

Why Naturalized Epistemology Is Normative

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Quine's naturalized epistemology has many admirers but few adherents. Most contemporary epistemological naturalists acknowledge that W.V.O. Quine established this approach to epistemology with his 1969 essay, "Epistemology Naturalized." Epistemological naturalism is widespread today, yet few contemporary epistemological naturalists consider themselves Quineans. The conventional wisdom is that Quine went too far—that he advocated the wholesale replacement of epistemology with psychology.¹

Epistemology is a normative discipline. The central questions of epistemology concern what people *ought* to believe.² Major tasks of Western epistemology include responding to the skeptic, analyzing justification, and formulating recommendations for generating and revising beliefs. One of the most common objections to Quine's naturalism is that it dismisses the traditional normative questions that motivated epistemology in the first place.³ Many philosophers doubt that Quine's emphasis on empirical research is relevant to normative epistemology. Science is generally considered to be a descriptive enterprise. Most philosophers don't think that science can measure the goodness of reasons or discover the standards that ought to regulate our belief-forming practices.

Jaegwon Kim is one of Quine's leading naturalist critics. His 1988 essay "What is 'Naturalized Epistemology'?" is the most influential version of the so-called "normativity objection." Kim argues that Quine's program is not a worthy successor to classical epistemology because Quine wants to abandon the "entire framework of justification-centered epistemology."⁴

I will argue that Quine's naturalized epistemology *is* normative because it offers useful advice for accomplishing our cognitive goals—most importantly, truth. Questions about how people ought to reason cannot be answered in isolation from questions about

how people actually reason.⁵ Not all relevant epistemological or methodological norms can be deduced *a priori*.⁶ How we ought to formulate our beliefs depends upon contingent facts about what we are like and what kind of environment we operate in. Our cognitive strengths and weaknesses are not necessarily obvious or amenable to introspection. Therefore, we must test our belief-forming mechanisms to see how reliable they are.

Quine argues that distinctions between science, epistemology, and common sense are arbitrary. Naturalized epistemology studies human belief-forming mechanisms in the context of the external world, with a view toward improving our cognitive practices. Therefore, the naturalized epistemologist is interested in scientific facts about human cognition and methodological questions about science itself. As knowledge-generating mechanisms go, science seems to be unusually successful. Therefore, the naturalized epistemologist is curious about why it works so well and whether any of these methodological principles can be generalized to our everyday thought.

The goal of naturalized epistemology is to determine the best methods for forming and revising our beliefs. The two basic strategies are to test the reliability of our belief-forming mechanisms and to investigate the causal links between the external world and our beliefs. Traditional epistemologists have criticized reliabilist and causal theories of knowledge as accounts of our pre-theoretical concepts of justification. Naturalized epistemologists counter that the goal of epistemology is to articulate ideals rather than to analyze our existing concepts.⁷

Post-Fregean Epistemology vs Naturalized Epistemology

Quine's naturalism stands in stark contrast to the prevailing epistemological climate of his day. Philip Kitcher offers this historical context for Quine's views:

Epistemological naturalism can be characterized negatively by its rejection of post-Fregean approaches to these investigations. For many Anglo-American philosophers from the 1930s to the present, the epistemological issues I have mentioned reduce to questions of logic, conceptual analysis, or ‘grammar.’ Knowledge is viewed as a species of true belief and a primary philosophical task is to specify and analyze the crucial ‘third condition.’ This is to be accomplished by identifying which *logical properties and/or logical relationships among propositions* suffice for justification (or whatever other epistemic property is required to turn true belief into knowledge).⁸

Traditional analytic epistemology prides itself on a distinctive method: *a priori* reflections on our preexisting concepts.⁹ The goal is to formulate necessary and sufficient conditions for the application of an epistemic concept (typically justification), and test this analysis against our pre-theoretical intuitions. Traditional epistemologists often attempt to analyze justification by proposing a criterion and testing it with thought experiments. A successful criterion should include every case that we would intuitively consider to be an instance of knowledge and exclude every scenario in which our intuitions tell us that knowledge is lacking.¹⁰ Famous examples of this method include the celebrated Gettier cases¹¹ and BonJour’s reliable telepath scenario.¹²

A priori knowledge occupies a very special place in traditional epistemology. There are several reasons. Conceptual analysis was the dominant methodology of 20th century Anglo-Analytic philosophy. Its proponents believed that *a priori* knowledge could be gleaned from reflection on our epistemic concepts, the conditions of their application, and/or their grammatical or semantic characteristics. This *a priori* knowledge was generally thought to consist of analytic truths about our epistemic concepts or the terms used to express them in ordinary language.

A priori knowledge is purported to have many attractive features. Knowledge prior to experience is useful for epistemologists who wish to find a firm foundation for

their beliefs. *A priori* knowledge does not presuppose any empirical facts—this is often thought to be why *a priori* truths are necessarily true. If you can know something *a priori*, your evidence did not come from some particular feature of the actual world. Therefore, anything known *a priori* is known in all possible worlds.

Finally, *a priori* knowledge is supposed to ground normativity. There are various ways in which this idea can be elaborated. It is often said that epistemic norms are rational constraints. If so, every rational person *should* agree that the conclusion of a valid deductive argument follows from its premises. Some philosophers think that there are analogous *a priori* rules that apply to everyday or scientific knowledge. A related claim is that the correct analysis of justification will turn out to be an analytic truth. If so, everyone who studies justification will be compelled to acknowledge that the correct analysis has explained what justification *is*.

Quine's Naturalized Epistemology: Anti-Apriorism and Psychologism

The two fundamental tenets of Quine's naturalized epistemology are:

- 1) skepticism about *a priori* knowledge, and
- 2) psychologism—the thesis that the psychological processes that generate and sustain a belief are relevant to its justification.

Quine denies that we can know any epistemological principles *a priori*. Naturalists are dubious about the *a priori* for a variety of reasons. When we look at our species and its history in naturalistic terms, it seems implausible that organisms like ourselves could possess much in the way of *a priori* knowledge.¹³

Quine's skepticism about conceptual analysis goes even deeper. In "Two Dogmas of Empiricism," he argues that the analytic/synthetic distinction is unsupportable. Previ-

ous generations of philosophers believed that it was possible to make a sharp distinction between truths of meaning and truths of fact. Analytic truths were held to be known *a priori*, synthetic truths *a posteriori*. If we share Quine's assumption that analytic truths are truths of meaning, and that language is the vehicle of meaning, then details of language acquisition take on philosophical significance. According to Quine, sensory evidence is all the evidence there *is* for the meanings of words.¹⁴ Quine argues that all of our knowledge is an inseparable combination of *a posteriori* and *a priori* truth.

Unlike the logical empiricists, Quine does not believe that every meaningful expression is keyed directly to observable experience. Some phrases are inculcated by direct ostension or explicit definition, but others are inferred or projected beyond observational data.

For Quine, language acquisition is a form of scientific discovery. Every infant learns her native language by observing the behavior of mature speakers in a shared environment. The infant learns to associate phrases with publicly observable objects. She must extrapolate general principles from a small number of observations.¹⁵

Some of these children will grow up to be philosophers. If they are trained in the Anglo-American tradition, they will go on to analyze these empirically-generated concepts. Traditional epistemologists argue that this activity is a unique philosophical method that separates philosophical inquiry from empirical inquiry. On the traditional view, the philosopher is engaging in *a priori* reflection on a concept in order to extract analytic truths about that concept. But according to the naturalized epistemologist, the philosopher is not engaging in pure *a priori* reasoning. Instead, she is reflecting on an

empirically-based theory—the theory she developed datum-by-datum in the course of language-learning.

Quine argues that the effect of rejecting the analytic/synthetic distinction was “a blurring of the supposed boundary between speculative metaphysics and natural science.”¹⁶ *A fortiori* the boundaries between epistemology and natural science are also blurred. Quine explains:

Our very epistemological enterprise, therefore, and the psychology wherein it is a component chapter, and the whole of natural science wherein psychology is a component book—all this is our own construction or projection from stimulations like those we were meteing out to the experimental subject. Thus there is reciprocal containment, though containment in different senses: epistemology in natural science and natural science in epistemology.¹⁷

If all of our concepts are already assembled from experience, then it seems foolish to restrict ourselves to an arbitrary subset of so-called *a priori* truths. As Quine likes to say, scientists and philosophers are together in Neurath’s boat.

Psychologism, the other fundamental tenet of naturalized epistemology, is the thesis that beliefs are justified by the psychological processes that generate and sustain them. Weak psychologism holds that the concepts of psychology are relevant to epistemology, whereas strong psychologism holds that both the concepts and the findings of empirical psychology are relevant.¹⁸

It is clear from Quine’s description of his program that he is a strong psychologist:

[Naturalized epistemology] studies a natural phenomenon, viz. a physical human subject. This human subject is accorded 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.¹⁹

Epistemology Naturalized

Quine says that epistemology is about the foundations of science. For Quine the foundations of science *are* the foundations of our knowledge of the external world at large.

Quine identifies two sub-projects within classical epistemology: the doctrinal and the conceptual. Doctrinal epistemology is the attempt to derive our knowledge of the world from immediate experience. Conceptual inquiries clarify our epistemic concepts by defining less obvious ones in terms of more obvious ones.

Descartes was concerned primarily with doctrinal epistemology. He wanted to know whether he could justify his belief in the external world by identifying a class of basic beliefs and showing that his non-basic beliefs could be derived from the basic ones through a series of deductions. The basic beliefs upon which Descartes attempted to build his doxastic house were facts about his immediate conscious experience. Descartes wanted to satisfy himself that he was *entitled* to his pre-theoretical beliefs by rationally reconstructing them.

The Cartesian program had long since been abandoned when Quine wrote "Epistemology Naturalized." No one ever managed to derive truths about the objective external world from knowledge of the private, specious present. Quine argues that Hume's problem of induction proved that doctrinal epistemology was hopeless. Hume shows that theory cannot be logically deduced from observation.²⁰ The human predicament is the Humean predicament, Quine says.²¹ There is no way to imbue theory with the epistemic status of immediate experience.

In Quine's day, foundationalism was alive and well among the empiricists. The logical empiricists believed that experience was the foundation of all knowledge. They shared Descartes' assumption that each person has infallible knowledge of her own immediate experience and command of the self-evident truths of logic.²²

Rudolf Carnap was a leading proponent of conceptual reduction. His 1928 *Der logische Aufbau der Welt* was an attempt to show that our scientific concepts reduced to statements about immediate experience.²³ According to Quine, Carnap had two goals: to show that we didn't need to solve the problem of the external world in order to get on with science, and to demonstrate how theory relates to evidence by reducing theory to its observational basis.²⁴ Carnap reasoned that if all of the statements of science could be translated into statements about immediate experience, then it would be unnecessary to posit physical objects. If reference to the external world could be eliminated through definition, then we would no longer need to explain how we could know about the external world. Carnap's project failed. Quine thinks it failed because of the holistic character of meaning.

Carnap wanted a rational reconstruction of science. He wanted to paraphrase all of our unclear concepts into the clearest possible terms—terms about immediate experience and logic. If he had succeeded, he would have shown that we are in some sense *entitled* to our scientific statements. Of course, we wouldn't thereby establish that any of these statements were true. But at the very least, we'd know that we *knew* what we were talking about.

It was during his discussion of Carnap's rational reconstruction that Quine made this famous remark:

The stimulation of his sensory receptors is all the evidence anybody has had to go on, ultimately, in arriving at his picture of the world. Why not just see how this construction really proceeds? Why not settle for psychology?²⁵

This passage is often cited out of context. Quine's detractors frequently point to it as proof positive that Quine has contempt for normativity. Kim concludes from this that Quine wants to replace Carnap's normative project with a purely descriptive science. In fact, Quine is arguing that the scientific approach could serve *the same function* as Carnap's rational reconstruction. Quine explains that Carnap decided that total reduction was impossible and suggested a more liberal translation scheme that offered implications rather than definitions. The Carnap of *Afbau* would have argued that "copper" *means* the same thing as a (very long) string of observation terms — for example: "shiny, orange, malleable, metallic, ...". Later, in "Testability and Meaning" (1936), Carnap revises his view, claiming that the term "copper" implies certain observational statements, but that those observation statements don't define the term.²⁶ Quine wrote:

"To relax the demand for definition, and settle for a kind of reductionism that does not eliminate, is to renounce the last remaining advantage that we supposed rational reconstruction to have over straight psychology; namely, the advantage of translational reduction. If all we hope for is a reconstruction that links science to experience in explicit ways short of translation, then it would seem more sensible to settle for psychology. Better to discover how science is in fact developed and learned than to fabricate a fictitious structure to a similar effect."²⁷

Quine's other critical insight was that theory is underdetermined by evidence. If our picture of the world were *determined* by our sensory evidence, we might have some hope of rationally reconstructing our theory from the evidence. Unfortunately, underdetermination means that our evidence does not strictly imply any particular set of beliefs. There is invariably a gap between theory and evidence. We can't expect to find reasons that justify all of our beliefs, because theory sometimes relates to evidence in arbitrary

ways. The dynamics cannot be deduced from first principles because they depend upon *a posteriori* facts about the organism. Different kinds of organisms are sensitive to different forms of evidence. A bat perceives sonar directly, but human beings are only aware of sonar if they have sophisticated measuring apparatus, elaborate background theory, and special training.

Kim's Critique

Kim characterizes the two main tasks of epistemology as follows: to determine which standards we ought to use to regulate the acceptance of propositions, and to evaluate what we know according to those criteria.²⁸ Kim argues that Quine's program is irrelevant to epistemology because it deviates so far from these traditional goals.

Kim raises the following objections to Quine's program: that it changes the subject, that it risks committing the naturalistic fallacy, that empirical psychology is irrelevant to justification, and that the acknowledged failure of foundationalism does not warrant a repudiation of normative epistemology. These objections are closely interconnected. Taken together Kim's objections form a coordinated assault on the two cardinal tenets of naturalized epistemology: pessimism about the *a priori*, and psychologism.

Kim's first move is to accuse Quine of changing the subject. Epistemology is supposed to be about *knowledge*, but all epistemic terms are intrinsically normative.²⁹ For example, Kim believes that it is an analytic or conceptual truth that justification is necessary for knowledge. Justification is a normative concept. On Kim's view, if a belief is justified for us, then it is epistemically permissible or reasonable for us to hold it.³⁰ He believes that justification is a logical relation between beliefs and evidence.³¹ In his opinion, science can only discover causal or nomological relationships between stimulus and

response. Quine's naturalized epistemology can't be a successor to classical epistemology because the two study fundamentally different relations.

Kim maintains that if Quine's epistemology rejects the concept of justification, it ceases to study knowledge. On his view, Quine's investigations could not even be about *belief* because belief has an intrinsically normative dimension. Belief attribution requires belief evaluation, Kim argues.³² In other words, we cannot recognize a state as being a belief-state unless we make certain normative assumptions about the agent whom we are trying to interpret.

Kim presents a dilemma for Quine: you must either be repudiating justification or committing the naturalistic fallacy—the misapprehension that something is good or desirable simply because it is that way. Generally speaking, a description of a practice is not sufficient to legitimate or recommend it. No matter how well we describe or explain the phenomenon, there is always the question as to whether it *should* be done that way.

Quineans who argue that natural facts about human cognitive processes justify beliefs must defend themselves against charges that their naturalism fails to ground any norms. Epistemology is supposed to tell us how we ought to reason. Cognitive psychology can only describe how people actually go about forming their beliefs. No amount of data about how people actually reason can establish that they ought to reason as they do. No scientific explanation of cognition can justify our cognitive practices.

In a related vein, Kim argues that Quine's emphasis on empirical details is misplaced. If justification is purely a logical relationship between propositions, then it is difficult to see why the *a posteriori* details would be relevant.

Finally, Kim argues that Quine is overreacting to the failure of foundationalism. Kim agrees with Quine's critique of traditional epistemology, but claims that the vast majority of philosophers view the shortcomings that Quine describes as unremarkable.³³ Kim thinks it's obvious that we can't deduce theory from immediate experience. Everyone already knows that Cartesian foundationalism is dead, and virtually no one ever took translational reductionism seriously anyway. Everyone agrees that Hume's problem of induction remains unsolved and no one is holding out hope for a resolution. On Kim's view, Quine has assembled some commonplaces about the limitations of foundationalism and used them as a stick to beat normative epistemology with. Kim thinks that there are much better options for naturalistically-oriented epistemologists. His preferred solution is to study the normative properties that allegedly supervene upon natural facts.

Epistemology Normalized: A Quinean Reply

I disagree with Kim's claim that Quine's epistemology ignores normativity. Kim takes it for granted that causal and nomological relations are *not* sufficient to establish normativity. Natural facts determine the best means to our cognitive ends. If you want to measure the liquid in a flask, then you should read below the meniscus for the most accurate measurement. Our increasing empirical knowledge changes the sorts of things that we *ought* to take as evidence for claims.

Kim accuses Quine of changing the subject. But, as we have already discussed, Quine's claim that naturalized epistemology is a chapter of psychology sounds much more radical than it really is. It is misleading to construe Quine as a replacement naturalist. Quine believes that science and philosophy are already mutually contained. Once we give up on the Cartesian dream of vindicating science from first principles, there is no

reason to deprive ourselves of psychological research, or any other empirical evidence that might help us improve the reliability of our belief-forming practices. All evidence for science is sensory evidence. Therefore, we must use science to investigate science. Many of the problems of knowledge are *scientific* problems. If we are not confident in our conceptual and perceptual abilities, then we *should* not be confident in the scientific theories that rest on human observations and inferences.

Contrary to Kim's implication, naturalized epistemology does not commit the naturalistic fallacy. This is because it is actually possible to measure the reliability of cognitive practices. The psychologist doesn't affirm that all cognitive practices are equally good—there are whole branches of psychology devoted to the study of human error.³⁴

Naturalized epistemology can measure human performance in experimental situations. Typically, experimental psychologists *test* their subjects. That is, they ask questions to which the answers are already known. The psychologist knows the right answer because she controls the experimental inputs. Of course, this type of research won't impress a skeptic who is determined to suspend judgment until we rule out the possibility that we're brains in vats. But Kim isn't attacking Quine from a skeptical point of view. Kim agrees that first philosophy is a lost cause.

The verdicts of traditional epistemology are supposed to be normative because they are implicit in our everyday concept of rationality. However, as Philip Kitcher notes, analytic truths do not establish normative standards in and of themselves.³⁵ Let's put aside Quinean worries for now and suppose that we have *a priori* knowledge that justification is an internal state of the subject in which the propositions he believes stand in

logical relation X. Having uncovered this analytic truth, we can still ask why we should care about the concept of justification we have just explicated. Perhaps our everyday concepts of knowledge and justification need to be amended or even replaced.

Traditional epistemologists often criticize naturalized epistemology for its lack of normative force, but analytic epistemology is even more vulnerable to these charges.

Traditional epistemologists hoped to discover analytic truths about justification. But the failure of analyticity to ground normativity is fully general. Quine argues that each person's understanding of justification represents her best guess based on her data to date. Naturalized epistemology assigns no special status to intuitions about the criteria for justification. For a naturalized epistemologist, the question is not "What do we mean by justification?" but rather "What kinds of reasoning or evidence are conducive to true beliefs?"

Kim denies that psychological details are relevant to justification. Yet even traditional epistemologists are forced to endorse a minimal commitment to psychologism. Whatever logical property justification is supposed to consist in, it is possible that a person's beliefs could stand in that relationship without that person thereby having knowledge. If a person believes $p \rightarrow q$, p , and q , he doesn't know q unless he came to believe q because he believed in $p \rightarrow q$ and p . If he happens to believe q because of a lucky guess, he still doesn't know it, even though his beliefs stand in the correct logical relation. It is a psychological question whether the person realizes the implications of his beliefs and concludes q , or whether he came to believe q for some other (bad) reason.³⁶

Strong psychologists will press the point even further. They note that how much weight we ought to give to different types of evidence depends in part on what mecha-

nisms are involved. Many long-running debates in epistemology concern the status of our knowledge of specific domains like memory, testimony, and the mental states of others. Empirical data about how human memories work bears on the epistemic status of memory. It may make a normative difference whether remembering is more akin to replaying a videotape or assembling a jigsaw puzzle. Of course, whatever we learn about memory will bear on the status of other epistemic domains that involve memory. It is an empirical question to what extent our knowledge of the past or our self-knowledge depends on memory.

The debate over innate ideas is naturalized epistemology in action. The controversy spans philosophy and science. For example, some versions of the philosophically controversial “poverty of the stimulus” argument are empirically motivated. Some linguists (and philosophers) claim that human infants have innate knowledge of grammar, because they are not exposed to sufficient evidence to learn the grammar of their native language from scratch. This claim is motivated by observations of infants and their environments. Some argue that observed input is insufficient to explain output, and therefore conclude that children are born with some innate knowledge of grammar. Others argue that there *must* be some as-yet misunderstood mechanism that accounts for empirical language learning. (For example, Quine was not sympathetic to nativist arguments for language acquisition.)³⁷

Note that the scientists are appealing to traditionally “philosophical” concepts like evidence and justification. The philosophers are relying on empirical evidence about language acquisition. Everyone is appealing to more general methodological and conceptual ideas like parsimony, explanatory power, inference to the best explanation, and so on. A

traditional epistemologist might dismiss the linguist's claims about innate knowledge for purely conceptual reasons. For example she might claim to know *a priori* that no one can be born with knowledge because no one is born with justification. By contrast, a naturalized epistemologist need not be bound by her pre-theoretical intuitions.

The philosophers and the scientists are negotiating about how best to describe human cognitive development. Everyone agrees that the mind has some innate structure. If the evidence suggests that infants are born with a certain set of capacities or dispositions, what are our grounds for applying or withholding the term "knowledge"? Quine argues that there is no difference in principle between modifying the language that we use to describe a phenomenon and modifying our claims about the phenomenon itself.

Normativity by Hypothetical Imperative

Quine argues that epistemology ought to be naturalized as an applied science like engineering. On this view, the primary task of naturalized epistemology is to generate recommendations for accomplishing our epistemic goals. If we wish to understand knowledge, we have no choice but to study it as a natural phenomenon. Quine writes:

Insofar as theoretical epistemology gets naturalized into a chapter of theoretical science, so normative epistemology gets naturalized into a chapter of engineering: the technology of anticipating sensory stimulation.³⁸

Naturalized epistemology issues hypothetical imperatives. These are statements about the best means to cognitive ends. If you want true beliefs, these are the guidelines you ought to follow.

Scientific methodology issues advice of the same kind. If you want to find out how many calories there are in a tomato, scientists advise you to incinerate it in a calorimeter and measure the heat it emits. Choose the right calorimeter. Make sure that it has

been well calibrated and that it is designed to accommodate moist samples. For further guidance, consult the relevant literature. Peer-reviewed journals are probably a better source of calorimeter reviews than the manufacturer's promotional brochures.

I have argued that Quine's naturalized epistemology is normative because its goal is to describe the best means to our cognitive ends. Quine naturalized epistemology by rejecting the primacy of *a priori* knowledge and embracing psychologism. The charge that Quine wishes to replace a normative epistemology with a purely descriptive psychology is unfounded. How could Quine be advocating the replacement of one approach with the other if he believes that the two are already one and the same?

Notes

1. Steven Stich, "Naturalizing Epistemology: Quine, Simon and the Prospects for Pragmatism," in *Philosophy and Cognitive Science*, Royal Institute of Philosophy, supplement no. 34, ed. C. Hookway and D. Peterson (Cambridge: Cambridge University Press, 1993), pp. 2-3, <http://rucss.rutgers.edu/ArchiveFolder/Research%20Group/People/NaturalizingEpistem.htm>.

2. Jaegwon Kim, "What is 'Naturalized Epistemology'?", *Philosophical Perspectives* 2, Epistemology (1988), ed. James E. Tomberlin, p. 381.

3. Richard Feldman, "Naturalized Epistemology," *The Stanford Encyclopedia of Philosophy (Fall 2001 Edition)*, ed. Edward N. Zalta, <http://plato.stanford.edu/archives/fall2001/entries/epistemology-naturalized/>

4. Kim, "What is 'Naturalized Epistemology'?", p. 388.

5. Hilary Kornblith, "Introduction: What Is Naturalistic Epistemology?", *Naturalizing Epistemology*, ed. Kornblith, 2nd ed. (Cambridge, MA: The MIT Press, 1994), p. 1.

6. Philip Kitcher, "The Naturalists Return," *The Philosophical Review* 101, no. 1 (1992), p. 78.

7. *Ibid.*, p. 65.

8. *Ibid.*, p. 56.

9. *Ibid.*, p. 54.

10. Matthias Steup, "The Analysis of Knowledge," *The Stanford Encyclopedia of Philosophy (Spring 2001 Edition)*, ed. Edward N. Zalta, <http://plato.stanford.edu/archives/spr2001/entries/knowledge-analysis/>

11. Edmund L. Gettier, "Is Justified True Belief Knowledge?," *Analysis* 23 (1963), pp. 121-123.

12. See Laurence Bonjour, *The Structure of Empirical Knowledge* (Cambridge, MA: Harvard University Press, 1985).

13. Kitcher, "The Naturalists Return," p. 58.

14. W.V.O. Quine, "Epistemology Naturalized" [1969], in *Naturalizing Epistemology*, edited by Hilary Kornblith, 2nd ed., (Cambridge, MA: The MIT Press, 1994), p. 19.

15. *Ibid.*, p. 23.

16. W.V.O. Quine, "Two Dogmas of Empiricism" [1951], in *From a Logical Point of View* (Cambridge, MA: Harvard University Press, 1953), p. 20.

17. Quine, "Epistemology Naturalized," p. 25.

18. Kitcher, "The Naturalists Return," p. 60.

19. Quine, "Epistemology Naturalized," p. 25.

20. Kim, "What is 'Naturalized Epistemology'?" p. 386.

21. Quine, "Epistemology Naturalized," p. XXX

22. Kim, "What is 'Naturalized Epistemology'?" p. 385.

23. Quine, "Two Dogmas," p. 39.

24. Quine, "Epistemology Naturalized," p. 19.

25. *Ibid.*, p. 20.

26. *Ibid.*, p. 21.

27. *Ibid.*, p. 21.

28. Kim, "What is 'Naturalized Epistemology'?" p. 381.

29. *Ibid.*, p. 382.

30. *Ibid.*

31. Ibid., p. 390.

32. Ibid., p. 392.

33. Ibid., p. 386.

34. See, for example, James Reason's *Human Error* (Cambridge: Cambridge University Press, 1990), p. 1: "[F]rom the mid-1970s onwards theoretical and methodological developments within cognitive psychology have also acted to make errors a proper study in their own right."

35. Kitcher, "The Naturalists Return," p. 63.

36. Ibid., p. 60.

37. Even the strongest nativist position would not necessarily undermine Quine's claim that the semantic component of language is learned empirically.

38. W.V.O. Quine, *The Pursuit of Truth* [1990], revised ed., (Cambridge, MA: Harvard University Press, 1992), p. 19.

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