

JUSTIFIED EXISTENTIAL BELIEF:  
AN INVESTIGATION OF THE JUSTIFIABILITY OF BELIEVING  
IN THE EXISTENCE OF ABSTRACT MATHEMATICAL OBJECTS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for  
the Degree Doctor of Philosophy in the Graduate School of  
The Ohio State University

By

William Jason Melanson, MA

\*\*\*\*\*

The Ohio State University

2006

Dissertation Committee:

Professor George Pappas, Co-adviser

Professor Stewart Shapiro, Co-adviser

Professor Lisa Shabel

Approved by

---

and

---

Advisers

Graduate Program in Philosophy

Copyright by  
William Jason Melanson  
2006

## ABSTRACT

The central question of this dissertation is whether we are justified in believing in the existence of abstract mathematical objects. In Part I, I provide an in-depth examination and criticism of the most popular argument for the *justifiability* of believing in the existence of mathematical objects, *the Quine-Putnam Indispensability Argument*. I argue that the naturalistic basis for the argument not only depends essentially upon an untenable form of radical confirmational holism, but is ultimately self-undermining. In Part II, I examine the most popular argument for the *unjustifiability* of believing in the existence of abstract mathematical objects, *Field's Inexplicability Argument*. I argue that not only does the argument ignore contemporary epistemological theories of justified belief and knowledge, but that the justificatory constraint that it suggests is implausible and open to general counterexample. Thus, in Parts I and II, I show that the most popular arguments for and against the justifiability of believing in the existence of abstract mathematical objects rest upon untenable epistemological theories. In Part III, I develop a new epistemological approach to justified belief, *validationism*. I argue that a validationist constraint on justified belief provides the minimal internalist condition that is needed for being justified and having knowledge. According to validationism, being

justified requires one to have “validated” the reliability of the source of one’s belief through regular comparison of the output of that source with the output of other established sources. Not only does this approach allow us account for our most fundamental epistemic intuitions, but it helps to explain why justified true beliefs are so valuable. In the end, I apply the validationist approach to the case of mathematics and argue that belief in the existence of abstract mathematical objects cannot be justified.

Dedicated to my father,

William T. Melanson.

(1943-2002)

## ACKNOWLEDGMENTS

I want to thank my advisors Stewart Shapiro and George Pappas for their assistance and guidance. Stewart's incredibly patient supervision, especially in the earliest stages of this project, was enormously valuable. George has always provided an example of philosophical clarity and rigor and his comments have been exceptionally helpful, especially in the later stages of the project. I am confident that this would have been a far better piece of philosophy had I taken greater advantage of their time and expertise. I also want to thank Robert Batterman, George Schumm, and Lisa Shabel for their insight and assistance at key moments in the project.

I especially want to thank two of my graduate student colleagues, Joshua Smith and William Roche, who provided inestimable assistance as sounding boards, proofreaders, tough critics, and good friends. Their help was invaluable as the project transitioned deeper and deeper into epistemology. For their philosophical assistance, constant patience, and friendship, I also would like to thank Jon Cogburn, Roy Cook, David Merli, Jack Arnold, Ryan Nichols, Cathal Woods, Eric Heining, Brian Stone, Andrew Arlig, Nicholas Jones, Ryan Jordan, Zac Cogley, Carol Hay, Eric Carter, Jesse Duarte, and Andrew Rogers.

I would like to thank my mother, Joyce, step-father, Paul, and sister, Michelle, for their love and encouragement, my grandmother for her recognition of the value of education and the support to pursue it, and Dan and Linda Farrell for their friendship. Most especially, I would like to thank Traci for her constant love and unwavering confidence in me.

VITA

June 18, 1974.....Born—Olean, New York  
1996.....BA, Magna Cum Laude, Philosophy and Economics  
The State University of New York at Buffalo  
2002.....MA, Philosophy, The Ohio State University  
2002-2005.....Graduate Teaching Associate, The Ohio State University  
2005-2006.....Visiting Assistant Professor, The University of Puget Sound

FIELDS OF STUDY

Major Field: Philosophy



## TABLE OF CONTENTS

Abstract.....	ii
Dedication.....	iv
Acknowledgments.....	v
Vita.....	vii
List of Figures.....	xiii

### PART I: THE QUINE-PUTNAM INDISPENSABILITY ARGUMENT

#### *The Justifiability of Believing in the Existence of Mathematical Objects*

General Synopsis.....	1
Chapter Summaries.....	2
1. The Quine-Putnam Indispensability Argument.....	3
1.1 Overview.....	3
1.2 The Argument.....	4
1.3 The Premisses.....	6
1.3.1 The Acceptability of Current Science Thesis.....	6
1.3.2 The Doxastic Commitment Thesis.....	11
1.3.3 The Quantificational Criterion of Ontological Commitment.....	16
1.3.4 The Quantificational Indispensability Thesis.....	26
1.4 Summary.....	27
2. The Case for Quinean Naturalism .....	29
2.1 Overview.....	29
2.2 What is Naturalism? .....	30
2.2.1 Step One: The Negative Step.....	31
2.2.2 Step Two: The Positive Step.....	32

2.3	The Historical Argument for Naturalism.....	33
2.3.1	Step One: Abandoning the Goal of First Philosophy.....	34
2.3.2	Step Two: Re-envisioning the Goal of Philosophy.....	41
2.3.3	Summing Up the Historical Argument for Naturalism.....	42
2.4	The Semantic Argument for Naturalism.....	43
2.4.1	The First Source: Meaning Holism.....	43
2.4.2	The Second Source: Unregenerate Realism.....	47
2.5	Reflecting on the Naturalized Indispensability Argument.....	49
3.	The Argument for Radical Confirmational Holism.....	51
3.1	Overview.....	51
3.2	Introduction.....	52
3.3	The Circularity Argument Against Analyticity.....	53
3.4	Induction on the History of Philosophy.....	58
3.5	The Argument from the Indeterminacy of Translation.....	61
3.6	A Brief Interlude.....	62
3.7	The Argument from Testability to Irrefutability to Vulnerability.....	63
3.8	The Inductive Revisability Argument.....	70
3.8.1	The Rejection of Geometric Laws: General Relativity and the Rejection of the Parallel Postulate.....	74
3.8.2	The Rejection of Logical Laws: Rejecting the Law of Excluded Middle and the Law of Non-Contradiction.....	76
3.9	The Case for Sheltering Mathematics.....	77
3.10	Summary.....	79
4.	Contra Naturalism and the Doxastic Commitment Thesis.....	80
4.1	Overview.....	80
4.2	Introduction.....	80
4.3	Acceptance for Scientific Purposes.....	82
4.4	The Objection.....	84
4.5	The Naturalist's Reply.....	87
4.6	The Self-Exemption of Naturalism.....	90
4.7	Summing up the Case Against the Quine-Putnam Indispensability Argument.....	92
4.8	Appendix: Colyvan's Analysis of the Quine-Putnam Argument.....	95

PART II: THE EPISTEMOLOGICAL CHALLENGE  
*The Unjustifiability of Believing in the Existence of Mathematical Objects*

General Synopsis.....	102
Chapter Summaries.....	103
5. A Brief History of Benacerraf’s Epistemological Challenge to Mathematical Platonism.....	104
5.1 Overview.....	104
5.2 A Bit of Epistemological Background.....	105
5.3 An Overview of Benacerraf’s Challenge.....	106
5.4 The Case for Semantic and Epistemological Uniformity.....	109
5.5 Ontological Consequences.....	111
5.6 The Downfall of the Epistemological Argument.....	113
5.7 Reliabilist Accounts of Justification and Knowledge.....	114
6. Field’s Inexplicability Argument Against Mathematical Platonism.....	116
6.1 Overview.....	116
6.2 Resurrecting Benacerraf’s Challenge.....	117
6.2.1 The Reliability Thesis.....	119
6.2.2 The Impossibility Claim.....	119
6.2.3 The Explanatory Demand.....	121
6.2.4 The Dilemma.....	123
6.3 The Quinean Response.....	124
6.4 A More Moderate Reply.....	129
6.4.1 The Scientist.....	134
6.4.2 The Nepalese Psychic.....	136
6.4.3 The Mathematician.....	137
6.5 Summary.....	139

PART III: VALIDATIONISM  
*A Minimal Internalist Constraint on Justification*

General Synopsis.....	141
Chapter Summaries.....	142

7.	Epistemic Internalism and the Traditional Picture of Justified Belief.....	143
7.1	Overview.....	143
7.2	Commonsense Internalist Intuitions: The Case of the Suspicious Wife.....	144
7.3	The Traditional Picture of Epistemic Justification.....	148
7.4	From the Traditional Picture to Epistemic Internalism.....	152
	7.4.1 The Argument for an Access Constraint on Justified Belief.....	152
	7.4.2 The Argument for a Connection Constraint on Justified Belief.....	156
	7.4.3 The Argument for an Adequacy Constraint on Justified Belief.....	157
	7.4.4 Summary.....	160
7.5	The Turn Toward Externalism.....	161
7.6	Undermining the Traditional Picture of Justification.....	162
	7.6.1 The Volutaristic Assumption and the Deontological Conception of Justification.....	164
	7.6.2 The Volutaristic Assumption and the Accountability Conception of Justification.....	166
	7.6.3 The Volutaristic Assumption and the Guidance Conception of Justification.....	168
	7.6.4 Summing Up the Case Against the Traditional Picture of Justification.....	169
7.7	The Argument from Unsophisticated Believers.....	171
7.8	Reconciling Internalism and Externalism.....	175
7.9	Summary.....	180
8.	The Relationship between the Practice of Justifying and the Concept of Being Justified.....	182
8.1	Overview.....	182
8.2	The Fundamental Internalist Intuition.....	183
8.3	Explaining the Access Constraint.....	187
8.4	The Explanation.....	191
	8.4.1 Assumption (1).....	192
	8.4.2 Assumption (2).....	195
	8.4.3 Assumption (3).....	195
	8.4.3.1 The Myth of Smith.....	197
8.5	Summary.....	200
9.	The Search for Legendary Treasure: Value of Being Justified.....	204
9.1	Overview.....	204
9.2	Three Axiological Constraints .....	206

9.3	The Truth Connection.....	208
9.3.1	Contra the Value of Being Justified as a Means to Truth.....	210
9.3.1.1	The Short-Term Value of Being Justified.....	210
9.3.1.2	The Long-Term Value of Being Justified.....	212
9.3.1.3	The Very-Long-Term Value of Being Justified.....	214
9.3.1.4	Summing Up.....	217
9.4	Breaking the Truth Connection: Alternative Epistemic Aims.....	219
9.4.1	Consistency.....	219
9.4.2	Explanatory Coherence.....	220
9.4.3	Reasonableness.....	224
9.4.4	Epistemic Value Relativism.....	226
9.4.5	Summary.....	228
9.5	The Value of Well-Placed Confidence.....	228
9.5.1	Plato.....	229
9.5.2	Descartes.....	230
9.5.3	W.K. Clifford.....	232
9.5.4	J. L. Austin.....	233
9.5.5	A. J. Ayer.....	235
9.5.6	Roderick Chisholm.....	237
9.5.7	Tying the Tradition Together.....	238
10.	Lessons from the Open Sea:	
	The Need to Validate the Reliability of One's Sources.....	242
10.1	Overview.....	242
10.2	The Cautious Sailor.....	244
10.3	The Need to Validate the Reliability of One's Sources.....	247
10.4	The Validationist Constraint.....	255
10.5	Dealing with Common Counter-examples.....	262
10.6	The Availability of Unused Processes.....	267
10.7	Inexplicability of the Process.....	272
10.8	Summing Up.....	275
11.	Ramifications of the Validation Constraint for the Justifiability of Believing in the Existence of Abstract Mathematical Objects.....	277
11.1	Overview.....	277
11.2	The General Argument.....	278
11.2.1	A Trip to the Dentist.....	279
11.3	The Technical Details.....	284
11.4	One Last Thought-Experiment.....	285
	Bibliography.....	287

## LIST OF FIGURES

Figure 2.1	The Structure of the Case for Quinean Naturalism.....	49
Figure 6.1	The Scientist Knowledge of the Distant Particle.....	135

## **PART I:**

### **THE QUINE-PUTNAM INDISPENSABILITY ARGUMENT: THE JUSTIFIABILITY OF BELIEVING IN THE EXISTENCE OF MATHEMATICAL OBJECTS**

#### **General Synopsis**

Over the course of the next few chapters, I shall examine the most popular argument for the existence of mathematical objects, the Quine-Putnam Indispensability Argument. The basic idea is that we are epistemically committed to the existence of mathematical objects due to the success of our scientific theories. In rough outline the Quine-Putnam Indispensability Argument runs as follows.

Given the success of current theories in the mature sciences, we are justified in believing those theories to be approximately true and would be unjustified in holding any lesser epistemic attitude toward them. Yet, if we are justified in believing a theory to be approximately true, then we are justified in believing in the existence of those objects over which the theory indispensably quantifies and would be unjustified in denying the existence of those objects. Therefore, since our best current theories in the mature sciences indispensably quantify over mathematical objects, we are justified in believing in the existence of mathematical objects and would be unjustified in denying their existence. If we further suppose with the mathematical platonists that only abstract

objects can account for our complete lack of experience with mathematical objects and the seeming necessity of mathematical truth, then we have the dominant argument that we are justified in believing in the existence of abstract mathematical objects.

## **Chapter Summaries**

Chapter 1 carefully lays out the Quine-Putnam Indispensability Argument in its most plausible form and critically examines the case for each of its premises. It is argued that the plausibility of the argument ultimately rests upon the tenability of Quine's epistemological naturalism and his approach to ontological commitment. Chapter 2 explores the case for Quine's epistemological naturalism and argues that it ultimately rests on the theses of radical confirmational holism, verificationism, and unregenerate realism. Chapter 3 critically examines the case for radical confirmational holism and argues that it seriously wanting. This undermines the ultimate foundation for the Quine-Putnam Indispensability Argument. Chapter 4 argues that the Indispensability Argument is ultimately undermined by the Quinean naturalism that is used to support it. Thus, the ultimate conclusion of Part I is that the most popular argument for the justifiability of belief in the existence of mathematical objects fails.



## CHAPTER 1

### THE QUINE-PUTNAM INDISPENSABILITY ARGUMENT

#### 1.1 Overview

Over the past thirty-some years, the dominant argument for the existence of mathematical objects has been the Quine-Putnam indispensability argument. Although the philosophical foundations for the argument are thoroughly Quinean, the first explicit characterization of the argument is to be found in following passage from Putnam's 1971,

*Philosophy of Logic*. Putnam writes,

So far I have been developing an argument for realism along roughly the following lines: quantification over mathematical entities is indispensable for science, both formal and physical; but this commits us to accepting the existence of mathematical entities in question. This type of argument stems, of course, from Quine, who has for years stressed both the indispensability of quantification and the intellectual dishonesty of denying what one daily presupposes. (Putnam [1971], 57)<sup>1</sup>

---

<sup>1</sup> Decock [2003] has pointed out the difficulty in finding anything more than inspiration for it in the writings of Quine. Decock writes,

Putnam attributes the indispensability argument to Quine, but remains rather vague. He neither mentions where Quine explicitly uses this kind of argument, nor gives a precise statement of Quine's views on indispensability. This would have been difficult since Quine's views on the matter are not really clear. One can rightly ascribe indispensability arguments to Quine, but only on the basis of scattered fragments of texts. (232)

Colyvan [2001] has usefully noted that the major sources of the argument can be found in Quine [1948], [1951], [1960a], [1963], [1969b], and [1981b], and in Putnam [1971] and [1979a]. Colyvan also notes that similar arguments can be found in both Frege and Godel, though neither is dependent upon indispensability arguments for his platonism. ([2001], 8)

Despite its long history and the fact that it is widely depended upon to defend mathematical realism, the Quine-Putnam indispensability argument has never received a fully satisfactory explication.<sup>2</sup> This chapter shall rectify this oversight. It shall provide a detailed formulation of the argument and an initial defense of its premisses. Subsequent chapters will take up the defense and critique of the philosophical basis underlying the argument's central premiss.

## **1.2 The Argument**

The Quine-Putnam indispensability argument is much more subtle and complex than is widely admitted by its proponents. This may explain why it has never been given a complete and detailed defense. Due to the complex nature of the argument, it will easiest to lay the argument out before explicating and defending the various premisses. (Note: Immediately pressing issues are addressed in accompanying footnotes.)

---

<sup>2</sup> Colyvan's [2001] provides the most detailed examination and defense of the argument to date, but is flawed in important respects.

- |   |  |
|---|--|
| 1. <i>Acceptability of Current Science Thesis:</i>              | It is rational to accept current theories in the mature sciences for scientific purposes. <sup>3</sup>   |
| 2. <i>Doxastic Commitment Thesis:</i>                           | If it is rational to accept a theory for scientific purposes, then we are epistemically justified in believing that the theory is approximately true to a high degree and unjustified in holding any lesser doxastic attitude toward it.   |
| 3. <i>Epistimized Thesis of Scientific Veritism:</i>            | We are epistemically justified in believing that current theories in the mature sciences are approximately true to a high degree and unjustified in holding any lesser doxastic attitude toward them.  |
| 4. <i>Quantificational Criterion of Ontological Commitment:</i> | If we are epistemically justified in believing that a theory is approximately true to a high degree and unjustified in holding any lesser doxastic attitude toward it, then we are epistemically justified in believing that the objects over which it indispensably quantifies exist and unjustified in holding any lesser doxastic attitude concerning the existence of such objects. <sup>4</sup> |
| 5. <i>Epistemized Thesis of Scientific Referentialism:</i>      | We are epistemically justified in believing that the objects over which current theories in the mature sciences indispensably quantify exist and unjustified in holding any lesser doxastic attitude concerning the existence of such objects.   |
| 6. <i>Quantificational Indispensability Thesis:</i>             | Current theories in the mature sciences indispensably quantify over mathematical objects.  |
| 7. <i>Epistemized Thesis of Mathematical Realism:</i>           | We are justified in believing that mathematical objects exist and unjustified in holding any lesser doxastic attitude with regard to the existence of such objects. <sup>5</sup>   |

---

<sup>3</sup> In the context of the Quine-Putnam indispensability argument, acceptance of a theory requires merely that one use the theory as a supposition (premiss) for the reasonings and deliberations that guide one's actions, especially in formulating explanations and in constructing experiments. As I shall explain shortly, this rather minimal conception of theory acceptance is key to avoid begging the question right from the start.

<sup>4</sup> This is really more of a consequence of the quantificational criterion of ontological commitment, than a straightforward presentation of the criterion. However, this slightly more complicated formulation is necessary for the purposes of the argument.

<sup>5</sup> The Quine-Putnam indispensability argument obviously parallels the basic indispensability argument quite closely. There are, however, two important differences (beyond the additional premisses offered in defense of its corresponding thesis of scientific veritism).

- 1) Whereas the Basic Indispensability Argument centers upon the *truth* of current scientific theories, the Quine-Putnam Argument centers upon our *justification* for believing current scientific theories.

## 1.3 The Premisses

### 1.3.1 *The Acceptability of Current Science Thesis*

The Acceptability of Current Science Thesis (ACST) is intended to provide a relatively uncontroversial starting point for the Quine-Putnam indispensability argument. The key to making the ACST generally acceptable is to develop a non-question-begging interpretation of the notion of *acceptance*. Although it is relatively uncontroversial what sorts of actions would count as *evidence* that a theory is accepted for scientific purposes (e.g., that scientists use the theory in order to perform their calculations, to make their predictions, and to formulate their explanations), the challenge is to determine the extent to which acceptance of a theory might conceptually or, perhaps, psychologically require believing the theory to be true.<sup>6</sup>

To begin, consider the following. Many, if not most, of our scientific theories contain idealizations that most scientists explicitly maintain to be false. For instance, ...

- 1) In order to explain the bow structure of rainbows, scientists suppose that light travels in rays (rather than in waves). Nevertheless, most scientists explicitly maintain that this supposition is false.

- 
- 2) Whereas the Basic Indispensability Argument employs a criterion of *existence*, the Quine-Putnam Argument employs a criterion of *ontological commitment*.

As I examine each of the premisses in some depth, it will become clear how closely interrelated these two points are.

<sup>6</sup> The Doxastic Commitment Thesis concerns the extent to which one is *justified* in believing a theory, given that it is *rational* to accept it. Thus, where the Doxastic Commitment Thesis concerns a normative connection between acceptance and belief, the ACST concerns the analytic or nomological connection between acceptance and belief.

- 2) In thermodynamics, scientists suppose that systems contain an infinite number of particles in order to explain the existence of phase transitions. Nevertheless, most scientists explicitly maintain that this supposition is false.
- 3) In hydrodynamics, scientists suppose that fluids are perfectly continuous (rather than being constituted by discrete particles). Nevertheless, most scientists explicitly maintain that this supposition is false.

In each of these cases, scientists seem to *accept* the theory in question for scientific purposes, e.g. in order to perform their calculations, make their predictions, and to formulate their explanations. Nevertheless, the vast majority of scientists explicitly maintain that these suppositions are literally false. That is, they claim not to *believe* them. Thus, it seems that acceptance of a theory does not conceptually or psychologically require belief in the *absolute* truth of a theory.

Of course, it might be suggested that even if scientists do not strictly speaking believe those theories to be absolutely true, at least they believe them to be approximately true. Thus, it might be suggested that theory acceptance conceptually or psychologically requires belief that a theory is approximately true to a high degree. Yet, there are clear cases in the history of science where scientists certainly seemed to accept theories for scientific purposes (e.g. for performing calculations, making predictions, and to formulating explanations, etc.) while denying that such theories were even approximately true. Perhaps the most well known case concerns the instrumentalist attitude that many scientists took toward atomic theory in its early days. Many scientists granted that the theory was very useful and made use of it in performing calculations, making predictions,

and formulating explanations. Nevertheless, they were explicit in denying the existence of atomic particles and, thus, denying even the approximate truth of atomic theory. This certainly seems to be a case in which scientists were willing to *accept* a theory while denying that it was even approximately true.<sup>7</sup> Of course, it might be suggested that such use of a theory is a better indication of scientists' actual beliefs than their stringent protestations to the contrary. Yet, such a reply seems to simply abandon anything like the commonsense meaning of "belief" in which individuals *generally* have first person authority concerning their beliefs. Thus, it seems that theory acceptance does not even conceptually or psychologically require belief that a theory is approximately true to a high degree.

In his [1980], van Fraassen suggests an alternative, more minimal belief condition for theory acceptance. van Fraassen suggests that to accept a theory for scientific purposes requires only that one believe the theory to be empirically adequate (i.e., believe that it "saves the phenomena") and that one be committed to using the theory to guide one's research, explanations, etc.<sup>8</sup> As van Fraassen explains, he adds the commitment condition because the theories that we have available are merely approximate and limited in scope.

[T]he belief in accepting a scientific theory is only that it 'saves the phenomena', that is, correctly describes the observable. But acceptance is not merely belief.

---

<sup>7</sup> Many scientists who had denied even the approximate truth of atomic theory were eventually convinced of the existence of atomic particles and the approximate truth of atomic theory by the discovery of Brownian motion.

<sup>8</sup> According to van Fraassen, to believe a theory is empirically adequate is to believe "what it says about the observable things and events in this world [i.e., that] such a theory has at least one model that all the actual phenomena fit inside." ([1980], 12) Thus, to accept that a theory is empirically adequate is to believe that all of the theory's observational predictions are true and will continue to be true.

We never have the option of accepting an all-encompassing theory, complete in every detail. So to accept one theory rather than another one involves a commitment to a research programme, to continuing the dialogue with nature in the framework of one conceptual scheme rather than another. ([1980], 4)<sup>9</sup>

The problem with requiring even this much belief is that even our best theories are far from empirically adequate. Most of our theories still contain enough idealizations that even their empirical predications are at best approximate. Thus, it seems that if the ACST is to be plausibly true, theory acceptance is going to require even less than belief in the empirical adequacy of the theory. Furthermore, even the extent of the commitment that van Fraassen describes also seems a bit too strong. Consider, for example, the use of the ray theory of light to explain the appearance of rainbows. Most scientists are not committed to explaining most phenomena associated with light in terms of the ray theory. In general, most scientists are more broadly committed to explaining phenomena associated with light in terms of the wave theory. Nevertheless, they accept the ray theory to explain particular aspects of rainbows. Thus, it appears that acceptance of a theory for scientific purposes requires even less than belief in the empirical adequacy of a theory supplemented by a commitment to a research program.

In his [1992] examination of the belief/acceptance distinction, L. Cohen advocates a weaker, almost entirely pragmatic approach to understanding acceptance. He writes,

---

<sup>9</sup> van Fraassen is careful to note that commitment aspect of acceptance does not pertain merely to scientific researchers. As he puts it,

Even for those of us who are not working scientists, acceptance involves a commitment to confront any future phenomena by the means of the conceptual resources of this theory. It determines the terms in which we shall seek explanations... There are similarities in all of this to ideological commitment. A commitment is of course not true or false: The confidence exhibited is that it will be *vindicated*. ([1980], 12-3)

To accept that  $p$  is to have or adopt a policy of deeming, positing, or postulating that  $p$ —i.e. of including that proposition or rule among one’s premisses for deciding what to do or think *in a particular context*, whether or not one feels it to be true that  $p$ ...[Y]ou answer the question of whether or not you accept that  $p$  by forming or reporting an intention about the foundations of your proofs, arguments, reasonings, or deliberations... By acceptance you increase your stock of permissible data and employable rules of inference. (Cohen [1992], 4-5, my emphasis)

On this picture, only the minimal belief that the accepted theory is *the most useful theory available for one’s current purposes* (e.g. for constructing experiments and giving explanations) is likely a necessary condition for acceptance.<sup>10</sup> Cohen makes particularly clear that acceptance requires only *supposition*, not *belief*. To accept a theory requires no more than that one use the theory as a supposition (premiss) for the reasonings and deliberations that guide one’s actions, especially in formulating explanations and in constructing experiments. Given this picture of acceptance as supposition, it is easy to make sense of the above cases in which scientists were willing to make extensive use of a theory despite their claims not to believe it. Thus, when the acceptance is understood in this light, the ACST provides a non-question begging starting point for the Quine-Putnam argument. Moreover, there is no call for lingering doubt as to whether this understanding is too weak. Any argument in favor of a stronger notion of acceptance can be used in support of the doxastic commitment thesis.

---

<sup>10</sup> Cohen suggests that even this may link acceptance too closely to belief. ([1992], 93-4) However, his hesitation is largely due to his slightly idiosyncratic views concerning belief.



### 1.3.2 *The Doxastic Commitment Thesis*

The core of the Doxastic Commitment Thesis (the DCT) is quite simple. Any evidence that would make it rational to *accept* a theory would also make it rational to *believe* that the theory is true. One can find this idea clearly delineated in Putnam's earliest discussion of indispensability arguments. There, he repeatedly invokes variations of the DCT against fictionalists who claim to accept theories without believing them to be true. Consider the following passages.

[T]o ask whether statements are “true” cannot be separated from asking whether it is rational to accept those statements (so far, so good), since it is rational to accept *p is true* just in case it is rational to accept *p*. (Putnam [1971], 68)

[W]e cannot separate the grounds which make it rational to accept a proposition *p* from the grounds which make it rational to accept *p is true*. (Putnam [1971], 69)

If the very things that make the fictionalist regard material objects, etc., as “useful fictions” do not make it rational to believe the material object “conceptual system”, what could make it rational to believe anything? (Putnam [1971], 70)

On the basis of these passages, we have Putnam's initial formulation of the DCT.

(a) If it is rational to *accept p*, then it is rational to *accept p is true*.

This is, of course, just an initial formulation. There are a number of clarifications and modifications that need to be made. Consider the following points.

- 1) When claiming that it is *rational to accept p* only if it is *rational to accept p is true*, it should be obvious that Putnam is not making a point about how the truth-predicate and T-schema work. Rather, he is using the term, “accept”, ambiguously between the phrases, “to accept p” and “to accept p is true”. In talking of it's being “rational to accept *p*”, Putnam is using the term, “accept”, in the same sense as it has in the

ACST. To accept a theory is to make use of it as a supposition in designing experiments, constructing explanations, etc. In talking of it being “rational to accept *p is true*”, Putnam is using the term, “accept”, as synonymous with the term, “believe”. This is made clear in the third passage where Putnam uses the phrase, “rational to believe”, rather than, “rational to accept”. Thus, in claiming that “the grounds which make it rational to accept a proposition *p* from the grounds which make it rational to accept *p is true*”, Putnam is maintaining that the same evidence that would make it rational to *accept* a theory would make it rational to *believe* it to be true.

- 2) Even though Putnam maintains that whenever it is *rational to accept p*, it is *rational to believe that p is true*, he is not claiming that accepting a theory conceptually or psychologically requires believing that the theory is true. Putnam recognizes that acceptance and belief are two distinct cognitive attitudes that one can have toward *p*. Thus, while he thinks that that same evidence that would make it rational to accept a theory would make it rational to believe it is true, he does not see anything conceptually incoherent in accepting a theory while treating it merely as a “useful fiction”.
- 3) I take it that one’s being *rational* in believing that *p* is true (i.e. it’s being *rational* to accept that *p* is true) is equivalent to one’s being *justified* in believing that *p* is true.<sup>11</sup>

Thus, we have the slightly modified formulation,

---

<sup>11</sup> It should be noted that there are some prominent epistemologists, e.g. Foley, who maintain that justification and rationality are two quite different concepts. However, so far as one sees these as separate issues, Putnam (at least in the present context) seems to be interested in something much more like the notion of justification.

(b) If it is rational to accept  $p$ , then we are justified in believing that  $p$  is true.

Yet, shortly after the above passages, Putnam reiterates the basic idea while folding in some additional adjustments. He writes,

[T]he very factors that make it rational to accept a theory “for scientific purposes” also make it rational to believe it, at least in the sense in which one ever “believes” a scientific theory—as an approximation to the truth which can probably be bettered, and not as a final truth. (Putnam [1971], 73)

Not only does this passage reinforce the above points, it introduces two new complexities.

4) Putnam makes it clear that he equates rational acceptance with acceptance “for scientific purposes.” Thus, according to Putman, scientific grounds are the *only* rational grounds for determining what to accept or, at least, the only rational grounds for determining whether to accept a scientific theory. Given the minimal understanding of acceptance adopted for the ACST, this more or less amounts to the claim that it is rational for all of us to make use of the simplest and most accurate theories that science produces.

Thus, we have,

(c) If it is rational to accept  $p$  for scientific purposes, then we are justified in believing that  $p$  is true.

5) The previous passage is also important for invoking the notion of approximate truth. As was pointed out earlier, even our best scientific theories contain idealizations, yield less than perfectly precise predictions, etc. Without invoking approximate truth (or some similar concept), there would be no reason to take the DCT seriously in the first place. This means, however, that any version of the DCT and, consequently, any

version of the Quine-Putnam indispensability argument will only be as plausible as the notion of approximate truth.

Thus, we now have,

- (d) If it is rational to accept  $p$  for scientific purposes, then we are justified in believing that  $p$  is approximately true to a high degree.<sup>12</sup>

Yet, this is still not the final formulation. Putnam still has one last wrinkle to add. He notes that,

[I]t seems silly to agree that a reason for believing that  $p$  warrants accepting  $p$  in all scientific circumstances, and then to add—“but even so it is not *good enough*.” Such a judgement could only be made if one accepted a transscientific method as superior to the scientific method; this philosopher, at least, has no interest in doing *that*. (Putnam [1971], 73-4)

- 6) Putnam seems to be suggesting that not only is one justified in believing a theory to be true when it is rational to accept it for scientific purposes, but that one would be *unjustified* in holding any lesser epistemic attitude (e.g. denying even its approximate truth or remaining agnostic with regard to its approximate truth) when it is rational to accept it for scientific purposes. I take it that this is what Putnam is getting at by calling it “*silly* to agree that a reason for believing that  $p$  warrants accepting  $p$  in all scientific circumstances, and then to add—“but even so it is not *good enough*.””

---

<sup>12</sup> Without the additional qualifier, “to a high degree”, the DCT would be too weak to play the essential role in the Quine-Putnam argument. We are justified in believing almost every theory to be approximately true to *some* degree. Obviously, it would be absurd to think that one is ontologically committed to the existence of the objects of every theory. It is, for example, necessary to block the inference that since crystalline sphere theory was approximately true to *some* degree, we ought to believe in the existence of such spheres. Depending on how one cashes out the notion of approximate truth, it might be necessary to further qualify the consequent of the DCT so that instead of being justified in believing a *theory* to be approximately true to a high degree, we are only justified in believing its *indispensable parts* to be approximately true to a high degree. I don’t want to take a stand on this issue at this point.

Thus, we arrive at, the final formulation of the *doxastic commitment thesis*:

DCT If it is rational to accept  $p$  for scientific purposes, then we are justified in believing that  $p$  is approximately true to a high degree and unjustified in holding any lesser epistemic attitude with respect to it.

The last passage is also important for another reason. Prior to this point, Putnam had been slowly sculpting the DCT, but had given no support for it. In the last passage, however, Putnam gives the first inkling of the justification underlying the DCT. He suggests that his support for the DCT goes hand in hand with his rejection of the “transscientific method”. Putnam maintains that only if one supposed that the methods of science are in need of non-scientific foundations would it not ‘seem silly’ to maintain that it is rational to *accept*  $p$ , while maintaining that one is not justified in *believing*  $p$ . Putnam is suggesting that once transscientific methods are abandoned, the grounds used to determine theory acceptance are the only grounds left for determining belief. Thus, if it is rational to accept a theory for scientific purposes and one rejects transscientific method, then one is justified if one believes it to be approximately true and unjustified if one holds only a lesser epistemic attitude toward it.

In connecting acceptance to belief through the rejection of transscientific methods, Putnam is seeking to ground the DCT in a strong form of Quinean naturalism. This should come as no surprise given that Putnam credits Quine as the primary source of the indispensability argument. The rejection of transscientific method is an essential aspect of Quine’s naturalism and naturalized epistemology. In fact, only a naturalism as

radical as Quine's is strong enough to support the DCT.<sup>13</sup> I shall be examining the case for Quinean naturalism in the next chapter.

### 1.3.3 *The Quantificational Criterion of Ontological Commitment*

Since its initial publication in 1948, Quine's "On What There Is" has served as the touchstone for discussions of ontological commitment.<sup>14</sup> Quine opens the discussion with "the old Platonic riddle of non-being".

Suppose that two philosophers, McX and I, differ over ontology. Suppose that McX maintains there is something which I maintain there is not. McX can quite consistently with his own view, describe our difference of opinion by saying that I refuse to recognize certain entities... When I try to formulate our difference of opinion, on the other hand, I seem to be in a predicament. I cannot admit that there are some things which McX countenances and I do not, for in admitting that there are such things I should be contradicting my own rejection of them. (Quine [1948], 1)

The central supposition of the riddle is that we commit ourselves to a thing's existence when we try to deny its existence because we must be referring to *something* when making that denial in order for the denial to be meaningful in the first place. Quine

---

<sup>13</sup> On this point, I am in agreement with Colyvan [2001]. He notes,

It turns out that a very specific form of naturalism is required to support the argument [for the epistemized thesis of scientific referentialism] and, what is more, if another popular form of naturalism [i.e. Armstrong's naturalism advocating only spatio-temporal entities] is substituted in place of the Quinean variety, we find the argument is without any force. Even worse, this other form of naturalism entails the nonexistence of abstract entities! (Colyvan [2001], 18)

<sup>14</sup> In order to appreciate the article's profound and lasting affect, one need only consider the titles of some subsequent papers taking up the topic. There are, for example, Fleming and Wolterstorff's 1959, "On 'There Is'"; Grandy's 1969, "On What There Need Not Be"; Routley's 1982, "On What There Is Not"; and Azzouni's 1998, "On 'On What There Is'". Imitation remains the sincerest form of flattery.

summarizes the point with the example of Pegasus, “If Pegasus *were* not, ... we should not be talking about anything when we use the word; therefore it would be nonsense to even say that Pegasus is not.” ([1948], 2)

Quine attempts to untangle the riddle by rejecting its central supposition. He writes,

We commit ourselves to an ontology containing numbers when we say there are prime numbers larger than a million; we commit ourselves to an ontology containing centaurs when we say there are centaurs; and we commit ourselves to an ontology containing Pegasus when we say Pegasus is. But we do not commit ourselves to an ontology containing Pegasus or the author of *Waverly* or the round square cupola on Berkeley College when we say that Pegasus or the author of *Waverly* or the cupola in question is *not*. We need no longer labor under the delusion that the meaningfulness of a statement containing a singular term presupposes an entity named by the term. A singular term need not name to be significant. (Quine [1948], 8-9)

This passage, which occurs some way into the paper, contains the paper’s first use of “ontology” and “commitment” with in the same sentence. Yet, the first use of the term, “ontological commitment”, does not occur until some pages later.

We can very easily involve ourselves in ontological commitments by saying, for example, that *there is something* (bound variable) which red houses and sunsets have in common; or that *there is something* which is a prime number larger than a million. But this is, essentially, the *only* way we can involve ourselves in ontological commitments: by our use of bound variables... To be assumed as an entity is, purely and simply, to be reckoned as the value of a variable. In terms of the categories of traditional grammar, this amounts roughly to saying that to be is to be in the range of reference of a pronoun... The variables of quantification, ‘something’, ‘nothing’, ‘everything’, range over our whole ontology, whatever it may be; and we are convicted of a particular ontological presupposition if, and only if, the alleged presuppositum has to be reckoned among the entities over which our variables range in order to render one of our affirmations true. (Quine [1948], 12-3)

Throughout his long career, Quine time and again reiterated the above *quantificational criterion of ontological commitment*, “To be assumed as an entity is, purely and simply, to be reckoned as the value of a variable”, or as it is often more succinctly put, “To be is to be the value of a bound variable.”

[A] theory is committed to those and only those entities to which the bound variables of the theory must be capable of referring in order for the affirmations made in the theory to be true. (Quine [1948], 13-4)

The grade of theoreticity marked by objectual quantification is thus a notable grade indeed. It is where talk of things sets in; things, objects, entities. It is the grade of theoreticity that brings variables, and the values of variables are what there are said to be. (Quine [1970], 16)

The variables range, as we say, over all objects; they admit all objects as values. To assume objects of some sort is to reckon objects of that sort among the values of our variables. (Quine [1981a], 8)

The artificial notation ‘ $\exists x$ ’ of existential quantification is explained merely as a symbolic rendering of the words ‘there is something  $x$  such that’. So, whatever more one may care to say about being or existence, what there are taken to be are assuredly just what are taken to qualify as values of ‘ $x$ ’ in quantifications. The point is thus trivial and obvious. (Quine [1990], 26-7)

With the quantificational criterion of ontological commitment, Quine offers a *recipe* for determining the sorts of objects (whether they be dogs, cats, electrons, or numbers) to which first-order theories are ontologically committed. According to the quantificational criterion, a theory is ontologically committed to those objects that must be in the domain of the quantifiers in order for the theory to be true. That is, a theory is ontologically committed to there being objects satisfying those predicates that are conjoined to variables bound by the particular quantifier, “ $\exists$ ”. For instance, a theory that includes the theorem, “ $\exists x (x \text{ is a dog})$ ”, is committed to the domain containing objects that satisfy the



predicate, “is a dog”. Hence, such a theory is ontologically committed to dogs. This view of ontological commitment has assumed the status of orthodoxy in contemporary analytic philosophy.

It is important to note from the very beginning that Quine is here proposing a *criterion of ontological commitment*, rather than a *criterion of existence*.

*A criterion of ontological commitment* is supplied by a theory of *what we say there is*.<sup>15</sup> A criterion of ontological commitment provides a means for identifying the ontological commitments of a statement, theory, or individual. That is, a criterion of ontological commitment provides a principle for determining to what entities or sorts of entities a statement, theory, or individual is committed. A criterion of ontological commitment has no implications with regard to the truth or falsity of any physical or metaphysical theory and, consequently, has no implications with regard to the existence of any particular sorts of entities.

*A criterion of existence* is supplied by a theory of *what exists*.<sup>16</sup> A criterion of existence attempts to specify what sorts of entities do exist, can exist, or must exist. Idealism (the view that only mental entities do exist), materialism (the view that only material entities do exist), physicalism (the view that all and only those

---

<sup>15</sup> Azzouni has called these *CRDs*, “criteria of what a discourse commits us to”. ([1998], 2)

<sup>16</sup> Azzouni has called these *CWEs*, “criteria of what exists”. ([1998], 2)

entities included in a complete or final physical theory do exist), and nominalism (the view that only concrete objects can exist) supply paradigm examples of existence criterion.<sup>17</sup> Such criteria obviously do have implications with regard to the existence of particular entities and, consequently, have implications regarding the truth or falsity of physical and metaphysical theories.

To Quine's credit, he is usually careful to keep this distinction clear. He writes,

We look to bound variables in connection with ontology not in order to know what there is, but in order to know what a given remark or doctrine, ours or someone else's, *says* there is... (Quine [1948], 15)

I am not suggesting a dependence of being upon language. What is under consideration is not the ontological state of affairs, but the ontological commitments of a discourse. What there is does not in general depend on one's use of language, but what one says there is does. (Quine [1980], 103)

Although keeping this distinction clearly in mind is essential, even those who remark on the importance of the distinction frequently blur over it. As Routley has warned, "Though much is sometimes made of the difference between what a theory says and what it is committed to, the separate issues of what exists and what ontic commitments to allow ourselves are characteristically (but not invariably) conflated." ([1982], 173)<sup>18</sup>

What has been said thus far only applies to those theories regimented into first-order logic (i.e., theories with explicit quantification). Of course, very few of our theories, even our best scientific theories, are so regimented. Thus, we also need a method for determining the ontological commitments of those theories not in first-order.

---

<sup>17</sup> Many of these terms have long histories where they been used to represent a number of subtly different theses. I mean for the parenthetical remarks to provide only a very general understanding of the family of theses usually associated with each term.

<sup>18</sup> Even Quine has been accused of blurring the distinction between *what exists* and *what we say there is*. This warning from Routley immediately precedes a chastisement of Quine for confusing the two.

According to the quantificational criterion of ontological commitment, theories in ordinary language share the ontological commitments of their first-order translations.

Forcing such regimentation on theories expressed in ordinary language and reading the ontological commitments from the regimented theory frequently leads to counterintuitive consequences. For instance, seemingly ordinary statements such as, “There are things that don’t exist”, are simply nonsensical according to the quantificational criterion. So, what is the justification for adopting a criterion of ontological commitment according to which such ordinary statements are either meaningless or self-contradictory? If the “there is” idiom of ordinary language was not sufficient for expressing ontological commitment, why think that an artificially regimented interpretation of that idiom is what we want for the job?

In defense of the particular quantifier as the final court when it comes to judging ontological commitment, Quine writes,

[T]here are the philosophical champions of ordinary language. Their language is emphatically one to which ‘there is’ belongs, but they look askance at a criterion of ontological commitment which turns on a real or imagined translation of statements into quantificational form. The trouble this time is that the idiomatic use of ‘there is’ in ordinary language knows no bounds comparable to those that might reasonably be adhered to in scientific discourse painstakingly formulated in quantificational terms. Now a philological preoccupation with the unphilosophical use of words is exactly what is wanted for many valuable investigations, but it passes over, as irrelevant, one important aspect of philosophical analysis—the creative aspect, which is involved in the progressive refinement of scientific language. In this aspect of philosophical analysis any revision of notational forms and usages which will simplify theory, any which will facilitate computations, any which will eliminate a philosophical perplexity, is freely adopted as long as all statements of science can be translated into the revised idiom without loss of content germane to the scientific enterprise.... And it is only in this spirit, in reference to one or another real or imagined logical schematization of one or another part or all of science, that we can with full propriety inquire into ontological presuppositions...

In a loose way we often can speak of ontological presuppositions at the level of ordinary language, but this makes sense just so far as we have in mind some likeliest, most obvious way of schematizing the discourse in question along quantificational lines. It is here that the ‘there is’ of ordinary English lends its services as a fallible guide—an all too fallible one if we pursue it purely as philologists, unmindful of the readiest routes of logical schematization. (Quine [1980], 106-7)

Thus, the quantificational criterion is offered as a therapeutic measure when it comes to ontological matters of ordinary discourse. According to Quine, the quantificational criterion is justified in terms of the increased simplicity and elimination of “philosophical perplexity” that it brings. These benefits are offered as “compensation” for the occasions when the criterion seems to run rough shod over common usage. In the end, the ultimate grounds for deciding whether a particular first-order theory is the “appropriate” translation of a theory in ordinary language is whether the translation is accomplished “without loss of content germane to the scientific enterprise.” So long as the two theories are empirically equivalent, the ontological commitments of the first-order translation are the “appropriate guide” to the ontological commitments of the theory stated in ordinary language. In the end, the decision as to which first-order empirically adequate translation to use in determining the ontological commitments of an ordinary language theory will depend largely upon pragmatic considerations such as simplicity. Thus, we have (at least, in principle) a method for determining the ontological commitments of any theory, even those that are not regimented in first-order logic. All that is left then is to explain how the quantificational criterion determines the ontological commitments of individuals.

According to the quantificational criterion, the ontological commitments of an individual reflect the ontological commitments of the theories that that he endorses. That

is, generally speaking, one shares the ontological commitments of the statements and theories that one asserts either verbally or in writing. As Quine explains,

The ... criterion of ontological commitment applies in the first instance to discourse and not to men. One way in which a man may fail to share the ontological commitments of his discourse is, obviously, by taking an attitude of frivolity. The parent who tells the Cinderella story is no more committed to admitting a fairy godmother and a pumpkin coach into his own ontology than to admitting the story as true. Another and more serious case in which a man frees himself from ontological commitments of his discourse is this: he shows how... a prima facie commitment to certain objects... can be expanded into an idiom innocent of such commitments. In this event the seemingly presupposed objects may justly be said to have been explained away as convenient fictions, manners of speaking. (Quine [1980], 103-4)

This passage makes it clear that ontological commitment is something that is primarily associated with theories and only derivatively associated with persons. As the second sentence makes explicit, *the discourse itself* has ontological commitments. The passage also makes it clear that according to the quantificational approach, there are only two ways in which one can avoid the ontological commitments of one's discourse, one can either (a) take "an attitude of frivolity" with regard to his discourse (i.e. simply deny that one believes what one has asserted) or (b) show how one's discourse could be translated into an alternative first-order theory that does not quantify over the supposed objects.

Although we only give voice or pen to the rare thought, the quantificational criterion of ontological commitment can be applied to a person's belief structure more generally by treating his doxastic structure, his "web of belief", as any other theory and translating it into first-order. The individual then shares the ontological commitments of this first-order theory. This, of course, is a highly idealized suggestion.

Due in large part to its initial clarity and simplicity, the quantificational criterion of ontological commitment initially seems quite plausible. Nevertheless, the selection of a criterion of ontological commitment is ultimately a theoretical decision—though not a choice made during the everyday practice of science. The criterion plays a crucial role in our meta-theorizing, our theorizing about our theorizing. In our meta-theorizing, we address such questions as: What is the aim of science and theory development in general? Why have our theories been so predictively successful? Is truth (or, at least, approximate truth to a high degree) a necessary condition for general predictive success? If so, does truth require reference to actual or existing objects? If not, what conditions besides truth would be sufficient for predictive success? Thus, our decision with regard to a criterion of ontological commitment should be guided by more than initial clarity and simplicity. We must also consider a criterion's explanatory power, breadth, and fecundity in addressing the wide range of meta-theoretic questions. These factors affect the *overall* simplicity. Thus, like other theoretical decisions, the selection of a criterion of ontological commitment is a matter for reflective equilibrium.

For a number of meta-theoretic reasons, the quantificational criterion of ontological commitment seems initially appealing. It seems to provide a clear answer to the question of whether truth requires reference to existing objects, “Yes,  $\exists$ -quantified statements are true if and only if there are objects in the domain satisfying the predicates conjoined to the  $\exists$ -bound variables.” This answer fits well with the intuitively appealing suggestion that the aim of science is to develop true theories that refer to features and objects of the actual world. Moreover, this stance towards truth and reference is

supported by a naturalistic standpoint that sees science as the only guide toward discovering truth or, even more radically, as constitutive of the truth. Thus, the quantificational criterion seems to play an essential role in what initially appears to be an overall simple and smooth explanation of our theorizing.

Before considering the last of the premisses, there are three remaining points that need to be made explicit. First, if the Quine-Putnam argument is to imply the existence of mathematical objects, given that we are only justified in believing current theories in the mature sciences to be approximately true to a high degree, it is important that the quantifiers that range over such objects are within of the “literally true” portion of our approximately true scientific theories. An easy first gloss of this idea is that the quantifiers ranging over mathematical objects would/will be included in the final ideal theory of which our current scientific theories are only an approximation. This is by no means uncontentious. Nevertheless, I will grant this assumption and ignore the complexity.

Second, given the Quinean assumption that all quantifiers range over the same domain—the domain of existing objects, the quantificational criterion of *ontological* commitment amounts to a criterion of *existential* commitment.

Third, recall that Quine pointed out that one can avoid the ontological commitments of one’s discourse by taking “an attitude of frivolity” with regard to it (i.e., by simply denying that one believes what one has asserted). This is, of course, exactly what the scientific instrumentalist and the mathematical fictionalist claim to be doing. Yet, if the DCT is correct, then one cannot justifiably take “an attitude of frivolity”

toward current scientific and mathematical theories (given that it is rational to accept such theories for scientific purposes). Hence, if the Quine-Putnam argument is correct up to this point, then the only way to avoid the ontological commitments of current theories in the mature sciences is to show how they could be translated into an alternative first-order theory that do not quantify over the disputed objects.<sup>19</sup>

#### **1.3.4 The Quantificational Indispensability Thesis**

The quantificational indispensability thesis is probably the clearest of the premisses as it seems to present a simple empirical claim: contemporary scientific theories cannot make do without quantifiers ranging over mathematical objects. More precisely, there are current theories in the mature sciences which cannot be reformulated without quantifiers ranging over mathematical objects (e.g. numbers, sets, functions, etc) without adversely affecting their predictive and explanatory power.

Although this might initially appear to be the most uncontroversial and least philosophically interesting of the premisses, three of the most noteworthy attempts to undermine the Quine-Putnam indispensability argument have concentrated on the quantificational indispensability thesis. In his [1981], Hartry Field attempted to show

---

<sup>19</sup> When first laying out the Quine-Putnam argument, I noted that part of what differentiated the Quine-Putnam argument from the basic indispensability argument is the Quine-Putnam argument focuses on justification, rather than truth, and makes use of a criterion of ontological commitment, rather than a criterion of existence. It should be clear now how these points are linked. Given that the DCT directs the focus of the Quine-Putnam argument on justification, the argument could only make use of a quantificational criterion of *existence* (as opposed to a quantificational criterion of ontological commitment) given the additional assumption that justification entailed truth. Yet, such an assumption has been rejected soundly by epistemologists for a very long time. Descartes is perhaps the last major epistemological theorist to endorse such an infallibilist account of justification.



that quantification over mathematical objects is not indispensable to our mature scientific theories. In that book, he demonstrated how Newtonian gravitational theory could be reconstructed using Hilbert's synthetic geometry and reference to concrete space-time points and regions (rather than using traditional algebraic theories that requires apparent reference to abstract mathematical objects). Field suggested that current scientific theories could be reconstructed in a similar way, dispensing with the need to quantify over uniquely mathematical objects. In a pair of similar proposals, Geoffrey Hellman's [1989] and Charles Chihara's [1990] suggested that mature scientific theories do not quantify over objects at all, let alone indispensably quantifying over mathematical objects. Both Hellman and Chihara claim that the apparent quantification over mathematical objects can be reinterpreted in terms of possibility, thus eliminating the need to quantify over any objects. All three approaches have been extensively examined and criticized in the literature. Although they are surely ingenious, I do not think that any of them ultimately proves decisive against the indispensability argument. Thus, I take it that quantification over mathematical objects is indeed indispensable to current theories in the mature sciences.

#### **1.4 Summary**

In this chapter, I have presented what I take to be the most plausible formulation of the Quine-Putnam indispensability argument. As I have presented it, the argument seems to hang on the case for the doxastic commitment thesis and whether its foundation

in Quinean naturalism is secure. Over the next few chapters, I shall examine the arguments for and against Quinean naturalism and whether it can provide the needed foundation for the Quine-Putnam indispensability argument.

## CHAPTER 2

### THE CASE FOR QUINEAN NATURALISM

#### 2.1 Overview

For the Quinean, the development and justification for naturalism is closely tied to a particular understanding of the history of empiricism, especially to the rise and fall of logical positivism. Naturalism is taken to be the rational response to the historic failure to achieve the traditional epistemic goal of providing a more secure foundation for knowledge, especially scientific knowledge. According to the naturalist, this failure was not just an historical accident, but was an inevitability on theoretical grounds. This chapter will examine the naturalist's parallel historic and semantic explanations for this failure and the argument that naturalism is the correct response to it. Ultimately, it will be argued that the case for Quinean naturalism rests upon a radical conformational holism, a verificationist view of meaning, and an unregenerate realism.

## 2.2 What is Naturalism?

Over the years, Quine has restated the thesis of naturalism many times.<sup>20</sup>

[M]y position is a naturalistic one; I see philosophy not as an *a priori* propaedeutic or groundwork of science, but as continuous with science. I see philosophy and science as in the same boat—a boat which, to revert to Neurath's figure as I so often do, we can rebuild only at sea while staying afloat in it. There is no external vantage point, no first philosophy. (Quine [1969c], 126-7)

The answer is naturalism: the recognition that it is within science itself, and not in some prior philosophy, that reality is to be identified and described. (Quine [1981a], 21)

The fifth move, finally, brings naturalism: abandonment of the goal of first philosophy. It sees natural science as an inquiry into reality, fallible and corrigible but not answerable to any supra-scientific tribunal, and not in need of any justification beyond observation and the hypothetico-deductive method. (Quine [1981b], 72)

Naturalistic philosophy is continuous with natural science. It undertakes to clarify, organize, and simplify the broadest and most basic concepts, and to analyze scientific method and evidence within the framework of science itself. The boundary between naturalistic philosophy and the rest of science is a vague matter of degree. ... My naturalism has evidently been boiling down to the claim that in our pursuit of truth about the world we cannot do better than our traditional scientific procedure, the hypothetico-deductive method. (Quine [1995], 257)

From these passages, we see that the naturalist perspective is the result of a two-step process, one negative and one positive.

---

<sup>20</sup> Throughout this chapter I shall simply refer to Quinean naturalism and the Quinean naturalist as naturalism and the naturalist, respectively. The previous chapter presented the case that Quinean naturalism's rejection of the transcendent method is needed to ground the DCT and, thus, the entire Quine-Putnam indispensability argument.

### 2.2.1 Step One: The Negative Step

The first step toward the naturalist perspective, the negative step, is the rejection of “first philosophy” or “prior philosophy”. In rejecting “first philosophy”, the naturalist is rejecting what he sees as the traditional epistemological project.<sup>21</sup> For Quine, “first philosophy” refers to the epistemological project that he finds in the writings of Descartes, Locke, Berkeley, Hume, and continuing right through to the logical positivists. According to Quine, the *goal* of the traditional epistemological project was provide a *justification* or *foundation* for science. The epistemologist’s dream, at least early on, was to dispel skepticism and place a sizable portion of our knowledge on an infallible footing. As Quine put it,

Where the naturalistic renunciation shows itself most clearly and significantly is in naturalistic epistemology. Various epistemologists, from Descartes to Carnap, had sought a foundation for natural science in mental entities, the flux of raw sense data. It was if we might fashion a self-sufficient and infallible lore of sense data, innocent of reference to physical things, and then build our theory of the external world somehow on that finished foundation. ([1995], 252)<sup>22</sup>

In order to accomplish this goal and avoid the circularity of using science to support science, epistemologists of the traditional mold assumed that they must make use of a uniquely philosophical *method*, a *prioristic reasoning*. Naturalism abandons the attempt

---

<sup>21</sup> Although Quine’s use of the term, “first philosophy”, in this overt epistemological manner has now become standard use for the term, Quine might well have been the first to have used it this way.

<sup>22</sup> Quine presents a rather idiosyncratic view of the history of philosophy. For instance, it is open to question whether the logical positivists were aiming at the same goal as Descartes. Descartes was clearly interested in providing for the certainty of knowledge, but many positivists, such as like Neurath, rejected the goal of certainty. Here, however, I am primarily concerned with setting up the groundwork for the argument for naturalism as the naturalist sees it.

to make use of a uniquely philosophical method *because* it abandons the philosophical goal that the method was meant to support.

### 2.2.2 *Step Two: The Positive Step*

The second step toward the naturalist perspective, the positive step, is the re-envisioning of the philosophical project, especially the epistemological project, as continuous with the scientific project, rather than as foundationally prior to it. Once the traditional epistemological goal and its associated method are given up, we are free to re-envision the goal of the epistemic project and adopt a new, corresponding method. According to the naturalist, the new *goal* is to *explain* how we have developed our science and why it has been so predictively successful given the severely limited data that we receive through our sense organs. The new epistemic *method* is to be the method of science, *observation and the hypothetico-deductive method*. Thus, empiricism's victory over first philosophy is complete when philosophy has been made continuous with science and, in particular, when epistemology has become a branch of empirical psychology. As Quine has put the point numerous times,

Epistemology, or something like it, simply falls into place as a chapter of psychology and hence of natural science. It studies a human phenomenon, viz., a physical human subject. This human subject is accorded a certain experimentally controlled input—certain patterns of irradiation in assorted frequencies for instance—and in the fullness of time the subject delivers as output a description of the three dimensional external world and its history. The relation between the meager input and the torrential output is a relation that we are prompted to study for somewhat the same reasons that always prompted epistemology, namely in order to see how evidence relates to theory, and in what ways one's theory of nature transcends any available evidence. (Quine [1969], 297)

Naturalism does not repudiate epistemology, but assimilates it into empirical psychology. Science itself tells us that our information about the world is limited to irritations of our surfaces, and then the epistemological question is in turn a question within science: the question how we human animals can have managed to arrive at science from such limited information. (Quine [1981], 72)

The naturalization of epistemology... is both a limitation and a liberation. The old quest for a foundation for natural science, firmer than science itself, is abandoned: that much is the limitation. The liberation is free access to the resources of natural science, without fear of circularity. The naturalistic epistemologist settles for what he can learn about the strategy, logic, and mechanics by which our elaborate theory of the physical world is in fact projected, or might be, or should be, from just that amorphous neural intake. (Quine [1995], 256)

It should come as no surprise that this final triumph of empiricism is made possible only when the very goal that inspired first philosophy is abandoned. This is why Quine heralded naturalism as “the abandonment of the *goal* of first philosophy”.

### **2.3 The Historical Argument for Naturalism**

The essential elements to build the historical argument for naturalism have long been part of the Quinean system. The argument has its roots in Quine’s 1951, “Two Dogmas of Empiricism”, and reaches its mature form in his 1969, “Epistemology Naturalized”. Although the two papers are separated by over a decade and a half, the later paper is in many ways a working out and advancing of the basic tenets and issues raised in the earlier one. Not only are both papers concerned with the same central issue, *reductionism*, but both papers reveal a preoccupation with the history of philosophy and, especially, with the history of empiricism. In particular, both papers focus on the

connection between the British empiricists and the logical positivists.<sup>23</sup> Since these two papers present such a unified vision, the following discussion will frequently transition back and forth between them.<sup>24</sup>

### 2.3.1 *Step One: Abandoning the Goal of First Philosophy*

According to the Quinean, the traditional epistemic goal of providing a foundation for knowledge, particularly scientific knowledge, has historically been supported by two related projects, a doctrinal project and a conceptual project. The naturalist rejects both projects as misguided.

The first project of traditional epistemology, the doctrinal project, was concerned with truth and certainty. More specifically, the doctrinal project was to justify the laws of science in sensory terms, thus providing an extra-scientific (hopefully infallible) foundation for science. The second project of traditional epistemology, the conceptual project, was concerned with meaning and clarity. ([1969], 292) The cornerstone of the conceptual project was the enterprise of *radical reductionism*. Radical reductionism was the attempt to provide a translation of statements that make use of physical terms, particularly those that seemingly referred to physical bodies, into statements that make use of only sensory and logical terms. Quine writes,

This is *radical reductionism*. Every meaningful statement is held to be translatable into a statement (true or false) about immediate experience... Thus, Locke and Hume held that every idea must either originate directly in sense

---

<sup>23</sup> Of special note, Quine's discussion of Carnap's [1928] is remarkably similar in both articles.

<sup>24</sup> Since Quine's [1969], the historical argument for naturalism has remained largely unaltered.



experience or else be compounded of ideas thus originating; and taking a hint from Tooke we might rephrase this doctrine in semantical jargon by saying that a term, to be significant at all, must either be a name of a sense datum or a compound of such names or an abbreviation of such a compound... More reasonably, and without exceeding the limits of what I have called radical reductionism, we may take full statements as our significant units- thus demanding that our statements as wholes be translatable into sense datum language, but not that they be translatable term by term... Radical reductionism, conceived now with statements as units, set itself the task of specifying a sense-datum language and showing how to translate the rest of significant discourse, statement by statement, into it. Carnap embarked upon this project in the *Aufbau*. (Quine [1951], 38-9)

Quine suggests that the conceptual project and its aim of radical reductionism were initially conceived to be subordinate to the doctrinal project. Quine has suggested that the relationship that logicians sought between mathematics and logic at the beginning of the 20<sup>th</sup> century was in many ways analogous to the relationship that radical reductionists sought between the doctrinal and conceptual epistemological projects.

Quine describes the logicist goal,

If in particular the concepts of mathematics were all reducible to the clear terms of logic, then all the truths of mathematics would go over into truths of logic; and surely the truths of logic are all obvious or at least potentially obvious, i.e., derivable from obvious truths by individually obvious steps. (Quine [1969], 292)

Thus, the hope was that from a conceptual reduction, advances in obviousness or certainty would be made.

[I]f you define all the concepts by use of some favored subset of them, you thereby show how to translate all theorems into these favored terms. The clearer these terms are, the likelier that it is that the truths couched in them will be obviously true, or derivable from obvious truths. (Quine [1969], 292)

Thus, it was thought that success at the conceptual project would lead to success at the doctrinal project. The analogy between mathematics and epistemology should now be quite clear.

Just as mathematics is to be reduced to logic, or logic and set theory, so natural knowledge is to be based somehow on sense experience. This means explaining the notion of body in sensory terms; here is the conceptual side. And it means justifying our knowledge of truths of nature in sensory terms; here is the doctrinal side of the bifurcation. (Quine [1969], 293)<sup>25</sup>

Thus it was hoped that radical reduction's sensory translation of physicalistic language would provide the initial framework for science's foundation.

From the Quinean perspective, Berkeley's idealism was likely the zenith of the conceptual project as conceived of as a subordinate epistemological enterprise. For, as Quine points out, the futility of the doctrinal project should have been clear once it was recognized by Hume that our present stimulations could never ground generalizations or particular statements about the future. As Quine has so eloquently put the point, "The Humean predicament is the Human predicament." ([1969], 293) However, the futility of the doctrinal project is even starker. Our present stimulations could never even provide infallible grounding for simple statements of fact.

[T]he mere fact that a sentence is *couched* in terms of observation, logic, and set theory does not mean that it can be *proved* from observation sentences by logic and set theory. The most modest of generalizations about observable traits will cover more than its utterer can have had occasion actually to observe. The hopelessness of grounding natural science upon immediate sense experience in a firmly logical way was acknowledged. The Cartesian quest for certainty had been the remote motivation of epistemology, both on its conceptual and its doctrinal side; but the quest was seen as a lost cause. (Quine [1969], 294)

Thus, hope for even an attenuated version of the doctrinal project was lost.

---

<sup>25</sup> Of course, the problem with the doctrinal project in mathematics was that set theory was needed in addition to logic, but the axioms of set theory are by no means obvious.

After the collapse of the doctrinal project, the conceptual project took on new significance and emerged as a stand-alone undertaking. Focus on the conceptual project as an independent epistemic enterprise reached its zenith among the naturalist's immediate forebearers, the logical positivists. The positivists believed that a workable translation of scientific concepts into sensory terms would be useful, regardless of the fate of the doctrinal project. Initially, the dream was of operational definability of scientific concepts. That is, each theoretical term would be given "an explicit definition stating an observable response whose occurrence is necessary and sufficient, under specifiable test conditions, for the applicability of the term in question." (Hempel [1965], 187) This dream quickly gave way to the lesser, but still grand goal of statement by statement translations of scientific theories into the language of sensory experience, logic, and set theory. This goal was clearly articulated in the positivistic manifesto, *The Scientific Conception of the World*.

The aim of scientific effort is to reach the goal, unified science, by applying logical analysis to empirical material. Since the meaning of every statement of science must be statable by reduction to a statement about the given, likewise the meaning of the concept, whatever branch of science it may belong to, must be statable by step-wise reduction to other concepts, down to the concepts of the lowest level which refer directly to the given. (Vienna Circle [1930], 309)

However, as the naturalist correctly sees, the goal was not *just* to unify science. Such a translation would legitimate science, particularly its unobservable posits. Quine summarizes this positivistic aim,

We should like to be able to *translate* science into logic and observation terms and set theory. This would be a great epistemological achievement, for it would show all the rest of the concepts of science to be theoretically superfluous. It would legitimize them—to whatever degree the concepts of set theory, logic, and observation are themselves legitimate—by showing that everything done with the

one apparatus could in principle be done with the other... [W]e want to establish the essential innocence of physical concepts, by showing them to be theoretically dispensable. (Quine [1969], 294-5)

As indicted earlier, the goal of a statement by statement translation was the goal Carnap embarked upon in the *Aufbau*. Quine credits the *Aufbau* as the high point of the conceptual project's attempt at radical reductionism. "To account for the external world as a logical construct of sense data... was the program. It was Carnap, in his *Der logische Aufbau der Welt* of 1928, who came nearest to executing it." ([1969], 294)

After repeated attempts to legitimate scientific concepts by showing them to be eliminable failed, the positivists aimed for lesser goals. For example, in his [1936], Carnap attempted to supply reduction sentences for our scientific discourse. Rather than providing genuine translations of physical language statements, reduction sentences would provide only sensory implications of those statements. The hope was that at the very least the meaningful language of scientists could be clearly delineated from the meaningless noise of metaphysicians. After numerous failures to develop an observational criterion of cognitive significance, even this lesser project was abandoned and, with it, most of the positivist project.<sup>26</sup>

Nevertheless, according to Quine, a "subtler and more tenuous" form of the conceptual project survived the death of positivism's radical reductionism in the notion that,

to each statement, or each synthetic statement, there is associated a unique range of possible sensory events such that the occurrence of anyone of them would add

---

<sup>26</sup> For a detailed discussion of the step by step failures of positivism, see Hempel [1965] and Scheffler [1963].

to the likelihood of truth of the statement, and that there is also another unique range of possible sensory events whose occurrence would detract from that likelihood. (Quine [1953], 40)

When presented in this more subtle form, it becomes clear that the core of the conceptual project is about evidence, confirmation, and justification, rather than about meaning and translation. According to Quine, so long as this subtler version of the conceptual project was tenable, so was the notion of analyticity.

[A]s long as it is taken to be significant in general to speak of the confirmation and infirmation of a statement, it seems significant to speak also of a limiting kind of statement which is vacuously confirmed, *ipso facto*, come what may; and such a statement is analytic. (Quine [1953], 41)

Hence, as Quine saw things, this *weak reductionism* provided the last reasonable grounds for assuming an analytic/synthetic distinction, a key remnant of traditional epistemology. If there were limiting statements that were immune from disconfirmation and revision, then there would be “a feeling that the truth of a statement is somehow analyzable into a linguistic component and factual component.” ([1953], 41) Analyzing statements and theories into linguistic and factual components would remain the job of philosophers employing their a priori methodology. Philosophers would provide the ‘finishing touches’ to scientific theories by telling us which parts of our theories were contributed by the world and which parts of our theories were contributed by us. Thus, there would still be a link back to the epistemological project as conceived by Hume, with his distinction between “relations of ideas” and “matters of fact”, and Leibniz, with his distinction between “truths of reason” and “truths of fact”. (Quine [1951], 20)

Thus, the final step in the defeat of first philosophy is overcoming the analytic/synthetic distinction. More specifically, the final step is to undermine the idea that there are any statements immune from disconfirmation and revision. If all parts of a theory (including background assumptions) were disconfirmable in the face of recalcitrant data, then all parts would be equally confirmed by successfully predicted outcomes. Consequently, confirmation would be radically holistic. That is, confirmation would apply to entire theories or, at least, large portions of theories with vague boundaries rather than individual statements or even small, isolable sections of theories.

Yet, if we retain the empiricist view of meaning (experience is the only source of meaning), once confirmation is recognized as radically holistic, meaning must be recognized as holistic as well. That is, if confirmation can only be imputed to entire theories rather than to individual statements, then meaning must likewise adhere to entire theories rather than to individual words or statements. This is the argument of “Two Dogmas of Empiricism.” According to Quine, the “two dogmas”, the analytic/synthetic distinction and reductionism, are “at root identical” ([1951], 41).<sup>27</sup> Thus, the rejection of the two dogmas completes the ascension to *meaning holism*.

The idea of defining a symbol in use was... an advance over the impossible term-by-term empiricism of Locke and Hume. The statement, rather than the term, came with Bentham to be recognized as the unit accountable to the empiricist critique. But... even in taking the statement as unit we have drawn our grid too finely. The unit of empirical significance is the whole of science. (Quine [1951], 42)

So, without a separable linguistic component, there is no room for a specifically philosophical method. There are no ‘finishing touches’ for philosophers to add to

---

<sup>27</sup> I shall discuss the specific arguments in the next chapter

scientific theories. There is no winnowing our theories into what the world gives us and what we bring ourselves. Therefore, if weak reductionism is undermined, the last lingering support for the conceptual project and the a priori method of first philosophy disappears. ([1951], 37-42) Thus, there is no alternative but to abandon the goal of first philosophy as hopeless.

### 2.3.2 *Step Two: Re-envisioning the Goal of Philosophy*

Once it is recognized that there is nothing firmer to found science upon, the naturalist suggests that there is no reason not to realign epistemology as part of science.

As Quine puts it,

[A] surrender of the epistemological burden to psychology is a move that was disallowed in earlier times as circular reasoning. If the epistemologist's goal is validation of the grounds of empirical science, he defeats his purpose by using psychology or other empirical science in the validation. However, such scruples against circularity have little point once we have stopped dreaming of deducing science from observations. If we are out simply to understand the link between observation and science, we are well advised to use any available information, including that provided by the very science whose link with observation we are seeking to understand. (Quine [1969], 294)

So, once first philosophy has been given up, we are free to view natural science as “an inquiry into reality, fallible and corrigible but not answerable to any supra-scientific tribunal, and not in need of any justification beyond observation and the hypothetico-deductive method.” ([1981b], 72) Once this is done, epistemology (if it is to survive) must become a branch of science. To this end, the epistemic project is stripped down and reenvisioned as answering the question how we can have managed to arrive at science

from the limited information provided by our sensory surface irritations. In answering this question, epistemology is assimilated into empirical psychology. This just is naturalism, the final victory of empiricism over first philosophy.<sup>28</sup>

### 2.3.3 *Summing Up the Historical Argument for Naturalism*

The historical path to naturalism begins with the realization that the traditional epistemic goal of grounding science in something firmer is impossible. Thus, we must abandon the conceptual goal of analyzing language into a factual or empirical component *and* a linguistic or a priori component. Once the goal of first philosophy is abandoned, we are free to abandon the methodology. That is, once we abandon the goal of first philosophy, we are led to abandon first philosophy altogether. This opens the way for re-envisioning the aim of philosophy and, in particular, the aim of epistemology. In the vision, philosophy is continuous with science and, in particular, epistemology is continuous with empirical psychology.

---

<sup>28</sup> Hylton provides a similar analysis of the last step of the argument to naturalism.

For Quine the failure of radical reductionism- essentially the failure of Carnap's program in the *Aufbau*- means that we should give up the goal of *justifying* science on the basis of observation and logic: the goal simply cannot be reached. When we replace it with a more modest goal of understanding the link between observation and science, we see that there is nothing in this new goal that prevents us from using the results of empirical science in our pursuit of it. We give up the idea that the relation between theory and evidence is to be understood from a distinctly philosophical point of view, and settle instead for a naturalistic perspective: so naturalism seems to emerge from the failure of radical reductionism. (Hylton [1994], 269)



## 2.4 The Semantic Argument for Naturalism

The historical argument for naturalism had two steps. In the first step, the naturalist argued that the traditional philosophical project and its accompanying methodology should be abandoned. In the second step, the naturalist explained why naturalism, rather than something else, should take the place of the conceptual project and its methodology. In his 1981, “Five Milestones of Empiricism”, Quine presents the same basic argument from a semantic, rather than an historical point view. Quine cites two sources of naturalism, one source for each step of the historical argument. He writes,

Naturalism has two sources, both negative. One of them is despair of being able to define theoretical terms generally in terms of phenomena, even by contextual definition. A holistic or system-centered attitude should suffice to induce this despair. The other negative source of naturalism is unregenerate realism, the robust state of mind of the natural scientist who has never felt any qualms beyond the negotiable uncertainties internal to science... (Quine [1981], 72)

### 2.4.1 *The First Source: Meaning Holism*

Naturalism’s first source, “despair of being able to define theoretical terms generally in terms of phenomena, even by contextual definition”, was the underlying motivation for the first step of the historical argument. This despair forces recognition that meaning inheres only in large, vague boundaried portions of theory, not in individual words, sentences, or even small isolable parts of theories. Thus, the conceptual project was doomed from the start because it was founded upon mistaken atomistic and molecularist views of meaning. Hence, *meaning holism* is first source of naturalism.

Yet, meaning holism itself has two sources. First, meaning holism is grounded upon *radical confirmational holism*.<sup>29</sup> Radical confirmational holism is the view that when scientists perform an experiment or collect data that confirms a prediction, they do not confirm a single theoretical statement or even a small subset of their theoretical assumptions. Rather, the entire theory (including all background assumptions) required in order to make the prediction is confirmed.<sup>30</sup> Radical confirmational holism is often supposed to follow from the claim that no statement can be tested independent of a wider theory. This is widely known as the Quine-Duhem thesis. Pierre Duhem is credited as the first to give a clear explication of the idea.

---

<sup>29</sup> My explication on this point differs drastically from Colyvan's analysis. He writes,

It's somewhat ironic that Quine argues for confirmational holism... from his semantic [i.e. meaning] holism, which is one of the most controversial parts of Quine's philosophy... I don't deny that confirmational holism follows from semantic holism; it's just that there are easier less controversial roads to confirmational holism. Since it's only confirmational holism that we require for the indispensability argument, I intend to explore these other roads and thus avoid the semantic holism debate. (Colyvan [2001], 35)

The other road that Colyvan primarily has in mind is what Gibson, in his [1995], has called the scientific practice argument. With regard to the above passage, my analysis diverges from Colyvan's on three points.

1. I suggest that the other road—the scientific practice argument—is in fact Quine's primary road to confirmational holism.
2. I suggest that according to Quine, confirmational holism provides the basis for meaning holism, rather than the other way around. In fact, I am not exactly sure how the argument from meaning holism to confirmational holism is supposed to work in any non-question begging manner.
3. I suggest that Quine's naturalism is immediately grounded in meaning holism. Thus, Colyvan cannot simply excuse himself from that debate. Colyvan's desire to avoid the debate over meaning holism is likely to be part of the reason that he maintains that there can be no argument for a thesis "as fundamental" as naturalism. (Colyvan [2001], 25)

<sup>30</sup> It is interesting to note that, at least from the Quinean point of view, the term, "confirmational holism", is a bit of a misnomer. Quine specifically rejects the idea that theories are ever confirmed. Rather, successful predictions simply fail to disconfirm a theory. To the extent that a theory withstands extensive testing without having been disconfirmed, the better "confirmed" it is in a loose sense of the word. (Quine [1990], 12)

[T]he physicist can never subject an isolated hypotheses to experimental test, but only a whole group of hypotheses; when the experiment is in disagreement with his predictions, what he learns is that at least one of the hypotheses constituting this group is unacceptable and ought to be modified; but the experiment does not designate which one should be changed. (Duhem [1906], 187)

Quine is credited for most influential (and poetic) formulation of the idea.

The dogma of reductionism survives in the supposition that each statement, taken in isolation from its fellows, can admit of confirmation or infirmation at all. My countersuggestion... is that *our statements about the external world face the tribunal of sense experience not individually but as a corporate body*. (Quine [1951], 41, my emphasis)<sup>31</sup>

Naturalists generally assume that the two claims, (i) that no hypothesis is capable of test independently of a background theory and (ii) that confirmation of a prediction confirms not just a single hypothesis, but the whole background theory, are merely two sides of the same coin. It is the support relation between confirmational holism and meaning holism that Quine is referring to in the above passage from his [1981] when he maintained that, “A holistic or system-centered attitude [i.e. confirmational holism] should suffice to induce this despair [of being able to define theoretical terms generally in terms of phenomena, i.e. meaning holism]”.

Meaning holism, however, results only when radical confirmational holism is combined with an empiricist theory of meaning. As Quine writes,

The Vienna Circle espoused a verification theory of meaning but did not take it seriously enough. If we recognize with Peirce that the meaning of a sentence turns purely on what count as evidence for its truth, and if we recognize with Duhem that theoretical sentences have their evidence not as single sentences but only as larger blocks of theory, then the indeterminacy of translation of

---

<sup>31</sup> It is an interesting side note that Quine claims to have developed his view independently of reading any Duhem. He only added the footnote making reference to Duhem in the [1953] reprint of his article after it was pointed out to him that Duhem had much earlier developed the same position. (Quine [1994])

theoretical sentences is the natural conclusion... This conclusion... seals the fate of any general notion of propositional meaning or, for that matter, state of affairs. (Quine [1969], 279)<sup>32</sup>

Thus, *verificationism* is the second source of meaning holism

Hence, meaning holism results from combining radical confirmational holism and verificationism. Okasha summarizes the argument as follows.

[G]iven a verificationist starting point, confirmational holism entails semantic holism. For the verificationist identifies semantic relations with relations of evidential support or confirmation: the meaning of a statement, he holds, is determined by the experiences that would tend to confirm it. So if confirmation is holistic and verificationism is true, meaning would appear to be holistic too. (Okasha [2000], 39-40)<sup>33</sup>

Once meaning holism is established and it is clear that it is incompatible with the conceptual project, the first step toward naturalism is complete.<sup>34</sup>

---

<sup>32</sup> Immediately after this passage, Quine notes that this conclusion should not cause us to abandon verificationism. He writes,

Should the unwelcomeness of the conclusion persuade us to abandon the verification theory of meaning? Certainly not. The sort of meaning that is basic to translation, and to the learning of one's own language, is necessarily empirical meaning and nothing more. ([1969], 296)

<sup>33</sup> Okasha notes that Quine presents this argument not only in his [1969], but also in his [1974] and in his reply to Gibson in his [1986]. Okasha also points out that both Gibson [1982] (80-1) and Loar [1982] (273) explicitly acknowledge Quine as the source of this argument.

<sup>34</sup> In their [1992], Fodor and Lepore maintain that the argument from confirmational holism and verificationism to meaning holism is invalid because the argument trades on an equivocation. They suggest that the only way to avoid equivocation would be to understand *statements* to be nothing more than *formulas* or *sentences*. Fodor and Lepore assume that Quine can't mean for statements to be formulas or sentences because this trivializes the Quine-Duhem thesis and its consequence that any statement can be held onto come what may. Both Okasha [2000] and Becker [2001] argue convincingly that the argument is valid because Quine does understand statements to be formulas or sentences and that he recognizes the triviality that this implies.

#### 2.4.2 *The Second Source: Unregenerate Realism*

At the second step of the historical argument was to explain why naturalism, rather than something else, should take the place of the conceptual project and its methodology. As Hylton notes, naturalism is “only one among various possible reactions” to the failure of the conceptual project. ([1994], 269) As he points out,

Another would be to say that since the goal of justifying science on the basis of observations and logic cannot be met, science is therefore unjustified, or is justified merely as a useful instrument which does not attempt to give us the truth about the world. (Hylton [1994], 269)

Thus, (a) thoroughgoing skepticism with regard to science and (b) instrumentalism with respect to the unobservable posits of science are also plausible responses to the failure of the traditional philosophical project. Hence, naturalism must be grounded in more than just meaning holism.

The second source of naturalism is “*unregenerate realism*, the robust state of mind of the natural scientist who has never felt any qualms beyond the negotiable uncertainties internal to science” (my emphasis). For Quine, science is just a refined extension of our common sense reasoning.

Science is not a substitute for common sense, but an extension of it. The quest for knowledge is properly an effort simply to broaden and deepen the knowledge which the man in the street already enjoys, in moderation, in relation to the commonplace things around him. To disavow the very core of common sense, to require evidence for that which both the physicist and the man in the street accept as platitudinous, is *no laudable perfectionism; it is pompous confusion*, a failure to observe the nice distinction between the baby and the bath water. (Quine [1957], 2)

Thus, unregenerate realism demands that we ought to apply to the posits of our best

scientific theories the same sort of attitude that the man on the street takes toward to the apparent objects of his everyday life, e.g. tables and chairs. As Quine puts it, “Science is a continuation of common sense, and it continues the common sense expedient of swelling ontology to simplify theory.” ([1951], 45) This optimistic attitude of unabashed realism drives Quine to naturalism rather than skepticism or instrumentalism. As Quine puts it,

We cannot significantly question the reality of the external world, or deny that there is evidence of external objects in the testimony of the senses; for to do so is simply to dissociate the terms ‘reality’ and ‘evidence’ from the very applications which originally did most to invest those terms with whatever intelligibility they may have for us. (Quine [1957], 2)

In other words, it is the willingness to swell the ontology of science with unobservable entities in the interest of overall simplicity and explanatory power that leads to the rejection instrumentalism. Hylton summarizes Quine’s view of realism rather nicely.

The point is that Quine is a realist in the only sense that he holds there is to that term. For him there are no different senses of being or reality; there is a single univocal notion. Concomitantly, he holds that there are no distinctions to be made between kinds of realism: he is a realist in the only sense that there is. (Hylton [1994], 264)

This provides the last piece of the naturalist puzzle. Science and philosophy have become a continuous enterprise trying to explain our experience.

Thus, the semantic argument for Quinean naturalism has following overall structure:

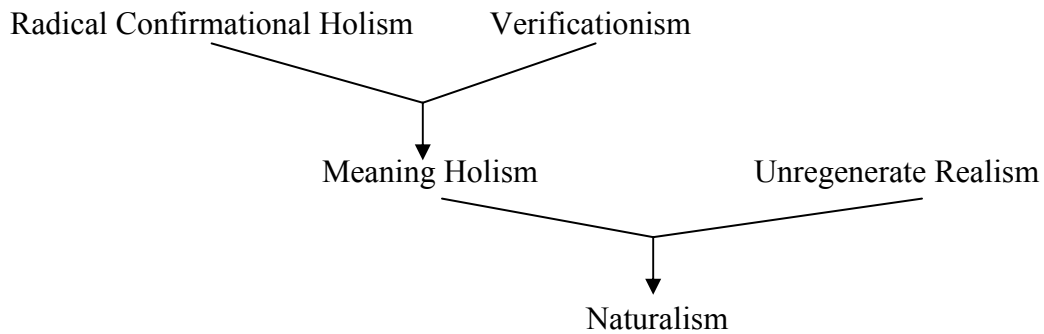


Figure 2.1: The Structure of the Case for Quinean Naturalism

## 2.5 Reflecting on the Naturalized Indispensability Argument

At this point, it should be clear how naturalism is supposed to support the Quine-Putnam indispensability argument. Once epistemology is assimilated into empirical psychology, this leaves scientific grounds as the *only* grounds, not just for accepting or rejecting a theory, but for believing or denying a theory.<sup>35</sup> This is just what was need to support the doxastic commitment thesis. Therefore, given that it is rational to accept current theories in the mature sciences for scientific purposes, we are epistemically justified in believing that those theories are approximately true to a high degree and unjustified in holding any lesser attitude toward them. Thus, we have the epistimized thesis of scientific veritism.

Notice that in order for us to develop a fully naturalistic attitude with regard to the mathematics used by science, it must be the case that the mathematics is confirmed along with the rest of the background theory. In order for that to happen, the mathematics must

---

<sup>35</sup> This is the sense of “acceptance” outlined in the discussion of the acceptability of current science thesis.

be open to disconfirmation and revision right along with all other auxiliary hypotheses. If this is not the case, then the meaning holism will not spread to the mathematics. If the meaning holism does not spread through the mathematics, then there will be no argument to take a naturalistic attitude with regard to the mathematics.



## CHAPTER 3

### THE ARGUMENT FOR RADICAL HOLISM

#### 3.1 Overview

Ultimately, the case for Quinean naturalism is built upon a radically holistic understanding of confirmation and meaning. The case for this radical holism generally begins with an argument for radical confirmational holism and then extends via the Quinean commitment to verificationism to radical meaning holism.<sup>36</sup> This chapter will demonstrate, however, that none of the naturalist's most promising arguments can deliver a holism radical enough to support Quine's radical naturalism. This leaves Quinean naturalism and, in turn, the doxastic commitment thesis (the central thesis of the Quine-Putnam indispensability argument) unsupported.<sup>37</sup>

---

<sup>36</sup> Quine is expressly clear in his adherence to a verificationist view of meaning according to which all meaning is empirical meaning.

The Vienna Circle espoused a verification theory of meaning but did not take it seriously enough. If we recognize with Peirce that the meaning of a sentence turns purely on what count as evidence for its truth, and if we recognize with Duhem that theoretical sentences have their evidence not as single sentences but only as larger blocks of theory, then the indeterminacy of translation of theoretical sentences is the natural conclusion... This conclusion... seals the fate of any general notion of propositional meaning or, for that matter, state of affairs.... Should the unwelcomeness of the conclusion persuade us to abandon the verification theory of meaning? Certainly not. The sort of meaning that is basic to translation, and to the learning of one's own language, is necessarily empirical meaning and nothing more. (Quine [1969], 296)

<sup>37</sup> Although I take this as a mark against both naturalism and the naturalized indispensability argument, I recognize that this is not conclusive evidence against either. In the next chapter, I shall provide a positive argument against naturalism.

### 3.2 Introduction

Even though the thesis of confirmational holism was first made explicit by Duhem, the most well-known and influential formulation occurs in Quine's "Two Dogmas of Empiricism".

The dogma of reductionism survives in the supposition that each statement, taken in isolation from its fellows, can admit of confirmation or infirmation at all. My countersuggestion... is that *our statements about the external world face the tribunal of sense experience not individually but as a corporate body.* ([1951], 41, my emphasis)

Quine's way of putting things is ambiguous. It lends itself to both a *radical* and a *moderate* interpretation.

*Radical Confirmational Holism:* The unit of confirmation is the entire theory that contributes to making a successful prediction, including *all* background assumptions.

*Moderate Confirmational Holism:* Successful predictions confirm large chunks of theory, rather than individual statements or relatively small, isolable sections of theories. Nevertheless, successful predictions do not confirm all of the statements needed to derive them. There are many statements that play a role in deriving predictions that are not open to disconfirmation and revision and, therefore, are not confirmed by successful predictions.

The Quine-Putnam indispensability argument ultimately relies upon the radical interpretation of confirmational holism in two ways. First, the radical interpretation is required to support Quine's naturalism and it is Quine's naturalism that motivates and justifies the doxastic commitment thesis. Second, the radical interpretation is needed in order to ensure that the mathematics utilized by our current scientific theories is confirmed by the successful predictions of those theories to the to the same degree as the other background assumptions. In the following sections, I shall argue that none of the most promising arguments currently offered on behalf of confirmational holism imply the radical version.

### **3.3 The Circularity Argument Against Analyticity**

In the first four sections of "Two Dogmas", Quine seems to provide the basic resources for constructing an argument for radical confirmational holism based on the apparent impossibility of explicating a robust notion of analyticity. In those sections, Quine argues that we should reject the analytic/synthetic distinction because any attempt to explicate the notion of analyticity either leaves the notion of analyticity philosophically impotent and uninteresting or ultimately ends in circularity. Since the naturalist takes the analytic/synthetic distinction and radical reductionism—the two dogmas of empiricism—to be "at root identical", he supposes that they must fall together. Once the two dogmas have given way, there seems to be no alternative to radical confirmational holism.<sup>38</sup>

---

<sup>38</sup> This may be what Colyvan [2001] has referred to as the argument from meaning holism to confirmational holism.

It is important to recognize that the particular notion of analyticity that Quine attacks is much closer to the traditional notion of the *a priori* than to the traditional, particularly Kantian notion of *analyticity*. In Quine's sense, analytic statements are those that are immune from disconfirmation and revision. Thus in attacking analyticity, Quine is objecting primarily to a confirmational and justificatory notion, rather than to a logical or linguistic notion. The attack on analyticity is aimed not only at supposed logical truths (e.g., "if *A*, then *A*") and linguistic truths (e.g., "All bachelors are unmarried"), but also at the sort of philosophical analyses of theoretical terms that the positivists were attempting to provide (e.g., "object *a* is fragile iff if *a* is sharply struck, then *a* will break").

In structure, the circularity argument falls somewhere between an argument from elimination and an induction on past philosophical failures. Quine considers four possible ways of explicating the notion of analyticity. For each, he argues that the central notion in terms of which analyticity is being explicated either is uninteresting and impotent *or* is as poorly understood as analyticity and, therefore, just as badly in need of explication. It is suggested, however, that any attempt to adequately explicate the secondary notion will quickly end up invoking the notion of analyticity and, thus, the hoped for explication of analyticity will be circular. Unable to find a robust notion of analyticity capable of adequate and ultimately non-circular explication, Quine concludes that the concept of analyticity is illegitimate and ought be abandoned. Therefore, given the overarching understanding of analyticity in terms of immunity from disconfirmation and revision, Quine concludes that the illegitimacy of the concept implies that no

statement is immune from disconfirmation and revision. Thus, Quine finally concludes, successful predictions confirm the entirety of the theory used to generate them, including *all* background assumptions.

For current purposes, a brief overview of the explications of analyticity that Quine considers will be sufficient.

- (a) Analytic statements are those which are true in all possible worlds (true regardless of what truth-values are assigned to atomic sentences).

Quine's Objection: This does *not* account for analyticity deriving from extra-logical pairs of synonyms (e.g. "bachelor" and "unmarried man"). Thus, this explication leaves the notion of analyticity weak and uninteresting.

- (b) Analytic statements are those which are true in all possible worlds where extra-logical pairs of synonyms are eliminated by definition.

Quine's Objection: Such definitions rely upon preexisting synonymy (except in cases of strict abbreviation). Synonymy, however, can only be made sense of with an established understanding of analyticity. Hence, the explication of analyticity is circular.

- (c) Analytic statements are those which are true in all possible worlds where extra-logical pairs of synonyms are eliminated by interchangeability *salve veritatae*.

Quine's Objection: This presupposes a notion of necessity or counterfactuality that can only be made sense of with an established understanding of analyticity. Hence, the explication of analyticity is circular.

- (d) Analytic statements are those which are true by semantical rule.

Quine's Objection: According to this formulation, any true statement can be analytic, it simply depends upon which semantical rules one chooses to use (which is a conventional choice). This makes the notion of analyticity trivial and uninteresting.

Quine concludes that since each of these attempts either ends in circularity or fails to account for the most interesting cases of analyticity, all other such attempts will fail as well. From this, Quine concludes that the notion of analyticity is illegitimate and should be abandoned.

There are two obvious sorts of objections to this line of argument. The first sort of objection would call into question Quine's conclusion that a robust and interesting notion of analyticity is capable of, at best, circular explication. To do this, one could argue either (a) that Quine's analysis is mistaken with regard to one of the proposed explications that he considers *or* (b) that there is another option that Quine does not consider that explicates a robust notion of analyticity without ultimately being circular. The second and more promising sort of objection would call into question the assumption that if a robust notion of analyticity is capable of only circular explication, then the notion of analyticity is illegitimate. This sort of objection was first suggested by H.P. Grice and P.F. Strawson in their [1956]. Grice and Strawson distinguish the two conditions that are necessary in order to provide an adequate explanation according to Quine's circularity argument against analyticity.<sup>39</sup>

(1) It would seem to involve providing an explanation which does not incorporate any expression belonging to the family-circle. (2) It would seem that the explanation provided must be of the same general character as those rejected explanations which do incorporate members of the family-circle (i.e., it must specify some feature common and peculiar to all cases to which, for example, the word "analytic" is to be applied; it must have the same general form as an explanation beginning, "a statement is analytic if and only if..."). (Grice and Strawson [1956], 147-8)

---

<sup>39</sup> What Grice and Strawson's refer to as, "an explanation", is more or less equivalent to what I've been referring to as, "an explication".

Grice and Strawson then complain that such explanations are not required for other terms that are commonly taken to make perfectly good sense. The requirements are simply too demanding. Very few, if any, terms could meet them. Grice and Strawson explain,

It would seem fairly clearly unreasonable to insist *in general* that the availability of a satisfactory explanation in the sense sketched above is a necessary condition of an expression's making sense. It is perhaps dubious whether *any* such explanations can *ever* be given... even if such explanations can be given in some cases, it would be pretty generally agreed that there are other cases in which they cannot. One might think for example, the group of expressions which includes "morally wrong," "blameworthy," "breach of moral rules," etc.; or of the group that includes the propositional connectives and the words "true" and "false," "statement," "fact," "denial," "assertion." Few people would want to say that the expressions belonging to either of these groups were senseless on the ground that they have not been formally defined (or even on the ground that it was impossible formally to define them) except in terms of members of the same group. (Grice and Strawson [1956], 148)

Grice and Strawson then consider whether the case against the analyticity group is relevantly dissimilar from the other groups just mentioned. One possibility is that the members of the analyticity group are technical or philosophical terms of art. This is a rather extravagant claim when one considers that this would mean that philosophers have been using the terms, "synonymous," "means the same as," "is inconsistent with," and "self-contradictory," in a peculiarly philosophical manner divorced from everyday speech. This response does not even seem plausible from the start. Furthermore, Grice and Strawson provide an example of how these terms can be explicated by members outside the family, though such explication falls short of delivering necessary and sufficient conditions. Nevertheless, such explication suffices for showing the terms to be legitimate and more than the mere product of philosophical imaginings. ([1956], 149)

In all, Grice and Strawson succeeded in showing the circularity argument is really a non-starter so far as arguing for radical confirmational holism and against the existence of statements immune from disconfirmation and revision.<sup>40</sup>

### 3.4 The Induction on the History of Philosophy

Though I call this argument, “The Induction on the History of Philosophy”, perhaps it would be more appropriately called, “The Induction on the Failure of Postivism”. In his [1995], Gibson frames the argument as a reductio.

If holism were false, then each individual sentence within a theory would have its own unique empirical meaning. If each individual sentence had its own unique empirical meaning, then we should be able to develop an adequate theory of confirmation for individual sentences. We should also be able to distinguish absolutely sentences true in virtue of how the world is from those sentences, if any, true in virtue of the meanings of their words [i.e., distinguish synthetic sentences from analytic sentences]. However, neither of these expectations has

---

<sup>40</sup> There remains substantial debate whether or not the argument presented here from the failure of the analytic/synthetic distinction to radical confirmational holism is in fact Quine’s intended argument and whether or not it is really to be found in “Two Dogmas”. In their [1992], Fodor and Lepore seem to think that it is. (51) In his [2000] discussion of Fodor and Lepore, Okasha claims that they misunderstood the argument. He writes,

The issue of confirmation holism arose in *Two Dogmas* as follows. Quine had established that the concept of analyticity was interdefinable with the concept of linguistic synonymy, so a satisfactory account of synonymy would yield a satisfactory account of analyticity. He then looked at a number of explanations of synonymy and found them wanting. Finally, he suggested trying to base an account of synonymy on the verification theory of meaning. Statements would qualify as synonyms, on this theory, if the experiences that confirmed them were the same. But Quine then argued that individual statements do not usually *have* their own fund of confirming experiences, because confirmation is holistic. Thus the verification theory cannot yield an adequate account of sentential synonymy, nor analyticity. So Quine did not argue, as Fodor and Lepore think, from ‘no analytic/synthetic’, to ‘confirmation is holistic’. Rather, he argued that *because* confirmation is holistic, the verification theory of meaning cannot be invoked to salvage the concept of synonymy, nor therefore the analytic-synthetic distinction. (Okasha [2000], 43)



been, or is likely to be, fulfilled. Thus, we have good reason for thinking that our hypothesis that each individual sentence has its own unique empirical meaning is false, i.e., that holism is true. (Gibson [1995], 94)<sup>41</sup>

To summarize, the repeated failure (especially on the part of the positivists) to provide a viable procedure for the translation of all statements into purely observational terms or even to provide an observational criterion of cognitive significance for individual statements is taken to show that it is impossible to isolate confirmation conditions for each individual sentence in a theoretical science. The central underlying premiss is that given the positivists' efforts to give confirmation conditions for individual statements (e.g., via operational definitions of individual terms, via reduction sentences, via translation dictionaries for entire statements, or by developing a robust analytic/synthetic distinction), if such a project were possible, then they would have succeeded (or, at least, should have had encouraging signs of eventual success). In the end, the positivists failed to shore up either reductionism or analyticity, empiricism's two dogmas. Thus, the argument concludes, confirmation is radically holistic.

There are a number of difficulties with such an induction. First, the argument seems largely dependent upon the success of the circularity argument against the notion of analyticity. The failure of that argument takes most (if not all) of the wind out of this argument as well.

Second, the argument for naturalism depends upon supplementing meaning holism with unregenerate realism to achieve naturalism. Yet, if this historical induction is

---

<sup>41</sup> Gibson's presentation of the argument moves back and forth between talk of confirmation and meaning. As was pointed out earlier, this close connection is the result of the Quinean's adopting a verificationist theory of meaning.

successful, it would seem that the meta-induction on the history of science (by current standards all of our past scientific theories have been false, so all of our current and future scientific theories will also be false) would also be successful. The latter induction clearly depends upon a greater sample of unsatisfactory theories than the former induction. Thus, if the former argument is successful, it seems that the latter will likely be as well. Thus, the realism required to make the case for naturalism would be undermined. Hence, at the end of the day, we would be left with skepticism or instrumentalism, rather than naturalism.

Third, the key premiss of the argument is that the positivists failed to make the case for *each* individual sentence having its own unique set of empirical consequences. The most plausible response would be to simply concede this point, but then note that this does not support radical confirmational holism. In the first place, it is possible for *some* sentences to have their own unique set of empirical consequences without *each* having them.<sup>42</sup> More importantly, one can argue that some sentences, particularly those of mathematics and logic, neither have their own unique set of empirical consequences nor have empirical consequences as part of a larger theory. They simply aren't that kind of thing.<sup>43</sup> At this point, it isn't necessary to get into the details of such a possibility. What is essential is that a failure to provide each and every statement with confirmation conditions does *not* entail (a) that there are not *some* statements having individual confirmation conditions or (b) that there are not *some* statements which simply lack

---

<sup>42</sup> I am referring to sentences as compositionally construed, not holophrastically construed. Quine admits that observation sentences holophrastically construed have their own stimulus meanings.

<sup>43</sup> This might be something along the lines to what Burgess has recently called, "pragmatic analytic". ([2004], 55)

confirmation conditions, both alone and in conjunction with others.<sup>44</sup> Thus, the induction on the history of philosophy fails to provide a convincing argument for radical confirmational holism.

### **3.5 The Argument from the Indeterminacy of Translation**

At this point I shall move surprisingly quickly over one of the most far-reaching and difficult parts of the Quinean picture, the argument for indeterminacy of translation. Quine's most intuitive presentation of the argument invokes the myth of two field linguists concurrently attempting to assemble translation manuals for an unknown language. The only guide that the linguists have to go on is the utterance of certain native sentences and the assumption of shared stimulatory experience with the natives that utter them.

The upshot of the myth is that it is possible for the two linguists to develop equally satisfactory translation manuals of the native language that nevertheless contradict each other in the linguists' common mother tongue. That is, both linguists could be accepted by the natives as appropriately assenting and denying statements of the native language while producing different and incompatible translations in their shared mother tongue.

---

<sup>44</sup> Given that these possibilities are particularly plausible for the theorems of logic and mathematics, the failure to eliminate them is especially troublesome for the Quine-Putnam indispensability argument. Recall that radical confirmational holism has two roles within the Quine-Putnam argument. In its first role, radical confirmational holism is necessary to generate the meaning holism that leads to naturalism. In its second role, radical confirmational holism is required in order to ensure that the mathematics utilized by our current scientific theories is confirmed by the successful predictions of those theories to the same degree as the other background assumptions. It is with regard to this second role that the failure is particularly pertinent.

However interesting the story might be, it does little to advance the case for the radical holism necessary for Quinean naturalism and the Quine-Putnam indispensability argument. Both field linguists will presuppose the same core logic and mathematics. They will assume some minimal logic (probably at least some form of intuitionistic logic) and some basic arithmetic. Under almost any circumstance, if a translation guide were to have successful natives routinely assenting that, “ $1+1 = 3$ ”, “ $2+1 = 4$ ”, or, “ $2+2 = 7$ ”, it would be judged uncharitable and inappropriate.

Thus, even though confirmation conditions and meaning might be applicable to large blocks of theory, the parts that are presupposed before the work of translation gets underway are not infected by holism. Therefore, there is no reason to think that the dictates of naturalism apply to those presuppositions.

### **3.6 A Brief Interlude**

Given that naturalism tells us that we should abandon first philosophy and utilize scientific methodology, the arguments considered so far seem somewhat inappropriate. Citing the failure of analyticity to meet certain overly rigorous philosophical guidelines or raising armchair arguments like the indeterminacy of translation seems a bit out of place. There is something suspicious in using the methodology of first philosophy in arguing for the radical confirmational holism which will ultimately ground naturalism. If naturalism tells us to make the practice of philosophy continuous with science by following scientific practice and applying scientific standards, then it seems only

appropriate that the argument for naturalism ought to proceed in such a fashion. So, to this end, I shall move to two more widely assumed arguments for radical confirmational holism. Appropriately, both arguments make reference to scientific practice.

### **3.7 The Argument from Testability to Irrefutability to Vulnerability**

I now want to examine what I think is likely to be the most widely assumed argument for radical confirmational holism. Strangely enough, as far as I am aware, the argument never *quite* appears in print. The passages that are generally thought to contain it are always slightly ambiguous. Nevertheless, I suspect that it is widely assumed that the argument is there and that it is almost trivial.

According to this approach, radical confirmational holism is supposed to follow as little more than a corollary of the Quine-Duhem thesis or, at least, of the following version of the Quine-Duhem thesis.<sup>45</sup>

Testability Thesis (TT):      No statement can be tested in isolation. Auxiliary hypotheses are always required in order to derive empirical predictions.

Though the TT is widely acknowledged as true, it is far from immediately clear how it is supposed to ground the radical confirmational holism required for naturalism. The final section of “Two Dogmas” does seem to hint that there is a two step argument from the TT to radical confirmational holism. Quine begins that final section,

---

<sup>45</sup> As Fodor and Lepore insightfully point out, “‘the’ Q/D [Quine-Duhem] thesis is really a galaxy of nonequivalent (but closely interrelated) doctrines”. ([1992], 39)

The totality of our so-called knowledge or beliefs, from the most casual matters of geography and history to the profoundest laws of atomic physics or even of pure mathematics and logic is a man-made fabric that impinges on experience only along the edges. Or, to change the figure, total science is like a field of force whose boundary conditions are experience... 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. No particular experiences are linked with any particular statements in the interior of the field, except indirectly through considerations of equilibrium affecting the field as a whole.

If this view is right, it is misleading to speak of the empirical content of an individual statement—especially if it is a statement at all remote from the experiential periphery of the field. Furthermore, it becomes folly to seek a boundary between synthetic statements, which hold contingently on experience, and analytic statements, which hold come what may. Any statement can be held true come what may, if we make drastic enough adjustments elsewhere in the system. Even a statement very close to the periphery can be held true in the face of recalcitrant experience by pleading hallucination or amending certain statements of the kinds called logical laws. Conversely, by the same token, no statement is immune from revision. Revision even of the logical law of 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? (Quine [1953], 42-3)

The structure of the argument is very sketchy as Quine's gift for eloquence gets in the way. Quine, however, is not alone in his imprecision. In his [1995], Gibson presents what appears to be essentially the same argument as follows.

The scientific practice argument is that an examination of the *actual practice* of science reveals that when a scientist tests a hypothesis  $H$  she does so only against a background of unchallenged assumptions  $A$ . Thus, when  $H$ , together with  $A$ , entails an observation categorical  $\lceil$ Whenever  $X$  then  $Y$  $\rceil$ , and when  $X$  is observed to occur but  $Y$  fails to be observed, then the scientist may make any number of adjustments designed to ameliorate the situation. (Gibson [1995], 93, *emphasis added*)

Colyvan's [2001] offers a similarly vague presentation of the argument.

Both Duhem (1906) and Lakatos (1970) have argued for confirmational holism without any (obvious) recourse to semantic considerations. They emphasize the simple yet undeniable point that there is more than one way in which a theory,

faced with recalcitrant data, can be modified to conform with that data... This point is driven home by appeal to case studies from the (actual and imagined) history of science. (Colyvan [2001], 35)

In his [2002], Michael Devitt provides a similarly elusive presentation.

Quine, following in the footsteps of Duhem, argued that we must break free from the naïve picture of justification... and view justification in a much more holistic way: beliefs, even whole theories, do not face the tribunal of experience alone, but in company of auxiliary theories, background assumptions and the like. Much evidence for this “Quine-Duhem thesis” has been produced by the movement in philosophy of science inspired by Thomas Kuhn and Paul Feyerabend. In light of this, we have no reason to believe that there is a principled basis for drawing a line between what can be known this way and what cannot; no reason to believe that there is a seam in the web. (Devitt [2002], 32)<sup>46</sup>

I take the first step of the argument to be relatively uncontroversial. Given the TT, the consequences of a given hypothesis are relative to the chosen background assumptions. Therefore, a given hypothesis will yield different predictions when conjoined with different background assumptions. Thus, when faced with a falsified prediction, we can shelter any statement from refutation by giving up one or more of the auxiliary hypotheses that were utilized to derive the prediction. By giving up enough background assumptions, the conjunction of hypothesis and background theory will no longer yield the falsified prediction. Thus, we can conclude that,

---

<sup>46</sup> Devitt talks here of justification, rather than directly of confirmation. He is clearly linking statements that have confirmation with statements which we are justified in believing. Of course, Quine and Colyvan are also assuming that confirmation is the basis for justification.

Irrefutability Thesis (IT): Any statement can be held true come what may.<sup>47</sup>

Many non-Quineans will concede this much. It is the next step that is deeply problematic.

It is taken to follow from the IT that, at least in principle, we have absolutely free reign as to which background assumptions to give up.

Vulnerability Thesis (VT): No statement is immune from disconfirmation and revision.

As Quine put it, “Conversely, by the same token, no statement is immune from revision.” The question is, what does Quine mean by “by the same token”?<sup>48</sup> Just because any statement *could* be held onto “come what may” by giving up auxiliary hypotheses, it does not undermine the claims,

- (i) that there is a select class of statements that *must* be held onto come what may and such statements don’t share in the confirmation provided by realization of predications,

or

- (ii) that, in point of fact, there is a select class of statements that are *actually* held onto come what may and, consequently, such statements don’t share in the confirmation provided by the realization of predications.

---

<sup>47</sup> As I mentioned in an earlier footnote, Fodor and Lepore [2000] assume that Quine can’t mean for statements to be uninterpreted formulas or sentences because this trivializes the IT. However, both Okasha [2000] and Becker [2001] argue convincingly that Quine does understand statements to be formulas or sentences and that he recognizes the triviality that this implies with regard to the IT.

<sup>48</sup> With regard to Devitt’s presentation, there is an analogous question. What is it “in light of” that we are left without reason for thinking that there might be a principled distinction?



The problem is that the argument for the IT turns on the fact that *enough* background assumptions are revisable, it neither presupposes nor implies that *all* background assumptions are revisable.

Looking carefully at the above passages, one quickly notices that none of them actually contain the claim that *any* and *all* adjustments that would allow one to circumvent a falsified prediction are viable. Gibson, for instance, merely claims that scientists “may make *any number* of adjustments” when faced with recalcitrant data. ([1995], 93, *emphasis added*) Along similar lines, Colyvan merely asserts that, “there is *more than one way* in which a theory, faced with recalcitrant data, can be modified to conform with that data”. ([2001], 35, *emphasis added*) Even Quine only goes as far as claiming that, “there is much latitude of choice as to what statements to reevaluate in the light of any single contrary experience.” ([1953], 42-3) Along closely related lines, Devitt maintains that in the face of the IT, “we have no reason to believe that there is a principled basis *for drawing a line* between [the analytic] and [the synthetic]; no reason to believe that there is *a seam in the web*.” ([2002], 32, *emphasis added*) Of course, one need not hold that there is a principled line, an identifiable “seam in the web”, in order to hold that there is a select class of sentences that either *must be* or, at least, *actually are* held onto come what may.

Furthermore, Quine’s original discussion focused primarily on showing that supposedly synthetic sentences can be preserved in a way that would make them look very similar to supposedly analytic sentences. To this end, Quine notes, “it is misleading to speak of the empirical content of an individual statement—especially if it is a

statement at all remote from the experiential periphery of the field”, and, “[e]ven a statement very close to the periphery can be held true in the face of recalcitrant experience.” Yet, in the history of logic, mathematics, and philosophy, it has only rarely been suggested that the laws of logic and the central axioms of mathematics have empirical content or that any experience could serve as evidence against them. Rather, it has traditionally been supposed that such statements could be held unto come what may. Thus, even if all statements could be held unto come what may, it might still be the case that some statements must be or, at least, actually are so held.

The only way from the IT to the VT seems to be through the trivial consequence that if any statement could be held unto come what may, then the negation of any statement, including logical laws and the most fundamental mathematical axioms, could be held unto come what may.<sup>49</sup> Consequently, all statements, even logical laws and the most fundamental mathematical axioms, are revisable.<sup>50</sup>

If not outright question-begging, this route to the VT at least seems highly suspicious. Given that logical laws and mathematical axioms have not traditionally been supposed to have empirical content, the TT and IT seem largely irrelevant. The argument seems to reduce to the idea that if different logical laws and mathematical axioms were assumed, the rest of our theories would have to be different. This, of course, does not seem very surprising or interesting.

---

<sup>49</sup> I want to thank Lisa Shabel for pointing out this most obvious route to me.

<sup>50</sup> The examples that Quine cites as evidence of unrestricted revisability will be discussed in the following sections.

There is also nothing in this line of argument to show that it is even “in principle” possible to reject absolutely any of the central mathematical axioms and logical laws.<sup>51</sup> For instance, could we really reject the law of modus ponens or suppose that “ $1 = 0$ ”? It seems highly plausible that such laws and axioms are so central and fundamental to our ability to think and reason about the world that they would simply pop back up in other guises. That is, alterations at the absolute core of the web would be tantamount to a change in language, not a revision of the axioms. The TT and IT simply don’t provide grounds for any claims as strong as the VT.

Lastly, it would not seem to matter even if we could “in principle” reject absolutely any statement. If we do actually shelter some statements from refutation and revision, this would seemingly be enough to prevent the slide into radical holism. There seems to be no argument rooted in the TT and IT to the conclusion that confirmation accrues uniformly across the totality of one’s theory to include even those statements that one would not give up in the face recalcitrant data.

At the end of the day, it would appear that the TT and IT only imply a moderate confirmational holism. Successful predictions do confirm large chunks of theory, rather than individual statements. Nevertheless, only those statements that are actually open to revision are capable of confirmation. As far as the VT is concerned, the TT and IT are red herrings. The TT and IT only seem relevant to radical confirmational holism in making revisability of background assumptions salient.

---

<sup>51</sup> Again, particular examples will be discussed in the following sections.

### 3.8 The Inductive Revisability Argument

Despite the failure to derive the VT from the TT via the IT, there is another argument lingering in the passages discussed in the last section. The central claim of this alternative argument is that an examination of the history of science shows that there are no statements that are actually held immune from revision. That is, the history of science provides direct inductive evidence for the VT. From the outset, it is important to recognize how this is importantly different from the argument of the last section. The previous argument cited cases on behalf of the IT and then assumed that the VT could be deduced from it. The inductive revisability argument tries to support the VT directly by citing cases where even the most central and firmly held auxiliary hypotheses have been rejected in the face of recalcitrant data.

Now surely many of us can think of examples in which scientists might choose to reject a number of different auxiliary assumptions *rather than* the hypothesis under investigation when a prediction fails to be realized. Most such cases, however, fall at one of two extremes and neither of these extremes provide evidence for radical confirmational holism.

At one extreme, the rejected auxiliary assumptions include such rather innocuous claims as, “The equipment was properly set up”, “Computations were accurately carried out”, or “Idealizations are small enough not to have an overall effect.” The rejection of such auxiliary hypotheses is as uninteresting as it is undeniable. They concern the process of testing a theory, rather than the theory itself. There is little reason to think that the

revisability of these rather trivial auxiliary assumptions supports the sort of general revisability of *all* auxiliary assumptions that is needed to generate radical confirmational holism.

At the other extreme, whole theoretic systems are thrown over in what Kuhn has termed, “scientific revolutions”. Yet, such massive rethinking of an entire branch of science does not represent the sort of free choice in selecting which individual hypotheses to reject that proponents of the inductive revisability argument tend to envision. In order to make use of the evidence of scientific revolutions from the history of science, the proponent of radical confirmational holism needs the following conditional.

- (i) *if* scientists are free to reject *a theoretic system and accompanying research program* when predictions fail to be realized, *then* the realization of predictions confirms not just a single hypothesis or a relatively small set of hypotheses, but the whole theory including all background assumptions.

This conditional, however, is intuitively suspect given that major portions of background theory (including major chunks of mathematics) survive the revolution. Such intuitive suspicions are bolstered by Elliott Sober’s suggestion that prediction does not provide confirmation for the shared content of competing theoretic systems because experience can only be used to solve discrimination problems. As Sober puts it,

Experience does not render judgements about a single belief *or* about a whole corpus of beliefs... Rather experience solves discrimination problems. Given a set of hypotheses, experience helps determine which hypothesis, simple or complex, is most plausible.

It immediately follows that epistemological [i.e., confirmational] holism is mistaken. If experience is in the business of solving discrimination problems, then what is true of the whole may not be true of the part. Consider two theories that share an assumption... *T1* makes an assertion of the form *A & B*; *T2* makes an assertion of the form *A & C*. Suppose experience favors *T1* over *T2*. I suggest that this test favors *B* over *C* but does not favor *A* over any alternatives that it may have. (Sober [1993], 54)

Since competing scientific theories (both current and past) assume a large common core of auxiliary hypotheses (including large portions of logic and mathematics), differences in the predictive success tells us nothing with regard to the common core of auxiliary hypotheses. Thus, the common core of auxiliary hypotheses is not confirmed by the successful predictions of current scientific theories. (Moreover, one cannot appeal to reconstructions that make due without numbers—like Field’s or Hellman’s or Chihara’s—as alternative hypotheses since, as far as the empirical evidence is concerned, both types of theories are equally confirmed.) Thus, the evidence of scientific revolutions does nothing to help the radical confirmational holist either.<sup>52</sup>

What the radical confirmational holist really needs is the following conditional.

- (ii) *if* scientists are free to reject *any* assumption when a prediction fails, *then* the realization of predictions confirms not just a single hypothesis or a relatively small set of hypotheses, but the whole theory including all background assumptions

Despite being unable to find an argument for this conditional, I am willing to concede it for the sake of argument.<sup>53</sup> The real problem for the radical confirmational holist is that

---

<sup>52</sup> For those that adopt Kuhn’s view of the incommensurability of theories in competing paradigms, there is really no sense in which assumptions or hypotheses are rejected. Rather, previous theoretical approaches and their accompanying research programs are more or less abandoned in favor of new and incommensurable approaches and their accompanying research programs.

<sup>53</sup> I am unsure what exactly the argument for (ii) is supposed to be. Its contrapositive,

- (ii’) *if* the realization of predictions confirms only a single hypothesis or a relatively small set of hypotheses (rather than the whole theory including all background assumptions), *then* it is *not* the case that scientists are free to reject *any* assumption when a prediction fails,

does seem somewhat plausible, but I can think of no argument to support it. It is only the conditional in the other direction,

- (iii) the realization of predictions confirms not just a single hypothesis or a relatively small set of hypotheses, but the whole theory including all background assumptions *only if* scientists are free to reject *any assumption* when predictions fail to be realized,

there is little evidence for (ii)'s antecedent. In fact, there seems to be only three cases that would suggest that scientists are actually free to reject *any assumption* when predictions fail to be realized:

- a) the rejection of Euclidian geometry as part of the general theory of relativity,
- b) the suggestion that the law of excluded middle be abandoned in order to simplify quantum mechanics,<sup>54</sup> and
- c) the rejection of the law of non-contradiction within the framework of paraconsistent logic.<sup>55</sup>

Other than these three unique cases, little other evidence is ever offered. Thus, even if these cases held up, the sample size would seem to be far too small to draw such a sweeping generalization as the VT. Yet, the problem is far worse. When we look closely at these three cases, we find that even they do not support the idea that *any* statement is revisable.

---

that seems to admit of argument. The argument for the contrapositive of (iii),

- (iii') *if* scientists are *not* free to reject *any assumption* when predictions fail to be realized, *then* the realization of predictions *confirms* just a single hypothesis or a relatively small set of hypotheses, rather than the whole theory including all background assumptions,

is relatively straightforward. If a portion of the background theory were immune from rejection, then a failed prediction cannot disconfirm that portion of the background theory. If a failed prediction cannot disconfirm some portion of the background theory, there is little reason to think that a true prediction would confirm that portion of the background theory.

<sup>54</sup> Quine mentioned this suggestion in the passage quoted in the last section.

<sup>55</sup> Graham Priest is probably the most well-known advocate within this movement.

3.8.1 *The Rejection of Geometric Laws:  
General Relativity and the Rejection of the Parallel Postulate*

On the face of things, the rejection of Euclidian geometry's parallel postulate as part of the general theory of relativity seems to provide strong evidence for the VT. For millennia, Euclid's laws of geometry were assumed to have an unimpeachable status. Perhaps only the laws of logic and arithmetic seemed more central or more certain. Thus, the rejection of Euclidean geometry's parallel postulate as part of the theory of general relativity—one of the most well-confirmed scientific theories of all time—seems to indicate that even the most central laws of mathematics are not beyond falsification and revision. Yet, despite this initial appearance, the case of the parallel postulate fails to support the claim of universal revisability and, in fact, seems ultimately to undermine the case for radical confirmational holism, rather than support it.

First of all, the parallel postulate has been recognized for centuries as the most “shaky” of Euclid's axioms. Because of its unappealing complexity when compared to the rest of the axioms, generations of geometers attempted to deduce it from the other axioms. The centuries long controversy as to whether the parallel postulate is an axiom or theorem is evidence that the parallel postulate was never as central and certain as the other axioms of Euclidean geometry. Thus, one could concede that the rejection of the parallel postulate shows that revisability goes much deeper than is commonly recognized and that we are often poor judges as to which statements are unrevisable. That is, one could concede the loss of the parallel postulate and still hold the line at the unrevisability of the other axioms. General relativity has not shown them to be revisable.



More importantly, scientists (and mathematicians) do not claim that Euclidean geometry and its parallel postulate have been falsified. Instead, they simply recognize that Euclidean geometry is not the best theory for characterizing physical space. Granted, it is a bit of a shock to learn *this* theory does not accurately describe *that* domain, but it is no shock to learn that theories that are true of some domains are not true of others. Rather than viewing the various geometries to be in competition with each other for the title, “The *Real* Geometry”, scientists and mathematicians simply view them as alternatives.<sup>56</sup>

At this point, it would seem that the thoroughgoing naturalist should follow the practice of the scientists (and mathematicians) and admit that Euclidean geometry and its parallel postulate have not been disconfirmed. To try to force a distinction here that the scientists do not accept and, in fact, explicitly reject is contrary to the very heart of Quinean naturalism. Thus, to ignore the widespread opinion of practicing scientists and mathematicians by insisting that Euclidean geometry be rejected is tantamount to giving up the DCT and the indispensability argument based upon it.

---

<sup>56</sup> If the parallel postulate had been rejected by scientists and mathematicians, we ought wonder why children still learn Euclidean geometry in their geometry classes. It would be strange to spend so much effort to teach something that has been clearly disconfirmed. Of course, it might be suggested that we teach Euclidean geometry as a simplification of the real theory, as we teach simplified versions of genetic theory in high school biology classes. Yet, this explanation seems strained in two ways. First, geometry teachers never stress this fact to their classes. Second, Euclidean geometry is really not simpler than Riemannian geometry. It is just different. It would seemingly be just as easy not to teach the children the parallel postulate. Alternatively, it might be suggested that we teach Euclidean geometry as an idealization. It is pragmatically useful, but ultimately false (like Newtonian mechanics). Yet, once again, it seems strange that high school geometry instructors never stress this fact to their classes the way that their physics colleagues do.

3.8.2 *The Rejection of Logical Laws:  
Rejecting the Law of Excluded Middle and the Law of Non-Contradiction*

It might be thought that revisability of the laws of logic would provide irrefutable evidence of any statement is open to revision. For if the laws of logic are revisable, then nothing is safe. Yet, this is far too quick. To begin with, it needs to be noted that although both the law of excluded middle and the law of non-contradiction have been suggested for revision, neither has yet been rejected as part of a well-confirmed scientific theory. Furthermore, even if the law of excluded middle and the law of non-contradiction were to be rejected in the future by well-confirmed empirical theories, this would still not provide very strong evidence for a generalization as sweeping as the VT.

First, although both the law of excluded middle and the law of non-contradiction are core auxiliary hypotheses, there are other laws of logic that appear to be still more fundamental. For instance, no one has suggested abandoning the axiom,  $(P \supset (Q \supset P))$ , on scientific grounds. Thus, it appears possible to concede the loss of excluded middle and non-contradiction and still hold the line elsewhere.

Second, logicians recognize that there are alternative systems of logic and that these different logics are appropriate for different subject matters.<sup>57</sup> Thus, even if some successful scientific theory in one domain were to reject a favored logical principle, this does not rule out using that principle in other domains.<sup>58</sup> Just as there is no competition

---

<sup>57</sup> If these laws are really candidates for revision, it seems quite strange that logicians continue to teach them as part of introductory logic courses without indicating that there is some scientific uncertainty about them. Moreover, were such laws really rejected, there would seem to be no grounds for continuing to teach them as part of a simplified or idealized logic.

<sup>58</sup> Perhaps reality is best understood as consisting of various levels with different theories being true at different levels. If so, some logics might be better suited to some levels rather than to others. Thus, even if

between Euclidean and Reimannian geometries for the title, “The *Real* Geometry”, there does not need to be a competition between various logics for the title of, “The *Real* Logic”.<sup>59</sup>

Thus, not only is the sample of cases far too small, even the most commonly cited cases fail to support the VT. Therefore, contrary to the inductive revisability argument, there seems to be little or no evidence from the history of science that *any* statement can actually be given up in the face of recalcitrant data.

### 3.9 The Case for Sheltering Mathematics

So far I have been focusing on the Quinean claim that we *could* revise any statement. I’ve pointed out that in fact there is little evidence from the history of science that this is true. Quine has acknowledged this and attempted to explain away the absence of evidence. In his [1990], Quine discusses the process by which theories are reconciled with recalcitrant data. He suggests that we should follow *the maxim of minimum mutilation*. That is, when faced with recalcitrant data, one should strive to maintain as much of one’s current doxastic structure as possible while bringing one’s overall theory back into conformity with the experiential data. Thus, in deciding how to revise one’s overall doxastic system, one should reject just enough of one’s overall theory so that it will not entail the falsified predictions and one should reject those parts whose revision

---

it is preferable to reject the law of excluded middle at the quantum level, it does not necessarily follow that the law ought to be abandoned at the level of everyday medium sized objects.

<sup>59</sup> Intuitionists, for example, recognize the value of classical logic, they simply choose not to utilize it in certain situations because of what they see as its “metaphysical presuppositions”.

will have the least overall effect. Ultimately, this will lead one to shelter some parts of one's overall theory from revision, most particularly logic and mathematics. Quine writes,

In particular the maxim [of minimum mutilation] constrains us, in our choice of what sentences of *S* to rescind, to safeguard any purely mathematical truths; for mathematics infiltrates all branches of our system of the world, and its disruption would reverberate intolerably. If asked why he spares mathematics, the scientist will perhaps say that its laws are necessarily true; but I think we have here an explanation, rather, of mathematical necessity itself. It resides in our unstated policy of shielding mathematics by exercising our freedom to reject other beliefs instead. (Quine [1990], 15]

For... when a cluster of sentences with critical mass is refuted by an experiment, the crisis can be resolved by revoking one *or* another sentence in the cluster. We hope to choose in such a way as to optimize future progress. If one of the sentences is purely mathematical, we will not choose to revoke it; such a move would reverberate excessively through the rest of science. We are restrained by a maxim of minimum mutilation. It is simply in this, I hold, that the necessity of mathematics lies: our determination to make revisions elsewhere instead. I make no deeper sense of necessity anywhere. Metaphysical necessity has no place in my naturalistic view of things, and analyticity hasn't much. (Quine [1991], 269-70)

Such sheltering purchases the unrevisability of mathematical at the cost of the radical confirmational holism required by the naturalized indispensability argument. If mathematics is not really up for disconfirmation and revision, then neither is it confirmed by the successful predictions of the science that makes use of it in formulating predictions. Talk of sheltering or shielding mathematics is simply just smoke and mirrors.

Consider, for example, the statement that, " $1 + 1 = 2$ ". What evidence would count for or against it? What possible evidence would lead one to lower one's prior probabilities with regard to such a fundamental theorem of arithmetic? If one can think

of no such evidence, then such statements are not disconfirmable or revisable. Hence, they are not confirmed by successful predications that are in part derived from them. Hence radical confirmational holism seems simply mistaken.

### **3.10 Summary**

In the end, there seems to be very little evidence for the radical holism needed to ground naturalism and, with it, the DCT. Thus, one of the central premisses of the Quine-Putnam indispensability argument seems to be unfounded. Of course, this does not prove that radical confirmational holism, naturalism, and the DCT are false. In the next chapter, I'll give a positive argument for that.

## CHAPTER 4

### CONTRA NATURALISM AND THE DOXASTIC COMMITMENT THESIS

#### 4.1 Overview

This chapter presents a positive objection that applies against Quinean naturalism, the DCT, and, the quantificational criterion of ontological commitment. The objection is modeled closely after an argument presented by Moser and Yandell in their [2000]. The objection begins with the observation that neither a general naturalistic thesis, the DCT, nor the quantificational criterion of ontological commitment is a finding of current scientific theories. Thus, unless one appeals to transscientific grounds, it seems that these theses will be unjustified. If this is right, then the Quine-Putnam indispensability argument will be unable provide justification for belief in the existence of abstract mathematical objects.

#### 4.2 Introduction

Over the past few chapters, I have been examining the case for Quine's general philosophical naturalism and, in particular, his naturalized epistemology. Let's consider once again some of the most famous summary statements of this naturalistic perspective.

The answer is naturalism: the recognition that it is within science itself, and not in some prior philosophy, that reality is to be identified and described. (Quine [1981a], 21)

The fifth move [of empiricism], finally, brings naturalism: abandonment of the goal of first philosophy. It sees natural science as an inquiry into reality, fallible and corrigible but not answerable to any supra-scientific tribunal, and not in need of any justification beyond observation and the hypothetico-deductive method. (Quine [1981b], 72)

Naturalistic philosophy is continuous with natural science. It undertakes to clarify, organize, and simplify the broadest and most basic concepts, and to analyze scientific method and evidence within the framework of science itself. The boundary between naturalistic philosophy and the rest of science is a vague matter of degree. ... My naturalism has evidently been boiling down to the claim that in our pursuit of truth about the world we cannot do better than our traditional scientific procedure, the hypothetico-deductive method. (Quine [1995], 257)

As I explained, naturalism is supposed to provide the philosophical foundation for the Quine-Putnam indispensability argument by providing the underlying justification for the *doxastic commitment thesis*.

DCT If it is rational to accept a theory for scientific purposes, then we are epistemically justified in believing that the theory is approximately true to a high degree and unjustified in holding any lesser doxastic attitude toward it.

The DCT is ultimately grounded in the naturalist's rejection of transscientific methods and standards of justification. As Putnam summarized the case for the DCT,

[I]t seems silly to agree that a reason for believing that *p* warrants accepting *p* in all scientific circumstances, and then to add- "but even so it is not *good enough*." Such a judgement could only be made if one accepted a transscientific method as superior to the scientific method; this philosopher, at least, has no interest in doing *that*. (Putnam [1973], 73-4)

In what follows, I shall examine whether the naturalistic perspective and key premisses of the Quine-Putnam indispensability argument can live up to the naturalist's own standards.

### 4.3 Acceptance for Scientific Purposes

If we look back at the starting point for the Quine-Putnam indispensability argument, we find the *Acceptability of Current Science Thesis* (ACST).

ACST It is rational to accept current theories in the mature sciences for scientific purposes.

Recall that in initially interpreting the ACST, the major difficulty was to develop a satisfactory notion of *acceptance*. In particular, the challenge was to make the notion of acceptance weak enough that the ACST would provide an unobjectionable foundation for the rest of the argument.

After considering numerous alternatives, the following interpretation was ultimately adopted, “To accept a theory is to use the theory as a supposition (premiss) for the reasonings and deliberations that guide one’s actions, especially in formulating explanations and in constructing experiments.” Given the descriptive fact that scientists regularly make extensive use of theories that they explicitly claim not to believe, stronger notions of acceptance made the ACST implausible. Yet, since the DCT provides a normative bridge from rational acceptance to justifiable belief, weaker notions of acceptance would have made the DCT implausible. Thus, the suggested interpretation of acceptance was “just right” given that the ultimate goal was to find support for the *Epistimized Thesis of Scientific Veritism* (ETSV).

ETSV We are epistemically justified in believing that current theories in the mature sciences are approximately true to a high degree and unjustified in holding any lesser doxastic attitude toward them.



Given that the goal was to support the ACST, it was understandable that the earlier discussion focused only on understanding the sense in which it is rational to accept *current theories in the mature sciences* for scientific purposes. Nevertheless, the DCT is a wholly general thesis. Thus, it is worth considering what other theories or theses it would be rational to accept for scientific purposes. Given that acceptance of a theory or thesis for scientific purposes entails that one will use it to guide one's actions (especially in formulating explanations and in constructing experiments), the following *Test for Rational Acceptability* (TRA) seems to represent an appropriate standard.

TRA It is rational to accept a theory (thesis) for scientific purposes if and only if the theory (thesis) is a finding of a current empirical science or, at the very least, current empirical sciences strongly indicate that the theory (thesis) in question is likely to be a finding of some future (perhaps, completed) empirical science.

This test seems to capture both what the scientist and philosophical naturalist have in mind. First, the test differentiates science from the pseudo-science. Since astrology and other pseudo-scientific theories are not included among the current empirical sciences and the current empirical sciences provide no indication that such theories will ever be among their number, these pseudo-scientific theories do not qualify as rationally acceptable for scientific purposes. Second, the test differentiates science from first philosophy. In particular, it rules out the metaphysics and traditional epistemology that the naturalist shuns. Lastly, this test seems rather obvious. It would seem awfully peculiar that some theory or thesis would be rationally acceptable *for scientific purposes*

despite being ultimately rejected by scientists. After all, it is scientists who decide what is acceptable for scientific purposes. To assume otherwise would be undermine the very core of the naturalist's position.<sup>60</sup>

#### 4.4 The Objection

The problem with using the TRA to explicate the notion of acceptability for scientific purposes is that two central premisses of the Quine-Putnam indispensability argument—the DCT and the quantificational criterion of ontological commitment—turn out not to be rationally acceptable for scientific purposes. The root of the problem is that these theses are strictly philosophical and, thus, empirical science does not speak them. Consequently, even if the DCT were true, it would offer indispensability theorists no assistance in justifying their own position. The core of the indispensability argument will have to be justified on some extra-scientific basis. Yet, as has been shown over the past few chapters, such philosophical justifications are lacking.

Yet, the honest indispensability theorist, one that is sincere about his naturalist roots, has deeper problems. In formulating the Quine-Putnam indispensability argument, I have been careful to keep the premisses as weak as possible. In particular, as I formulated the DCT, acceptability of a theory for scientific purposes is taken to provide only a *sufficient* condition for our being justified in believing it and unjustified in holding

---

<sup>60</sup> I am not claiming that this captures the meaning of what it is for a theory or thesis to be rationally acceptable for scientific purposes. I am only claiming that this represents a necessary and, perhaps, sufficient condition of a theory or thesis being rationally acceptable for scientific purposes. As far as the naturalist is concerned, this certainly seems to represent both a necessary and sufficient condition for being rationally acceptable for scientific purposes.

any lesser doxastic attitude toward it. Thus, the DCT excludes the findings of pseudo-science and traditional philosophy that conflict with the findings of science. Yet, the Quinean naturalist seems to have something stronger in mind. The naturalist is looking to exclude *all* conclusions that are not acceptable on scientific grounds. Therefore, rather than the DCT, the thoroughgoing naturalist seems to have the following bi-conditional in mind.

DCT\* It is rational to accept a theory for scientific purposes *if and only if* we are epistemically justified in believing that the theory is approximately true to a high degree.

Yet, when the DCT\* is paired with the TRA, we get the following *Naturalist Principle of Justification* (NPJ).

NPJ We are epistemically justified in believing that a theory (thesis) is approximately true to a high degree *if and only if* the theory (thesis) is a finding of a current empirical science or, at the very least, current empirical sciences strongly indicate that the theory (thesis) in question is likely to be a finding of some future (perhaps, completed) empirical science.

Of course, a simple overview of the current empirical sciences reveals that none of them endorses such broad meta-theses as the DCT, the quantificational criterion of ontological commitment, or even anything like a general naturalistic thesis. For example, biology produces theses about biological organisms and physics generates theses concerning fundamental particles and forces. Neither science makes any claims about what are to count as legitimate grounds for accepting or rejecting a theory or what we are or are not justified in believing.

Given that the DCT and the quantificational criterion of ontological commitment are broadly epistemic, it is no surprise that sciences like biology and physics have little to

say about them. More plausibly, one might suspect that such epistemologically oriented theses are to be findings of empirical psychology. In the naturalist's vision after all, epistemology is to become a branch of psychology. Yet, empirical psychology does not offer refuge to such epistemological theses either. Empirical psychology produces claims about what humans believe, how humans form the beliefs that they do, and which belief-forming processes tend to reliably produce true beliefs. There is no mention of what we are and are not justified in believing.

Even if the notion of "empirical science" were expanded to include studies so broad as the history and sociology of science, the DCT and the quantificational criterion of ontological commitment will still not constitute findings of science. The history and the sociology of science reports which grounds and standards have been used by scientists in evaluating theories, not that these are the only legitimate considerations regarding theory acceptance. The underlying reason why such theses are not findings of any current science is widely recognized. There is no room in any existing empirical science for the normative elements of these epistemological theses. Empirical science is primarily a descriptive enterprise.<sup>61</sup>

Yet, even if we were to take the practice of scientists as having normative force (which we should not), this would still not support the DCT. One need only look to the history of science to find scientists who are willing to accept theories for the purpose of making predictions, constructing experiments, etc., but who nevertheless do not believe the theories to be approximately true. They simply accept the theories as the best

---

<sup>61</sup> Science might include a few prescriptions concerning the proper way to set up equipment or carry out observations, but this sort of normativity is rather trivial.

available. Thus, deriving normative constraints from the actual practice of scientists would count against the DCT, rather than for it.

Although current theories in the mature sciences do not entail the DCT, the quantificational criterion of ontological commitment, or a general thesis of naturalism, it might be suggested that science might eventually expand to include such theses. Yet, this is very unlikely given the fact that no current sciences include such broadly epistemic theses. Moreover, since observation and the hypothetico-deductive method are not capable of yielding normative epistemological claims, the only way for science to incorporate them would be to for future science to incorporate a large dose of first philosophy. Yet, it naturalism's abandonment of first philosophy that is ultimately meant to ground the DCT. Thus, there is an inherent contradiction in the idea that either naturalism or the DCT could ever be a finding of science.

Thus, it seems that since the DCT, the quantificational criterion of ontological commitment, and naturalism are not findings of current science and are not going to be findings of some future science. Therefore, given the NPJ, it seems that we would be unjustified in believing these theses on naturalistic grounds.

#### **4.5 The Naturalist's Reply**

Moser and Yandell have gestured toward a possible reply to the above argument that might be offered on behalf of the naturalist.<sup>62</sup> The naturalist might reply that the

---

<sup>62</sup> Once again, their intended target is slightly different from mine, but for simplicity I will continue to talk as if my target is theirs.

DCT, the quantificational criterion of ontological commitment, and a general thesis of naturalism are justified on the grounds that they are products of a principle of justification that is itself required by empirical science. Particularly, the naturalist might suggest that the principle of inference to the best explanation is utilized by science and the theses in question are the result of something like an inference to the best explanation. Hence, the naturalist might insist that the DCT, the quantificational criterion of ontological commitment, and his naturalism itself are contingently true and naturalistically justified even if they are not theorems of any current or future science.

First and foremost, the naturalist that retreats to this reply will have to depend even more heavily upon his realism. The claim that science is *just* an extension of common sense and is thus deserving of the same attitude of unregenerate realism is bearing an increasingly heavy load. Unless the aim of science is to produce true theories, then there is little reason to think that science utilizes inference to the best explanation.<sup>63</sup>

More importantly, if the naturalist is going to claim that any of the theses in question are products of inference to the best explanation, it is fair to ask what fact or facts are supposedly explained by them. The most plausible suggestion would seem to be that these theses encode basic scientific standards and that the correctness of those basic standards explains the success of science. Moreover, since no other enterprise

---

<sup>63</sup> In his influential attack on scientific realism, van Fraassen has suggested that rather than inference to the best explanation, scientists make use of inference to the empirically adequate. ([1980]) Since it appears to be observationally underdetermined which of the two kinds of inference scientists actually use, one would have to rely on the arguments of first philosophy to argue that (we ought to believe that) scientists make use of one method rather than the other. Thus, the naturalist deprives himself of the very resources that he would need to support his position.

(pseudo-scientific or philosophical) employing different standards has had anything close to the success of science, scientific standards are the only legitimate standards. Hence, the DCT\* explains the success of science.

One problem with this reply is that in determining the predictive success of science, circularity comes into play. Science checks the reliability of the theories it produces by utilizing methods that are approved by scientifically accepted theories. However, pseudo-sciences and religions often claim to verify their own success as well.<sup>64</sup> Thus, such practices could make claims parallel to that of science. That is, many pseudo-sciences and religions can claim that by their own lights, they are incredibly predictively successful. Thus, by parallel reasoning, they can claim that the grounds on which they determine theory acceptance, which are different from those of science, are also legitimate. We seem to be left without a philosophical basis from which to judge this dispute.

Of course, the naturalist will point to the importance of the scientific subject matter, saying, “Just let one ignore science and see how long he lasts.” Yet, this response is not sufficient. A pseudo-scientist or religionist can also claim that the ACST is part of his favored theory. It is only the DCT and the quantificational criterion of ontological commitment that he rejects. He uses science, he just doesn’t believe much of it. Thus, the pseudo-scientist or religionist might have no problem with survival.

Moreover, even if it were conceded that inference to the best explanation is a principle of justification that is required by science, this would not justify naturalism, the

---

<sup>64</sup> In order to avoid the complications due to conflicts between pseudo-science/religion and science, we could focus on those on those pseudo-sciences/religions that do not speak to empirical subject matter.

DCT, or the quantificational criterion of ontological commitment. At most, the principle of inference to the best explanation is restricted to formulating theories about the empirical realm. Yet, whether we ought to *believe* (as opposed to merely accepting) scientifically acceptable theories is a question outside of the empirical realm. Thus, it would still be fair to deny that inference to the best explanation ought to be used to determine truth with respect to matters outside of the empirical realm.<sup>65</sup>

Science is concerned with making claims about the empirical realm and is silent about other realms. Thus, the success of science does not warrant any overarching claims about the legitimacy of grounds for theory evaluation. In fact, science does not even issue any directives with regard to legitimacy of grounds for empirical theory evaluation. As pointed out initially, different empirical sciences just use the grounds that they do to evaluate theories and make no normative claims whatsoever.

#### **4.6 The Self-Exemption of Naturalism**

Perhaps naturalism ought to be exempt from its own standard of justification and legitimacy. We might choose to simply allow such broad meta-philosophical principles self-exemptions. It seems likely that self-exemptions need to be made for all interesting and sweeping meta-philosophical claims.<sup>66</sup> Of course, this approach would require us to pay closer attention to the motivations and arguments underlying such principles.

---

<sup>65</sup> This is more or less the conclusion that Moser and Yandell come to. They conclude that science has nothing normative to say about non-science.

<sup>66</sup> If we are willing to consider this, then it seems reasonable that the strong verifiability principle of the logical positivists ought also be excused for not meeting its own very demanding requirements. Of course,



Yet, it should be clear that such a fundamental rethinking of how we deal with meta-philosophical theses would change the entire philosophical landscape against which we were to consider naturalism and the naturalized indispensability argument. This is not a task that the naturalist can simply wave his hand at. His fundamental claim that science and philosophy are continuous could be at stake.<sup>67</sup>

In the end, the Quine-Putnam indispensability theorist will likely claim that the naturalistic basis for the argument is simply beyond argument. Naturalism, he shall claim, is just a stand that we either choose to take or not. In his defense of the Quine-Putnam argument, for example, Mark Colyvan maintains, “Now defenses of such fundamental doctrines as naturalism are hard to come by. Typically such doctrines are justified by their fruits.” ([2001], 25) When pushed on the topic, Quine seems to have been willing to admit that naturalism is just an assumed position. ([1994]).

Yet, at this point, the naturalist’s attack on Carnap’s internal/external distinction seems hollow. How is the suggestion that naturalism is a “stand” one chooses to take simply not an externalist question? Yet, if we have an internal/external split, where does the justification of mathematics fall? Is the choice of mathematics an external matter? If so, in what sense is mathematics confirmed? What is the justification for thinking that mathematics is a finding of science in the same sense as science’s other discoveries? Perhaps we have simply reached a stand off. The naturalist simply refuses to try and

---

there remain other problems with the verifiability principle, however they are not so devastatingly wholesale. Thus, if we are willing to exempt meta-philosophical claims from their own demands, there might good reason to reopen the case for some sort of verifiability principle.

<sup>67</sup> Perhaps this is an indication that we ought to abandon all such meta-philosophical claims. Yet, this would leave philosophy even more Spartan than even the positivists or the naturalists imagined it. (Perhaps this is the root of the Wittgensteinian difference between showing and saying.)

justify his position at all and claims that this consistent with his naturalism. He is refusing to justify his position from a trans-scientific standpoint. Yet, given that his position is a trans-scientific one, such a refusal leaves the naturalist a dogmatist of the variety to which the philosophical spirit is so adamantly opposed.

#### 4.7 Summing up the Case Against the Quine-Putnam Indispensability Argument

It is useful review once again the basic structure of the Quine-Putnam indispensability as it was presented in chapter 1.

- |   |   |
|---|---|
| 1. <i>Acceptability of Current Science Thesis:</i>              | It is rational to accept current theories in the mature sciences for scientific purposes.   |
| 2. <i>Doxastic Commitment Thesis:</i>                           | If it is rational to accept a theory for scientific purposes, then we are epistemically justified in believing that the theory is approximately true to a high degree and unjustified in holding any lesser doxastic attitude toward it.  |
| 3. <i>Epistemized Thesis of Scientific Veritism:</i>            | We are epistemically justified in believing that current theories in the mature sciences are approximately true to a high degree and unjustified in holding any lesser doxastic attitude toward them.   |
| 4. <i>Quantificational Criterion of Ontological Commitment:</i> | If we are epistemically justified in believing that a theory is approximately true to a high degree and unjustified in holding any lesser doxastic attitude toward it, then we are epistemically justified in believing that the objects over which it indispensably quantifies exist and unjustified in holding any lesser doxastic attitude concerning the existence of such objects. |
| 5. <i>Epistemized Thesis of Scientific Referentialism:</i>      | We are epistemically justified in believing that the objects over which current theories in the mature sciences indispensably quantify exist and unjustified in holding any lesser doxastic attitude concerning the existence of such objects.  |
| 6. <i>Quantificational Indispensability Thesis:</i>             | Current theories in the mature sciences indispensably quantify over mathematical objects.   |

7. *Epistemized Thesis of Mathematical Realism:* We are justified in believing that mathematical objects exist and unjustified in holding any lesser doxastic attitude with regard to the existence of such objects.

As was explained in Chapter 1, once we understand the notion of accepting a theory for scientific purposes in terms of utilizing the theory as a supposition in one's reasonings and deliberation (particularly with regard to crafting explanations and designing experiments), the acceptability of current science thesis is largely unobjectionable. It was also conceded that it is quite unlikely that most of science could be reconstructed without quantifiers ranging over mathematical objects. Thus, it was granted that the quantificational indispensability thesis is likely unassailable. Therefore, the ultimate plausibility of the Quine-Putnam indispensability argument seems to hang on the plausibility of the doxastic commitment thesis and the quantificational criterion of ontological commitment.

It was also acknowledged that the quantificational criterion of ontological commitment provides initially clear and simple answers to a number of meta-theoretical questions. Thus, other things equal, the quantificational criterion of ontological commitment seems to unobjectionable. (This, however, is only tentative. Considerations with regard to ontological commitment are theoretical in nature and are not settled once and for all.) Thus, the case for the Quine-Putnam indispensability argument seems to rest on the doxastic commitment thesis and, ultimately, the Quinean naturalism that is taken to support it. It is from the DCT that the naturalistic view spreads through the rest of the argument.

In chapter 2, I showed that the case naturalism ultimately depends upon meaning holism and an unregenerate realism. The case for meaning holism, in turn, is based upon the case for verificationism and a radical confirmational holism. In Chapter 3, I examined the case for radical confirmational holism and showed it to be severely wanting. Yet, without radical confirmational holism to support it, a sweeping meaning holism does not follow. Yet, without a sweeping meaning holism, one cannot derive the robust Quinean naturalism needed to support the doxastic commitment thesis.

In Chapter 4, I showed that the situation is even worse for the indispensability theorist. Not only is the key premiss, the doxastic commitment thesis, unsupported, but both the doxastic commitment thesis and the quantificational criterion of ontological commitment seems to be undermined by a thoroughgoing naturalism. In fact, a thoroughgoing naturalism appears to be either self-undermining or nothing more than an unsupportable stance. Thus, the indispensability argument is either undermined on its own basis or simply impotent against those who don't share the naturalistic stance. Hence, the mathematical realist's main weapon seems largely impotent. Thus, our supposed knowledge of abstract mathematical objects is left unexplained. We are still in need of a viable epistemology for mathematics.

#### 4.8 Appendix: Colyvan's Analysis of the Quine-Putnam Argument

In his [2001], Colyvan argues that what I have called the epistemized thesis of scientific referentialism follows directly from Quinean naturalism together with confirmational holism. Colyvan presents the argument as follows.

Naturalism, for Quine at least, is the philosophical doctrine that there is no first philosophy and the philosophical enterprise is continuous with the scientific enterprise. What is more, science, thus construed (i.e. with philosophy as a continuous part) is taken to be the complete story of the world. The doctrine arises out of a deep respect for scientific methodology and an acknowledgment of the undeniable success of this methodology as a way of answering fundamental questions about all nature... Naturalism, in short, rules out unscientific ways of determining what exists... Naturalism, then, gives a reason for believing in the entities in our best scientific theories and no other entities. Depending on how you conceive of naturalism, it may or may not tell you whether to believe in *all* the entities of your best scientific theories. I take that naturalism does give us some reason to believe in all such entities, but that this is defeasible. This is where the holism comes to the fore; in particular, confirmational holism. Confirmational holism is the view that theories are confirmed or disconfirmed as wholes. So, if a theory is *confirmed* by empirical findings, the *whole* theory is confirmed. In particular, whatever mathematics is made use of in the theory is also confirmed... Taking naturalism and holism together, then, we have the first premise of [the basic indispensability argument]. (Colyvan [2001], 12-3)<sup>68</sup>

Colyvan explicates this interpretation of the Quine-Putnam indispensability by specifying the following premisses.

1. *The no-first-philosophy thesis*: “We should determine our ontological commitments by looking to see which entities our best scientific theories are committed to.” (Colyvan [2001], 23)

---

<sup>68</sup> Colyvan explicates the argument numerous times in chapters 1 and 2 with similar formulations found on pages 18 and 25. ([2001])

2. *The Quinean ontic thesis*: “[N]aturalism tells us (1) we ought to grant real status *only* to the entities of our best scientific theories and (2) we ought to (provisionally) grant real status to *all* entities of our best scientific theories.” (Colyvan [2001], 23, my emphasis)<sup>69</sup>
3. *The continuity thesis*: “[N]aturalism tells us that philosophy is continuous with science and that together they aim to investigate and explain the world around us. What is more, it is supposed that this science-philosophy coalition is up to the task.” (Colyvan [2001], 24)
4. *The ontological commitments of a theory thesis*: “[T]he ontological commitments of theories are determined on the basis of the domain of quantification of the theory in question.” (Colyvan [2001], 23)

According to Colyvan, the first two of these theses are normative, while the latter two theses are purely descriptive. In addition, Colyvan supposes that the continuity thesis, while not entailing the no-first-philosophy thesis, does “lend support” to it. ([2001], 24)

Colyvan explicates this support as follows,

The traditional way in which first philosophy is conceived is as an enterprise that is prior to and distinct from science. Philosophical methods are seen to be prior and distinct from those of science. Philosophical methods are seen to be a priori while those of science are a posteriori. But accepting the continuity thesis rules out such a view of the relationship between philosophy and empirical science. Once philosophy is located within the scientific enterprise, it is more difficult to endorse the view that philosophy oversees science. (Colyvan [2001], 24)

There are a number of places where my earlier analysis of the Quine-Putnam argument conflicts with Colyvan’s analysis.

First, I want to call into question Colyvan’s classifying the ontological commitments of a theory thesis, what I refer to as the quantificational criterion on

---

<sup>69</sup> The *Quinean ontic thesis* appears to be simply a working out of the *no-first-philosophy thesis*. These are more or less equivalent to what I termed the *epistemized thesis of scientific referentialism*.

*Epistemized Thesis of Scientific Referentialism*:

We are epistemically justified in believing that the objects over which current theories in the mature sciences indispensably quantify exist and unjustified in holding any lesser doxastic attitude concerning the existence of such objects.

ontological commitment, as “purely descriptive”. ([2001], 23) Contrary to Colyvan’s assertion, there is no clear scientific methodology or scientific consensus as to how we are to determine the ontological commitments of a scientific theory. As I explained earlier, the selection of a criterion of ontological commitment is ultimately a theoretical decision—though not a choice made during the everyday practice of science. The criterion plays a crucial role in our meta-theorizing, our theorizing about our theorizing. Thus, our decision with regard to a criterion of ontological commitment should be guided by clarity and simplicity, as well as by explanatory power, breadth, and fecundity in addressing the wide range of meta-theoretic questions. These factors affect the *overall* simplicity. Thus, like other theoretical decisions, the selection of a criterion of ontological commitment is a matter for reflective equilibrium. Thus, contrary to Colyvan’s assertion, the criterion of ontological commitment is not a “purely descriptive” matter.

Second, it is less than clear exactly how the continuity thesis is to “lend support” to the no-first-philosophy thesis, especially given that Colyvan claims that the former is descriptive and the latter normative. That is, given that the relationship is not one of entailment, it is unclear what kind of support Colyvan has in mind.

The most problematic part of Colyvan’s presentation is his defense of Quienean naturalism. It appears that Colyvan has a two pronged approach. First, he suggests that a direct argument for naturalism is not to be had. As he puts it, “Now defenses of such fundamental doctrines as naturalism are hard to come by. Typically such doctrines are justified by their fruits.” ([2001], 25) The primary fruit that Colyvan notes is the ability

of the Quinean naturalist to dispel the skeptic. Yet, this fruit is not all that sweet. The skeptic has something important to say and cannot be ruled out so easily.<sup>70</sup> The debate over the value of skepticism is, however, one which space does permit me to enter. Yet even if Colyvan were right on this point, this is a rather weak justification for such a sweeping doctrine as Quinean naturalism.

The second prong is to provide an argument for the continuity thesis. Somewhat strangely, Colyvan does not initially indicate that he is providing an argument for the continuity thesis. Rather, he begins by claiming that the Quinean naturalist can overcome objections that his naturalism blurs the methodological boundary between science (which uses a posteriori methods) and philosophy (which uses a priori methods). In particular, Colyvan focuses on the well-known argument from, “Two Dogmas of Empiricism”, against the analytic/synthetic distinction. According to Colyvan, “Quine’s attack proper... is an argument from the history of science that *no belief* can be held onto no matter what.” (27) Next, Colyvan follows Dummet’s [1976] interpretation of “Two Dogmas” as primarily an attack on a prioricity, rather than analyticity (at least as the latter was a traditionally conceived). Thus, Colyvan concludes, “So if we take Quine’s argument from the history of science on its own, we have an argument against the a priori/a posteriori distinction.” ([2001], 28) A bit surprisingly, it is only *after* having gone through this argument in sketch that Colyvan mentions that it was intended as a defense of the continuity thesis.

---

<sup>70</sup> Both Stroud and Fummerton, for example, have argued for this quite persuasively.



In addition to his strained defense of the continuity thesis, Colyvan's description of the grounding for naturalism seems to misinterpret the dialectic within the Quinean picture. Colyvan writes,

It is worth noting explicitly that in the foregoing defense of the continuity thesis we have seen an important consequence of Quinean naturalism: some sort of holism about our scientific theories. The fact that we cannot distinguish between a priori and a posteriori portions of our theory and also the fact that it seems that isolated hypotheses do not enjoy empirical confirmation or disconfirmation—only bodies of hypotheses may be said to be confirmed or disconfirmed—suggests confirmational holism. While it's clear that there is a close relationship between naturalism and holism, I do not wish to take too much for granted here. I do not wish to presuppose that the confirmational holism required for the success of the indispensability argument is written into naturalism. (Colyvan [2001], 28)

Initially, it seems that Colyvan is simply being methodical and careful, not taking "too much for granted". He seems to be suggesting that naturalism entails confirmational holism, but he doesn't want to make things that easy on himself. Yet, a definite sign that something strange is afoot is Colyvan's use of the phrase, "some sort of holism". Colyvan clearly recognizes the difference between confirmational holism and meaning (semantic) holism, so why doesn't he indicate one, the other, or both? The answer comes to light when Colyvan attempts to defend confirmational holism.

Colyvan first notes that, "Semantic holism is closely related to Quine's denial of the analytic/synthetic distinction and his thesis of indeterminacy of translation." ([2001], 34) This much I agree with. However, shortly thereafter, Colyvan writes,

It's somewhat ironic that Quine argues for confirmational holism (which in some form or another is a relatively uncontroversial thesis) from his semantic holism, which is one of the most controversial parts of Quine's philosophy. The debate about the rejection of the analytic/synthetic distinction, in particular, is still raging half a century after the publication of "Two Dogmas of Empiricism." I don't deny that confirmational holism follows from semantic holism; it's just that

there are easier, less controversial roads to confirmational holism. Since it's only confirmational holism that we require for the indispensability argument, I intend to explore these other roads and thus avoid the semantic holism debate. (Colyvan [2001], 35)

So, what is this other road to confirmational holism? It's the same road that Colyvan took to naturalism in the first place, an argument from the history of science. Colyvan writes,

Both Duhem (1906) and Lakatos (1970) have argued for confirmational holism without any (obvious) recourse to semantic considerations. They emphasize the simple yet undeniable point that there is more than one way in which a theory is, faced with recalcitrant data, can be modified to conform with that data... This point is driven home by appeal to case studies from the (actual and imagined) history of science. (Colyvan [2001], 35)

Surprisingly, Colyvan doesn't seem to recognize that this is the same road that he has already been down.<sup>71</sup> Notice how his earlier "care" not to "take too much for granted" by supposing that naturalism entails confirmational holism seems a bit spurious. Naturalism entails confirmational holism because it directly presupposes it.<sup>72</sup>

I suspect Colyvan recognizes that the argument for confirmational holism is quite vulnerable and he does not want the indispensability argument to hang or fall with it. Thus, he tries to divorce the theses. At the end of the chapter discussing naturalism and holism, Colyvan writes,

---

<sup>71</sup> The only difference is that Colyvan now includes imagined as well as actual cases from the history of science. It is very doubtful how seriously a Quinean naturalist should take imagined cases. They smack very much of the armchair first philosophy that the naturalist rejects.

<sup>72</sup> Colyvan's suggestion that there is a road to confirmational holism through semantic holism is also less than clear. As I presented it earlier, the most plausible argument for meaning holism begins with an argument for confirmational holism. That is, confirmational holism is a presupposition, not a consequence, of meaning holism. Furthermore, so long as one conceives of the analytic as that which is immune from disconfirmation and revision (which is ultimately how the Quinean interprets it), the argument against the analytic/synthetic is the argument for confirmational holism.

After all, (Quinean) naturalism alone delivers something very close to the crucial first premise [i.e., the no-first-philosophy thesis]. (More specifically, the Quinean ontic thesis is very suggestive of the required premise.) As a matter of fact, I think that the argument can be made to stand without confirmational holism: It's just that it's more secure *with* holism. (Colyvan [2001], 37)

Yet, to abandon radical confirmational holism, is to abandon the ultimate basis for naturalism and, thus, to abandon the ultimate foundation for the Quine-Putnam indispensability argument.

**PART II:**

**THE EPISTEMOLOGICAL CHALLENGE:  
THE UNJUSTIFIABILITY OF BELIEVING IN THE EXISTENCE OF  
MATHEMATICAL OBJECTS**

**General Synopsis**

Those who deny the existence of mathematical objects have not always been very clear as to why they find them to be so philosophically distasteful. For instance, Nelson Goodman and W. V. Quine once denounced all abstract entities of mathematics on the basis of “philosophical intuition”. As they put it,

We do not believe in abstract entities. No one supposes that abstract entities—classes, relations, properties, etc.—exist in space-time; but we mean more than this. We renounce them altogether... Why do we refuse to admit the abstract objects that mathematics needs? Fundamentally this refusal is based on a philosophical intuition that cannot be justified by appeal to anything more ultimate. (Goodman and Quine [1947], 105)<sup>73</sup>

---

<sup>73</sup> Goodman and Quine also offer a secondary *a posteriori* consideration against the existence of abstract entities,

It [i.e., the philosophical intuition] is fortified by certain *a posteriori* considerations. What seems to be the most natural principle for abstracting classes or properties [i.e. given any formula containing the variable ‘ $x$ ’, there is a class whose members are all and only the objects  $x$  for which that formula holds] leads to paradoxes. Escape from these paradoxes can apparently be effected only by recourse to alternative rules whose artificiality and arbitrariness arouse suspicion that we are lost in a world of make-believe. (Goodman and Quine [1947], 105)

This *a posteriori* consideration seems epistemic. Given that the most natural method for identifying classes or properties leads to paradox, then one must hold all findings of the method in doubt. But there is no other method for identifying classes or properties that seems intuitively plausible. So, it seems that we don’t have a method for deciding of any class or property whether it exists. But, if we don’t have a method for deciding of any class or property whether it exists, then simplicity suggests that we deny that they exist.

Although philosophical intuition might still provide a source of personal motivation, most contemporary mathematical nominalists publicly deny the existence of abstract mathematical objects on epistemological grounds. They suggest that even if abstract mathematical objects existed, we could never know or even justifiedly believe them to exist due to their acausal and non-spatiotemporal nature. Yet, if we could never even justifiedly believe that abstract mathematical objects exist, considerations of simplicity and ontological parsimony would suggest that we simply deny that they exist.

### **Chapter Summaries**

Chapter 5 sets the epistemological backdrop for the original and most famous version of this epistemological objection to the existence of abstract mathematical objects and, then, examines its rise and fall. Ultimately, the original version of the objection was undermined by the discovery of counterexamples to its epistemological basis. Chapter 6 examines a contemporary attempt to resurrect the epistemological objection. This version of the objection is based on the idea that the reliability of mathematicians with regard to a realm of abstract mathematical objects would be inexplicable and that such inexplicability undermines any justification that we might have for thinking that abstract mathematical objects exist. I argue that this more recent version of the argument relies on implausible epistemic constraint that is open to counterexample. Thus, the ultimate conclusion of Part II is that the most popular argument for the unjustifiability of belief in the existence of abstract mathematical objects fails.

## CHAPTER 5

### A BRIEF HISTORY OF BENACERRAF'S EPISTEMOLOGICAL CHALLENGE TO MATHEMATICAL PLATONISM

#### 5.1 Overview

The most persuasive and resilient argument against the existence of abstract mathematical objects is the epistemological argument.

1. Either abstract mathematical objects do exist or don't exist.
2. If abstract mathematical objects do exist, then even if our contemporary mathematical theory provides an accurate description of them (i.e. even if mathematics is true), mathematics is unknowable.
3. If abstract mathematical objects don't exist, then mathematics is false.

---

4. So, mathematics is either unknowable or false.
5. If mathematics is either unknowable or false, we ought to deny that abstract mathematical objects exist based on considerations of ontological parsimony.

---

6. So, we ought to deny that abstract mathematical objects exist based on considerations of ontological parsimony.

Although the basic insight for this argument can be traced back to Plato, the contemporary form of this argument is often attributed to Benacerraf's 1973, "Mathematical Truth". This chapter shall provide an account of the raise and fall of Benacerraf's version of the epistemological argument.

## 5.2 A Bit of Epistemological Background

In 1963, the epistemological community was shaken by Edmund Gettier's simple, 3 page paper, "Is Justified True Belief Knowledge?". The paper provided two elementary thought experiments that challenged the widely accepted view that knowledge is simply justified, true belief. Consider the following thought experiment that was put forward by Gettier.

Suppose that Smith and Jones have applied for a certain job. And suppose that Smith has strong evidence for the following conjunctive proposition:

(d) Jones is the man who will get the job, and Jones has ten coins in his pocket.

Smith's evidence for (d) might be that the president of the company assured him that Jones in the end would be selected, and that he, Smith had counted the coins in Jones's pocket ten minutes ago. Proposition (d) entails:

(e) The man who will get the job has ten coins in his pocket.

Let us suppose that Smith sees the entailment from (d) to (e), and accepts (e) on the evidence of (d), for which he has strong evidence. In this case, Smith is clearly justified in believing that (e) is true.

But imagine, further, that unknown to Smith, he himself, not Jones, will get the job. And also unknown to Smith, he himself has ten coins in his pocket. Proposition (e) is then true, though proposition (d), from which Smith inferred (e) is false. In our example, then, all of the following are true: (i) (e) is true, (ii) Smith believes that (e) is true, and (iii) Smith is justified in believing that (e) is true. But it is equally clear that Smith does not *know* that (e) is true; for (e) is true in virtue of the number of coins in Smith's pocket, while Smith does not know how many coins are in Smith's pocket, and bases his belief in (e) on a count of the coins in Jones's pocket, whom he falsely believes to be the man who will get the job. (Gettier [1963], 122)

With this simple story, Gettier demonstrated that existing analyses of knowledge as justified, true belief were sorely lacking.<sup>74</sup>

---

<sup>74</sup> Russell had recognized this same point long before, but its startling importance was overlooked.

In his 1967, “A Causal Theory of Knowing”, Alvin Goldman provided a seemingly simple solution to Gettier’s problem. Goldman suggested that to be an instance of knowledge, a true belief had to be causally connected in the right sort of way to the referents of the names, predicates, and quantifiers that make the belief true. More specifically, Goldman formulated this *causal theory of knowledge* as follows.

*S knows that p if and only if the fact that p is causally connected in an “appropriate” way with S’s believing p.*

“Appropriate,” knowledge-producing causal processes include the following:

- (1) perception
- (2) memory
- (3) a causal chain, exemplifying [a number of possible patterns allowing both for direct causation and indirect causation via a common ancestral cause], which is correctly constructed by inferences, each of which is warranted (background propositions help warrant an inference only if they are true)<sup>75</sup>
- (4) combinations of (1), (2), and (3). (Goldman [1967], 82)

Thus, Smith didn’t know because his belief that the man who will get the job has ten coins in his pocket because Smith’s belief was not causally connected in the appropriate way to the fact that made it true. Initially, it seemed that Goldman’s causal theory of knowledge or some variant of it would quell the storm raised by Gettier.<sup>76</sup>

### **5.3 An Overview of Benacerraf’s Challenge**

In his 1973 article, “Mathematical Truth”, Paul Benacerraf outlined an apparent dilemma for the philosopher of mathematics on the assumption that an acceptable

---

<sup>75</sup> Goldman describes a number of acceptable causal patterns, both direct and via common causes. A consideration of the particular patterns that he describes is not essential for the current discussion.

<sup>76</sup> D.M. Armstrong also developed an influential version of a causal theory of knowledge in his [1973].



package of semantics and epistemology must be equally applicable to both mathematical and non-mathematical discourse. Benacerraf writes,

It is my contention that two quite distinct kinds of concerns have separately motivated accounts of the nature of mathematical truth: (1) the concern for having a homogenous semantical theory in which the semantics for the propositions of mathematics parallel the semantics for the rest of the language, and (2) the concern that the account of mathematical truth mesh with a reasonable epistemology. It will be my general thesis that almost all accounts of the concept of mathematical truth can be identified with serving one or another of these masters *at the expense of the other*. Since I believe further that both concerns must be met by any adequate account, I find myself deeply dissatisfied with any package of semantics and epistemology that purports to account for truth and knowledge both within and outside of mathematics. For... accounts of truth that treat mathematical and nonmathematical discourse in relatively similar ways do so at the cost of leaving it unintelligible how we can have any mathematical knowledge whatsoever; whereas those which attribute to mathematical propositions the kinds of truth conditions we can clearly know to obtain, do so at the expense of failing to connect these conditions with any analysis of the sentences which shows how the assigned conditions are conditions of their *truth*. (Benacerraf [1973], 403-4)

The dilemma for the platonist sprung from the assumption that Tarski's set theoretic semantics and a causal theory of knowledge provided the correct semantic and epistemological analysis for everyday statements about tables and chairs. Consider, for example, an ordinary statement like, "There is a blue chair in the corner" (i.e., " $\exists x (x \text{ is blue} \wedge x \text{ is a chair} \wedge x \text{ is in the corner})$ "). According to Tarski's semantics, in order for this statement to be true, there must be an object in the domain that falls into the extension of the predicates, "is blue", "is a chair", and "is in the corner". According to the causal theory of knowledge, in order to know that the statement is true, (i) it must be

true that there is a blue chair in the corner, (ii) one must believe that there is a blue chair in the corner, and (iii) one's belief must be causally connected in the appropriate way to the fact that there is a blue chair in the corner.

Although this semantic and epistemological package works well with ordinary statements, it does not seem to work for mathematics. Given the semantic picture described by Tarski, it seems that only eternal, immutable, and acausal abstract objects could account for the necessity and a prioricity that have long been hallmarks of mathematical truth. Yet given the epistemological requirements of a causal theory of knowledge, non-causal abstract objects could never be causally connected to beliefs about them. Hence, most of mathematics, including all particularly quantified ( $\exists$ ) statements, would be unknowable. Thus, we can summarize Benacerraf's challenge as follows:

In order to know that a given particularly quantified mathematical statement,  $p$ , is true, we must be capable of knowing both (i) that  $p$  is *mathematically true* and (ii) that if  $p$  is *mathematically true*, then  $p$  is (*really*) true. Yet, if we suppose that the same semantics that applies to ordinary empirical statements also applies to mathematical statements, then we can't know (i), but if we suppose that the semantics that applies to ordinary empirical statements does *not* apply to mathematical statements, then we can't know (ii). Yet, unless we are capable of knowing both (i) and (ii), we are can't know that  $p$  is (*really*) true.<sup>77</sup>

---

<sup>77</sup> The challenge is framed in terms of "knowledge", but it could just as easily be framed in terms of "justification". Although Goldman presented the causal theory as a theory of knowledge, the causal

## 5.4 The Case for Semantic and Epistemological Uniformity

According to Benacerraf, in order to have a univocal notion of truth for the whole of our language, we need a uniform interpretation of the quantifiers. As he puts it,

A theory of truth for the language we speak, argue in, theorize in, mathematize in, etc., should... provide similar truth conditions for similar sentences. The truth conditions assigned to two sentences containing quantifiers should reflect in relevantly similar ways the contribution made by the quantifiers. (Benacerraf [1973], 404)

Benacerraf is primarily worried that if we interpret different discourses according to different semantic theories, then it will be unclear whether the notion of truth employed by those differing accounts will be the same. He writes,

Another way of putting this... is to demand that any theory of mathematical truth be in conformity with a general theory of truth—a theory of truth theories, if you like—which certifies that the property of sentences that the account calls “truth” is indeed truth. This, it seems to me, can be done only on the basis of some general theory for at least the language as a whole (I assume we skirt paradoxes in some suitable fashion). Perhaps the applicability of this requirement to the present case amounts only to a plea that the semantical apparatus of mathematics be seen as part and parcel of that of the natural language in which it is done, and thus that whatever *semantical* account we are inclined to give of names or, more generally, of singular terms, predicates, and quantifiers in the mother tongue including those parts of the mother tongue which we classify as *mathematize*. (Benacerraf [1973], 408)<sup>78</sup>

---

requirement can plausibly be read as providing the justification condition within the traditional justified-true-belief account of knowledge. This is especially plausible with regard to Goldman’s causal theory since he has subsequently suggested constraints on knowledge as constraints on justification.

<sup>78</sup> Benacerraf is particularly worried about accounts that equate mathematical truth with theoremhood, what he refers to as “syntactic” or “combinatorial” theories of mathematical truth. This includes accounts by formalists like Hilbert, by intuitionists like Brouwer and Heyting, and by conventionalists like Carnap. Benacerraf suggests,

The account [of mathematical truth] should imply truth conditions for mathematical propositions that are evidently conditions of their truth (and not *simply*, say, of their theoremhood in some formal system). This is not to *deny* that being a theorem of some system can be a truth condition for a given proposition or class of propositions. It is rather to require that any theory that proffers

If... mathematize is not to be analyzed along referential lines [the method used for non-mathematical discourse], then we are clearly in need not only of an account of truth (i.e., a semantics) for this new kind of language, but also of a new *theory of truth theories* that relates truth for referential (quantificational) languages to truth for these new (newly analyzed) languages. (Benacerraf [1973], 410-1)

Of course, Benacerraf sees it, the only semantics general enough to account for a majority of natural language is Alfred Tarski's set theoretic semantics in which truth is defined in terms of reference/satisfaction. Moreover, according to Benacerraf, only a semantics in terms of reference can capture the *real notion of truth*. He writes,

Truth and reference go hand in hand. Our concept of truth, insofar as we have one, proceeds through the mediation of the concepts Tarski has used to define it for the class of languages he has considered—the essence of Tarski's contribution goes much further than Convention T [i.e., *p is true* if and only if *p*], but includes the schemata for the actual definition as well: an analysis of truth for a language that did not proceed through the familiar devices of predication, quantification, etc., should not give us satisfaction. (Benacerraf [1973], 419)

Benacerraf nicely summarizes the objection to utilizing a non-referential semantics for mathematics with the rhetorical quip, “What would make such an assignment of the predicate ‘true’ the determination of *the concept truth*? Simply the use of that monsyllable?” (Benacerraf [1973], 418)

Once the case for semantic uniformity is made, Benacerraf seems to suppose that the need for epistemological uniformity is pretty obvious. There seems to be no principled reason why our mathematical knowledge should not live up to the standards of our knowledge of ordinary, everyday objects. If anything, our mathematical knowledge

---

theoremhood as a condition of truth also *explain the connection between truth and theoremhood*. (Benacerraf [1973], 408)

has traditionally been thought to live up to a higher standard than our everyday knowledge. As Benacerraf summarizes the point, “[mathematical] knowledge is no less knowledge for being mathematical.” ([1973], 409)<sup>79</sup>

## 5.5 Ontological Consequences

Benacerraf never recommended drawing any skeptical or ontological consequences from his dilemma. He viewed his challenge as more of a paradox than as a motivation for either mathematical skepticism or ontological reform.

[A] condition on an over-all view [of mathematics] presupposes that we have mathematical knowledge and that such knowledge is no less knowledge for being mathematical. Since our knowledge is of truths, or can be so construed, an account of mathematical truth, to be acceptable, must be consistent with the possibility of having mathematical knowledge... The minimal requirement, then, is that a satisfactory account of mathematical truth must be consistent with the possibility that some such truths be knowable. To put it more strongly, the concept of mathematical truth, as explicated, must fit into an over-all account of knowledge in a way that makes it intelligible how we have the mathematical knowledge that we have. An acceptable semantics for mathematics must fit an acceptable epistemology. (Benacerraf [1973], 409)

Although Benacerraf declined to draw any ontological conclusions from the dilemma, they are not far off. One only needs to invoke some variation of Ockham’s razor, something like, “if one cannot have any particularly quantified knowledge of a supposed

---

<sup>79</sup> Benacerraf actually provides very little explicit argument defending the need for epistemological uniformity across discourses. In addition to thinking that the case is obvious, it also clear that he is primarily interested in mathematical truth (as the title of the article indicates). Nevertheless, much of what Benacerraf says about truth could be easily reformulated to apply to knowledge. Consider, for example, how we might reformulate an argument offered on behalf of semantic uniformity (from pages 410-1).

If mathematical knowledge is not to be analyzed along the lines of the causal theory of knowledge, then we are clearly in need not only of an account of knowledge for this new kind of subject, but also of a new *theory of knowledge theories* that relates knowledge for ordinary subjects to knowledge for these new subjects.

type of entity, one should not postulate its existence.” The justification for such a formulation derives from something like the following:

1. If one cannot have any particularly quantified knowledge of a supposed type of entity, then one is not justified believing that something exists which is denoted by the terms and quantifiers supposedly referring to the entity.
2. If one is not justified believing that something exists which is denoted by the terms and quantifiers supposedly referring to an entity, then one should not posit the existence of something denoted by those terms and quantifiers.

---

3. If one cannot have any particularly quantified knowledge of a supposed type of entity, then one should not posit the existence of something denoted by the terms and quantifiers supposedly referring to the entity.<sup>80</sup>

So, when taken together, Tarski semantics, a causal theory of knowledge, and a variation of Ockham’s razor provided the grounds for a rather persuasive argument for denying the existence of abstract mathematical objects.

1. Either abstract mathematical objects do exist or don’t exist.
2. If abstract mathematical objects do exist, then even if our contemporary mathematical theory provides an accurate description of them (i.e. even if mathematics is true), mathematics is unknowable.
3. If abstract mathematical objects don’t exist, then mathematics is false.

---

4. So, mathematics is either unknowable or false.
5. If mathematics is either unknowable or false, we ought to deny that abstract mathematical objects exist based on considerations of ontological parsimony.

---

6. So, we ought to deny that abstract mathematical objects exist based on considerations of ontological parsimony.

This represents the state of the epistemological argument circa 1973. Although the semantic basis for the dilemma and has remained virtually unchanged since Beneceraff formulated the argument, the epistemological grounds for the argument quickly eroded.

---

<sup>80</sup> Burgess and Rosen [1997] give an illuminating discussion on the complexity of formulating such an ontologically restrictive principle on the basis of Ockham’s razor. I refer the interested reader to their discussion.

## 5.6 The Downfall of the Epistemological Argument

Benacerraf's challenge was not to remain plausible for long. In his 1976, "Discrimination and Perceptual Knowledge", Goldman presented an example designed to show the insufficiency of causal theories of knowledge. The example demonstrates that there are cases in which the criteria of causal theories are satisfied, but in which we intuitively want to withhold attributions of knowledge. Goldman writes,

Consider the following example. Henry is driving the countryside with his son. For the boy's edification Henry identifies various objects on the landscape as they come into view. "That's a cow," says Henry, "That's a tractor," "That's a silo," "That's a barn," etc. Henry has no doubt about the identity of these objects; in particular, he has no doubt that the last-mentioned object is a barn, which indeed it is. Each of the objects has features characteristic of its type. Moreover, each object is fully in view, Henry has excellent eyesight, and has enough time to look at them reasonably carefully, since there is little traffic to distract him.

Given this information, would we say that Henry *knows* that the object is a barn? Most of us would have little hesitation in saying this, so long as we are not in a certain philosophical frame of mind. Contrast our inclination here with the inclination we would have if we were given some additional information. Suppose we are told that, unknown to Henry, the district he has just entered is full of paper-mache facsimiles of barns. These facsimiles look from the road exactly like barns, but are really just façades, without back walls or interiors, quite incapable of being used as barns. They are so cleverly constructed that travelers invariably mistake them for barns. Having just entered the district, Henry has not encountered any facsimiles; the object he sees is a genuine barn. But if the object on that site were a facsimile, Henry would mistake it for a barn. Given this new information, we would be strongly inclined to withdraw the claim that Henry *knows* the object is a barn. How is this change in our assessment explained?...

My old causal analysis cannot handle the problem... Henry's belief that the object is a barn is caused by the presence of the barn; indeed, the causal process is a perceptual one. Nonetheless, we are not prepared to say, in the second version, that Henry knows. (Goldman [1976], 772-3)

This simple case spelled the end for causal theories of knowledge. Yet, Benacerraf's challenge was built upon the assumption that it was the supposed acausality

of abstract mathematical objects that was epistemologically problematic. The theories of justification and knowledge that filled the vacuum left by the demise of causal theories turned the focus away from the causal relationship between believer and object of belief. Thus, the demise of the causal theory of knowledge brought with it the downfall of Benacerraf's epistemological objection to the existence of abstract mathematical objects.

### 5.7 Reliabilist Accounts of Justification and Knowledge

With 1979's "What is Justified Belief?", Goldman initiated a new cottage industry of reliabilist theories of justification and knowledge. The basic idea behind reliabilism and close variants, such as reliable indicator theories, proper functionalist theories, and truth tracking theories, is that a true belief qualifies as knowledge so long as it is the product of a reliable belief-forming process functioning normally under ordinary conditions.<sup>81</sup> The following are three of the most prominent forms in this general tradition:

(I) *Reliabilist Accounts:* S's belief that  $p$  at  $t$  is justified iff...

it is the outcome of a process of belief acquisition or retention which is reliable, or leads to a sufficiently high preponderance of true beliefs over false beliefs. (Sosa [1991], 131)

---

<sup>81</sup>There are a number of well-recognized problems within the family of epistemological theories focusing on reliability. The generality problem is the most notorious problem facing traditional reliabilism. In the generality problem, criticism focuses on the difficulty of delineating our belief-forming processes in a non-ad hoc manner.



(II) *Truth-Tracking Accounts*: S's belief that  $p$  formed via method  $M$  is warranted iff...

If  $p$  weren't true and S were to use  $M$  to arrive at a belief whether (or not)  $p$ , then S wouldn't believe, via  $M$ , that  $p$ .

[and]

If  $p$  were true and S were to use  $M$  to arrive at a belief whether (or not)  $p$ , then S would believe, via  $M$ , that  $p$ . (Nozick [1981], 82)

(III) *Proper Functionalist Accounts*: S's belief that  $p$  is warranted iff...

the relevant segments (the segments involved in the production of  $p$ ) are functioning properly in a cognitive environment sufficiently similar to that for which S's faculties are designed; and the modules of the design plan governing the production of  $p$  are (1) aimed at truth, and (2) such that there is a high objective probability that a belief formed in accordance with those modules (in that sort of cognitive environment) is true; and the more firmly S believes  $p$  the more warrant  $p$  has for S. (Plantinga [1993], 20)

Given an epistemology that focuses almost exclusively on the reliability of the production of true beliefs, the fact that we have no causal contact with supposed mathematical objects is irrelevant as far as the possibility of our having justified mathematical beliefs or mathematical knowledge. Loosely speaking, so long as one's mathematical belief-forming process is sufficiently reliable, then one's mathematical beliefs are justified. Moreover, whenever such justified mathematical beliefs are true, they constitute mathematical knowledge. So much it would seem for an epistemological objection to the existence of abstract mathematical objects.

## CHAPTER 6

### FIELD'S INEXPLICABILITY ARGUMENT AGAINST MATHEMATICAL PLATONISM

#### 6.1 Overview

In his [1989], Field attempted to resurrect Benacerraf's epistemological challenge to mathematical platonism. According to Benacerraf's original challenge, given the seeming necessity of mathematical truth, a standard Tarskian semantics, and a causal theory of knowledge, it seems impossible to account for both the truth of mathematics and our knowledge of it. Ultimately, the original version of the epistemological challenge was undermined by the widespread rejection of causal theories of knowledge. Field has suggested, however, that the essence of Benacerraf's challenge can be resurrected by stripping away the epistemological particulars and recasting the epistemological challenge "not as a challenge to our ability to *justify* our mathematical beliefs, but as a challenge to *explain the reliability* of these beliefs." (25) Field has maintained that insofar as the mathematical platonist cannot explain such reliability, this undermines any justification that we might have for believing in the existence of abstract mathematical objects.

In this chapter, I argue that Field's recasting of Benacerraf's challenge is too weak to be of much benefit to the mathematical nominalist because it focuses on a minor symptom rather than platonism's real epistemological problem. I begin by explicating the structure of Field's challenge. I then critique a possible Quinean response that has been suggested by Burgess and Rosen. I then offer a more general response that is available to anyone with even moderately naturalistic leanings. Ultimately, I show that the real problem for platonism is not that we couldn't explain the reliability of mathematicians with respect to the mathematical facts, but that we could not establish that they are reliable in the first place.

## 6.2 Field's Inexplicability Challenge

In the introduction to his [1989], Hartry Field sketches the outline of what he sees to be the heart of Benacerraf's epistemological challenge to mathematical platonism.

The way to understand Benacerraf's challenge, I think, is not as a challenge to our ability to *justify* our mathematical beliefs, but as a challenge to *explain the reliability* of these beliefs. We start out by assuming the existence of mathematical entities that obey the standard mathematical theories; we grant also that there may be positive reasons for believing in those entities. These positive reasons might involve only initial plausibility... Alternatively, the positive reasons might be that the postulation of these entities appears to be indispensable for some important purposes. But Benacerraf's challenge—or at least, the challenge which his paper presents to me—is to provide an account of the mechanisms that explain how our beliefs about these remote entities can so well reflect the facts about them. The idea is *that if it appears in principle impossible to explain this*, then that tends to *undermine* the belief in mathematical entities, *despite* whatever reason we might have for believing in them. Of course, the reasons for believing in mathematical entities (in particular, the indispensability arguments) still need to be addressed, but the role of the Benacerrafian challenge (as I see it) is to raise the cost of thinking that the postulation of mathematical entities is a proper solution... (Field [1989], 25-6)

Thus, Field is willing to admit that we might very well have prima facie reason for believing in the existence of abstract mathematical entities.<sup>82</sup> Nevertheless, despite any prima facie justification we might have for believing in the existence of abstract mathematical entities, Field suggests that such justification would ultimately be undermined by the inexplicability of mathematicians' reliability with regard to the mathematical axioms. Ultimately, Field is attempting to undermine the justification for mathematical platonism by showing that its central tenet,

1. *The Platonic Thesis*: The axioms of mathematics concern the properties of abstract mathematical objects.

is inconsistent with three other theses to which the platonist is epistemologically committed:

2. *The Reliability Thesis*: Mathematicians are reliable with regard to the axioms of mathematics.

3. *The Impossibility Claim*: If the axioms of mathematics concern the properties of abstract mathematical objects, it is impossible to explain how mathematicians are reliable with regard to the axioms of mathematics.

4. *The Explanatory Demand*: If mathematicians are reliable with regard to the axioms of mathematics, then it must be possible to explain how mathematicians are reliable with regard to the axioms of mathematics.

---

<sup>82</sup> In particular, Field acknowledges the force of the sort of indispensability concerns raised by Quine and Putnam. That is, Field concedes that given that many of our most successful scientific theories quantify over mathematical entities, if such quantification is indispensable, then we would have as much evidence for the positing the existence of mathematical objects as we do for positing the existence of any of the unobservable objects of theoretical science. In his [1980], Field seemed to suggest that indispensability concerns were the only substantive reason for positing mathematical objects. As he put it, "It seems to me that... the only non-question-begging arguments *for* the view that mathematics consists of *truths*... are all based on the applicability of mathematics to the physical world." ([1980], 4)

Let's briefly take a look Field's reasons for thinking that the platonist is epistemically committed to (i.e., would be unjustified in denying) these additional theses.

### 6.2.1 *The Reliability Thesis*

The launching point for Field's argument is the general assumption that most of what mathematicians believe about mathematics is true. Field sees the mathematical platonist's need to accept such reliability as "beyond serious question". (26) Were the platonist to deny the reliability thesis while continuing to hold that mathematicians are correct in most of their individual mathematical beliefs, he would be stuck in a quagmire of doxastic incoherence (if not outright inconsistency).<sup>83</sup> Thus, the nominalist cannot avoid inconsistency simply by rejecting the reliability thesis.

### 6.2.2 *The Impossibility Claim*

Although Field does not claim to establish the truth of the impossibility claim, he does place the onus on those who wish to deny it by requiring them to justify their denial by providing an explanation.<sup>84</sup> He writes,

---

<sup>83</sup> There might not be outright inconsistency in believing, "Mathematicians are correct in believing  $X_1, \dots, X_n$  (where  $X_1, \dots, X_n$  are some set of mathematical axioms), but they are not generally reliable in their mathematical beliefs in the area described by those axioms", but this is certainly incoherent. Stewart Shapiro has suggested to me that this seems quite similar to Moore's paradox (e.g., asserting, "It is raining outside, but I don't believe that it is"). Likewise, withholding judgment about mathematicians' general reliability once one recognizes the "implications" seems to be nearly as incoherent as denying that reliability.

<sup>84</sup> Field writes, "I refrain from making any sweeping assertion about the impossibility of the required explanation. However, I am not at all optimistic about the prospects of providing it." ([1989], 27)

[T]here seems *prima facie* to be a difficulty in principle in explaining the regularity. The problem arises in part from the fact that mathematical entities, as the platonist conceives them, do not causally interact with mathematicians, or indeed with anything else. This means that we cannot explain the mathematicians' beliefs and utterances on the basis of the mathematical facts being causally involved in the production of those beliefs and utterances; or on the basis of some common cause producing both. Perhaps then some sort of *non-causal* explanation of the correlation is possible? Perhaps; but it is very hard to see what this supposed non-causal explanation could be. Recall that on the usual platonist picture, mathematical objects are supposed to be mind- and language-independent; they are supposed to bear no spatial-temporal relations to anything, etc. The problem is that the claims that the platonist makes about mathematical objects appear to rule out any reasonable strategy for explaining the systematic correlation in question. (Field [1989], 230-1)

As Divers and Miller have explained, Field is presenting the mathematical platonist with the following dilemma in support of the impossibility claim.

- (i) Platonism is committed to the acausality and mind-independence of mathematical objects.
- (ii) Any causal explanation of reliability is incompatible with the acausality of mathematical objects.
- (iii) Any non-causal explanation of reliability is incompatible with the mind-independence of mathematical objects.
- (iv) Any explanation must be causal or non-causal.
- (v) There is no explanation of reliability that is compatible with both the acausality and mind-independence of mathematical objects.

Therefore,

- (vi) There is no explanation of reliability that is compatible with platonism.

(Divers and Miller [1999], 278-9)

The argument for the first horn of the dilemma, from the acausality of abstract mathematical objects to the impossibility of providing a causal explanation, is straightforward. This was the essence of Benacerraf's original 1973 challenge. The argument for the second horn, from the mind-independence of abstract mathematical objects to the impossibility of providing a non-causal explanation, is only a slight bit more complicated. The second horn rules out appeal to the sort of non-causal

explanations that account for our knowledge of non-physical objects whose existence or properties supervene or otherwise strongly depend upon our beliefs or practices. For example, we might explain the correlation between an individual's belief about a novel that he has written and the novel by noting that the latter is existentially dependent on his mental actions. As Divers and Miller put the point,

The idea would be that, rather than detect the constitutively independent mathematical facts, mathematicians' (and perhaps others') relevant beliefs actually constitute these facts. But, the thought continues, this broadly constructivist reaction to the reliability problem simply signals an abandonment of platonism. For such a reaction, if successful, buys reliability at the cost of sacrificing mind-independence—if the mathematical facts, including the existential facts, are constituted by (certain) mental states then the existence of mathematical entities is now as mind-dependent a matter as could be. (Divers and Miller [1999], 280)

Given that the most obvious routes to explaining mathematician's supposed reliability appear to be blocked, it seems that the mathematical platonist would be unjustified in denying the impossibility claim unless he had at least the sketch of an explanation at the ready.<sup>85</sup>

### 6.2.3 *The Explanatory Demand*

According to Field, not only must the platonist accept the general reliability of mathematicians, but the platonist must also accept that it is possible to explain that reliability. The basic idea underlying the explanatory demand is that the existence of

---

<sup>85</sup> Divers and Miller attempt to overcome Field's challenge by undermining the second horn of this dilemma. They suggest that a judgement-dependent explanation of mathematician's reliability allows the platonist to still maintain the mind-independent existence of abstract mathematical objects. However, as Sosa has pointed out, even if judgement-dependent explanation might account for mathematicians' reliability when it comes to facts such as "5 is prime", it cannot account for mathematical existence claims, such as "There exists a number 5". ([2002], 374)

some regularities would be “so striking” that we ought not accept their existence if it does not seem possible to explain how they came about. Field writes,

The platonist can legitimately postulate brute facts about mathematical entities themselves, for instance, basic laws of set theory; and even certain kinds of brute facts about the relations between mathematical entities and physical entities, for instance that every physical entity is a member of some set. But special ‘reliability relations’ between the mathematical realm and the belief states of mathematicians seem altogether too much to swallow. (Field [1989], 25)

Field later recapitulates the idea that the reliability of mathematicians is “not the sort of fact that is comfortably taken as brute”. ([1989], 26) He writes,

[T]here is nothing wrong with supposing that there are some facts about mathematical entities that are just brute facts, but to accept that facts about the relation between mathematical entities and human beings are brute and inexplicable is another matter entirely. (Field [1989], 232)

In support of the claim that the supposed reliability of mathematicians is need of explanation, Field draws an analogy between the supposed reliability of mathematicians and the supposed reliability of psychics.

It is rather as if someone claimed that his or her belief states about the daily happenings in a remote village in Nepal were nearly all disquotationally true, despite the absence of any mechanism to explain the correlation between those belief states and the happenings in the village. Surely we would accept this only as a last resort.... Someone *could* try to explain the reliability of these initially plausible mathematical judgements by saying that we have a special faculty that allows us direct access to the mathematical realm. I take it though that this is a desperate move, rather akin to the move of postulating a special faculty of intuition that allows the character... direct access to the events in Nepal. (Field [1989], 26-8)



#### 6.2.4 *The Dilemma*

Ultimately, Field sums up the dilemma faced by the mathematical platonist as follows,

For if the platonist were to grant that it is impossible to give a satisfactory explanation of [the Reliability Thesis] [i.e., if he grants the Impossibility Claim], he or she would be left with two unpalatable alternatives: (a) denying that [the Reliability Thesis] is a fact, or (b) saying that it is simply a brute fact that needs no explanation [i.e., denying the Explanatory Demand]. But to hold a class of beliefs while holding the meta-belief that most of those beliefs are false seems plainly unsatisfactory, so we must certainly reject (a). And (b) seems pretty dubious too: there is nothing wrong with supposing that there are some facts about mathematical entities that are just brute facts, but to accept that facts about the relation between mathematical entities and human beings are brute and inexplicable is another matter entirely. I conclude that unless a platonist can make it plausible that it is in principle possible to provide an explanation of the assumed fact [of the Reliability Thesis], then platonism has a serious problem. (Field [1989], 232)

It should be noted that despite his claim that the problem with platonism does not concern “our ability to *justify* our mathematical beliefs”, Field’s challenge is still a justificatory challenge. In maintaining that the inexplicability of our mathematical reliability “tends to *undermine* the belief in mathematical entities, *despite* whatever reason we might have for believing in them”, Field is simply proposing a defeater for any *prima facie* justification we might have for believing in the existence of abstract mathematical objects. Yet, this suggestion is functionally equivalent to an additional constraint on justification given that the supposed defeater is universal in nature (i.e., according to Field’s suggestion, any case in which a believer’s supposed reliability is inexplicable, the justification that he has for his belief is undermined). Hence, it seems to

be a purely terminological matter whether the objection is that mathematicians are not justified in their mathematical beliefs or that although they have *prima facie* justification for most of their mathematical beliefs, such justification is undermined.

In the end, Field's suggested solution for avoiding doxastic inconsistency is to give up platonism and abandon belief in the truth of the mathematical axioms. This is just the position that he has long defended, claiming that mathematics is merely conservative, not true. That is, Field maintains, mathematics takes us from empirical truths to empirical truths though it is not itself true.

### 6.3 The Quinean Response

Burgess and Rosen have offered an initially plausible response to Field's challenge on behalf of the Quinean naturalized epistemologist. ([1997], 41-9)<sup>86</sup> They claim that Field's challenge to the platonist is ultimately reducible to a demand for extra-scientific justification. In order to satisfy the explanatory demand, the platonist would have to justify the standards of science on philosophical grounds. Therefore, Burgess and Rosen suggest, the Quinean platonist can simply refuse the challenge to justify the methods and standards of science on naturalistic grounds. ([1997] 48-9)

This response proceeds by repeatedly reducing the supposed fact in need of explanation to something increasingly general and more fundamental.

(1) Initially, what seems to be in need of explanation is the correlation between mathematicians' various mathematical beliefs and the various mathematical facts.

---

<sup>86</sup> Burgess and Rosen acknowledge that they are following a suggestion made by Benacerraf in his [1983].

- (2) The general correlation between mathematicians' mathematical beliefs and the mathematical facts would be explained if we explained the correlation between mathematicians' axiomatic beliefs and the mathematical facts that the axioms systematize. (Field notes this step himself.)
- (3) Since the axioms in a given mathematical field can often be reduced down to a single axiom, the platonist could explain the correlation between mathematicians' axiomatic beliefs and the facts that the mathematical axioms accurately represent by explaining the connection between mathematicians' belief in the single axiom and the fact it represents. Therefore, it is only a single relation that is in need of explanation, not a general correlation. To use Burgess and Rosen's example, the various axioms of set theory can be reduced to the single axiom that the full cumulative hierarchy exists. Hence, the platonist need only explain the relation between mathematicians' belief that the full cumulative hierarchy exists and its existence.
- (4) At this point, it is no longer so clear what really needs explaining. It seems that we have only two purported facts on our hands, (i) the existence of the objects in some mathematical field and (ii) the mathematicians' belief in the existence of those objects. Field is willing to concede the existence of the mathematical objects could be simply a brute mathematical fact, in no need of explanation. A decent history of mathematics, however, will explain why mathematicians have come to believe the theories they do and, hence, to explain why they believe certain mathematical objects to exist. In addition to a number of historical accidents, the history will point to a sort of mathematico-aesthetic sensibility that mathematicians have relied upon in theory

development. For example, mathematicians have a preference for simplicity, elegance, and diversity.<sup>87</sup> Thus, the only thing that might be in need of explanation is how mathematicians' mathematico-aesthetic sense came to be in harmony with the mathematical realm. As Burgess and Rosen point out, Benacerraf raised this very point in his [1983], asking "[W]hy should one believe that the universe of sets... is so nicely arranged that there is a preestablished harmony between our feelings of simplicity, etc., and truth?" (37).

- (5) The same sort of question can be asked with regard to any of our scientific standards, "Why should one believe that the physical universe is so nicely arranged that there is a preestablished harmony between our feelings of simplicity, etc., and truth?" Thus, it seems that Field's challenge reduces to a demand to explain why any of our mathematical or scientific standards, especially simplicity, are ever an indication of truth.

By reducing the challenge to explain mathematicians' reliability with respect to the mathematical facts to a general challenge to justify the standards of science, it seems that the explanatory demand leads not merely to nominalism with respect to abstract mathematical objects, but a more general scientific anti-realism or, perhaps, an outright scientific skepticism. As Burgess and Rosen sum up the argument,

[I]t becomes clear that the question or challenge is essentially just a demand for a philosophical 'foundation' for common sense and science—one that would show it to be something more than just a convenient way for creatures with capacities like ours to organize their experience—of the kind that Quine's naturalized epistemology rejects... If Field's challenge does ultimately reduce to the form

---

<sup>87</sup> For example, see Maddy [1997], for a discussion of 'unify' and 'maximize' as the overriding mathematical principles.

Benacerraf considers, then it presents a stereotypical anti-nominalist position [i.e. a platonist position], or a position in the general vicinity of Quine's, with no obvious threat of internal collapse. (Burgess and Rosen [1997], 48-9)<sup>88</sup>

At first glance, it might seem as though a proponent of the inexplicability argument could block the naturalistic response by blocking the move from step (2) to step (3). Reducing an axiomatic construal of a mathematical theory to a single axiom, e.g., reducing the axioms of set theory to the single axiom that the full cumulative hierarchy exists, is a bit of a parlor trick.<sup>89</sup> A single axiom only makes sense given the background of an axiomatic construal of the theory. For instance, in order to specify what it means to assert that the full cumulative hierarchy exists, eventually one will have to present something very much like a traditional axiomatic construal. Nevertheless, this sort of objection is really quite irrelevant. The Quinean response does not require step (3). The Quinean platonist can move directly from step (2) to step (4) by claiming that mathematicians generally get their axioms by following their mathematico-aesthetic sense. Thus, the inexplicability argument still reduces to the demand for an explanation

---

<sup>88</sup> Burgess and Rosen conclude their discussion of the Quinean response by noting that Field's challenge does bring to light the costs associated with Quinean naturalism. In renouncing first philosophy and the attempt to provide a philosophical foundation for the methods and findings of science, the naturalized epistemologist seems to be committed to rejecting some seemingly plausible demands for explanation. As Burgess and Rosen put the point,

It [i.e., Field's challenge] does, however, draw attention to just what and just how much such a position is renouncing when it renounces any ambition to provide common sense and science with a 'justification' by some exterior, superior, ulterior standards, when it renounces the ambition to provide a philosophical 'foundation' for common sense and science. In the light of the challenge, such an anti-nominalist position is likely to seem adequate or inadequate according as one takes the burden of proof to be on the side of its opponents or of its proponents. And thus stalemate threatens again. (Burgess and Rosen [1997], 49)

<sup>89</sup> Obviously, one could also reduce the axioms to a single axiom by conjunction. This clearly is a cheat.

of how mathematicians' mathematico-aesthetic sensibility came to be in harmony with objects in the mathematical realm. Thus, the Quinean platonist can still resist Field's inexplicability argument as requiring extra-scientific justification.

A proponent of the inexplicability argument might also try to draw a distinction between the standards of science and mathematics. Granted, simplicity plays a central role in both mathematics and science. Nevertheless, mathematical and scientific standards do differ. For instance, where scientists generally try to make do with as few kinds of entities (i.e., as few kinds of elementary particles and forces) as possible, mathematicians do not seem much concerned with ontological economy. On the contrary, mathematicians seem to strive to establish as many different kinds of entities as possible.<sup>90</sup> If the proponent of the inexplicability argument could build upon this initial difference, he might be able to drive a big enough wedge between the standards of science and mathematics to overcome Burgess and Rosen's suggested Quinean response.<sup>91</sup> Of course, a thoroughgoing Quinean naturalist would not be convinced by any defense of the inexplicability argument along such lines. He would balk at any attempt to drive a wedge between mathematics and science as an ill-fated effort to resurrect an analytic/synthetic distinction.

---

<sup>90</sup> Once again, see Maddy [1997]'s discussion of 'maximize' as one of the overriding mathematical principles.

<sup>91</sup> One might also try to sketch an evolutionary story according to which our scientific standards were shaped by our causal interactions with the physical world. Personally, I don't have high hopes for such a story. I don't see how one could overcome the van Fraassen-like line that the world shaped our scientific standards only to the extent that they would be empirically adequate.

Thus, the Quinean platonist initially seems impervious to the inexplicability argument. Nevertheless, it seems that he must make use of the full resources of Quinean picture in order to overcome the inexplicability argument. Therefore, the Quinean response is only as plausible as a strong Quinean naturalism.

#### **6.4 A More Moderate Reply**

Of course, there remain many epistemologists who do not accept the full Quinean picture and who think that naturalistically respectable epistemology can still be done outside of empirical psychology. Here, I have in mind such well-known epistemologists as Alvin Goldman, Robert Nozick, William Alston, and Ernest Sosa. Although they generally agree that epistemology needs to be scientifically informed, this leaves quite a bit of work for the epistemologist qua philosopher.

For such moderately naturalistic epistemologists, there is a more straightforward and general response to Field's inexplicability argument. This response will be open to anyone with enough naturalistic leanings to want to respect the findings of science. An examination of this suggested response will show how Field's inexplicability argument misses the real objection to mathematical platonism.

Recall that the case for the explanatory demand centered upon the claim that, "The idea that the correlation between mathematician's belief states and the mathematical facts postulated... is *so striking* as to demand explanation; it is *not* the sort of fact that is *comfortably taken as brute*." (Field [1989], 26, my emphasis) Supposing that Field is not

simply begging the question against the platonist, he seems to be endorsing a principle at least as strong as the following.

*The Epistemic “Strikingness” Principle (ESP):* If there is a supposed regularity between the properties of a mind- and language-independent object and an agent’s beliefs about that object such that (i) the regularity appears striking and (ii) one either believes or would be justified in believing the supposed regularity to be unexplainable in principle, then one is unjustified in believing that there is such a regularity.<sup>92</sup>

The most obvious consequence of the ESP (*Epistemic “Strikingness” Principle*) is that we ought not believe in ESP (Extra-Sensory Perception) *because* the supposed reliability of clairvoyants with regard to distant objects would surely be striking and we justifiably believe there is no explanation of it. This was the point of Field’s Nepalese psychic example. Yet, even if the rejection of ESP (*Extra-Sensory Perception*) seems right, this consequence is not sufficient reason for adopting the ESP (*Epistemic “Strikingness” Principle*).

Right from the start, we ought to be suspicious of the suggestion that the “strikingness” of a presumed regularity can place an *explanatory* requirement on the justifiability of believing a regularity to exist. Such a suggestion raises a slew of difficult questions: How striking must a supposed regularity be? Who must find it striking? The agent? The agent’s community? On the basis of whose evidence would the regularity have to appear unexplainable? These questions indicate the problematic nature of a

---

<sup>92</sup> There are two things to note about the formulation of this principle. First, it should be clear that the antecedent must be represented in the epistemic terms, “believes or would be justified in believing the supposed regularity to be unexplainable in principle”, rather than metaphysical terms, “is unexplainable in principle”. The question of whether or not one would be justified in postulating a regularity is dependent upon what one is justified in believing regarding the existence of an explanation. It is not dependent upon some unknown fact of the matter. Second, although I have framed the principle in terms of one’s having justification for one’s belief about some particular object, the principle should also be understood to apply to types of objects more generally.



demand for explanation that is based on a subjective attitude. So long as one or one's community does not find a supposed regularity as "striking", mere reliably formed true belief would apparently suffice for knowledge.

More importantly, we ought to be suspicious of the suggestion that one can be justified in accepting the existence of some "striking" regularities in the absence of explanations, but not justified in accepting the existence of such regularities when they involve beliefs. Recall that in formulating the explanatory demand, Field was careful to draw a distinction between,

(i) supposing there to be brute facts "about mathematical entities themselves" and "about the relations between mathematical entities and physical entities", on the one hand,

and

(ii) supposing there to be brute facts "about the relation between mathematical entities and human beings", on the other.

Given that our brains and belief-forming processes are as much a part of the natural world as anything else, this distinction seems unprincipled. Thus, the ESP appears far too ad hoc to accept without argument.

Given that he is willing to accept a broad range of "striking" regularities as brute, Field will surely want to reject grounding the ESP in anything as broad as the following.

*The General “Strikingness” Principle (GSP):* If there is a supposed regularity between two metaphysically independent objects such that (i) the regularity appears striking and (ii) one either believes or would be justified in believing the supposed regularity to be unexplainable in principle, then one is unjustified in believing that there is such a regularity.<sup>93</sup>

There is, of course, good reason to avoid such a broad principle.<sup>94</sup> First and foremost, the explanatory demand of the GSP seems to mischaracterize the scientific process. The GSP suggests that a suspected regularity be rejected if one justifiably believes there to be no explanation of it, but this is simply contrary to scientific practice. Granted, scientists are initially wary of new unexpected and unexplained regularities. Nevertheless, the mere inexplicability of an unexpected regularity rarely leads to its rejection. A quick review of the history of science reveals cases where striking and unexplained regularities were eventually found acceptable by scientists.

Consider, for example, the initial reaction of Newton and his contemporaries to his postulation of gravity. Gravity was initially seen as a striking and unexplainable ‘force at a distance’. Initially, the positing of gravity as a brute force was viewed as “a desperate move” and “altogether too much to swallow” (to borrow a two phrases from Field). Of course, what is and is not comfortably taken as brute often changes over time. To frame the matter in Kuhnian terms, Newton and his contemporaries were working within one paradigm, the mechanistic/corpuscular paradigm, and gravity did not fit within that paradigm. But eventually, the paradigm shifted. As Kuhn put it,

---

<sup>93</sup> I have used the phrase, “metaphysically independent”, in order to exempt belief in the existence of non-causal regularities due to supervenience or the like.

<sup>94</sup> The *GSP* seems even less intuitive and less plausible than somewhat similar demands that an agent’s belief be “clear and distinct”, “absolutely certain”, etc.. Such proposals have not fared well by the lights of contemporary epistemology and there is little reason doubt that this less intuitive principle would fare any better.

[W]hile the standards of corpuscularism remained in effect, the search for an mechanical explanation of gravity was one of the most challenging problems... Newton devoted much attention to it and so did many of his eighteenth century successors. The only apparent option was to reject Newton's theory of gravity, and that alternative, too, was widely adopted. Yet neither of these views ultimately triumphed... [S]cientists eventually accepted that gravity was indeed innate. (Kuhn [1970], 105)

What was initially “not the sort of fact that is comfortably taken as brute” (to borrow another phrase from Field) eventually became scientific orthodoxy. The inexplicability of the gravitational regularity was not a sufficient obstacle to prevent its acceptance.<sup>95</sup> Thus, this example makes explicit what was already quite clear, the GSP is simply unacceptable. Yet, without such a broad principle to ground it, the ESP remains simply ad hoc and intuitively troublesome.

At this point, the defender of the inexplicability argument might claim that the ESP is simply an intuitive epistemic principle that is in need of no grounding or justification. In addition to being “a desperate move” and “altogether too much to swallow”, such a defense is open to counterexample. Insofar as one rejects the GSP and accepts that there can be cases of brute regularities that don't involve belief, it is easy enough to construct cases that show the intuitive failure of the ESP.

---

<sup>95</sup> The fact that Newton's theory of gravitation has been supplanted by Einstein's general theory of relativity had nothing to do the mechanistic inexplicability of gravity. Newton's theory simply gave way to a simpler, broader theory.

### 6.4.1 *The Scientist*

Suppose that we have massive inductive evidence that whenever there is a particle with property P, there is a spatially separate particle with property Q. (What exactly the regularity is supposed to be—it might be associated with gravity, magnetism, or quantum mechanics—is of no consequence.) Furthermore, suppose that there is no explanation of the correlation. So, suppose that given the massive inductive evidence, the correlation between such distant particles comes to be accepted as simply brute.

Suppose that a scientist, S, has observed a measurement apparatus and learned that particle 1 has property P. Suppose that all of the factors are favorable such that S is justified in his belief that particle 1 has property P. Furthermore, suppose that S is justified in believing that whenever there is a particle with property P, there is another spatially separate particle that has property Q. S is deeply familiar with the massive evidence supporting this supposed regularity. Thus, given that S is justified in believing that particle 1 has property P, he is justified in believing that there is a second particle, particle 2, that has property Q. Moreover, S has observed the initial preparation of the system such that he is justified in believing that there are no interfering influences and that the measuring apparatus is working correctly. Thus, it seems that S is justified in believing that there is a particle 2 that has property Q. [*See Figure Below*]

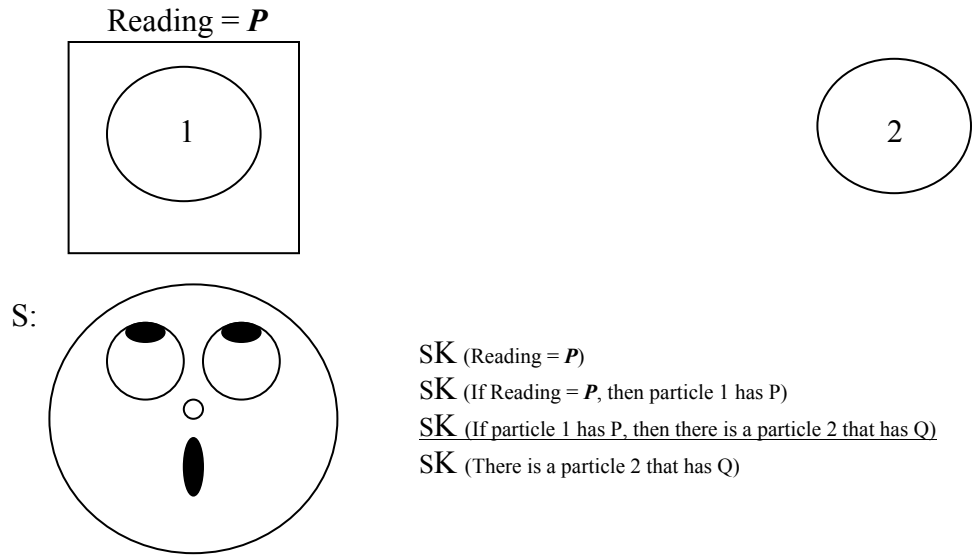


Figure 6.1: The Scientist Knowledge of the Distant Particle

Of course, S has no causal contact with particle 2 or with anything that has been causally connected to particle 2. There is simply the brute correlation posited between particles 1 and 2. If the correlation between such particles is “striking”, the correlation between particle 2 having property Q and S’s believing that particle 2 has property Q must also be “striking”. Given that the particles’ correlation is seems to simply be brute, the correlation between particle 2’s having property Q and S’s belief that particle 2 has property Q seems likewise to be simply brute. Thus, according to the ESP, S ought not believe himself reliable regarding the existence and properties of such distant particles. Moreover, given the doxastic incoherence of holding a class of beliefs while holding the meta-belief that most of those beliefs are false, the inexplicability argument implies that S should not hold a belief about the properties of the distant particle in any particular case.

The defender of the inexplicability argument will likely object at this point that the reliability of the belief is not simply brute. It is explained in terms of particle 1's interaction with the measurement apparatus, light reflecting off the measuring apparatus into S's eyes, etc. The bruteness lies only between the two particles and such a non-epistemic bruteness is acceptable. This objection provides a nice segue for returning to Field's Nepalese thought-experiment.

#### *6.4.2 The Nepalese Psychic*

Now consider Field's psychic who claims to have seen the happenings of the remote Nepalese village by observing her crystal ball. Suppose that she has been rigorously tested by the folks at Cal Tech and has established a perfect track record over the course of thirty long years. Moreover, suppose that she is fully aware of her long track record. Yet, suppose that no one can explain her remarkable ability.

The psychic's epistemic reliability would surely be striking. Yet, the psychic's case is structurally analogous to the scientist's case with the Nepalese village playing a role analogous to the distant particle and the crystal ball playing a role analogous to the measuring apparatus. Of course, the crystal ball is ultimately inconsequential. Psychics who use crystal balls are no more and no less questionable than those who simply have direct clairvoyant visions. Hence, the psychic would be just as justified whether she

made use of a crystal ball or a direct clairvoyant sensibility. Thus, it seems that if the scientist is justified in his belief that he is reliable, then the psychic is justified in her belief that she is reliable.

### 6.4.3 *The Mathematician*

Of course, Field is correct in supposing that a mathematician is straightforwardly analogous to the Nepalese psychic. The abstract objects of mathematics play a role analogous to the Nepalese village and mathematicians' mathematico-aesthetic sense plays a role analogous to the psychic's crystal ball/clairvoyant visions. Therefore, given that the mathematician's case is structurally parallel to the psychic's case and the psychic's case is structurally parallel to the scientist's case, the mathematician's case is structurally parallel to the scientist's case.

If mathematicians' mathematico-aesthetic sense is in fact correlated with abstract mathematical objects, then by consulting it, they will be reliable regarding the properties of mathematical objects. (This is reminiscent of the position that is often attributed to Godel—whether or not he actually held it.) Granted, there is no mechanism to explain why mathematicians' mathematico-aesthetic sense is in fact correlated the mathematical facts. Yet, there seems to be no principled reason why a mechanism should be required to explain the correlation in mathematician's case and not in the scientist's case or the Nepalese psychic's case.

I can imagine the defender of the inexplicability argument objecting that I am missing the real point. He might claim that the cases are relevantly disanalogous. In the scientist's case, his reliability is *not in need of explanation*, in the Nepalese psychic's case, her reliability is persistently *unexplained*, but not necessarily unexplainable in principle, but in the mathematician's case, his reliability is *unexplainable in principle*. The problem with this defense is that the difference between not being in need of explanation, being persistently unexplained, and being unexplainable in principle, is not clear. The lesson to be drawn from the case of gravity is that given a sufficient track record, scientists will eventually disregard demands for further explanation and will tolerate a regularity as brute or innate. Hence, there appears little objective grounds on which to draw a principled distinction between not being in need of explanation, being persistently unexplained, and being unexplainable in principle.

Furthermore, so far as the inexplicability argument only pertains to supposed epistemic regularities justifiably believed to be unexplainable in principle and the only prominent example of such a regularity is mathematicians' reliability with regard to abstract mathematical objects, the inexplicability argument becomes even more ad hoc. Consequently, if one grants the psychic could be justified in believing herself reliable after rigorous testing, then a mathematician should be justified in believing herself reliable if she could have a similarly proven track-record. With these considerations in mind, we see that the differences between the mathematician and the psychic and between the psychic and the scientist are not sufficiently strong to block the analogy between the three cases.



## 6.5 Summary

In the end, Field's inexplicability challenge is simply too narrowly focused. Ultimately, Field is trying to seize upon the intuition that in order to be justified, one must have access to reasons or evidence that one's belief is likely to be true. This is the basic intuition that underlies access internalist theories of justification and one that is quite compelling. Furthermore, one obvious way to obtain evidence that one's belief is likely to be true is to obtain evidence that the source of one's belief is reliable. Field's inexplicability challenge is too narrowly focused because it identifies the process of providing an explanation for a supposed regularity as the primary (if not sole) way of justifiably establishing the existence of the regularity. Although providing an explanation of a supposed regularity is one way of establishing that a regularity exists, it is not the only (or even the primary) method of establishing that a regularity exists.

At this point, the defender of the inexplicability argument might complain that I have consistently and uncharitably mischaracterized it. He might claim that I have omitted an implicit "ceteris paribus" clause. It is only *other things being equal*, that the lack of an explanation counts against the existence of a regularity. Of course, if that were the real form of the inexplicability argument, then most of the work is being done by the ceteris paribus clause. Therefore, until the appropriate "ceteris paribus" clause is spelled out in sufficient detail, it remains unclear what the real form of the argument is.

Yet, in the end, it seems highly unlikely any inexplicability argument will work (even one with a "ceteris paribus" clause). If a sufficiently long, verified track record is

established, lack of an explanation is simply irrelevant. Given enough inductive evidence, one will be justified in accepting the existence of just about any regularity. Thus, what is really at issue is not whether we can *explain* the reliability of mathematicians with respect to the mathematical facts, but whether we can *justifiably establish* that mathematicians are reliable with respect to the mathematical facts. This, I take it, is really the heart of Benacerraf's challenge.

## **PART III:**

### **VALIDATIONISM: A MINIMAL INTERNALIST CONSTRAINT ON JUSTIFICATION**

#### **General Synopsis**

Over the course of the next few chapters, I shall motivate a new, minimal form of justificatory internalism, called *validationism*. According to validationism, being justified requires one to have “validated” the reliability of the source of one’s belief through regular comparison of its output with the output of other established sources. Not only does this approach account for the motivations underlying both epistemic internalism and externalism, but it explains why being justified is valuable. In short, validating the reliability of the source of a belief is valuable because it puts one in a position to have well-placed confidence in the truth of the belief. Furthermore, by not requiring the formation of meta-beliefs, the validationist approach avoids threats of regress and worries about unjustified beliefs acting as justifiers.

Applying the validationist approach to mathematics leads us to a new epistemological objection to the existence of abstract mathematical objects. Since there is no way to validate that the sources of our mathematical beliefs are reliable with respect to the existence of abstract mathematical objects, we cannot justifiably believe in their existence. Combining this result with the Ockhamist assumption that if we cannot have

justified belief regarding the existence of a supposed entity, then we should deny that such an entity exists, we reach the conclusion that we should deny the existence of abstract mathematical objects.

## **Chapter Summaries**

Chapter 7 examines the traditional case for epistemic internalism and the major objections that have led many epistemologists to epistemic externalism. Chapter 8 presents a novel defense of epistemic internalism based on the relationship between the practice of justifying and the concept of being justified. Chapter 9 explores the shortcomings of contemporary approaches to the value of being justified and argues that the value of being justified is best understood in terms of putting one in a position to have well-placed confidence in one's belief. Thus, chapters 7, 8, and 9 provide the basic framework and complementing motivations for the sort of minimal internalism central to validationism. In Chapter 10, the validationist proposal is described and defended. Finally, chapter 11 sketches the argument that even if abstract mathematical objects were to exist and even if we had a special belief-forming process for reliably arriving at true beliefs about them (e.g., a Godelian sixth sense), we still couldn't justifiably believe in their existence because we could never validate the reliability of the source of such beliefs. Thus, Part III and the dissertation conclude that belief in the existence of abstract mathematical objects is unjustifiable and, therefore, we ought to deny the existence of abstract mathematical objects on grounds of simplicity and ontological parsimony.

## CHAPTER 7

### EPISTEMIC INTERNALISM AND THE TRADITIONAL PICTURE OF JUSTIFIED BELIEF

#### 7.1 Overview

The traditional epistemological picture was thoroughly internalist. According to this picture, having knowledge required being justified and being justified required an appreciation of the justificatory basis for one's beliefs. Over the past thirty-some years, however, many epistemologists have abandoned this internalistic picture in favor of externalist accounts of justified belief and knowledge. According to such externalist accounts, what really matters when it comes to being justified and having knowledge is that a belief was well-formed (e.g., it is the product of a reliable belief-forming process operating normally under ordinary circumstances).<sup>96</sup> One need not have any appreciation of the justificatory basis for one's beliefs.

---

<sup>96</sup> D. M. Armstrong's thermometer model ([1973]), Alvin Goldman's historical reliabilism ([1979] and [1986]), Robert Nozick's tracking theory ([1981]), and Alvin Plantinga's proper functionalist account ([1993]) provide paradigm examples of such externalist approaches to justification and knowledge. Although these theories differ significantly as to what additional constraints must be satisfied, they do share a primary concern for the counterfactual reliability of the process that is responsible for forming a belief. It should be noted, of course, that not all externalist theories focus on reliability. In particular, early causal theories of knowledge, like Goldman's [1967], did not. The heyday of such purely causal theories, however, was relatively short lived.

This chapter will examine the traditional motivations for epistemic internalism and the major objections to it that have led many epistemologists to epistemic externalism. In the end, I'll review a number of programs that have been suggested for reconciling internalism and externalism and sketch my own proposal for finding a way to respect the internalist insights of the traditional epistemological picture while avoiding the major objections to it.<sup>97</sup>

## 7.2 Commonsense Internalist Intuitions: The Case of the Suspicious Wife

To understand the intuitive motivation underlying the internalist perspective, it will be useful to begin by considering a concrete example...

Imagine that one day while having lunch with a close friend, she confides in you that she believes that her husband is cheating on her. This comes as a bit of a shock to you as your friend has always appeared to have a great marriage. The conversation might run something like the following.

Friend: I think John is cheating on me.

You: Why? What happened? Did you see him with another woman?

Friend: No. The thought just came to me as I arrived for lunch.

---

<sup>97</sup> It is important to keep debates over epistemic internalism and epistemic externalism distinct from the debate over foundationalism and coherentism. The foundationalism/coherentism debate concerns the overall *structure* of justification. According to foundationalism, all justification ultimately rests upon a foundation of non-inferentially justified belief. (Fumerton [2005]) According to the most minimal, negative version of coherentism, not all justification ultimately rests upon a foundation of non-inferentially justified belief. Coherentism, however, is also generally associated with the positive claim that all justification depends upon relations between beliefs or the relation between beliefs and the overall system of beliefs. (Kvanvig [2003]) One's stance on the internalism/externalism issue will determine one's stance on the foundationalist/coherentist issue.

You: What do you mean? Have you two been fighting? Has he been rather cold lately?

Friend: Oh no. He treats me just like he always has—perfect.

You: What is it then? Lots of new clothes? Has he been coming home late from work? Has he smelled of another woman's perfume?

Friend: None of that.

You: Perhaps he has been *too* thoughtful... that can be suspicious too. Or has he just has been acting a slight bit differently such that you can't place your finger on it?

Friend: Oh no, nothing like that. As I said, the idea just came to me, but I can't help but believe it.

You: Has he cheated on you before? Have you had similar suspicions in the past?

Friend: No, nothing like this has ever happened before. Yet, I just can't help but believe that he is cheating on me.

What would you say (or, at least, think)? Perhaps something like...

You: Your suspicion is completely groundless. You shouldn't believe that John's cheating on you for no reason and without any evidence. Your belief is totally unjustified.

Spelling out what it would take in order for your friend to be justified in her belief will help motivate three internalist constraints on being justified.

First, consider the charge that your friend's suspicion is completely groundless. The implication is that your friend's belief is unjustified (at least in part) because she has no grounds for her belief. So, the obvious question is, what is required to have grounds for one's belief? It surely is not enough to merely physically possess some tangible item which would indicate that belief is likely to be true. To see this, just suppose that your friend had driven her husband's car to lunch and that there were incriminating photos inside the glove compartment of which she was totally unaware. The mere fact that such photos are in her possession does nothing to justify her belief. Your friend would need to be aware of the photos (or, at least, have been aware of the photos at some relevant point) in order for them to provide grounds for her belief. Thus, it would appear that being

justified requires having (or, at least, having had) access to grounds (e.g., experience or reasons) supporting one's belief. This represents what is commonly known as an access internalist constraint on justified belief.

Yet, simply having (or having had) access to grounds, even grounds that would reveal one's belief as objectively likely to be true, would not seem to be enough to be justified. To see this, suppose that just before coming to her belief, your friend had seen the incriminating photos, but had not recognized that that they suggested anything intimate. Suppose that your friend simply glanced at the photos and simply assumed that they were some otherwise unimportant real estate photos from her husband's firm. Simply having (or having had) access to grounds, even grounds that would reveal one's belief as objectively likely to be true, does not seem sufficient for being justified.

It might be suggested that the problem is that your friend's belief is completely unrelated to the evidence that she has. Thus, it might be supposed that it would be enough if her belief had been caused by her experience of seeing the photos. Yet, even this would not be sufficient. Suppose that your friend's belief had actually been sparked by seeing one of the photos by reminding her of a house that was featured in a movie about an adulterous realtor who resembled her husband. Suppose that thinking about the movie caused her to believe that her husband was cheating on her. Even under these circumstances, your friend remains unjustified. It seems that in order for her belief to be properly based upon her experience of seeing the photos, she must appreciate that the experience is in fact grounds for her belief. Thus, in order for experiences and other beliefs to justify a belief, it seems that one needs to have some recognition of



which experiences and beliefs provide the justificatory basis for one's belief. This requirement represents what has been called as a connection internalist constraint on being justified.

Yet, having (or having had) access to grounds for one's belief and recognizing that they provide grounds for one's belief still does not seem enough for being justified. To see this, one need only consider the previous case where your friend's belief that her husband is cheating on her was caused by her experience of seeing the photos, but where her reasoning was askew. Even though her belief was caused by an experience that provides objectively strong evidence that her belief is likely to be true, she remained unjustified. Moreover, it would do her little good to believe that her experience of seeing the photos was the cause of her belief if she did not appreciate why seeing the photos gave her strong evidence that her belief is likely to be true. That is, even if she appreciates the causal history of her belief (i.e., she recognizes that she believes her husband is cheating on her because he resembles a cheating husband in a movie), she would remain unjustified. She needs to appreciate why the photos provide evidence that her belief is likely to be true. Thus, in order for one's grounds to be adequate, one needs some appreciation that given those grounds, one's belief is likely to be true. This requirement represents what has been called as an adequacy internalist constraint on being justified.

Thus, this intuitive story makes it appear that being justified requires one to satisfy the following three epistemic internalist constraints.

- (i) Access Internalist Constraint: One is justified only if one has (or, at least, has had) access to grounds for one's belief
- (ii) Connection Internalist Constraint: One is justified only if one has some sort of recognition of one's grounds as grounds for one's belief.
- (iii) Adequacy Internalist Constraint: One is justified only if one has some appreciation that given one's grounds, one's belief is likely to be true.

These constraints provide an initially intuitive characterization of the basic internalist approach to understanding justified belief. Furthermore, given the historic assumption that having knowledge requires being justified, satisfaction of these constraints would also appear to be necessary for having knowledge.<sup>98</sup>

### 7.3 The Traditional Picture of Epistemic Justification

In addition to being initially quite intuitive, the basic internalist constraints on justified belief derive much of their plausibility from a traditional epistemological picture that dates at least as far back as Descartes and Locke. Consider the following two passages, the first from Descartes' *Meditations* and the second from Locke's *Essay*.<sup>99</sup>

But if I abstain from giving my judgement on any thing when I do not perceive it with sufficient clearness and distinctness, it is plain that I act *rightly*... But if I determine to deny or affirm, I no longer make use as I should of my *free will*, and if I affirm what is not true, it is evident that I deceive myself; even though I judge according to truth, this comes about *only by chance*, and I do not escape the *blame* of misusing my freedom; for the light of nature teaches us that knowledge of the

---

<sup>98</sup> Of course, none of these constraints speak to Gettier worries. Thus, even if the constraints were each individually necessary and jointly sufficient for characterizing justified belief, they would not be jointly sufficient along with truth and belief for characterizing knowledge.

<sup>99</sup> In quoting these two passages, I am following Plantinga's [1990] where they are quoted to the same effect.

understanding should always precede the determination of the will. It is in the *misuse of the free will* that the privation which constitutes the characteristic nature of error is met with. (Descartes [1993], 176, *emphasis added*)

Faith is nothing but a firm assent to the mind: which if it *be regulated*, as is our *duty*, cannot be afforded to anything, but upon *good reason*; and so cannot be opposite to it. He that believes, without having any reason for believing, may be in love with his own fancies; but neither seeks the truth as he *ought*, nor pays obedience to his maker, who would have him use those discerning faculties has given him, to keep out of mistake and error. He that does not this to *the best of his power*, however he sometimes lights on truth, is in the *right but by chance*; and I know not whether the luckiness of the accident will excuse the irregularity of his proceeding. This is at least certain, that he must be *accountable* for whatever mistakes he runs into: whereas he that makes use of the light and faculties that God has given him, and seeks sincerely to discover truth, by those helps and abilities that he has, may have this satisfaction in doing his *duty as a rational creature*, that though his should miss the truth, he will not miss the reward of it. For he *governs his assent*, and places it as he should, who in any case or matter whatsoever, believes or disbelieves, according as reason directs him. He that does otherwise, *transgresses* against his own light, and misuses those faculties, which were given him... (Locke [1979], 687, IV, xvii, 24, *emphasis added*)

Within just these two passages from Descartes and Locke, we find the basis for three closely related conceptions of justification.

### (1) *The Deontological Conception of Justification*

According to the deontological conception of justification, justified belief is to be conceived of as belief that is formed and/or maintained in accordance with one's epistemic obligations or duty. That is, according to the deontological conception, being justified is a matter of believing what one is epistemically *obligated* or *ought* to believe or, at least, not believing what one is epistemically *forbidden* or *ought not* believe. We find this conception clearly expressed in Locke's talk of the aim one *ought* to have with regard to belief, one's *duty as a rational creature* with regard to his beliefs, and the

circumstances under which one *transgresses* against his ability to reason (i.e., “his own light”). Similarly, we find this conception exhibited in Descartes’ talk of the conditions for believing *rightly*.

### (2) *The Accountability Conception of Justification*

According to the accountability conception of justification, justified belief is to be conceived of as belief that is formed and/or maintained in an epistemically responsible manner. That is, according to the accountability conception, being justified is a matter of believing in an *epistemically praiseworthy* manner or, at least, believing in an *epistemically non-culpable* or *non-blameworthy* manner. We find this conception clearly expressed in Descartes’ talk of one’s being liable to *blame* for the beliefs that one holds. Similarly, we find this conception exhibited in Locke’s talk of one’s being held *accountable* for the beliefs that one holds.

### (3) *The Guidance Conception of Justification*

According to the guidance conception of justification, justified belief is to be conceived of as belief that is arrived at and/or maintained by following the correct epistemic advice. Thus, the aim of the epistemological project is not only to provide an account of justified belief in terms of necessary and sufficient conditions, but to provide an account of justified belief that doubles as advice as to how to go about satisfying the necessary and sufficient conditions.<sup>100</sup> We find both Locke’s and Descartes’ implicit

---

<sup>100</sup> Goldman, the most vocal critic of the guidance conception, has suggested that the following “constitutes the basic framework of the guidance view of justification”.

affirmation for the procedural requirement of this conception exhibited in their contempt for belief that is true *but by or only by chance*. Furthermore, Locke talks of *regulating* and *governing one's assent* in accordance with reason. In all, both Descartes and Locke seem to be offering epistemic advice for forming and/or maintaining beliefs.<sup>101</sup>

Thus, the traditional picture of justification seems to encapsulate three closely related conceptions of justification.

1. *The Deontological Conception*     One is justified only if one believes as one ought to believe.
2. *The Accountability Conception*     One is justified only if one is epistemically blameless in one's belief.
3. *The Guidance Conception*     One is justified only if one has followed the correct epistemic advice.

These conceptions seem to capture something akin to conceptual truths about the nature of justified belief. Furthermore, they seem to naturally complement each other. Ultimately, one's epistemic duty is to regulate one's belief in accordance with reason. Moreover, one is epistemically accountable for meeting one's epistemic duty and, thus, is epistemically culpable insofar as one fails to regulate one's belief in accordance with reason. In this way, the deontological, accountability, and guidance conceptions seem to provide a unified understanding of what it is to be justified.

---

*S is justified in having doxastic attitude D vis-à-vis p at t if and only if the right DDP [Doxastic Decision Procedure], when applied to the relevant input conditions that characterize S at t, yields as output the prescription 'adopt attitude D vis-à-vis p.'* (Goldman [1980], 40)

<sup>101</sup> As Goldman points out, "Descartes's clearness-and-distinctness test was intended as a criterion to be used in deciding what to believe." ([1980], 38)

## 7.4 From the Traditional Picture to Epistemic Internalism

The traditional epistemological picture, with its deontological, accountability, and guidance conceptions of justification, is widely thought to provide the philosophical grounds for epistemic internalism. The following arguments are widely discussed as the most plausible routes from the traditional conceptions of justification to justificatory internalism.<sup>102</sup>

### 7.4.1 *The Argument for an Access Constraint on Justified Belief*

The argument for an access internalist constraint is really composed of three distinct, but complementary and mutually supporting arguments, one from each of the conceptions of justification outlined in the last section. Let us begin with the argument from the deontological conception of justification.

According to the deontological conception, one is justified only if one believes as one epistemically ought to believe. Furthermore, one ought to hold a belief only if one has access to grounds for it. Thus, one is justified only if one has access to grounds for one's belief. Hence, the deontological conception of justification seems to entail some sort of access internalist constraint.

---

<sup>102</sup> As is often the case in philosophy, the strongest proponents of a position are frequently less than clear as to what exactly they endorse and why exactly they endorse it. Consequently, many of the following formulations are in large part due to the most adamant critics of internalism.

This argument reflects the intuition brought out in the case of the suspicious wife. It was natural to suppose that your friend *ought not* believe as she did given that she was not aware of any grounds for her belief. Thus, it seems plausible that whether one ought to hold a particular belief depends upon whether one has access to grounds for that belief.

Similarly, there is an argument from the accountability conception of justification that parallels the argument from the deontological conception.

According to the accountability conception, one is justified only if one is epistemically blameless in one's belief. Furthermore, one is epistemically blameless in holding a belief only if one has access to grounds for it. Thus, one is justified only if one has access to grounds for his belief. Hence, the accountability conception of justification entails some version of access internalism.

Like the previous argument, this argument reflects commonsense intuitions, like those brought out in the case of the suspicious wife. It is natural to suppose that one is epistemically blameworthy in holding a belief for which one does not have access to grounds.

Yet, both the argument from the deontological conception and the argument from the accountability conception face a similar problem. It seems fair to ask *why* one is epistemically *ought* to hold a belief only if one has access to grounds for it and *why* one is epistemically *culpable* if one holds a belief without access to grounds for it.<sup>103</sup> At this

---

<sup>103</sup> Of course, it is possible to simply refuse to address such explanatory requests. One can simply point to widespread intuitions and deny that there really is a need for further explanation. Just like the bullet-biting

point, the internalist will likely turn to some form of argument from the guidance conception of justification. In fact, Alvin Goldman has suggested that something along the following lines provides the “most popular rationale” for supposing there to be an access internalist constraint on justified belief.<sup>104</sup>

[I]f you are going to choose your beliefs and abstentions from belief in accordance with your justificational requirements, the facts that make you justified or unjustified in believing a certain proposition at a given time must be facts that you are capable of knowing, at that time, to hold or not to hold. There is an intimate connection, then, between the GD [guidance-deontological] conception of justification and the requirement that justifiers must be accessible to, or knowable by, the agent at the time of belief. (Goldman [1999], 274)<sup>105</sup>

Ultimately, the argument can be spelled out in a bit more detail along the following lines.

---

divine command theorist who refuses to accept that there really is a Euthyphro dilemma by admitting that God just as easily could have preferred murder and despised compassion (and that if He had, then one morally ought to murder and ought not to be compassionate), the defender of the arguments from the deontological and accountability conceptions can also coherently stand his ground. Just as the bullet-biting divine command theorist can't be *argued out* of his position, neither can the bullet-biting defender of the these arguments. Of course, in the end, such bullet-biting defenses leave one with few resources to *argue for* one's position.

<sup>104</sup> In fact, Goldman goes so far as to suggest that an argument from the guidance conception is necessary to get from the deontological conception to an access internalist constraint. As he puts it,

When the deontological conception is used as a rationale for epistemic internalism of the sort I am sketching, however, it does incorporate the guidance conception. Only if the guidance conception is incorporated can the argument proceed along the intended lines to the accessibility constraint, and from there to internalism. (Goldman [1999], 273-4)

<sup>105</sup> Unlike a number of authors in the literature, I frame the internalist/externalist debate in terms of *grounds*, rather than *justifiers*. Where the justifiers of a belief are all of the facts or states of affairs that contribute positively to the justificatory status of a belief, the grounds for a belief are generally thought of as the facts or states of affairs on which the belief is based. As such, one's grounds for a belief are a subset of one's justifiers for it. Although the difference is subtle, the distinction is useful. For example, if we suppose that satisfying connection and adequacy constraints requires possession of meta-beliefs concerning the relationship between one's belief and one's justifiers, having a justified belief might seem to require one to have an infinite hierarchy of meta-beliefs. That is, for each connection and adequacy meta-belief, it might seem that one would need a higher level connection and adequacy meta-beliefs concerning the relationship between the former and the primary belief in question. Consequently, it much simpler to mark a distinction between grounds and justifiers and classify such meta-beliefs as justifiers, but not grounds.



According to the guidance conception, to be justified one must follow the correct epistemic advice, “In order to have justified beliefs, believe  $p$  only if one has grounds satisfying conditions  $X_1$ - $X_n$ ”.<sup>106</sup> Granted, one might accidentally fall upon the same beliefs that one would arrive at by following this advice. However, one could not follow such advice, even unknowingly, unless one has access to grounds for one’s belief. That is, one couldn’t follow the procedure prescribed by the correct epistemic advice (whether or not one is aware that it is the procedure prescribed by the correct epistemic advice) unless one has access to grounds for one’s belief so that one could assess whether those grounds satisfy conditions  $X_1$ - $X_n$ .<sup>107</sup> So, in order to be able to follow the correct epistemic advice, one must have access to grounds for one’s belief. Thus, the guidance conception of justification seems to require satisfaction of some access internalist constraint.<sup>108</sup>

When the three arguments are taken together, they are mutually reinforcing. The argument from the guidance conception allows us to answer the explanatory questions of *why* one ought to hold a belief only if one has access to grounds for it and *why* one is

---

<sup>106</sup> A guidance-deontological prescription would have the form, “Believe  $p$  only if conditions  $X_1$ - $X_n$  hold”.

<sup>107</sup> If  $X_1$ - $X_n$  provide both necessary and sufficient conditions for being justified, then this argument would furnish a case for *complete* access internalism. If  $X_1$ - $X_n$  provide necessary, but not sufficient conditions for being justified, then this argument would furnish a case for *partial access internalism*. According to partial access internalism, being justified requires only that one have access to some of a beliefs grounds (although how many and which grounds would need to be determined).

<sup>108</sup> One oddity of Goldman’s actual presentation is that the argument for access internalism follows immediately after a passage sketching an argument for adequacy internalism. Goldman suggests that establishing adequacy internalism is a necessary step in the argument for access internalism. (I discuss the details of the argument for adequacy internalism below.) However, as my discussion has shown, the argument for access internalism via the guidance conception of justification need not detour through the argument for adequacy internalism.

epistemically irresponsible and blameworthy for holding a belief without having access to grounds for it. Second, the deeply ingrained intuitions brought out by the arguments from the deontological and accountability conceptions reinforce the conclusion of the argument from the guidance conception. Thus, when taken together, the arguments from the guidance, deontological, and guidance conceptions provide an initially compelling case for an access internalist constraint on being justified.

#### 7.4.2 *The Argument for a Connection Internalist Constraint on Justified Belief*

William Alston provides the following intuitive formulation of how one might argue for a connection internalist constraint for justified belief from the guidance conception of justification.

Suppose that the sorts of things that can count as grounds are always accessible to me, but that it is not accessible to me which items of these sorts count as justifications for which beliefs. I have access to the grounds but not to their justificatory efficacy. This will take away my ability to do what I am said to have an obligation to do just as surely as the lack of access to the grounds themselves. To illustrate, let's suppose that experiences can function as grounds, and that they are accessible to us. I can always tell what sensory experiences I am having at a given moment. Even so, if I am unable to tell what belief about the current physical environment is justified by a given experience, I am thereby unable to regulate my perceptual beliefs according to as they possess or lack experiential justification. (Alston [1996], 221)<sup>109</sup>

We can reconstruct Alston's suggested argument along the following lines.

---

<sup>109</sup> Conee and Feldman quote this passage in their [2001] discussion of this point. (250)

1. In order to have a justified belief, one must follow (even if unknowingly) the correct epistemic advice.
2. According to the correct epistemic advice, one should hold a belief only if it has grounds satisfying conditions  $X_1$ - $X_n$ .

---

3. Thus, in order to have a justified belief, one should hold a belief only if it has grounds satisfying conditions  $X_1$ - $X_n$ .
4. To hold a belief only if it has grounds satisfying conditions  $X_1$ - $X_n$ , one must not only have (or have had) access to grounds for the belief, but one must appreciate (or have appreciated) that those grounds are grounds for that belief.

---

5. Thus, in order to have a justified belief, one must not only have (or have had) access to grounds for that belief, but one must appreciate (or have appreciated) that those grounds are grounds for that belief.

Premiss 1 is obviously just a statement of the guidance conception of justification and premiss 2 simply spells out the content of the guidance conception. Premiss 4 seems simply to be a practical precondition for being able to follow epistemic advice. If one does not have any recognition as to which grounds are grounds for one's belief, one will be completely unable to determine whether or not those grounds satisfy conditions  $X_1$ - $X_n$ . Thus, we have the most plausible argument for a connection internalist constraint as a necessary condition for being justified

#### *7.4.3 The Argument for an Adequacy Internalist Constraint for Justified Belief*

In his [1993], Frederick Schmitt provides a sketch of what appears to be the most plausible argument for an adequacy internalist constraint for being justified. Schmitt writes,

It is uncontroversial that justification is *undermined* by justified *negative* evaluation in the sense that a subject cannot be justified in a belief if he or she justifiedly judges it unreliable. That is, *S* is justified in believing *p* only if *S* is not justified in believing that the belief *p* is unreliable... (Schmitt [1993], 182-3)<sup>110</sup>

This basic idea provides the core of the following argument.

1. If one believes that *p* and one believes that one is *not* epistemically permitted to believe that *p*, then one is epistemically blameworthy for believing that *p*. [Assumption]
2. Given that if one believes that *p* and one believes that one is *not* epistemically permitted to believe that *p*, then one is epistemically blameworthy for believing that *p*, then if one believes that *p* and one *should* believe that one is *not* epistemically permitted to believe that *p*, then one is epistemically blameworthy for believing that *p*. [Assumption]

---

3. So, if one believes that *p* and one *should* believe that one is *not* epistemically permitted to believe that *p*, then one is epistemically blameworthy for believing that *p*. [From 1 and 2]
4. If one believes that *p* and one does not appreciate that *p* is likely to be true given one's grounds (or, at the very least, would not appreciate it if *p* were just as likely to be false given one's grounds), then one *should* believe that one is *not* epistemically permitted to believe that *p*. [Assumption]

---

5. So, if one believes that *p* and one does not have (and, perhaps, would not form under appropriate circumstances) the belief that *p* is reliable, then one is epistemically blameworthy for believing that *p*. [From 3 and 4]

---

6. So, if one believes that *p* and *either* (a) one believes that one is *not* epistemically permitted to believe that *p* or (b) one does not appreciate that *p* is likely to be true given one's grounds (or, at the very least, would not appreciate it if *p* were just as likely to be false given one's grounds), then one is epistemically blameworthy for believing that *p*. [From 1 and 5]

---

<sup>110</sup> Schmitt has suggested these motivations underlie the first of two general characterizations of adequacy internalism (or as he calls it, "perspectivism"):

*Reliabilist iterativism*: *S* is justified in believing *p* just in case *S* is justified in believing that the belief *p* is reliable. (Schmitt [1993], 180)

*Counterfactual reflective perspectivism*: *S* is justified in believing *p* just in case *S* would on reflection believe that the proposition *p* is reliable. (Schmitt [1993], 181)

Yet, when the first of theses is given its most plausible and charitable interpretation, the two formulations amount to almost the exact same thing. Thus, there is no problem in thinking of these intuitions as supporting adequacy internalism more generally.

7. If one believes that  $p$  and one is epistemically blameworthy for believing that  $p$ , then one is unjustified in believing that  $p$ . [Accountability Conception of Justification]
8. So, if one believes that  $p$  and *either* (a) one believes that one is *not* epistemically permitted to believe that  $p$  *or* (b) one does not appreciate that  $p$  is likely to be true given one's grounds (or, at the very least, would not appreciate it if  $p$  were just as likely to be false given one's grounds), then one is unjustified in believing that  $p$ . [From 6 and 7]

Thus, we have an argument for adequacy internalist constraint of justified belief. In order to be justified, not only is it necessary that one's belief not be undermined, but one must appreciate that given one's grounds for a belief, it is likely to be true.<sup>111</sup>

Notice that the argument depends upon only three assumptions in addition to the accountability conception of justification. Premiss 1 draws its inspiration from Schmitt's "uncontroversial" insight that "justification is *undermined* by justified *negative* evaluation". Premiss 2 merely represents the recognition that if one is epistemically blameworthy for holding a belief when *actually* believes that one is *not* epistemically permitted to do so, then by some sort of parity, one is epistemically blameworthy for holding a belief when *should* believe that one is *not* epistemically permitted to do so. Premiss 4 presents a pretty intuitive principle. If one doesn't appreciate that one's belief is likely to be true, then one should recognize that the belief is not permitted. To put the point the other way around, one should recognize that a belief is permitted only if one

---

<sup>111</sup> Of course, the argument here really stands or falls with the second premiss and the idea that one *should* believe that one is not permitted to hold a belief given one's grounds for it.

appreciates that that it is likely to be true. Thus, we have the most plausible argument for an adequacy internalist constraint as a necessary condition for being justified.<sup>112</sup>

#### 7.4.4 *Summary*

Thus, we have the most important arguments for justificatory internalism arising out of the traditional epistemological picture. Moreover, insofar as one grants the traditional assumption that being justified is necessary for having knowledge,

---

<sup>112</sup> Goldman has offered a sketch of a less plausible argument for adequacy internalism. (As he presents it, the argument is merely a step in the argument for access internalism. It is, however, an unnecessary step for that argument.)

If a person is going to avoid violating his epistemic duties, he must know [i.e., have an accurate belief], or be able to find out, what his duty requires... Admittedly, it might be possible to avoid violating one's duties by chance, without knowing (having true beliefs about) what one's duties are. As a practical matter, however, it is not feasible to conform to duty on a regular basis without knowing what items of conduct constitute those duties... If you cannot accurately ascertain your epistemic duty at a given time, how can you reasonably be held responsible for executing that duty? (Goldman [1999], 274)

According to the most straightforward reading of this passage, it is primarily dependent upon the deontological conception of justification. The idea is that it must be within one's power to fulfill one's epistemic duty. However else one spells out the deontological conception, one's epistemic duty would be to hold a belief only if one's grounds for it are adequate. Yet, it cannot be within one's power to fulfill one's epistemic duty unless one has accurate beliefs about whether one's grounds are adequate. Thus, the deontological conception of justification would appear to entail adequacy internalism.

One major problem with this argument is that contrary to what is asserted, there is little reason to think that it is generally the case that one can only avoid violating one's duty on a regular basis by being aware of the details of that duty. First, some duties might simply be in accord with one's natural inclinations. Many negative duties are quite easy not to violate without any effort at all. For example, I suspect (and hope) that most people would refrain from beating their spouses even if they did not believe that it were forbidden by their moral duty. Second, even in cases where one's duty requires actions toward which one is not naturally predisposed, a successful prescription for acting in accord with one's duty need not be informative with regard to the content of that duty. The most effective prescription for action might be in the form of a "rule of thumb", a rule making no reference to the actual details of one's duty. For example, the most successful procedure for acting morally from the standpoint of act utilitarianism might leave one completely in the dark about one's real moral obligation to produce the greatest total happiness. It is quite possible that one's chances for producing happiness are best when simply living according to some fixed set of principles and in complete ignorance of the details of one's real moral duty. Similarly, it is possible that one might be highly successful in fulfilling one's epistemic duty by following some epistemic "rule of thumb" and remaining ignorant of the actual details of one's epistemic duty.

we also have arguments for analogous forms of knowledge internalism. In the next section, we shall turn to the major motivations for justificatory and knowledge externalism.

## **7.5 The Turn Toward Externalism**

The move from internalism to externalism (the move from requiring an appreciation of the justificatory basis for one's beliefs to requiring little more than that one's beliefs be well-formed) has been motivated largely by three considerations.

1. First, the move away from internalism was initially motivated by the insight that only external constraints could solve Gettier-style worries.
2. Second, worries have been raised about the traditional epistemological picture that that underlies epistemic internalism. In particular, it has been suggested that the traditional conceptions of justification depend essentially on the false assumption that we are free to choose our beliefs.
3. Third and most importantly, it has been pointed out that there are widely accepted, intuitive cases of knowledge in which believers seemingly cannot satisfy even the weakest internalist constraints. In particular, it has been noted that unsophisticated believers (including animals, children, and many adults) are generally acknowledged to have lots justified perceptual beliefs and knowledge despite being utterly unable to justify their beliefs. Thus, it seems that the constraints proposed by internalists are

simply too demanding. So, either an appreciation of the justificatory basis for one's beliefs is not necessary for being justified or, contrary to epistemological tradition, being justified is not necessary for having knowledge.

The first motivation is obviously misdirected. Even if some sort of external constraint is needed to solve Gettier-style worries, this provides absolutely no reason for thinking that the satisfaction of internalist constraints is not necessary for being justified. Thus, the case for epistemic externalism primarily depends upon the supposed implausibility of the traditional epistemological picture and the apparent existence of counterexamples to internalist constraints.

## 7.6 Undermining the Traditional Picture of Justification

As I mentioned earlier, there seems to be a widespread assumption that the elements of the traditional picture must stand or fall together.<sup>113</sup> Since much of the

---

<sup>113</sup> Alvin Plantinga, for example, maintains that the elements of the traditional picture only provide an intuitive picture of justification insofar as they are combined. He writes,

Now classical internalism has a certain deep integrity. The central notion is that we have epistemic duties or obligations;... and the central duty, Locke thinks, is to believe a proposition that is not certain [i.e. non-analytic] only on the basis of evidence... Other contemporary accounts, however, sometimes seize on one or another of the elements of this classical package, often in such a way that the integrity of the original package is lost, or at least no longer clearly visible. (Plantinga [1990], 65)

Although Plantinga singles out accounts of justification held by Conee and Feldman, Lehrer, Cohen, and Alston for particular criticism, he sees his criticisms applying to any account that seizes upon part of the traditional picture of justification without embracing the whole of it. Consider, for example, Plantinga's criticism of Alston. Alston rejects the deontological conception while still requiring that justified beliefs must be based on adequate grounds. As Alston puts his point, "We find something incongruous, or conceptually impossible, in the notion of my being justified in believing that *p* while totally lacking any capacity to determine what is responsible for that justification." ([1988], 235) Commenting on this passage, Plantinga writes,



philosophical justification for epistemic internalism has been grounded on the traditional conceptions of justification, much of the criticism of internalism has focused on them. In particular, externalists have focused their attention on the suggestion that the traditional epistemological picture requires that we have the ability to control what we believe. This is by no means a wildly implausible suggestion. Descartes, for example, did suggest that we must *not misuse our free will* in determining what to deny or affirm. ([1993], 176) Along similar lines, Locke suggested that, in believing, one must seek the truth in accordance with reason *to the best of one's power*. (Locke [1979], 687) Let us call the assumption that we have the ability to control what we believe the *voluntaristic assumption*.

Externalists maintain not only that the traditional picture entails the voluntaristic assumption, but charge that the voluntaristic assumption is false. In particular, they point out that many of our beliefs, especially our perceptual beliefs, seem to be completely out

---

[T]his makes perfect sense if we think of justification deontologically; and the reason he finds those widespread intuitions favoring an internalist requirement, I suggest, is a testimony to the hold the classical conception has upon us; but once we give up that deontology, what is the reason for the internalism? *Is there any longer any reason for it?* Cut off the deontology, and the internalism looks like an arbitrary appendage. (Plantinga [1990], 67-8)

Plantinga's criticism of Conee and Feldman's evidentialist approach is very similar.

Thus Conee and Feldman see justification as a matter of having adequate evidence, and hold that this evidence must be internally available to the believer; this makes sense if combined, as in Locke, with the idea that justification is fundamentally a deontological matter of duty fulfillment. They say nothing about the latter, however which leaves the internalism unmotivated and the connection between evidentialism and the internalism obscure. (Plantinga [1990], 65)

(Conee and Feldman actually balk somewhat at the idea that their evidentialist view does in fact require evidence to be internally available to the believer. They claim to be committed only to mentalism—the view that the grounds for one's belief must be internal mental objects. Despite their objections, it is quite plausible that evidentialism is still committed to some form of access internalism. However, even if Plantinga is mischaracterizing Conee and Feldman's view, his critique of separating access internalism from its roots in the traditional picture quite clear.

of our control. Thus, externalists conclude, the traditional conceptions of justification are seriously flawed. Yet, without the traditional conceptions of justification for support, it would appear that epistemic internalism is left with only some broad epistemic intuitions to ground it. Thus, we need to carefully examine what grounds the impression that the volutaristic assumption is required by each of the three traditional conceptions of justification.

### *7.6.1 The Volutaristic Assumption and the Deontological Conception of Justification*

The familiar maxim that “ought implies can” is the primary reason that the deontological conception of justification is presumed to entail the volutaristic assumption. If the deontological conception carries this maxim with it, then what one is obligated or ought to believe must be a matter that is largely within one’s power to control. William Alston, for example, explicitly endorses this line of reasoning. As Alston puts it, “By the time-honored principle that ‘Ought implies can’, one can be obliged to do A only if one has an effective choice as to whether to do A.” ([1989], 118)

Of course, it is not so clear that the familiar maxim holds in the epistemic realm (even supposing that it holds in some other realms, e.g., the ethical realm). Richard Feldman has probably done more than anyone to bring into doubt the status of “ought implies can” within the epistemological realm. He has suggested that there are role “oughts” that do not imply “can” and that the “ought” of the deontological conception of justification appears strongly analogous to these role “oughts”. Feldman writes,

There are oughts that result from one's playing a certain role or having a certain position. Teachers ought to explain things clearly. Parents ought to take care of their kids. Cyclists ought to move in various ways. Incompetent teachers, incapable parents, and untrained cyclists may be unable to do what they ought to do. Similarly, I'd say, forming beliefs is something people do. That is, we form beliefs in response to our experiences in the world. Anyone engaged in this activity ought to do it right... I suggest that epistemic oughts are of this sort—they describe the right way to play a certain role... [T]hese oughts are not based in what's normal or expected. They are based on what's good performance. Furthermore, it is plausible to say that the role of a believer is not one that we have any real choice about taking on. It is our plight to be believers. We ought to do it right. It doesn't matter that in some cases we are unable to do so... Even in cases in which a believer has no control at all, it makes sense to speak of what he ought to believe and ought not believe. (Feldman [2000], 676)<sup>114</sup>

The idea that epistemic obligations are a subset of role obligations is quite compelling. Thus, it is far from clear that, “*epistemically ought* implies *epistemically can*”. Hence, it is far from clear that the deontological conception entails the voluntaristic assumption. Therefore, even if the voluntaristic assumption must be abandoned, there seems to be no overriding reason that the deontological conception must be abandoned with it.

---

<sup>114</sup> In his [1988], Feldman had suggested that contractual “oughts” might be analogous to epistemological “oughts”. As he more recently recapped this suggestion,

You can have an obligation to pay your mortgage even if you don't have the money to do so. Perhaps students in a class have an obligation to do the course work even if they are incapable of doing it... The obligation to pay one's mortgage and the obligation to do one's course work are contractual obligations, although in the latter case the contract is in some sense implicit. (Feldman [2000], 674)

However, he no longer maintains that contractual “oughts” and epistemological “oughts” are likely to be analogous. As he puts the point,

It's difficult to see any basis for saying that we all have some sort of contractual obligation to believe things. Surely no such contract is explicit, and nothing analogous to enrolling in a course establishes such a contract. (Feldman [2000], 674)

It seems at least possible that epistemic oughts might be explicated as a variety of *hypothetical* contractual oughts. One can think of drawing an analogy with the sort of hypothetical agreement that Rawls discusses in his [1971]. For instance, one might argue that insofar as individual believers are part of an epistemic community, they would agree to an epistemic contract from a suitably described initial position. The motivation underlying such a hypothetical agreement might be based on the sort of ethical concerns regarding the permissibility of belief that W.K. Clifford famously discussed in his [1879]. This sort of suggestion, however, might ultimately collapse the distinction between contractual and role oughts.

### 7.6.2 *The Volutaristic Assumption and the Accountability Conception of Justification*

The accountability conception also seems to be closely linked to the voluntaristic assumption. At least initially, it seems intuitively unfair and, perhaps, even incoherent to hold one epistemically accountable for beliefs over which one has no control.

Although this might seem appealing at first glance, it is a bit too quick. We do frequently hold people responsible for what is out of their control. Often when we hold an individual accountable for something that is out of his direct control, we do so because there were steps that the individual *could* have taken at an earlier time to prevent a particular outcome. Thus, one might hold a student accountable for not turning in his term paper on time even though he was sick the night before it was due and could not finish it. The supposition is that had the student been diligent, he would have nearly finished the paper long before the night before it was due. In a similar way, we might consider one to be epistemically to blame in holding a belief if greater reflection on readily available evidence would have resulted in one's having a different belief. Hence, even if one does not directly choose one's beliefs, it might be assumed that it is within one's power to sufficiently influence one's belief by reflecting on one's evidence.

Furthermore, we frequently hold individuals accountable for outcomes that are even out of their indirect control. For example, a defensive back might be blamed for giving up the game-winning touchdown because he was outrun by a quicker wide receiver. Supposing that the wide receiver is naturally much faster, there might have been nothing that the defensive back could have done differently. There might have been no amount of training that would have made the defensive back quick enough to keep up

with the receiver. Although things are beyond his control, the blame seems to fall upon the defensive back. Similarly, we frequently hold political and religious leaders accountable for events over which they have absolutely no direct control and very little (if any) indirect control. For instance, Presidents have frequently been held to blame for events occurring during their administration even though they had little or no power to prevent them. The assumption seems to be, “The buck must stop somewhere.”<sup>115</sup>

Thus, just as there seems to be epistemic role “oughts”, there seems to be epistemic role accountability. Granted, we might choose not to punish or severely censure those who are unable to avoid violating their epistemic duties, but they still might be held epistemically accountable.<sup>116</sup> Hence, it does not appear that the accountability conception entails the voluntaristic assumption.

---

<sup>115</sup> The idea that one can be blameworthy despite having little or no control has strong historical roots. For example, paradigmatic Greek tragedies, such as the *Antigone*, are based upon the idea that one can be blameworthy despite having little choice. From a more philosophical perspective, determinists have long claimed that one can still be held morally accountable for one’s actions despite having no control over them.

<sup>116</sup> Consider also the following example. I recall hearing of a court case in which an individual’s estate was being sued because the individual had suffered a fatal heart attack while driving and the car subsequently was involved in an accident. It certainly seems possible that the deceased driver might have reasonably done everything to avoid being in such a situation (apart from never driving), yet we might still hold him (via his estate) to blame for the accident. Granted, no one condemns or scorns the departed driver for his untimely death. Nevertheless, from the injured party’s perspective, it seemed that someone had to be held accountable for the damage and the dead driver seemed to be the most likely candidate. If I recall correctly, the accident was determined to be “an act of God” and the estate was not held legally responsible. Of course, the injured party could not collect financial damages from God. However, in the end, the final legal ruling is irrelevant. The point is that the case intuitively could have gone either way. The plaintiff did not seem to lack the conception of blameworthiness, nor did he seem to be bringing a purely frivolous suit.

### 7.6.3 *The Voluntaristic Assumption and the Guidance Conception of Justification*

The guidance conception is also commonly assumed to entail the voluntaristic assumption. If one is not free to choose one's beliefs, then what good is epistemic advice? There simply seems to be no point to advice that one cannot follow. In fact, it doesn't even seem to count as advice if one can't follow it.

Once again, although this might seem appealing at first glance, it is a bit too quick. We have all been given advice that we can't follow for one reason or another. For example, one might be given first-rate advice as to how to impress a particular business client. One might be advised to go to a fine restaurant, order an excellent bottle of wine, etc. Of course, one might not be able to afford the wine, let alone the dinner. Although the advice is not very helpful given one's particular circumstances, it might very well be good advice. Moreover, if there is no other way to impress that particular client, then the advice would be the best advice possible despite one's being unable to follow it. So, even if a particular individual does not have the resources or capacity to follow a particular piece of advice, this does not entail that it is not advice that is being given.

It does seem likely, nevertheless, that advice must contain a recommended course of action that could be followed by someone relevantly similar to the recipient of the advice. For example, one might be given perfectly good advice as to how to be a better defensive basketball player that would require certain methods of shot blocking that one is not big enough to perform. However, it seems too much of a stretch to be given advice that would require that one be over eleven feet tall. Similarly, the guidance conception of justification seems to presuppose that, at the very least, some epistemic agent could

control his beliefs in a wide variety of circumstances. If this is not possible, then prescriptions for belief-forming or belief-maintenance procedures would not count as advice. Yet, there seems to be no obvious reason to think that there *couldn't* be an epistemic agent who could control his beliefs in a wide variety of circumstances to roughly the same extent that we control our actions. Thus, even if guidance conception presupposes the possibility that some epistemic agent could have a wide degree of doxastic control, it is not clear that such an assumption is at all unreasonable. Thus, even if many individuals are frequently unable to follow it, epistemic advice can be appropriate. Moreover, it is likely that such advice will describe the epistemic procedure that is appropriate to us in our role as believers.

#### 7.6.4 *Summing Up the Case Against the Traditional Picture of Justification*

Thus, a strong voluntaristic assumption does not appear to be essentially presupposed by any of the considered conceptions of justification, let alone by all of them. Instead, we come away with a picture of justification according to which we are thrust into the role of believers whether we like it or not. This role comes with associated duties and obligation whether or not one has the ability to fulfill them. The content of these duties and obligations can be spelled out in the form of epistemic advice that describes the correct epistemic procedure for forming and/or maintaining one's beliefs. Furthermore, one is epistemically accountable for believing in accordance with the dictates of this procedure (whether or not one recognizes that this procedure spells out the content of one's epistemic duties). Thus, even if we have little direct control over our

beliefs, this would do little to undermine the traditional epistemological picture. Hence, epistemic externalists are unable to undermine the case for epistemic internalism in one fell swoop by simply attacking the traditional conceptions of justification from which it derives much of its support.

Furthermore, it seems quite plausible that even Descartes did not suppose the strong sort of doxastic voluntarism that the epistemic externalists deny. Even Descartes seemed to recognize we don't have direct control over which beliefs we form. Rather, he saw our doxastic control coming from our ability to retain and eliminate beliefs. Consider, for example, the following passage from the first of his *Mediations*.

For these ancient and commonly held opinions still revert frequently to my mind, long and familiar custom having given them the right to occupy my mind against my inclination and rendered them almost masters of my belief; nor will I ever lose the habit of deferring to them or of placing my confidence in them so long as I have considered them as they actually are; i.e., opinions in some measure doubtful, as I have just shown, and at the same time highly probable, so that there is much more reason to believe them than to deny them. That is why I consider that I shall not be acting amiss, if, taking of set purpose a contrary belief, I shall allow myself to be deceived, and for a certain time pretend that all of these opinions are entirely false, until at last, having balanced my former prejudices with my latter [so that they cannot divert my opinions more to one side than to the other], my judgement will no longer be dominated by bad usage or turned away from the right knowledge of the truth. (Descartes [1993], 169)

Given this seeming recognition that we largely lack control over which beliefs we form, it seems doubtful that Descartes was simply contradicting himself in maintaining that we must not misuse our free will in determining what to deny or affirm. ([1993], 176) Rather, it seems likely that in focusing on the use of free will in determining what to deny or affirm, Descartes was primarily concerned with something more like belief retention. Hence, it seems likely that he was focusing on a conception of belief that tended more



toward acceptance than brute, natural inclination. Given this more sophisticated understanding, it is far from clear that we do not have a large measure of control over what to believe. Thus, in shifting the focus away from a prohibitively narrow concern with belief formation, the traditional conceptions of justification become even more plausible and the issue of doxastic voluntarism becomes even less problematic. Hence, the case for externalism really rests with the final objection to internalism, the argument from unsophisticated believers.

### **7.7 The Argument from Unsophisticated Believers**

The most powerful and persuasive argument for externalism relies upon supposed counter-examples to internalism. In particular, externalists point out that unsophisticated believers, such as animals, children, and many adults, are generally acknowledged to have lots of justified beliefs and knowledge of a very rudimentary sort (especially justified perceptual beliefs and knowledge) despite being utterly unable to offer justification for their beliefs. From this, externalists conclude, the internalist's proposed constraints are simply too demanding. The easiest way to argue for externalism along these lines is to begin with an attack on adequacy internalism. It seems to be widely thought that once the failure of adequacy internalism has been demonstrated, the remaining varieties of internalism will fall like dominoes.

Alston builds the case against the need for any sort of adequacy internalist condition by arguing against a string of progressively weaker constraints. He first attacks the following, rather bold proposal.

- (I) One is justified in believing that  $p$  only if one knows or is justified in believing that the ground of that belief is an adequate one [i.e., that given one's grounds, one's belief is likely to be true]. (Alston [1989], 239)

Obviously, so long as a meta-belief is required to satisfy the same justificatory requirements as the belief that it is to help justify, this constraint would require an infinite hierarchy of meta-beliefs. In order for one to be justified in holding the belief that  $p$ , one would have to have a justified meta-belief that *the grounds for  $p$  are adequate*. But in order for this meta-belief to be justified, one would have to have a justified meta-meta-belief that *the grounds for the meta-belief (that the grounds for  $p$  are adequate) are adequate*. And so on, and so on... Since no human has an infinite hierarchy of beliefs, no human could satisfy (I). Insofar as we assume that at least some of us are justified in at least some of our beliefs, (I) is simply too strong.

Alston next considers the slightly weaker position that one need only *be able to form* a justified meta-belief, rather than *actually having* a justified meta-belief.

- (II) S is justified in believing that  $p$  only if S is capable, fairly readily on the basis of reflection, to acquire a justified belief that the ground of S's belief that  $p$  is an adequate one. (Alston [1989], 240)

This constraint would only require a potentially infinite hierarchy. Although it is highly questionable whether any of us even have the capacity for this sort of potential hierarchy of meta-beliefs, Alston's primary objection to this option is that there are too many individuals who lack the conceptual resources necessary for meta-beliefs about the adequacy of their beliefs. He writes,

Though it may well be within the limits of human capacity, it is no means always the case that the subject of a justified belief is capable of determining the adequacy of his ground, just by careful reflection on the matter, or, indeed, in any other sort of way. For one thing, many subjects are not at the level of conceptual sophistication to even raise the question of adequacy of ground, much less

determine an answer by reflection. One here thinks of small children and, I fear, many adults. The maximally unsophisticated human perceiver is surely often justified in believing what he sees to be the case, even though he is no position to even raise a question about the adequacy of his ground. But even if capable of raising the question, he may not be able to arrive at a justified answer. (Alston [1989], 240)

Schmitt has developed this sort of objection in detail in his [1993]. He considers the case of a child who lacks the concept of appearance and, thus, lacks the concept of reliable belief and, thus, lacks the concepts necessary to assess the adequacy of her grounds. There is no possible world where this child has a belief concerning the reliability or unreliability of her belief that  $p$  and yet the rest of her doxastic system remains fixed.<sup>117</sup> In order to have a belief about the reliability or unreliability of her belief, the child would need to have a host of other beliefs, some of which involve the concept of appearance. Despite such a child's inability to even entertain questions concerning the adequacy of the grounds for her belief (let alone being utterly unable to have a justified meta-belief), most people would want to grant that such a child can have justified beliefs and knowledge about ordinary objects within her visual field.

Such considerations lead Alston to consider the even weaker position that one need only have the grounds on the basis of which one could form a justified meta-belief that one's grounds are adequate. The basic idea is that a more sophisticated agent who

---

<sup>117</sup> Once again, Schmitt clarifies notion of a belief's reliability along traditional reliabilist lines, explaining that,

A belief is reliable just in case it belongs to a specified class of beliefs most of which are true. Usually, the specified class is held to be the class of beliefs formed by a specified process that forms the belief in question. (Schmitt [1993], 205)

Thus, one common way to interpret the claim is that in order to be justified in the belief that  $p$ , one must be justified in believing that the belief was formed by a reliable belief-forming process. Yet, since this is just one of a number of possible interpretations satisfying an adequacy criterion, I shall follow Schmitt's usage of, "believing that the belief that  $p$  is reliable".

had access to one's evidence and reasons could form the appropriate meta-belief about the adequacy of the grounds.

(III) S is justified in believing that *p* only if S has adequate grounds [i.e., grounds sufficiently indicative of the truth of *p*] for a judgement that the ground of S's belief that *p* is an adequate one. (Alston [1989], 241)

Alston objects to this even weaker proposal on the basis that most of us do not even have this kind of evidence. He writes,

Do I have the evidence it would take to adequately support a belief that my present perceptual grounds for believing that there is a maple tree near my study window are adequate? I very much doubt it... [I]t seems very dubious that we store enough observational evidence to constitute adequate evidence for the thesis that normal sensory experience is an adequate ground for our beliefs about the physical environment. No doubt our experience reinforces our tendency to believe this, but that is another matter. (Alston [1989], 241-2)

Thus, Alston concludes, any adequacy constraint on justified belief will be too strong. There will be strongly intuitive cases of justified belief by unsophisticated (and, maybe, sophisticated) believers who do not satisfy the constraint. Hence, the satisfaction of an adequacy internalist constraint is not necessary for being justified.<sup>118</sup>

It should be clear how this argument for adequacy externalism can easily be turned into an argument for connection externalism. For each considered constraint, the phrase, "is justified in believing that a particular ground for that belief is a ground for that belief", need only be substituted for the phrase, "is justified in believing that the ground of that belief is an adequate one." From there, the argument carries through in the same fashion, making use of the same counter-examples and same hierarchical threats.

---

<sup>118</sup> Having argued that as a necessary condition for being justified, an adequacy internalist constraint is too strong, Alston turns to consider whether satisfaction of an adequacy internalist constraint is sufficient for being justified. Here, he argues that any such adequacy constraint on justified belief will also be too weak.

Yet, many externalists also seem to apply the key insight of the argument to argue against access internalism.<sup>119</sup> Since we accept that unsophisticated believers, like animals and children, have lots of justified perceptual beliefs and knowledge despite being unable to offer any justification for them, one cannot argue for access internalism on the basis that being justified requires having justified or being able to justify.<sup>120</sup> From here, externalists seem to suppose that the inability to offer grounds in an act of justifying one's belief is pretty clear evidence that one does not have access to (sufficient) grounds for one's belief. Therefore, since unsophisticated believers seem to be justified and have knowledge despite being unable to justify their beliefs, access to grounds for one's belief must not be necessary for being justified and having knowledge. Thus, we have a case against access internalism.

## **7.8 Reconciling Internalism and Externalism**

At this point, epistemic internalists and externalists seem to be at somewhat of a standoff. On the one hand, widespread epistemic intuitions and the traditional epistemological picture seem to provide a strong case for internalism that is not easily undermined. On the other hand, it does seem that unsophisticated believers have lots of justified perceptual beliefs and knowledge despite being unable to reveal what grounds

---

<sup>119</sup> Alston does not take the argument in this direction.

<sup>120</sup> Although I am unaware of any major access internalists over the last half-century that have attempted to justify their access internalism on the grounds that being justified requires having justified or being able to justify, Pappas [2005] takes the possibility of arguing for access internalism on such a basis somewhat seriously. Pappas seems to consider this to be the only grounds for access internalism beyond the argument from the guidance conception of justification.

their beliefs. Given this seeming standoff, an increasing number of influential epistemologists have admitted to feeling the pull of both internalism and externalism. In response, a number of theorists have suggested reconciling internalism and externalism by acknowledging the epistemic importance of both approaches. By and large, there seem to be four general reconciliatory strategies.

The first general strategy is to postulate complementary notions of *justification*. Goldman, for example, has proposed a distinction between what he (rather prejudicially) calls, “*strong*” and “*weak*” justification. The notion of *strong* justification is intended to account for externalist motivations and the notion of *weak* justification is intended to account for internalist motivations (especially the intuitions underlying the accountability conception of justification). Goldman writes,

On one conception, a justified belief is (roughly) a *well-formed* belief, a belief formed (or sustained) by proper, suitable, or adequate methods, procedures, or processes. On another conception, a justified belief is a *faultless, blameless, or non-culpable* belief... [T]he first of these conceptions is stronger, or more stringent, than the second. It requires a belief to be formed by methods that are *actually* proper or adequate, whereas the second conception makes no such requirement. I therefore call the first conception the *strong* conception and the second the *weak*. (Goldman [1988], 53)

Although Goldman concedes that both strong and weak justification capture important epistemic concepts, he maintains that the externalist-motivated strong conception provides the concept of primary epistemic importance. In particular, he

maintains that it is the strong conception of justification that plays a role in the concept of knowledge.<sup>121</sup> One wonders, however, what role this leaves for weak justification to play in our overall epistemic theorizing.<sup>122</sup>

Laurence Bonjour has recently offered something like the antithesis of Goldman's suggestion. Bonjour writes,

My suggestion is thus that both internalist and externalist approaches are legitimate in relation to genuine epistemological issues and hence that there is no clear reason why one has to be chosen in preference to the other. There is intellectual room for lots of different kinds of epistemological issues, including many approached from a third-person perspective in a way that is at least largely externalist in character, together with some that are essentially internalist issues, especially relatively global issues having to do with whether one has good reasons for one's own beliefs. From this standpoint, the intuitive objections to externalism lose most of their sting (since no claim needs to be made that externalist justification brings with it first-person rationality). And... the intuitive objection to internalism on the basis of unsophisticated epistemic subjects can be defused by taking it to reflect justification and knowledge... [Bonjour and Sosa [2003], 38-9)

Notice that Bonjour leaves the traditional concepts of primary epistemic interest, justification and knowledge, as internalist concepts. In doing so, he relegates the externalist concepts to the backseat. Moreover, in leaving it unclear how unsophisticated believers are supposed to differ in an interesting epistemic sense from mere thermometers, the suggestion appears to simply sweep the objection from unsophisticated believers under the rug.

---

<sup>121</sup> To simply concede that both weak and strong justification are necessary for knowledge would be to concede an unearned victory to the internalists. Although supplementing a traditional understanding of knowledge as (weak) justified-true-belief with the "4<sup>th</sup> condition" of strong justification would allow the internalists to avoid Gettier cases, it would leave the objection from unsophisticated believers unanswered.

<sup>122</sup> Here, one is reminded of John Adam's comments regarding the worth of the Vice Presidency.

The second general strategy is to postulate complementary notions of *knowledge*. Ernest Sosa, for example, has suggested a distinction between what he calls, “*animal*” and “*reflective*” knowledge. In this case, the notion of animal knowledge is more or less intended to account for externalist motivations and the notion of reflective knowledge is more or less intended to account for internalist motivations. As Sosa describes the concepts,

One has *animal knowledge* about one’s environment, one’s past, and one’s own experience if one’s judgements and beliefs about these are direct responses to their impact—e.g., through perception or memory—with little or no benefit of reflection or understanding.

One has *reflective knowledge* if one’s judgement or belief manifests not only such direct response to the fact known but also understanding of its place in a wider whole that includes one’s belief and knowledge of it and how these come about. (Sosa [1991], 240)

Louis Pojman helpfully places Sosa’s distinction between animal and reflective knowledge more clearly against the broader context of the internalism/externalism debate. Pojman writes,

Animal knowledge is had by animals and small children, as well as ourselves, and includes our unconscious and immediate correct beliefs caused by reliable processes. Our unreflected true perceptual beliefs, memory beliefs, feelings of pain, facial recognitions, and immediate intuitions are all instances of animal knowledge... It is the paradigm of an external process or state, needing no reflective awareness. Reflective knowledge, on the other hand, in addition to being true belief caused by a reliable process or faculty functioning virtuously in proper circumstances, requires that the belief be justified. A belief is justified when it has its basis in its inference or coherent relationships to other beliefs in the believer’s mind. Such justification could be foundational or coherentist. Examples of such justified, though not necessarily true, beliefs are your reflective religious, scientific, and political beliefs... Such beliefs seem to depend on language (or typically do) and are found in normal adult humans, but not in animals or small children. (Pojman [1995], 140-1)<sup>123</sup>

---

<sup>123</sup> Pojman revises the distinction to one between reflective and nonreflective knowledge. The wider category of nonreflective knowledge includes supernatural knowledge, as well as fortuitous knowledge



Although both types of knowledge are given a role in accounting for our epistemic intuitions, the distinction seems to be ad hoc—postulated to sweep troublesome counterexamples under the carpet. We are left wondering in what sense the more hard-earned and elusive reflective knowledge is preferable. Yet, if it is explained why reflective knowledge is preferable, then it becomes unclear how animal knowledge is really knowledge at all.

The third general strategy has been to suggest the permanent divorce of the concepts of justification and knowledge. This suggestion has been endorsed by a number of prominent epistemologists, including Alvin Plantinga, Fred Dretske, and Richard Foley. They recommend that we simply abandon the age-old assumption that having knowledge requires being justified and, instead, think of knowledge as warranted true belief. This would alleviate our conflicted intuitions by making justification an internalist notion and knowledge an externalist notion. Along these lines, Foley writes,

Most of this literature [concerning the relative advantages and disadvantages of externalism and internalism in epistemology] assumes that externalists and internalists are defending rival theories and that, hence, both cannot be right. However, a more interesting reading of the dispute is that they are not, or at least need not be, competitors at all. Rather, they are concerned with different issues, and each needs to acknowledge the legitimacy of the other's issues.

Externalists are principally interested in explicating knowledge, but along the way they see themselves as also offering an explication of epistemic justification, because justification, they stipulate, is that which has to be added to true belief in order to get a serious candidate for knowledge. Internalists, on the other hand, are principally interested in explicating a sense of justification that captures what is involved in having beliefs that are defensible from one's perspective; but along the way they see themselves as also providing the materials for an adequate account of knowledge, because they assume that justification is by definition that

---

(i.e., a type of knowledge that is not generally available to all members of an epistemic community, but only to certain lucky individuals). Though a bit more general and comprehensive, the move to nonreflective knowledge is an unnecessary complication for purpose at hand.

which has to be added to true belief to get knowledge, with some fillip to handle Gettier problems. (Foley [2001], 12)

Thus, as Foley sees it, almost the entire internalist/externalist debate has been the result of an equivocation, mistaking justification for the principle component of knowledge. Even though this seems to be a less prejudicial solution, the question arises which is the preferable state, being justified or having knowledge. Once justification is completely divorced from knowledge, the role and value of being justified becomes murky. Hence, justification seems to be accorded a backseat (even if some theorists, particularly Foley, still continue to spend a lot of ink discussing it).

In the end, none of these reconciliatory proposals seem to provide a satisfactory solution to the apparent stalemate. Despite the increasing acknowledgement by both internalists and externalists that neither side won the war, it is clear from an examination of the various proposals that both sides are subtly trying to win the peace.

## **7.9 Summary**

As we've seen, the case for epistemic externalism is a largely, if not completely, a negative case based on the supposed failure of justificatory internalism.<sup>124</sup> Neither Gettier worries nor an attack on the traditional picture of justification based on the falsity of strong doxastic voluntarism undermines the case for internalism. Thus, the case for externalism seems to rest completely on the argument from unsophisticated believers. In

---

<sup>124</sup> The most plausible case for knowledge internalism is largely, if not completely, based on the case for justificatory internalism and the assumption that being justified is necessary for having knowledge. The assumption is that if there are no grounds for justificatory internalism, then there are no grounds for knowledge internalism.

particular, it seems to hang on the sort of doubts that Alston expressed regarding our ability to store sufficient experiential data to justify even basic perceptual beliefs. As Alston put the point, “[I]t seems very dubious that we store enough observational evidence to constitute adequate evidence for the thesis that normal sensory experience is an adequate ground for our beliefs about the physical environment.” (Alston [1989], 241-2) Thus, the challenge to the internalist is to show how an unsophisticated, but justified believer might have access to grounds, have a recognition of those grounds as grounds, and have an appreciation that his belief is likely to be true given those grounds.

Over the next few chapters, I shall take up this challenge. I shall defend a minimal form of epistemic internalism that captures the traditional internalist motivations without falling prey to the objection from unsophisticated believers.<sup>125</sup> Rather than postulating a dichotomy between weak and strong justification, reflective and animal knowledge, or justification and warrant, I shall suggest that all cases of justified belief fall on a continuous spectrum with both ends reflecting essentially that same conditions. Although the standards might be higher or lower depending on the circumstances, the type of belief, or the source of the belief, the same constraints must be satisfied. The scientist’s theoretical knowledge is not essentially different in kind from the child’s perceptual knowledge. To use an analogy... Though prices might be adjusted depending on one’s means, the currency should remain the same.

---

<sup>125</sup> Granted, the terms, “justification” and “knowledge”, do get used in a variety of incompatible ways in both ordinary and philosophical settings. I maintain, however, that there is a primary notion of epistemic justification, one plays a principle role in turning true belief into knowledge.

## CHAPTER 8

### THE RELATIONSHIP BETWEEN THE PRACTICE OF JUSTIFYING AND THE CONCEPT OF BEING JUSTIFIED

#### 8.1 Overview

Given that epistemic internalist intuitions are so widespread and seemingly robust, we would seem to have strong prima facie reason for thinking that some sort of access to grounds is necessary for being justified. Despite the pervasiveness and strength of such intuitions, there remains some doubt whether they are an accurate guide to the necessary conditions for being justified. Thus, it would greatly bolster the internalist case if there were additional reason for thinking that having some sort of access to grounds is necessary for being justified. Along these lines, William Alston has insightfully suggested that it would help to establish the legitimacy of an epistemic access constraint if we had at least a plausible explanation as to how such a constraint would have come about in the first place. To this end, Alston has suggested that the concept of being justified grew out of the larger context of the practice of justifying. Given such a development, it would not be surprising to find the practice's concern for having evidence and reasons reflected in the necessary conditions for being justified. In fact, it would be surprising if having some sort of access to grounds for one's beliefs were not

necessary for being justified. Unfortunately, Alston only provided an initial sketch of this proposal and the details have never been provided. Consequently, Alston's suggestion has not been widely discussed and appreciated.

This paper explicates and defends a variant of Alston's justificatory explanation of an access internalist constraint on justified belief.<sup>126</sup> I begin with an examination of one of the paradigm thought-experiments frequently used to bring out internalist intuitions. I then explicate the kind of justificatory explanation that Alston seems to have in mind and show how such an explanation can have the requisite justificatory force. Finally, I reconstruct Alston's suggested justificatory explanation in detail and argue for its premisses along the lines that Alston indicated.

## **8.2 The Fundamental Internalist Intuition**

According to the most general form of access internalism, one must have some sort of access to grounds for one's beliefs in order to be justified.<sup>127</sup> According to the

---

<sup>126</sup> I shall discuss Alston's proposal in a largely exegetical manner. I do this primarily to give credit where I believe it is due. Although Alston's remarks on this subject are very brief and sketchy, I do believe that I am accurately characterizing his intended argument. Yet, if one has doubts about this paper as a piece of accurate exegesis, then simply read it as Alston-inspired and judge it on its own merits.

Throughout, I shall primarily be concerned with arguing that access to grounds is necessary for being justified. Of course, with the addition of the traditional assumption that being justified is essential for knowing, we also will have an argument that access to grounds is necessary for knowledge.

<sup>127</sup> Although he is less than precise as to what exactly it is to have "access" to grounds for one's beliefs, it is clear that Alston is defending a rather weak requirement. He writes,

What is needed here is a concept of something like "fairly directly accessibility". In order that justifiers be generally available for presentation as the legitimizers of the belief, they must be fairly readily available to the subject through some mode of access much quicker than lengthy research, observation, or experimentation. It seems reasonable to ... suggest that to be a justifier an item must be the sort of thing that, in general, a subject can explicitly note the presence of just by sufficient reflection on his situation. (Alston [1988], 238)

most general form of access externalism, one does not need access to anything like reasons or evidence for one's beliefs in order to be justified. Generally, externalists suppose that a belief is justified so long as it is well-formed (e.g., it is the product of a reliable belief-forming process operating normally under ordinary circumstances).<sup>128</sup>

In order to show the insufficiency of externalist theories of justified belief and knowledge, internalists frequently appeal to thought-experiments in which an individual has a well-formed belief, but where the individual has never had any evidence in favor of his belief or of the reliability of his respective belief-forming process. Along such lines, Laurence Bonjour has developed a series of thought-experiments featuring a string of clairvoyants who have the amazing ability to determine the current whereabouts of the President of the United States. None of Bonjour's clairvoyants possess or have ever possessed any reasons or evidence for believing either that the President is where they clairvoyantly believe him to be or that they are in fact clairvoyant. Moreover, most of the clairvoyants possess some positive misleading reasons or evidence for thinking that there is no such thing as clairvoyance or that they do not possess such clairvoyant powers. Norman is the most epistemically innocent of the bunch. Although Norman lacks any

---

Unlike Alston, I shall frame the discussion in terms of *grounds*, rather than *justifiers*. Where the justifiers of a belief are all of the facts or states of affairs that contribute positively to the justificatory status of a belief, the grounds for a belief are generally thought of as the facts or states of affairs on which the belief is based. As such, one's grounds for a belief are a subset of one's justifiers for it. Although the difference is subtle, the distinction is very useful for framing a number of theories. For example, if we suppose that being justified required possession of meta-beliefs concerning the relationship between one's belief and one's justifiers, having a justified belief might seem to require one to have an infinite hierarchy of meta-beliefs. That is, for each meta-belief, it might seem that one would need a higher level meta-beliefs. Consequently, it much simpler to mark a distinction between grounds and justifiers and classify such meta-beliefs as justifiers, but not grounds.

<sup>128</sup> D. M. Armstrong's thermometer model ([1973]), Alvin Goldman's historical reliabilism ([1979] and [1986]), Robert Nozick's tracking theory ([1981]), and Alvin Plantinga's proper functionalist account ([1993]) provide paradigm examples of externalist approaches to justification and knowledge.

evidence that would support his clairvoyant beliefs, he does not possess any reasons or evidence that would undermine his clairvoyant beliefs. As BonJour describes the case,

Norman, under certain conditions which usually obtain, is a completely reliable clairvoyant with respect to certain kinds of subject matter. He possesses no evidence or reasons of any kind for or against the general possibility of such a cognitive power or for or against the thesis that he possesses it. One day Norman comes to believe that the President is in New York City, though he has no evidence either for or against this belief. In fact the belief is true and results from his clairvoyant power under circumstances in which it is completely reliable. (BonJour [1985], 41)

When presented with the case of Norman, most people (including most professional epistemologists) share the intuition that Norman does not know that the President is in New York and that Norman does not know because he is not justified.<sup>129</sup> Yet, externalist accounts of justified belief and knowledge, such as generic reliabilist accounts, truth-tracking accounts, and proper functionalist accounts, seem to entail that Norman is

---

<sup>129</sup> Although the clairvoyant cases were specifically designed to demonstrate the insufficiency of the externalist account of justification and knowledge found in D. M. Armstrong's [1973], BonJour clearly saw Armstrong's theory as a general representative of epistemic externalism (particularly of the foundational variety). BonJour provides a nice summary of the essential aspects of Armstrong's account that makes its resemblance to other externalist accounts (such as reliabilist and, especially, truth-tracking accounts) apparent. BonJour describes Armstrong's view as follows,

Like all externalist foundationalists, Armstrong makes the justification of a basic belief depend on an external relation between the believer (and his belief), one the one hand, and the world, on the other, specifically a lawlike connection: "there must be a *law-like connection* between the state of affairs *Bap* [such as *a*'s believing that *p*] and the state of affairs which makes '*p*' true, such that, given *Bap*, it must be the case that *p*" (166). This is what Armstrong calls the "thermometer-model" of non-inferential knowledge: just as the readings of a reliable thermometer lawfully reflect the temperature, so also one's basic beliefs lawfully reflect that states of affairs which make them true. A person whose beliefs satisfy this condition is in effect a reliable cognitive instrument; and it is, according to Armstrong, precisely in virtue of this reliability that his basic beliefs are justified. (BonJour [1985], 35-6)

It should also be clear that Norman is not a kind of Gettier-case. We aren't intuitively led to deny that Norman knows despite recognizing that he has what intuitively seems to be a justified, true belief. Rather, the intuition that Norman does not know seems to follow from the intuition that he is not justified.

justified in believing and, consequently, knows that the President is in New York.<sup>130</sup>

Thus, cases like Norman provide strongly intuitive counterexamples to externalist theories of justified belief and knowledge.

The underlying problem that such examples highlight has been widely discussed and described. William Alston, for example, has described the basic intuition that seems to underlie our judgements with regard to such cases as follows. He writes,

We find something incongruous, or conceptually impossible, in the notion of my being justified in believing that *p* while totally lacking any capacity to determine what is responsible for that justification. Thus, when reliability theorists of justification maintain that any reliably formed belief is ipso facto justified, most of us balk. For since it is possible for a belief to be reliably formed without the subject's having any capacity to determine this, and indeed, without there being anything accessible to the subject on which the belief is based—as when invariable correct beliefs about the future of the stock market seem to pop out of nowhere—it seems clear to many of us that reliable belief formation cannot be sufficient for justification. (Alston [1988], 234-5)<sup>131</sup>

---

<sup>130</sup> Two provisos need to be made at this point. First, I am blurring over the fact that some externalists prefer not to talk of justified belief at all, theorizing either about warrant or directly about knowledge. Despite the protests of such theorists, it does not seem unfair to consider imagined variants of such theories as theories of justified belief + X. Second, given the particular complexities of specific externalist theories, some individual tinkering and criticism is often necessary in order to preserve the force of the counterexamples. For example, in order to satisfy certain peculiarities of the proper functionalist account, we can suppose that God planned for Norman to be clairvoyant about the President's whereabouts or, perhaps, that Norman is the descendent of many generations of Secret Service agents and nature has selected for this ability. As for Goldman's particularly sophisticated form of reliabilism, it contains a non-undermining clause specifically designed to help the theory avoid counterexamples such as Norman. The non-undermining clause, however, has a number of shortcomings, the greatest of which is that it is not well-motivated from the externalist point of view and, thus, appears hopelessly ad hoc.

<sup>131</sup> Ernest Sosa has also described the problem presented by BonJour's clairvoyant cases, labeling it, "the meta-incoherence problem". Sosa writes,

*The meta-incoherence problem...* [postulates] a situation where one is internally unjustified, but externally reliable. More specifically, it supposes that a belief (that the President is in New York) which derives from one's (reliable) clairvoyance is yet *not* justified if either (a) one has a lot of ordinary evidence against it, and none in its favor; or (b) one has a lot of evidence against one's possessing such a power of clairvoyance; or (c) one has good reason to believe that such a power could not be possessed...; or (d) one has no evidence for or against the general possibility of the power, or of one's having it oneself, nor does one even have any evidence either for or against the proposition that one believes as a result of one's power (that the President is in New York). (Sosa [1991], 132)



Although this internalist intuition is quite strong, it still seems fair to ask, “So what? Why should we think that these intuitions accurately reflect the concepts of justification and knowledge that have long been of interest to epistemologists?”<sup>132</sup>

### 8.3 Explaining the Access Internalist Constraint

Alston has suggested that although it is unlikely that one could ever *prove* that the internalist intuition is accurate and that an accessibility constraint is part of the concept of justification, it would shore up the case for access internalism if we could “*explain* the presence of the requirement”.<sup>133</sup> ([1988], 235) The aim is to provide additional reason for

---

(Whereas conditions (a)-(c) describe some of Bonjour’s other clairvoyant cases, condition (d) describes Norman.) Keith Lehrer has also described the same basic problem, labeling it, “the opacity objection”. Lehrer writes,

There is... a general objection to all externalist theories that is as simple to state as it is fundamental: the external relationship might be opaque to the subject, who has no idea that her beliefs are produced, caused, or causally sustained by a reliable belief-forming process or properly functioning cognitive faculty. The person might fail to know because of the opacity to her of the external relationship and her ignorance of it... All externalist accounts share a common defect, to wit, that they provide accounts of the possession of information, which may be opaque to the subject, rather than of the attainment of transparent knowledge. (Lehrer [2000], 185)

Notice that while Alston and Sosa describe the problem in terms of externalist theories of justified belief, Lehrer describes it in terms of externalist theories of knowledge.

<sup>132</sup> Alston asks just such a question when considering the internalist intuition. “Why these intuitions? Why is some kind of accessibility required for justification?” (Alston [1988], 235) Given that there are individuals who do not share the internalist intuition, there is reason to doubt whether it is an accurate guide to the necessary conditions for being justified. Although it can plausibly be pointed out that most of those who do not share the accessibility intuition have been influenced (some would say, “tainted”) by access externalist theories, this is far from convincing evidence that the more common accessibility intuition is accurate.

<sup>133</sup> As Alston puts the point,

I myself do not see any way to argue from other “parts” of the concept [of being justified] to this one [i.e., an accessibility requirement]. Hence, I will not attempt to *prove* that accessibility is required for justification. But I believe that we can get some understanding of the presence of this accessibility requirement by considering the larger context out of which the concept developed

thinking that the widely shared internalist intuition is an accurate guide to the central epistemic concepts and, consequently, that having access to grounds for one's beliefs is essential for being justified. For if we had a plausible explanation as to how access to grounds for one's beliefs could have come to be essential for being justified, then we would have some confirmation that the internalist intuition is accurate and that having some sort of access to grounds for one's belief is necessary for being justified.<sup>134</sup>

The general form of the sort of *justificatory explanation* that Alston has in mind begins with the presumption that one has *prima facie* justification for a particular hypothesis. One then constructs a coherent story in which the hypothesis follows from other independently plausible assumptions.<sup>135</sup> Though the explanation is assembled from

---

and which gives it its distinctive importance. Thus I will attempt to *explain* the presence of the requirement. (Alston [1988], 235)

<sup>134</sup> It should be noted that Alston explicitly rejects the idea that the case for epistemic internalism rests on a "deontological" conception of justification. However, what Alston considers as "deontological" incorporates notions like blameworthiness and his objections center on these notions. (Alston [1989], 115-52) Thus, the notion that Alston rejects is much closer to what be considered an accountability or responsibility conception of justification.

<sup>135</sup> The following two cases provide more common examples of the sort of justificatory explanation under consideration.

*Case 1:* Suppose that while driving late one night in early-July, you believe that you see, out of the corner of your eye, a brightly colored flash of light low on the horizon. Initially, you are unsure whether you really saw something or not. So, you ask your friend in the passenger seat. He says that he doesn't think he saw anything, but that he wasn't really paying any attention. Your friend suggests that you have been driving a long time and, perhaps, your mind has started to play tricks on you. If so, you better pull off the road. You are unsure whether you really saw something or whether your friend is correct and your mind is starting to play tricks on you. You then consider that July 4<sup>th</sup> was just a few days ago. It is plausible that some kids would simply setting off some leftover fireworks about this time. This would explain the colored flash. You otherwise feel fine to drive. So you conclude that you really saw the flash and keep driving.

*Case 2:* When you get home one night, you find your front door unlocked. You know that you were the last one to leave that morning and you seem to remember having locked the door. Although you know yourself to have a pretty reliable memory about such things, your memory is a bit hazy in this case. You are unsure whether you are actually remembering the events of the morning or mistaking your usual morning routine for the events of this morning. You then reflect on the fact that your spouse occasionally comes home for lunch and, on such occasions, frequently forgets to the lock

a number of assumptions each of which might only be plausible, that they fit together as part of a coherent whole provides them all with some additional justification, particularly the initial hypothesis that one was attempting to explain and, hence, justify.<sup>136</sup>

In the case at hand, the widespread and seemingly robust epistemic internalist intuitions provide the *prima facie* justification for thinking that some sort of access to

---

the door upon leaving. So you conclude that the unlocked door is your spouse's fault and you are actually remembering having locked the door that morning.

In both cases, one would seem *prima facie* justified in one's belief (i.e., in the belief that there was a flash of light and in the belief that one locked the door). In both cases, the beliefs in question were products of processes (i.e., visual perception and memory) that one generally assumes to be reliable. Moreover, one is presumably justified in assuming such processes to be reliable. In both cases, however, the *prima facie* justification is potentially undermined by the existence of doubt. Not only is one uncertain in the belief, but one has some weak evidence to the contrary (e.g., the testimony of one's friend and the unlocked door). In both cases, one abates the uncertainty and discounts the contrary evidence by providing a plausible explanation according to which the source of one's belief is in fact functioning properly and the belief is true (i.e., the flash occurred and one had locked the door).

<sup>136</sup> This way of justifying a hypothesis by its role in an overall coherent explanation is very similar to the sort of justificatory structure that is assumed to hold amongst doxastic systems by some explanatory coherentists. There are, however, some important differences. One difference is that a justificatory explanation presupposes that one already has some *prima facie* justification for the hypothesis and that its coherence with other independently plausible assumptions provides the hypothesis with *additional* justification. In the justificatory structure described by explanatory coherentists, *all* justification is due to overall coherence of the doxastic structure. A second difference is that the justificatory structure described by explanatory coherentists applies to an individual's existing set of beliefs. Yet, in order for a justificatory explanation to provide justificatory support for the hypothesis in question (i.e., the explanandum), one does not necessarily have to believe the assumptions that do the explaining (i.e., the explanans). For example, if the hypothesis for which one has *prima facie* justification could be explained in a number of plausible ways, this would provide it with additional justification even if one did not believe one explanation to the exclusion of the others. Furthermore, it seems that a justificatory explanation can yield justificatory force even if an individual withholds belief in the explanatory assumptions despite not having additional explanations at hand. Given the existence of one plausible explanation, it might be rational to withhold belief in the explanatory assumptions on the grounds that there could easily be other just as plausible explanations.

In using explanatory power to justificatory effect, justificatory explanations also bear some resemblance to inferences to the best explanation. In offering an argument to the best explanation, one argues for the existence of some unobserved cause by showing that it plays an essential role in the best or most likely explanation of some established effect. Justification is supposed to flow from one's belief in the existence of the effect to belief in the existence of the supposed cause. Yet, in the sort of justificatory explanation being considered here, it is the existence of the effect itself that is principally in need of justification. Thus, where justification flows upward to the explanans in an inference to the best explanation, justification flows downward to the explanandum in a justificatory explanation.

grounds is necessary for being justified and the following provides a sketch of a plausible justificatory explanation for such a constraint.

It is highly plausible that the *concept of being justified* developed within the larger context of the *practice of justifying*. Given such a development, it is to be expected that the essential elements that the practice makes public would be reflected in the necessary conditions for being justified. Therefore, since citing reasons and evidence is at the core of the practice of justifying, it is not surprising to find that one must have (or, at the very least, have had) access to grounds for one's belief in order to be justified.

It is important to be clear that it is not being suggested that for one to *be justified* in holding a belief, one must *have justified* or, even, *to be able to justify* it. As Alston puts the point,

Now I have no temptation to restrict the topic of epistemic justification to the activity of justifying. Surely epistemology is concerned with the epistemic status of beliefs with respect to which no activity of justifying has been carried on. (Alston [1988], 235)

He reiterates the same basic point a bit later on.

I am not suggesting that being justified is a matter of engaging in, or successfully engaging in, the activity of justifying. I am not even affirming the less obviously false thesis that being justified in believing that *p* is a matter of *being able to* successfully justify the belief. Many persons are justified in many beliefs without possessing the intellectual or verbal skills to exhibit what justifies those beliefs. Thus, the *fact* of being justified is not dependent on any particular actual or possible justifying activity. (Alston [1988], 236)

Notice that this second passage seems to reveal a primary concern for defending the justifiedness of those whom otherwise would *be able to justify* their beliefs, but lack the requisite “intellectual or verbal skills to exhibit what justifies those beliefs.” By focusing explicitly and exclusively on those individuals who lack the necessary communicative skills to exhibit what justifies their beliefs, the way is left open for a defense of the idea that *being justified* still requires having access to grounds that *justify* one’s belief. It is merely the ability or skills to “exhibit” these reasons or evidence that are unnecessary for *being justified*.

In framing the suggestion in the above manner, Alston seems particularly concerned to defend an internalist accessibility constraint against key counter-examples suggested by externalists. In particular, externalists frequently note that despite having vast perceptual knowledge, animals and young children are unable to justify their perceptual beliefs. From this, externalists (seem to) conclude that being justified and having knowledge must not require the sort of access to grounds that internalists maintain is necessary to be justified.

#### **8.4 The Explanation**

The following reconstruction seems to capture the essence of Alston’s justificatory explanation.

- (1) The *concept* of being justified will be of general interest only where there exists a *practice* of justifying.
  - (2) If the *concept* of being justified will be of general interest only where there exists a *practice* of justifying, then it is very likely that the *concept* of being justified developed within the larger context of the *practice* of justifying.
  - (3) Given that it is very likely that the *concept* of being justified developed within the larger context of the *practice* of justifying, it would not be surprising to find that the *concept* of being justified reflects the essence of what the *practice* of justifying makes public.
- 
- (4) Therefore, it would not be surprising to find that the *concept* of being justified reflects the essence of what the *practice* of justifying makes public.

Of course, this explanation can only help justify the conclusion if its explanatory assumptions are independently plausible.

#### 8.4.1 Assumption (1)

Alston suggests the following argument for thinking that the concept of being justified will be of general interest only where there exists a practice of justifying.

But though the activity of responding to challenges is not the whole story, I do believe that in a way it is fundamental to the concept of *being justified*. Why is it that we have this concept of *being justified in holding a belief* and why is it so important to us? I suggest that the concept was developed, and got its hold on us, because of the practice of critical reflection on our beliefs, of challenging their credentials and responding to such challenges—in short the practice of attempting to *justify* beliefs. Suppose that there were no such practice; suppose that no one ever challenges the credentials of anyone's beliefs; suppose that no one ever critically reflects on the grounds or basis of one's own beliefs. In that case would we be interested in determining whether one or another belief *is* justified? I think not. It is only because we participate in such activities, only because we are alive to their importance, that the question of whether someone is in a state of *being justified* in holding a belief is of interest to us. ... What I am suggesting is that those facts of justification would not have the interest and importance for us that they do have if we were not party to a social practice of demanding justification and responding to such demands. (Alston [1988], 235)

We can reconstruct this argument along the following lines.

- (1-a) The *concept* of being justified will be of general interest only if there is a substantive reason to be interested in determining who is in a *state* of being justified.
- (1-b) There is a substantive reason to be interested in determining who is in a *state* of being justified only if there exists a *practice* of justifying.
- 
- (1) Therefore, the *concept* of being justified will be of general interest only if there exists a *practice* of justifying.

The case for (1-a) is quite straightforward. It would be quite odd for there to be general interest in a concept where there is no reason to be interested in determining what falls in its extension. Granted, it is *possible* to be interested in a concept without any interest in the concept's extension and it is *possible* to be interested in determining what falls into a concept's extension for no substantive reason whatsoever. Yet, even if such perverse individual interests are *possible*, general interest in a concept under such circumstances is exceedingly unlikely.<sup>137</sup> Hence, (1-a) seems pretty plausible.

The case for (1-b) is made via a thought-experiment for its contrapositive. Alston invites us to imagine that there is no social or personal practice of challenging beliefs' credentials. We are to suppose that no one ever asks questions like, "Why should I believe...?" or "What is the evidence for believing...?", either of others or of oneself. Alston then poses the question, "In that case would we be interested in determining whether one or another belief *is* justified?" This question is deceptively difficult to ponder.

In order to avoid begging any questions, suppose that being justified does not require having any access to grounds for one's beliefs. So, for the sake of simplicity,

---

<sup>137</sup> This would be analogous to an agnostic society's taking an interest in solving the question of how many angels could dance on the head of a pin. They could have such an interest, but they most certainly wouldn't.

let's assume that being justified is more or less a matter of having used a reliable belief-forming process to arrive at one's belief.<sup>138</sup> At first glance, it might still seem reasonable to be interested in determining of individuals (both oneself and others) whether they are justified (i.e., whether they have used generally reliable processes in forming their beliefs). If some individual, *S*, were justified in the belief that *p*, then his belief that *p* would likely be true. Therefore, if one could determine that *S* is justified in believing that *p*, then one would have evidence that *p* is likely to be true. Thus, assuming that one desires to have true beliefs, it would be reasonable to be interested in determining whether *S* is justified in his belief that *p*.

Yet, this chain of reasoning violates the basic parameters of the thought-experiment. We are supposed to consider whether there would be interest in determining the justificatory status of individuals (i.e., determining whether this or that individual made use of a reliable belief-forming process) while submersed in the supposition that there is no practice of reflecting on the credentials for beliefs. Yet, determining whether someone is justified only plays a part in rational means-end reasoning if one's end is to have assurance that one's beliefs are likely to be true. To seek assurance that one's beliefs are likely to be true, however, is just to engage in the practice of justifying. So, if one does not care about having such assurance, it is generally not rational (in the means-end sense) to care about determining who is justified (i.e., determining who is making use

---

<sup>138</sup> Something like this reliability constraint is common to most contemporary externalist theories. Although most externalist theories also include additional constraints, nothing in the thought-experiment will turn on the exclusion of these constraints. Thus, it is safe to ignore them in the interests of clarity and simplicity.



of reliable belief-forming processes).<sup>139</sup> Thus, if there is not a practice of justifying, there will not be a general interest in determining who is in a state of being justified. Therefore, there will be a general interest in determining who is in a state of being justified only where there is a practice of justifying. Thus, we have defense of (1-b).

#### 8.4.2 *Assumption (2)*

The basic idea is that if the existence of the practice is essential for a general interest in the concept, then it is likely that the concept developed within the larger context of the practice. It would be an unbelievable coincidence that the concept of being justified would be of interest only where there exists a practice of justifying despite the fact that the development of the concept was not intimately tied to the practice. Furthermore, it is not as if the existence of the practice provides only some distant causal precondition for the development of the concept. The above thought-experiment makes it highly plausible that the concept is of interest *because* of the practice.

#### 8.4.3 *Assumption (3)*

On its face, this hypothesis seems immensely plausible. Assuming that the concept of being justified developed within the larger context of the practice of justifying, it would be quite peculiar if the nut (i.e., the concept) fell very far from the tree (i.e., the

---

<sup>139</sup> I am ignoring the sort of silly possibilities that would give one reason to want to determine who is justified outside of a practice of justifying (e.g., some deranged billionaire is offering a pony to anyone who finds a justified individual).

practice). Consider, for example, the concept of being married. The concept of being married surely developed within the larger context of the practice of marrying and, consequently, the concept reflects the essence of what the practice—the ceremony—makes public.<sup>140</sup>

In order to further motivate the transition from the supposition that the concept of being justified developed within the larger context of the practice of justifying to the conclusion that the concept of being justified reflects the essential elements that the practice of justifying makes public, Alston sketches a rational reconstruction for the development of the concept of being justified. Of course, he does not suggest anything like an etymology for the term, “justified”. One is unlikely to find much evidence with regards to the history of the *concept* by looking through dusty, old texts for early usage of the word. Rather, Alston suggests an intuitive picture as to how the concept could have developed given the assumption that it developed within the larger context of the practice of justifying. He writes,

[T]his social practice has strongly influenced the development of the *concept* of being justified. What has emerged from this development is the concept of *what would have to be specified to carry out a successful justification of the belief*. Our conception of what a belief needs in the way of a basis in order to *be justified* is the conception of that the specification of which in answer to a challenge would

---

<sup>140</sup> The existence of common law marriages might seem to provide evidence that a concept can developed within the larger context of a practice and fail to reflect the central features of the practice. One response to this suggestion would be to claim that this is just a legal technicality and not associated with the everyday concept of being married. (Do most of those in common law marriages refer to themselves as being married?) A deeper and a think more apt response would question why there are common law marriages in the first place. The answer, I suspect, is the duration and intimacy of such relationships implies that certain assurances and expectations of mutual support and assistance have been made (at least implicitly). But the creation of such assurances and expectations is the essential feature of the practice of marrying, i.e., the exchange of vows. Thus, rather than proving a counterexample, the case of common law marriages supports the analogy. Couples can be married without marrying, yet they are married in that they possess the essential element that the practice is designed to make public. Likewise, one can be justified without justifying insofar as one possesses the essential elements that the practice is designed to make public.

suffice to answer the challenge. But then it is quite understandable that the concept should include the requirement that the justifier be accessible to the subject. For only what the subject can ascertain can be cited by that subject in response to a challenge. This, I believe, provides the explanation for the presence of the AI [accessibility internalist] constraint on justification. (Alston [1988], 236)

According to this suggestion, the first step in the evolution of the concept of being justified was the emergence of the concept of *what would have to be specified to carry out a successful justification of the belief*, i.e., the concept of *what an agent would need to offer in terms of reasons and evidence to successfully justify his belief*. According to Alston, this concept came to be identified with the concept of *what a belief needs in the way of a basis in order to be justified* and, thus, was built into the concept of being justified.

This is all rather quick, leaving it unclear how and why the less restrictive concept of being justified emerged out of the larger context of the practice of justifying. What drove our epistemic forefathers to stop equating *being justified* with *having justified* or *being able to justify*? I offer the following myth to motivate Alston's suggested rational reconstruction.

#### 8.4.3.1 *The Myth of Smith*

Smith lived among our pre-Rylean ancestors, a generation or so after the famous Jones of Wilfrid Sellars's *Empiricism and the Philosophy of Mind*. Whereas Jones is given credit as the founder of psychology for his discovery of thoughts, Smith is to be credited as the father of epistemology for his foundational work on justification.

Not one for the lab, Smith spent most of his time either fishing or at the pub. While at the pub, Smith would usually chat with other fishermen about their favorite fishing holes. Very often, Smith would head off to fish one of these new holes after finishing his grog. Yet, he frequently found himself frustrated at having wasted a day at a new hole without even so much as a nibble.

One day while sitting at the pub, Smith began to question the other fishermen as to *why* they believed their favored holes to be better than others. He wanted some assurance that the hole would be productive. Some fishermen would cite numerous instances where they had experienced unusually large catches at their favorite spots. Smith found that he usually had good luck at the holes favored by those who provided such detailed track records. Other fishermen would mention the shade, the plentiful insects, or the speed of the current at their favored holes. Initially, Smith had mixed results at the holes recommended by these folks. So, he began to question them further, asking why they thought such things mattered given that he wanted to catch fish, not flies. On the one hand, he found that he usually had good luck at the holes preferred by those who could tell numerous stories of catching many fish at holes exhibiting their favored feature. On the other hand, he found that holes favored by those who could not tell such stories were often not very good. Smith began to identify those who were ultimately able to connect a suggested hole to numerous stories ending with lots of fish as, “justified”, and those who could not as, “unjustified”. Furthermore, he began advising novice anglers that they should only fish holes recommended by justified fisherman.

After a few weeks, however, Smith noticed one very successful angler that never said much, Silent Sam. Sam was almost always successful despite trying new holes every day. When asked what his secret was, Sam explained that he fished where “things just look right”. He said that he had always chosen holes and, since it worked, he didn’t give the matter much thought.

Smith decided that even though Sam didn’t tell stories connecting the holes he fished at with his past success, he was certainly on to something. Smith found that Sam’s intuition about things “looking right” was in many ways similar to the fishermen who relied on shade or insects. The major difference between Sam’s method and theirs was that Sam didn’t seem able to describe the evidence he used. Smith surmised, however, that since Sam had *so regularly experienced the success of his method*, he certainly had the materials for many stories ending with lots of fish. Sam simply wasn’t much of a storyteller.

In the end, Smith came to see that being able to tell a story about why a fishing hole was good wasn’t necessary for being justified. Thus, Smith began to advise novice anglers, “Only follow the justified fisherman. Those are the folks who could connect a hole to numerous stories that end with lots of fish. That includes Sam. Although he doesn’t tell many stories, he has enough successful experience to have plenty of them.”

The Myth of Smith, though obviously fictitious, does seem to highlight the key points in a plausible evolution of the concept of being justified. Initially, being justified was likely to be associated with *having justified*. It then came to be associated with *being*

*able to justify*. Eventually, it came to be recognized that even some individuals that were unable to undertake the justifying process still had access to the sort grounds that would be involved in a successful justification. Thus, it came to be recognized that even though such individuals might not be able to communicate it, they still had access to the sort of grounds that put them in a position to appreciate their own reliability. Thus, where the practice of justifying concerns revealing evidence of the likely truth of a belief to others, being justified is about having the evidence of the likely truth of a belief revealed to oneself.

## **8.5 Summary**

At this point, we can now understand how we are able to drive a wedge between *being justified* and *being able to justify* while nevertheless maintaining a connection between the *concept of being justified* and the *practice of justifying*. In the act of justifying, one provides others (and, perhaps, one's conscious self) with evidence that one has access to grounds for one's beliefs. In general, we assume that those who have access to grounds for their beliefs will be able to communicate those grounds to others. Thus, in general, we judge those who are unable to justify their beliefs as unjustified.

Yet, we also recognize that there are particular sorts of individuals (e.g., animals, children, and intellectually unsophisticated adults) who would be unable to justify their beliefs even if they had access to grounds for them. When we encounter such

individuals, we often judge them to be justified with respect to beliefs that appear to be the product of very basic perceptual or reasoning processes. Such judgements seem to be grounded in a mixture of induction, abduction, generosity, and optimism.

*Induction:* Each of us recognizes that in his or her own case, he or she has similar sorts of beliefs and has access to grounds for them. Moreover, each of us is familiar with many other people who have similar sorts of beliefs and are able to justify them (i.e., exhibit grounds for them). Thus, if an individual closely resembles oneself and the other members of the community, one has good reason for supposing that the individual's most basic beliefs have similar grounds.

*Abduction:* When we encounter someone who is unable to justify a belief, we must judge whether the better explanation is that he does not have access to grounds for his beliefs or that he is unable to communicate his grounds. Often, when the belief is of a very ordinary nature and the individual appears to be using similar beliefs to successfully navigate their way around the world, the latter assumption provides the simpler explanation.

*Generosity:* In judging and, consequently, treating an individual as justified, one grants to him the rights and privileges that are extended to justified believers generally. Thus, to judge an individual who is unable to justify a belief as nevertheless justified is to grant him the benefit of the doubt (so to speak) and treat him as justified.

*Optimism:* Insofar as an individual's having access to grounds for beliefs is considered important for the welfare of others in the community, a little wishful thinking might be involved. A world filled with renegade believers who act on beliefs for which they do not have access to grounds is rather scary prospect.<sup>141</sup>

Of course, there is plenty of room for error when it comes to judging who is justified and unjustified on the basis of what is (or is not) offered on behalf of a belief. Someone's belief might be grounded upon something other than what is offered as justification for it, someone might have long held a belief and only arrived at grounds for it while attempting to justify it, etc. Yet, such possibilities merely show that we might be wrong with regard to our judgements as to whether an individual has access grounds for his belief. The possibility of error gives us no reason to suppose that having access to grounds is not essential for being justified.

This general approach to the relationship between *justifying* and *being justified* also allows us to understand the audience relative nature of *justifying* without having to suppose that *being justified* is somehow audience relative or contextual.<sup>142</sup> Some audiences simply require more evidence before they are willing to concede that an individual has access to adequate grounds for his belief. As before, this concerns whether a particular audience is justified in believing that an individual is justified. In

---

<sup>141</sup> Even if individuals utilize a number of generally reliable processes, without access to grounds for their beliefs, individuals won't be able to determine which beliefs are the products of reliable processes and which are not. Without some sort of access to grounds, individuals will lack the tools for separating the doxastic wheat from the chaff, so to speak. It seems a scary prospect to think that, in general, people might lack these tools.

<sup>142</sup> This approach is not inconsistent with a general contextualist approaches. It does, however, undermine some of the motivation for taking a contextualist approach.



this way, the giving of reasons is primarily for the benefit of the audience, not for the benefit of the person doing the justifying.<sup>143</sup> Of course, the person doing the justifying can be his or her own audience.<sup>144</sup>

In the end, even if the sort of justificatory explanation that Alston has suggested and that I have defended here cannot *prove* that having access to grounds for one's belief is essential for being justified, it does go some way towards shoring up the case for an access constraint. Moreover, we are now able to explain the widespread intuition that animals, children, and intellectually unsophisticated adults are justified in many of their basic beliefs despite being unable to justify their beliefs. The justifiedness of such unsophisticated believers can be accounted for without conceding that access to grounds is not necessary for being justified. Thus, in supporting the basic epistemic internalist intuition, what has likely been the single largest motivation for epistemic externalism is largely undermined.

---

<sup>143</sup> Of course, an individual can engage in the practice of justifying for a number of reasons: to discover grounds for ungrounded belief, to discover alternative grounds for a belief, to convince others of the truth of a belief, to convince others of one's own justifiedness, to pass the time, etc.

<sup>144</sup> In offering grounds for a belief to oneself, it seems that an individual is primarily trying to decide what meta-belief regarding the justificatory status of the given belief to adopt. Obviously, such a meta-belief can affect the justificatory status of its object belief. For example, even if one was initially justified in believing that *p*, if one arrived at the meta-belief that one does not have (and has never had) grounds for the belief and, on that basis, concluded that the belief that *p* was therefore unjustified, then it seems reasonable to suppose that one's initial justification for the belief that *p* would be undermined. Along such lines, the meta-belief might influence whether or not one continues to hold the belief that *p*.

## CHAPTER 9

### A SEARCH FOR LEGENDARY TREASURE: THE VALUE OF BEING JUSTIFIED

#### 9.1 Overview

When setting off on a quest for legendary treasure, it helps to have some idea what you are looking for. In the first place, if you don't know what you are looking for, you can't be sure that it's worth the investment to try to find it. Second, if you don't know what you are looking for, it's pretty hard to know where to look. Third, if you don't know what you are looking for, you might not recognize it even if you happen to be looking in the right place. Thus, only the rash treasure hunter grabs his metal detector and jumps the next flight to some far-off destination because that's where treasure hunters have long sought for the legendary riches. Such reckless adventurers typically meet one of two ends. Some spend their dying day wandering about some distant desert blindly believing that the legendary riches are just around the next bend (or the bend after that or the bend after that...). Others cynically abandon the search, concluding that there really was no treasure to be found or that it wouldn't be worth finding anyway.

To avoid such fates, the clever treasure hunter carefully reexamines the legends, asking, “What would have been of such great value to such ancient people that rumors of its existence would have slipped down through the cracks of time?”

The current search for an account of epistemic justification strikes me as a search for legendary treasure with many contemporary epistemologists acting as somewhat rash treasure hunters.<sup>145</sup> They grab a few paradigm cases of justified belief and begin hastily formulating accounts of justification without sufficiently considering why justified beliefs are worth having in the first place. Thus, it is not much of a surprise when they fail to develop a satisfactory account of justified belief. They are searching for an account without really understanding what they are trying to give an account of. Like the rash treasure hunters, contemporary epistemological theorists tend to meet one of two fates. Some continue to tinker with their favored account, repeatedly supposing that one more ad hoc modification will allow it to avoid counterexample. Others have cynically abandoned the search as hopeless, claiming that there really isn’t a central concept of epistemic justification or, if there is, that it isn’t really that important after all.

In what follows, I shall try to rectify the situation by reexamining the legendary status of being justified and addressing the sort of question that the clever treasure hunter would ask, “Why is being justified so valuable in the first place?” I’ll begin by outlining three fundamental constraints for a satisfactory account of the value of being justified. Then, I shall examine the two dominant schools of thought regarding the value of being

---

<sup>145</sup> I am not concerned with social epistemic value insofar as it is separate from individual epistemic value. Thus, whenever I refer to epistemic value in this paper, I mean to be referring only to individual epistemic value. I will only be explicit when making rather sweeping generalizations that could easily be misinterpreted.

justified. I shall argue that neither approach appears able to meet all three criteria and, consequently, neither approach appears very promising. In the search for a viable alternative, I shall reexamine the legends that motivated the search for an account of justification in the first place. In the end, I shall argue that being justified is valuable because it gives one an *entitlement to be sure*. The underlying idea is that from an epistemic point of view, although we primarily desire truth, we desire more than mere truth. We want to be in a position to have a *well-placed confidence* that our beliefs are likely to be true. Given our fallible natures and the dangers of having false beliefs, being in a position to have well-placed confidence in one's beliefs is surely valuable.

## 9.2 Three Axiological Constraints

A satisfactory account of the value of being justified must satisfy at least three criteria. To fully appreciate the plausibility of each constraint, one need only consider how much one would be giving up in denying it.

1. An account must accommodate the most fundamental judgments as to which beliefs are and are not epistemically valuable. In particular, an account must accord with the most fundamental value judgments of epistemologists and of those identified by epistemologists as undertaking epistemic projects.

Of course, there is room in our epistemic-axiological theorizing for reaching reflective equilibrium by giving up on some of our less well-entrenched intuitions and judgments. Nevertheless, if an account would require abandoning too many or the most firmly held of our epistemic intuitions, then it would no longer be clear that it is an account of the

value of *epistemic* justification that is being given. We can't account for the value of being justified by simply changing the subject.

2. An account must ensure that justified beliefs are epistemically valuable and, in particular, that justified true beliefs are more epistemically valuable than mere true beliefs.

To violate this constraint is tantamount to giving up the search before it even gets underway. It is to admit that that what we are looking for just isn't of much value.

3. An account must explain why epistemically valuable beliefs are ultimately valuable from the perspective of any individual qua cognitive agent. In particular, an account must ensure that justified true beliefs are generally more valuable than mere true beliefs from the perspective of any individual qua cognitive agent.<sup>146</sup>

In the first place, if an account can't explain why being justified is ultimately valuable, then it would be doubtful that it is an account of the *value* of being epistemically justified. Perhaps that which is morally valuable or aesthetically valuable is intrinsically and unexplainably valuable, but it just doesn't seem that this should be the case with what is epistemically valuable. It seems that we should be able to justify the value of being justified. (We should be able to give reasons for the value of reasons.) Second, if an account can't explain the value of being justified from the perspective of any individual qua cognitive agent, then it would be doubtful that it is an account of the value of being *epistemically* justified. The "epistemic point of view" is fundamentally a cognitive point of view. This means, in part, that being justified is valuable to individuals qua cognitive agents, not qua moral agents, qua biological organisms, qua bipeds, etc.

---

<sup>146</sup> This is not to deny that on rare occasions, one might not be better off all things considered with a mere true belief than with a justified true belief. Nevertheless, if being justified is valuable in the way that it has long been thought to be, such occasions must be pretty rare.

### 9.3 The Truth Connection

Epistemologists generally agree that two components of knowledge are justification and truth. If *S* believes that *P*, then *S* knows that *P* only if *S* is justified in believing that *P* and it is true that *P*. A central issue in epistemology concerns the connection between justification and truth. While one could view them as conceptually distinct components of knowledge, a variety of philosophers from Descartes to the present have presupposed the view that justification and truth are conceptually related—that there is an internal connection between a belief being justified and being true. The motivation for requiring that a true belief be justified in order for it to count as an instance of knowledge just is, in some sense, to provide a connection to truth. (Cohen [1984], 279)

A quick review of prominent contemporary epistemological theorists (including radical internalists, radical externalists, and those in between) reveals widespread agreement (i) that obtaining truth and avoiding falsehood is the fundamental end, goal, or aim of individual epistemology and (ii) that being justified is epistemically valuable primarily because it serves as a means to this end, goal, or aim. This is a rare point of agreement among such a diverse assortment of influential epistemologists as William Alston, Laurence Bonjour, Richard Foley, Alvin Goldman, Keith Lehrer, Paul Moser, Alvin Plantinga, and Ernest Sosa.<sup>147</sup> Consider just a few passages from some of these theorists.

---

<sup>147</sup> This dominance of view that truth is the fundamental epistemological end, goal, or aim is well recognized.

It is widely held that our epistemic goal is achieving true beliefs and avoiding false ones about propositions with which we are epistemically concerned. (Sartwell [1992], 172)

I do not think that there is much question that the vast majority of epistemologists accept a theory of epistemic value very similar to the hedonistic theory [in ethics]. They take truth (or true belief) to be the only intrinsic epistemic good and falsity (or false belief) to be the only thing that is intrinsically bad. (DePaul [2001], 172)

Epistemologists of all persuasions tend to invoke the goal of obtaining truth and avoiding error. This goal seems to be of special importance to epistemology. No other goal is invoked as frequently as this one. No other goal is given as much weight or is treated with as much respect as

Epistemic evaluation is undertaken from what we might call the “epistemic point of view.” That point is defined by the aim at maximizing truth and minimizing falsity in a large body of beliefs... For a belief to be justified is for it, somehow, to be awarded high marks relative to that aim... Any concept of epistemic justification is a concept of some condition that is desirable or commendable from the standpoint of the aim at maximizing truth and minimizing falsity. (Alston [1985], 83-4)

What makes us cognitive beings at all is our capacity for belief, and the goal of our distinctively cognitive endeavors is *truth*: We want our beliefs to correctly and accurately depict the world... The basic role of justification is that of a *means* to truth, a more directly attainable mediating link between our subjective starting point and our objective goal. (BonJour [1985], 7)

The central epistemological concepts of appraisal, I argue, invoke *true belief* as their ultimate aim. So the evaluation of epistemic procedures, methods, processes, or arrangements must appeal to truth-conduciveness, an objective standard of assessment. (Goldman [1986], 3)

The idea that the value of being justified derives from its role as a means to truth would initially seem to explain both the epistemic and ultimate value of being justified. Not only is truth widely seen as the fundamental epistemic aim, but the truth has great pragmatic value. In general, believing the truth is conducive to satisfying one’s desires, whatever they might be.<sup>148</sup> Among contemporary epistemologists, Hillary Kornblith is

---

this one... [A]dvocates of various approaches to epistemology—foundationalism, coherentism, reliabilism, virtue epistemology, and proper-function epistemology are all represented. No doubt that there are significant differences in emphasis and detail. But the theme is clearly discernable in all of them. Truth is either explicitly referred to as a goal or aim, or it is implicitly treated as such. Moreover, it is noteworthy that most of our authors invoke the truth-goal in connection with the epistemic concept that is central to their account of knowledge: justification, clear and distinct understanding, intellectual virtue, and warrant. (David [2001], 151-2)

In particular, David cites passages from Alston, BonJour, Descartes, Chisholm, Moser, Foley, Lehrer, Goldman, Sosa, and Plantinga in support of the claim that advocates from all epistemological approaches endorse the truth connection. The most notable exceptions to this trend are probably William Lycan, Richard Feldman, and Steven Stich.

<sup>148</sup> Of course, this idea is not new. It provided, for example, the basis for John Stuart Mill’s argument regarding the value of free speech in *On Liberty*. As Mill summarized the point, “The usefulness of an opinion is itself a matter of opinion... [But]The truth of an opinion is part of its utility.” ([1869], 10)

probably the best-known and most vocal advocate for linking epistemic value to pragmatic value via truth. He writes,

It seems that someone who cares about acting in a way that furthers the things he cares about, and that includes all of us, has pragmatic reasons to favor a cognitive system that is effective in generating truths, whether he otherwise cares about truth or not. We should thus adopt a method of cognitive evaluation that endorses truth-conducive processes. (Kornblith [1992], 156)

Despite the initial appeal of this approach it appears impossible to explicate the view in a way that satisfies all three criteria. In broad brushstrokes, the argument runs along the following lines.

### *9.3.1 Contra the Value of Being Justified as a Means to Truth*

Suppose, for reductio, that obtaining truth and avoiding falsehood is the fundamental end, goal, or aim of individual epistemology and that being justified is valuable primarily because it is a means to obtaining true belief and avoiding false belief. If this is the case, then being justified must be valuable primarily because it is conducive to obtaining true belief and avoiding false belief either in the short-term (the here and now), the long-term (over the course of an individual's life), or the very-long-term (over the course of future generations).

#### *9.3.1.1 The Short-Term Value of Being Justified*

Suppose that being justified is valuable primarily because it is a means to obtaining true belief and avoiding false belief in the here and now. If this were the case,



it would seem impossible for justified true beliefs to be more valuable than mere true beliefs. By way of explication, consider the following analogy.

Suppose one desires to throw a successful dinner party. Employing a caterer with a good reputation might be a good means for trying to ensure the success of the party when it is still two weeks away. Once the guests are seated, however, what counts is the food. So long as the food is excellent, the party will be a success. The caterer's superb reputation adds nothing of value. Likewise, if all one wants is true belief here and now, being justified (whether that depends upon a belief's being the product of a reliable process or upon one's having reasons for it) no longer matters. What matters is whether the belief is true or not.<sup>149</sup>

Thus, if being justified were valuable primarily because it is a means to obtaining true belief and avoiding false belief in the here and now, it would seem impossible for justified true beliefs to be more valuable than mere true beliefs. Thus, the short-term approach violates the first criterion for a satisfactory account of the value of being justified.<sup>150</sup>

---

<sup>149</sup> The example supposes that one's guests are rather shallow and superficial, but not too shallow and superficial.

<sup>150</sup> Moreover, unjustified true belief would always be more epistemically valuable than justified false belief. Insofar as one holds the intuition that occasionally justified false beliefs can be more epistemically valuable than unjustified true beliefs, the short-term approach also seems to be in violation of the first criterion of a satisfactory account of epistemic value.

### 9.3.1.2 *The Long-Term Value of Being Justified*

Suppose that being justified is valuable primarily because it is a means to obtaining true belief and avoiding false belief over the course of an individual's life.<sup>151</sup> If this were the case, then it would seem that any belief that is conducive to obtaining a preponderance of true belief in the long-term should be as epistemically valuable as a justified belief. (In fact, there seems little point of withholding the honorific title of "justified" from any such belief.) Yet, there are clear examples of beliefs that are conducive to obtaining true belief and avoiding false belief over the long-term that intuitively lack *epistemic* value. Perhaps the most commonly cited example is that of a terminally ill man who realizes that his chances of survival increase if he believes that he will survive. The case usually runs along the following lines.

Imagine one diminutive, terminally ill man, Tiny Tim. Despite having massive evidence to the contrary, Tim believes that he will recover. He purposely does so in order to increase the chances that he will recover and have a long future. Moreover, if he survives, Tim plans to spend two hours a day reading encyclopedias. Thus, the belief that he will survive is conducive to obtaining a preponderance of true beliefs in the future.

---

<sup>151</sup> This view of epistemic value is similar to the view toward religious belief that William James famously advocated in *The Will to Believe*. James maintained that belief in the existence of God could be epistemically acceptable despite a lack of evidence because such belief might open one up to the possibility of divine revelation and, thus, enable one to attain more true beliefs in the future. ([1896], 1-31)

Now, Tim might be pragmatically justified or even morally justified in believing he'll survive, but there is near unanimous agreement amongst epistemologists that Tim is not epistemically justified in ignoring the evidence.<sup>152</sup> Furthermore, there is near unanimous agreement that Tim's belief is not epistemically on par (i.e., of equal epistemic worth) with a justified belief.<sup>153</sup> Thus, in contradicting the basic epistemic value judgements of epistemologists, the long-term approach violates the first criterion for a satisfactory account of the value of being justified. Long-term truth conduciveness might be valuable, but it is not *epistemically* valuable.

---

<sup>152</sup> Earl Conee has insightfully suggested that cases like Tim's reveal a distinction between "the epistemic justification that a person can have for *believing* a proposition" and "the epistemic justification that a person can have for a *proposition*". ([1992], 666) Tim might very well be epistemically justified in believing that it would be practically rational to believe that he will survive. (Perhaps a trusted doctor has told him that those who believe that they will survive are twice as likely to survive as those who give up hope—though the odds in either case are very slim.) Yet, Tim is *not* epistemically justified in believing that he will survive. The belief that he will survive might be pragmatically valuable, but epistemologists are in near unanimous agreement that it is not *epistemically* valuable.

<sup>153</sup> Thus, we have the following argument.

1. Suppose, for reductio, that a justified belief is epistemically valuable primarily because it is conducive to obtaining true belief and avoiding false belief in the long-term.
2. If a justified belief is epistemically valuable primarily because it is conducive to obtaining true belief and avoiding false belief in the long-term, then any belief conducive to obtaining true belief and avoiding false belief in the long-term is as epistemically valuable as a justified belief.
3. So, any belief conducive to obtaining true belief and avoiding false belief in the long-term is as epistemically valuable as a justified belief.
4. Tim's belief that he will recover is conducive to obtaining true belief and avoiding false belief in the long-term.
5. Tim's belief that he will recover is as epistemically valuable as a justified belief.
6. Tim's belief that he will recover is *not* as epistemically valuable as a justified false belief.
7. So, contra the original supposition, it is not the case that a justified belief is epistemically valuable primarily because it is conducive to obtaining true belief and avoiding false belief in the long-term.

### 9.3.1.3 The Very-Long-Term Value of Being Justified

Suppose that being justified is valuable primarily because it is conducive to obtaining true belief and avoiding false belief over the course of future generations.<sup>154</sup> The underlying idea is that the ultimate value of being justified is grounded in the survival value of a family line. That is, being justified is primarily valuable because it provides the best way to ensure that future generations will have mostly true beliefs and such very-long-term truth is ultimately valuable because it promotes the continued survival of one's descendants for generations to come.

According to this approach, being justified is generally irrelevant as far as one's own survival is concerned. It is the truth or falsity of one's beliefs that determines whether one will survive. Yet, unfortunately for one's descendants, one's true beliefs will not be passed on as part of one's genetic code. This is what makes a place for the value of being justified.<sup>155</sup> In order to help understand the underlying idea, consider the following two individuals.

---

<sup>154</sup> In his [1989], Dretske suggested this sort of argument on behalf of the epistemic value of knowledge. Dretske suggests that warrant when construed in reliabilist terms is epistemically valuable in the very-long-term. Although Dretske does not intend it this way, we can reinterpret his argument as an argument regarding justified belief. In fact, it is not much of a stretch since reliabilism is invoked by other epistemologists, like Goldman, to explicate the notion of being justified.

<sup>155</sup> Survival value is surely a form of ultimate value. Dretske writes,

What confers an advantage in the struggle for survival is not *knowing* more than your competitors but being *right* more often than they are... [O]ne needn't know to be right—even in the long-term. My fortune is made if I am right about oil stocks doubling in the next week. I needn't *know* that they will double...

So even on a spartan view of knowledge, one that equates knowledge with reliably produced true belief, it isn't knowledge itself that is important, but what is implied by possession of knowledge, the fact that one has gotten things *right*, that fact that one has got *truth*, the fact that one has *correctly* represented conditions in one's surroundings. *That*, and not some fact about *why* you enjoy that advantage, is what gives you the competitive edge. Since this is so, it would seem

On the one hand, there is Lucky Lester. He just so happens to have mostly true beliefs even though most of his belief-forming processes are generally unreliable.<sup>156</sup> Given that he has mostly true beliefs, there is a good chance that Lester will live long enough to pass on his genetic code. Yet, Lester will give no gifts to his progeny. They will inherit his limited mental capabilities, not his mostly true beliefs. Thus, Lester's descendents are likely to succumb to the forces of natural selection sooner or later (and probably sooner).

On the other hand, there is Reliable Ralph. Ralph's beliefs are produced by reliable belief-forming processes. Given that he has mostly true beliefs, there is a good chance that Ralph will also live long enough to pass on his genetic code. Moreover, through his genetic code, Ralph will pass on to his heirs his *propensity* to form mostly true beliefs. Consequently, Ralph's descendents are also likely to have mostly true beliefs and, thus, will be also in a good position to continue the family line.

Thus, it appears to be of a very-long-term advantage to have one's beliefs formed by reliable belief-forming processes over having merely true beliefs. Therefore, by equating being justified with being the product of a reliable belief-forming process, the very-long-

---

that, from an evolutionary point of view, the property of interest is *truth*, not reliability. It is getting things right, not knowledge, that is selected *for*. (Dretske [1989], 92-3)

<sup>156</sup> Reliability theorists never make use of actual track records in assessing the reliability of a belief-forming process or method. They rely, instead, on counterfactuals or something similar to make such assessments. Thus, despite his actual track record, Lester's belief-forming processes and methods are counterfactually unreliable and, thus, unreliable in the sense in which reliabilists are concerned.

term approach would seem to be able to explain why justified true beliefs are both epistemically and ultimately more valuable than mere true beliefs.

There are, however, three major problems with the view that being justified is ultimately valuable because it promotes the continued survival of one's descendents for generations to come.<sup>157</sup>

1) The first problem is that it leaves far too many cognitive agents outside the epistemic game, so to speak. Being justified simply would not be of value to the infertile, those who choose not to reproduce, and those who just don't care about their descendents. Of course, we are still free to epistemically evaluate such individuals as justified or unjustified. Yet, this seems as silly as keeping track of individuals' scores in game that they are not playing. Worse yet, many such individuals seem to care about being justified. This is tantamount to their being interested in their scores with regard to a game that they are not playing. Thus, according to the very-long-term approach, there are many cognitive agents for whom being justified is not ultimately valuable (though they might mistakenly desire justified beliefs).<sup>158</sup> Therefore, even if the very-long-term approach can provide an account of the ultimate value of being justified for some cognitive agents, it can't do so for all cognitive agents.

2) The second problem with the very-long-term approach is that even those who might care about their descendents don't do so *qua* cognitive agent—they do so *qua*

---

<sup>157</sup> In addition, the defender of the very-long-term approach would have to explain the fact that although most people desire to have justified beliefs, they do so for the wrong reason.

<sup>158</sup> This would be akin to an individual's desiring a vitamin supplement that he mistakenly believed "must be good for him." The supplement is not valuable even though it might be desired. Likewise, an individual who is not interested in the survival of his family line desires justified beliefs because he mistakenly believes that justified beliefs "must be good for him".

patriarch/matriarch or *qua* caring person.<sup>159</sup> Thus, the very-long-term approach does not help us to explain why being justified are ultimately valuable from a purely cognitive standpoint. Thus, the very-long-term approach fails to capture the epistemic character of being justified.

- 3) The third problem with the very-long-term approach is that being justified is something that we care about for own sake, not for the sake of future generations. In this way, the very-long-term approach simply ignores one of our most fundamental intuitions. Thus, the very-long-term approach also violates the first criterion for a satisfactory account of the value of being justified.

Thus, in the end, it seems high unlikely that being justified is valuable primarily because it is a means to obtaining true belief and avoiding false belief over the very-long-term.

#### *9.3.1.4 Summing Up*

In the end, it seems highly unlikely that we can account the value of being justified in terms of obtaining true belief and avoiding false belief in the short-term, the long-term, or the very-long-term. Thus, it seems unlikely that any variant of the

---

<sup>159</sup> Even if one is interested in obtaining a preponderance of true beliefs in the very-long-term, one should not really care if one's beliefs are actually formed by reliable processes. So long as one passes on reliable processes, it really would not matter how one actually arrived at one's beliefs given that they are mostly true. Thus, on this account, there would really be no reason to prefer justified true beliefs to merely true beliefs so long as one had reliable processes that one was not using but would pass on.

approach according to which truth is the fundamental epistemic aim and being justified is valuable primarily because it is a means to truth will provide a satisfactory account of the value of being justified.<sup>160</sup>

One immediate consequence of the failure of this overall approach is that it leaves the most popular externalist theories of justification and knowledge highly under-motivated. The externalists' overwhelming focus on the process that produced a belief seemed plausible only so long as the value of being justified derived from its role as a means to truth. Once it is recognized that the value of being justified must lie elsewhere, it is unclear what value there could be in having a well-formed belief. Being the product of a reliable source seems to have no inherent value of its own nor does it seem conducive to anything other than truth that might plausibly be a source of epistemic value. Thus it would seem that externalists have misunderstood the nature of the legendary treasure and, consequently, have likely been searching in the wrong direction.

Of course, externalists have not been alone in assuming that truth is the fundamental epistemic aim and that being justified must be valuable primarily as a means to truth. Many internalists have also begun with this assumption. However, a number of internalists have recently developed alternative accounts according to which truth is not the sole fundamental epistemic aim and source of all epistemic value. We turn to these alternative accounts next.

---

<sup>160</sup> David [2001] provides the core argument for denying that being justified is of derivative epistemic value with respect to truth. He frames the dilemma in terms of short-term and long-term only. Kvanvig [1998] has also posed a similar formulation of the problem.



## 9.4 Breaking the Truth Connection: Alternative Epistemic Aims

Though the view is not widespread, it has been suggested that there are epistemic aims, goals, and ends that are unrelated to truth and that the value of being justified derives from its role as a means to such an alternative epistemic end. This approach is often motivated by the thought that the full value of justified true belief can only be accounted for by introducing an epistemic aim unrelated to truth. In order to appreciate this idea, consider the following analogy from Michael DePaul.

There used to be a TV commercial for a financial institution in which a pompous older gentleman said, “We make money the old fashioned way: we earn it.”... It suggests a good—wealth—that might have been attained in various ways. One might have worked for it, that is, adopted a course of action that one could count on to produce the good reliably, or one might have attained the good in some other way, for example, by placing a winning bet on a horse race. The suggestion seems to be that the state of having attained the good in the first way is better than the state of having attained the good in one of the other ways... If all you care about is money, it makes no sense whatsoever to value the attainment of  $X$  number of dollars more or less depending on the means of attainment... It does not, of course, follow that it makes no sense to value the honest attainment of a fortune over the dishonest attainment of a similar fortune. But this just means that we value honesty as well as fortune... [I]t makes sense to value attaining the goal in one way more than attaining it in another, but only because more than one value is at play. (DePaul [2001], 179)

Over the next few sections, we shall examine the prospects of a few proposals for grounding the value of being justified in epistemic aims independent of truth.

### 9.4.1 Consistency

One very implausible suggestion is that *logical consistency* is a fundamental epistemic aim and that justified beliefs are valuable primarily because they are consistent

with one's doxastic system.<sup>161</sup> In the first place, mere consistency is not particularly desirable from the epistemic point of view as it is far too easy to obtain to be of much worth. Someone who has a disjoint set of beliefs is simply not on an epistemic par with someone who has a set of justified beliefs.<sup>162</sup> In the second place, since true beliefs are automatically consistent with one another (though not vice versa), there is no room for justified true belief to be ultimately more valuable than mere true belief. Thus, this approach violates third criteria for a satisfactory account of the value of being justified. Hence, it seems highly unlikely that the value of being justified can be accounted for in terms of promotion of consistency.

#### 9.4.2 *Explanatory Coherence*

More plausibly, it has been suggested that *explanatory coherence* is a fundamental epistemic aim and that being justified is epistemically valuable primarily because it promotes explanatory coherence within one's doxastic system. William Lycan's [1988], for example, endorses this view.<sup>163</sup> Lycan calls his view, "explanationism", and describes it as, "crudely put, the doctrine that all justified reasoning is fundamentally explanatory reasoning that aims at maximizing the

---

<sup>161</sup> Goldman considers this alternative in his [1980].

<sup>162</sup> Since an inconsistent set of beliefs must contain at least one false belief, consistency might be conducive to truth. Yet, requiring mere consistency of a set of beliefs does little to promote truth. Many fictional stories are consistent. Moreover, trying to provide for the value of being justified by linking it to consistency and providing for the value of consistency by linking it to truth would throw us back to the problems associated with deriving the value of being justified in terms of truth conduciveness.

<sup>163</sup> Lycan actually seems to endorse the view that explanatory coherence is the *only* epistemic aim.

‘explanatory coherence’ of one’s total belief system.” ([1988], 128) Lycan takes special care to emphasize that explanatory coherence and its essential elements, like simplicity, are not epistemically valuable for their relationship to truth.<sup>164</sup>

Despite denying that one can *epistemically* justify the value of explanatory coherence, Lycan attempts to defend its value on generally pragmatic grounds.<sup>165</sup> Lycan provides the following reasons for thinking that explanatory coherence is pragmatically valuable.

- (1) Simpler hypotheses are more efficient to work with...
- (2) [C]omplexities incur greater risk of error. A simpler device has less that can go wrong with it.
- (3) Simplicity is *itself a form of* efficiency. The whole point of obtaining simple and unified hypotheses in science is to achieve plentitude of result (in the way of data explained and results predicted) with parsimony of means. (Lycan [1988], 140-1)

The first problematic consequence of the explanationist view is that, as Sartwell has noted, “it makes the distinction between epistemic and other values obscure. In fact, it absorbs epistemic value into sheer utility”. ([1992], 176). The idea is that the sort of

---

<sup>164</sup> Lycan writes,

Of two theories, *both* of which outrun the data, why is the simpler more likely to be true?... Actually, I reject [this question] as stated, for two reasons. (1) As I said, following Bentham,... if one has isolated what is in fact an epistemically fundamental form of ampliative inference, one has isolated an epistemically *fundamental* form of inference, a fundamental epistemic method, and cannot properly be asked for a further “justification” of that method, even for an extrinsic link between that method and truth... [I]f simplicity is in fact a fundamental epistemic method, then it is fundamental; no further question can arise regarding its “connection to truth.” ... (2) For that matter, I do not in the first place accept the a priori assumption that epistemic justification must be a matter of quantitative relation to truth. Rationality is a many factored value, and its component factors trade off against each other in complex ways that have evolved over all of these millions of years. (Lycan [1988], 148)

<sup>165</sup> As Lycan explains,

We still want to ask, *Why* is simplicity in a theory better than lush Bystantine complexity? *Why* is testability better than immunity to refutation? And so on. We still feel that there is a point to these “why” questions, even though we are agreed (I hope) that the “why” in them is not the kind of “why” that asks for further epistemic justification. (Lycan [1998], 139)

pragmatic considerations cited by Lycan do not seem uniquely epistemic. Epistemologists qua epistemologists and those identified by epistemologists as undertaking epistemological projects do not seem to be primarily concerned with efficiency. If efficiency were a major epistemic concern, then any belief that promotes efficiency seemingly ought to be as epistemically valuable as a justified belief. Yet, this doesn't seem to be the case.<sup>166</sup> Thus, the explanationist approach violates the first criterion for a satisfactory account of the value of being justified.

The second problematic consequence of the explanationist view is that it seems to make justified belief less desirable as one's computational capacity and speed increases. If being justified is epistemically valuable primarily because it is conducive to explanatory coherence and explanatory coherence is primarily valuable on the grounds that it promotes efficiency, then beings with greater cognitive skills have little reason to prefer justified true beliefs to merely true beliefs. Consequently, systems with a high degree of explanatory coherence are not necessarily valuable from the perspective of any individual qua cognitive agent. Thus, this approach seems to violate the third criterion for a satisfactory account of the value of being justified.<sup>167</sup>

The third and most troublesome problem with the explanationist view is that there are artificial ways to increase the explanatory coherence of a system of belief that

---

<sup>166</sup> This is similar to the argument that being justified is not valuable primarily as a means to obtaining true belief and avoiding false belief over the long-term.

<sup>167</sup> Of course, the explanationist might reply that we are primarily concerned with creatures like us. Nevertheless, it doesn't seem that the desirability of justified belief ought to be inversely proportional to one's computational abilities.

actually seem to make a system less valuable in both an epistemic and ultimate sense.

Lehrer has made this point very forcefully.

The explanatory coherence of a system could be increased by decreasing what needs explanation. We thus reduce the problem of explanation by systematically denying the truth of those statements describing whatever is unexplained until we obtain a very simple system in which everything is perfectly explained because there is almost nothing to explain. No explanatory function or role of statements suffices to prevent this artificial manipulation of explanatory systems. (Lehrer [2000], 120)

If explanatory coherence were a fundamental epistemic aim, then the sort of explanatorily coherent systems that Lehrer describes should be both epistemically and ultimately valuable. Yet, epistemologists do not epistemically value such artificial systems that have a high degree of explanatory coherence over systems that retain unexplained statements and, thus, have lower degrees of explanatory coherence.<sup>168</sup> Therefore, the explanationist approach to the value of being justified violates the first and third criteria for a satisfactory account of the epistemic value of being justified. Thus, it seems unlikely that explanatory coherence is a fundamental epistemic aim and that being justified is primarily valuable because it is conducive to increasing explanatory coherence.<sup>169</sup>

---

<sup>168</sup> Of course, this does not prove that an explanatory coherence theory cannot provide a correct account of being justified given suitable restrictions to make sure that it takes new, unexplained evidence into account. This, however, would do nothing to explain the value of being justified.

<sup>169</sup> Lycan also attempts to defend the epistemic value of explanatory coherence on generally evolutionary grounds. The appeal to the evolutionary value of explanatory coherence, however, seems largely a distraction. First of all, tying epistemic value to evolutionary value seems to require either (a) selecting a particular time period and environment in order to identify the successful processes or (b) relativising to an agent's time period and environment. Option (a) seems arbitrary. It seems odd to think that explanatory coherence is desirable from the standpoint of a *current* cognitive agent because at one point it was of survival value. Belief-forming processes and methods that might have been of survival value at one time might no longer be of survival value. Option (b) simply confuses the epistemic with the purely pragmatic. There are numerous belief-forming and belief-maintenance processes and methods that might yield beliefs that are of great survival value within a particular environment, but that do not yield beliefs desirable from

### 9.4.2 Reasonableness

It has also been suggested that *rationality* or *reasonableness* is a fundamental epistemic aim and that being justified is valuable primarily because it is reasonable belief. Feldman, for example, endorses such a view in his [2000].<sup>170</sup> He attempts to draw out the difference between (i) the view that *true* beliefs are epistemically valuable and (ii) the view that *reasonable* beliefs are epistemically valuable by considering a person “whose evidence supports a great many falsehoods”. Feldman writes,

First, suppose the person follows his evidence. According to both views [(i) and (ii)], this person is believing as he ought.<sup>171</sup> But according to the earlier view [that *truth* is the sole fundamental epistemic aim and the ultimate source of all epistemic value] his beliefs, being false, lack epistemic value whereas according to the current view [that *reasonability* is a fundamental epistemic aim and a source of epistemic value] they are epistemically valuable. Second, suppose that the person does not follow his evidence. In that case, both views imply that he is not believing as he ought, but the earlier view implies that he is, by luck, achieving epistemically valuable beliefs. In both cases, I found the implications of the current view [that *reasonability* is a fundamental epistemic aim and a

---

an epistemic point of view. For example, certain belief-forming reflexes that make one believe that there is a predator in the area might be highly unreliable, producing a very high percentage of false positives. Although the resultant beliefs might be of survival value in predatory environments, they don't generally seem to be of epistemic value. Thus, even if explanatory coherence was desirable from an evolutionary standpoint, this is not sufficient to show that it is desirable from the standpoint of every cognitive agent qua cognitive agent.

<sup>170</sup> In his [2000], Feldman actually endorses the view that rationality or reasonableness is the *only* thing of fundamental epistemic value. He writes,

While true beliefs may have considerable instrumental value, a person who irrationally believes a lot of truths is not doing well epistemically. In contrast, a person who forms a lot of rational but false beliefs is doing well epistemically. While knowledge also has a kind of value, seeing it as the only thing of epistemic value fails to explain what is valuable about forming beliefs that fall short of knowledge. We avoid the problems associated with identifying epistemic value with true belief or with knowledge if instead we say that what has epistemic value are rational beliefs. To do well as a believer, to achieve a kind of epistemic excellence, one must form only rational beliefs. (Feldman [2000], 685)

When adopting (or maintaining) an attitude toward a proposition, *p*, a person maximizes epistemic value by adopting (or maintaining) a rational attitude toward *p*. (Feldman [2000], 685)

<sup>171</sup> Feldman endorses a deontological framework for understanding epistemic value.

source of epistemic value] more appealing. I don't see anything epistemically good about the person who irrationally gets true beliefs. I don't think that it would be correct to say of him that he's achieved epistemic excellence, even though he's done it in an irrational way or merely by luck. Rather, I think that he's failed epistemically, not only because he isn't believing as he ought but because he doesn't have rational beliefs. Of course, there may be some instrumental value in those true beliefs. They may help the person negotiate the world in a better way. But that is a different matter. (Feldman [2000], 685)<sup>172</sup>

The problem with this suggestion is that once reasonableness is divorced from truth, it is a mystery why reasonable belief is ultimately valuable. Kvanvig has eloquently urged this point against all attempts to divorce the value of being justified from a connection to truth. Kvanvig writes,

The position that justification is valuable independently of the importance or value of truth ought to strike us as an utterly mysterious one. It is akin to developing statistical categories in baseball that have nothing to do with winning baseball games. We keep statistics on batting average, slugging percentage, numbers of home runs, stolen bases, earned run average, fielding percentage, etc., because each of these has something to do with success in the game, i.e., winning. But suppose we introduce a further category: what percentage of times you step on home plate as you begin running to first base, and claim that the lower the percentage, the better (left-handers have an obvious advantage in this category, which this left-hander holds, is all for the good). Puzzled, you query why anyone should be interested in this statistic. What does it have to do with success in the game of baseball? I answer that there is no connection, it's just a valuable characteristic to have independently of any role that it might play in winning games. You'd walk away perplexed by such a claim, I submit. I further submit that the same reaction is appropriate when it is claimed that justification has a value completely independent of the value of truth. The point of cognition is to get the truth... and the things we cite when we want to defend the *truth* of what we believe are usually (what we take to be) justification of the truth. If that isn't what justification is, if it is not connected to the truth in any interesting way at all, I don't see why we'd be any more interested in it than in what percentage of times batters hit home plate on their way to first base. ([1988], 433-4)

---

<sup>172</sup> Feldman is framing the point within the framework of an evidentialist theory of justification according to which one ought to believe in accordance with one's evidence. (See Conee and Feldman [1985] for details.)

Kvanvig's tirade applies directly to Feldman's suggestion that that reasonability is a fundamental epistemic aim and a source of epistemic value independent of any connection to truth. If Kvanvig is right (and it certainly seems that he is), the current proposal violates the third criterion of a satisfactory account of the value of being justified. It does not explain why being justified is ultimately valuable and why justified true belief are generally more ultimately valuable than mere true beliefs.

#### 9.4.4 *Epistemic Value Relativism*

It might be suggested that epistemic value is relative to what one desires from an epistemic point of view. So, for example, if Lycan desires explanatory coherence qua epistemic value, explanatory coherence would be epistemically valuable for him and if Feldman desires reasonableness qua epistemic value, reasonableness would be epistemically valuable for him. The supposed advantage of such a relativistic approach to epistemic value is that it initially appears to eliminate the need to explain why epistemically valuable beliefs are ultimately valuable. Insofar as individuals do desire something, it is valuable for them.<sup>173</sup>

---

<sup>173</sup> Among major contemporary epistemologists, Kornblith has probably taken this sort of approach most seriously. Although he does not quite present the view as I do or consider it a form of relativism, this is largely because he is concerned with epistemic norms rather than epistemic value. He writes,

Those who seek to avoid relativism in epistemic evaluation, while simultaneously grounding norms in desire, will construe norms as imperatives that apply given that certain conditions are met... [I]mperatives may be endorsed that are simply conditional on having certain desires or goals, while acknowledging that these goals are not universally shared; relativity is thereby avoided at the loss of generality. (Kornblith [1992], 148-9)

Since epistemic evaluations still vary from person to person depending upon what each individual desires or values, the two formulations are roughly equivalent and both seem to qualify as relativistic with regard to epistemic value.



There are, of course, serious problems with this relativistic approach. First, it trivializes debate over the value of being justified to the level of debate over which flavor of ice cream is best. According to the relativistic approach, those who engage in such debate are just confused.<sup>174</sup> This simply is not the way that we conceive of epistemic debate. Second, according to the relativistic approach, two individuals can be alike with regard to evidence, environment, the belief-forming process used to generate a belief, the general reliability of that belief-forming process, etc., and, nevertheless, the epistemic value of their beliefs can differ drastically. The only difference between the two individuals will concern what each values qua epistemic value. This is simply not the way that epistemologists conceive of epistemic value. Third, the relativistic approach allows individuals to opt out of the epistemic enterprise by simply not valuing anything qua epistemic value. Thus, being justified will not be valuable from the perspective of any individual qua cognitive agent. Hence, this relativistic approach violates both the first and third criteria of a satisfactory account of the value of being justified. Therefore, it seems highly unlikely that the relativistic approach can provide a satisfactory account of the value of being justified.

---

<sup>174</sup> As Kornblith puts it,

Epistemic activity may be evaluated for its conduciveness to various ends, some of which are widely held and some of which are more parochial; but these different schemes of evaluation are not competitors. On this account, it is not as if those who offer different schemes were each trying to characterize a single notion. The problem with this account, of course, is that those who offer different schemes of evaluation typically have seen other schemes of evaluation as competitors. The tenor of this debate suggests that the different parties to it believe themselves to be attempting to characterize a single notion, with some parties to the debate getting it right and others getting it wrong. (Kornblith [1992], 148-9)

#### 9.4.5 *Summary*

None of the above suggestions seem to provide a plausible explanation of the value of being justified. Although I have not discussed every possible alternative, the general trend should be clear. It does not seem at all promising that the value of being justified can be completely divorced from truth. So, what is the solution? In the next section, I shall consider a more traditional approach to the value of being justified.

### **9.5 The Value of Well-Placed Confidence**

Throughout most of the history of philosophy, justification and knowledge were intimately associated with the notions of certainty and surety. Over the last half-century, however, there has been a general movement away from associating justification and knowledge with such subjective notions. From the standpoint of many contemporary epistemologists, the notions of certainty and surety seem hopelessly psychologistic and bound up with such abandoned epistemological pipedreams as infallibility, indubitability, and incorrigibility. In the face of this contemporary trend, I suggest that a reconsideration of the value of certainty and surety can help shed light onto the value of being justified. By reconnecting the value of being justified to its historical roots, we ensure that an eventual account of being justified will explicate a concept that is not only valuable, but epistemically valuable.<sup>175</sup>

---

<sup>175</sup> The historical views that I shall be examining directly concern the value of knowledge, rather than the value of being justified. Since these approaches pre-date a widespread understanding of the Gettier problem, however, it does not seem to be unfairly reading too much into the views to understand them as indirectly concerning the value of being justified.

### 9.5.1 Plato

In a well-known passage from the *Meno*, Meno prompts Socrates to explain the value of knowledge. Specifically, Meno tempts Socrates, “I wonder why knowledge should be so much more prized than right opinion, and indeed how there is any difference between them.”<sup>176</sup> Socrates responds,

True opinions are a fine thing and do all sorts of good so long as they stay in their place, but they will not stay long. They run away from a man’s mind; so they are not worth much until you tether them by working out the reason... Once they are tied down they become knowledge, and are stable. That is why knowledge is something more valuable than right opinion. What distinguishes one from the other is the tether. (Plato [1961], 97d-98a)

Thus, Meno wants to know why knowledge is more valuable than mere true belief and Socrates’ suggestion is that knowledge is more valuable because knowledge is true belief that has been “tied down”.<sup>177</sup>

Given the suggestion that beliefs are tied down by “working out the reason”, it certainly appears that Plato is maintaining that *knowing* requires *being justified* and that that *being justified* requires *justifying*. Nevertheless, he does not seem to be maintaining that *being justified* is the same thing as *having justified* or *being able to justify*. While justifying does the work of tethering a belief and makes it clear that the belief has been tethered, it is not itself the tether. That is, justifying is simply the means by which one

---

<sup>176</sup> There is some debate whether Plato was working with a justified-true-belief account of knowledge. If he was, then Meno’s concern for the value of knowledge is more or less equivalent to our concern for the value of being justified. If Plato was not working with a justified-true-belief account of knowledge, then his concern, though not exactly the same as ours, is certainly still in the same vein.

<sup>177</sup> Knvanvig [2005] suggests that Plato challenges three distinct assumption in the *Meno*: (i) that knowledge is more valuable than mere true belief, (ii) that knowledge is distinct from mere true belief, and (iii) that true belief is more valuable than empirically adequate belief.

becomes justified and makes it known that one is justified, but it is not the same as being justified. Ultimately, it is being tethered that is valuable. The process of tethering, though essential, is not itself of value. It is not justifying, but what justifying accomplishes, that is valuable. This leaves plenty of room for the now widely acknowledged view that one can *be justified* without *justifying* (*having justified* or *being able to justify*). Justifying is just one way that a belief can get tied down.

At this point, we need to consider what sort facts or processes are capable of holding true beliefs fixed. It seems pretty clear that purely external facts will be unable to do the job. For example, there is presumably nothing about being the product of a reliable belief-forming process that would make a true belief more likely to be fixed. Given that there seems to be no brute physiological mechanisms that will help us to retain beliefs that are likely to be true, the tether must hold a belief fixed by providing some sort of cue that a belief is likely to be true and, hence, ought to be retained. That is, in order to help fix a true belief, the tether must be in some way accessible, providing a mark of likely truth.<sup>178</sup>

### 9.5.2 *Descartes*

The Cartesian quest for certainty can be seen as a search for Plato's tether. Descartes suggested that it is a well-founded certainty that distinguishes knowledge from

---

<sup>178</sup> This is, of course, a slight variation of the argument for access internalism from the guidance conception of justification. Here, the argument clearly focuses on belief retention rather than on belief production.

mere true belief and that the clearness and distinctness of a conception provides the proper basis for such certainty. As he explains in the fourth of his *Mediations*,

For in truth it is no imperfection in the Deity that he has accorded to me the power of giving or withholding my assent from certain things of which he has not put a clear and distinct knowledge in my understanding; but it is doubtless an imperfection in me that I do not use my freedom aright, and readily give my judgment on matters which I only obscurely and confusedly conceive... I have even good reason to remain satisfied on the ground that, if he has not given me the perfection of being superior to error by... a clear and evident knowledge of all the matters regarding which I can deliberate, he has at least left in my power the other means, which is, firmly to retain the resolution never to judge where the truth is not clearly known to me... [F]or as often as I so restrain my will within the limits of my knowledge, that it forms no judgement except regarding objects which are clearly and distinctly represented to it by the understanding, I can never be deceived; because every clear and distinct conception is doubtless something, and cannot owe its origin to nothing, but must have God for its author... and consequently it is necessary to conclude that every such conception [or judgement] is true. (Descartes [1993], 198, Mediation IV)

Here, Descartes provides a recipe for sorting or filtering our doxastic systems. We are to use clearness and distinctness as marks to determine which of our beliefs are undoubtedly true. We can then retain these and reject anything capable of doubt and, therefore, capable of falsity. Thus, according to Descartes, certainty founded on clearness and distinctness is our best defense against our own fallible natures. In this way, Descartes (like Plato) seems primarily concerned with belief retention rather than with belief formation.<sup>179</sup>

---

<sup>179</sup> Even Descartes did not seem to accept a robust form of doxastic voluntarism according to which we have direct control over which beliefs we form. Rather, he saw our doxastic control coming from our ability to retain and eliminate beliefs that were unjustified.

For these ancient and commonly held opinions still revert frequently to my mind, long and familiar custom having given them the right to occupy my mind against my inclination and rendered them almost masters of my belief; nor will I ever lose the habit of deferring to them or of placing my confidence in them so long as I have considered them as they actually are; i.e., opinions in some measure doubtful, as I have just shown, and at the same time highly probable, so that there is much more reason to believe them than to deny them. That is why I consider that I

Of course, it has long been recognized that Descartes set his sights too high. Absolute and indubitable certainty is too lofty an epistemic goal (and clearness and distinctness provides questionable grounds for it). Yet, it does seem promising that there could be value associated with having a confidence founded on marks of a belief's likely truth. This might provide a tether to keep our true beliefs from running away. Thus, when we give up on the Cartesian fantasy that knowledge requires infallibility, we see that absolute certainty is not necessary. So long as we are willing to settle for a fallibilist notion of knowledge, being in a position to have well-placed confidence might suffice.

### 9.5.3 *W.K. Clifford*

Of course, a *mere attitude* of confidence is far too easy to achieve to be of epistemic value. This point was made vividly clear in W.K. Clifford's famous piece, "The Ethics of Belief". There, Clifford relates the tale of a shipowner who sends a boatload of émigrés off to their deaths in an obviously unfit vessel. The shipowner, however, is able to do so with a clear conscience because he has forced upon himself a confidence that everything would turn out all right. (Providence certainly wouldn't allow anything to happen to such poor and defenseless people.) Clifford sums up the moral of his story,

---

shall not be acting amiss, if, taking of set purpose a contrary belief, I shall allow myself to be deceived, and for a certain time pretend that all of these opinions are entirely false, until at last, having balanced my former prejudices with my latter [so that they cannot divert my opinions more to one side than to the other], my judgement will no longer be dominated by bad usage or turned away from the right knowledge of the truth. (Descartes [1993], 169, Mediation I)

It is admitted that [the shipowner] did sincerely believe in the soundness of his ship; but the sincerity of his conviction can in no wise help him, because *he had no right to believe on such evidence as was before him*. He had acquired his belief not by honestly earning it in patient investigation, but by stifling his doubts. And although in the end he may have felt so sure about it that he could not think otherwise, yet inasmuch as he had knowingly and willingly worked himself into that frame of mind, he must be held responsible for it. (Clifford, [1879])<sup>180</sup>

As Clifford points out, the shipowner's belief would have been epistemically deficient even if things had turned out differently.

The question of right or wrong has to do with the origin of his belief, not the matter of it; not what it was, but how he got it; not whether it turned out to be true or false, but whether he had a right to believe on such evidence as was before him." (Clifford, [1879])<sup>181</sup>

Thus, Clifford makes it clear that it is not mere confidence that is epistemically valuable. In order for confidence to be epistemically valuable, one must have a right to it by believing in accordance with one's evidence.

#### 9.5.4 J. L. Austin

In middle of the 20<sup>th</sup> century, we find the concern with having a right to be confident in one's belief resurfacing in the work of J. L. Austin. Austin emphasizes the idea that there is a difference in kind between knowledge and merely firmly held true belief. He writes,

---

<sup>180</sup> This reflects what I have referred to as the accountability conception of being justified. According to this conception of justification, being justified is a matter of believing in an *epistemically praiseworthy* manner or, at least, believing in an *epistemically non-culpable* or *non-blameworthy* manner.

<sup>181</sup> Clifford ultimately ties epistemic value to moral value, particularly through the idea of being accountable. This is not an idea that many contemporary epistemologists have been quick to embrace. Though Clifford might be onto something, it seems unlikely that being justified is primarily of value because it is of moral value. In the end, the epistemic point of view is defined in terms of cognitive agents, not moral ones.

[S]aying “I know” is taking a new plunge. But it is *not* saying “I have performed a specially striking feat of cognition, superior, in the same scale as believing and being sure, even to being merely quite sure” : for there *is* nothing in that scale to being quite sure. Just as promising is not something superior, in the same scale as hoping and intending, even to merely fully intending : for there is nothing in that scale superior to fully intending. When I say “I know”, I *give others my word* : I *give others my authority for saying* that “S is P”. ... If you say you *know* something, the most immediate challenge takes the form of asking “Are you in a position to know?” : that is, you must undertake to show, not merely that you are sure of it, but that it is within your cognizance. (Austin [1946], 171)<sup>182</sup>

We find two important insights in the above passage. First, Austin raises the notion of *being entitled* to being sure. As a promise carries an entitlement to be confident in the future performance of some task, knowledge seems to carry an entitlement to be confident in the truth of some statement. Second, Austin raises the idea that the entitlement to confidence goes hand-in-hand with the challenge, “Are you in a position to know?” When we strip off the performative aspect of the challenge, we strip away the idea that *being in a position to know* requires *being able to publicly answer the challenge*.

---

<sup>182</sup> Austin raises the issue as part of his comparison of knowledge statements, e.g., “I know that it is raining”, and performative statements, e.g., “I promise that I will pick you up”. The following passage, omitted from the above quotation, captures the full force of the comparison.

When I have said only that I am sure, and prove to have been mistaken, I am not liable to be rounded on by others in the same way as when I have said “I know”. I am sure *for my part*, you can take it or leave it : accept it if you think I’m an acute and careful person, that’s your responsibility. But I don’t know “for my part”, and when I say “I know” I don’t mean you can take it or leave it (though of course you *can* take it or leave it). In the same way, when I say I fully intend to, I do so for my part, and according as you think highly or poorly of my chances, you will elect to act on it or not act on it : but if I say I promise, you are entitled to act on it, whether or not you choose to do so...(Austin [1946], 171)

It is now widely recognized that Austin’s ultimate conclusion, his performative account of “knowledge”, is fatally flawed. Austin’s fatal mistake was to try to draw the analogy between “know” and “promise” too closely. Although “I know” and “I promise” are importantly similar, they are also essentially different. For example, in saying, “I promise”, one promises, but in saying, “I know”, one does not know. In drawing insight from Austin, I am not endorsing his performative analysis. Nevertheless, there does seem to be something correct about his suggestion that in claiming to know, one is suggesting that one is somehow transmitting one’s authority for being confident in a particular belief.



What is left is the idea that *being entitled to a belief* requires that *being in a position to be sure*. This reflects the earlier point that justifying also provides evidence that one has tethered one's belief.

#### 9.5.5 A. J. Ayer

A decade later, A. J. Ayer further advanced the idea that there can be epistemic value in having confidence in one's beliefs. Ayer recognizes, following Austin, that it is not mere surety that is valuable. To this end, Ayer approvingly quotes Austin's remark that claims of knowledge are not claims to have performed "a specially striking feat of cognition, superior, in the same scale as believing and being sure". ([1956], 18) It is not mere surety, but being in a position to be sure, that is necessary. As Ayer explains,

It is indeed true that one is not reasonably said to know a fact unless one is completely sure of it. This is one of the distinctions between knowledge and belief. One may also be completely sure of what one believes, in cases where the belief is refused the title of knowledge on other grounds; such as that it is false, or that, although it is true, the reasons for which it is held do not come up to the standard which knowledge requires... It can, indeed, be said of someone who hesitates, or makes a mistake, that he really knows what he is showing himself to be unsure of, the implication being that he ought, or is in a position, to be sure. But to say of oneself that one knew that such and such a statement was true but that one was not altogether sure of it would be self-contradictory. (Ayer [1956], 17)

Many contemporary epistemologists take issue with Ayer's apparent claim that hesitancy and doubt is wholly inconsistent with first person claims of knowledge. Whether the contemporary trend is right about this point, however, is largely irrelevant. (Even Ayer acknowledges that third person attributions of knowledge to those who lack complete confidence might be appropriate in many circumstances.) What is most important in this

passage is Ayer's recognition that someone who knows "ought, or is in a position, to be sure". Ayer reiterates this point a little later.

The first requirement [of knowing something] is that what is known should be true, but this is not sufficient; not even if we add to it the further condition that one must be completely sure of what one knows. For it is possible to be completely sure of something which is in fact true, but yet not know it. The circumstances may be such that one is not entitled to be sure. (Ayer [1956], 31)<sup>183</sup>

Here, Ayer echoes Clifford's concern with having the *right* to believe and Austin's concern with being *entitled* to believe, equating the idea of being such that "one ought to be sure" or "being in a position to be sure" with the idea of being "entitled to be sure". He implies that it is this entitlement to be sure that separates mere firmly held true belief from knowledge.<sup>184</sup>

---

<sup>183</sup> Remember, Ayer's point has absolutely nothing to do with Gettier concerns. From within the framework that Ayer is developing, what Gettier demonstrated was that one can have a true belief that one is entitled to be confident in and still lack knowledge.

<sup>184</sup> Ayer explicates the idea of being "entitled to be sure" a bit further.

Moreover, we cannot assume that even in particular instances, an answer to the question, How do you know?, will always be forthcoming. There may well be cases in which one knows that something is so without its being possible to say how one knows it... Suppose that someone were consistently successful in predicting events of a certain kind, events, let us say, which are not ordinarily thought to be predictable, like the results of a lottery. If his run of successes were sufficiently impressive, we might very well come to say he knew which number would win, even though he did not reach this conclusion by any rational method, or indeed by any method at all...

But if we allow this sort of knowledge to be even theoretically possible, what becomes of the distinction between knowledge and belief? How does our man differ from one who only makes a series of lucky guesses? The answer is that, so far as the man himself is concerned, there need not be any difference... The difference is that to say that he knows is to concede to him the right to be sure, while to say that he is only guessing is to withhold it. Whether we make this concession will depend upon the view which we take of his performance. ([1956], 32-3)

Here I want to focus on Ayer's notion that, "to say that he knows is to concede to him the right to be sure". Ayer has now presented a rough equivalence between, "being such that one ought to be sure", "being in a position to be sure", "being entitled to be sure", and "having the right to be sure". This passage also makes it clear both where Ayer's discussion has advanced beyond the ideas found in Austin and how it is still hampered by the shortcomings in Austin's analysis.

In terms of advances, Ayer has advanced beyond an analysis of when it is appropriate *to say* of someone that he knows. He uses the phrases, "what is known", "what one knows", "one knows that something is so", and "the distinction between knowledge and belief". Thus, Ayer is clearly concerned with the conditions for knowing and not merely appropriate conditions for saying of someone that he knows.

### 9.5.6 Roderick Chisholm

A decade later, Chisholm picked-up on the central insight found in the work of Austin and Ayer and advanced it one step further. Chisholm begins to differentiate between knowledge ascriptions (both first and third person), on the one hand, and the conditions for having knowledge, on the other. Chisholm writes,

Taking precautions is a kind of activity. When a man takes precautions, he prepares for the worst, even though he may not expect it to happen. For example, he may not believe his house will burn, but he takes precautions by buying fire insurance. But if he *knows* that a given proposition is true, then, it would seem, there is no point in his taking precautions against the possibility that the proposition is false. If, somehow, he knew that his house would never burn, then, it would seem, there would be no point in his insuring the house against fire or otherwise taking precautions against the possibility that his house might burn. Suppose, then, we say that a man knows *h* to be true, provided that no matter what he may do, he has the right to rely upon *h*—that is to say, no matter what he may do, he does not have the duty to take precautions against the possibility that *h* is false.<sup>185</sup> This definition has been suggested by a familiar doctrine of scholastic philosophy: If a man *knows*, then he need have no “fear of error,” and so far as what is known is concerned, his intellect may be in a state of repose. A.J. Ayer has suggested a similar definition, saying that the man who knows, as contrasted with the man who merely has true opinion, is the man who has the “right to be sure.” (Chisholm [1966], 13)

To Ayer’s identification of “being such that one ought to be sure”, “being in a position to be sure”, “being entitled to be sure”, and “having the right to be sure”, Chisholm adds the

---

Nevertheless, Ayer is still constrained by Austin’s formulation. Ayer writes, “to say that he knows is to concede to him the right to be sure”. Notice that Ayer has reverted to talk of the appropriateness of *saying* that someone knows. Yet, even when we treat this passage charitably, it seems to make the knowledge of the individual relative to the attributer who *concedes* to the individual the right to be sure. It is not that Ayer is merely allowing for some indefinite cases where it is not determinate whether an individual is entitled to be sure or not. It is more than that. Ayer appears to be claiming that there is no definitive criterion by which some individuals clearly have the right to be sure and others clearly don’t. The fact of the matter seems dependent upon what the attributer is willing to concede. Thus Ayer seems to endorse both a proto-reliabilism and proto-contextualism.

<sup>185</sup> Chisholm’s talk of a duty to take precautions is clearly reflective of a deontological approach. One who knows has satisfied one’s epistemic duties and need take no further precautions.

idea of “the right to rely upon [a belief]”. Moreover, Chisholm explains these notions in terms of not needing to take precautions with respect to one’s beliefs. It is being justified that gives someone this right. A justified belief is one in which one is in a position to have *well-placed confidence*.

Of course, one can have a right to such confidence and, nevertheless, fail to have it. Individuals do not always lay claim to what they have a right. Moreover, one need not ensure against all possibility of error to have a well-placed confidence in one’s belief. For instance, well-placed confidence does not require assurances that one is not subject to massively coherent deception by an evil demon. Such absolute assurances are necessary only for those engaged in the Cartesian quest for infallible certainty.

#### *9.5.7 Tying the Tradition Together*

Thus, according to epistemic tradition, there is great epistemic value in being in a position to have well-placed confidence in one’s beliefs. We want more than mere truth. We want to be able to recognize the truth and hold onto it. This tradition is ultimately driven by a deep concern, almost an anxiety, over human fallibility. This concern is grounded in the recognition that beliefs (both true and false) seem to just flood into our doxastic system and we have little chance of preventing the flood. Hence, what is needed is a general method for retaining those beliefs that are likely to be true and filtering out those beliefs that are likely to be false. We need a means for separating the doxastic wheat from the chaff, so to speak.

It would be helpful if beliefs that were likely to be true had some mark, property, or feature that was accessible and/or beliefs that were likely to be false had some mark, property, or feature that was accessible. We could then clue in on this in determining what to retain and what to jettison.<sup>186</sup> For instance, if we had some way to identify that a belief was likely the product of a reliable source, then we would have an indication that the belief is likely to be true and ought to be retained. Similarly, if we had some way to identify that a belief was the product of an unreliable source, then we would have an indication the belief is just as likely to be false and ought to be abandoned. This is where the value of being justified lies.

A justified belief is not simply a belief that is likely to be true (e.g., the output of a reliable source). A justified belief is one that is “tethered down” such that the believer is in a position to be confident that his belief is likely to be true and should be retained (e.g., there is accessible mark, property, or feature that the belief is the output of a reliable source). To serve this purpose, justification must either be based on or produce something to which we have access. One needs to have revealed to oneself that one’s belief is the product of a reliable source. Once this has been revealed, one is *in a position to be confident... one is entitled to be confident... one has earned a right to be sure*. In many ways, these ideas reflect the core motivation of the epistemic internalist tradition.

I want to be clear that I am not suggesting that being justified requires one to have meta-beliefs concerning the likely truth of one’s beliefs or concerning the reliability of the source of one’s belief. Such concerns with meta-beliefs, concerns found throughout

---

<sup>186</sup> This seems to be what Descartes thought clearness and distinctness would do for us and what Clifford thought having evidence would do for us.

the contemporary literature, are largely a red herring. Meta-beliefs concerning the reliability of our belief-forming processes are not really all that valuable in their own right. They seem valuable because they are a regular by-product of something that is valuable, having it revealed to us that our beliefs are likely to be true (e.g., are the products of belief-forming processes that are likely to be reliable). Yet, simply having more and more meta-beliefs about the likely truth of our beliefs or about the reliability of the processes that produced them does not solve any epistemic worries over our fallibility. Such meta-beliefs simply push the problem of our fallibility up a level. If we recognize that from our impoverished perspective we are just as likely to be mistaken in our meta-beliefs as we are in our primary level beliefs, we see how little value such meta-beliefs have in themselves. What we need is a sort of non-doxastic indication that a belief is likely to be true. This is what well-placed confidence can do. The value of being justified comes from the fact that one who is justified “ought, or is in a position, to be sure” (to borrow a phrase from Ayer). That is, one is in a position to differentiate the doxastic wheat and chaff.

Thus, we now know the value of being justified. Being justified puts one in a position to have well-placed confidence in one’s belief. This approach makes sense of all three of the criteria for a satisfactory account of the value of being justified. First, in locating the value of being justified in the value of being in a position to have well-placed confidence in one’s belief, we hit upon something that epistemologists have long recognized to be of great epistemic value. Second, being justified is not merely a means to true belief, thus justified true belief can be more epistemically valuable than mere true

belief. Third, being justified is ultimately desirable from the standpoint of any cognitive agent because it is pragmatically valuable to have an indication of which of one's beliefs are likely to be true and which are likely to be false no matter what one wants. Granted, true beliefs won't always be the most pragmatically valuable beliefs, but this is what constitutes the distinction between epistemic value (a select kind of value which is generally of great pragmatic value) and pure pragmatic value. In the end, there is a truth connection, just not the connection that many assumed. So, now that we know what the legendary epistemic treasure is, we just need to find it.

## CHAPTER 10

### LESSONS FROM THE OPEN SEA: THE NEED TO VALIDATE THE RELIABILITY OF ONE'S SOURCES

#### 10.1 Overview

When formulating their theories of justified belief and knowledge, epistemic internalists and externalists often begin by focusing on cases from opposite ends of the epistemic spectrum. Focusing on perceptual knowledge in animals and children, externalists conclude that knowledge requires little more than true belief properly formed under normal conditions. Focusing on the theoretical knowledge of laboratory scientists, internalists conclude that knowledge requires having one's true belief supported by readily accessible evidence and reasons. Given such different starting points, it is not surprising that externalists and internalists have a hard time seeing eye to eye.<sup>187</sup> In order

---

<sup>187</sup> Dretske has insightfully recast the debate between epistemic externalists and epistemic internalists as a debate between, what he calls, *bottom-uppers* and *top-downers*. As Dretske explains,

The recent controversy between internalists and externalists (on the analysis of knowledge) is, I think, an instance of this more strategic difference. Externalists, those who think that knowledge is a matter of getting yourself connected to the facts in the right way (causally, informationally, etc.), whether or not you know or understand that you are so connected, tend to be bottom-uppers. Fido is (through normal eyesight) connected in the right way to his food bowl; hence he can see (hence, knows) that the bowl is there, next to the table. Internalists, on the other hand, those who require for knowledge some justificatory structure in an agent's beliefs, tend to be top-downers. It isn't enough to be tracking (Nozick's term for being properly connected to) the facts. One must also know, be justified in believing, have reason to think, one *is* tracking the facts. We require, not just information, but information that *that* is what we are getting. Fido may be tracking the location of his bowl, but if he has no internal understanding of this fact, no capacity for evaluating



to see what the two extremes have in common, I shall examine a case from the center of the epistemic spectrum. In particular, I shall examine the epistemic perspective of the cautious sailor alone at sea.

By considering the cautious sailor, we will come to see the epistemic value in regularly validating the reliability of one's sources of information. Regular validation puts one in a position to appreciate the reliability of one's sources and, thus, puts one in a position to have well-placed confidence in one's beliefs. Being in a position to have well-placed confidence in one's beliefs is of great value in a dangerous world where constantly changing environments render generally reliable sources unreliable. Thus, by considering the epistemic perspective of the cautious sailor, we gain valuable insight both as to what is necessary for being justified and having knowledge and why it's worth being justified and having knowledge. Ultimately, I shall translate the insights drawn from this examination into a formal constraint on justified belief and knowledge—the *validationist constraint*. In the end, I shall explain not only how the validationist approach reveals what the ends of the epistemic spectrum have in common, but how it helps us to avoid major counterexamples to alternative approaches.

---

the quality of information on which he relies to find the bowl, then he does not know where his bowl is in any important or epistemologically relevant sense. (Dretske [1991], 17)

Thus, according to Dretske, much of the disagreement between externalists, i.e., bottom-uppers, and internalists, i.e., top-downers, is due to their initial assumption of opposing paradigms. Focusing on Fido and Kitty, bottom-uppers begin by assuming, "If animals are not conceptually sophisticated, do not possess language, do not understand what it takes to know, then this merely shows that such talents are not needed to know." (Dretske [1991], 16) Focusing on Einstein and Madame Currie, top-downers begin by assuming, "Patient and objective inquiry, supported by observation, testing, and experiment, leading (if one is lucky) to confirmation of one hypothesis over its rivals... is the yardstick to be used in taking the measure of knowledge." (Dretske [1991], 16)

## 10.2 The Cautious Sailor

In his book, *The Race*, J. T. W. Hubbard provides an autobiographical account of his participation in the *OSTAR* (*Observer Single-handed Trans-Atlantic Race*) in his thirty-two foot sailboat, *Johan Lloyde*. Just as the name of the race implies, each competitor sails single-handedly across the Atlantic. In the following passage, Hubbard recounts his thoughts a few weeks into the race after hearing a radio broadcast describing the race's early washouts.

Of the ninety-two boats that started the Observer Single-handed, only sixty-six were now—by my calculations—still valid contestants in the race. The hard-eyed prediction of the Royal Western's Chief Inspector seemed to be coming true: one third of the boats in Mill Dock Bay [the starting point of the race] were not managing to get anywhere near to Newport [the finish line]. In the days ahead I found myself wondering if all of these casualties could really be attributed to simple, "bad luck." Or did the dropouts have some quality in common? Putting it another way, was there a Newport Profile and a Loser Profile? If I had taken a stroll around the pontoons in Mill Bay with a canny and experienced expert like the Chief Inspector, would we be able to point to each boat and with fair accuracy predict... Newport... Washout... Washout... Newport, etc., on down the line? This of course, would not be so much a judgement of the boat (which would, by then, have passed inspection) as a psychological judgement of the skipper. I reviewed the long list of the fallen once more and, disquieting though it might seem, I came to the conclusion that there was a clearly discernible Newport Profile. And I was prepared to bet a clean \$100 bill that the Chief Inspector had, over years of scrutinizing entrants to the Observer Singlehanded, come to the same conclusion. (Hubbard [1986], 164-5)

Hubbard goes on to suggest that the Newport Profile is defined by three key characteristics: a special kind of outlook on the world, a special kind of anger, and a special kind of laughter. For current purposes, his description of the special kind of outlook is most telling.

The skipper with a Newport Profile was, philosophically, a skeptic. The world, he believed, was a dangerous place; it was not created for man. Nature, even at her most amiable, was an anarchistic trickster who must be closely watched... The Newport skipper's defense against Nature the Trickster was an unquenchable penchant for asking "What if...?" What if my bilge pump clogs? What if my battery goes dead? What if my halyard breaks? What if whales attack? Should the skipper not push the catechism to the very end of the line, then he might be rated a very nice fellow. But he had unwittingly conceded that Nature was not a total Trickster and maybe that the world was made for humanity after all. Result: one more OSTAR statistic. (Hubbard [1986], 165)

This outlook is certainly appropriate from a seafaring perspective. When you are by yourself in a small sailboat in the middle of the ocean, having generally reliable equipment is not enough. Even very reliable equipment will fail on occasion, and a lone sailor can't afford to be without a bilge pump or halyard. Thus, the Newport skipper constantly is taking steps to prepare for the random failure and the changing conditions that would render his equipment unreliable.<sup>188</sup>

Not only is this slightly cynical outlook appropriate from a maritime perspective, it seems to be the appropriate outlook from the epistemological perspective as well. Consider Hubbard's description of his first sight of land after almost six weeks alone on the Atlantic.

The first hint of light brought a kind of misty pink glow to the surface of the water. As the illumination grew brighter, I stood in the hatch and swept the horizon very slowly with the high powered binoculars. Nothing. I looked again ten minutes later. Then I saw them, some hillocks of land broad on the starboard

---

<sup>188</sup> The special kind of laughter is certainly an extension of the special outlook. Hubbard describes it as follows.

Bad luck, in Nature's mischievous regime, often ran in chains. Sometimes not one or two but half a dozen or more things, for no apparent reason, suddenly went wrong... [A]s the chain of disasters extended beyond the implausible to the outrageous, the skipper could either go berserk or throw back his head in a great bellow of laughter. This chuckle was not forced out, miser-fashion between clenched teeth. It was, in truth, a great gust of delight at the sheer cussedness of the universe. (Hubbard [1986], 166)

bow, range of five or six miles. They appeared to be fringed by some kind of bushes or trees. "Land Ho," I said, "sort of."

But what on earth was it? I took a bearing. Was it an island off Martha's Vineyard, or a distant cape of a bigger piece of land? If my dead reckoning was correct, it should be a rock called No Man's Land, off Martha's Vineyard, but since I had not been in these parts before, I had no obvious way of confirming this. As the light became better, I spotted a buoy on the starboard beam. I timed the light. Flashing red, every four seconds. I'd got it, it must be a float designated R2 three miles south of No Man's Land.

After all that ocean space I was still most uneasy about having land so close by in the mist. I reprogrammed the Sat-Nav [Satellite-Navigation System] yet again, but after half an hour, got nothing. After a fifteen-minute cooling-off period I tried again and almost immediately got a tentative fix from faithful No. II. It was to be her swan song. The satellite had flipped up only 10 degrees above the horizon... But when I plotted the fix at  $41^{\circ}9.34'N$ ,  $70^{\circ}52.23'W$ , it came right on the money, within 200 yards of my dead reckoning. (Hubbard [1986], 204)

After six weeks alone in the middle of the ocean, Hubbard knew better than to rely on his ability to dead reckon his position. If his charts were the least bit in error, if his sextant had become slightly miscalibrated, if his timepiece was running just a bit slow, or had any number of other small failings occurred, his dead reckoning could be hundreds of miles off. Moreover, the presence of the flashing navigational marker could very well be a mere coincidence given the limited combinations of colors and intervals that are frequently used. Thus, it was essential to have further confirmation. If he were wrong, he would be headed toward an outcropping of submersed rocks and shipwreck, rather than toward a safe harbor at the finish line of the race. Thus, the reading from the satellite-navigation system was a key piece of information. Only with all three sources in agreement was Hubbard in a position to be confident about his location.

### 10.3 The Need to Validate the Reliability of One's Sources

Hubbard gives us a sense of the real-world value of being in a position to have well-placed confidence in one's belief. When being right *really* matters, having used what is in fact a generally reliable source isn't, by itself, enough. As it turned out, Hubbard's initial estimation of his location was spot on. Even after six weeks on the high seas, it seems that his ability to accurately reckon his position was still highly reliable. Nevertheless, until he had the confirmation provided by the flashing navigational marker and the satellite-navigation system, Hubbard didn't know that he was just off of Martha's Vineyard. He didn't know because he wasn't justified and he wasn't justified because he was in no position to appreciate the reliability of his dead reckoning.<sup>189</sup> Prior to receiving confirmation from the flashing navigational marker and the satellite-navigation system, Hubbard simply was in no position to be confident about his location.<sup>190</sup>

When we observe the traditional assumption that being justified is an essential component of having knowledge and understand that being justified requires being in a position to appreciate the reliability of one's sources (whether those sources be maps, charts and sextants, the testimony of another person, or the output of our own perceptual

---

<sup>189</sup> To quote Dretske's top-downer slogan, "We require, not just information, but information that *that* is what we are getting." ([1991], 17)

<sup>190</sup> The idea that knowledge ultimately requires being in a position to have well-placed confidence in one's belief can be traced most directly to the mid-20<sup>th</sup> century work of J.L. Austin, A. J. Ayer, and Roderick Chisholm. The core idea, however, goes back much further. It clearly derives from the early modern preoccupation with certainty and surety and, quite plausibly, has its roots as far back as Plato's *Meno*. Elsewhere, I discuss this historic provenance in detail and explain why understanding the concept of being justified in terms of being in a position to have a well-placed confidence in one's belief seems essential to understanding the value of being justified and having knowledge. For the purposes of this paper, however, Hubbard's example should be sufficient to make the connection between being justified and being in a position to appreciate the reliability of one's sources intuitively appealing.

belief-forming processes), it becomes clear why we care about being justified and having knowledge.<sup>191</sup> To hold only justified beliefs is to prepare against the untimely failure of one's sources or changes in conditions that would render those sources unreliable. So long as it is recognized that false beliefs put one in peril, one has reason to want assurance of the current reliability of one's sources of information.<sup>192</sup> The pressing question is, of course, what are the minimal conditions for having assurance of the current reliability of one's sources of information?

It might be plausibly suggested that mere consistency among one's beliefs provides all the assurance of reliability that one could reasonably expect and, thus, all the assurance that justified belief and knowledge could reasonably require. For example, in his 1993 book, *The Reliability of Sense Perception*, William Alston suggests that it is rational to rely upon those sources that do not regularly generate beliefs that are inconsistent with one another.<sup>193</sup> Alston sums up the basic motivation for the view as follows.

[We] take the lead of Thomas Reid in taking all our established doxastic practices to be acceptable as such, as innocent until proven guilty. They all deserve to be regarded as *prima facie* rationally engaged in (or 'acceptable', as we shall say), pending a consideration of possible reasons for disqualification... (Alston [1993], 129)

---

<sup>191</sup> Although I am assuming that being justified (when understood in terms of being in a position to appreciate the reliability of one's sources) is necessary for knowledge, I am not suggesting that together with true belief, it is sufficient for knowledge. Some externalist constraint will still be necessary in order to overcome Gettier worries. Of course, whether knowledge is ultimately more valuable than merely justified true belief remains an open question and one that I am not taking a stand on at this point.

<sup>192</sup> Of course, having assurance does not amount to having an absolute guarantee.

<sup>193</sup> Alston maintains that it is rational to rely upon sources that occasionally produce contradictory output. As he puts it, "[A]long with most contemporary epistemologists, I take it to be the better part of wisdom to allow that sources of belief can be rationally tapped even if they sometimes yield contradictions, provided this is a small proportion of their output." (Alston [1993], 136)

Alston notes that persistent inconsistency in the information provided by a source would be such an unmistakable sign of guilt (i.e., unreliability) and, thus, a clear reason for disqualification. Alston also suggests that should the information provided by two otherwise self-consistent sources be persistently inconsistent, this would be reason for the disqualification of at least one of the sources as being unreliable.<sup>194</sup> In such cases of inter-source inconsistency, Alston suggests that “one should give preference to the more firmly established practice.” (Alston [1993], 136)<sup>195</sup> Ultimately, we can characterize this approach as follows:

*The Mere Consistency Approach*

It is rational to rely upon a source if and only if the source is generally self-consistent—i.e., it does not persistently generate beliefs that are inconsistent with one another—and either...

(A) its output is generally consistent with the output from other self-consistent sources

or

(B) if its output is generally inconsistent with the output from another self-consistent source, the source in question is more firmly established.

---

<sup>194</sup> With regard to those occasions on which generally self-consistent sources come into conflict with one another, Alston writes,

[A] massive and persistent inconsistency between the outputs of two practices is good reason for regarding at least one of them as unreliable... Now, even if there are such inconsistencies, that does not tell us which of the conflicting parties is to be condemned... But where there is such a conflict, we can infer that at least one of the contestants is unreliable. (Alston [1993], 134-6)

<sup>195</sup> Alston recognizes that it is conceivable that the less firmly established source might be more reliable. Nevertheless, he suggests that, “in the absence of anything else to go on, it seems the part of wisdom to go with the more firmly established. It would be absurd to make the opposite choice; that would saddle us with all sorts of bizarre beliefs.” (Alston [1993], 136-7) Furthermore, Alston acknowledges that he doesn’t have a precise definition for “being more firmly established”, but he suggests that it involves such factors as “(a) being more widely accepted, (b) being more important to our lives, (c) having more of an innate basis, (d) being more difficult to abstain from, and (e) its principles seeming more obviously true.” (Alston [1993], 136)

The major problem with this approach is that mere consistency is far too easy to obtain to be much epistemic worth. Even if persistent self-inconsistency is a sure sign that a source is generally unreliable, self-consistency does little toward showing that a source is reliable.<sup>196</sup> Likewise, it is too easy for the output of various sources to be consistent. Insofar as sources do not speak to the same subject matter, their output will be consistent. A healthy skepticism consuls against false confidence on the basis of such meager evidence.

By observing the cautious sailor, we see that the key to being in a position to appreciate the reliability of one's sources of information is to regularly compare the output of multiple sources with regard to the same subject matter. Where mere consistency shows a particular way in which a source is not unreliable, multi-source validation shows something more. What allows us to be in a position to appreciate the reliability of our sources is the fact that they support each other. Thus, the fundamental difference between Alston and the Newport skipper is a difference of outlook. From the perspective of the cautious sailor, only a foolhardy optimist would suppose his sources of information are "innocent until proven guilty". As a careful pragmatist, the cautious sailor requires that his sources earn the presumption of innocence.<sup>197</sup> He recognizes that in a dangerous world run by an anarchistic trickster, he can't afford to use unreliable sources for very long. Thus, the Newport skipper doesn't trust his life to a source unless he has recently checked that it's reliable.

---

<sup>196</sup> In fact, it is far too easy for a source to be internally self-supporting. Too many delusions, for example, are internally self-supporting.

<sup>197</sup> I shall soon explain how our most basic belief-forming processes *earn* this presumption of innocence early on and transfer it to other sources.



Although being in a position to appreciate the reliability of a source of information requires regular corroboration of the information provided by that source with information from other sources, it does not require corroboration of each and every piece of information. If not utterly impossible, this would be at the very least impracticable. Corroboration has opportunity costs, particularly time and energy. If being justified cost too much, it wouldn't often be worth being justified. Yet, whatever being justified amounts to, it better be something worth being most of the time.<sup>198</sup>

Here, the Newport skipper continues to provide an excellent example for us to follow. He recognizes that things at sea can get wet, worn, and rusty quite quickly. Thus, the experienced sailor won't bet his life on something if he has not recently validated that it is working properly. Yet, even the most cautious sailor recognizes that he can't afford to check that his equipment is functioning properly every time he uses it. Thus, he checks that his equipment is in good working order whenever he can because his life will depend on that equipment at some point when he can't afford to check it. Newport skippers are pragmatists, not foolhardy optimists or obsessive-compulsives.

Moreover, being in a position to appreciate the reliability of a source does not even require the conscious corroboration of information from that source once a day, once a month, or even once a year. It might be nice if we were all so diligent in

---

<sup>198</sup> I don't want to deny that there are circumstances where one would be better off holding an unjustified belief. I am merely claiming that, in general, justified beliefs ought to be more valuable than unjustified beliefs.

continually attempting to verify the reliability of our sources of information, but we are not. If consciously validating the reliability of our sources were essential to being justified, few of us would be justified in even our most basic perceptual beliefs.

Fortunately, most of us continually validate the reliability of our basic belief-forming processes without consciously trying and without even noticing. We are constantly comparing our visual, tactile, auditory, olfactory, taste, and memory beliefs in much the same way that Hubbard compared his dead reckoning against the map's indication of the flashing navigational marker and the reading from the satellite navigation system. The primary difference is that we check the reliability of our basic perceptual processes automatically and unconsciously. We generally only become aware that such validation is happening when the information from the sources conflict. This unconscious and ongoing validation of one's perceptual processes is often responsible for our sense of uneasiness in new and strange environments. We are unsettled by the discovery that our most trusted sources of information, our senses, are apparently unreliable within the new environment. For example, it is because one is regularly validating the reliability of one's vision against one's memory and other sensory experience that one is immediately surprised and feels ill at ease when seeing one's image in a carnival mirror. One immediately takes notice because one is constantly comparing one's current visual images against one's memory and other sensory experiences. Thus, not only is it worth being justified, but the opportunity cost of having

justified perceptual and memory beliefs is quite cheap. It is a fortunate design feature or evolutionary development that we constantly validate our most basic belief-forming processes without even trying or noticing.<sup>199</sup>

Thus, being in a position to appreciate the reliability of a source does not require the sort of additional reasons (i.e., additional beliefs that could serve as premises in arguments) envisioned by many epistemic internalists. One can validate the reliability of one's sources without being able to conceptually chop up one's validating experience into reasons that would inductively or deductively support one's beliefs. It seems pretty obvious, for example, that children and animals are constantly validating the reliability of their senses by comparing the information provided by their various perceptual processes. This explains how they are able to have perceptual knowledge despite being intellectually and conceptually unsophisticated.<sup>200</sup>

Of course, it needs to be acknowledged that the process of using various sources to validate the reliability of each other is essentially circular. Yet, one of the lessons to be taken from Hubbard's experience at No Man's Island is that there is a point at which one has done all that one can reasonably be expected to do.<sup>201</sup> Once it is recognized that knowledge requires being justified and that being justified requires an appreciation of the

---

<sup>199</sup> By not even having to take notice of such constant validation, our most basic belief-forming systems (particularly, our perceptual systems) are remarkably efficient.

<sup>200</sup> To put it in terms of Dretske's top-downer/bottom-upper distinction: Endorsing the top-downer's judgment that, "We require, not just information, but information that *that* is what we are getting", need not entail denying the bottom-uppers' initial assessment that, "If animals are not conceptually sophisticated, do not possess language, do not understand what it takes to know, then this merely shows that such talents are not needed to know." ([1991], 17, 16)

<sup>201</sup> This way of putting things has certain affinities with the view that to be justified is to be acting in an epistemically responsible manner.

reliability of the source of one's belief, it should be clear that epistemic circularity is ultimately unavoidable. There simply is no external vantage point from which to conduct a proper sampling and develop an independent track record to definitively prove the reliability of a source.<sup>202</sup> Of course, this means that the validating process will provide no assurance that one is not the victim of the sort of highly coherent and widespread deception posited by evil demon and brain-in-vat scenarios. Yet, this seems little reason to suppose that such circularity is vicious. Therefore, barring a strong argument to the contrary, it is reasonable to suppose the sort of epistemic circularity described here is both unavoidable and benign.

---

<sup>202</sup> In arguing for the mere consistency approach, Alston makes basically this same point. He writes,

[W]e cannot investigate the reliability of a given practice without engaging in that practice or some other(s) to obtain information we need for that investigation. And if we keep validating each practice by the use of others, we will find ourselves in a very small circle. Hence looking at the whole picture, we will find ourselves relying on the practices under investigation for the facts adduced in support of the reliability of those practices... Hence we are not in a position to get beyond, or behind, our familiar practices and definitively determine their reliability from a deeper or more objective position. Our human cognitive situation does not permit it. (Alston [1993], 125)

Alston also stresses that we do not really have any other alternative than to use most of the doxastic practices that we do actually use.

In the nature of the case, there is no appeal beyond the practices we find ourselves firmly committed to, psychologically and socially. We cannot look into any issue whatever without employing some way of forming and evaluating beliefs; that applies as much to issues concerning the reliability of doxastic practices as to any others. Hence there is no alternative to employing the practices that we find to be firmly rooted in our lives, practices which we could abandon or replace only with extreme difficulty if at all... The same factors that prevent us from establishing the reliability of SP [sense perception], memory, and so on without epistemic circularity would operate with the same force in [any alternative] cases. (Alston [1993], 125)

Although Alston's assessment of the threat posed by circularity is generally on target, he overlooks the value of multi-source validation (i.e., regularly comparing the output of one's sources with regard to the same subject matter). He is also correct that in validating each source by others, we find ourselves in a circle. The point that Alston does not appreciate, however, is that our circle of sources is not *too* small.

## 10.4 The Validationist Constraint

We can now translate the above intuitive considerations into a formal constraint.

*The Validationist Constraint for Justified Belief:*

In order for  $S$ 's belief that  $p$  to be justified, it is necessary that the source for  $S$ 's belief that  $p$  be *presently validated* for  $S$ .<sup>203</sup>

- 1) A source,  $M_1$ , is *presently validated* for  $S$  iff
  - (A)  $M_1$  has been successfully validated by  $S$
  - and
  - (B)  $S$ 's validation for  $M_1$  has not been subsequently undermined.
  
- 2) A source,  $M_1$ , has been *successfully validated* by  $S$  iff
  - (A)  $M_1$  was part of  $S$ 's "original circle of validation"
  - or
  - (B) (i)  $M_1$  has undergone a sufficient number of validating instances for  $S$  sufficiently recently
  - and
  - (ii) for a sufficiently high percentage of those validating instances,  $S$  has *not* identified the output of  $M_1$  as contrary to the output of the presently validated source(s)  $M_2$  ( $M_3$ ,  $M_4$ , ...) against which it was validated.
  
- 3) A source,  $M_1$ , undergoes a *validating instance* for  $S$  iff
  - (A)  $S$  applies a presently validated source,  $M_2$ , to the same subject matter (e.g., the same object) as  $M_1$
  - and
  - (B)  $S$  has the active capacity to identify whether the output of the two sources are contrary.

---

<sup>203</sup> Note that the validationist constraint is presented only as a necessary condition for being justified and, ultimately, for having knowledge. It certainly does not present a condition that along with true belief would be sufficient for knowledge. I do suspect, however, that combining the validationist constraint with an externalist condition, perhaps reliabilist or truth-tracking condition, would be sufficient along with true belief for knowledge.

- 4)  $S$ 's validation for a source,  $M_1$ , has been *undermined* iff
- (A)(i)  $M_1$  has undergone a sufficient number of validating instances for  $S$  since it became presently validated  
and
  - (ii) for a sufficiently high percentage of those validating instances,  $S$  has identified the output of  $M_1$  as contrary to the output of the presently validated source(s)  $M_2$  ( $M_3, M_4, \dots$ ) against which it was validated,
- or*
- (B) on a sufficient number of occasions, the output of  $M_1$  has been contrary to other contemporaneous output of  $M_1$  itself,
- or*
- (C)  $S$  has not sufficiently continued to re-validate  $M_1$ .

There are, of course, a number of clarifications that need to be made.

The first clarification concerns the “original circle of validation” that serves as the ultimate basis from which to validate new sources. It should come as little surprise that “the original circle of validation” for normal humans is composed of the most basic belief-forming processes: the five senses, memory, and very rudimentary reasoning skills.<sup>204</sup> Of course, our basic perceptual processes not only begin at the center of our belief-forming system, they continue to remain there. The vast majority of our beliefs and the majority of the beliefs concerning our immediate survival continue to be generated by our most basic perceptual processes and memory. Thus, the world that our beliefs concern is first and foremost the world given to us in our sensory experience and extends from there via the validation of new sources.<sup>205</sup>

---

<sup>204</sup> Very basic introspection (e.g., awareness of hunger or pain) might also be included in this group. I suspect, however, that it is more likely to be one of the very first belief-forming processes to be validated via the general method. One can imagine coming to learn that one's introspection is reliable via the sorts of public reinforcements that Sellars described in *Empiricism and the Philosophy of Mind*.

<sup>205</sup> It is the ultimate connection through a chain of successful validations ( $M_1$  being validated by  $M_2$  and  $M_2$  being validated by  $M_3$  and so on) back to “the original circle of validation” that ultimately connects even the theoretically loaded sources of information (e.g., electron microscopes) to the *real world*. With out

The members of the original circle are successfully validated together, *gradually*. One spends one's infancy and very early childhood using one's perceptual processes to validate the reliability of one another. The motivation behind this suggestion is not purely theoretical. Some of the key moments in an infant's development seem to mark tentative steps toward the successful validation of these basic processes. Consider, for example, the moment when an infant comes to the realization that his toes are *his* toes. Many parents talk of a sort of dawn of awareness that comes over a child's face when he or she first makes such a connection. It is probably about this time that a child first becomes aware that what he feels and what he sees are often one and the same thing.<sup>206</sup> We find evidence of more advanced validation when a baby, upon hearing a voice much like his mother's getting louder and louder, starts to look expectantly around and then giggles happily when he finally sees his mother enter into view. It is even more telling when, in similar circumstances, the baby looks shocked and begins to cry because a stranger came into view rather than his mother. The child seems to be gaining a subtle appreciation that his visual and auditory belief-forming processes are tracking recurring external objects. Moreover, the child has learned to expect that certain visual and auditory beliefs and experiences should accompany one another. When those beliefs and

---

such a chain of validation, a circle of self-consistent processes is just as likely to be producing a large coherent fiction.

Thus, suppose that one had two sufficiently large, independent systems where the member sources of each system validated other members within their own system. Further, suppose that the overall output of the two systems regularly was found to be contrary. In such a case, the system generated from our basic perceptual processes ought to be given preference and the members of the other system should be presumed *unreliable*.

<sup>206</sup> Of course, I talk cautiously here of "awareness". Such a young infant does not have anything that we would recognize as reflective meta-beliefs at this point.

experiences don't confirm one another, the child comes to recognize that something is usually amiss. He apprehends that he is not tracking things correctly. The point here is that we simply seem hardwired to use our basic belief-forming processes to validate each other.<sup>207</sup>

Of course, there appears to be no non-ad hoc principle to determine how many processes one must initially have in order for them to be capable of successfully validating each other. We are fortunate to have so many basic belief-forming processes that can validate each other (e.g., various sense perceptual processes, memory, etc.). It seems to be a point of reference that normal humans do have justified beliefs of at least the very crude perceptual kind and, for normal humans, the initial set of sources contains a relatively large number of processes (five forms of sense perception, memory, and basic reasoning skills).<sup>208</sup> Yet, given that self-consistency is not a sufficient mark of reliability, it should be intuitively clear that one or two processes is not enough to get things off the ground. (Recall Hubbard's wariness that the agreement of two sources, his dead reckoning and the flashing navigation marker, could too easily be a coincidence.)<sup>209</sup> Thus, the minimum must fall between these extremes.

---

<sup>207</sup> Of course, this is all very anecdotal and speculative, but more specific answers can only be provided by the empirical research of cognitive scientists and psychologists.

<sup>208</sup> Determining exactly how many would require a definitive and very precise solution to the generality problem. Yet, at the early stages of an individual's development, one's processes are likely to be rather coarse grained and perhaps as rudimentary as sight, hearing, etc. No matter how processes are differentiated, however, it seems that normal humans are equipped at birth with at least five or six belief-forming processes.

<sup>209</sup> Were there to be creatures with only one or two senses and only a feeble memory, the initial circle would not be large enough for the elements of it to do more than a glorified self-consistency check. The processes would not be able to successfully validate each other. Thus, if there is a species of single process creatures at the far reaches of the universe, they are not capable of having justified belief, no matter how reliable their belief-forming processes might be.



The second needed clarification concerns “the active capacity to identify whether the output of two sources are contrary.” I take it that normal humans simply have such a brute capacity to sense or judge contrariness. We can sense that something is amiss where we have become accustomed to finding similarity. Consider the sorts of memory games that children frequently play, e.g., picture games where one compares before/after snapshots and attempts to find all the things that have changed between the two pictures. These sorts of games make use of our ability to identify contrariness between our current perceptual and memory beliefs. (In fact, such games seem designed to help children hone this sensitivity.) Science museums are also full of exhibits that draw attention to our ability to sense contrariness: the stick that looks bent in water, *but* feels straight; the table that looks hard, *but* feels soft and fuzzy; the holographic object that visually appears to be there, *but* can’t be touched. In each case, upon realizing the “*but...*”, one experiences a peculiar feeling of uneasiness. One becomes aware that one’s senses are not reliable under what are *seemingly* familiar circumstances. Of course, one would not have felt such uneasiness if one had not *already learned* that one’s senses are generally reliable under circumstances that appear familiar.<sup>210</sup> It is this particular ability to sense that something is awry or amiss between the output of our different sources that I mean to refer to as “the active capacity to identify whether the output of two processes are contrary.”

---

<sup>210</sup> Although this is a *learning that*, it need not be of a propositional nature. It is similar to a child’s learning that a moving bicycle is more stable than one at rest. A child who has learned to ride a bicycle intuitively understands this although he might not have anything like a propositional belief to this effect.

Of course, whether or not an agent has the latent ability to properly form the feeling of contrariness *under most* and *mostly under* appropriate circumstances remains a purely external matter. It is not even possible to validate whether or not one really has such a reliable ability. Thus, it might be objected that with this fact, the problems of externalist approaches (problems that the validation approach was intended to resolve) are just getting pushed back a level.

Here, I am willing to bite the bullet. One can agree that this is an external matter, but that we are reliable in this respect is a matter that must be taken on faith. Put simply, this is the point at which the spade turns. Yet, in recognizing that only validated sources can yield justified beliefs, we are able to push the spade one step deeper than before. The number of processes whose reliability must simply be taken on faith has been greatly reduced. Given that our ability to identify contrariness is about the most fundamental and fundamentally uncheckable ability we have, if we are unreliable in this regard, then we are simply not capable of justified belief.<sup>211</sup> Yet, just because we can't do more, it doesn't follow that we aren't epistemically bound to do all that we can.<sup>212</sup>

---

<sup>211</sup> Those individuals who are not generally reliable in this regard probably won't survive for long. They will end up relying upon sources under conditions where the sources are unreliable. Consequently, such individuals will end up with false beliefs that place those individuals in harm's way.

<sup>212</sup> There is also a temptation to deny that that the actual reliability of our ability to assess contrariness matters at all. Feelings of contrariness are something that simply must be accounted for as part of a theory of justified belief. There is no available method (and perhaps even no logically possible method) for going deeper, i.e. for checking the reliability of our ability to assess contrariness. Consequently, we would need to take such awareness into account even if it is not reliably produced because ignoring it would be tantamount to ignoring evidence that one possesses or that a normal agent ought to possess. In a sense, the occasional presence of an awareness of such contrariness forces us to acknowledge that our various belief-forming processes might very well be unreliable. Since we could never garner conclusive evidence that this is not the case, we are forced to accept that it is a serious possibility that they are unreliable. Consequently, being justified requires that one has taken the proper steps to insure against this possibility whether it is realized or not. This type of response would make the validationist constraint similar to certain versions of perspectivalism. See, for example, Foley [1993].

The third needed clarification concerns the use of phrases like, “a sufficient number” and “a sufficiently high ratio”. I highly doubt that there is some magic number of successful validating instances and some magic ratio of successful to unsuccessful validating instances that are necessary for successfully validating the reliability of a source. Rather, there are only vague and intuitive ranges. Moreover, there are probably a number of factors that will complicate matters on a case by case basis, e.g., the degree to which a new source resembles other presently validated sources. Likewise, there is no magic answer as to how often a source needs revalidating. Given that our abilities and environments are likely to change over time, it seems that our sources need to be continually re-validated. Consider, for instance, a source that is used quite rarely. On the one hand, it would seem reasonable that its present validation could be retained over some period. On the other hand, a source that has not been used for some time might have become “rusty” or conditions might have slowly altered to the point where the source is not reliable within the present environment. One can only compensate for such factors by continual re-validation.<sup>213</sup> Like the cautious sailor alone at sea, we must remain vigilant because we can’t afford to be wrong very often.

Fortunately, the need for continual revalidation is not as large a problem as it might initially appear to be. As has already been explained, we are constantly re-validating our most fundamental belief-forming processes. Most of the time, such re-validation is done without the conscious awareness of the subject. Moreover, similar unconscious re-validation probably occurs for many of our most commonly utilized

---

<sup>213</sup> Overall, the inherent imprecision might very well be more of a benefit than a problem. It would help us to account for the fact that justifiedness comes in degrees and that one can be more or less justified.

processes, methods, and sources. It is only new, sophisticated, and highly condition-sensitive sources that will require conscious acts of validation. Of course, the most obvious examples of rarely used and highly condition sensitive sources of information are found in the science laboratory.<sup>214</sup>

## 10.5 Dealing with Common Counter-examples

In order to hi-light the explanatory power of the validationist approach, it will be helpful to see how it allows us to overcome the major counterexamples that epistemic internalists and externalists have levied against one another. Despite starting at opposite ends of the epistemic spectrum, externalists and internalists have developed remarkably similar counterexamples to one another's theories.

First, let's examine the sort of counter-example that is frequently posed to internalist theories of justified belief and knowledge. Internalists are often challenged with cases like the following.

### *Nathan*

Nathan is an average three-year old. Under certain conditions which usually obtain, Nathan is very reliable when it comes to forming perceptual beliefs about objects in the world around him. Nathan, however, is completely unable to respond to justificatory challenges to his beliefs. In fact, he does not even understand the content

---

<sup>214</sup> When dealing with information from such rarely used and highly condition sensitive sources, Dretske's top-downer assessment seems to be correct. "Patient and objective inquiry, supported by observation, testing, and experiment, leading (if one is lucky) to confirmation of one hypothesis over its rivals... is the yardstick to be used in taking the measure of knowledge." ([1991, 16])

of such challenges. He completely lacks the concepts of *justification*, *grounds*, *reasons*, and *evidence*. Furthermore, Nathan cannot be prompted to provide a justification of his perceptual beliefs in terms of the general reliability of his belief-forming processes under normal conditions because he lacks anything like the concepts of *belief-forming process*, *reliability*, and *normal conditions*. So, not only is Nathan completely unable to provide reasons in support of his perceptual beliefs, he cannot even entertain challenges with regard to the justificatory status of those beliefs. One day, in wandering from the kitchen into the living room, Nathan comes to believe that there is a blue chair in the corner. In fact the belief is true and results from his visual belief-forming process functioning properly under circumstances in which it is generally reliable.<sup>215</sup>

Almost everyone agrees that little Nathan knows that there is a blue chair in the corner. Yet, Nathan's visual belief does not seem to satisfy the sort of strongly internalist constraint of being supported by good reasons (e.g., standing in inductive, deductive, and explanatory relations to the rest of his beliefs).<sup>216</sup>

---

<sup>215</sup> The lighting is normal, the chair is only fifteen or so feet away, his vision is roughly 20/20, his view of the chair is not occluded by any large objects, and (being an average three-year old) he has not recently taken any hallucinogenic drugs.

<sup>216</sup> Dretske notes that the top-downer approach, "takes its point of departure from Descartes, from traditional worries about skepticism, from the normative considerations that dictate proper methods of inquiry and appropriate standards of belief." ([1991], 16) The top-downers are particularly concerned with the having of reasons and the relations that a belief stands in with regard to one's other beliefs. Lehrer, for example, sketches a top-downer notion of justification as follows. "Justification is coherence with a background system... It is what we accept in the interests of obtaining truth and avoiding error, our *acceptance system*, that constitutes the relevant background system. Coherence with our acceptance system is determined by what it is reasonable to accept based on this system." ([1990], 112)

Epistemic externalists also face their own counter-examples. Norman, the clairvoyant, is probably the most well-known and widely discussed counter-example to externalist theories of justified belief and knowledge.

*Norman*

Norman, under certain conditions which usually obtain, is a completely reliable clairvoyant with respect to certain kinds of subject matter. He possesses no evidence or reasons of any kind for or against the general possibility of such a cognitive power, or for or against the thesis that he possesses it. One day Norman comes to believe that the President is in New York City, though he has no evidence either for or against this belief. In fact the belief is true and results from his clairvoyant power under circumstances in which it is completely reliable. (BonJour [1985], 41)

When presented with the case, almost everyone shares the intuition that Norman does not know that the President is in New York. Moreover, there is widespread agreement that Norman doesn't know *because* he has no appreciation of the reliability of the source of his belief and, thus, no appreciation of why his belief is likely to be true.<sup>217</sup> Nevertheless, Norman's clairvoyant belief seems to satisfy the central externalist constraint of being the product of a highly reliable belief-forming process functioning normally under relatively ordinary circumstances.<sup>218</sup>

---

<sup>217</sup> Sosa has referred to this as "the meta-incoherence problem" for epistemic externalism ([1991], 132) and Lehrer has labeled it, "the opacity objection" to epistemic externalism ([2000], 185).

<sup>218</sup> Externalist theories vary considerably. Some are framed in terms of justified belief, others are framed in terms of warrant. Despite the differing details, most current externalist theories share the assumption that a key condition for constituting knowledge is that one's belief be the product of a reliable belief-forming process (i.e., a process whose output counterfactually depends on the truth, a process that has a high objective probability to produce true beliefs, etc.). Over the past twenty years, most externalist theories have been variants of one of the three following forms:

Given the similarities between Nathan and Norman, it seems strange that our intuitions should diverge so drastically. Both Nathan and Norman are remarkably reliable. Both Nathan's current belief about the chair in the corner and Norman's current belief about the President's whereabouts are products of belief-forming processes that are highly reliable, reliably track the truth, are properly functioning under normal conditions, etc. Neither Nathan nor Norman seem to have any other beliefs that would directly support the beliefs in question or any other beliefs that would indirectly support the beliefs in question by directly supporting beliefs regarding the reliability of their respective belief-forming processes. Neither Nathan nor Norman seem to have any other beliefs that would directly undermine the beliefs in question or any other beliefs that

---

(I) *Reliabilist Accounts:* S's belief that  $p$  at  $t$  is justified iff...

it is the outcome of a process of belief acquisition or retention which is reliable, or leads to a sufficiently high preponderance of true beliefs over false beliefs. (Sosa [1991], 131)

(II) *Truth-Tracking Accounts:* S's belief that  $p$  formed via method  $M$  is warranted iff...

If  $p$  weren't true and  $S$  were to use  $M$  to arrive at a belief whether (or not)  $p$ , then  $S$  wouldn't believe, via  $M$ , that  $p$ .

[and]

If  $p$  were true and  $S$  were to use  $M$  to arrive at a belief whether (or not)  $p$ , then  $S$  would believe, via  $M$ , that  $p$ . (Nozick [1981], 82)

(III) *Proper Functionalist Accounts:* S's belief that  $p$  is warranted iff...

the relevant segments (the segments involved in the production of  $p$ ) are functioning properly in a cognitive environment sufficiently similar to that for which  $S$ 's faculties are designed; and the modules of the design plan governing the production of  $p$  are (1) aimed at truth, and (2) such that there is a high objective probability that a belief formed in accordance with those modules (in that sort of cognitive environment) is true; and the more firmly  $S$  believes  $p$  the more warrant  $p$  has for  $S$ . (Plantinga [1993], 20)

(In order to make sure that we satisfy the design element of the proper functionalist account with regard to Norman, we can further suppose that God planned for Norman to be clairvoyant about the President's whereabouts or, perhaps, that Norman is the descendent of many generations of Secret Service agents and nature has selected for this ability.)

would indirectly undermine the beliefs in question by directly supporting beliefs regarding the unreliability of their respective belief-forming processes.

Yet, utilizing the validationist approach, we can explain why Nathan has knowledge, but Norman doesn't. Put simply, Nathan is justified and Norman isn't. Nathan is in a position to appreciate the reliability of his visual belief-forming process because he has regularly validated its reliability by touching the things that he sees, having others confirm that they see what he sees, etc. Norman, however, has never had any experiences that would validate the reliability of his clairvoyance. He has never noticed a televised news report or newspaper headline confirming even one of his clairvoyant beliefs. Thus, Norman is not in a position to appreciate the reliability of his clairvoyance. Thus, where Nathan is in a position to have a well-placed confidence in his visually-formed belief, Norman is not in a position to have a well-placed confidence in his clairvoyantly-formed belief. Therefore, not only is Nathan in a position to have something that Norman can't have; Nathan is in a position to have *something worth having* that Norman can't have. As we learned from examining the cautious sailor, being in a position to have well-placed confidence in one's belief is surely worthwhile in a world run by an anarchistic trickster.<sup>219</sup>

---

<sup>219</sup> Of course, one might object that Norman's Presidential beliefs seem rather trivial and, thus, it doesn't matter whether he is right or wrong. Here, I agree with Clifford's well-known tirade against the insignificance of any beliefs.

Nor is it truly a belief at all which has not some influence upon the actions of him who holds it... If a belief is not realized immediately in open deeds, it is stored up for guidance of the future. It goes to make a part of that aggregate of beliefs which is the link between sensation and action at every moment of all our lives, and which is so organized and compacted together that no part of it can be isolated from the rest, but every new addition modifies the structure of the whole. No real belief, however trifling and fragmentary it may seem, is ever truly insignificant; it prepares us to receive more of its like, confirms those which resembled it before, and weakens others; and so



Not only can the validationist approach handle the sorts of counter-examples levied against generic forms of internalism and externalism, it provides a simpler and more illuminating solution to these counter-examples than more sophisticated approaches inspired by the cases at the ends of the epistemic spectrum. Moreover, the validationist approach is also immune to the slightly more complex counter-examples that sink other more sophisticated, but still extreme approaches.

## 10.6 The Availability of Unused Processes

According to Alvin Goldman, one of the most prominent epistemic externalists, Norman is unjustified and, hence, does not know that the President is in New York (despite the fact that his belief is the product of his highly reliable clairvoyant belief-forming process) because his belief is undermined. Of course, as Bonjour constructed the case, Norman “possesses no evidence or reasons of any kind for or against the general possibility of such a cognitive power, or for or against the thesis that he possesses it.” ([1985], 41) Goldman suggests, however, that Norman’s belief is not undermined by any belief that he actually has, rather it is undermined by a belief that he *ought* to have. That is, Norman’s belief is undermined by a belief that he *would have had* if he had applied other belief-forming processes than he actually did. The basic idea underlying this explanation was incorporated into Goldman’s original process reliabilist account of justification.

---

gradually it lays a stealthy train in our inmost thoughts, which may some day explode into overt action, and leave its stamp on our character for ever. (Clifford [1879], 3)

If S's belief in  $p$  at  $t$  results from a reliable cognitive process, and there is no reliable or conditionally reliable process available to S which, had it been used by S in addition to the process actually used, would have resulted in S's not believing  $p$  at  $t$ , then S's belief in  $p$  at  $t$  is justified.<sup>220</sup> (Goldman [1979], 20)

The condition that, "there is no reliable or conditionally reliable process available to S which, had it been used by S in addition to the process actually used, would have resulted in S's not believing  $p$  at  $t$ ", presents a *non-undermining clause*.

In his later, more refined explication of reliabilism, Goldman explicitly applies the non-undermining clause to deal with the worries raised by Norman's case. Goldman writes,

BonJour describes the case as one in which Norman possesses no evidence or reasons of any kind for or against the general possibility of clairvoyance, or for or against that thesis that he possesses it. But it is hard to envisage this description holding. Norman *ought* to reason along the following lines: 'If I had a clairvoyant power, I would surely find *some* evidence for this. I would find myself believing things in otherwise inexplicable ways, and when these things were checked by other reliable processes, they would usually check out positively. Since I lack any such signs, I apparently do not possess reliable clairvoyant processes.' Since Norman ought to reason in this way, he is *ex ante* justified in believing that he does not possess reliable clairvoyant processes. This undermines his belief [that the President is in New York]. Thus, the non-undermining clause... handles BonJour's cases.<sup>221</sup> (Goldman [1986], 112)

---

<sup>220</sup> Goldman explains, "A process is conditionally reliable when a sufficient proportion of its output-beliefs are true *given that its input-beliefs are true*." (Goldman [1979], 13) The notion of conditional reliability is introduced to account for justified beliefs produced by processes like memory and reasoning.

<sup>221</sup> In order to make the non-undermining clause a bit easier to formulate, Goldman introduces the notion of *ex ante justification*.

Person S is *ex ante* justified in believing  $p$  at  $t$  if and only if there is a reliable belief-forming operation available to S which is such that if S applied that operation to his total cognitive state at  $t$ , S would believe  $p$  at  $t$ -plus-delta (for a suitably small delta) and that belief would be *ex post* justified [i.e. S would actually believe  $p$  and this belief would be justified because it would be the result of a reliable belief-forming operation]. ([1979], 21)

With the notion of *ex ante justification*, Goldman formulates the *non-undermining clause* as,

There are no propositions that one believes or is *ex ante* justified in believing which would undermine one's belief that  $p$ .

There are a number of problems with this proposal. First of all, the non-undermining clause presents too quick and too easy a solution. Goldman stresses that “Norman ought to reason along [such] lines” and “Norman ought to reason in this way”. Yet, the real philosophical work comes in satisfactorily cashing out the *externalist* sense in which Norman *ought* to have applied processes that he didn’t. (What kind of “ought” is this and when is it applicable?) Second, for any belief, it seems likely that one will have access to *some* generally reliable process or method that might have produced an undermining belief if it had been applied on that occasion. The process of induction, for example, is generally reliable. Yet, people do make hasty inductions sometimes. On any given occasion, if one had applied one’s inductive belief-forming process, it *might* have generated an undermining belief concerning the unreliability of the belief-forming process that produced the belief in question. Thus, for any belief one might be *ex ante*

---

Ultimately, Goldman interprets the non-undermining clause rather liberally, noting different ways in which justification can be undermined.

First, the belief can be undermined by the cognizer’s being permitted to believe that the belief is not permitted. Second, the belief can be undermined by the cognizer’s believing that the belief is not permitted, even where the higher-order belief is not permitted... The cognizer might not have the concept of belief permissibility, or even of right rules. But suppose that the cognizer believes that certain conditions are not satisfied, where those conditions are *in fact* necessary for belief permissibility. This is a third way, I think, in which the belief’s permittedness may be undermined (Goldman [1986], 62)

Thus, a belief that *p* is undermined at time *t* if any of the following conditions are met:

1. the cognizer believes at *t* that his belief that *p* is unjustified,
2. the belief that *p* is *unjustified* is *ex ante* justified for the cognizer at time *t*,
3. the cognizer believes at *t* that condition *C* does not hold and *C* is necessary for being justified, *or*
4. the belief that *C* does not hold is *ex ante* justified for the cognizer at time *t* and *C* is necessary for being justified.

Somewhat ironically, these sorts of conditions are exactly what epistemic internalists have long seen as some of their primary motivation.

justified in believing an undermining proposition. Third, the non-undermining clause seems too much like a black box. Even if it allows the externalist to avoid counterexamples, there is no real understanding as to why the solution is acceptable from an externalist perspective. It is not clear why the reliability of a process that one does not apply undermines the reliability of a process that one does apply. This is especially troublesome (i) when the unused process is less reliable than the process that was actually used (given that Norman's clairvoyance has near perfect reliability, almost any process producing an undermining belief would be less reliable) and (ii) when the unused process would lead to a false belief if it had been applied (Norman's clairvoyance is actually reliable and the President is actually in New York). Lastly, it only takes a slight modification to Norman's case to avoid the thrust of Goldman's non-undermining clause. Just consider Norman's three-year old brother, Nedman.

#### *Nedman*

Nedman is just like Norman, but without the reflective capabilities of his older brother. It is not within the scope of Nedman's cognitive powers to notice that he could (not to mention, should) have gathered inductive evidence with respect to the reliability of his clairvoyance. Just like Nathan, Nedman lacks concepts like *justification, grounds, reasons, evidence, belief-forming process, reliability, and normal conditions*. Perhaps he is even a sort of clairvoyant idiot-savant with just enough inductive capabilities to learn concepts and re-identify objects. Nedman just

does not have available any reliable belief-forming processes that would be likely to produce a belief in an undermining proposition.

Obviously, Nedman's cognitive shortcomings do not put him in a superior epistemic position to Norman. If Norman doesn't know that the President is in New York, then neither does Nedman. Merely lower than normal cognitive ability, in addition to the reliable formation of a belief under appropriate conditions, is not sufficient for knowledge.

Of course, it might be possible to deal with Nedman's case by modifying Goldman's non-undermining clause and the notion of *ex ante* justification. Yet, I don't quite see how it can be done on principled externalist grounds. For example, consider the following modified version of the non-undermining clause: "One's justification is undermined if there is some process that one *ought to have* that one *ought to use* and that process *ought to produce* a belief that would undermine one's belief." First, it is not clear how an externalist can identify what processes one *ought to have*.<sup>222</sup> Second, it is not

---

<sup>222</sup> It might be suggested that the processes that one *ought to have* are the processes had by a *normal* human. Yet, Nedman's lack of reflective capability is quite *normal* for someone his age. Alternatively, it might be suggested the processes that one *ought to have* are the processes had by a *normal adult* human. However, intuitions get fuzzy quite quickly when trying to spell this out in any detail. Consider, for example, a deaf man who comes home at night, checks that all is well, and then sits down to read a book. Suppose that a smoke detector malfunctions and begins to sound. Does the deaf man no longer know that all is well because *if* he had the hearing of a normal adult, he would hear the misleading noise of the malfunctioning smoke detector? Of course, this raises the question of why we should index the necessary capacities to normal adults. Suppose some mutant had a generally reliable power to sense things via sonar. Would the rest of us stop knowing whenever he possessed misleading evidence via his sonar? Does the *mere existence* of such evidence defeat knowledge. As I said, things get awful fuzzy, awful quickly, and the externalist would need to work out all of the details.

clear how an externalist can identify which processes one *ought to use*.<sup>223</sup> Lastly, it is not clear what it would mean for an externalist to claim that an unused process *ought to produce a particular belief*.<sup>224</sup> In the end, it looks as though any adequate non-undermining clause will amount to little more than an ad hoc internalist addendum in externalist clothing. Thus, it seems unlikely that some modified version of the non-undermining clause will provide the externalist with a satisfactory account of justified belief or knowledge.

The validationist, however, has no problem explaining why Nedman is unjustified. Just like Norman, Nedman has never had any experiences that would validate the reliability of his clairvoyance. Thus, Nedman is in no position to appreciate the reliability of his clairvoyance. Hence, Nedman is unjustified.

## 10.7 Inexplicability of the Process

One difference between Nathan, on the one hand, and Norman and Nedman, on the other hand, is that we have a well worked-out explanation as to how perceptual

---

<sup>223</sup> Epistemic externalists often object to epistemic internalism on the grounds that it requires doxastic voluntarism (i.e., that one has control over what one believes) and that doxastic voluntarism is false. In support of this, externalists point to the maxim, "Ought implies can." Yet, to claim that there is a process that one did not use that one ought to have used seems to require just as much voluntarism as most forms of epistemic internalism. Thus, either epistemic externalism is subject to the same criticism as epistemic internalism or one of the externalist's major objections to internalism is without teeth.

<sup>224</sup> I can see no reason to expect that processes that are not applied ought to produce any particular beliefs. For example, if Norman's unapplied processes produced true beliefs, then Norman's clairvoyant beliefs would not be undermined. His clairvoyance is reliable. It seems a bit strange to claim that a generally reliable process ought to produce a false belief under these circumstances. If this is the case, then it seems that we should be carving our processes a bit finer. Furthermore, it seems strained to try to appeal to what an unapplied process would produce under normal circumstances. Most processes are less than perfectly reliable under normal circumstances. Thus, some of the time, generally reliable processes will produce false beliefs under normal circumstances.

processes work, but clairvoyance is an unexplainable occult power. Of course, whether or not one is justified and has knowledge can't turn on whether one actually possesses a well worked-out explanation as to how one's belief-forming process works or whether one is even aware of the existence of such an explanation. Nathan simply isn't aware of *our* explanation of how perceptual processes work and Norman and Nedman are not aware of *our* lack of explanation as to how clairvoyance works.<sup>225</sup> It has been suggested, however, that what matters is brute inexplicability.<sup>226</sup> That is, it is the fact that clairvoyance is unexplainable *in principle* that prevents Norman and Nedman from having knowledge.

Yet, suppose that a thousand years into the future, someone discovers clairatons (clairvoyance transmission particles) and develops a full theory of clairvoyance. Would this mean that Norman and Nedman have been wrongly (though perhaps justifiably) accused of being unjustified and, hence, of not knowing where the President is? What if clairatons exist, but no one ever discovers them? Such suppositions are simply irrelevant as far as our intuitions about Norman and Nedman are concerned. It is not the inexplicability of their ability that prevents them from being justified and having knowledge. To make it absolutely clear that explicability with regard to the workings of

---

<sup>225</sup> It is not much more plausible to suggest that one's community must have a well-worked out explanation as to how the relevant belief-forming process works. I doubt that anyone wants to claim that ancient peoples lacked basic perceptual knowledge simply because they had no one around who had worked-out explanations of their perceptual belief-forming processes.

<sup>226</sup> Hartry Field presents this very objection to the possibility of mathematical knowledge in his [1989]. It should be noted that his objection is taken by many philosophers of mathematics to provide the basis for a convincing objection to mathematical platonism.

a belief-forming process is not necessary for knowledge, just consider Natalie. Natalie is Norman's and Nedman's more observant and brighter older sister.

### *Natalie*

Just like her brothers, Natalie is remarkably clairvoyant. Yet, unlike her brothers, Natalie has consistently verified the reliability of her remarkable ability by keeping a journal of her clairvoyant visions and diligently checking television and newspaper reports for confirmation. Moreover, Natalie has reflected on her long track record involving almost ten-thousand confirmed clairvoyant beliefs over thirty years. On the basis of her track record, she has concluded that she is generally reliable regarding the President's whereabouts. Furthermore, Natalie has undergone extensive testing from the folks at Cal Tech with regard to her clairvoyance. They have told her that they agree with her finding that she has such a reliable power, although they admit that they cannot explain it. They have thrown up their hands and admitted that the power is simply inexplicable. Yesterday, shortly after leaving a routine re-evaluation at Cal Tech that reconfirmed her remarkable ability, Natalie formed the belief that the President is in New York.

Despite the apparent inexplicability of her power, it certainly seems that Natalie knows that the President is in New York.<sup>227</sup> Moreover, it does not matter if anyone ever

---

<sup>227</sup> Her belief is true, she has an enormous amount of evidence and very good reasons for believing that her current belief concerning the President's whereabouts is the result of a highly reliable process, and her belief is un-Gettiered.



discovers clairatons or whether any such things exist. Granted, the seeming inexplicability of her power presents some initial reason to doubt its existence. Yet, at some point, the intuitive uneasiness one might feel in acknowledging the existence of such a power must take a back seat to the inductive evidence. Thus, we can conclude, the lack of an explanation as to how a belief-forming process might work does not necessarily prevent one from being justified and having knowledge.

The validationist, however, has no problem explaining why Natalie is justified. Like Nathan, Natalie has regularly validated the reliability of the source of her belief. Granted, the source is rather unusual and its phenomenal feel might not resemble that of other presently validated sources. Nevertheless, given the long and varied history of her confirming experiences, it seems that Natalie is in a position to appreciate the reliability of her clairvoyance. Hence, Natalie is justified.

## **10.8 Summing Up**

Not only does the validationist approach explain why Norman doesn't know, but Nathan does, it also explains why Nedman doesn't know, but Natalie does. Thus, we have come full circle. We now see what the opposite ends of the epistemic spectrum have in common. We see what the perceiving child has in common with the laboratory scientist. Both are in a position to appreciate the reliability of the sources of their beliefs because both have validated the reliability of those sources.<sup>228</sup> Therefore, both are in a

---

<sup>228</sup> The validationist constraint is in many ways similar to Steup's "Internalist Reliabilism." Steup's approach, however, applies only to one's sensory experience, where the validationist constraint is a general

position to have well-placed confidence in their beliefs. Thus, both are justified. Given this ability to unite both ends of the epistemic spectrum while explaining our intuitions in a wide variety of complex cases, the validationist approach seems likely to present a minimal internalistic constraint for justified belief and knowledge.

---

constraint on justified belief. Moreover, according to Steup's approach, such justified perceptual belief requires only that one have a memory impression of one's track record. (Steup [2004])

## CHAPTER 11

### RAMIFICATIONS OF THE VALIDATION CONSTRAINT FOR THE JUSTIFIABILITY OF BELIEVING IN THE EXISTENCE OF ABSTRACT MATHEMATICAL OBJECTS

#### 11.1 Overview

In what follows, I shall sketch an argument that even if abstract mathematical objects (e.g., numbers) were to exist and even if we had a special belief-forming process for reliably arriving at true beliefs about them (e.g., a Godelian sixth sense), we still couldn't have justified beliefs concerning their existence because we could never validate the reliability of the source of such beliefs. Unlike Benacerraf's [1973] epistemological challenge, the argument is not tied to an implausible and abandoned epistemological position. Yet, unlike Field's [1989] inexplicability challenge, the argument is still rooted in solid epistemological theorizing. I wish to stress that in no way is my argument intended as proof that mathematics is not true or that we can't have mathematical knowledge.<sup>229</sup> I am simply arguing that we can't justifiedly believe in the existence of abstract mathematical objects. There is plenty of room to save both mathematical truth and mathematical knowledge if we are willing to reject the quantificational criterion of

---

<sup>229</sup> Of course, if Hartry Field is correct and mathematics is conservative, then it need not be true in order to be useful.

ontological commitment as the criterion of existential commitment. Thus, my objection is to belief in the existence of abstract mathematical objects, not to belief in the theorems of mathematics.

## 11.2 The General Argument

The problem is that when it comes to believing in the existence of abstract mathematical objects, we don't have means for validating that the sources of our beliefs are reliable. Abstracta, if they exist, cannot be known through any empirical means (being acausal, and non-spatio-temporal). This, of course, is why it has long been thought that mathematical knowledge must be a priori. Yet, as Benacerraf pointed out, there seems to be no principled reason why our mathematical knowledge should not live up to the standards of our knowledge of ordinary, everyday objects. If anything, mathematical knowledge has traditionally been thought to live up to a higher standard than knowledge of everyday objects. As Benacerraf summarizes the point, “[mathematical] knowledge is no less knowledge for being mathematical.” ([1973], 409)<sup>230</sup>

---

<sup>230</sup> As I pointed out in Chapter 7, Benacerraf actually provides very little explicit argument defending the need for epistemological uniformity across discourses. Nevertheless, much of what Benacerraf says about truth can be easily reformulated to apply to knowledge. Consider, for example, how we might reformulate an argument offered on behalf of semantic uniformity to the current point (from pages Benacerraf [1973], 410-1).

If mathematical knowledge is not to be analyzed along the same lines as our empirical knowledge, then we are clearly in need not only of an account of knowledge for this new kind of subject, but also of a new *theory of knowledge theories* that relates knowledge for ordinary subjects to knowledge for these new subjects.

Of course, all of our presently validated sources of belief concerning the existence of language- and mind-independent objects are empirical. Since the sources of our belief concerning the existence of language- and mind-independent mathematical objects offer no possibility for validation and since the possibility of such validation is essential for justified belief, justified belief concerning the existence of abstract mathematical objects is impossible. Combining this result with the Ockhamist assumption that if we cannot have justified belief regarding the existence of a supposed entity, then we should deny that such an entity exists, we reach the conclusion that we should deny the existence of abstract mathematical objects.

This objection to believing in the existence of abstract mathematical objects is made a bit more concrete by the following analogous thought-experiments.

### *11.2.1 A Trip to the Dentist*

Suppose that after finishing your root canal surgery, the dentist hands you a small bottle of *green* pills and says,

Take two of these every four hours—starting right now—for pain relief. The only possible side effect, which occurs in about 10% of patients, is that the pills distort visual distance perception. Everything looks much further away than it actually is. However, if you don't experience any difficulties in the first fifteen minutes, then

you'll be fine and driving is no problem. So, please take a seat in the reception area for about half an hour to make sure that you're all right to drive. If you have any side effects, let the receptionist know and she will call you a cab.

Thus, you wander out into the reception area and begin to wait. So, how are you to determine whether your visual perception of distance has been affected by the medication?

Obviously, you can't rely upon your sight to determine whether your sight is reliable. If you are suffering the side effects of the medication, everything will be distorted. Thus, you are unlikely to find any inconsistency or contrariness among your newly formed visual beliefs (e.g., you will not simultaneously form the belief that there is a chair occupying the space five feet in front of you and the belief that there is a couch occupying the space five feet in front of you). Thus, the mere self-consistency of the output of your visual belief-forming process provides no assurance that you are immune from the side affects of the medication. Moreover, equipping you with a ruler would do little good as your perception of it would also be affected.

It should be clear that the dentist expects that you will judge whether the information coming from your sense of sight *jives* (to use a less than technical term) with the information coming from other sources that are presumably reliable. To put it in the technical language of the last chapter, the dentist expects you to judge whether your newly formed visual beliefs are contrary to the output of other presently validated sources. For instance, you might hold your arm out and look at your hand and think, "I

don't *remember* my arm being so long." Similarly, you might reach out and touch the table that visually appears to be yards away. Under such circumstances, you should walk the apparent half-mile across the office and ask the receptionist to call you a cab.

Now, suppose that after finishing your root canal surgery, the dentist had instead handed you a small bottle filled with *red* pills while saying,

Take 2 every 4 hours—starting right now—for pain relief. The only possible side effect, which occurs in about 10% of patients, is that the pills distort *mathematical* perception. The properties of *mathematical abstracta* appear much different than they actually are. For example, the sequence and structure of the natural numbers might be distorted and sets might appear to have more elements than they actually do. However, if you don't experience any difficulties in the first fifteen minutes, then you'll be fine and taking a math test is no problem. So, please take a seat in the reception area for about half an hour to make sure that you're all right to do mathematics. If you have any side effects, let the receptionist know and she will call you a mathematician.

So you wander out into the reception area and begin to wait. So, how are you to determine whether your mathematical perception has been affected by the medication?

Suppose that it begins to seem that 8 is the successor of 6. Since you seem to remember that 7 is the successor of 6, you will likely suspect that your mathematical perception is askew. Moreover, you need only to count a pile containing six objects, add

an additional object to the pile, and recount. “Ah-ha,” you think, “7 really is the successor of 6. I must be suffering the side affects of the medication.”

Yet, before asking the nurse to call you a mathematician, you better reexamine your little experiment. If you were counting snowballs on a hot spring day or cookies around a bunch of small children, then you may doubt whether the pills really had any affect. Perhaps 8 is the successor of 6, but the kids have eaten one of the cookies while you were combining piles. So you might opt to count bowling balls since no one can slyly make off with one of them. But there is the chance that the dentist’s reception area is in a strange nexus where objects magically coalesce or multiply. Furthermore, the dentist said that the red pills would affect your mathematical perception. He did not say anything about piles of cookies or bowling balls. Why think that you can draw conclusions about immutable, non-causal, abstract objects from observing cookies. It would seem just likely that you could determine facts about the weight of hippopotamuses from tasting the cookies.

Moreover, had the dentist told you that you might only experience problems when dealing with very large numbers and sets, then your memory and the manipulation of physical objects would be of little use. We all make mistakes when working with large numbers or attempting to assess even medium-sized sets. Thus, under these circumstances, your memory and ability to count piles will provide pretty poor evidence of whether or not your are suffering the side affects of the medication.

At this point, it will likely be objected that we do have other ways of validating the reliability of the source of our mathematical beliefs that do not rely upon memory or



the building of piles. We can use calculators, for example. Calculators, however, only verify that we are reliable at predicting markings on a liquid-crystal-display. They cannot validate the reliability of any source that forms beliefs about the existence of numbers or other abstract mathematical objects.

Of course, you might ask a friend to validate your mathematical beliefs.<sup>231</sup> On the one hand, if your friend told you that  $147^2 = 21709$  and it clearly seemed to you upon working it out that  $147^2 = 21609$ , would you be sure that he was correct and that you were under the effect of some drug? You might just as likely think that he had made some error. If it really seems to you that you are right, why should you take his word for it? On the other hand, suppose that your friend agreed with your finding. Moreover, suppose that your friend agreed that 21609 (understood as an abstract object independently existing outside of time and space) really exists. Yet, his agreement will be of epistemic value only if he has already validated the reliability of the source of his mathematical beliefs. The problem is that your friend has no way of validating the source of his mathematical beliefs either. Your predicament isn't the result of visiting an obscure dentist. None of us have the resources to validate that we are reliably tracking objects in the abstract mathematical realm. None of our presently validated sources form beliefs about the existence of abstract objects. Their output only concerns the existence of concrete objects. Thus, your friend's agreeing would be epistemically equivalent to Nedman's agreeing with Norman that the President is New York.

---

<sup>231</sup> If you happen to be a leading mathematician working on some famous unproved theorem, there might be no one that you could consult to find if the pills were having only a very limited affect.

Furthermore, the agreement of many friends would not improve your justificatory position.<sup>232</sup> Simple mass agreement (where no one has validated their reliability) adds nothing of justificatory value. The situation here is no better than arguing for the existence of God or angels based on the fact that most people believe them to exist. In fact, the argument for the existence of abstract mathematical objects is even a bit worse than its religious analogue. At least some people have claimed to have seen angels, heard a voice coming from a burning bush, and talked with a man who had risen from the dead. At least those select few might have some evidence validating the reliability of the sources of their religious belief. Yet, no one makes such claims when it comes to abstract mathematical objects. Thus, we are not even in as good of a justificatory position when comes to believing in the existence of abstract mathematical objects as we are when it comes to believing in the existence of God.

### 11.3 The Technical Details

Suppose that  $S$  forms beliefs about the existence of abstract mathematical objects via some source,  $MI$ . According to the validationist constraint, in order for the beliefs to be justified,  $MI$  must be presently validated for  $S$ . Yet, in order for  $MI$  to be presently validated for  $S$ ,  $S$  must have successfully validated it by comparing a sufficient number of its output against the output of other presently validated sources. So,  $S$  must have some

---

<sup>232</sup> Although most folks do agree about a lot of “mathematical facts”, the more complex the supposed fact, the less the agreement there generally is. Furthermore, it is highly doubtful that most people would agree that 21609 (understood as abstract object independently existing outside of time and space) really exists. Yet, let’s suppose they agree to even this.

presently validated source  $M2$ , which is different from  $M1$ , which he has focused on the same subject matter as  $M1$  and formed non-contrary beliefs regarding the existence of language- and mind-independent objects. Since  $M2$  is presently validated, it must either be part of the original circle of validation (consisting primarily of the five senses and memory) or have been validated by sources who trace their validation back to the original circle. However, since the members of the original circle of validation are only able to validate each other's reliability regarding the existence of concrete objects, it is impossible for  $M2$  to have its reliability regarding the existence of abstract objects validated. Thus,  $M2$  cannot be presently validated regarding the existence of abstract objects. Hence, there can be no secondary process to validate  $M1$ . Hence,  $M1$  is not capable of forming justified beliefs. Hence, it is not possible for  $S$  to be justified in believing in the existence of abstract mathematical objects. Yet, if it is not possible for  $S$  to be justified in believing in the existence of abstract mathematical objects, then  $S$  ought to deny that they exist. Thus,  $S$  ought to deny that abstract mathematical objects exist.

#### **11.4 One Last Thought-Experiment**

Consider Mattie Mathematician. Mattie's current research project is in the soon to blossom mathematical field of goober theory. There are no textbooks or even past practitioners against whose results Mattie could gauge her success at making reliably true claims about goobers. Furthermore, some mathematical theories, like goober theory, have ventured beyond the realm where there is even the possibility of holistic confirmation as part of the scientific enterprise. Here, there is not even the hope of

relying on indispensability considerations. Yet, Mattie claims that even though goober theory plays no role in any envisioned empirical theory, she has followed many of the same mathematical practices that have been mathematically fruitful in older, more trusted areas of mathematics. Thus, in the end, Mattie acknowledges that her faith in the edifice of her mathematical beliefs rests upon the accolades that were showered upon her by her many mathematics teachers. When asked why she thinks these people were reliable authorities about the world of abstracta, she points out that all her past teachers were likewise showered with accolades by their own teachers... and so on, back into sands of time. Eventually, Mattie is asked on what basis the first mathematicians were justified in their mathematical beliefs and, in particular, in their belief in the existence of abstract mathematical objects. At this point, the barrage of unending questions becomes too much and Mattie yells, "Mathematics is just too damned useful! The numbers, sets, and goobers must exist!"

*So, how exactly would the existence of immutable, acausal, non-spatiotemporal objects help explain the empirical usefulness of mathematics?*

*To put it simply, it wouldn't.*

## BIBLIOGRAPHY

- Almeder, Robert and Franklin Hogg [1989], "Reliabilism and Goldman's Theory of Justification", *Philosophia* 19, 2-3: 165-87.
- Alston, William P [1986], "Epistemic Circularity", *Philosophy and Phenomenological Research* 47, 1: 1-20, reprinted in Alston [1989], 319-50..
- [1986a], "Internalism and Externalism in Epistemology", *Philosophical Topics* 14: 179-221; reprinted in Alston [1989], 185-226.
- [1988], "An Internalist Externalism", *Synthese* 74: 265-83; reprinted in Alston [1989], 227-45.
- [1988a], "The Deontological Conception of Epistemic Justification", *Philosophical Perspectives* 2: 275-99.
- [1989], *Epistemic Justification: Essays in the Theory of Knowledge*, Ithaca, Cornell University Press.
- [1989a], "A 'Doxastic Practice' Approach to Epistemology", in Clay and Lehrer [1989], 31-50.
- [1993], *The Reliability of Sense Perception*, Ithaca, Cornell University Press.
- [1994], "Belief-forming Practices and the Social", in Schmitt (ed.) [1994], 29-51.
- [1995], "How to Think About Reliability", *Philosophical Topics* 23, 1: 1-29.
- [1998] "Internalism and Externalism in Epistemology" in *Routledge Encyclopedia of Philosophy*, Vol. 4, Edward Craig (general editor), London, Routledge.
- [2000], "Virtue and Knowledge", *Philosophy and Phenomenological Research* 60, 1: 185-89.

- Armstrong, David [1978], *Nominalism and Realism: Universals and Scientific Realism*, Cambridge, Cambridge University Press.
- [1981], "Against 'Ostrich' Nominalism: Reply to Michael Devitt", *Pacific Philosophical Quarterly* 61: 440-49.
- [1999], "A Naturalist Program: Epistemology and Ontology", *Proceedings and Addresses of the APA* 73, 2: 77-89.
- Audi, Robert [1989], "Causalist Internalism", *American Philosophical Quarterly* 26: 309-20.
- Austen, J. L. [1946], "Other Minds", *Aristotelian Society Supplemental* 20, 148-87.
- Austin, David [1987], *Philosophical Analysis: A Defense by Example*, Kluwer, Dordrecht.
- Axtell, Guy [1988], "The Role of Intellectual Virtues in the Reunification of Epistemology", *Monist* 81, 3: 488-508.
- Ayer, A. J. [1956], *The Problems of Knowledge*, Penguin, Baltimore.
- Azzouni, Jody [1994], *Metaphysical Myths, Mathematical Practice*, Cambridge, Cambridge University Press.
- [1997], "Thick Epistemic Access: Distinguishing the Mathematical from the Empirical", *Journal of Philosophy* 94, 9: 472-484.
- [1997a], "Applied Mathematics, Existential Commitment and the Quine-Putman Indispensability Thesis", *Philosophia Mathematica* 3, 5: 193-209.
- [1998], "On 'On What There Is'", *Pacific Philosophical Quarterly* 79: 1-18.
- [2000], "Stipulation, Logic, and Ontological Independence", *Philosophia Mathematica* 3, 8: 225-43.
- Balaguer, Mark [1992], "Against (Maddian) Naturalized Platonism", *Philosophia Mathematica* 3, 2: 97-108.
- [1998], *Platonism and Anti-Platonism in Mathematics*, New York, Oxford University Press.
- Bealer, George [1999], "A Theory of the A priori", *Philosophical Perspectives* 13: 29-55.

- Becker, K [2001], "Understanding Quine's Famous Statement", *Erkenntnis* 55, 73-84.
- Benacerraf, Paul [1965] "What Numbers Could Not Be", *Philosophical Review* 74: 47-73; reprinted in Benacerraf and Putnam [1983], 272-94.
- [1973], "Mathematical Truth", *Journal of Philosophy* 70: 661-79; reprinted in Benacerraf and Putnam [1983], 403-20.
- [1983], "Editorial Introduction", Benacerraf and Putnam [1983].
- Benacerraf, Paul and Hilary Putnam [1983], *Philosophy of Mathematics*, second edition, Cambridge, Cambridge University Press.
- Bergman, Michael [1997], "Internalism, Externalism, and the No-Defeater Condition", *Synthese* 110: 399-417.
- [2000], "Externalism and Internalism", *Philosophical Review* 109, 2: 159-94.
- [2000a], "Deontology and Defeat", *Philosophy and Phenomenological Research* 60, 87-102.
- [2000b], "Externalism and Skepticism", *Philosophical Review* 109: 159-94.
- Bernecker, Sven and Fred Dretske [2000], *Knowledge: Readings in Contemporary Epistemology*, Oxford, Oxford University Press.
- Bishop, Michael [2000], "In Praise of Epistemic Irresponsibility: How Lazy and Ignorant Can We Be?", *Synthese* 122: 179-208.
- Blackburn, Simon [1994], *The Oxford Dictionary of Philosophy*, Oxford, Oxford University Press.
- Boghossian, Paul [2001], "How Are Objective Epistemic Reasons Possible?", *Synthese* 106: 1-40.
- Boghossian, Paul and Christopher Peacocke (eds.) [2001], *New Essays on the A Priori*, Clarendon, Oxford.
- Boolos, George [1984], "To be is to be the value of a variable (or some values of some variables)", *Journal of Philosophy* 81: 430-50; reprinted in Boolos [1998], 54-72.
- [1985], "Nominalist Platonism", *Philosophical Review* 94: 327-44, reprinted in Boolos [1998], 73-88.

- [1997], "Is Hume's Principle Analytic?", in Heck [1997], 245-62.
- [1998], *Logic, Logic, and Logic*, Cambridge, Harvard University Press.
- Bonevac, Daniel [1982], *Reduction in the Abstract Sciences*, Indianapolis, Hackett.
- BonJour, Laurence [1980], "Externalist Theories of Empirical Knowledge", *Midwest Studies in Philosophy* 5; reprinted in Kornblith [2001], 10-35.
- [1985], *The Structure of Empirical Knowledge*, Cambridge, Harvard University Press.
- [1992], "Externalism/Internalism", in Ernest Sosa and Jonathan Dancy [1992].
- [1994], "Against Naturalized Epistemology", *Midwest Studies in Philosophy* 19: 283-300.
- [1999], *In Defense of Pure Reason*, Cambridge, Cambridge University Press.
- [1999a], "Foundationalism and the External World", *Philosophical Perspectives* 13: 229-49.
- Boyd, Richard [1991], "Intro Essay" in Boyd, Gasper, and Trout [1991].
- [1991a], "On the Current Status of Scientific Realism", in Boyd, Gasper, and Trout [1991].
- Boyd, Richard, Philip Gasper, and J.D.Trout [1991], *The Philosophy of Science*, Cambridge, MIT Press.
- Brandom, Robert [1988], "Insights and Blindspots of Reliabilism", *The Monist* 81, 3: 371-92.
- Brewer, Bill [1997], "Foundations of Perceptual Knowledge", *American Philosophical Quarterly* 34, 1: 41-55.
- Burgess, John and Gideon Rosen [1997], *A Subject With No Object*, New York, Clarendon Oxford Press.
- Cameron, J. R. [2000], "Number as Types", *Journal of Philosophy* 97, 10: 529-63.
- Campbell, Keith [1981], "The Metaphysic of Abstract Particulars", *Midwest Studies in Philosophy* 6: 477-488; reprinted in Laurence and Macdonald [1998], 351-63.



- Carl, Wolfgang and Rolf Horstmann [1972], "Knowing and Claiming", *Ratio* 15, 2: 155-71.
- Carnap, Rudolf [1950], "Empiricism, Semantics, and Ontology", *Revue Internationale de Philosophie* 4: 20-40; reprinted in Benaceraff and Putnam [1983], 241-57.
- Carson, Emily [1996], "On Realism in Set Theory", *Philosophia Mathematica* 3, 4: 3-17.
- Cassam, Quassim [2001], "Rationalism, Empiricism, and the A Priori" in Boghossian and Peacocke (eds.) [2001], 43-64.
- Casullo, Albert [1992], "Causality, Reliabilism, and Mathematical Knowledge", *Philosophy and Phenomenological Research* 52, 3:557-84.
- Cheyne, Colin [1998], "Existence Claims and Causality", *Australasian Journal of Philosophy* 76, 1: 34-47.
- Cheyne, Colin and Charles Pigden [1996], "Pythagorean Powers or a Challenge to Platonism", *Australasian Journal of Philosophy* 74, 4: 639-45.
- Chihara, Charles [1990], *Constructability and Mathematical Existence*, Oxford, Oxford University Press.
- Chisholm, Roderick [1966], *Theory of Knowledge*, Prentice Hall, Englewood.
- [1988], "The Indispensability of Internal Justification", *Synthese* 74: 285-96.
- [1989], *Theory of Knowledge*, Englewood Cliffs, Prentice Hall.
- Church, Alonzo [1951], "The need for abstract entities in semantic analysis" in "Contributions to the analysis and synthesis of knowledge" *Proceedings of the American Academy of Arts and Sciences* 80: 100-12.
- [1958], "Symposium: Ontological Commitment", *Journal of Philosophy* 55: 1008-14.
- Churchland P.M. and Hooker C.A. (eds.) [1985], *Images of Science: Essays on Empiricims and Realism, with a reply by Bas C. van Fraassen*, Chicago University of Chicago Press.
- Clay, Marjorie and Keith Lehrer (eds.) [1989], *Knowledge and Skepticism*, Boulder, Westview Press.

- Clifford, William [1877], "The Ethics of Belief", *Contemporary Review*, reprinted in Leslie Stephen and Frederick Pollock (eds.), *Lectures and Essays by the late William Kingdon Clifford, F.R.S.*, London, MacMillan: 1886; 339-363. [http://www.infidels.org/library/historical/w\\_k\\_clifford/ethics\\_of\\_belief.html](http://www.infidels.org/library/historical/w_k_clifford/ethics_of_belief.html)
- Clune, Alan "Justification of Empirical Belief: Problems with Haack's Foundherentism" *Philosophy* 72: 460-63.
- Coady, C. A. J. [1992], "Mathematical Knowledge and Reliable Authority", in *Testimony: A Philosophical Study*, New York, Clarendon Oxford Press.
- Coffa, Alberto [1991], *The Semantic Tradition from Kant to Carnap*, Cambridge, Cambridge University Press.
- Cohen, Stewart [1984], "Justification and Truth", *Philosophical Studies* 46: 279-96.
- Colyvan, Mark [1998], "Can the Eleatic Principle be Justified?" *Canadian Journal of Philosophy* 28, 3: 331-36.
- [1998b], "Is Platonism a Bad Bet?", *Australasian Journal of Philosophy* 76, 1: 115-9.
- [1998c], "In Defense of Indispensability", *Philosophia Mathematica* 3, 6: 39-62.
- [2000], "Conceptual Contingency and Abstract Existence", *Philosophical Quarterly*: 87-91.
- [2001], "The Miracle of Applied Mathematics", *Synthese* 127: 265-77.
- Conee, Earl [1992], "The Truth Connection", *Philosophy and Phenomenological Research* 52(3): 657-669
- Conee, Earl and Richard Feldman [1985], "Evidentialism", *Philosophical Studies* 48, 15-34; reprinted in Sosa and Kim [2000], 170-81.
- [2001], "Internalism Defended", in Kornblith [2001], 231-60.
- Cornman, James [1977], "Foundational versus Nonfoundational Theories of Empirical Justification", *The American Philosophical Quarterly* 14, 4; reprinted in Pappas and Swain [1978], 229-52
- Craig, Edward,[2000], "Response to Lehrer", *Philosophy and Phenomenological Research* 60, 3: 655-65.

- Dancy, Jonathan and Ernest Sosa [1992], *A Companion to Epistemology*, Cambridge, Blackwell.
- David, Marian [2001], "Truth as the Epistemic Goal", in Steup [2001], 151-169.
- Davidson, Donald [1991], "Epistemology Externalized", *Dialectica* 45, 2-3: 191-202.
- Davidson, Donald and Gilbert Harmon [1972], *Semantics of Natural Language*, Dordrecht, Reidel.
- De Caro, Mario [1999], *Interpretations and Causes: New Perspectives on Donald Davidson's Philosophy*, Dordrecht, Kluwer Academic Publishers.
- DePaul, Michael [2001], "Value Monism in Epistemology", in Steup [2001], 170-83.
- Dennett, Daniel [1987], *The Intentional Stance*, Cambridge, MIT Press.
- Derose, Keith [1996], "Relevant Alternatives and the Content of Knowledge Attributions", *Philosophy and Phenomenological Research* 56, 1: 193-7.
- [2000], "Ought We Follow Our Evidence", *Philosophy and Phenomenological Research* 60, 3: 697-707.
- Descartes, Rene [1993], "Meditations on First Philosophy" in *The Essential Descartes*, Margaret Wilson, New York, Meridian.
- Devitt, Michael [1980], "Ostrich Nominalism or Mirage Realism", *Pacific Philosophical Quarterly* 61, 4: 433-39.
- [1998], "Naturalism and the A priori", *Philosophical Studies* 92: 45-65.
- Dieterle, Jill [1994], *Structure and Object*, Ohio State University, dissertation.
- Divers, John and Alexander Miller [1999], "Arithmetical Platonism: Reliability and Judgement-Dependence", *Philosophical Studies* 95: 277-310.
- Donnellan, Keith [1972], "Proper Names and Identifying Descriptions", in Davidson and Harmon [1972], 356-79.
- Dretske, Fred [1981], *Knowledge and the Flow of Information*, Cambridge, MIT Press.
- [1989], "The Need to Know", in Clay and Lehrer [1989], 89-100.

- [1991], "Two Conceptions of Knowledge: Rational versus Reliable Belief", *Grazer Philosophische Studien*, 40: 15-30.
  - [2000], "Entitlement: Epistemic Rights Without Epistemic Duties?", *Philosophy and Phenomenological Research* 60, 3: 591-606.
  - [2000a], *Perception, Knowledge, and Belief: Selected Essays*, Cambridge, Cambridge University Press.
- Duhem, P. [1906], *The Aim and Structure of Physical Theory*. Reprinted Princeton University Press, Princeton, 1954.
- Elgin, Catherine [2004], "True Enough", *Philosophical Issues* 14, 113-31.
- Ernest, Paul [1997], "The Legacy of Lakatos: Reconceptualizing the Philosophy of Mathematics", *Philosophica Mathematica* 3, 5: 116-34.
- Everett, Anthony and Thomas Hofweber (eds.) [2000], *Empty Names, Fictions, and the Puzzles of Non-Existence*, Stanford, CSLI Publications.
- Feferman, Solomon [2000], "Mathematical Intuition vs. Mathematical Monsters", *Synthese* 125: 317-32.
- Feldman, Richard [1985], "Reliability and Justification", *Monist* 68: 159-74.
- [1987], "Having Evidence", in Austin (ed.) [1987], 83-104.
  - [1988], "Subjective and Objective in Ethics and Epistemology", *Monist* 71: 405-19.
  - [2000], "The Ethics of Belief", *Philosophy and Phenomenological Research* 60, 3: 667-95.
- Feldman, Richard and Earl Conee [1985], "Evidentialism", *Philosophical Studies* 48: 15-34.
- Field, Hartry [1980], *Science Without Numbers: A Defense of Nominalism*, Princeton, Princeton University Press.
- [1989], *Realism, Mathematics, and Modality*, Oxford, Basil Blackwell.
  - [1993], "The Conceptual Contingency of Mathematical Objects", *Mind* 102: 285-99.

- Fine, Arthur [1996], "The Natural Ontological Attitude" in *The Shaky Game : Einstein, Realism, and Quantum Theory*, second edition, Chicago, University of Chicago Press, 112-35.
- Fodor, Jerry and Ernest Lepore [1992], *Holism: A Shopper's Guide*, Blackwell, Oxford.
- Foley, Richard [1984], "Epistemic Luck and the Purely Epistemic", *American Philosophical Quarterly* 21: 113-24.
- [1985], "What's Wrong with Reliabilism", *Monist* 68: 188-202.
- [1987], *The Theory of Epistemic Rationality*, Cambridge, Harvard University Press.
- [1993], "What Am I to Believe?" in S. Wagner and R. Warner (eds.) *Naturalism: A Critical Approach*, South Bend, University of Notre Dame Press.
- [1994], "Quine and Naturalized Epistemology", *Midwest Studies in Philosophy* 19: 243-60.
- Foster, Lawrence and J. W. Swanson (ed.) [1970], *Experience and Theory*, Amherst, University of Massachusetts Press.
- Frege, Gottlob [1884], *Die Grundlagen der Arithmetik*, Breslau, Koebner; *The Foundations of Arithmetic*, tr. by J. L. Austin, Oxford, Basil Blackwell, 1953.
- [1977], "Function and Concept" in Geach and Black [1977], 21-41.
- [1979], "Concept and Object" in Hermes, Kambartel, and Kaulbach [1979], 87-117.
- French, Peter, Theodore Uehling, and Howard Wettstein (eds.) [1980], *Midwest Studies in Philosophy V*, University of Minnesota Press, Minneapolis.
- Fumerton, Richard [1988], "The Internalism/Externalism Controversy," *Philosophical Perspectives* 2: 443-59.
- [1994], "Skepticism and Naturalistic Epistemology", *Midwest Studies in Philosophy* 19: 321-40.
- [1998], "Externalism and Epistemological Direct Realism", *Monist* 81: 393-406.
- [1999], "A Priori Philosophy after an A Posteriori Turn", *Midwest Studies in Philosophy* 23: 21-33.

- [2000], "Williamson on Skepticism and Evidence", *Philosophy and Phenomenological Research* 60, 3: 329-35.
- Gallois, Andre, and John Hawthorne [1999], "Externalism and Skepticism", *Philosophical Studies* 81, 1-26.
- Geach, Peter and Max Black (eds) [1997], *Translations From the Philosophical Writings of Gottlob Frege*, Oxford, Basil Blackwell.
- Gendler, Tamar and John Hawthorne [2002], *Conceivability and Possibility*, Clarendon, Oxford.
- Gettier, Edmund [1963], "Is Justified True Belief Knowledge?", *Analysis* 23, 6: 121-3; reprinted in Sosa and Kim [2000], 58-9.
- Gibson, Roger [1982], *The Philosophy of W.V. Quine: An Expository Essay*, University Press of Florida, Tampa.
- [1995], "Quine on the Naturalizing of Epistemology", in Leonardi and Santambrogio [1995], 89-103.
- Ginet, Carl [1985], "Contra Reliabilism", *Monist* 68: 175-87.
- Goldman, Alvin [1967], "A Causal Theory of Knowing", *The Journal of Philosophy* 64, 12: 355-372; reprinted in Pappas and Swain [1978], 67-86.
- [1976], "Discrimination and Perceptual Knowledge", *Journal of Philosophy* 73, 20: 771-91.
- [1979], "What is Justified Belief?" in Pappas [1979], 1-23; reprinted in Sosa and Kim [2000], 340-53.
- [1980], "The Internalist Conception of Justification", *Midwest Studies in Philosophy* 5; reprinted in Kornblith [2001], 36-67.
- [1982], "Epistemic Foundationalism and the Replaceability of Observation Language", *Journal of Philosophy* 79, 3: 136-54.
- [1986], *Epistemology and Cognition*, Cambridge, Harvard University Press.
- [1988], "Strong and Weak Justification", *Philosophical Perspectives* 2, Epistemology: 51-69.

- [1994], "Naturalistic Epistemology and Reliabilism", *Midwest Studies in Philosophy* 19: 301-19.
- [1997], "Science, Publicity, and Consciousness", *Philosophy of Science* 64: 525-45.
- [1999], *Knowledge in a Social World*, Oxford, Clarendon Press.
- [1999a], "A Priori Warrant and Naturalistic Epistemology", *Philosophical Perspectives* 13: 1-28.
- [1999b], "Internalism Exposed", *Journal of Philosophy* 96, 6: 271-93.
- Goodman, Nelson and W.V. Quine [1947], "Steps Toward a Constructive Nominalism", *Journal of Symbolic Logic* 12, 4: 105-22.
- Gottlieb, Dale [1976], "Ontological Reduction", *Journal of Philosophy* 73, 3: 57-76.
- Grandy, Richard [1969], "On What There Need Not Be" *Journal of Philosophy* :806-12.
- [1994], "Epistemology Naturalized and 'Epistemology Naturalized'", *Midwest Studies in Philosophy* 19: 341-9.
- Greco, John [1990], "Internalism and Epistemically Responsible Belief", *Synthese* 85: 245-77.
- [2000], "Two Kinds of Intellectual Virtue", *Philosophy and Phenomenological Research* 60, 1: 179-84.
- Hacking, Ian [1984], "Experimentation and Scientific Realism", *Philosophical Topics* 13, 1, reprinted in Leplin [1984], 154-72.
- Hahn L.E. and P.A. Schlipp (eds.) [1986] *The Philosophy of W.V. Quine*. Open Court, La Salle.
- Hale, Bob [1987], *Abstract Objects*, Oxford, Basil Blackwell.
- [1990], "Nominalism", in Irvine [1990], 121-43.
- [1999], "Arithmetic Reflection without Intuition", *Aristotelian Society* (Supplement) 97: 75-98.
- Hale, Bob and Crispin Wright [1992], "Nominalism and the Contingency of Abstract Objects", *Journal of Philosophy* 89: 111-35.

- [1994], "A reductio absurdum? Field on the Contingency of Mathematical Objects", *Mind* 103: 169-84.
- [2001], *The Reason's Proper Study: Essays Towards a Neo-Fregean Philosophy of Mathematics*, Oxford, Clarendon Press.
- Harding, S.G. [1975], "Making Sense of Observation Sentences", *Ratio* 17: 65-71.
- Harman, Gilbert [1973], *Thought*, Princeton, Princeton University Press.
- Harper, William [1998], "Papier-Mache Problems in Epistemic Justification: A Defense of Strong Internalism", *Synthese* 116: 27-49.
- Heck, Richard (ed) [1997], *Language, Thought and Logic: Essays in Honour of Michael Dummett*, Oxford, Oxford University Press.
- [1997a], "The Julius Ceasar Objection", in Heck [1997], 273-308.
- Hellman, Geoffrey [1989], *Mathematics Without Numbers*, Oxford, Oxford University Press.
- Hempel, Carl [1945], "On the Notion of Mathematical Truth", *American Mathematical Monthly*, 52: 543-56; reprinted in Benaceraff and Putnam [1983], 377-93.
- [1965], *Aspects of Scientific Explanation*, New York, Free Press.
- Hermes, Hans, Friedrich Kambartel, and Friedrich Kaulbach (ed) [1979], *Posthumous Writings, Gottlob Frege*, tr. by Peter Long and Roger White, Chicago, University of Chicago Press.
- Hetherington, Stephen [1991], "On Being Epistemically Internal", *Philosophy and Phenomenological Research* 51, 4: 855-71.
- Hilbert, David. [1925], "Uber das Unendliche", *Mathematische Annalen* 95: 161-90; tr. as "On the Infinite" reprinted in Benaceraff and Putnam [1983], 183-201.
- Hodes, Harold [1984], "Logicism and the Ontological Commitments of Arithmetic", *Journal of Philosophy* 81: 123-49.
- Hubbard, J. T. W. [1986], *The Race: An Inside Account of What It's Like to Compete in The Observer Singlehanded Transatlantic Race from Plymouth, England, to Newport, Rhode Island*, New York, Norton.
- Hunter, Geoffrey [1994], "Platonist Manifesto", *Philosophy* 69: 151-62.



- Irvine, A. D. [1990], *Physicalism in Mathematics*, Dordrecht, Kluwer Academic Publishers.
- Iwan, St. [2000], "An Analysis of Quine's 'Ontological Reduction and the World of Numbers'", *Erkenntnis* 53: 195-218.
- James, William [1896], "The Will to Believe", reprinted in *The Will to Believe and Other Essays in Popular Philosophy*, Longmans Green, New York, 1903.
- Jubien, Michael [1977], "Ontology and Mathematical Truth", *Nous* 11: 133-50.
- [1988], "Ontological Commitment" in *Routledge Encyclopedia of Philosophy* (Vol. 6), by Edward Craig (general editor). London, Routledge.
- Kaplan, Mark [1985], "It's Now What You Know that Counts", *Journal of Philosophy* 82, 7: 350-63.
- [1991], "Epistemology on Holiday", *Journal of Philosophy*, 88, 3: 132-54.
- Katz, Jerrold [1995], "What Mathematical Knowledge Could Be", *Mind* 104, 415: 491-522.
- Kim, Kihyeon [1993], "Internalism and Externalism in Epistemology", *American Philosophical Quarterly* 30, 4: 303-16.
- Kitcher, Philip [1980a], "A priori Knowledge", *Philosophical Review* 89, 1: 3-23.
- [1980b], "A priority and Necessity", *Australasian Journal of Philosophy* 58, 89-101; reprinted in Moser [1987], 190-207.
- [1983], *The Nature of Mathematical Knowledge*, New York, Oxford University Press.
- [1998], "Mill, Mathematics, and the Naturalist Tradition" in Skorupski [1998], 57-111.
- Klein, Peter [1996], "Warrant, Proper Function, Reliabilism, and Defeasibility", in Kvanvig [1996], 97-130.
- Korcz, Keith [2000], "The Causal-Doxastic Theory of the Basing Relation", *Canadian Journal of Philosophy* 30, 4: 525-550.
- Kornblith, Hilary [1989], "How Internal Can You Get?", *Synthese* 74: 313-27; reprinted in Kornblith [2001], 111-125.

- [2000], "Linda Zagzebski's *Virtues of the Mind*", *Philosophy and Phenomenological Research* 60, 1: 197-201.
  - [2001], *Epistemology: Internalism and Externalism*, Oxford, Blackwell.
  - [2001b], "Internalism and Externalism: A Brief Historical Introduction", in Kornblith [2001], 1-9.
- Kripke, Saul [1980], *Naming and Necessity*, Cambridge, Harvard University Press.
- Kvanvig, Jonathan [1995], "The Knowability Paradox and the Prospects for Anti-Realism", *Nous* 29, 4: 481-500.
- [1996], *Warrant in Contemporary Epistemology: Essays in Honor of Plantinga's Theory of Knowledge*, Lanham, Rowan & Littlefield.
  - [1998], "Why Should Inquiring Minds Want to Know?: Meno Problems and Epistemological Axiology", *Monist* 81, 3: 426-51.
  - [1999], "Externalism and Epistemology Worth Doing", *Southern Journal of Philosophy* 38 (Supplement): 27-42.
  - [2000], "Zagzebski on Justification", *Philosophy and Phenomenological Research* 60, 1: 191-96.
  - [2004], "Nozickian Epistemology and the Value of Knowledge", *Philosophical Issues* 14, 201-18.
- Kuhn, Thomas [1970], *The Structure of Scientific Revolutions*, Chicago, University of Chicago Press.
- Laurence, Stephen and Cynthia Macdonald (editors) [1998], *Contemporary Readings in the Foundations of Metaphysics*, Oxford, Blackwell.
- Lammenranta, Markus [1996], "Reliabilism and Circularity", *Philosophy and Phenomenological Research* 56, 1: 111-24.
- Lehrer, Keith [1990], *Theory of Knowledge*, Boulder Westview.
- [2000], *Theory of Knowledge*. Boulder, Westview.
  - [2000a], "Discursive Knowledge", *Philosophy and Phenomenological Research* 60, 3: 637-53.

- Leonardi, Paolo and Marco Santambrogio [1995], *On Quine: New Essays*, New York, Cambridge University Press.
- Leplin, Jarrett (ed.) [1984], *Scientific Realism*, Berkley, University of California Press.
- [1984a], "Truth and Scientific Progress" in Leplin [1984], 193-217.
- Levin, Micheal [1997], "You Can Always Count on Reliabilism", *Philosophy and Phenomenological Research* 57, 3: 607-17.
- Levine, Joseph [2001], *Purple Haze*, Oxford, Oxford University Press.
- Lewis, David [1970a], "Anselm and Actuality", *Nous* 4: 175-88.
- [1970b], "How to Define Theoretical Terms", *Journal of Philosophy* 67: 427-445.
- [1986], *On the Plurality of Worlds*, Oxford, Basil.
- [1993], "Mathematics is Megethology", *Philosophia Mathematica* 3, 1: 3-23.
- Linsky, Benard and Edward Zalta [1995], "Naturalized Platonism and Platonized Naturalism", *Journal of Philosophy* 92, 10: 525-55.
- Liston, Michael [1993], "Reliability in Mathematical Physics", *Philosophy of Science* 60: 1-21.
- Loar, Brian [1982], "Conceptual Role and Truth Conditions", *Noter Dame Journal of Formal Logic* 23, 231-75.
- Loewer, Barry [1993], "The Value of Truth", *Philosophical Issues* 4, 265-80.
- Lycan, William [1998], *Judgement and Justification*, Cambridge, Cambridge.
- [1994], "Sartwell's Minimalist Analysis of Knowing", *Philosophical Studies* 73, 1: 1-3.
- Maddy, Penelope [1980], "Perceptions and Mathematical Intuition", *Philosophical Review* 89: 163-96.
- [1981], "Sets and Numbers", *Nous* 11: 495-511.
- [1984], "How the Causal Theorist Follows a Rule", *Midwest Studies in Philosophy* 9: 457-77.

- [1988], "Mathematical Realism", *Midwest Studies of Philosophy* 12: 275-85.
- [1990], *Realism in Mathematics*, Oxford, Oxford University Press.
- [1992], "Indispensability in Practice", *Journal of Philosophy* 89, 6: 275-89.
- [1995], "Naturalism and Ontology", *Philosophia Mathematica* 3, 3: 248-70.
- [1997], *Naturalism in Mathematics*, Oxford, Oxford University Press.
- Mahrer, Patrick [1990], "Acceptance Without Belief", *PSA* 1, 381-92.
- Malament, David [1982], "Review of *Science without Numbers*", *Journal of Philosophy* 79, 9: 523-34.
- Marcus, Ruth [1962], "Interpreting Quantification", *Inquiry* 5: 252-59.
- [1972], "Quantification and Ontology", *Nous* 6: 240-9.
- [1978], "Nominalism and the Substitutional Quantifier", *Monist* 61: 351-62.
- Marquis, Jean-Pierre [2000], "Critical Notice: J.P. Burgess and G. Rosen, *A Subject with no Object*", *Canadian Journal of Philosophy* 30, 1: 161-78.
- McKinsey, Micheal [1987], "A priori in the Philosophy of Language", *Philosophical Studies* 52: 1-32.
- McLarty, C [1993], "Numbers Can Be Just What They Have To", *Nous* 27: 487-98.
- McMullin, Ernan [1984], "A Case for Scientific Realism" in Leplin [1984], 8-40.
- Melnyk, Andrew [1997], "How to Keep the Physical in Physicalism", *Journal of Philosophy* 94, 12: 622-37
- Merricks, Trenton [1997], "More on Warrant's Entailing Truth", *Philosophy and Phenomenological Research*, 57, 3: 627-31.
- Mill, John Stuart [1869], *On Liberty*. London: Longman, Roberts & Green, 1869; Bartleby.com, 1999. [www.bartleby.com/130/](http://www.bartleby.com/130/).
- Mortensen, Chris [1998], "On the Possibility of Science Without Numbers", *Australasian Journal of Philosophy* 76, 2: 182-87.

- Morton, Adam [2000], "Saving Epistemology from the Epistemologists: Recent Work in the Theory of Knowledge", *British Journal for the Philosophy of Science* 51: 685-704.
- Moser, Paul [1987], *A priori Knowledge*, Oxford, Oxford University Press.
- [1989], *Knowledge and Evidence*, Cambridge, Cambridge University Press.
- [1998], "Epistemological Fission: On Unity and Diversity in Epistemology", *Monist* 81, 3: 335-70.
- Myro, George [1993], "Aspects of Acceptability", in Wagner and Warner (eds.) [1993], 197-210.
- Nozick, Robert [1981], "Knowledge and Skepticism", *Philosophical Explanations*, Cambridge, Harvard, 172-85, 197-217; reprinted in Sosa and Kim [2000], 79-101.
- Okasha, S. [2000], "Holism About Meaning and About Evidence: In Defense of W.V. Quine", *Erkenntnis* 52, 39-61.
- Oliveri, Gianluigi [1997], "Criticism and Growth of Mathematical Knowledge", *Philosophica Mathematica* 3, 5: 228-49.
- Orenstein, Alex [1978], *Existence and the Particular Quantifier*, Philadelphia, Temple University Press.
- Page, James [1993], "Parsons on Mathematical Intuition", *Mind* 102, 406: 223-32.
- Pappas, George (ed) [1979], *Justification and Knowledge*, New York, Reidel.
- [1980], "Lost Justification", *Midwest Studies in Philosophy* 5, 127-34.
- [2005], "Internalist vs. Externalist Conceptions of Epistemic Justification", *The Stanford Encyclopedia of Philosophy*, Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/spr2005/entries/justep-intext/>.
- [2005b], "Access Externalism", unpublished
- Pappas, George and Marshall Swain (eds.) [1978], *Essays on Knowledge and Justification*, Ithaca, Cornell University Press.
- Parsons, Charles [1979], "Mathematical Intuition", *Proceedings of the Aristotelian Society* NS, 80: 142-68

- [1983], *Mathematics in Philosophy: Selected Essays*, Ithaca, Cornell University Press.
- [1993], "On Some Difficulties Concerning Intuition and Intuitive Knowledge", *Mind* 102, 406: 233-46.
- [1995], "Quine and Godel on Analyticity", in Leonardi and Santambrogio [1995], 297-313.
- Pasnau, Robert [1996], "Who Needs an Answer to Skepticism?", *American Philosophical Quarterly* 33, 4: 421-32.
- Peressini, Anthony [1997], "Troubles with Indispensability: Applying Pure Mathematics in Physical Theory", *Philosophia Mathematica* 3, 5: 210-27.
- Perry, John [1980], "Belief and Acceptance", in French, Uehling, and Wettstein (eds.) [1980], 533-42.
- Plantinga, Alvin [1982], "How To Be an Anti-Realist", *Proceedings and Addresses of the APA*, 56, 1: 47-70.
- [1990], "Justification in the Twentieth Century", *Philosophy and Phenomenological Research* 50: 45-71.
- [1993], *Warrant: The Current Debate*, Oxford, Oxford University Press.
- [1993], *Warrant and Proper Function*, Oxford, Oxford University Press.
- Plato [1961], "Meno", in *Plato: The Collected Dialogues*, Edith Hamilton and Huntington Cairns (eds.), Princeton, Princeton.
- Pojman, Louis [1995], *What Can We Know?*, Belmont, Wadsworth.
- Pollock, John [1984], "Reliability and Justified Belief", *Canadian Journal of Philosophy* 14: 103-14.
- Prijic, Snjezana [1994], "Veritistic Evaluation in Social Epistemology", *Acta Analytica* 12: 81-9.
- Pryor, James [2001], "Highlights in Recent Epistemology", *British Journal for the Philosophy of Science* 52: 95-124.
- Psillos, Stathis [2000], "The Present State of the Scientific Realism Debate", *British Journal for the Philosophy of Science* 51: 705-28.

- [2004], "Tracking the Truth: Through Thick and Thin", *British Journal for the Philosophy of Science* 55: 393-409.
- Putnam, Hilary [1971], *Philosophy of Logic*, New York, Harper & Row.
- [1975], "What is Mathematical Truth?", *Mathematics, Matter, and Method: Philosophical Papers, Vol. 1*, Cambridge, Cambridge University Press, 60-78.
- [1980], "Models and Reality", *Journal of Symbolic Logic* 45.3: 464-82; reprinted in Benacerraf and Putnam [1983], 421-44.
- [1995], "Mathematical Necessity Reconsidered", in Leonardi and Santambrogio [1995], 267-82.
- Quine, W. V. [1948], "On What There Is", *Review of Metaphysics*; reprinted in Quine [1953], 1-19.
- [1951], "Two Dogmas of Empiricism", *Philosophical Review*; reprinted in Quine [1953], 20-46.
- [1951], "On Carnap's Views on Ontology", *Philosophical Studies* 2: 65-72; reprinted in Quine [1976], 203-11.
- [1953], *From a Logical Point of View: 9 Logico-Philosophical Essays*, Cambridge, Harvard University Press.
- [1957] "The Scope and Language of Science", *The British Journal for the Philosophy of Science*, VIII, 29, 1-17.
- [1960], "Posits and Reality" in *Basis of Contemporary Philosophy* (5), ed. by Uyeda, S., Tokyo, Waseda University Press; reprinted in Quine [1976], 233-41.
- [1960a], *Word and Object*, Cambridge, MIT Press.
- [1964], "Ontological Reduction and the World of Numbers", *Journal of Philosophy* 61; reprinted in Quine [1976], 212-20.
- [1968], "Ontological Relativity", *Journal of Philosophy* 65, 4: 185-212; reprinted in Quine [1969].
- [1969], *Ontological Relativity and Other Essays*, London, Columbia University Press.
- [1969a], "Existence and Quantification" in Quine [1969]

- [1969b], "Speaking of Objects" in Quine [1969]
  - [1969c], "Natural Kinds" in Quine [1969]
  - [1970], "Grades of Theoreticity" in Foster and Swanson (ed.) [1970]: 1-17.
  - [1974] *The Roots of Reference*, Open Court, La Salle.
  - [1976], *The Ways of Paradox and Other Essays*, Cambridge, Harvard University Press.
  - [1981], *Theories and Things*, Cambridge, Harvard University Press.
  - [1981a], "Things and Their Places in Theories", in Quine [1981], 1-23.
  - [1981b], "Five Milestones of Empiricism", in Quine [1981],
  - [1983], "Ontology and Ideology Revisited", *Journal of Philosophy* 80, 9: 499-502.
  - [1992], "Structure and Nature", *Journal of Philosophy* 89, 1: 5-9.
- Reichenbach, Hans [1948], "Rationalism and Empiricism: An Inquiry into the Roots of Philosophical Error", *The Philosophical Review* 57, 4: 330-46.
- [1949], "A Conversation Between Bertrand Russell and David Hume", *Journal of Philosophy* 46, 17: 545-49.
- Resnik, David [1994], "Epistemic Value: Truth or Explanation", *Metaphilosophy* 25, 4: 248-61.
- Resnik, Michael [1982], "Mathematics as a Science of Patterns: Epistemology", *Nous* 16, 95-105.
- [1985], "How Nominalist Is Hartry Field's Nominalism?", *Philosophical Studies* 47: 163-81.
  - [1986] "Reply to Roger F. Gibson Jr", in Hahn and Schlipp [1986]
  - [1990], "Beliefs About Mathematical Objects", in Irvine [1990], 41-71.
  - [1991] "Two Dogmas in Retrospect", *Canadian Journal of Philosophy*, 265-74.



- [1994] *In conversation: W.V. Quine* [videorecording], produced and directed by Rudolf Fara ; a Philosophy International production; London : Philosophy International, Centre for the Philosophy of the Natural and Social Sciences, London School of Economics.
- [1995], "Scientific vs. Mathematical Realism: The Indispensability Argument", *Philosophia Mathematica* 3, 3: 166-174.
- [1997], *Mathematics as a Science of Patterns*, Oxford, Oxford University Press.
- Riggs, Wayne [1998], "What Are the Chances of Being Justified", *Monist* 81, 3: 452-72.
- [2002], "Beyond Truth and Falsehood: The Real Value of Knowing that *P*", *Philosophical Studies* 107, 87-108.
- Rorty, Amelie [2000], "Distinctive Measures of Epistemic Evaluation: Character as the Configuration of Traits ", *Philosophy and Phenomenological Research* 60, 1: 203-6.
- Rorty, Richard [1979], *Philosophy and the Mirror of Nature*, Princeton, Princeton University Press.
- Rosen, Gideon [1993], "The Refutation of Nominalism", *Philosophical Topics* 21, 149-86.
- Routley, Richard [1982], "On What There is Not", *Philosophy and Phenomenological Research* 43, 2: 151-77.
- Russell, Bertrand [1919], *Introduction to Mathematical Philosophy*, London, Allen & Irwin; reprinted New York, Dover, [1993].
- Sartwell, Crispin [1992], "Why Knowledge Is Merely True Belief", *Journal of Philosophy* 89, 4: 167-80.
- Scheffler, Israel [1963], *Anatomy of Inquiry*, New York, Alfred A Knopf.
- Schlick, Moritz [1932], "Positivism and Realism", *Erkenntnis* III.
- Schmitt, Frederick [1992], *Knowledge and Belief*, New York, Routledge.
- [1994], *Socializing Epistemology*, Rowman and Littlefield, Lanham.
- Schuldenfrei, Richard [1972], "Quine in Perspective", *Journal of Philosophy* 69, 1: 5-16.

- Schwartz, Robert [1995], "Is Mathematical Competence Innate?", *Philosophy of Science* 62: 227-40.
- Sellars, Wilfrid [1956], *Empiricism and the Philosophy of Mind*, in *Minnesota Studies in the Philosophy of Science* 1; reprinted Cambridge, Harvard University Press, 1997.
- Shapiro, Stewart [1983], "Conservativeness and Incompleteness", *Journal of Philosophy* 80, 6: 521-31.
- [1993a], "Mathematics and Reality", *Philosophy of Science* 50: 523-48.
- [1989], "Logic, Ontology and Mathematical Practice", *Synthese* 79: 13-50.
- [1991], *Foundations without Foundationalism: A Case for Second Order Logic*, Oxford, Oxford University Press.
- [1994], "Mathematics and the Philosophy of Mathematics", *Philosophia Mathematica* 3, 2: 148-60.
- [1997], *Philosophy of Mathematics: Structure and Ontology*, New York, Oxford University Press.
- [1997a], "Review of *A Subject with no Object*", unpublished.
- [2000], *Thinking about Mathematics*, Oxford, Oxford University Press.
- [2000a], "Externalism, Anti-realism, and the KK-thesis", unpublished.
- Shapiro, Stewart and A. Weir [2000], "'Neo-logicist' Logic is not Epistemically Innocent", *Philosophia Mathematica* 3, 8, 2.
- Shogenji, Tomoji [2000], "Self-Dependent Justification Without Circularity", *British Journal for the Philosophy of Science* 51: 287-98.
- Sklar, Lawrence [1967], "Types of Inter-theoretic Reduction", *British Journal for the Philosophy of Science*: 109-24.
- [1985], *Philosophy and Spacetime Physics*, Berkeley, University of California Press.
- [1985a], "Moderately Radical Empiricism" in Sklar [1985], 167-88.
- [1985b], "Saving the Noumena" in Sklar [1985], 49-72.

- [1985c], “Semantic Analogy” Sklar [1985], 215-33.
  - [1992], *Philosophy of Physics*, Boulder, Westview Press.
  - [2000], *Theory and Truth: Philosophical Critique Within Foundational Science*, Oxford, Oxford University Press.
- Skorupski, John [1998], *The Cambridge Companion to Mill*, Cambridge, Cambridge University Press.
- Smart, J. J. C. [1968], “Quine’s Philosophy of Science”, *Synthese* 19: 3-31.
- Sober, Elliott [1993]. “Mathematics and Indispensability”, *Philosophical Review* 102, 1: 35-57.
- Sosa, Ernest [1980], “The Raft and the Pyramid”, *Midwest Studies in Philosophy* 5: 3-25; reprinted in Sosa and Kim [2000], 134-53.
- [1985], “The Coherence of Virtue and the Virtue of Coherence”, *Synthese* 64: 3-28.
  - [1991], *Knowledge in Perspective: Selected Essays in Epistemology*, Cambridge, Cambridge University Press.
  - [1994], “Philosophical Skepticism and Epistemic Circularity”, *Aristotelian Society Supplemental* 68: 263-90.
  - [1997], “Reflective Knowledge in the Best Circles”, *Journal of Philosophy* 94: 410-30; reprinted in Sosa and Kim [2000], 274-86.
  - [2002], “Reliability and the A Priori”, in Gendler (ed.) [2002], 369-84.
- Sosa, Ernest and John Greco [1999], *The Blackwell Guide to Epistemology*, Malden, Blackwell.
- Sosa, Ernest and Jaegwon Kim (ed) [2000], *Epistemology: An Anthology*, Malden, Blackwell.
- Steiner, Mark [1975], *Mathematical Knowledge*, Ithaca, Cornell University Press.
- [1978], “Mathematical Explanation and Scientific Knowledge”, *Nous* 12: 17-28.
  - [1995], “The Applicabilities of Mathematics”, *Philosophia Mathematica* 3, 3: 129-56.

- [1998], *The Applicability of Mathematics as a Philosophical Problem*, Cambridge, Harvard University Press.
- Steup, Matthias [1988], “The Deontic Conception of Epistemic Justification”, *Philosophical Studies* 53: 65-84.
- [1996], *An Introduction to Contemporary Epistemology*, Upper Saddle River, Prentice Hall.
- [2000], “Doxastic Voluntarism and Epistemic Deontology”, *Acta Analytica* 15,24: 25-56.
- [2001], *Knowledge, Truth, and Duty: Essays in Epistemic Justification, Responsibility, and Virtue*, Oxford, Oxford.
- [2004], “Internalist Reliabilism”, *Philosophical Issues*, 14, Epistemology; 403-25.
- Stich, Stephen [1991], *The Fragmentation of Reason*, MIT Press, Cambridge.
- “*The Fragmentation of Reason: Precis of Two Chapters*”, *Philosophy and Phenomenological Research* 51, 4: 179-83.
- Stillwell, Shelley [1989], “Plantinga and Anti-Realism”, *Synthese* 78: 87-115.
- Stroud, Barry [1994], “Skepticism, ‘Externalism’, and the Goal of Epistemology”, *Proceedings of the Aristotelian Society: Supplementary Volume*; reprinted in Stroud [2000], 139-54.
- [2000], *Understanding Human Knowledge*, Oxford, Oxford.
- Sturgeon, Scott [1991], “Truth in Epistemology”, *Philosophy and Phenomenological Research* 51, 1: 99-108.
- Sullivan, P and M. P. Potter [1997], “Hale on Caesar”, *Philosophia Mathematica* 3, 5: 135-52.
- Swain, Marshall [1981], *Reasons and Knowledge*, Ithaca, Cornell University Press.
- [1988], “Alston’s Internalistic Externalism”, *Philosophical Perspectives* 2: 461-73.
- [1996], “Warrant Versus Indefeasible Justification”, in Kvanvig [1996], 131-48.
- Tennant, Neil [1997], “On the Necessary Existence of Numbers”, *Nous* 31, 3: 307-36.

- [1999], “Radical Interpretation, Logic, and Conceptual Schemes”, in De Caro [1999]: 71-91.
- Tidman, Paul [1996], “The Justification of A Priori Intuitions”, *Philosophy and Phenomenological Research* 56, 1: 161-71.
- Vahid, Hamid [1998], “The Internalism/Externalism Controversy: The Epistemization of an Older Debate”, *Dialectica*. 52, 3: 229-46.
- van Fraassen, Bas [1980], *The Scientific Image*, Oxford, Clarendon Press.
- [1995], “Against Naturalized Epistemology”, in Leonardi and Santambrogio [1995], 68-88.
- Vihvelin, Kadri [2000], “A Defense of a Reliabilist Account of A priori Knowledge”, *Pacific Philosophical Quarterly* 81: 90-7.
- Vogel, Jonathan [2000], “Reliabilism Leveled”, *Journal of Philosophy* 97, 11: 602-23.
- Wagner, Steven and Richard Wagner (eds.) [1993], *Naturalism: A Critical Appraisal*, Notre Dame, Notre Dame.
- Weinberg, S [1986], “Lecture on the Applicability of Mathematics”, *Notices of the American Mathematical Society*, 33.
- Williams, Micheal [2000], “Dretske on Epistemic Entitlement”, *Philosophy and Phenomenological Research* 60, 3: 607-12.
- [2001], “Contextualism, Externalism, and Epistemic Standards”, *Philosophical Studies* 103: 1-23.
- Williamson, Timothy [2000], “Skepticism and Evidence”, *Philosophy and Phenomenological Research* 60, 3: 613-28.
- Wigner, Eugene [1960], “The Unreasonable Effectiveness of Mathematics in the Natural Sciences”, *Communications in Pure and Applied Mathematics* 13, 1.
- Wright, Crispin [1983], *Frege’s Conception of Numbers as Objects*, Great Britain, Aberdeen.
- [1989], “The Verification Principle: Another Puncture”, *Mind* 98: 611-22.
- [1990] “Field and Fregean Platonism”, in Irvine [1990], 73-94.

- [1997], "On the Philosophical Significance Frege's Theorem" Heck [1997], 203-44.
- Wright, Crispin and Bob Hale [1992], "Nominalism and the Contingency of Abstract Objects", *Journal of Philosophy* 89, 03: 111-35.
- Wright, Maxwell [1965], "'I Know' and Other Performatives", *Australian Journal of Philosophy* 43, 1: 35-47.
- Yablo, Stephen, "A Paradox of Existence" in Everett and Hofweber [2000], 275-312.
- Yi, Byeong-Uk [1999], "Is Two a Property?", *Journal of Philosophy* 96, 4: 163-90.
- Zabzebski, Linda [2000], "Precis of *Virtues of the Mind*", *Philosophy and Phenomenological Research* 60, 1: 169-177.
- [2000], "Responses", *Philosophy and Phenomenological Research* 60, 1: 207-19.
- Zalta, Edward [1983], *Abstract Objects*, Dordrecht, Reidel.
- [2000], "Neo-logicism? An Ontological reduction of Mathematics to Metaphysics", *Erkenntnis* 53: 219-65.