowledge of abstract entities. Rather than appealing to a non-causal account of how we know abstract entities, the materialist might appeal to an indirect causal account of the sort that some realists about universals propound. As the story goes, while abstract entities themselves are non-spatial, non-temporal, and non-causal, their *instances* are exemplified in spatiotemporal particulars, and those physical particulars, of course, can enter into causal relations.

Both of these matters will be taken up further in chapter 5.

Summary

In sum, the claim that materialism is inconsistent with the possibility of our having knowledge of abstract entities—specifically, the laws of logic—seems like the strongest premise in the overall argument. If the materialist wants to deny the claim, he is forced to either reject causal closure, which is tantamount to rejecting materialism; or to appeal to the sorts of direct, “mysterious,” non-causal ways of knowing that, in effect, are no different than the sorts of mental capacities, such as rational insight, that are proposed by rationalists. Those sorts of mental “powers” are anathema to materialism, traditionally, and that sort of appeal would seemingly remove the materialist’s grounds for objecting to all sorts of “mysterious” connections, such as physical/non-physical interaction, rational insight, and the like. In short, Menage appears to be correct in his conclusion that “there is in any case no credible way that the

brain, or any other material entity, could causally interact with logical truths (even if the latter are not causally inert and could causally interact with souls).”⁶²⁰

If all of the premises up until this point are true, it appears that Robert Koons is correct when he states that “if materialism is true, there is a lack of causal connection between the logical facts and our beliefs and practices.”⁶²¹ However, if this premise is indeed the strongest in the argument—that is, the one with which most materialists would agree—then it puts pressure on the materialist to deny the *nature* of logical principles, as they were characterized in chapter 3. Given the problems that materialistic explanations of logical knowledge face, forcing the materialist in that direction is a positive effect for the anti-materialist.

But it is not enough to claim that materialism entails that we do not have knowledge of logical principles *qua* abstract entities. The argument must also demonstrate that this consequence of materialism is a problem. The next section will look at the claim that knowledge of logical principles is essential to making justified rational inferences.

⁶²⁰ Menuge, “Knowledge of Abstracta,” 12.

⁶²¹ Koons, “Epistemological Objections to Materialism,” 295.

Part II: Knowledge of Logical Principles Is Essential for Justified Rational Inferences (Internalism)

Overview

The previous premises in the argument are now assumed at this point in the argument. Logical principles are objectively real. They are non-physical abstract entities. Materialism entails that we cannot have knowledge of abstract entities, by way of either causal closure (if they are causal) or something like mechanism (if they are acausal).

The next step in the argument is to say that logical principles play an essential role in rational inference. Roughly, the conscious awareness of logical principles that apply in the course of making a rational inference (for instance, one recognizes an *entailment* relation between premises and conclusion) *justifies* the acceptance of the conclusion. This is an internalist view of justification. In the overall argument, internalism is important because a strong externalist view of justification would undermine the supposedly essential role that our conscious awareness of logical principles play in the course of rational inference.

In this chapter I will start by discussing examples of this premise, and how proponents of the argument understand logical principles to play an essential role in rational inference. I will address two objections to this premise: an appeal to a strong externalist view of justification, and an appeal to evolutionary naturalism.

Internalism and Rational Inferences

The key premise now under discussion is the claim that logical principles play an essential role in rational inference and the role they play is essential for justified inferential beliefs. Without logical principles playing their (to be specified) role, rational inferences could not be justified.

Internalism is the view that “what justifies a belief – the ground of its justification – is something internal to the subject.”⁶²² Robert Audi defines ‘internal’ as “the (internally) *accessible*: that to which one has access by introspection or reflection, where introspection can be simply focusing on what is in consciousness and reflection can be as brief as considering a proposition.”⁶²³ We can apply this internalist view of justification specifically to the case of rational inference. Roughly, when one makes an inference, it would be the conscious awareness of a logical principle or relation that is relevant to a rational inference (for instance, one recognizes an *entailment* relation between the premises [*p*] and “If *p*, then *q*”] and conclusion [*q*] described by *modus ponens*) that *justifies* the acceptance of the conclusion. In other words, without our knowing and perceiving logical principles that apply to a rational inference (or logical relations between propositions⁶²⁴ in an inference), our rational inferences would never be justified (nor, for that matter, would they be properly labeled “rational”). According to the internalist view of justification, our conscious awareness of logical principles is essential to the justification of the beliefs we infer in accordance with them.

The requirement of internalist justification is most plausible when applied to the case of rational inferences. When one makes an inference—really, *what it is* to make an inference is—one consciously reflects on the premises and what *follows from* them. One focuses the conscious mind on determining the logical consequence of the premises. To take an all-too-common example (for me): If I am looking for my keys, I know they are either in my jacket pocket or my pants from the day before. I check my jacket pocket and they are not there. I infer that they must be in my pants. The thing that *appears* to justify my conclusion is my direct awareness that the conclusion logically *follows* from the premises. My experience is that I directly perceive (even if

⁶²² Audi, *Epistemology*, 238.

⁶²³ Ibid., 238.

⁶²⁴ The argument assumes the existence of propositions as abstract objects.

I am not conscious *of* perceiving it) the conclusion being entailed by the premises.⁶²⁵ “Rational inference,” Hasker writes, “...is the paradigmatic example of a situation in which the factors relevant to warrant *are* accessible to reflection; for this reason, examples based on rational insight have always formed the prime examples for internalist epistemologies.”⁶²⁶ Thus, internalism has a strong initial plausibility, especially with regard to rational inferences.

Inferred knowledge makes up most of our putative knowledge of the world.⁶²⁷ In mathematics and logic, we have been able to go far beyond anything we can grasp directly.⁶²⁸ In the disciplines of science and philosophy, the great mass of what we think we know or have discovered has been inferred. If our rational inferences are not justified, we do not have most of the knowledge we take ourselves to have. The consequence of (a) the assumption of internalism and (b) the fact that most of what we know depending on justified rational inference, is that one cannot reject that we have knowledge of logical laws without undermining most of human knowledge.

A key assumption that is being made here is that justification is required for knowledge. This is a justifiable assumption. The essential tie between justification and knowledge is widely accepted in epistemology. For example, Jaegwon Kim argues that without justification, there is no knowledge. “If justification drops out of epistemology,” he writes, “knowledge itself drops

⁶²⁵ Of course, in everyday experience, we don’t usually reflect self-consciously on the fact *that* we are making an inference. It is important to note that, on the internalist view of justification, the requirement is not that the rational agent is aware *that* they are aware of the principles of logic that are (seemingly) relevant to the inference. They need only be aware of the principle itself. They do not need to know that they know.

⁶²⁶ Hasker, *The Emergent Self*, 74.

⁶²⁷ Barwise and Etchemendy, in their popular logic textbook, write, “What do the fields of astronomy, economics, finance, law, mathematics, medicine, physics, and sociology have in common?...[T]hese fields all presuppose an underlying acceptance of basic principles of logic. For that matter, *all* rational inquiry depends on logic, on the ability of people to reason correctly most of the time, and, when they fail to reason, correctly, on the ability of others to point out the gaps in their reasoning.” Jon Barwise and John Etchemendy, *Language, Proof, and Logic* (Stanford: CSLI Publications, 2008), 1.

⁶²⁸ With regard to mathematics and logic, Willard writes, “Rational insight into the systems of logical rules allows reason to extend its reach far beyond anything that it can directly grasp in the manner of the simple cases.” Willard, “How Reason Can Survive the Modern University: The Moral Foundations of Rationality,” <http://www.dwillard.org/articles/printable.asp?artid=33>. Accessed August 4, 2016.

out of epistemology. For our concept of knowledge is inseparably tied to that of justification.”

But it should be noted, however, that this assumption is inconsistent with the “naturalized epistemology” of thinkers like Quine.⁶²⁹ Because naturalized epistemology is rejected on independent grounds in the argument,⁶³⁰ I don’t view this assumption as begging any questions.

Expressions of the Premise

Hasker explicitly affirms the premise in question when he writes, “For a person to be justified in accepting a conclusion, the reasoning process must be guided by rational insight on the basis of principles of sound inference.”⁶³¹ For him, the “principles of sound reasoning” (or “inference” or “rationality”) must play a role in the process of rational inference.

Speaking of the process of evaluating an argument of moderate complexity, Hasker writes, “The entire process makes no sense at all, except on the assumption that a person’s awareness of reasons and her knowledge and application of principles of rationality *makes a difference to the conclusions that are accepted*.”⁶³² Of course, as described earlier, he appears to think the role played by the principles of rationality is a *causal* one. He asks rhetorically of the evaluation process, “Are good reasons, and the principles of sound reasoning, allowed to be

⁶²⁹ For an introductory discussion of the issues surrounding “naturalistic” theories of knowledge, in particular, causal and reliabilist theories of knowledge, see Robert Audi’s *Epistemology*, 227-238. Audi points out that a causal theory doesn’t appeal to justification at all: “Perhaps we should consider a quite different approach. Must we appeal to the notion of justification to understand knowledge? Supposed we think of knowing as *registering truth*, somewhat as a thermometer registers temperature... Perhaps, then, knowledge can be analyzed *naturalistically*, that is, using only the kinds of concepts the sciences, especially the natural sciences, use in understanding things. This is not by appeal to value-laden notions like that of justification, but (largely) in terms of physical, chemical, biological, and psychological properties, together with causal relations.” Ibid., 227

⁶³⁰ See chapter 3 of this thesis, esp. “Psychologism.”

⁶³¹ Hasker, “The Transcendental Refutation of Determinism,” 181.

⁶³² Hasker, *The Emergent Self*, 73. Emphasis in original.

causally effective in determining the outcome of the assessment process?”⁶³³ He thinks they must be.

Reppert

Reppert explains the consequence of the laws of logic *not* playing a role in our inferences: “Laws of logic and their role in human thought provide another line of argument for explanatory dualism. Unless the laws of logic can figure in basic explanations, then in the last analysis we never do believe Q because we believe P, believe Q [sic⁶³⁴], and believe that P entails Q.”⁶³⁵ This is deeply counterintuitive. Reppert is arguing that, if logical laws do not play a role in our rational inferences, then it has never been the case that we have drawn a conclusion *because* we have seen that it followed from the premises. Such a consequence would destroy the notion of reasoning altogether. As previously quoted, Reppert writes, “If scientists and philosophers never reach conclusions on the basis of explicit reasoning in which the content of their beliefs and *the way in which they are logically connected plays a critical causal role* then it is the end, if not of the world, at least of those enterprises.”⁶³⁶ Such a consequence cannot be accepted.

Popper

The closest that Popper gets to a direct expression of this premise is at the outset of his chapter, where he summarizes Epicurus and Haldane’s respective versions of the argument, both of whom he claims to be following. He writes that “if our opinions are the result of something

⁶³³ Ibid. Emphasis added.

⁶³⁴ Reppert appears to have mistakenly added an extra premise. I’m assuming that he intended to express *modus ponens*. What he appears to have expressed instead is:

P

Q

If P then Q

Therefore, Q.

⁶³⁵ Reppert, *C. S. Lewis’s Dangerous Idea*, 94.

⁶³⁶ Reppert, “Causal Closure, Mechanism, and Rational Inference,” 480.

other than the free judgement of reason, or the weighing of reasons, of the pros and cons, then our opinions are not worth taking seriously.”⁶³⁷ Internal awareness of logical consequence, revealed by the “free judgement of reason” and the “weighing of reasons,” is essential for our opinions to be justified. But Popper also makes it clear that it is our awareness of logical principles specifically that justifies our determinations about the validity or invalidity of an inference. He writes, “...you need World 3 objects, such as standards of validity, which are *not* embodied or incarnated in World 1 objects: you need them to be able to appeal to the *validity of an inference*...”⁶³⁸ Given that Popper explicitly affirms that World 3 objects are causal, he clearly thinks that logical standards are somehow causally involved in the process of justified rational inferences.⁶³⁹

Mental Causation, Internalism, and the Argument from Reason

The issues dealt with in this premise are closely related to the well-worn ground surrounding mental causation, specifically, the problem of providing a *materialist* account of it, which is *prima facie* inextricable from any plausible account of human cognition. The problem of mental causation is acute with regard to rational inferences, and, as such, the challenge to materialism from mental causation is one of the most common versions of the argument from reason. Internalism, then, which involves irreducible internal mental relations, is *prima facie* a

⁶³⁷ Popper, *The Self and Its Brain*, 75. Emphasis added.

⁶³⁸ Ibid., 77. Emphasis in original.

⁶³⁹ Popper, when explaining why he believes that World 1 is not causally closed because of causal interaction between World 1 and World 3—in particular, referring to the interaction between Russell’s perceiving the objective, abstract logical relation of contradiction in the foundations of Frege’s *Grundgesetze*, and his subsequent writing of a letter expressing the logical relation—states, “It seems to me clear that this interaction is mediated by mental, and partly even conscious, World 2 events.” Popper, *The Self and Its Brain*, 57. The reference to “mental, partly even conscious, World 2 events” appears to be an expression of the view that the *perceiving* of the validity of an inference, etc., is a conscious, mental event; and this conscious perceiving has to play a role in the evaluation of the validity of an inference, etc. While Popper does not state as much in so many words, this description fits with internalism, that the conscious perception of the logical relation is required in order for the evaluation or inference to be justified.

problem for materialism, and expressions of internalism form the backbone of the argument from reason generally. The argument from logic, however, is distinct from the problem of mental causation, for the simple reason that the principles of logic are taken to be objective realities *external* to the agent.

Why Is This Premise Essential?

If externalism were true, then there would be no requirement for a conscious awareness of the logical relation between the premises and conclusion, or the conscious awareness of a relevant logical principle, in order for the conclusion drawn by rational inference to be justified. Thus, as long as the process of inference were to happen in a reliable way, or be caused in the right way, then the inference could be justified—wholly apart from any internal factors like a conscious awareness of the relevant logical principle.

Since the argument from logical principles *already concedes*, for sake of argument, consciousness, intentionality, and mental causation to the materialist, if strong externalism were true, there would be no need for our rational inferences to be related to logical principles in any sort of causal or non-causal way. Our rational inferences could provide us with knowledge as long as they were *consistent with* logical principles—in a similar way to how a properly functioning computer could be said to make “justified” inferences. This is precisely why Hasker stipulates that “in order for a process of reasoning to be a good one, the conclusion drawn must not only be *in accordance with* the evidence but it must be drawn *because* it is seen that the evidence supports it.”⁶⁴⁰ Without the condition that the conclusion must be drawn *because* it is seen that the evidence supports it, the “inferences” of a philosophical zombie, a computer, or a barstool could be understood as being *in accordance with* the evidence. Hasker is excluding

⁶⁴⁰ Hasker, “The Transcendental Refutation of Determinism,” 181. Emphasis in original.

externalism, and with it, he believes, the possibility of explaining rational inferences in a way consistent with materialism.

For the purposes of the argument from logical principles, the insistence is not that an internalist theory of justification is required for *all* forms of knowledge. For instance, an externalist theory of justification might account adequately for perceptual knowledge.⁶⁴¹ Rather, internalism need only apply to those beliefs arrived at via rational inference.

What Precisely Is the Role Being Played by Logical Principles in a Rational Inference?

Clearly an internalist view of justification is essential to the argument from logical principles. But the question remains, What exactly is the role played by the logical principles? How do they enter into the process of the rational inference?⁶⁴²

In short, the current versions of this argument leave a lot to be desired on this front. They all affirm *that* the principles of logic must play a role, but they do not clarify in any sort of detail what the precise ontological nature of the role played is.

With regard to the precise role that logical principles play, we are told that “knowledge of the rule (an abstract object) is **among the ingredients** of the act of inference”⁶⁴³; “knowledge

⁶⁴¹ To this end, Victor Reppert writes, “I can cheerfully concede that some beliefs can be justified even if the mental qua mental plays no role, perceptual beliefs for example. With respect to these beliefs I think some form of externalist theory of justification will do quite well.” “Causal Closure, Mechanism, and Rational Inference,” 479.

⁶⁴² There has been a lot of discussion in this chapter already about the divide among the philosophers who advance the argument as to whether or not abstract entities are causal. Popper and others (maybe Hasker and possibly Reppert) believe that the principles of logic are causally effective, and play a causal role. (Angus Menuge is open to a causal account of our knowledge of logical principles.) Others, like Lowe, Moreland, and Koons take them to be acausal. The explanation of the precise role that the logical principles themselves *qua* abstract entities play, and *how* they play the role they do in rational inferences, will depend on one’s view. (This is discussed in Chapter 5.)

⁶⁴³ Menuge, “Knowledge of Abstracta,” 23. In fairness to Menuge, he does expand his analysis of a rational inference and the role that one’s knowledge plays somewhat. He provides a fascinating argument for the claim that logical principles must be abstract objects: “When someone properly trained in logic carries out an inference by *modus ponens*, it is highly plausible that knowledge of the rule (an abstract object) is among the ingredients of the act of inference. If one learns that if A then B, and also learns that A, to see that B *follows* (and thus to correctly infer that B) requires one to see that inferring B is an instance of *modus ponens*. But rules of inference are abstract

and application of principles of rationality **makes a difference to the conclusions** that are accepted”⁶⁴⁴; “the way in which [beliefs] are logically connected **plays a critical causal role**”⁶⁴⁵; that “the reasoning process must be **guided** by rational insight **on the basis of principles** of sound inference; they are “causally **effective in determining the outcome** of the assessment process”⁶⁴⁶; we “need them to be able to appeal to the validity of an inference”; etc. We are given few, if any, details. We are more or less told *that* the principles play a role, rather than precisely *what* the role is, or *how* they play that role. There is a lot of heavy metaphysical work that could be done to fill in the blanks about the *precise* role of logical principles in the act of making a rational inference, the sort of work that has already been done by Edmund Husserl in his *Logical Investigations*.⁶⁴⁷

In sum, knowledge of the principles of logic is a necessary condition for our rational inferences to be justified, on the assumption of internalism. Additionally, their playing some sort of role (causal or non-causal), such as the subject being consciously aware of the conclusion following from the premises *according to* a principle of reasoning, is a necessary condition for our rational inferences to be justified, on the assumption of internalism.

objects, and one cannot see that something is an instance of such a rule without accessing that rule itself. If rules of inference are nonexistent, then it appears that one cannot know that one has correctly inferred a conclusion. For one knows that a conclusion follows only if one knows that the relation between the premises and the conclusion is an instance of a more general truth (the rule of inference) that one knows.” Ibid.

⁶⁴⁴ Hasker, *The Emergent Self*, 73.

⁶⁴⁵ Reppert, “Causal Closure, Mechanism, and Rational Inference,” 480.

⁶⁴⁶ Hasker, *The Emergent Self*, 73.

⁶⁴⁷ Although Husserl did not advance a brief, circumscribed “argument from logical principles,” his *Logical Investigations* is in effect one giant version of the argument, because he moves from the nature of logic to metaphysical conclusions, only he does so in excruciating detail. For a thorough discussion of Husserl’s work and its relevance to logic, see Willard’s *Logic and the Objectivity of Knowledge*.

Objection: Strong or “Pure” Externalism

Internalism, at least to some degree, about justification with regard to rational inferences is a solid position to hold in epistemology. The alternative to affirming this premise is strong externalism.

Externalism is the view that knowledge or justification is “grounded entirely in what is external to the mind, and hence [is] not internally accessible to the subject.”⁶⁴⁸ A *strong* externalism would be a pure or unrestricted externalism, meaning that knowledge and justification are not grounded, even in a partial way, on internal variables.

Regardless, because externalism is consistent with materialism, it provides a way out of the argument from logical principles for the materialist. If the knowledge we have through rational inferences can be explained by externalism—that is, if internalist justification of rational inferences was not necessary for us to have genuine inferential knowledge—then, there would be no essential role for the laws of logic to play in our inferences. Any beliefs that are the result of a rational inference could count as knowledge by merely being inferred *in accordance with* logical principles, rather than being inferred because they are *seen to be* in accordance with logical principles.

This would have the bizarre consequence that someone who did not have any knowledge of logical principles whatsoever could have unlimited knowledge gained through rational inferences. Note that, as I am using the phrase, someone could have knowledge of logical principles while (a) not being aware of their knowledge, and (b) not being able to articulate that knowledge, but they would still have to see how to apply the principle. For example, someone could be said to have knowledge of the law of non-contradiction if they are able to see two contradictory beliefs and recognize that one must be false. But, on strong externalism, if

⁶⁴⁸ Audi, *Epistemology*, 238.

someone had their inferred beliefs caused in accordance to the principles of logic, they would have knowledge—even if they couldn't consciously see how to properly apply these rules.

One particularly challenging problem for externalism is explaining how it is that we are able to discern valid and invalid arguments, or good reasoning from bad reasoning.⁶⁴⁹ By hypothesis, we cannot appeal to anything like an *a priori*, direct insight into the necessity of any logical principles. It would seem that we would have to seek to justify our inferential practices through empirical investigation. And yet, such investigation rests on logical principles that are taken for granted. Thus, externalism would seem to lead into a form of skepticism, where we could not know the principles of logic *as necessary* truths. It seems more reasonable that externalism is false than that we do not know the principles of logic as necessary truths.

Of course, this is not a knock-down drag-out argument against externalism, but, at the very least, it raises a key question that strong externalists would need to answer in defense of their theory.

Evolution as a Way Out?

Evolutionary theory is often brought into discussions in the philosophy of mind in the role of being an explanation for such-and-such feature of the mind. There are a few reasons that suggest, however tentatively, that evolutionary theory will not be helpful in explaining human reason.

First, in the context of the debate between materialism and its alternatives, appeals to evolutionary theory can be nothing more than thinly disguised circular reasoning. The reason is simple: evolutionary theory is usually defined in a strictly materialistic way, consistent with naturalistic conceptions of science. Richard Lewontin made this point well:

⁶⁴⁹ I have adapted this argument from Hasker, *The Emergent Self*, 75.

It is not that the methods and institutions of science somehow compel us to accept a material explanation of the phenomenal world, but, on the contrary, that we are forced by our *a priori* adherence to material causes to create an apparatus of investigation and a set of concepts that produce material explanations, no matter how counter-intuitive, no matter how mystifying to the uninitiated. Moreover, that materialism is an absolute, for we cannot allow a Divine Foot in the door.⁶⁵⁰

Clearly, the anti-materialist is not rationally obligated to submit to a definition of science that *a priori* defines his metaphysical position out of the realm of possibility. If a philosopher argues against a metaphysical position (e.g., substance dualism) by claiming that it is not compatible with evolutionary theory (in which materialism is presupposed), then this merely begs the question.⁶⁵¹

Second, evolutionary explanations will not likely be helpful in the present context for the reason that evolutionary theory, in principle, does not provide the type of explanation required. Nagel explains that, when it comes to human reason, we can make a distinction between the *historical* question (what is its origin?) and the *constitutive* question (what is it made of?).⁶⁵² The question at hand is not, Where did human reason come from? The question is, What does human reason consist of? Evolutionary theory isn't equipped (or even meant) to answer the constitutive question.

Lastly, most attempts to explain human reason using evolutionary models will try to explain human reason as an outgrowth of human language acquisition. But this has a number of problems. First, there is nothing even close to an evolutionary explanation for how human beings

⁶⁵⁰ Richard Lewontin, "Billions and Billions of Demons: A Review of Carl Sagan's 'The Demon-Haunted World: Science as a Candle in the Dark,'" *New York Review of Books*, 9 January 1997.

⁶⁵¹ See, for example, Peter Smith and O. R. Jones, "Difficulties for the Dualist," in *The Philosophy of Mind: An Introduction* (Cambridge: Cambridge University Press, 1986), 50-51.

⁶⁵² Nagel, *Mind and Cosmos*, ch. 4.

acquired the capacity for language.⁶⁵³ It remains a mystery. Second, language doesn't undergird logic. Logic undergirds language.⁶⁵⁴ (This is a point I discussed at length in Chapter 3.) Thus, human reason needs to be explained first, as something prior to, and more fundamental than, language.

These points are not meant to be read as criticisms of evolutionary theory being applied to philosophy of mind in any shape or form, but rather as criticisms of the notion that evolutionary theory can somehow displace metaphysics in answering metaphysical questions.

Transition to Next Chapter

Without this premise—the claim that knowledge of logical principles is essential for justified rational inferences (internalism)—one could allow that logical principles are abstract objects *and* that we cannot have knowledge of abstract objects, but that we still have knowledge through rational inferences (externalism). It is precisely because, according to this premise, that we *must* know the principles of logic in order to make justified rational inferences that the argument has force against materialism. If all of the premises are true up to this point, then we can conclude that, if materialism is true, none of our rational inferences are justified. In order to refute materialism (assuming the other premises are true), the argument needs to demonstrate that we have knowledge of logical principles. The next chapter will look at the claim that we do, in fact, have knowledge of logical principles.

⁶⁵³ See Mark D. Hauser, Charles Yang, Robert C. Berwick, Ian Tattersall, Michael J. Ryan, Jeffrey Watumull, Noam Chomsky and Richard C. Lewontin, "The Mystery of Language Evolution," *Frontiers in Psychology* (May 7, 2014) doi: 10.3389/fpsyg.2014.00401, accessed April 30, 2019, https://www.researchgate.net/publication/262537578_The_Mystery_of_Language_Evolution.

⁶⁵⁴ This is the main argument in Nagel, *The Last Word*, ch. 3.

V. Our Knowledge of the Principles of Logic

“...there is a real problem about how such a thing as reason is possible. How is it possible that creatures like ourselves, supplied with the contingent capacities of a biological species whose very existence appears to be radically accidental, should have access to universally valid methods of objective thought?”

-Thomas Nagel, *The Last Word*.

“This realist conception of logic raises many questions, among which I want to pinpoint only one: how logic can at once be independent of human cognition in the way that mathematics might be; and relevant to that cognition. The relevance of logic to cognition – or, at the very least, the human ability to think logically – seems indubitable. So any understanding of the metaphysical nature of logic will need also to allow for a clear relationship between logic and thought.”⁶⁵⁵

-Penelope Rush, “Logical Realism”

Overview

In this chapter, I will discuss the last key premise: “We know the principles of logic.” If this premise is affirmed—assuming the preceding premises are also all affirmed—then one must concede the conclusion, namely, that materialism is false, given the deductive structure of the argument as a whole. The denial of this premise, then, is equivalent to logical skepticism, of some form or another. A straightforward, bald logical skepticism would appear to be self-defeating—especially if argued for. But more subtle forms of logical skepticism have been proposed. For instance, the proposals of Ronald de Sousa in *Why Think?* and of Robert Nozick in *The Nature of Rationality* take for granted the indubitability and self-evident nature of the most basic principles of logic, but still deny that they are *necessary* truths. A discussion of logical skepticism, including its merits and its plausibility, form the first half of the chapter.

Even if we affirm that we do know the principles of logic, there is an objection the materialist can raise at this point: Accounting for our knowledge of abstract entities is a problem for *everyone*, and, therefore, the problem does not count uniquely against materialism. The anti-

⁶⁵⁵ Rush, “Logical Realism,” 13.

materialist, according to this objection, has just as many difficulties accounting for such putative knowledge as the materialist. Thus, the argument from logical principles is not successful in advancing a non-materialistic metaphysics, regardless of the problems the argument raises for materialism. This objection, as it turns out, parallels a major objection to epistemological *rationalism* with regard to *a priori* knowledge or justification of necessary facts or truths. The traditional rationalist explanation for how we have *a priori* knowledge or justification involves an appeal to *rational insight* or *intuition*. The discussion of this objection, with a focus on the traditional rationalist proposal of a capacity for rational insight, forms the second half of this chapter.

Part I: “We Know the Principles of Logic”

The last major premise of the argument from logical principles is simply: “We know the principles of logic.” We can simplify the argument—though without accurately preserving the overall structure—by consolidating the first four major premises into a single hypothetical statement, which is :

- (i) If materialism were true, we could not have knowledge of the principles of logic.

The addition of this last premise,

- (ii) We know the principles of logic.

forms, by *modus tollens*, a straightforward *refutation* of materialism.

Popper’s Odd Denial of the Premise

Oddly enough, as previously mentioned, Karl Popper, in making his argument from logical principles against materialism, *explicitly* excludes this premise. “I do not claim to have

refuted materialism,” he writes. “But I think that I have shown that materialism has no right to claim that it can be supported by rational argument – argument that is rational by logical principles.”⁶⁵⁶ Thus, he acknowledges that, had he included the claim that we know the principles of logic, his argument would take the form of a refutation of materialism.

Without repeating all that has been said on this point, Popper’s explicit exclusion of the claim that we know the principles of logic should strike the reader of his argument as odd since Popper tacitly agrees that we know the principles of logic by arguing that we can know *their essential nature* (not to mention his later claim, in the same book, that he had in fact refuted materialism!). Thus, there is a sense in which, although this premise is distinct from the others, that it is strongly implied by the arguments made for other premises. Unsurprisingly, Popper is the exception among the defenders of the argument from logical principles,⁶⁵⁷ all of whom affirm that we can know the principles of logic.

Clarification of the Premise

This premise has to be understood in light of the other key premises in the overall argument from logical principles. The premise cannot simply denote a general affirmation of our having knowledge of the principles of logic, whatever those happen to be. Both a subjectivist and an objectivist might affirm that we know the principles of logic while meaning very different things by “principles of logic”. In order for the overall argument to be valid, the meaning of “principles of logic” has to be the same in each premise. For this reason, the meaning of “principles of logic” in the current premise under discussion has to be specified to an appropriate degree based on the earlier key premises, which claim that logical principles are “objectively

⁶⁵⁶ Popper, *The Self and Its Brain*, 81.

⁶⁵⁷ As far as I have found, Popper is the exception among any philosophers who make *any* version of the argument from reason.

real” and, further, are “abstract entities”. Minimally, the definition must include all of the properties from which the conclusion that the principles of logic are abstract entities was inferred. So, the definition must include, for example, at least that the fundamental logical principles are (i) objective, (ii) necessary, (iii) eternal (atemporal), and (iv) normative.⁶⁵⁸ Again, in order for the overall argument to be valid, this premise must be referring to our having knowledge of the principles of logic *qua* objective, necessary, eternal, and normative principles, and, by implication, abstract entities. Most simply, then, the premise means, minimally, “We know the principles of logic *qua* abstract (non-physical) entities.”

It should also be noted what the premise is *not* saying. This premise is not making the claim that we know *all* the logical principles that do happen to exist, or even that we know a specific set. The precise content of the set of logical laws is controversial. Instead, this premise is making the claim that we know *at least one* principle of logic, and that it is the sort of principle described by the previous premises (i.e., objective, non-physical, abstract entity). For instance, Hilary Putnam claims that the minimal principle of contradiction—the principle that not every statement is both true and false—is an example of an “absolutely, unconditionally, truly, actually a priori truth,”⁶⁵⁹ a principle that is, as a fundamental logical law, *necessarily necessary*.⁶⁶⁰ If this claim is true—even if it is the only objective, non-physical, necessary, eternal principle of logic *qua* abstract entity—that would be enough for what is claimed in this premise. The advocate of the argument need only claim, like Robert Koons, lay claim to some “minimal logic, the common ground between classical and ‘deviant’ logicians.”⁶⁶¹

⁶⁵⁸ In keeping with the discussion of normativity in Chapter 3, the normativity of logical principles can be understood to be derivative normativity, not intrinsic.

⁶⁵⁹ Hilary Putnam, “There Is at Least One A Priori Truth,” in *Realism and Reason* (Cambridge: Cambridge University Press, 1983), 101. Quoted in Conant, “The Search for Logically Alien Thought,” 124.

⁶⁶⁰ Conant, “The Search for Logically Alien Thought,” 124.

⁶⁶¹ Koons, “Epistemological Objections to Materialism,” 295.

Lastly, the minimal set of principles of logic that we know—even if only one in number—are presumed to be taken from among the most basic *deductive* principles.

Logical Skepticism

The claim that we have positive knowledge of at least one (deductive) principle of logic has very strong support from philosophical *practice*. In the modern university, if a student takes only one philosophy course, chances are good it will be a course in logic, which will almost certainly cover the most basic deductive principles of logic, such as the law of non-contradiction, the law of identity, *modus ponens*, *modus tollens*, etc. From what does the instruction proceed if not the assumption that the principles can be both known and taught? Philosophers, in critiquing each others' work, point out errors in reasoning, a practice which only makes sense if there are principles of reasoning held in common.

And yet, the claim that we know the principles of logic, *in the sense clarified above*, is often denied. For simplicity, I am labelling any denial of this premise as a form of logical skepticism. The logical skeptic, in the sense that I am using it in this chapter, denies that we *know* the principles of logic, but does not necessarily deny that they objectively exist. In other words, the skeptic could allow for the possibility that realism about logical principles is true, but doubt or deny that we do, in fact, know them. Thus, the denial of this premise is not necessarily a denial of any of the other key premises in the argument.

There is, therefore, a distinction between logical *subjectivism* and logical *skepticism*. Logical subjectivism is the view that logical principles are not objective and not necessary (psychologism, formalism, and other objective theories of logical knowledge are ultimately subjective in this sense, because they deny the necessity of logical principles). We might “know”

the logical principles in one sense of the word, according to subjectivism, but their existence and nature is dependent on what we think or feel about them, or on the contingent structures or processes of the mind. Logical skepticism, on the other hand, is either the view that (i) we don't know them at present, but with the possibility left open that we could eventually come to know them (weak skepticism); or that (ii) we *can't* know them in principle (strong skepticism). If we assume the definition of "principles of logic" described in the section above ("Clarification of the Premise"), subjectivism automatically means not only that we don't know objective, necessary, eternal standards, but that we *can't* know them, because, according to subjectivism, they don't exist objectively, necessarily, or eternally. Thus, subjectivism entails *strong* logical skepticism with regard to the principles of logic *qua* objective, necessary eternal standards, but logical skepticism does not entail subjectivism, since (weak) logical skepticism allows for both the existence of objective standards and the possibility that we could know them. So a refutation of subjectivism is not necessarily a refutation of logical skepticism. All the same, the case against logical skepticism is very like the case against logical subjectivism, as will become clear below.

I will now present a few different forms of logical skepticism, and I will endeavour to show why logical skepticism, in whatever form, is not a plausible position, with a focus on the arguments given by advocates of the argument from logic, such as Nagel.

Descartes' Logical Skepticism

In order to make the case against logical skepticism, I will present some concrete examples of it. For that, I go first to one of the most famous examples in the history of philosophy, found in Descartes' *Meditations*. I will follow that with two contemporary examples,

the first from Ronald de Sousa in his book, *Why Think?: Evolution and the Rational Mind*, and the second from Robert Nozick in *The Nature of Rationality*.

Descartes' project at the outset of the *Meditations* was to determine which beliefs could be doubted in order to tear down all that is not absolutely certain and indubitable in order to find a firm foundation for knowledge. Aside from thinking it possible to doubt beliefs formed by way of our senses or our memories—which most people would readily allow—Descartes also thought it possible to doubt the basic truths of arithmetic, such as $2 + 3 = 5$, and, presumably, the basic truths of logic.⁶⁶² He raised the spectre of an “evil spirit”⁶⁶³ that could be deceiving him in causing him to hold (mistakenly) his confirmed and unshakeable belief that $2 + 3 = 5$. Likewise, the evil spirit could be deceiving us that *modus tollens* is a valid form of inference. Descartes did not argue that we can *conceive* of, for example, 2×4 being equal to something other than 8, but rather that, even though we cannot understand how it could possibly equal anything other than 8, God could have simply created things in such a way that we cannot understand this, even though, it is implied, he could have created things otherwise.⁶⁶⁴

⁶⁶² It seems clear from what he writes that Descartes thinks we can doubt the most basic of our beliefs—all those beliefs normally considered *a priori* or necessary (such as truths of geometry and arithmetic). He writes, “Or even—just as I judge now and again that other people are mistaken about things they believe they know with the greatest certitude—that I too should be similarly deceived whenever I add two and three, or count the sides of a square, or make a judgement about something even simpler, if anything simpler can be imagined?” Clearly it is implied that basic principles of logic would be in the pool of beliefs that can be doubted. René Descartes, *Meditations on First Philosophy: With Selections from the Objections and Replies*, translated by Michael Moriarty (Oxford: Oxford University Press, 2008), 15.

⁶⁶³ Ibid., 16.

⁶⁶⁴ See Descartes, “Sixth Objections and Replies,” in *Meditations on First Philosophy*, 207. Descartes writes, “Nor is there any need to ask how God could have made it true from all eternity that 2×4 does not equal 8: for I confess we cannot understand this. Yet, since for other reasons I rightly understand that there can be nothing in any category of being that does not depend on God, and that he could easily have created certain things in such a way that we human beings cannot understand that they could be otherwise than they are, it would be contrary to all reason to doubt what we do rightly understand, just because there is something here that we do not understand and that we are not aware of having to understand.” Ibid.

Nagel's Response to Descartes' Skepticism

Thomas Nagel discusses Descartes' skepticism at length in *The Last Word*. In particular, he discusses Descartes' (if only temporary) skepticism in the First Meditation about the most basic truths of arithmetic, geometry, and reason. Nagel thinks Descartes is wrong to even entertain the possibility of such skepticism because any skepticism about our reasoning *will rely on reasoning*. Nagel sums up the problem with Descartes' doubts, if they are applied to basic logical beliefs, this way: "However reasonable it may be to entertain doubts as to the validity of some of what one does under the heading of reasoning, such doubts cannot avoid involving some form of reasoning themselves..."⁶⁶⁵ Stating the same point a different way, Nagel points to how reliance on logic is inescapable: "There just isn't room for skepticism about basic logic, because there is no place to stand where we can formulate or think it without immediately contradicting ourselves by relying on it."⁶⁶⁶ Thus, according to Nagel, it is *impossible* to be truly skeptical about basic logic. The logical skeptic has placed himself in the incoherent position of standing on logical principles in order to reach high enough to attempt tearing them down. One can be skeptical about all other knowledge. Nagel is *not* claiming to have answered skepticism overall. But the attempt to be skeptical about the most basic logical knowledge is self-defeating in practice.

de Sousa and Nozick's Logical Skepticism

Nagel's argument, however, is not the end of the dispute. There is a rejoinder open to the logical skeptic at this point. According to Nagel's line of argument, it is incoherent to be skeptical about logic because the skepticism would need to be presented in a logical form in

⁶⁶⁵ Nagel, *The Last Word*, 61.

⁶⁶⁶ Ibid., 62.

order to be intelligible. “Certain forms of thought,” he writes, “can’t be intelligibly doubted because they force themselves into every attempt to think about anything.”⁶⁶⁷ Ronald de Sousa, who presents skeptical claims about logic in his book, *Why Think?*, actually agrees with Nagel’s conclusion that it is impossible to doubt the basic principles of logic. Both he and Nagel affirm that they are indubitable. And yet, all the same, de Sousa argues that we might not know the principles of logic *qua* necessary, eternal truths. Rather, logical “laws” might merely be contingent beliefs, *even though* we can’t think of them as anything but necessary and eternal. How could this be possible?

de Sousa’s skepticism, it turns out, is very close in form to that of Descartes’ in the First Meditation, only de Sousa has replaced Descartes’ “evil demon” with evolutionary development as the force that could possibly be deceiving us. Along these lines, he considers the “naturalistic speculation” that, similar to other norms, the “norms of rationality...also owe their existence and force to social or psychological *facts* that are not immune to counterexamples.”⁶⁶⁸ He addresses arguably the strongest rational norm of all, the law of non-contradiction, with the ostensible aim of demonstrating that even the most indubitable rational norm is possibly the result social or psychological facts “that are not immune to counterexamples.” His conclusion seemingly fits this purpose. He concludes that in the case of the law of non-contradiction, there is a merger between natural law and a normative rule: “it is because we *cannot* believe in a contradiction that we *ought not* hold a belief that implies one.”⁶⁶⁹ If his argument is successful, de Sousa will have derived an “ought” from an “is,” since, as de Sousa frames it, the (prescriptive) norm that we

⁶⁶⁷ Ibid.

⁶⁶⁸ Ronald de Sousa, *Why Think: Evolution and the Rational Mind*. Oxford: Oxford University Press, 2007), 140. As a side note, why would a counterexample disconfirm the universality (necessity) of a norm of rationality unless there were a *norm of rationality* that prescribes that a universal claim that has a counterexample is false (or not necessary)?

⁶⁶⁹ Ibid., 141.

ought not believe in a contradiction *follows from* the (descriptive) empirical psychological fact that we cannot believe in one.

Thus, de Sousa's argument depends on the premise that we *cannot* believe in a contradiction. de Sousa argues from the claim that we *cannot* believe in a contradiction to the conclusion that we *should* not.

Is It Possible for Someone to Believe an Explicit Contradiction?

The actual argument that de Sousa offers for this (very strong) conclusion is rather thin. He starts by allowing that people can hold two beliefs, *p* and *q*, that are *incompatible*. We would judge them to be irrational for doing so, but such irrationality is still possible. In contrast, de Sousa casts doubt on even the possibility of someone believing in an "explicit contradiction, *p* & *not-p*."⁶⁷⁰ (Aristotle, for one, appears to have agreed with de Sousa that one cannot believe in an explicit contradiction.⁶⁷¹) He concludes that "the law of noncontradiction seems to be a very curious norm: one so strong that it is *impossible to infringe it*."⁶⁷² He continues,

Should we infer that it is a *law of nature* that one can't believe (*p* & *not p*)? This would contradict the dogma that insists on the radical opposition between a natural law and a normative rule. Here it seems the two actually merge: it is because we *cannot* believe in a contradiction that we *ought not* hold a belief that implies one.⁶⁷³

Given the structure of his argument, it can be evaluated, at least initially, according to the degree of support he offers for the claim that one cannot believe in an explicit contradiction.

⁶⁷⁰ Ibid., 140. While he doesn't offer an unqualified affirmation, he gets as close as possible to concluding with the much stronger claim that one "*cannot* believe in a contradiction" and that it is "impossible" to infringe the law of non-contradiction.

⁶⁷¹ Graham Priest, *Doubt Truth Be a Liar* (Oxford: Clarendon Press, 2006), 9. See Aristotle *Metaphysics* 1005b35-1009a5, for one of Aristotle's discussions of the law of non-contradiction.

⁶⁷² de Sousa, *Why Think?*, 141.

⁶⁷³ Ibid.

He starts his case by asking a rhetorical question. “For what proof,” he writes, “could the critic possibly have that such a formulation [i.e., “p and not-p”] truly represents someone’s beliefs?”⁶⁷⁴ This point does carry some weight. For one, virtually no one, other than philosophers and mathematicians, would phrase a statement in the form “p and not p.” People don’t typically speak or write that way. For another, no one has omniscient access to what another *truly* believes. And yet, for all that, if we were asked to prove that someone believed something—say, that the world is flat—our evidence-gathering would be straightforward: we would adduce the actual speech or writings of someone who claims the world is flat. Likewise, if we wanted to prove that someone truly believed in an explicit contradiction, we would look for explicit claims that people make to that end. As it turns out, there do seem to be very straightforward examples.

Although anecdotal, I have talked with people—both university educated and not—who, when asked, will explicitly affirm the statement, “It is *true* that there is no truth.” While not strictly expressed in the form “*p & not-p*” (after all, natural language must be interpreted into its logically equivalent form), this statement can be interpreted as expressing the claim, “*p* (‘There is at least one truth’) and *not p* (‘It is not the case that there is at least one truth’).” Now, although one could quibble that this restatement finesses the original colloquial statement into a non-equivalent form, the restatement comes close enough, arguably, to at least support the plausibility that it is at least *possible* that someone believes an explicit contradiction, and not just that they believe “incompatible” or contrary beliefs.

But de Sousa need not look any further afield than other philosophers and logicians to find those who claim to believe in explicit contradictions. Hegel, for instance, believed—or at least contended that he believed—in true contradictions. Graham Priest summarizes Hegel’s belief in true contradictions this way:

⁶⁷⁴ Ibid., 140.

In his *Logic*, Hegel agreed with Kant that the antinomies, the arguments that end in contradiction, proceed by perfectly legitimate reasoning. However, he found no basis for ruling the applications of concepts with them to be illegitimate... Thus, according to Hegel, perfectly correct reasoning, using legitimate applications of certain concepts, leads to contradiction: the concepts are contradictory. And since a sound argument must have a true conclusion, there must be contradictions which are true. Moreover, according to Hegel, Kant's antinomies are just the tip of an iceberg. In fact, he held that all our concepts are contradictory... The only point that I wish to isolate and highlight is Hegel's contention that our concepts are contradictory, that there are true contradictions.⁶⁷⁵

Surely this would count, at least *prima facie*, as evidence for the claim that someone believes in an explicit contradiction of the form “p and not p.”

Further, Graham Priest, in discussing Aristotle's views on the law of non-contradiction, affirms unequivocally that he believes in contradictions. He writes,

After stating the LNC, Aristotle goes on, next, to argue that the LNC is the ‘firmest’ of all principles since no one can believe anything of the form $\alpha \wedge \neg\alpha$ (5^b22–27). This is, *prima facie*, a rather strange thing to say. After all, Aristotle takes up the challenge to defend the LNC precisely because some people appear to believe things of this form. And whether or not they did, **I certainly do**... Aristotle points out that what people say, they may not necessarily believe. This is quite true, but hardly sufficient to show that people such as I do not believe contradictions. People are not infallible about what they believe, but that someone sincerely asserts something (and is clear that what they assert is what they mean) is *very strong prima facie* evidence that they believe it. And someone who would fly in the face of this evidence had better have pretty good reasons.⁶⁷⁶ But de Sousa attempts to undercut even the possibility of there being legitimate evidence

that someone believes in an explicit contradiction. He writes, “It seems the very attribution of a direct contradiction such as $p \ \& \ not\text{-}p$ is itself incoherent.”⁶⁷⁷ It's not clear, however, what de Sousa means by this claim. Strictly speaking, the attribution itself—that is, the statement that expresses the attribution (“So-and-so believes ‘p and not p’”)—is not incoherent. The statement

⁶⁷⁵ Graham Priest, *In Contradiction* (Oxford: Clarendon Press, 2006), 3–4.

⁶⁷⁶ Priest, *Doubt Truth Be a Liar*, 9. Priest goes on to discuss a rejoinder by Aristotle that goes like this: “If someone believes $\alpha \wedge \neg\alpha$ then they believe α and they believe $\neg\alpha$; but if they believe $\neg\alpha$ then they don't believe α (believing in α and believing in $\neg\alpha$ are contraries). Hence it follows that they both believe and do not believe α —a violation of the LNC.” Ibid. Priest calls this a “hopeless argument” and claims it begs the question against those who say they believe in contradictions. Ibid.

⁶⁷⁷ de Sousa, *Why Think?*, 140.

is neither a contradiction nor incomprehensible, at least in the sense that one can read such a sentence in a logic textbook and understand what is being referred to. More significantly, though, if de Sousa protested that it is the explicit contradiction contained (in scare quotes) as an element in the attribution that makes the overall statement incoherent, since the contradiction cannot be given a comprehensible sense, then he would have to concede that the statement “So-and-so *cannot* believe ‘p and not p’”—a statement that de Sousa explicitly affirms—is likewise incoherent, for the same reason.⁶⁷⁸

In the interest of charitably interpreting de Sousa, I must raise a point in his defense. It may be the case that the people who affirm an explicitly self-contradictory statement do not fully comprehend what they are affirming. It is possible that the individual is affirming an explicitly self-contradictory statement *qua* their *expression* of intellectual assent to the content of the statement, but not affirming an explicitly self-contradictory statement *qua* the actual “belief-state” in their mind. In order to clarify the distinction, consider the example of someone who states, “I can think of a square circle, and I believe it is possible to draw one.” This person is affirming with his words that he believes in square-circles, but would we concede that he truly *believes* in square-circles in the sense that he could (a) picture a square-circle in his mind, or (b) comprehend (and affirm the existence of) the properties of such a figure? We would think, rather, that he is confused about what he is saying. It may be, in this sense, that de Sousa is correct in claiming that people cannot believe in a contradiction—not even a formidable philosopher like Hegel. But, in that case, the question that remains to be answered is, *Why* is it impossible for someone to believe in a contradiction? As will become clear below, the rationalist can make an appeal to our rational insight into the *necessary* character of reality to explain this

⁶⁷⁸ Furthermore, if de Sousa is correct that the attribution of belief in an explicit contradiction is incoherent, then it would seem to follow that the attribution of belief in *any* nonsense (e.g., “Roger believes that the colour blue is 56 kilograms”) would be “incoherent”.

fact; but de Sousa, as a naturalist, can make no such appeal. Indeed, he has reversed the order of explanation. His attempts to justify the (contingent?) fact that we cannot believe in a contradiction are meant as the explanation of our belief in the necessity (albeit only apparent necessity) of the law of non-contradiction.

Regardless, de Sousa's argument for the claim that no one can believe in a contradiction is fallacious. In support of the view that the attribution of belief in a contradiction is incoherent, de Sousa invokes the "principle of charity," advanced by both Quine and Davidson, that, on de Sousa's reading, "enjoins us from attributing directly contradictory beliefs."⁶⁷⁹ But the principle of charity is irrelevant here. If by the "principle of charity" one means "*never* attribute a belief in an explicit contradiction to someone," then that simply begs the question in this case, or amounts to nothing more than an appeal to authority. But if by the "principle of charity" one means "do your best, *given the evidence*, to interpret someone as following rational principles, unless you are forced, *given the evidence*, to attribute the belief in a contradiction to them," then the question is still open as to whether it is reasonable to attribute belief in a contradiction to someone.⁶⁸⁰

Lastly, de Sousa claims that attributing belief in a contradiction is comparable to affirming the occurrence of a miracle. It is subject to a version of Hume's challenge: it is not logically impossible that someone believes in a contradiction,⁶⁸¹ but "the alternative hypothesis

⁶⁷⁹ de Sousa, *Why Think?*, 141.

⁶⁸⁰ Also, de Sousa seems to interpret the principle of charity in a way that makes it a dogmatic declaration of *universal, empirical fact* (i.e., people do not believe explicit contradictions), rather than a general *norm* for reading the work of others. Even if we applied the principle universally, and never attributed belief in a contradiction, it would not follow that no one ever believes in a contradiction. It might be a norm of etiquette to never state that someone has bad breath, but it does not follow that no one ever has bad breath.

⁶⁸¹ This would seem to contradict his earlier point about attributing belief in a contradiction being "incoherent", if "incoherent" is understood to refer to what is logical impossible or nonsense (that which is not logically possible because no sense can be made of it).

will always be more plausible, that you have misinterpreted your interlocutor.”⁶⁸² Applying this reasoning *as stated*, without any further distinctions, would render otherwise legitimate philosophical criticism impossible. Simply put, even if we leave aside the question of whether people *believe* in contradictions, they *express* a belief in them all the time. For instance, as previously mentioned, Russell famously pointed out a self-contradiction in the foundations of Frege’s *Grundgesetze*. Would we say that Russell “misunderstood his interlocutor” and should have instead found a way to interpret Frege that did not invoke a contradiction?

In short, none of the reasons that de Sousa offers justifies his conclusion that one *cannot* believe in a contradiction. However, as I argued above, his claim is not entirely unreasonable, judged from a rationalist perspective. There does seem to be a plausible sense in which we might claim that it is impossible to believe in an explicit contradiction. But the rationalist explanation of *why* we cannot believe in an explicit contradiction is not open to de Sousa.

The Impossibility of Belief in a Contradiction Does Not Explain the Normativity of the Law of Non-Contradiction

Even if we grant de Sousa, for sake of argument, that it is, in fact, impossible for someone to believe in a contradiction, *and* that one can never rightly attribute belief in a contradiction, it would still not follow that “it is because we *cannot* believe in a contradiction that we *ought not* hold a belief that implies one.”⁶⁸³

First, de Sousa completely ignores the fact that, regardless of what anyone truly believes, people still *express* and *state* explicit contradictions.⁶⁸⁴ We can reasonably ask, then, whether the

⁶⁸² de Sousa, *Why Think?*, 141.

⁶⁸³ Ibid., 141.

⁶⁸⁴ A line from Ralph Waldo Emerson comes to mind: “A foolish consistency is the hobgoblin of little minds.” (“Self-Reliance”)

norms of rationality apply to sentences, statements, utterances, propositions, and the like, regardless of whether anyone believes them. It would seem they do. We still need to *correct* logical mistakes, as Karl Popper points out, not just in the speech and writing of other humans, but in computers also, and for that we need to refer to normative logical standards.⁶⁸⁵ But then the normativity of those standards in the case of adjudicating expressions and statements and sentences, etc., would need to be explained. Why shouldn't one *express* an explicit contradiction? At least intuitively, it would not make sense for Russell to have written to Frege with the admonition, "Gottlob, you *cannot* believe in a contradiction; therefore, you *should not* have expressed one in your *Grundgesetze*."

Second, de Sousa's claim could not possibly be verified empirically. No amount of empirical research could determine, with certainty, what people *can't* believe. In fact, it is difficult to understand this claim as other than a claim of *necessity*—that is, it is *necessarily* false that someone can believe in an explicit contradiction. But how could de Sousa have knowledge of such a claim? Again, the rationalist could appeal to the fact that we have insight into the necessary character of reality, but that option is not open to de Sousa.

"The radical opposition between a natural law and a normative rule."

de Sousa seems to be trying to make a case, albeit speculative, out of thin materials, and the argument he puts forward is clever owing to the sparseness of evidence. But he stretches the truth. There is no dogma about "radical opposition" between natural laws and normative rules. Rather, there is a widespread understanding, dogma or not, that holds that the two are radically *distinct*—they are different in *kind*. Being distinct and being opposed are very different concepts.

⁶⁸⁵ It would not be enough for Russell to have written back to Frege with the admonition, "Gottlob, you *cannot* believe in a contradiction; therefore, you *should not* have expressed one in your *Grundgesetze*."

Two things that are radically distinct can be in perfect harmony with regard to their operation. Opposition implies two things cannot be taken together. Distinctness refers to a difference in nature, but does not necessarily imply an opposition in nature.

Failure to make this distinction is what led J. B. S. Haldane to recant his own argument from reason. He apparently thought that something operating according to the laws of physics and chemistry could not operate according to the laws of logic, and vice versa. Because of his confusion on this point, upon the invention of the computer, he felt his argument had been disproved and no longer held any merit. (Popper's argument, of course, was inspired by Haldane's, but Popper explicitly acknowledges Haldane's confusion on this point.) Haldane had the mistaken understanding of the relationship between the laws of nature (physics and chemistry) that de Sousa criticizes ("the dogma...[of] the radical opposition between a natural law and a normative rule.") Although Haldane held to this mistaken view, it is a caricature or straw man of the position of thinkers like Popper and Nagel.

In contrast to "the dogma" that de Sousa attributes to a nameless group of thinkers, the proponents of the argument from logical principles would claim that the principles of logic and the laws of physics are radically *distinct*, and yet can work in harmony, for example, in the physical machinery of a computer. Popper points out that the functions of a computer are designed and built by a rational mind, and the interpretation of the computer's functions and outputs as being in accordance with the principles of logic is dependent on the rational mind of the interpreter reading that *meaning* (or intentionality) into the operations of the computer. That is, an advocate of the argument from logical principles like Popper would likely agree with John Searle that the computer has *derived* intentionality.

Both the advocates of the argument from logical principles and de Sousa would agree, then, that the principles of logic and the laws of nature are not *opposed*. However, the two would disagree on whether the principles of logic are a *result* of the laws of nature. de Sousa is speculatively proposing a sort of psychologism: “Here it seems that the two [i.e., natural law and norms of rationality] actually merge: it is because we *cannot* believe in a contradiction”—that is, the contingent constitution of our rational faculties makes it psychologically impossible to do otherwise—“that we *ought not* hold a belief that implies one.”

The “norm” contained in this merger—the “ought not”—is of a rather trivial sort. It is the “ought” and “ought not” of determinism, a norm that cannot possibly be contravened. It would be like saying the imperative “You ought to obey the law of gravity” is a meaningful *prescriptive* norm, when it is merely *descriptive*.

In contrast with de Sousa, advocates of the argument from logical principles maintain that the principles of logic and the laws of nature are *distinct* in kind—neither *opposed* nor *merged together*. The argument rejects both the “dogma” that de Sousa rightly disparages, and his proposal that the principles of logic could possibly be a product of natural law.

Nozick’s Claims

Even if de Sousa’s argument is invalid in its form, the assertion behind it is still in question: Is it the case that evolutionary processes have made the seemingly necessary laws of logic indubitable, but, in actual fact, they are merely contingent laws that appear self-evident to us because of how evolution has shaped the workings of our minds? Robert Nozick puts the question this way: “Shall we make a similar claim about the “self-evidence” of deductive rules of inference and of the principles of logic themselves [i.e., “that the apparent self-evidence of a

connection's holding...is no guarantee that it does hold"]? Are they necessary, or is all of traditional a priori knowledge to be swept into the evolutionary bin?"⁶⁸⁶ In other words, evolutionary theory drives a wedge between self-evidence and necessity, and we are left wondering if these self-evident principles are, in fact, necessary.

Logical realists—those who reject subjectivism about logic—typically point to the (putative) necessity of logical principles as entailing their existence as abstract entities, independent of human minds. But the evolutionary conception of the progressive mental development of our species creates, for Nozick, doubt about the necessity of logical principles. We might be misled by appearances imposed on us by evolution. Nozick elaborates: "To explain why [the principles of logic] seem self-evident to us, one need not invoke their necessity. It might be enough that they are true, even if only contingently, even just "true enough"—recall the example of Euclidean geometry—and that they have held true durably for long enough to leave an imprint upon our evolutionary endowment."⁶⁸⁷ We must leave aside the complete lack of detail in how our ancestors would have been shaped by natural selection to be incapable of doubting the law of non-contradiction. For sake of argument, we can assume that it is possible that evolutionary forces honed human thinking—not toward necessary, eternal logical standards—but to fixedly believe in the (possibly contingent) principle of non-contradiction.

Nozick's reasoning amounts to something like the following:

- (i) The contingent evolutionary development of our cognitive faculties has instilled in us the experience of logical principles being self-evident.
- (ii) We infer from their self-evidence that they are necessary.

⁶⁸⁶ Nozick, *The Nature of Rationality*, 110.

⁶⁸⁷ Ibid., 110-111.

(iii) But we *cannot* know whether our experience of the self-evidence of logical principles is ultimately grounded in (a) our contingent evolutionary development (with the assumption that, in this case, the principles themselves would be contingent, or “true enough”), or (b) their actually being necessary.

(iv) Therefore, we don’t know the principles of logic *as* necessary truths.⁶⁸⁸

Is there an answer to Nozick’s logical skepticism?⁶⁸⁹

The Positive Case for Knowledge of Logical Principles

The case against logical skepticism is more or less the same as the case against subjectivism: logical skepticism is self-defeating in practice. Skeptics must assume the laws of logic to argue for their position. They use the laws of logic to expose their opponents errors and contradictions.

Suppose two philosophers are debating logical skepticism. In carrying out their dispute, each will inevitably make appeals to *rules* or *standards* of argument that the other has broken. “That premise is *false!*” (And so the conclusion does not follow.) “You have made an *invalid* inference.” (And so the conclusion does not follow.) “There are other possible explanations.” (And so the conclusion does not follow necessarily.) And so on.

If one were to object to anything in this present argument I am making, one would need to appeal to some sort of rational norm that I have violated if they wished to undermine my argument rationally. Of course, one could attack the argument on non-rational or even *irrational*

⁶⁸⁸ Nozick gives approximately this argument when he writes, “We have suggested that the principles of logic do hold true—true enough anyway, and perhaps, for all we know, contingently—and that processes of evolution instill (not the truth of the principles of logic but) their seeming self-evidence. So there is no bar to assuming their truth in deriving the consequences of their being instilled as self-evident.” *Ibid.*, 111.

⁶⁸⁹ One of the most obvious criticisms which I do not cover is that it entails a form of species-wide relativism about logic.

grounds, but that would in no way demonstrate anything I've said to be false. If one wants to play the game that has getting at or discovering *truth* as its goal—if one wants to “do philosophy” and argue for the superiority of one view or theory over another—then one must submit to the rules of the game, namely, the standards of logic. To do otherwise is to concede that one is not playing the game and merely making a grab for power or dominance over another. Nietzsche drew the correct conclusion from false premises (and did so according to the principles of logic): if there is no objective truth, power is all that matters.⁶⁹⁰

A recent exchange I had illustrates well how a skeptic must assume the laws of logic to argue for their own position and use them to expose their opponent's errors. I attempted to defend the position that we have knowledge of objective, necessary principles of logic, and I pointed to the law of non-contradiction as being an example of just such a principle. An interlocutor dismissed this claim by pointing out the fact that there are all kinds of logical systems, some in which contradictions are true. The truth or falsity of the principle of non-contradiction depends on the “domain” that we are considering. I agreed that logicians create logical systems where, in the context of the system, the principle of non-contradiction is false. But I then asked, “Is the principle of non-contradiction true here and now, in this conversation, in which you are trying to accuse me of being in error?”⁶⁹¹ My question was meant to set up the following dilemma: if my interlocutor *denied* that the principle of non-contradiction is true (in the present “domain” or context), then I could maintain that my conclusions—which this individual was seeking to refute—are true. That is, since a contradiction could be true, there would be no grounds to say that my conclusion (i.e., the principle of non-contradiction is objective and necessary), which *contradicts* his claim (i.e., the principle of non-contradiction is

⁶⁹⁰ This is assuming that *at least something* matters if there is no objective truth.

⁶⁹¹ My interlocutor did not answer the question and changed the subject.

not objective and necessary), is false, since its being contradictory with his claim is no longer grounds for saying one of the contradictory claims must be false. They could *both* be true.

But, if my interlocutor *affirmed* the principle of non-contradiction in the context of our conversation, he would have to say that, in our conversation, in that domain, I am right and he is wrong.

Now, one might respond here by pointing out that my attempted dilemma *concedes* the skeptic's point because I was only asking for whether the principle was true in that specific context, thereby allowing the possibility that it is, in fact, false in other contexts (which would contradict my claim). But, leaving aside the fact that even this counterargument implicitly relies on the principle of non-contradiction, I could (and did) ask, "Is the principle of non-contradiction true or false *in the domain of all reality*, in the domain of all possible universes?" If we expand the domain we are speaking of to all reality, and not limit it to a system of logic (presumably a merely linguistic system, without metaphysical import⁶⁹²) in which a logician decides on which axioms to have in place as foundational, the same dilemma becomes binding. My interlocutor's skepticism about the principles of logic becomes self-contradictory *in the assertion*. The content of his assertion would contradict the implicit assumptions in his making the assertion. The content of his assertion—"The principle of non-contradiction is *not* objective and necessary"—contradicts the implicit assumption in his making the assertion—namely, that by *contradicting* my claim, he was showing my claim to be false presumably because contradictory claims must have opposing truth values.

⁶⁹² That is, I do not doubt that logicians can play around with axioms the same way mathematicians can play around with numbers *in ways that do not apply to reality*. One might create a fictional system of logic in which all contradictions are true without believing that that system of logic has any application in the world. The question I want to know the answer to is: On the basis of *what* principles of logic do logicians discuss their various (contradictory) logical systems?

Unless the skeptic is willing to submit to utter absurdity (and why—that is, on what grounds—would the skeptic object to anyone labelling his view an utter absurdity, as if his view was somehow logically coherent in contradistinction to its alternatives?), then he has to acknowledge that his claim, which is intended *to contradict, and so disprove* its contradictory (an intention that presupposes the principle of noncontradiction⁶⁹³), is self-contradictory in the assertion.

No doubt further objections can and will be raised to such points as the ones I've just made. I may be mistaken somewhere in my reasoning, as my interlocutor continually insisted I was. He is undoubtedly correct to a certain extent. I freely acknowledge my own ignorance on many topics, including logic. But, it remains that he was seeking to disprove my claim that we have knowledge of objective and necessary logical principles. To any argument he, or anyone else, might make, I simply ask, "On the basis of *what* logical principles am I in error? And are the logical principles that you are appealing to *objective* and *necessary*?"

Nagel's Case Against Logical Skepticism

One objection to the above reasoning is to say that it does not answer Nozick's argument. All the above reasoning demonstrates, one could argue, is that people assume the principles of logic in philosophical arguments. But Nozick *acknowledges* that both the skeptic and the realist are going to use the laws of logic *as if they are necessary*. That fact, however, that we use them as if they are necessary does not *entail* that they are, in reality, necessary. (We can be mistaken about such judgements.) There is still the possibility, Nozick believes, that our belief in the necessity of logic is merely the outcome of the contingent structure of our cognitive faculties that

⁶⁹³ Or, if one wants to quibble: More precisely, it presupposes that *this particular contradiction* cannot be true, not, strictly speaking, that *all* contradictions are false.

have been so shaped by evolution. It is as if Nozick is saying in response to the above arguments, “Yes, I cannot help but believe and use the principles of logic as if they are necessary—and neither can you—but that doesn’t mean they are.”

Nagel responds directly to the arguments of de Sousa and Nozick. The heart of his response to logical skepticism is his contention that, if he were to consider a principle of logic on the most basic level, *pace* de Sousa and Nozick, he “cannot come to consider it, even temporarily, as a mere appearance.”⁶⁹⁴ Nozick and de Sousa, of course, are suggesting precisely that the necessity of logical principles is a mere appearance—albeit, a very *strong* appearance (indubitable, even). Although Nagel acknowledges that various principles of logic are indubitable for some and not for others, it remains that a basic principle like contraposition (*modus tollens*) “has universal validity, and not just some local or perspectival variety.”⁶⁹⁵ Where thinkers like de Sousa and Nozick go wrong, according to Nagel, is they “think of reason as an abstraction from the contingent psychological phenomena of human reasoning,” but, Nagel argues, this is “to get things backward.”⁶⁹⁶ He explains,

The judgment that it is impossible or inconceivable that the premises of a proof be true and the conclusion false relies on our capacities and incapacities to conceive of different possibilities, but it is not a judgment about those capacities, and its object is not something that depends on them.⁶⁹⁷

This is the heart of the argument. To see the necessity of a basic principle of logic is not to see that you can’t not believe it. To understand the necessity of a logical entailment is to understand something wholly unrelated to one’s own psychological makeup. That is, the *content* of the understanding in the mind, at the moment of perceiving the necessity of a logical principle, does

⁶⁹⁴ Nagel, *The Last Word*, 56.

⁶⁹⁵ *Ibid.*, 56.

⁶⁹⁶ *Ibid.*, 56-57.

⁶⁹⁷ *Ibid.*, 57.

not include anything about human psychology. It is to see the necessity itself. So, when Nozick tries to make our judgment that “*p* and *not-p*” is necessarily false about our contingent psychology, he is not only getting it backward, he is changing the subject. Nagel illustrates this with a famous passage from Plato’s *Meno*. When Socrates is able to lead the boy to see that a square double the area of a given square is the square on the diagonal, not only is the argument persuasive, “we recognize the boy’s assent as the product of the argument’s validity, which he and we understand: There is no glimmer of explanation in the opposite direction.”⁶⁹⁸

There Is No Way to “Get Outside” Basic Logic

To see the problem with logical skepticism from a different angle, consider the following passage from Nozick:

We have suggested that the principles of logic do hold true—true enough anyway, and perhaps, for all we know, contingently—and that processes of evolution instill (not the truth of the principles of logic but) their seeming self-evidence. So there is no bar to assuming their truth in deriving the consequences of their being instilled as self-evident.⁶⁹⁹

Nozick is defending himself here from the charge of either circular reasoning or contradicting himself. He can assume the truth of logical principles in the course of reasoning to the conclusion that they are contingent, he says, because evolution has instilled their self-evidence, not their truth. (It shouldn’t be missed that Nozick is conceding that we might not even know that they’re true.) But the coherence of Nozick’s reasoning is not the important point.

Rather, the important point is that Nozick is assuming underlying logical principles that he thinks we all ought to accept. By stating that “there is no bar” in assuming the truth of the

⁶⁹⁸ Ibid., 57.

⁶⁹⁹ Nozick, *The Nature of Rationality*, 111.

logical principles, despite their being contingent, Nozick is absolving himself from having made any *logical error*. He is appealing to standards of logic or principles of reasoning that he does *not* question—that are *not* under review. It is as if Nozick is *talking about* one set of logical principles, the ones we can question and doubt, but *employing* another set, ones that he does not question or doubt for a moment.

This is where the logical skeptic will always shipwreck himself. He cannot “get outside,” as Nagel says, basic logical thoughts. There is always going to be some platform from which the skeptic argues he does not question, that is not subjected to skepticism. Nagel puts the point well when he writes,

Simple logical thoughts dominate all others and are dominated by none, because there is no intellectual position we can occupy from which it is possible to scrutinize those thoughts without presupposing them. That is why they are exempt from skepticism: They cannot be put into question by an imaginative process that essentially relies on them.⁷⁰⁰

Logical skepticism (in practice) is impossible, then. In other words, de Sousa and Nozick are relying on the very logical principles they are seeking to undercut. The fact that de Sousa and Nozick, by all appearances, think that their readers *ought to follow* where their arguments lead, not just where they think or feel they should go, is a further point in support of Nagel.⁷⁰¹

If Nagel is correct, then de Sousa and Nozick, and any other logical skeptic, cannot cast doubt on the most basic logical knowledge without launching their attacks from the solid ground of basic logical knowledge. Nagel offers an important qualifier, though. He acknowledges that

⁷⁰⁰ Nagel, *The Last Word*, 64.

⁷⁰¹ Perhaps, in response, a skeptic could demur that Nozick and de Sousa are advancing their arguments while assuming *necessary* logical principles. But they certainly seem to expect their readers to treat their arguments as if they are based on *universal*, normative principles—principles that prescribe how one ought to believe based on what they have argued. This motivation is implicit in their arguments. The simple fact that they are attempting to rebut the logical realist position held by thinkers like Nagel by attempting to demonstrate *logical* shortcomings and alternate possibilities, demonstrates their motives and reveals their assumptions. de Sousa and Nozick make their argument to convince their readers that their opponents have made mistakes in their reasoning.

“not all propositions we believe to be necessarily true have this status.” And yet, even though we might make a mistake in our judgement of necessity “due to a failure of logical or conceptual or theoretical imagination,” it remains the case that “to reach such a conclusion we must still rely on logic of a simpler kind, whose validity we regard as universal and not subjective.”⁷⁰² Thus, according to Nagel, the most basic logical knowledge is unassailable from any sort of naturalistic or evolutionary speculation. To that end, he writes:

To say that we cannot get outside [simple logical thoughts] means that the last word, with respect to such beliefs, belongs to the content of the thought itself rather than to anything that can be said about it. No further comments on its origin or psychological character can in any way qualify it, in particular not the comment that it is something I cannot help believing, or that it occupies a hierarchically dominant position in my system of beliefs. All that is secondary to the judgment itself.⁷⁰³

But, after all this, has Nagel actually refuted logical skepticism, or has he merely begged the question?

Epistemological Skepticism vs Logical Skepticism

Someone might object at this point that it is impossible to refute skepticism, since, at the end of the day, to argue against the skeptic is to presuppose the very things cast into doubt. Nagel, though, makes a distinction between *epistemological* skepticism and *logical* skepticism, and he makes it clear that he thinks one can, in fact, refute logical skepticism. First, he distinguishes logical from epistemological skepticism: “Impossible logical skepticism is different from the ordinary epistemological kind, because the latter depends on an unchallenged capacity

⁷⁰² Nagel, *The Last Word*, 65. This echoes his earlier point: “We can of course be mistaken in some of our judgments about what is and is not inconceivable. But such mistakes must be corrected at the same level at which they are made.” Ibid., 59.

⁷⁰³ Ibid., 64-65. Emphasis added.

to conceive of alternative possibilities and derive implications from them.”⁷⁰⁴ One might doubt that the external world is real, or that other minds exist, because alternative explanations (e.g., we’re all living in the *Matrix*) account equally well for all observable phenomena. But, in contrast, logical skepticism involves being skeptical of the very grounds on which one is basing one’s argument for skepticism.

The logical skeptic is trying to maintain that we cannot tell the difference between a world where logical principles are necessary, and logical principles are contingent. But this picture is incoherent. It undermines itself because logical principles, at their most basic level, *are* the very thing we are using to *compare* the two worlds and *judge* them (presumably on some normative standard) to be (a) *incompatible* (a logical relationship) but (b) *equally good* (a judgment that they are equally *consistent* with the evidence) (c) *possible* explanations of what we observe. In other words, the logical skeptic must rely on reason to even set up an alternative. Nagel writes, “The epistemological skeptic relies on reason to get us to a neutral point above the level of the thoughts that are the object of skepticism. The logical skeptic can offer no such external platform.”⁷⁰⁵ Again, the logical skeptic cannot help but presuppose the very standards he is denying.

Can the Skeptic Be Refuted?

Nagel, by all appearances, believes that logical skepticism can be refuted, and that it is not begging the question to say so. Victor Reppert disagrees. He argues that one cannot actually *refute* logical skepticism, since any attempted refutation would also presuppose the very principles of logic that are in question, and thereby beg the question. Laurence Bonjour, in a

⁷⁰⁴ Ibid., 64.

⁷⁰⁵ Ibid., 63.

different context, also does not think that the skeptic, in this case, the radical empiricist—a thinker who doubts that we can have direct, immediate *a priori* perception of logical laws (something that Nagel’s arguments require)—can be refuted. Bonjour writes,

One thing that is obvious at once is that radical empiricism is entirely impervious to any direct refutation. What, after all, is such an attempted refutation to appeal to? An appeal to *a priori* insight or argumentation would be obviously question-begging, while no appeal to direct experience seems to have any clear bearing on the possibility or impossibility of *a priori* justification. Thus the radical empiricist is in a relatively secure dialectical position, one from which he cannot be dislodged by any direct assault.⁷⁰⁶

Regardless of the outcome of the above arguments against logical skepticism, Reppert doesn’t think the fact that one cannot refute the logical skeptic matters in the context of the debate over the argument from reason: “Neither side can refute a skeptic about the basic principles of logic, but both must presume the legitimacy of those principles in order to argue at all.”⁷⁰⁷ In making his argument, Reppert states that if one claims to have rationally inferred one belief from another, then one demonstrates that one accepts the laws of logic.⁷⁰⁸ So, in one sense, Reppert is entirely agreed with Nagel: whether logical skepticism is impossible or not, if one is going to participate in the philosophical conversation, one must presuppose the basic principles of logic. In other words, it doesn’t matter whether logical skepticism can be refuted decisively, because the skeptics have, in Graham Priest’s words, “argued themselves out of the game.”⁷⁰⁹

⁷⁰⁶ Bonjour, *In Defense of Pure Reason*, 63.

⁷⁰⁷ Reppert, *C. S. Lewis’s Dangerous Idea*, 59-60.

⁷⁰⁸ Ibid., 81. He writes, “If one accepts the laws of logic, as one must if one claims to have rationally inferred one belief from another belief...”

⁷⁰⁹ Priest, “What Is Philosophy?,” 200.

The Importance of This Premise to the Overall Argument

This is the hard kernel of the argument from logic. Although a rejection of skepticism does not get one to the conclusion of the argument from logic, this is the premise, as I see it, that is the hardest to *plausibly* deny, since, as Nagel points out, the person who denies that logical principles are objective does so by relying on logical principles *that he tacitly takes to be objective*. If he did not consider the logical principles he was relying on in order to make his argument against the principles of logic being objective, then he would have to concede that his argument is not justified, and indeed that no argument can be justified, including any he might offer.⁷¹⁰

⁷¹⁰ This is assuming that the justification of beliefs reached by rational inference depends on logical principles being real and objective—the same for everyone regardless of what anyone thinks or feels about them.

Part II: How Can We Have Knowledge of the Principles of Logic qua Abstract Entities?

Overview

This section addresses the following objection to the claim that we have knowledge of abstract entities: Accounting for *how* we have knowledge of abstract entities is a problem for *everyone*, so there is no unique problem for materialism.

The rationalist in epistemology and the traditional realist about universals in metaphysics both have a response. The rationalist proposes *rational insight* as the explanation of how we have knowledge of necessary facts of reality; and the realist gives an account of exemplification of abstract universals in concrete particulars.

A Major Objection: Explaining Our Knowledge of Abstract Entities is a Problem for

Everyone

We are now at a point in the argument, if the arguments that have come before are successful (and that is a big “if”), that it has been settled that the laws of logic are necessary facts of reality (i.e., abstract entities), not merely analytic truths of a trivial or tautologous kind; that the laws of logic *must* play a role (unlikely a direct, *causal* role) in our rational inferences in order for our inferential beliefs to be justified; that materialism, seemingly by definition, excludes the possibility of our having knowledge of abstract entities; and that logical skepticism is false (or at the very least untenable and impossible to practice). In short, the assumption at this point in the argument is that the laws of logic are abstract entities *and* that we have knowledge of them, but that materialism would make that impossible.

If the last major premise—“We know the principles of logic (*qua* abstract entities)” —is affirmed, along with all of the others, then it follows that materialism is false. And yet, there is

an objection that the materialist can, and will, raise at this point. In fact, it is a major objection to the argument from logical principles as a whole.

The inevitable objection is that both the materialist and the anti-materialist have a problem explaining how we can have knowledge of abstract entities. Thus, accounting for our knowledge of abstract entities is a problem for *everyone*, and, therefore, does not count uniquely against materialism. The charge against materialism loses all force because the *same* problem faces any other metaphysical positions. If this objection is true, the overall argument, at best, points out a general problem in philosophy as a whole, but utterly fails as a critique of materialism.

This objection is, first of all, an admission by the materialist that there is no satisfactory materialistic explanation for our knowledge of abstract entities; and, secondly, it is an implicit admission that abstract entities exist and that we have knowledge of them.⁷¹¹ These are both significant concessions to make in the debate. But, more importantly, does this objection succeed in undermining the argument from logical principles? (And is it true that *no one* can provide an adequate positive account of our knowledge of abstract entities?)⁷¹²

The anti-materialist need only demonstrate that an alternative explanation is possible

The first problem with this objection is that it mischaracterizes the claims of the argument. The claim is not that it is a mere *problem* for materialism to explain how we have knowledge of logical principles *qua* abstract entities. The claim is that materialism makes such

⁷¹¹ Of course, the objection could be phrased as a hypothetical, but I will interpret the objection as being advanced by a realist about abstract entities.

⁷¹² The question of how to characterize the problem that supposedly faces the anti-materialist in giving an account of knowledge of abstract entities is not easy to answer if one does not also presuppose that the answer must be consistent with naturalism. Of course, *any* answer that is not naturalistic will be viewed as a problem for the naturalist. But, if one allows that a non-naturalistic answer is possible, what is the problem supposed to be for the anti-materialist? The objection becomes, then, just the general claim that no adequate non-physical account has been provided.

knowledge *impossible*. That is certainly a strong claim. But if that claim is granted, it is only necessary for the anti-materialist to show that such knowledge is *possible* in a non-materialistic universe.

Why such a low standard for the proponent of the argument from logical principles? The reason is that the argument, as it is presented in this thesis, is an almost entirely *negative*, anti-materialist argument that claims that materialism makes knowledge of abstract entities impossible. It does not seek to support a non-materialist alternative. As long as the one advancing the argument limits themselves to a strictly negative conclusion (i.e., materialism is false), then they need only show that such knowledge is *possible* in some other metaphysical worldview. Furthermore, it is consistent with other negative arguments in philosophy that an alternative positive account is not required in order for a negative argument to be sound. For example, one could reasonably reject Logical Positivism on account of its being straightforwardly self-defeating (i.e., how does one verify the verification principle?) without at the same time having a replacement view on hand.

Is knowledge of abstract entities possible in a non-materialist universe? If one grants all of the other premises in the argument, including that we can have knowledge of logical principles, then it is possible. By elimination, that would be the only option left on the table. Of course, if one could demonstrate the impossibility of there being knowledge of abstract entities in a non-materialist universe, (assuming the same impossibility was demonstrated with regard to a materialist universe), then we would be faced with something like a Kantian antinomy, a paradoxical situation with regard to our options. But in order for that to happen, the materialist would need to offer a non-question begging argument for the impossibility of such knowledge in a non-materialist world.

More to the point, if we assume the argument is sound, knowledge of abstract entities would not just be *possible* in a non-materialist universe, it would be *actual*. Since the argument, if sound, demonstrates that materialism does not describe reality, some other view of reality must be true. Moreover, since we can affirm *that* we have knowledge of logical principles without additionally explaining *how* we have knowledge of them, this would be as far as the defender of the argument would need to go, strictly speaking.

But even if the proponent of the argument from logical principles isn't strictly required to provide a positive account of our knowledge of abstract entities in order to be justified in drawing the purely negative conclusion that materialism is false, it is still a *reasonable* request for the materialist to make. And insofar as the argument from logical principles is aimed at a *positive* conclusion (an aspect of the argument that is not emphasized in this thesis), the defender of the argument most certainly owes an account of how we can have such knowledge in their chosen metaphysical view—especially if their conclusion is to be at all plausible. What remains to be shown, then, is a plausible or, at the very least, possible account of how we can have knowledge of abstract entities.

As it turns out, the charge that the anti-materialist is in no better position than the materialist to explain our knowledge of logical principles *qua* abstract entities touches on two perennial debates in the fields of metaphysics and epistemology (or perhaps it would be more accurate to say that these debates fall into the overlapping territory between metaphysics and epistemology, where metaphysics is understood to be the more fundamental of the two disciplines⁷¹³). First, it touches on the debate over whether we could have knowledge of universals, which is clash between *realism* and *nominalism*. Second, it touches on the debate

⁷¹³ I follow E. J. Lowe's conception of metaphysics as "a form of rational inquiry into the fundamental structure of reality." He defends what he calls the traditional view in his paper, "Metaphysical Knowledge."

over whether we could have non-trivial, “synthetic”⁷¹⁴ *a priori* knowledge of necessary facts of reality, which is the clash between *empiricism* and *rationalism*.

The rationalist regarding *a priori* knowledge has a response for how we can have knowledge of the necessary facts of reality. We have direct, immediate access through *rational insight*. According to Laurence Bonjour, this rational insight is a prerequisite for any knowledge whatsoever. It is the very condition of knowledge, so that a denial of rational insight is self-defeating.

The realist about universals has a response to how we can have knowledge of abstract entities, despite the fact that they are *acausal* and non-spatiotemporal. As J. P. Moreland explains, the universal is exemplified in its instances, and it is with these instances that we have interaction.⁷¹⁵ The important point here is just to acknowledge that this is one *possible* avenue down which the realist can go.

Both of these debates, of course, are much more involved. But it suffices to say that the realist about abstract entities and rationalist about *a priori* knowledge have answers for how we can have knowledge of the principles of logic *qua* abstract entities or *qua* necessary facts of reality. So, while the plausibility and adequacy of these answers need to be evaluated on their merits, it is not true to claim that the anti-materialist has *no* explanation for how we can know the principles of logic. I will now proceed to evaluate the rationalist proposal of rational insight as a possible explanation of our logical knowledge. (I will address the traditional realist proposal only very briefly at the end of this section.)

⁷¹⁴ If one accepts the distinction between synthetic and analytic.

⁷¹⁵ See Moreland, *Universals*.

Rational Insight: A Possible Answer to the Objection

There is a traditional answer as to *how* our minds access necessary, eternal, and abstract principles of logic, and something like this answer goes back at least to Plato. According to the traditional view, our mind has the capacity for direct, immediate access to necessary truths and necessary facts of reality. Logical principles, of course, are paradigmatic examples of necessary truths. Plato called the source of this capacity the “mind’s eye.” In contemporary philosophy, it is more commonly termed the “faculty of rational *insight*” or “rational *intuition*.”

Rational insight—whether or not it exists—is a major dividing point in the debate between empiricists and rationalists in the discipline of epistemology. *Empiricism* holds, roughly, that all of our knowledge is from experience, or, if we do happen to have *a priori* knowledge or justification—that is, knowledge or justification that does *not* depend on experience—it is of a trivial, tautologous, definitional, or “analytic” nature. No such thing like rational insight exists. According to *rationalism*, as defined by the rationalist Laurence BonJour, “*a priori* justification occurs when the mind directly or intuitively sees or grasps or apprehends (or perhaps merely seems to itself to see or grasp or apprehend) a necessary fact about the nature or structure of reality.”⁷¹⁶ This is in direct contrast to empiricism because, on rationalism, “*a priori* justification and knowledge genuinely exist and are not confined to claims that are in any useful sense merely conceptual or linguistic or ‘analytic’ in character.”⁷¹⁷ This direct, immediate or intuitive grasping or apprehending or seeing is, of course, the rational insight in question. The debate between *empiricism* and *rationalism* can be boiled down to a debate over the capacity for

⁷¹⁶ BonJour, *In Defense of Pure Reason*, 15-16. Elsewhere BonJour gives an almost identical definition: “According to *rationalism*, a priori justification occurs when the mind directly or intuitively discerns or grasps or apprehends a necessary fact about the nature or structure of reality.” Laurence BonJour, “A Rationalist Manifesto,” *Canadian Journal of Philosophy* 22 (1992), 56.

⁷¹⁷ Laurence BonJour, “Against Naturalized Epistemology,” *Midwest Studies in Philosophy* 19, no. 1 (September 1994), 283. According to this definition of rationalism, *a priori* knowledge is that which is grasped directly by the mind, *and* whatever other conditions besides justification (e.g., Gettier conditions) are met.

rational insight, with the empiricists denying that such a faculty exists, and the rationalists insisting that it does.

This purported faculty is widely disparaged at present, which is partly explained by the fact that *empiricism* has become dominant in the most recent period of the history of philosophy. Beginning with the influence of the great empiricists, Locke, Berkeley, Hume, and, arguably, Kant,⁷¹⁸ and aided by the more recent rise of materialism and naturalism, the faculty of rational insight has fallen on hard times. As discussed in Chapter 3, alternative explanations for how we have *a priori* knowledge (e.g., knowledge of logical principles) are motivated by metaphysical considerations. For example, R. W. Ashby writes, “The effect, and in many cases the intention, of linguistic theories of the *a priori* has been to repudiate rationalistic conceptions of *a priori* knowledge—in particular, the notion that this kind of knowledge is the product of intellectual intuition or insight.”⁷¹⁹

More to the present point, though, *if* the capacity for rational insight can be defended, then the major objection raised above—namely, the charge that explaining *how* we can know the principles of logic *qua* abstract entities is a problem for everyone—is at least partially answered.⁷²⁰

⁷¹⁸ BonJour, “A Rationalist Manifesto,” 58-63, makes a compelling case that Kant was an empiricist, based on Kant’s descriptions of the nature of synthetic *a priori* truth. Robert Nozick, *The Nature of Rationality*, 112, agrees.

⁷¹⁹ Ashby, “Linguistic Theory of the A Priori,” 479.

⁷²⁰ I say “partially” because, as I will discuss below, a common objection to the notion of rational insight is that it is nothing more than a *label* for the mystery of *how* we do, in fact, have *a priori* justification and knowledge. There are, however, more substantive theories seeking to explain how we have such knowledge that go beyond the mere proposal of a faculty of rational insight. BonJour and Husserl, for example, go further than merely defending the existence of rational insight, and posit theories of our knowledge of abstract entities. (I will discuss their theories below.)

What is rational insight?

Before going on to arguments for and against rational insight, I must first define it.

Laurence Bonjour describes rational insight, most simply, as “a direct insight into the necessary character of reality.”⁷²¹ It is the direct or intuitive *seeing* or *grasping* or *apprehending* of “a necessary fact about the nature or structure of reality.”⁷²² It is important to note that Bonjour characterizes rational insight as a direct insight into *reality itself*, or reality *an sich*, in Kant’s terms. Furthermore, rational insight is “allegedly direct and unmediated, incapable of being reduced to or explained by any rational or cognitive process of a more basic sort – since any such explanation would tacitly presuppose apprehensions of this very same kind.”⁷²³

Paul Boghossian, a moderate empiricist, characterizes the power of rational insight from a slightly different angle. “We are equipped,” he writes, “with a special evidence-gathering faculty of *intuition*, distinct from the standard five senses, which allows us to arrive at justified beliefs about the necessary properties of the world. By exercising this faculty, we are able to know a priori such truths as those of mathematics and logic.”⁷²⁴ Boghossian’s reference to the “faculty” of rational insight follows common usage, but this label has the potential to be deeply misleading with regard to the rationalist view.

Rationalists believe that there is a *capacity* of the mind, or what Angus Menuge calls a “power of the soul,” to perceive necessary truths via direct, unmediated insight. But to describe this capacity as arising from a (contentious, disputed) “faculty” frames the debate inaccurately.⁷²⁵

In the context of the debate, the term implies that both sides view the human mind as having

⁷²¹ Bonjour, *In Defense of Pure Reason*, 107.

⁷²² Ibid., 15-16.

⁷²³ Ibid., 16.

⁷²⁴ Boghossian, “Analyticity,” 334. Emphasis in the original.

⁷²⁵ It might be added that it appears to carry with it negative connotations, or perhaps even, in some cases, to function rhetorically as a term of disparagement, somewhat like Dennett’s “Cartesian theatre,” which is a misleading distraction in the debate surrounding consciousness.

roughly the same overall constitution, but are in dispute over whether to include an *additional part* of the mind, as if there were some extra feature that the rationalist wanted to tack on.

However, for the rationalist, rational insight is the *ground* or *foundation* of all rational thought.

BonJour writes, “According to the rationalist, the capacity for such direct intellectual insight into necessity is the fundamental requirement for reasoning and reflective intelligence generally.”⁷²⁶

Take away rational insight and you take away the rational mind, which is to leave no mind at all.

For the rationalist, the faculty of rational insight is none other than the faculty of *reason* itself.

Thus, the dispute is not over the extent or *number* of the mind’s capacities; the dispute is over the very *nature* of the mind.

Based on this discussion, we can isolate several key elements of rational insight:

- (i) It is *direct* and *unmediated* insight
- (ii) into *necessary* facts about the nature or structure of reality, and
- (iii) it is the foundation of rationality. It has foundational authority, it is presupposed in any attempt to explain the rational operation of the mind, and you can’t “get behind” it.
- (iv) Without rational insight, reasoning would be impossible. It is “the fundamental requirement for reasoning and reflective intelligence generally.”⁷²⁷

Rational insight plays an essential role in the argument from logical principles

Because it provides a possible explanation of how we have knowledge of basic logical principles, the *concept* of rational insight is important for the argument from logical principles.

But rational insight *itself*, if the argument is correct, plays a crucial role in rational inference. As most versions of the argument emphasize, the rational agent must *perceive* the principles of logic

⁷²⁶ BonJour, *In Defense of Pure Reason*, 16.

⁷²⁷ Ibid., 16.

that are relevant to a given rational inference in order for any inferred beliefs to be justified.

William Hasker puts it this way:

It is clear, when we consider the matter, that rational thinking must be *guided by rational insight* in the light of principles of sound reasoning. That is to say, one must “see,” rationally, that the conclusion is justified by the evidence—and one is helped to see this by principles of reasoning, such as the laws of inductive and deductive logic and the like.⁷²⁸

So, according to Hasker, rational insight is essential to rational inference, and, thus, it is also essential to the argument from logical principles. With regard to specific versions of the argument, no one emphasizes or relies on rational insight more than Thomas Nagel. Rational insight, it turns out, is the main focus of his argument.

Nagel’s Characterization of “Reason”

For Nagel, reason is something that requires explanation. In chapter 4 of *Mind and Cosmos*, he argues that materialism *cannot* explain it. But what is reason, for Nagel? The term ‘reason’, in Nagel’s usage, is largely synonymous with *rational insight*. Nagel asks, “What is the faculty that enables us to escape from the world of appearance presented by our prereflective innate dispositions, into the world of objective reality?”⁷²⁹ His answer: reason.

While Nagel’s conception of reason is probably not strictly synonymous with rational insight, all of his descriptions of the faculty make it synonymous with rational insight. The *perception* or *grasp* of logical principles is its main function, and while there are, arguably, additional functions of human reason beyond rational insight, Nagel does not acknowledge any.

⁷²⁸ William Hasker, *Metaphysics: Constructing a World View* (Downers Grove: Inter-Varsity, 1983), 47. Quoted in Moreland, *Scaling the Secular City*, 94. Emphasis in the original.

⁷²⁹ Nagel, *Mind and Cosmos*, 81.

Instead, Nagel describes reason in ways that are perfectly consistent with BonJour's characterization of rational insight.

Reason connects us with the truth directly, immediately

Nagel argues that our reliance on reason is non-inferential, or direct and immediate. When we rely on our reason, "the reliance is immediate,"⁷³⁰ similar to our reliance on the different forms of sense perception. But, unlike our immediate reliance on, say, vision, "in a case of reasoning, if it is basic enough, the only thing to think is that I have grasped the truth directly."⁷³¹ He is, of course, thinking specifically of *logical* truths. He writes that "logical judgments of consistency and inconsistency have to occur...as direct apprehensions of the truth."⁷³² For example, he writes, "I see that the contradictory beliefs cannot all be true, and I see it simply because it is the case. I grasp it directly."⁷³³ This is *the* salient capacity of reason, according to Nagel: "The distinctive thing about reason is that it connects us with truth directly."⁷³⁴ The capacity to "grasp the truth directly" is, of course, one of the key features of rational insight.

Reason connects us with the necessary character of reality

Not only does Nagel believe reason connects us to the truth directly, but he also believes it connects us directly to necessary truths, or, perhaps more accurately, with the necessary character of reality. "We reject a contradiction," he writes, "just because we see that it is

⁷³⁰ Ibid., 80.

⁷³¹ Ibid.

⁷³² Ibid.

⁷³³ Ibid., 83.

⁷³⁴ Ibid., 82.

impossible, and we accept a logical entailment just because we see that it is necessarily true.”⁷³⁵

It is clear that Nagel does not have in mind anything like merely analytic truths. He writes, “...when we reason, we are like a mechanism that can see that the algorithm it follows is truth-preserving. Something has happened that has gotten our minds into *immediate contact with the rational order* of the universe.”⁷³⁶ Now, it shouldn’t be supposed that Nagel means that the contact is either (a) physical or (b) causal; rather, he means we have immediate *insight*—insight into the “rational order of the universe,” which is the “necessary character of reality” to which rational insight gives us access. Our minds are, through reason, in contact with the way the world *really* is, with reality as it is in itself.

Reason has foundational authority

Given these characteristics of reason—understood as the capacity for rational insight into the rational order of the universe—Nagel recognizes reason as the final authority in our thinking. In his words, reason has “completely general validity,”⁷³⁷ and “critical authority.” It is “not subject to correction by anything else”, and has “sovereignty over older instincts.”⁷³⁸ Reason, the faculty that provides rational insight into the logical principles on which our reasoning is based, has foundational authority. Because such insight is direct and unmediated, it cannot be based on anything else. The “immediate contact with the rational order of the universe” forms, according to Nagel, a “hard core of self-evidence, on which all less certain reasoning depends.”⁷³⁹ Indeed,

⁷³⁵ Ibid., 83.

⁷³⁶ Ibid.

⁷³⁷ Ibid., 81.

⁷³⁸ Ibid., 82.

⁷³⁹ Ibid., 83.

this gives it, as he alludes to in the title of an earlier book, the last word. “In the criticism and correction of reasoning,” Nagel writes, “the final court of appeal is always reason itself.”⁷⁴⁰

The underlying structure of Nagel’s argument in *Mind and Cosmos* becomes more clear once one sees that he is using *reason* and *rational insight* almost synonymously. Nagel is articulating classical rationalism, and he believes that rational insight into necessary facts of reality is incompatible with materialism. It amounts to a “constitutive” problem for materialism, since what *reason* (or rational insight) is constituted of will be incompatible with a materialist ontology.⁷⁴¹ J. P. Moreland offers a succinct summary of the problem for materialism: “If physicalism is true, it is hard to make sense of this form of seeing [i.e., rational insight]. What sort of property of matter could one hold to which would enable matter to see in the sense of rational insight? Whatever property the physicalist comes up with, one suspects it would be an old-fashioned mental property by another name.”⁷⁴²

The argument from logical principles can be construed either, on the one hand, as assuming rationalism (by assuming the existence of rational insight); *or*, it can be construed, on the other hand, as being an argument for rationalism. Either way, the argument from logical principles is inextricably tied to rationalism, and, as such, functions as a direct or indirect argument against empiricism.

Arguments for Rational Insight

There is a single, overarching claim made for rational insight that is the primary consideration in its favour. BonJour summarizes this claim when he writes that rational insight is

⁷⁴⁰ Ibid.

⁷⁴¹ Lewis also points to the difficulty for the materialist of answering the constitutive problem of human reason: “This imposes on [the materialist] the very embarrassing task of trying to show how the evolutionary product which he has described could also be a power of ‘seeing’ truths.”

⁷⁴² Moreland, *Scaling the Secular City*, 94.

“the fundamental requirement for reasoning and reflective intelligence generally.”⁷⁴³ In other words, without rational insight, reasoning would be impossible. It is on the basis of our *a priori* insight into necessary facts of reality (e.g., logical relations, logical principles) that we are able to reason at all. It is this direct, immediate insight into the fundamental laws of thinking that allow for cognition in the first place.

Nagel makes this argument for rational insight succinctly: “The process [of reasoning] is highly fallible, but it could not even be attempted without this hard core of self-evidence, on which all less certain reasoning depends. In the criticism and correction of reasoning, the final court of appeal is always reason itself.”⁷⁴⁴ As C. S. Lewis states, “If nothing is self-evident, nothing can be proved.”⁷⁴⁵ Rational insight gives us the “hard core of self-evidence.”

Nagel gives further expression to this when he writes, “Eventually the attempt to understand oneself in evolutionary, naturalistic terms must bottom out in something that is grasped as *valid in itself*—something without which the evolutionary understanding would not be possible.”⁷⁴⁶ It is rational insight that allows us to see to the rational bedrock. This argument is something like an argument from the indispensability of rational insight.

Arguably, every rational person, with a functioning intellect, has this rational insight. We don’t need to understand rational insight in order to have it.⁷⁴⁷ But we need rational insight in order to reason.

⁷⁴³ BonJour, *In Defense of Pure Reason*, 15-16.

⁷⁴⁴ Nagel, *Mind and Cosmos*, 83.

⁷⁴⁵ C. S. Lewis, *Abolition of Man*, in *The Complete C. S. Lewis Signature Classics* (New York: HarperCollins, 2002), 479.

⁷⁴⁶ Nagel, *Mind and Cosmos*, 81. Emphasis added.

⁷⁴⁷ Dallas Willard, “Degradation of Logical Form,” 33, makes this point well: “In approaching the issue of the nature of logical form we note that there is something which we might call “pre-logical insight” into simple cases of logical relations. That is, it is possible for straightforward thinking to discover the presence or absence of such relations – to know, for example, that if a certain proposition is true a certain other one must be true (or false) – without knowing what logical relations are *in general*, and without knowing anything about logical form as such.”

BonJour's Argument for Rational Insight: "Intellectual Suicide"

BonJour argues at length for rational insight in his book, *In Defense of Pure Reason*. In a summary of that book, he lays out a brief outline of two arguments for the existence of rational insight. Because the latter argument is a "generalized version" of the first, and applies specifically to reasoning, I will only address the second.

BonJour's second argument for rational insight is clearly relevant to the argument from logical principles. He calls it the argument from "intellectual suicide":

The basic claim is that nothing that would count as genuine *reasoning*, as deriving or inferring a further conclusion that goes in any way beyond the initial premises, can be justified by experience alone. Experience can of course add further premises, but when all of the premises thus derived have been assembled, either nothing further can be justifiably derived from them (in which case there is no true reasoning) or else the transition to that further conclusion must be justified *a priori*. In this way, I suggest, the rejection of all *a priori* justification is tantamount to intellectual suicide.⁷⁴⁸

Frege raised a similar argument, but for the conclusion that we must *assume* the apriority of logic. In other words, he gave an argument for the conclusion that our logical knowledge cannot be explained by analyticity, psychologism, or formalism, or any other such theory—*contra* de Sousa, Nozick, Quine, Boghossian, and Mates. (Frege did not think there were any substantive answers to questions like, How do we know *a priori* that all instances of the law of non-contradiction are true?) Boghossian summarizes Frege's "worry" (really, argument) thus:

'Explaining our knowledge of logic' presumably involves finding some *other* thing that we know, on the basis of which our knowledge of logic is to be explained. However, regardless of what that other thing is taken to be, it's hard to see how the use of logic is to be avoided in moving from knowledge of that thing to knowledge of the relevant logical truth. And so it can come to seem as if any account of how we know logic will have to end up being vacuous, presupposing that we have the very capacity to be explained.⁷⁴⁹

⁷⁴⁸ BonJour, "Précis of *In Defense of Pure Reason*," 626.

⁷⁴⁹ Boghossian, "Analyticity," 346.

It should be clear that Frege's argument makes the same point as Bonjour's: The assumption of *a priori* justification (rational insight) is the precondition of rational argument. Any naturalistic attempt to explain away rational insight as something that is not "fundamental and irreducible" will undercut itself.

As a strong critic of rational insight, Boghossian acknowledges that this is a major problem for the empiricist to deal with. In fact, he writes that if an answer to this worry cannot be given, "then *any* [empiricist] explanation of logic's apriority – or aposteriority, for that matter – is bound to be futile, and the Fregean [i.e., rationalist] attitude will have been vindicated."⁷⁵⁰ Boghossian understands the weight of Frege's (and Bonjour's) argument—"Frege's worry is a large one..."—but, is oddly dismissive of it at the same time—"...and I can't possible hope to settle it here."⁷⁵¹ Given that Boghossian's article is aimed at offering an empiricist explanation of logical knowledge, which he attempts by way of analyticity, this is a major shortcoming.

Boghossian gestures to Michael Dummett's response to Frege. Dummett claims that there is no vicious circularity involved in this case. That is, "the sort of circularity that's at issue isn't the gross circularity of an argument that consists of including the conclusion that's to be reached among the premisses."⁷⁵² Rather, it's a case where the argument seeks to prove the validity of a logical law, and at least one of the inferential steps of the argument has to employ that logical law. In other words, the logical law is not a *premise*, it is merely *assumed* (to be valid) in the course of making the argument. Dummett thinks this distinction makes all the difference, despite the thing to be proved being assumed in the course of the argument in order to get to the conclusion. He thinks reasoning in this way only involves a "pragmatic" circularity. In a none too small concession, though, Dummett concludes that this circularity is "only" a problem if the

⁷⁵⁰ Ibid.

⁷⁵¹ Ibid.

⁷⁵² Ibid.

argument is addressed to someone *who doubts the validity of the logical law*. (The argument was supposed to *prove* the validity of the law.)

Dummett's response is clever, but unhelpful. What is at issue in Frege and Bonjour's arguments is *justification* – specifically, the question of *a priori* justification (rational insight). If we run Dummett's response again, but this time replace “validity” with “justification”, we'll see that not only does Dummett's response not answer the argument, it *implicitly assumes Frege and Bonjour's conclusion* in the response. Both Frege and Bonjour conclude that one must assume *a priori* justification. But part of Dummett's response is to say that we can assume the validity of a logical law in at least one of the inferential steps of an argument seeking to prove the validity of that same law. But assuming that the logical law is valid is another way of saying that one assumes that it confers justification on the conclusion that is inferred in accordance with the law. (Why else would one want to know if a logical law is valid, if not to know that it universally confers justification whenever it is employed?) So Dummett has in no way gotten around Frege and Bonjour's argument.⁷⁵³

For the moment I will leave off analyzing and evaluating these arguments further, other than to add the following comment: *a priori* justification, if it is not trivial or tautologous, as all moderate empiricist theories of *a priori* knowledge seem to contend, must come from some sort of direct and immediate insight into the *necessary* nature of reality.

⁷⁵³ Dummett also appears to be plain wrong in his characterization of Frege's argument. He claims that “we have an argument that purports to prove the validity of a given logical law.” But that's not true. The argument under consideration is an argument seeking to explain our logical knowledge in some way *other than* rationalism (rational insight), for instance, by an empiricist theory such as the analyticity proposal. The explanation is not aimed at proving that the laws of logic are valid. No, the explanation has to run the other way. Empiricist explanations of logical laws usually try to explain why we happen to *think* the logical laws are valid, or why they *appear* valid to us. Rationalism says that we see directly they are valid and we cannot “get behind” them. (Thus, “valid” for the rationalist means something different than for the empiricist.)

Objections to the Faculty of ‘Rational Insight’

The notion that we have a capacity for rational insight is widely dismissed among contemporary philosophers, though the reasons behind the dismissal are not always clear. Regardless of the specific reasons that are (or are not) given, the general attitude is the same: rational insight is not to be taken all that seriously.

Boghossian, in “Knowledge of Logic”, characterizes this dismissive attitude and approach to dealing with the traditional explanation of how we have *a priori* knowledge:

To be sure, the idea that we possess a quasi-perceptual faculty—going by the name of ‘rational intuition’—the exercise of which gives us direct insight into the necessary properties of the world, has been historically influential. It would be fair to say, however, that no one has succeeded in saying what this faculty really is nor how it manages to yield the relevant knowledge. ‘Intuition’ seems like a name for the mystery we are addressing, rather than a solution to it.⁷⁵⁴

Likewise, Bob Hale, in “Basic Logical Knowledge,” has the same dismissive approach:

The difficulty is...to come up with anything—any faculty or mechanism—which could deliver non-inferential knowledge *of the kind we are trying to explain* [that is, basic logical knowledge]... Appeals at this point to self-evidence or to rational insight—to a supposed capacity to discern things by the light of reason—are subject to familiar difficulties, and in any case seem to amount to relabelling our problem rather than making a significant contribution towards its solution.⁷⁵⁵

In each case, neither Boghossian nor Hale, in book chapters expressly aimed at solving the problem rational insight is posited to solve, think rational insight warrants any serious discussion, and, rather than providing reasons or arguments against it, merely state matter-of-factly that there are no good reasons to consider it as an option.

⁷⁵⁴ Boghossian, “Knowledge of Logic,” 231.

⁷⁵⁵ Hale, “Basic Logical Knowledge,” 284.

But there are a number of objections that are commonly brought against the notion of rational insight.

1. The Objection from Inconsistency with Materialism

The first sort of objection against rational insight takes many different forms, but boils down to simply pointing out that it is incompatible with materialism or naturalism.

BonJour offers a response to any form of objection to *a priori* justification, whether general or specific, stemming from the supposedly “well-established” theses of materialism and naturalism.⁷⁵⁶ (Examples of objections that would fit under this description include objections based on the causal theory of knowledge and the causal closure of the physical domain.) Materialism and naturalism (assuming they are given characterizations that are not “seriously vague or obscure”⁷⁵⁷), as general theses, cannot be construed as beliefs formed via “direct experience” or “direct observation.” They are both synthetic and abstract. Thus, they must be justified somehow. But if they are to be justified via inferences from empirical premises (they are not, presumably, *a priori*), the inferences must rely on principles of inference that connect the premises to the conclusion. And therein lies the problem: those principles of inference would have to be justified *a priori* (in order to avoid a vicious regress). So materialism and naturalism ultimately depend on the *a priori* justification of principles of inference (principles of logic).

It’s clear that empiricism, or the rejection of rational insight, is most often motivated by broader metaphysical commitments.⁷⁵⁸ But, as George Bealer points out, empiricism’s exclusion

⁷⁵⁶ See BonJour, *In Defense of Pure Reason*, 154-155. This paragraph is a paraphrase of BonJour’s argument, which is itself a version of his “master argument” for rationalism.

⁷⁵⁷ Ibid. Additionally, he writes, “This [vague and obscure characterization] is true of materialism and even more of naturalism, views which, despite their widespread acceptance or at least apparent acceptance, are very difficult to define clearly.” Ibid.

⁷⁵⁸ BonJour, *In Defense of Pure Reason*, 17, writes, “The underlying motivation for empiricist doubts is a deep-seated skepticism about the supposed capacity for rational insight into necessity to which the rationalist

of *a priori* intuition⁷⁵⁹ as a *prima facie* legitimate source of knowledge and justification seems arbitrary, if not question-begging.⁷⁶⁰ Bealer does not prove empiricism false. But he does make it clear that there has to be more to the rejection of *a priori* intuition (rational insight) than that it does not fit within the sphere of materialist presuppositions.

2. Rational Insight Is “Mysterious” or “Occult”

The second common objection is very like the first. “Philosophers inclined towards empiricism or materialism,” BonJour writes, “have often charged that there is something mysterious, perhaps even somehow occult, about the capacity in question.”⁷⁶¹ John Dewey provides a perfect example of this form of objection. In explaining his naturalistic view of logic, Dewey disparages the notion of rational insight, making it clear that such a view is out of court. He writes, “Conceptions [of logic] derived from a mystical faculty of intuition or anything that is so occult

appeals. To the self-proclaimed hard-headed empiricist, the idea of such a capacity, or at least of its existence in human animals, appears implausible on both metaphysical and scientific grounds, and becomes even more so as our knowledge of human beings and their place in the world develops.” As cited earlier, Ashby, “The Linguistic Theory of the A Priori,” concurs: “The effect, and in many cases the intention, of linguistic theories of the a priori has been to repudiate rationalistic conceptions of a priori knowledge—in particular, the notion that this kind of knowledge is the product of intellectual intuition or insight.” As cited earlier, Boghossian, “Analyticity,” 334, himself an empiricist, also agrees: “The central impetus behind the *analytic* explanation of the a priori is the desire to explain the possibility of a priori knowledge without having to postulate such a special faculty, one that has never been described in satisfactory terms.”

⁷⁵⁹ George Bealer and P. F. Strawson, “The Incoherence of Empiricism,” *Proceedings of the Aristotelian Society, Supplementary Volumes*, 66 (1992), 102, clarify their usage: “When we speak of intuition, we mean *a priori* intuition. This is distinguished from what physicists call ‘physical intuition’. We have a physical intuition that, when a house is undermined, it will fall. This does not count as an *a priori* intuition, for it does not present itself as necessary: it does not seem that a house undermined *must* fall; plainly, it is *possible* for a house undermined to remain in its original position or, indeed, to rise up. By contrast, when we have an *a priori* intuition, say, that if P then not not P, this presents itself as necessary: it does not seem to us that things could be otherwise; it must be that if P then not not P.” They go on to distinguish intuition from belief, also.

⁷⁶⁰ Bealer explains why empiricism’s exclusion of intuition is illegitimate: “Empiricism would have us circumscribe our *prima facie* evidence by just excluding intuition. But consider some other exclusionary views. For example, *visualism*, the view that only visual experience provides *prima facie* evidence; tactile, auditory, olfactory experiences are just arbitrarily excluded. Or consider a theory that excludes as *prima facie* evidence all standard items that do not fit neatly with some antecedently held political, religious, or metaphysical view. Plainly, we would not be justified in accepting these departures from the standard procedure. How is empiricism relevantly different?” *Ibid.*, 108.

⁷⁶¹ BonJour, “A Rationalist Manifesto,” 56.

as not to be open to public inspection and verification (such as the purely psychical for example) are excluded.”⁷⁶²

When materialists label entities like the soul, or powers like rational insight, as “occult” or “strange” or “mysterious,” they have merely made known their *feelings* towards the entities in question. They have not offered any substantive reason against the proposed hypothetical entities. Dewey’s objection, for instance, is less an argument than it is rhetorical abuse. To see how inappropriate this sort of criticism is, imagine a critic of string theory or atomic theory or the wave/particle duality of light dismissing the proposed explanatory entities as “occult” or “mysterious” or “strange.” They would rightly be ignored as missing the point. The important question is not, “Do you *like* the thought of these entities and do you *want* to include them in your ontology?” The question is, “Do these entities *explain* the phenomena?”

3. The “*How Does It Work?*” Objection

This brings me to a closely related objection summarized by Boghossian: “The single most influential consideration against rational insight theories can be stated quite simply: no one has been able to explain—clearly enough—in what an act of rational insight could intelligibly consist.”⁷⁶³

BonJour responds directly to Boghossian by pointing out that the argument *proves too much*. If we applied Boghossian’s reasoning consistently to other phenomena in the world, we

⁷⁶² John Dewey, *Logic: The Theory of Inquiry* (New York: Holt, Rinehart and Winston, 1938), 18.

⁷⁶³ Boghossian, “Inference and Insight,” 635. Elsewhere, Boghossian, “Knowledge of Logic,” 231, objects to rational insight as follows: “How could our justification for MPP be non-inferential? In any ordinary sense of ‘see’, we cannot just *see* that it is valid. To be sure, the idea that we possess a quasi-perceptual faculty—going by the name of ‘rational intuition’—the exercise of which gives us direct insight into the necessary properties of the world, has been historically influential. It would be fair to say, however, that no one has succeeded in saying what this faculty really is nor how it manages to yield the relevant knowledge. ‘Intuition’ seems like a name for the mystery we are addressing, rather than a solution to it.”

would be left having to reject things that we cannot reasonably reject. BonJour provides the following *reductio ad absurdum* of Boghossian's argument:

As far as I can see, an exactly parallel argument could be offered against the existence of consciousness itself: we have no idea what an explanation of consciousness might look like, and therefore we should conclude that it does not exist (and that epistemological views that appeal to consciousness should be rejected). But this is surely a *reductio* of this sort of argument, not a reason for denying the most obvious fact of all about our mental and cognitive operations.⁷⁶⁴

As far as I can see, BonJour carries the day here. We do not deny the existence of consciousness merely because we cannot explain it, and unless one is the author of *Consciousness Explained*,⁷⁶⁵ it is undeniable to say that we cannot explain consciousness at the present moment. As Boghossian himself acknowledges above, one needs to explain our *a priori* justification and knowledge, and, therefore, he affirms its existence. But he has not offered an adequate alternative.⁷⁶⁶

In fact, BonJour turns the tables on Boghossian. Those who (like Boghossian) seek to explain our *a priori* knowledge by appeals to “analyticity,” that is, to sentences that are true by virtue of their meaning, are, according to BonJour, in precisely the same position. He acknowledges that it is “highly plausible” that there are simple truths that have the status of being true by virtue of meaning, such as the classic example of the claim that something cannot be green and red all over at the same time. “*How*,” BonJour asks, “is the appeal to one’s grasp of the meaning of such a claim supposed to avoid the need for the rationalist’s allegedly mysterious intuitive insight into necessity? The proponents of this conception of analyticity offer no clear

⁷⁶⁴ BonJour, “Replies,” 674.

⁷⁶⁵ Dennett, Daniel C. *Consciousness Explained*. Boston: Little, Brown, 1991.

⁷⁶⁶ Boghossian, “Analyticity,” 346, acknowledges the weight of what he calls Frege’s “worry”—really, Frege’s argument against empiricist explanations of logical knowledge such as Boghossian’s analytic proposal—and does not answer it, despite the fact that it is a major argument against his position. Until he answers Frege’s (and BonJour’s “intellectual suicide”) argument, he can’t say with justification that his alternative is the superior option.

answers to such questions.”⁷⁶⁷ Unless clear answers are given, BonJour charges that labelling something “true by virtue of meaning” becomes indistinguishable from labelling it “*a priori* justified,” and this move fails to explain what it is supposed to. And that is a serious problem for the analytic explanation of *a priori* justification and knowledge. If BonJour is correct, and those critics are making equivalent appeals to something indistinguishable from rational insight, then their criticism fails, and they must reject rational insight on other grounds.

Here is Bob Hale with a similar criticism:

The difficulty here is not that we cannot come up with ... kinds of non-inferential knowledge... The difficulty is rather to come up with anything—any faculty or mechanism—which could deliver non-inferential knowledge *of the kind we are trying to explain* [basic logical knowledge]... Appeals at this point to self-evidence or to rational insight—to a supposed capacity to discern things by the light of reason—are subject to familiar difficulties, and in any case seem to amount to relabelling our problem rather than making a significant contribution towards its solution.⁷⁶⁸

If we interpret Hale charitably and do not assume that by “faculty or mechanism” he is referring to a *materialistic* mechanism—and if we ignore that he merely alludes to “familiar difficulties” but does not state any difficulty by name—his objection amounts to saying that rational insight is mysterious. BonJour, however, thinks that this objection couldn’t be further from the truth: “the capacity for rational insight, though fundamental and irreducible, is in no way puzzling or especially in need of further explanation; indeed, without such a capacity neither puzzles nor explanations would themselves be rationally intelligible.”⁷⁶⁹

⁷⁶⁷ BonJour, “A Rationalist Manifesto,” 67.

⁷⁶⁸ Hale, “Basic Logical Knowledge,” 284.

⁷⁶⁹ BonJour, “A Rationalist Manifesto,” 56.

BonJour is *not* saying that we can explain rational insight *in the way* that Boghossian and Hale demand.⁷⁷⁰ But, he is saying that there is still no problem for rational insight. After all, BonJour argues, *everyone* is in the same epistemic boat with regard to rational insight. Boghossian and Hale can demand details (of the sort they want), or a “mechanism” (in the style they want), but if they claim that immediate insight is somehow “opaque” or inscrutable, whereas a discursive process, or inferences based on rules are not, they have to face the following two points:

(1) “...any criterion or rule itself requires justification, and an eventual appeal to immediate insight is the only alternative to an infinite and vicious regress.”⁷⁷¹

(2) “...criteria or rules do not, after all, somehow apply themselves. They must be judged or intellectually seen to apply or not apply, and this judging or seeing can in the end appeal only to the very same sort of rational insight or intuition that the rationalist is advocating.”⁷⁷²

And from these, BonJour concludes,

[T]here is no apparent alternative to the reliance on immediate, non-discursive insights of some sort as long as any sort of reasoning or thinking that goes beyond the bounds of direct observation is to be countenanced. This being the case, the immediate and non-discursive character of rational insight cannot by itself provide the basis for a cogent objection to moderate rationalism.⁷⁷³

The case has already been made in the first half of the chapter (against logical skepticism) that we can’t deny that we have knowledge of logic. We can’t deny *that* we have it, even if we can’t

⁷⁷⁰ BonJour writes, “But while I must agree that neither my rationalist view nor any other that I am familiar with has even come very close to providing the sort of explanation that this objection demands, I do not think that it follows in any clear way that the idea of rational insight should be rejected.” BonJour, “Replies,” 673.

⁷⁷¹ BonJour, *In Defense of Pure Reason*, 131. However Boghossian and Hale fill in the blanks that they want filled, the story would have steps in it that would need to be seen to be justified, or to confer justification.

⁷⁷² Ibid., 131.

⁷⁷³ Ibid., 133.

say positively *how* we have it.⁷⁷⁴ Thus, the cases for rational insight and against logical skepticism come together: one can't deny that they have logical knowledge/rational insight without undermining one's own rationality. Affirming such knowledge/insight becomes the precondition for rational engagement at all. There is no reason to deny that we do have it, even if we can't say *how* it works.

4. The Epistemological/Causal Impotency Objection

The next objection is actually a major epistemological objection to Platonism. It is not an objection to rational insight *per se*, but rather rational insight *in connection to* causally inert abstract entities. The objection is simply the charge that we could not have knowledge of an abstract object because it would be causally inert.⁷⁷⁵ So, in effect, this is an objection to the notion that we have rational insight into necessary principles of logic or logical relations *qua* causally inert abstract entities. This objection is not merely the refuge of materialists. It is taken seriously, and advanced, by philosophers of all metaphysical backgrounds—including dualists and theists.⁷⁷⁶

Why could we not have knowledge of *acausal* abstract entities? They would be causally isolated from the spatiotemporal, physical, empirical realm, therefore, they would presumably be

⁷⁷⁴ Note that with regard to BonJour's charge that Boghossian is in the same position with his analyticity proposal, Boghossian does not have the option of offering the "I know *that* it is the case without being able to say *how* it is the case" response, because his criticism of rationalism *just is* that the rationalist can't explain *how* it works.

⁷⁷⁵ This objection is closely tied to the discussion in chapter 4. The realist is faced with a dilemma. If abstract entities are causal, how we have knowledge of them is rendered somewhat less mysterious, but their ontological nature becomes a big problem. How is one to make sense of a non-personal, atemporal, abstract entity with causal powers? If abstract entities are acausal, their ontological nature is more plausible, but how we have knowledge of them becomes a problem. Where and when and how would we be able to *perceive* them?

⁷⁷⁶ For example, see William Lane Craig, "God and Abstract Objects," *Philosophia Christi* 17, no. 2 (2015): 269-276. See also the responses by J. Thomas Bridges and Peter van Inwagen, and Craig's replies, in the same volume. Craig actually argues further that belief in abstract entities is *inconsistent* with classical theism, or belief in the Judeo-Christian God. Cf. Craig's "theological objection to Platonism" in "God and Abstract Objects," in *The Blackwell Companion to Science and Christianity*, ed. J. B. Stump and Alan G. Padgett (Malden, MA: Blackwell, 2012), 449-451.

irrelevant to it.⁷⁷⁷ For example, if the number two ceased to exist, there would be no effect on the physical world around us. Because propositions are abstract entities, they would be causally effete and, thus, could not cause belief states in spatiotemporally located, concrete human minds. As Bonjour notes, such entities would not be emitting signals into the universe. We could not see greenness *qua* abstract universal because it cannot reflect light. And so on.

The objection amounts to the charge that there is no possible successful non-causal account of how we could know them. So the proposal of a *possible* account should be enough to satisfy this objection. Does this objection shipwreck the argument from logical principles?

Response

The following is a traditional realist response to this objection.⁷⁷⁸ (Insofar as this response involves “hardcore metaphysics,” my expectation is that proposals of this sort will do little to quell a materialist critic’s concerns about the coherence of the overall picture.) First, the traditional realist makes a modal distinction between the universal itself and its instances.⁷⁷⁹ This has the consequence that, while the universal itself, e.g., greenness, is not located in space and time, its instances, e.g., in the newly sprouting grass on my front lawn, are. In other words, “*exemplifications* of universals are located in space and time.”⁷⁸⁰ The trouble here is understanding how the greenness is “in” the grass without being located “in” space and time. R. Scott Smith, in an effort to answer that, elaborates on the relation between a universal and its instance:

⁷⁷⁷ The following examples are inspired by or taken from R. Scott Smith, “William Lane Craig’s Nominalism, Essences, and Implications for Our Knowledge of Reality,” *Philosophia Christi* 15, no. 2 (2013), 376.

⁷⁷⁸ For a defense of the traditional realist position, see Moreland, *Universals*, esp. ch. 5, 97-139. In what follows, I rely heavily on both Moreland, *Universals*, 121-129, and Smith, “William Lane Craig’s Nominalism,” 376-377.

⁷⁷⁹ Moreland, *Universals*, 99, explains, “When a universal is exemplified, the universal is modified and constitutes the essence of its instances, which, in turn, are complex, dependent particulars.”

⁷⁸⁰ Smith, “William Lane Craig’s Nominalism,” 376.

the relation between a universal, like justice, and its instance in a just person *P* is that of a “part” of the whole *P*, that is, justice is one of the constituents in *P*. But this “in” is not a spatial sense of “in”; rather, this relation is that of being an essential property-constituent of *P*, a *way of being in P*. As a mode of justice, this instance of justice in *P* cannot exist apart from justice itself. Yet it seems justice could exist without its instantiation in *P*. Thus, they are not identical.⁷⁸¹

So, according to Smith, not only does the universal *qua* abstract object have a “way of being in” a concrete particular. Moreland thinks it is “easy to see a modal distinction between a property”—that is, the universal, or the *causally inert abstract object*—“and its property-instance taken as a complex moment.”⁷⁸² He writes,

Now when one attends to a moment, one attends to something precisely as a spatiotemporal particular. But when one attends to the universal in the moment, one attends to a property simpliciter. When a perceiver is inclined to describe his language with language appropriate to a particular (e.g. by noting the location of the object) then the relevant object is the moment. But when the perceiver describes the object in terms of property-talk (e.g. this object is bright red, it is darker than orange, it is a colour) then no reference is being made at all to space, time, or particularity....When one is tempted to say that the universal is also located here and now, he is now attending to the universal’s mode, the moment, whether or not he realizes it.⁷⁸³

As I understand Moreland’s explanation of this distinction, he believes the fact that we are able to make the distinction between the universal and its instance—and the distinction between the way we talk of properties and their instances—is evidential support and reveals the coherence of the account.

Moreland and Smith’s proposal, in my estimation, makes the notion that we can have knowledge of acausal abstract entities at least conceivable.

⁷⁸¹ Ibid.

⁷⁸² Moreland, *Universals*, 128.

⁷⁸³ Ibid., 128-129.

I will add my own consideration in favour of this proposal, at least in relation to those materialists who are also realists in such shape or form about abstract entities. If a materialist is a realist about abstract entities, then presumably she will need to appeal to something like a non-causal account of acquaintance with those entities. But *this very proposal* put forward by the traditional realist is the sort of story that the materialist would need to sign on to. So unless there is a logical incoherence in the account, this type of materialist cannot object to any element of the account (e.g., exemplification, or the “way of being in” of a property in its instance) on the grounds of it being “mysterious” or “queer” or “strange.” Since they have already, in principle, opened themselves up to non-causal connections, the onus is on them to come up with a better account.

Also, the materialist who does not accept this sort of “hardcore metaphysics” must turn around and give an acceptable account of (a) the ontological nature of logical principles and (b) our knowledge of them that is consistent with a strictly materialist ontology. The contention of the argument from logical principles is, of course, that this cannot be done. Dallas Willard goes so far as to say that any attempt to “deduce or prove [the laws of logic] from physical, psychological or linguistic facts or laws” is worse than doomed. “It is not so much that it is not, in fact, done, or that it cannot be done,” he writes, “as that one *cannot even imagine what it would be like to do it.*”⁷⁸⁴

The traditional realist account above faces objections from other realists, and it faces objections about its coherence. For instance, Gilbert Ryle offers a well-known critique of the notion of exemplification.⁷⁸⁵ But the account goes a long way toward dulling the sharpness of the

⁷⁸⁴ Willard, “Knowledge and Naturalism,” 41-42.

⁷⁸⁵ For instance, see Gilbert Ryle’s objection in “Plato’s ‘Parmenides’,” *Mind* (1939), 138; see also, Nicholas Wolterstorff’s *On Universals* (Chicago: University of Chicago Press, 1970), esp. “Objections to Predicative Relationships,” 87-104 for an in-depth discussion of the problems with exemplification.

materialist objection that anti-materialists face just as much problem accounting for knowledge of abstract entities.⁷⁸⁶

Rationalism, Platonism, and Aristotelianism

One issue that is pertinent to the issue of how we have knowledge of abstract entities, and that could have serious consequences for the argument from logical principles, is the distinction between the Aristotelian and Platonic conception of universals. According to Bonjour, it is often assumed, without much discussion, that rationalism entails Platonism. But, he writes, “Rationalism requires at most only that propositions, properties, relations, etc., exist and be capable of being objects of thought and reflection; it requires Platonism only if Platonism is the only possible account of how this could be so.” Thus, E. J. Lowe, a defender of an Aristotelian account of abstract objects, argues that the Aristotelian account is superior to Platonism precisely on the grounds of it making it more intelligible how we have knowledge of abstract entities. For Bonjour, rationalism is above this debate, however: “If, on the contrary, there is an alternative metaphysical account that can accommodate the seemingly undeniable fact that we do genuinely think about such things, then the rationalist could almost certainly accept it as well.”⁷⁸⁷ Thus, the proponent of the argument from logical principles need only get as far as demonstrating the

⁷⁸⁶ For example, Lowe, “Naturalism, Theism, and Objects of Reason,” 44, argues that some forms of Platonism are uniquely vulnerable to attacks that do not effect an Aristotelian view: “So ‘fictionalism’ about *objects of reason*, so conceived, would be an entirely misplaced doctrine, being as it is a strategy for denying the *mind-independent* existence of a putative class of entities. I might perhaps be acceptable if directed at some extreme *Platonist* view of logico-mathematical objects, holding that these objects exist independently of *any* mind: but that is not the sort of view that I am now advocating. (The Platonist view also suffers from this difficulty: it is unclear how, on this view, the human mind could *grasp* any object of reason—whereas this is fundamentally no real mystery, if such objects are essentially *mind-dependent* entities.)”

⁷⁸⁷ Bonjour, *In Defense of Pure Reason*, 158.

cogency of rational insight without needing to also settle the debate between Aristotelianism and Platonism.⁷⁸⁸

There are many other problems for both the rationalist and the realist to address,⁷⁸⁹ but, in the present context, the issue is a *comparative* one. Are the problems that have been raised for realism about abstract entities—specifically the problem of how we can have knowledge of them—comparable to the problems raised earlier for the materialist in accounting for such knowledge?

Conclusion and Reflections

As I argued already, I think the rejection of logical skepticism forms the hard kernel of the argument from logical principles. Logical skepticism itself seems, to my lights, untenable—whether it can be refuted or not. But that leads to the problem of what logical principles are. It is because this problem points to something like a realm of abstract entities that we somehow have

⁷⁸⁸ BonJour adds his own position: “My own inclination is to think that Platonism is in fact the only tenable account of these matters, and thus I will proceed here on that assumption. But it is worth reiterating that it is not rationalism by itself that yields this result.” Ibid.

⁷⁸⁹ For instance, there is a significant question surrounding the *fallibility* of rational insight. If the characterization of the rationalist conception of rational insight is too strong, then it will be an easy target for empiricists to attack. Plato believed that the mind’s eye could not err. This is a very *strong* conception of rational insight, seemingly implying that we have *perfect* and *infallible* insight into necessary truths. And, based on the reasoning behind the argument for rational insight, this conclusion makes sense. If one is seeing the truth directly, how could one be wrong? But this strong form of rationalism seems untenable in light of the fact that we *do* seem to make mistakes in our judgments of what counts as a necessary truth or not. BonJour proposes moderate rationalism, the view that rational insight is fallible. This is an important qualification to the notion of rational insight. One does not have to subscribe to a strong or extreme form of rationalism in order to believe in the faculty of rational insight. Popper, *The Self and Its Brain*, 44, for one, agrees with BonJour: “Now Plato described the grasping of the forms or ideas as a kind of vision: our mental eye (*nous*, reason), the “eye of the soul” is endowed with intellectual intuition and can *see* an idea, an essence, an object that belongs to the intelligible world. Once we have managed to see it, to grasp it, we know this essence: we can see it “in the light of truth”. This intellectual intuition, once it has been achieved, is infallible. This is a view that has been most influential among those who accept, as indeed I do, the problem “How can we understand or grasp a theory?” But while I accept the problem, I do not accept Plato’s solution – or only in a greatly modified form. First, I admit that there is something like an intellectual intuition; but I assert that it is far from infallible, and that it more often errs than not.”

Further, there is the issues of Euclidean geometry as a falsifier of rationalism. According to Laurence BonJour, “There can be little doubt that from a historical standpoint, the development of non-Euclidean geometries was a major factor in producing the widespread conviction that a rationalist position is untenable.” *In Defense of Pure Reason*, 217. And he’s right. Boghossian, “Analyticity Reconsidered,” cites non-Euclidean geometry as the reason that the “classical view” (rationalism) is not to be taken seriously.

knowledge of, Nagel points out, that philosophers are pushed towards skepticism in the first place, as a way of rejecting the ontological implications.⁷⁹⁰ So if logical skepticism is rejected, the problem of characterizing the precise ontological nature of logical principles rears its head.

But the question of how we have knowledge of the principles of logic *qua* abstract objects is a real difficulty for the argument from logical principles. This difficulty is, first, tied to the characterization of their ontological nature as either causal or acausal. Either way, there is a unique problem. If they are causally efficacious, the problem of how they can be known is slightly less mysterious, but only if one can make sense of a non-spatiotemporal, non-personal causal entity. But if they are inert, the problem of how they can be known becomes much more pressing.

The proposal of rational insight seems justifiable to the same degree as the proposal of objective and necessary logical principles. Even if we can't say *how* they work, it seems to lead to absurdity to reject them. But, even if the proposals are ultimately unsuccessful in themselves, the explanations offered by rationalists and realists as to how we have knowledge of logical principles count against materialism. At the very least, it would appear that the materialist cannot claim to be on *equal footing* with the anti-materialist when it comes to explaining our knowledge of abstract entities. Materialism faces self-imposed limitations that non-materialistic views do not have, because they do not limit themselves to mechanistic, efficient, physical causation only.

What, then, should we conclude with regard to the status of the argument from logical principles? At the end of the day, each of the major premises mires the proponent in some major, perennial debates in philosophy. Minimally, the argument takes sides in the following controversies: realism versus nominalism in metaphysics; rationalism versus empiricism

⁷⁹⁰ Nagel, *The Last Word*, 4.

epistemology; logical realism (objectivism) versus logical subjectivism⁷⁹¹ and logical skepticism; and internalism versus (strong) externalism. For this reason, I do not imagine that the argument from logical principles has a high potential for being *persuasive* because it cuts across so many major battlegrounds in the overall clash between materialism and its foes.

All the same, the merits of an argument are not only decided on how persuasive it is. Understood from a different angle, the argument from logical principles can be looked at as an argument *for* the positions listed above. It is a unique argument *for* rationalism and *for* realism, and those two positions alone count very strongly against materialism. The reason I say it is “unique” is that it uses the leverage of the centrality of logical knowledge in our mental lives to exert pressure on views that would treat lightly considerations of the necessary or abstract character of logic.

This thesis has barely scratched the surface with regard to settling any debates. But I will count it successful if it has gone even a very small way toward revealing the depth and breadth of issues that are under the surface of Reppert and Popper’s original arguments.

Can something like the argument from logical principles become an argument that is treated seriously? My own judgment is that, because its premises are all so controversial in the worldview divide between materialists and non-materialists, it will probably only be treated seriously by those who are already convinced of its conclusion. In practice, the debate between materialism and its alternatives would probably be better served by treating each key premise as a separate debate.

⁷⁹¹ That is, “pluralism” in common usage, or “instrumentalism” in Haack’s usage.

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