

The Reliability of Reason: What the Skeptics Point Out

Charles Murn
Washington, D.C.
dialogue@cmurn.com

Skepticism about the compatibility of naturalism and reason reliable at producing true beliefs has taken a number of forms. Some skeptics attack the reliability of all aspects of reason, while others focus on particular human cognitive faculties that are components of reason. I focus in this article on the foundation of that combined philosophical challenge. It consists of the assertion that naturalism considers the objective conditional probability that humans have reliable cognitive faculties to be low or inscrutable. Methodological naturalism demanding justification for beliefs that is truth indicative overcomes the skeptics' arguments. However, the required analysis of those arguments reveals important aspects of assessing human cognitive faculties that naturalist epistemology must ensure are elucidated sufficiently and rigorously incorporated into its explanation of the capability and reliability of those faculties at producing truth.

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1. Is Scientific Naturalism Compatible with Reason Reliable at Producing True Beliefs?

Ernest Nagel described one contribution of scientific naturalism as establishing the "existential and causal primacy of organized matter in the executive order of nature" (1966, 547). Metaphysical naturalism advances the view that "there exists nothing other than spatiotemporal beings embedded within a space-time framework" (Fales 2002, 43). This view of organized matter obviously includes humans. In this article, I utilize the convention that humans' contribution to the executive order is via "human faculties." Accordingly, scientific naturalism generally and humanism specifically consider human faculties an essential part of humans as organized matter. Any suggestion that human faculties are unreliable, therefore, strikes at the core of scientific naturalism.

An attack on the reliability of the human cognitive faculties does so doubly. The Humanist Manifestos all cite the importance of reason. Paul Kurtz noted that "reason" is one of the terms used to describe "the general methodology that humanists have

advocated” (1989, 29). The epistemology of scientific naturalism, methodological naturalism, depends on cognition for its scientific approach to knowledge. Further, Kurtz says humanists must use reason to judge choices and act on them (1997, 70). Clearly, humanist philosophy puts reason at its core.

Skeptics have questioned the reliability of reason at producing beliefs that are true. A few assert the validity of naturalism. Some from other philosophical traditions have done so simply because they do not buy the existing naturalist explanations, such as they are. Alvin Plantinga has done so as part of a broader outlook that disagrees with, and therefore seeks to undermine, scientific naturalism. Some skeptics attack the reliability of all aspects of reason, while others focus on particular human faculties that are components of reason. But one thing all the skeptics I discuss in this article have in common is a challenge to the reliability of reason at producing truth. I focus in this article on that specific philosophical challenge and the humanist philosophical response to it. Accordingly, I leave the elements of those attacks that involve arguments about evolution for another day. The next sections set up the framework for the discussion that follows.

2. What Constitutes “Reason” and Related Concepts

One necessary parameter is the term for the information initially generated by human sense organs. While some use the term “qualia” interchangeably with “sense data” (see, e.g., Putnam 2016, 182-194), others use the former moniker in a most cramped way (see, e.g., Dennett 2017, 358-63). Of course, the term “sense data” has itself been criticized well (see, e.g., deVries 2000, Haack 2009, 163). Accordingly, I use the term “sensory evidence” (Haack 2009, 20) in this article, because it clearly and unclutteredly states the nature of its referent, at least for some naturalists.

A scientific discussion of the reliability of “reason” must set also forth what the term “reason” refers to. I use the term interchangeably with “human cognitive faculties.” That is because Plantinga seems to. His definition of “reason,” which he calls a “source of knowledge and rational opinion,” seems broad enough to include a number of human faculties (2011, 178):

Reason includes such faculties as perception, a priori intuition (whereby one knows truths of mathematics and truths of logic), memory, testimony (whereby one can learn from others), induction (whereby one can learn from experience) and perhaps others, such as ... sympathy, whereby we know of the thoughts and feelings of other people.

He defines “cognitive faculties” as “those faculties, or powers, or processes that produce beliefs or knowledge in us” (2011, 311), but then includes the same list as under his definition of “reason” (2011, 311-2). That statement hews closer to the narrower definition of “cognition” that Paul Kurtz cited as including perception as well as processes concerning knowledge (1997, 60). Of course, Kurtz also sets forth a broad definition that includes “thinking, perceiving, recalling, desiring, planning, calculating, modifying, interpreting, imagining, considering, remembering, evaluating, judging, and so forth” (61).

The latter is even more expansive than Plantinga's definition of reason. For that reason, I will stick with Plantinga's narrower definition.

Nonetheless, several times it will prove necessary to distinguish "reason" as a more specific function than that included in Plantinga's definition. Philosopher David Hume defined "reasoning" as "the process that creates concepts, or solves problems, or applies logic" (2003, 21). That is a narrower and more precise definition, and I will use that definition for "faculty of reason" as referring to this process as one cognitive faculty among others. Likewise, for purposes of this article, I will refer to other senses and memory included in Plantinga's broad definition of "cognitive faculties" as specific faculties where the discussion pertains to them alone.

3. Naturalists Presuming the Reliability of Human Cognitive Faculties

As discussed below, some in the naturalist tradition have doubted the reliability of human cognitive faculties. But the idea that reason is important has a long history in that tradition. For example, 5th century BCE Greek philosopher Protagoras, whose thought was a precursor to scientific naturalism, asserted that all perceptions are true for the individual who perceives them (Striker 1996, 26). This position clearly depends on reliable human faculties. Furthermore, Protagoras was described as having worked out the facts of an accident with the ruler, Pericles, under "the most right reason" (DK 80 A10). This description comports with a later surviving statement by one of Protagoras' younger contemporaries, Antiphon, arguing that truth is discovered through "right reason" (DK 87 B44 fr. A, Col. 4, 10). These usages clearly connote the concept of correctness in reason. A version of Antiphon's formulation carried forward into the Stoic school several hundred years later.

In the 19th century, naturalist Thomas Huxley expressed the optimism of the science of the Enlightenment by asserting that "the order of nature is ascertainable by our faculties to an extent which is practically unlimited" (1869, 462).

Likewise, humanist philosophers have frequently asserted aspects of reason that rely on the notion that it is reliable. For example, Brand Blanshard argued that reason was the only path to knowledge (1968, 13). By implication, he implicitly supports its reliability in pursuit of knowledge. Indeed,

the insistence that if revelation comes, it comes through our natural faculties is not a general denial of revelation. In an important sense, all knowledge is revelation, the disclosure to the open mind of the structure of its world.

Similarly, Sidney Hook argued that reason has to come into play in basic survival, as well as fending off opponents (1974, 76). He suggested that human reason can discern better methods of doing things like obtaining sustenance and engaging in warfare. But he essentially presumes the reliability of reason. Reliabilists like Alvin Goldman have argued that reliable cognitive faculties suffice to produce knowledge (1986, 44 et seq.). Likewise, Paul Churchland's modeling of the brain as a computer clearly implies reliability of some set of human faculties that he calls "conscious intelligence" (2013, 147). While he does

not directly address the issue of reliability, using the computer as the analogy certainly implies an assumption of high reliability, without establishing reliability of human reason.

Obviously, many more examples could be cited to expand upon the point. Scientific naturalists have tended to rely on the concept of reliable reason at producing truth without establishing the reliability. Accordingly, that leaves an opening for the skeptics to question the extent of reliability of human reason at producing truth. They find the aforementioned kinds of descriptions lacking.

Plantinga asserts a “presumption of reliability” of human cognitive faculties in naturalism and elsewhere. He attributes it only to Karl Marx and Sigmund Freud (2000, 148-9), but it obviously applies to many naturalists and other philosophers down through written human history. Plantinga is right to call out the presumption.

Arguably, the high reliability of human cognitive faculties at producing truth is so integral to methodological naturalism that those naturalists have presumed it to be so. While some naturalists discussed in Sections 11 – 13 have presented some evidence, assumptions about reliability are not a foundation for a naturalist position. Of course, as discussed in sections 5–8, some naturalists have themselves raised doubts. Before I address those doubts, I will establish the scientific naturalist approach to the reliability of reason at producing truth.

4. How Methodological Naturalism Should Approach Reliability of Reason

Paul Kurtz derived a “first principle” of pragmatic naturalism from Sidney Hook’s emphasis on the scientific method in scientific naturalist epistemology (1968, 338). Kurtz simplifies that assessment as employing “‘critical intelligence’ or ‘reason’” (342). Methodological naturalism must employ the scientific method (Quine 1975, 67, 68).

Foundationalism and coherentism, other major theories of epistemology, do not focus on the cognitive faculties (Goldman 1986, 196; Haack 2009, 59 et seq.), although they arguably seem at least somewhat dependent on cognitive faculties reasonably reliable at producing truth. With them, the issue of reliability of reason at producing truth does not arise.

At the very least, Susan Haack’s “narrow, reformist, aposteriorist naturalism” (2009, 169) is warranted. In that form, epistemology recognizes that “results from the sciences of cognition may be relevant to, and may legitimately be used in the resolution of, traditional epistemological problems” (2009, 168). At the same time, true premises are essential to true conclusions (Fales 2002, 49-51). Commensurate with naturalistic humanism’s longstanding view that evidence is the basis for knowledge (Brooks 1895, 772; Kurtz 1997, 59), “truth indicative is what criteria of justification need to be to be good” (Haack 2009, 263).

Plantinga’s attack on naturalism on the basis of reliability of reason thus hits methodological naturalism doubly, because it attacks an integral element of the epistemology. “[E]pistemology is seen to depend, in part, on presuppositions about human cognitive capacities and limitations” (Haack 2009, 164). The attacks not only target cognition itself, but scientific knowledge derived from it, another value of scientific naturalism.

Offsetting that disadvantage somewhat, epistemology based on truth-indicateness of justification or warrant makes quick work of certain other skepticism about cognitive faculties. For one, these skeptics have argued that epistemology cannot establish a philosophical basis for knowledge about the world external to the individual without infinite regress (e.g., Alston 1989, 319-339, 342) or interpersonal agreement (Dworkin 2013, 14-19). Truth-indicative epistemology answers the question with evidence (see Haack 2009, Ch. 2). Other skeptics claim that the lack of explanation for why the evidence exists (e.g., Macarthur 2004, 117) is grounds for rejecting naturalism. But of critical importance, truth-indicative epistemology accepts solid evidence of “what is” before humans may have properly explained it, all the while searching for explanation.

In methodological naturalism, epistemological principles apply to epistemology as well as any other type of knowledge (Haack 2009, 164). Therefore, I take an evidential, aposteriorist approach to assessing Plantinga’s attack and the alleged skepticism of naturalists he uses to support his argument. My next step is to examine the alleged skepticism of naturalists Plantinga cites, as well as a few others that illuminate issues to be considered in assessing the reliability of cognitive faculties at producing truth.

5. Naturalist Skepticism of Reliability of Human Cognition: Hume and Before

The oldest known expression of skepticism about human reason may be that of ancient Greek natural philosophers Parmenides and Melissus (Lloyd, 71, 77, 133 et seq.; McKirahan, 157-158) from 2,500 years ago. The skepticism of these natural philosophers, who are arguably within the naturalist tradition, was based on their belief that change is impossible, so that the perception of change proved that the senses were unreliable. Now, humanists accept the notion of change without question. While that basis for their skepticism about human faculties has since been disproven, the skepticism of Parmenides and Melissus lived on in the minds of those who have come up with other justifications for it.

Perhaps only 100 years after Parmenides and Melissus, another ancient Greek and arguably one of the first naturalists, Democritus, demonstrated disagreement with them. Democritus argued that skepticism of human faculties, in the form of a general skepticism of any human capacity for knowledge, was the result of unreliable senses. The reason he gave is that humans only perceive the effects of atoms making contact with their sense organs, and those perceptions may change with the state of one’s body and of the thing being perceived. In essence, he argued that human perceptions are unreliable because they are derivative of the objective characteristics of what is being sensed (Lee, 17-19).

Of course, Democritus was not the last to suggest that basis for the unreliability of perceptions. Some modern thinkers have supported that basis despite the advent of science. Those objections are rebutted in the discussion of the scientific approach set forth in sections 11–13.

I selected the naturalists discussed in the remainder of this and the three following sections because their arguments that I present raise issues important to both assessing Plantinga’s claims and the adequacy of explanations of the reliability of reason at producing truth that other scientific naturalists have advanced.

Enlightenment philosopher David Hume juxtaposed several faculties (1993, 104 (*Human Understanding* XII.I.)):

It seems evident, that men are carried, by a natural instinct or pre-possession, to repose faith in their senses; and that, without any reasoning, or even almost before the use of reason, we always suppose an external universe, which depends not on our perception, but would exist, though we and every sensible creature were absent or annihilated.

But he then went on to say that proving that perceptions are caused by objects external to the individual having the perceptions is philosophically impossible (105). Similarly, Hume took the position that individuals are not able to perceive the actual cause and effect between objects (1993, 53-54 (*Human Understanding* VIII.I.)). Those inabilities at the least inferred some degree of imperfection in human perceptual faculties.

In counterpoint, Hume argued that the imperfections of human perceptive faculties are to be corrected by application of reason informed by observation and experience (1993, 29n (*Human Understanding* V.I.n)). Experience is the key factor:

The truth is, an unexperienced reasoner could be no reasoner at all, were he absolutely inexperienced; and when we assign that character to any one, we mean it only in a comparative sense, and suppose him possessed of experience, in a smaller and more imperfect degree.

He goes so far as to say that “*causes and effects are discoverable, not by reason, but by experience*” (1993, 17 (*Human Understanding* IV.I.) (ital. orig.)). However, this statement is to be understood at least in part as an attack on the *a priori* reasoning of rationalism (1993, xiii (Eric Steinberg, ed., “Introduction”)). Hume was insisting that reason had to work on the evidence gleaned from experience, not merely some imagined divine or other basis. And his “reason” seems closer to the faculty of reason defined in Section 2. So for Hume, while perceptive faculties are imperfect, other cognitive faculties can correct their mistakes. One should be skeptical of percepts until they have been vetted by *experience*. Arguably, this position clearly impacts the reliability of the faculty of reason.

In that way, Hume’s position raises an issue. Hume suggests perception and reason without experience are both not so reliable, while reason with experience is. Regardless of the correctness, the issue is whether all cognitive faculties are equally reliable.

6. Naturalist Skepticism: Nietzsche

As one basis for attacking the viability of naturalism, Plantinga uses a statement by naturalist Friedrich Nietzsche that may doubt cognitive faculties. Nietzsche’s statement is a barely perceptible, much less comprehensible expression of doubt that Plantinga claims

concerns the reliability of human cognitive faculties (Plantinga 2011, 314, 316). Nietzsche's statement is (Nietzsche 2003, 26):

It is unfair to Descartes to call his appeal to God's credibility frivolous. Indeed, only if we assume a God who is morally our like can "truth" and the search for truth be at all something meaningful and promising of success. This God left aside, the question is permitted whether being deceived is not one of the conditions of life.

While Plantinga sets forth the statement as grounds for supporting his challenge to the basis for naturalism (Plantinga & Tooley 2008, 30; Plantinga 2011, 316), he does not attempt to interpret it for the reader. Upon close examination, there are multiple problems with using this statement as a basis for questioning naturalism.

First, this statement is set forth in one of Nietzsche's "notebooks," which consisted of paper on which he took notes on the fly, wherever he might be when the thought struck him (2003, ix (Bittner's "Introduction")). Already, Plantinga is relying on a thin reed.

Second, Nietzsche's statement was a mere suggestion of doubt, without any consideration of evidence concerning the reliability of human cognitive faculties at producing truth. It was a throw-away statement at most expressing the lack of knowledge about how those faculties do work. Yet it does not clearly set forth his justification or warrant for the question or the nature of the alleged deception, much less a truth-indicative justification or warrant. Thus, it does not have a scientific naturalist foundation.

Third, the second sentence of the statement presents Nietzsche's only context for his doubt. Nietzsche expresses in it the idea that without "a God" any search for truth is not "meaningful and promising of success." From that perspective, the second and third sentences are saying about the same thing. If anything, given Nietzsche's view that there is no deity, the second sentence is more forceful: truth is not possible. Plantinga's reed has gotten very thin.

Certainly, Nietzsche's search for truth his whole life belies the proposition that that was his answer to his question. His body of work never provides a proof of such a position: he only failed to find it in a manner that satisfied him.

Specifically, Nietzsche talked about conditions of life as multitudinous (2003, 47). The statement only refers to being deceived as one of those conditions. More importantly, he talked about truth and reason in a way suggesting his view of reason was more nuanced than Plantinga portrays. His notebooks relay the notation that "trust in reason and its categories, in dialectics, thus the valuing of logic, only proves logic's usefulness for life, proved by experience—and not its 'truth'" (2003, 147). This view clearly addresses the deception by judging reason as useful to life, rather than truth. It suggests that Nietzsche viewed utility, not truth, as the output of reason, at least the faculty of reason. Philosophically, this construction aligns better with the multitudinous conditions of life: there are so many ways humans need something useful, while the idea of "truth" has generally been the monist Holy Grail. There is no grand "truth," only lots of useful results of the human faculty of reason. This conclusion places in question the

skeptic's assumption that truth is necessarily the output of reason against which to test its reliability. That separate question is beyond the scope of this paper.

On Plantinga's critique, Nietzsche does not elsewhere show or provide evidence of the unreliability of human cognitive faculties: again, if he did, Plantinga would have cited that instead. Instead, Nietzsche viewed reason as not necessarily generating outputs having the characteristic of truth. Any way you cut it, the thin reed of Nietzsche's quote does not support the heavy burden Plantinga hangs on it.

7. Naturalist Skepticism: W.V. Quine and Barry Stroud

Willard Van Orman Quine asserts a naturalist epistemology that includes assertions about human "senses." He suggests that the fact that humans only have information about the world via their senses causes multiple problems. The main problem is how humans know that the external world actually exists (2013, 1).

Barry Stroud, a naturalist, cites Quine's questions as grounds for doubt. Plantinga, discussed more below, uses Stroud's skepticism in his own attack on naturalism's confidence in human cognitive faculties (Plantinga 2011, 315-316).

Barry Stroud wrestles with Quine's naturalist epistemology and concludes that it does not solve Descartes' skeptical question about how philosophically to prove the existence of the external world. Descartes' scheme argues that humans cannot tell by means of their senses that they are not dreaming. He bases this premise on the fact that we have only the experiences of our senses to answer that question. Thus, Descartes' key assertion is that an individual's sensory experiences are compatible with dreaming of the world that the individual perceives while the real world is very different (Stroud 1984, 1, 31). Stroud's position is that Quine's formulation in fact leads to epistemological skepticism, not merely skepticism about human sensory faculties. That position implicitly assumes that human faculties are unreliable at distinguishing reality from a dream.

Quine relies on an assumption that human senses provide only "meager data" about the world (1973, 3). The senses collect information by the irritation of their surfaces by stimuli coming from the external world. The amount of evidence our senses take in is far less than what is necessary to support the knowledge we have about the world (216-218). This assumption is indeed clearly skeptical. Thus, in fact, the reliability of senses is a key element to countering epistemological skepticism.

So Quine's position is not an outright attack on the reliability of the senses, i.e., he does not justify the view that sensory evidence is meager based on an assertion of unreliability of the senses themselves. But it accomplishes a similar result, in that it attacks the sum total of evidence received via the functioning of an individual's senses. The result is different, though, in that it raises another issue: perhaps it is the *capability* of perceptive faculties that is the limiting factor, not their reliability.

As a result of his assertion that human sensory evidence is meager, Quine describes all individual pieces of knowledge as "hypotheses" or "posits." But that designation in and of itself is not a skeptical one. It consists simply of the contingency accepted by scientific naturalists, including humanism (Lamont 1982, 234-235).

The only piece of knowledge that Quine reaches in his framework is the existence of physical objects in the world. For him, that existence is of course a hypothesis or posit, far in excess of the sensory evidence justifying that knowledge. But Quine does not bother explaining how this is so, or even what evidence exists and how it is inadequate.

Stroud ends up summarily concluding that not only the idea that sensory evidence is meager, but also the concepts of evidence, theory, and output, must be discarded (1984, 251-254). In the process he rightly observes that “[i]t is because the ‘information’ we get at ‘input’ does not uniquely determine the truth of what we assert as ‘output’ that we must explain how we get from the one to the other.” This observation draws Quine’s assumption of “meagerness” of sensory evidence into question.

In the end, Stroud does not assert that knowledge is impossible, only that Quine’s framework does not explain how it is possible. In that sense, Stroud is criticizing naturalistic epistemology, as formulated by Quine. Stroud’s analysis is so limited, however, that he has not precluded the possibility that he has thrown out the baby with the bathwater. That is, he does not consider the possibility that Quine’s meagerness of sensory evidence is the sole problem.

In fact, Stroud’s criticism that Quine’s assertion that sensory evidence is meager and underdetermines individual humans’ conclusions about the external world is untenable contradicts Plantinga’s view. For as noted above, Quine’s argument that sensory evidence is meager has the same effect as Plantinga’s argument that human faculties are unreliable. Stroud’s criticism of Quine’s assumption that human sensory evidence does not adequately determine knowledge undermines Plantinga’s assertion that sensory unreliability makes naturalism incompatible with science. But Stroud does not argue that sensory evidence does adequately explain knowledge.

8. Naturalist Skepticism: Patricia Smith Churchland

Another naturalist whom Plantinga asserts has expressed skepticism is Patricia Smith Churchland. Without citing a single source for her assertion, she once argued that in human cognition, truth “definitely takes the hindmost” position in human faculties’ determination of “space and time” (1987, 549). Churchland does not make the statement after any considered discussion of any particular evidence, much less provide her justification or warrant for the assertion. Thus, her statement, like Nietzsche’s discussed above, does not have a methodological naturalist foundation. It is another throw-away line, but it has gotten attention from detractors of naturalism.

As with Nietzsche’s, Plantinga uses Churchland’s statement as a basis for attacking the viability of naturalism (2011, 315). Plantinga seems to want a house of thin reeds, indeed. He again ignores the absence of justification or warrant. Simply because a naturalist says something does not mean that the statement is naturalistic or has a naturalist foundation. Humanism’s acceptance of methodological naturalism means, for humanists, that it must be based on scientific evidence. So at best for Plantinga, the statement could be attributed to a metaphysical naturalism without a basis in methodological naturalism or any other scientific epistemology.

Another problem for Plantinga is that Churchland was not talking solely of the cognitive faculties. She was specifically discussing “the nervous system”: “The principle chore of nervous systems is to get the body parts where they should be in order that the organism may survive” (1987, 548-549). For that reason her discussion certainly includes outputs of other human faculties than *cognitive* faculties. Given that she does not differentiate the various faculties that might be involved, much less their specific outputs, her statement is not grounds for judging cognitive faculties alone. The idea of doing so raises the issue of the role of each faculty actually involved. For example, for a specific human action, non-cognitive faculties applied to it may predominate over those in which truth is a limited component. In such a case, the issue is not one of reliability at all.

Further, the full beginning of Churchland’s statement is “Truth, whatever that is....” Thus, the question of what truth is in her statement is at best ambiguous. Given that Churchland cannot define what truth is, how could she possibly know what role it plays in the nervous system? Interestingly, Plantinga, despite insisting that reason produce truth, never offers a definition of his preferred phrase, “true belief.” Of course, that only is relevant if the inquiry reaches the stage of testing reliability on the standard of truth.

But Churchland’s statement was particularly egregious for another reason: the adjective “hindmost.” Last? Really? Again, she provides no justification or warrant for this position, and Plantinga ignores that fact, too. Can it really be said that true beliefs play such a limited role in an organism’s placing of its body parts in space?

Plantinga is obviously cherry-picking here. In more recent writings, Churchland has favorably discussed the 19th century contribution of Hermann von Helmholtz. Churchland acknowledges Helmholtz’ advance in insisting the human faculties occurred in the brain, not a separate nonphysical soul or the like. In that discussion, Churchland extols Helmholtz’ recognition that, in Churchland’s words, “by the time you see and recognize a familiar face, a lot of nonconscious processing has already been done, and done with remarkable speed and amazing accuracy” and suggests that it is based on the observation that “when you look around, you can see and size up a complex visual scene in less than half a second ... without any conscious thinking” (2013, 48). Those do not sound like the words of a skeptic about the reliability of the human faculty of reason. As later discussion will show, Churchland ends up squarely in the naturalist persuasion’s insistence upon the reliability of reason.

9. Naturalist Skepticism in the Face of Theist Skepticism Generally

The issues raised by the aforementioned naturalists are worth summarizing. Hume’s differentiation of perception from the faculty of reason that can correct perception’s mistakes plainly implies that individual faculties of cognition may have different degrees of reliability. Nietzsche’s stance asserts outputs other than truth for faculties used in cognition – not that truth is necessarily to be excluded. Quine’s position raises the issue of whether capability of sensory faculties is the issue, rather than reliability. Finally, Churchland’s case raises the issue of when the output of cognitive faculties, whether true beliefs or otherwise, is supposed to be part of the output of human thought in a particular action and, if so, to what extent. Of course, this issue is somewhat complicated by varying

definitions of cognition, the broadest of which seemingly encompasses all of human thought. But it challenges the position that reliability is the issue at all, rather than conflation of noncognitive output for that of cognition. Churchland's position also points out the need for a definition of truth, in order to actually be able to test for reliability when that is proven to be the issue at hand. Clearly, a proper naturalistic approach to the reliability of reason must address at least all of these issues. Other naturalists have done work in each of these areas.

Indeed, as has been recognized time and time again, it is theologians who have asserted untenable properties to human faculties. A few theist critics of naturalism seem to give reason great reliability, when they discuss those faculties in relation to perceiving the divine. John Calvin's *sensus divinitatus* comes to mind as a supernatural ability (Plantinga 2000, 172-6; 2011, 263-4). His exception to a more pervasive theistic skepticism is discussed more below.

An early religious skeptic of reason was St. Paul, a disciple of Jesus. He disdained both wisdom and prudence, calling on followers to take a leap of faith (Blanshard 1968, 12-13). Martin Luther called reason "the devil's whore" (Hook 1974, 62). Humanism has exposed the essence of the hypocrisy in recent theists (Blanshard 1968, 14):

Barth and Brunner tell us, following Kierkegaard, that it involves the readiness to accept as a divine imperative what our reason condemns, even the imperative to kill that came to Abraham. Now this way madness lies. If our dearest and best insights may in this way be set aside, they are in principle unreliable, and how can they be trusted anywhere? This many existentialist theologians seem prepared to accept; all our faculties, they allege, have been corrupted by the fall. But they do not accept this in practice; and if our standards in morals and logic are really corrupt, why even try to think straight or live straight? Luther, who was not fastidious with his tongue, called philosophy an old woman who stinks of Greece.

Theistic skepticism is indeed pervasive. Not surprisingly, despite Calvin, theists have expressed skepticism regarding reason when it comes to reason as a pillar of naturalism.

10. Theist Skepticism: Plantinga

As already mentioned, Alvin Plantinga is a main skeptic of the compatibility of naturalism and reliable reason. He declares that "faith is a source of knowledge ... distinct from reason" (2011, 179) as he broadly defines the latter, as set forth above. He calls faith "a really special case of knowledge" (2000, 256). As noted above, he accepts generally recognized forms of human cognitive faculties.

Nonetheless, as noted above in discussion of naturalists he cites, Plantinga asserts that his foe, naturalism, is incompatible with reason reliable at producing true beliefs (2011, 313 et seq.). He describes naturalism as materialist and either reductive or nonreductive (2011, 326). Of course, some humanists have proposed alternative constructions of naturalism that are not materialist. But assessing their merits is beyond

the scope of this article, and discussing them is not necessary for purposes of rebutting Plantinga's position.

Plantinga's full argument against naturalism has been summarized in three steps (Beilby 2002, viii):

(1) accepting both naturalism and evolution means that the objective conditional probability that humans have reliable cognitive faculties is low or inscrutable.

(2) therefore, accepting both naturalism and evolution creates a defeater for the proposition that the reliability of human faculties is high.

(3) therefore, creating a defeater for the proposition that the reliability of human faculties is high creates a defeater for all beliefs, including naturalism and evolution, for a naturalist.

This argument has garnered responses deserving of one that attacks a basic premise of naturalism. Indeed, it attacks reason, which is central to the methodological naturalism underlying philosophical naturalisms.

As noted previously, I address only a part of Plantinga's attack. Steps (2) and (3) are dependent on the truth of (1). Obviously, if (1) is not correct, his whole attack on naturalism is a nullity. Consistent with the focus of this article on the reliability of reason, I will consider only the argument in (1). I will consider it as is, despite its logical flaw (see Talbot 2002). More precisely, I will test the validity of (1) only by questioning his conclusion that the reliability of reason at producing truth is low under naturalist principles.

Before proceeding, I would assert that the suggestion that Plantinga is actually attacking only *metaphysical* naturalism (Bergmann 83) is simply untenable. True, Plantinga refers to what he is attacking as "philosophical naturalism" (Plantinga & Tooley 2008, 14), which is another name for metaphysical naturalism. But his definitions of "cognitive faculties" and "reason" set forth in Section 2 shows that he is nonetheless talking about epistemology, and metaphysical naturalism does not necessarily have a naturalistic epistemology. The cognitive faculties that Plantinga questions clearly and fundamentally serve the epistemic function of gathering and processing sensory evidence that is central to the formation of knowledge. Indeed, Plantinga professes to having difficulty defining "naturalism" (Plantinga & Tooley 2008, 17-8) and simply settles on calling his foe "philosophical naturalism." Substantively, however, his assertion of the unreliability of those faculties is a direct attack on the function of gathering and processing sensory evidence and, thus, on methodological naturalism.

By necessity for (1), Plantinga asserts that in naturalism, the objective conditional probability that humans have cognitive faculties reliable at producing true beliefs is low or inscrutable. He cites Nietzsche's, as well as Churchland's flip statements as his main sources for the assertion (Plantinga 2002, 3; 2011, 314-6).

Plantinga's argument is the premise for the entire theoretical structure of his attack on naturalism. The argument is itself an assertion of truth. Plantinga is claiming that

the assertion the objective conditional probability that humans have reliable cognitive faculties is low or inscrutable is true.

Of course, a methodological naturalist would consider it an assertion of fact and require that such an assertion be supported by sufficient truth-indicative evidence to make it at least a *prima facie* fact. For his part, Plantinga does not appear to claim that the assertion is a divine truth, discernible only on faith.

Plantinga's argument starts from the materialist description of life forms and how they come to have particular beliefs. He asks if a creature gains beliefs from its neurology, what reason is there for supposing that this belief is true? He says there is no reason. He asserts that given naturalism's view that survival and fitness depend on the right behavior, whether a creature's belief content is true does not matter to its fitness (2011, 327).

The first problem with Plantinga's argument is his standard of reliability. Plantinga does not define his own standard that a belief be "true," like many naturalists. But my discussion of Quine showed that the capability of faculties must be distinguished from their reliability. Plantinga cites no naturalist who suggests that trueness should be the standard for *reliability*. So the focus needs to be on the faculties' capability to produce truth.

Plantinga fails also to distinguish the capabilities and reliabilities of individual faculties. He lumps them all together. Thus, he maintains the overgeneralization of his main examples, the statements by Nietzsche and Churchland.

As for evidence of capability or reliability, Plantinga explicitly states that Darwin and Churchland stated that human faculties may not be reliable for survival and fitness. He next raises a number of examples of how various creatures in fact need very reliable faculties in order to distinguish predators, prey, and so on, i.e., to survive (2011, 327-328). Plantinga thus acknowledges that those faculties in fact meet the naturalists' standard of producing truth as justified by his truth-indicative evidence (see Ramsey 2002, 20-27). But it raises the specter that he fails to distinguish non-cognitive outputs from cognitive ones in human actions that mix functions, a distinction shown necessary by my examination of Churchland's statement.

Deconstructing the process of faculties illuminates the role that truth does play in it. Plantinga cites an example of a frog catching and eating a fly (2011, 327-8). He mentions the necessity of the frog's faculties to ascertain the location, size, speed, and direction of the fly. He says all of these must be accurate. In that, he leaves out the most basic faculty, that of recognizing that the creature flying by is one from the eating of which the frog would benefit. In any event, the frog needs to identify, locate, size, and measure velocity and direction of, the bug all in a split second.

Plantinga does plainly say that the faculties involved in doing all those things must be reliable. Can one answer the question about the entire sum of them being true or false? More reasonable is whether they are sufficiently accurate. Certainly, that standard contains an element of "truth," as in, is the frog's faculties' measurement of the speed and direction sufficiently true relative to the insect's actual speed and direction to enable the frog's faculties to make the right split-second calculation for where to throw its tongue in the path of the prey insect? The same question can be raised individually for the faculty

identifying the insect, and the faculty locating it, and so forth. There is no single overarching true or false proposition.

But Plantinga leaves out important elements. The frog is being proactive, i.e., seeking food. That suggests a very essential element that is not cognitive: hunger. While one might say that it must be true that the frog is hungry, or else it would not be seeking food, one would not say hunger is truth. The effect of this important element is revealed by a simple question: might the frog, the hungrier it gets, strike at potential prey that are less and less appetizing, further and further into the outside range of its tongue, and less and less clearly discerned as even proper prey? Thus, the example of the frog seeking food is one that utilizes both cognitive and noncognitive faculties of the frog. When the noncognitive element changes, the needed truth content of the output may change.

Despite his failure to state a clear standard or standards, Plantinga manages to assert one assessment of actual reliability. The first parts of his argument are that epiphenomenalism and semantic epiphenomenalism don't work. Although he does not arrive at that conclusion upon the evidence (2002, 6-7), the evidence appears to bear him out, as I discuss in Sections 11 – 13.

Plantinga considers two other possibilities: causally efficacious beliefs that are either maladaptive or adaptive (2002, 8-10). For purposes of this article, those two configurations are identical: they both set forth the causal efficaciousness of beliefs as the standard.

Plantinga assumes that the truth content of the causally efficacious beliefs is low. He presents a prehistoric hominid as an example. He suggests that this hominid has many false "belief-desire combinations." Plantinga constructs his combinations out of the hominid's beliefs and desires. He says that the hominid's actions are caused by both belief and desire, ergo the combinations.

Plantinga talks about these combinations as if they were simply beliefs. Particularly, he talks in terms of them being "true." His prior notion that beliefs may be true or not allows it to be understood as knowledge. Knowledge can be true or false. But desires? In what sense can desires be "true"?

Arguably, Plantinga is slipping in here the element that the naturalist considers relevant. That is, the desire to not be eaten, for example, is the naturalist's standard for reliability. So all of a sudden Plantinga has changed his tune from one of truth alone to one including non-truth factors. By his own admission, then, his claim of unreliability as the sole (by him undefined) measure of truth is not the right one. He has effectively abandoned his original argument.

That is true, because the relevant desire in his combination can introduce results of hominid faculties that indeed may appear unreliable from the sole criterion of truth content. Back to the naturalist position, then, if the standard is avoiding the predator on the ground, a desire, an inclination to error on the side of avoidance rather than falling prey appears as unreliability as to the truth value of the combination.

The reason for this consequence is clear. Here, unlike the frog, the hominid is being reactive. The inclination to error on the side of not being caught by the predator is a factor itself in the functioning of the faculties, as described in the so-called "Garcia effect" (see Garcia 1972). Quite simply, the belief-assessing part of the combination will be set at

a lower level than absolute certainty, i.e., than the best assessment of truth. The faculties will only gather enough evidence to reach a sufficient probability that the creature in the hominid's presence is the feared predator. Once that lower threshold is reached, the hominid's faculties will compel survival behavior. The hominid will not wait until it is absolutely certain that the creature in question is the predator, i.e., that the perception that the creature appears to be the predator is absolutely true. The hominid will not want to lose for its escape the extra time it takes to ascertain the absolute truth of its unabsolute conclusion. As with the frog, truth-value cannot be the sole criterion. The needed truth content depends on the circumstances.

Tellingly, Plantinga elsewhere accepts the idea that human faculties may seek values other than truth (2000, 151). Nonetheless, in his argument against it, what he calls naturalism seems to dictate that human faculties always pursue truth. He provides no justification for that view. Unfortunately for him, his statement to that effect contradicts and thus undermines his extrapolation from Churchland's doubt.

A further tell is that Plantinga subsequently abandons the line of thought about the hominid about "belief-desire combinations" in favor of another tack (2011, 330). It consists of asserting that there is no known reason why the content of a belief should relate in any way to the sensory evidence captured by the hominid's sensory faculty (2011, 331). But as noted with the skeptics that I mentioned in Section 4, the absence of a naturalist explanation, were it the case, would not impugn naturalism, only naturalism's explanation for the capability and reliability of human cognitive faculty at producing truth. Further, evidence showing actual capability and reliability would negate Plantinga's position, which is the subject of Sections 11 – 12.

Accordingly, after all that has been written about Plantinga's argument, the conclusion must be that what he is attacking is not naturalism at all. For methodological naturalism advances only one output of human *cognitive* faculties: truth. If individual methodological naturalists have failed to make that clear, the problem is with their analysis, not with methodological naturalism.

From the perspective of methodological naturalism, truth does come into play in several ways in the hominid's application of its faculties. There is the question whether the observations leading to the unabsolute conclusion that the creature is the predator correspond to the true facts on the ground. There is the question whether it is true that acting on only an unabsolute conclusion increases the hominid's likelihood of escape, and so on. The more accurate the hominid's faculties are on such questions, the fewer bad decisions the hominid will make, whether resulting in injury or death, expending time and energy escaping from a harmless creature, and so on. But other faculties brought to bear in those decisions can also lead to bad consequences for the hominid. The blame of those faculties in those cases cannot be the responsibility of the cognitive faculties.

For his part, Plantinga ends up pulling numbers concerning probabilities of truth-value in the hominid's faculties out of the air (2011, 331-3). He does not consider the non-truth elements of his combinations and decisions. He does not provide any evidence for his arbitrary probabilities. He does not consider what portion of any truth-value probabilities is due to non-truth elements of the working of the hominid's faculties. Admirably, he does admit his assumptions may be wrong.

Plantinga formulated his questioning of naturalism in a manner that, in light of the previous analysis of his critique, sets forth the basic problem with his critique: “More generally, what is the likelihood, given naturalism, that our cognitive faculties are reliable, thereby producing mostly true beliefs?” (Plantinga & Tooley 2008, 37). As suggested above, the “naturalism” that for him is “given” is not methodological naturalism.

So what falls out of Plantinga’s argument is that something he calls naturalism that isn’t naturalism doesn’t meet his undefined standard of truth for reliability of human cognitive faculties. It certainly begs the question whether any standard he could come up with is a reasonable one. His inability to come up with one is a grave indicator that his analysis is unreliable. His proposition (1) is untenable, so his whole argument collapses of its own dead weight. If there is anything to his larger argument that there is some incompatibility between naturalism and evolution, then the problem would have to lie with the naturalist explanation of evolution, not with naturalism itself.

11. Scientific Naturalism Recognizes as Part of Human Mentation

Naturally, disproving the skeptics’ defeater for naturalism does not necessarily prove the reliability of human cognitive faculties at producing truth (Fodor 2002, 40-42). The next step, then, is to clarify how to analyze reliability of cognitive faculties at producing truth using methodological naturalism. Thus, this section and those following summarize the lessons learned from analyzing the skeptics and then frame how naturalist principles inform the proper approach to the question of the reliability of reason at producing truth.

The question about the relevant belief concerning one part of cognition has been stated as follows (Alston 1989, 321): “If one thinks that reliability is what converts true belief into knowledge, then the question of how we can determine that perception is reliable will be a crucial part of the question of how we can determine that we have perceptual knowledge.” Under methodological naturalism, “how” consists of looking for truth-indicative justifications for the belief.

Interestingly, Plantinga assumes (Plantinga 2011, 326; Plantinga & Tooley 2008, 38) or accepts that the cognitive faculties he includes in “reason” are highly, if variably, reliable (2000, 146-8) and produce truth (2000, 149). He considers reason to be reliable (2011, 313): “Now the natural thing to think, from the perspective of theism, is that our faculties are indeed for the most part reliable, at least over a large part of their range of operations.”

Even William Alston, a Christian foundationalist philosopher, had to admit that, “We certainly do ordinarily suppose perception, introspection, and so on, to be reliable sources of information” (1989, 321). What is noteworthy about Plantinga’s comment is that it starts out with “the natural thing to think,” which is exactly how a naturalist approach would start.

Not surprisingly, then, methodological naturalists in fact agree. Indeed, naturalism views truth as a causally relevant component of beliefs (Ramsey 2002, 18). Accordingly, as noted above, methodological naturalism, accepted by humanism, must base its epistemology in justifications or warrants for beliefs that are truth-indicative. Thus, examining what naturalists have said about reliability is the next step.

Some examined evidence about the capabilities of perceptive faculties (see, e.g., Goldman 1986, 181 et seq.; Marr 1982). Antonio Damasio has described the capacities of perceptive faculties as follows (1994, 225):

The organism continuously acts on the environment (actions and exploration did come first), so that it can propitiate the interactions necessary for survival. But if it is to succeed in avoiding danger and be efficient in finding food, sex, and shelter, it must sense the environment (smell, taste, touch, hear, see), so that appropriate actions can be taken in response to what is sensed. Perceiving is as much about acting on the environment as it is about receiving signals about it.

Others have focused on the processing of sensory evidence, such as the faculties for discerning causality (Michotte 1963; Leslie 1987) and categories (Cohen 1953, 124), and the faculty of memory and so on (Goldman 1986, 213 et seq.). That scientific evidence sets forth elements of a basic description of what various faculties can do. But they do not necessarily separate out the truth-producing function from other functions that those faculties may serve. Furthermore, defining the capabilities of the faculties is important to the process of establishing reliability, but does not establish reliability in and of itself.

Other naturalists have addressed the issue of reliability more directly to one degree or another. For example, Nicholas Rescher argued that the success of human cognitive efforts is established by the fact that humans keep using their cognition and the methods devised to maximize its effectiveness (2004, 63). Taking a different tack, Quine (1969, 126) and Karl Popper (1972, 261) found the evolutionary fact of the survival of the human species to be substantial evidence that cognitive faculties are reliable. However, that evidence is circumstantial and thus furnishes only a little truth-indicativeness. Those analyses also do not focus on the output of producing truth.

In short, for the methodological naturalist, the reliability of human cognitive faculties at producing truth has been scientifically established only with evidence having barely sufficient truth-indicativeness. That evidence and the commonsensical experience that Plantinga cites is sufficient to negate Plantinga's claim (2011, 326) that naturalists must rationally stop accepting naturalism because reason reliable at producing truth cannot be true under naturalism. The fact of reason reliable at producing true beliefs is compatible with naturalism because naturalism is compatible with facts. Nonetheless, methodological naturalism needs to do more work to ascertain the explanation, i.e., justifications or warrants, for the fact that human cognitive faculties are reliable at producing truth.

12. Reason Combines with Non-Cognitive Human Faculties

While cognitive faculties at times make an assessment of truth, they also engage in and with other processes. Paul Kurtz set forth a range of other outputs as follows (1997, 62):

Cognition has many functions. It can be used to describe and interpret events in the world, to compare and contrast, catalogue and classify, to unravel the causes of objects and events, or to make predictions of future events. Cognition can also be used to raise questions, solve problems, and develop skills and dexterity. It can make normative distinctions about what to do and how to do it. It can frame practical judgments, make decisions, and fulfill desires and goals. It can also be used in the arts to compose sonnets and musical works, create statutes, and construct monuments. It can be used to play games, provoke laughter, and tell jokes. It is a tool of accountants and auditors. It is relied upon in communication and negotiation. It is applied in surgery and engineering, farming and fishing, manufacturing and distribution, education and legislation. In short, it provides the basic tools and materials of human civilization for coping with the world, and as such it fulfills our multifarious purposes.

Kurtz's list obviously encompasses activities of contemporary life in a developed nation. While Kurtz calls his list "functions" of "cognition," it must be viewed in light of his overly broad definition of cognition set forth in Section 2. For example, what is "true" about predicting the future, asking questions, developing dexterity, composing music, or negotiating or legislating? As he points out, cognition plays a role, but truth is not the only or even primary intended output of some of the processes on his list.

But Kurtz's list makes clear that truth is indeed but one consideration in evaluating the output of human cognition. It summarizes well why Plantinga's interpretation of a few statements by naturalists is lacking. Like Kurtz, Plantinga mixes together functions exclusively cognitive with other functions in which cognition has a subordinate or even small role compared with other human faculties. Any attempt at discerning standards of reliability for reason at producing truth must entail separating non-cognitive outputs and the activities of faculties involved in producing them from cognitive outputs and the activities of faculties involved in producing truth.

13. Standards for Reliability of Reason at Producing Truth

Given the lack of focus in methodological naturalism on establishing standards of reliability for reason at producing truth, and the general failure to separate non-cognitive outputs from cognitive ones, the few standards for reliability of reason at producing truth articulated by naturalists are less than definitive.

Churchland's previously noted view is that "by the time you see and recognize a familiar face, a lot of nonconscious processing has already been done, and done with remarkable speed and amazing accuracy." She expands on that observation by noting that "when you look around, you can see and size up a complex visual scene in less than half a second ... without any conscious thinking. Sizing up a scene is very complicated, since the only thing that stimulates your retina are patterns of light. Yet you see colors, shapes, motion, relative position in space, and you instantly recognize familiar faces and other objects" (2013, 48). Thus, her standard of reliability could be described as "remarkable

speed and amazing accuracy.” At the least, “accuracy” connotes a strong element of truth-indicative justification.

Thus, while it greatly corrects the impression from the statement Plantinga cites as a basis for skepticism, her description is extremely limited. For one, this statement concerns perception from use of the sense of vision only. All of the terminology concerns something seen. That Churchland focuses on the reliability of a single sensory faculty is laudatory. Of course, sight is a highly important sense faculty. But the standard is not well explicated: the visual sensory faculty is reliably accurate at “colors, shapes, motion, relative position in space, and you instantly recognize familiar faces and other objects”? Of course, once again, the nature of Churchland’s statement plainly reveals it is not meant to be a definitive in-depth discussion of the standard of reliability at producing truth.

Churchland does refer to nonconscious processing as part of the faculty of reason. That processing acts on the visual data from the retina without entering conscious reason. This linkage suggests a system with different parts. Close examination shows that her standard of reliability clearly applies to the processing, not the capture, of sensory evidence. She seems to imply that the standard applies to the faculty of vision as well, but the statement is ambiguous.

Steven Pinker addressed the visual faculty as well, noting that “the visual system is not there to entertain us with pretty patterns and colors; it is contrived to deliver a sense of the true forms and materials in the world” (2009, 213). Here he is talking about truth with respect to the visual system, which presumably corresponds to Churchland’s combined perception of light and nonconscious processing of the captured patterns and colors. While it is more general than Churchland’s and equally unsupported by explicit justification or warrant, it does reference the key concept of truth.

But Pinker contributes a separate broad statement that complicates his view and serves as a hint of one last problem to be considered here (2009, 305):

[O]ur brains were shaped for fitness, not truth. Sometimes the truth is adaptive, but sometimes it is not. Conflicts of interest are inherent to the human condition [], and we are apt to want our version of the truth, rather than the truth itself, to prevail.

This statement has some of the usual problems of other statements that I have examined, such as that “fitness” is more an effect of reliable reason than a standard for its reliability, the lack of truth-indicative justification or warrant, referent on truth that is the entire brain, rather than the cognitive faculties, and an output of “fitness, not truth.” However, my reason for presenting it is based on the fact that Pinker refers to “our version of the truth” as opposed to “the truth.” His contrast connotes a number of substantial issues, but the one I want to point to is that neuroscience has established elements of cognitive processing that are not reflected in methodological naturalism. However, consideration of those elements is beyond the scope of this paper.

14. Conclusions

Methodological naturalists emphasizing justification that is truth-indicative accept the scientific and experiential evidence that the human cognitive faculties are reliable at producing truth. But the skeptics have relied on the fact that methodological naturalists have only briefly addressed the issue of what the standard of reliability is. Naturalistic epistemology must prove the components of naturalistic epistemology. Establishing why reason is reliable at producing truth requires more analysis of the existing evidence and certainly more evidence of specific aspects of relevant human faculties. In making the list of principles relevant to that analysis below, I am not making any statement as to the extent that prior scholarship has contributed to clarification of each principle. Those assessments are beyond the scope of this article.

In their perfunctory statements, naturalists have variously referenced the visual system, nonconscious processing, reason, and the brain as a whole. They have stated their proposed standards of reliability in reference to these different components of the human faculty of reason. Yet each of these components is different. Having not considered the different functions of these components leaves these naturalists susceptible to over-generalizing when setting forth their standards.

Therefore, further analysis must reflect the principles that I have elicited in examining doubts by naturalists and Plantinga's attack on naturalism centered on the reliability of cognitive faculties at producing truth. First, the individual faculties of cognition must be treated individually. Second, outputs other than truth for faculties used in cognition must be excluded from the analysis of reliability at producing truth. Third, while the capability of cognitive faculties is integral to the analysis of reliability, it must be distinguished from reliability. Fourth, the relative role of the output of faculties used in cognition, whether true beliefs or otherwise, in the complete output of particular human mentation and action must be defined and distinguished from output of human faculties serving other roles in the mentation and action. Fifth, the establishment of standards of reliability at producing truth mandates a definition of truth. Sixth, that the needed truth content depends on the circumstances must be part of the explanation. Finally, standards of reliability must reflect current knowledge about human cognitive processes. Clearly, a proper methodological naturalistic approach to the reliability of reason at producing truth must address all of these issues.

References

Alston, William. 1989. "Epistemic Circularity," in *Epistemic Justification* (Ithaca, N.Y.: Cornell University Press), pp. 319-349.

Beilby, James K. 2002. "Preface" to *Naturalism Defeated? Essays on Plantinga's Evolutionary Argument against Naturalism*, ed. James K. Beilby (Ithaca, N.Y.: Cornell University Press), pp. vii-x.

- Blanshard, Brand, 1968. "The Liberal in Religion," *The Humanist* 28:11-14.
- Brooks, William Keith. 1895. "Testimony versus Evidence," *Science, New Series* 2(49): 771-773.
- Churchland, Patricia Smith. 1987. "Epistemology in the Age of Neuroscience," *Journal of Philosophy* 84: 544-553.
- Churchland, Patricia Smith. 2013. *Touching a Nerve: The Self as Brain*. New York: W.W. Norton.
- Churchland, Paul. 2013. *Matter and Consciousness: A Contemporary Introduction to the Philosophy of Mind*. Cambridge, MA: MIT Press.
- Cohen, Morris Raphael. 1953. *Reason and Nature, an Essay on the Meaning of Scientific Method*. Glencoe, Ill.: The Free Press.
- Damasio, Antonio R. 1994. *Descartes' Error: Emotion, Reason, and the Human Brain*. New York: Putnam.
- Dennett, Daniel C. 2017. *From Bacteria to Bach and Back: The Evolution of Minds*. New York: W.W. Norton.
- DeVries, Willem A., and Timm Triplett. 2000. *Knowledge, Mind, and the Given: Reading Wilfrid Sellars's 'Empiricism and the Philosophy of Mind,' including the Complete Text of Sellars's Essay*. Indianapolis: Hackett.
- Dworkin, Ronald. 2013. *Religion without God*. Cambridge, MA: Harvard University Press.
- Fales, Evan. 2002. "Darwin's Doubt, Calvin's Calvary," in *Naturalism Defeated? Essays on Plantinga's Evolutionary Argument against Naturalism*, ed. James K. Beilby (Ithaca, N.Y.: Cornell University Press), pp. 43-58.
- Fodor, Jerry A. 2002. "Is Science Biologically Possible?" in *Naturalism Defeated? Essays on Plantinga's Evolutionary Argument against Naturalism*, ed. James K. Beilby (Ithaca, N.Y.: Cornell University Press), pp. 30-42.
- Garcia, J., B. K. McGowan, and K. F. Green. 1972. "Biological Constraints on Conditioning," in *Classical Conditioning: Current Research and Theory*, ed. A. Black and W. Prokasy (New York: Appleton-Century-Crofts), vol. 2, pp. 3-27.
- Goldman, Alvin I. 1986. *Epistemology and Cognition*. Cambridge, MA: Harvard University Press.

- Haack, Susan. 2009. *Evidence and Inquiry: A Pragmatist Reconstruction of Epistemology*. Amherst, N.Y.: Prometheus Books.
- Hook, Sidney. 1974. *Pragmatism and the Tragic Sense of Life*. New York: Basic Books.
- Hume, David. 1993. *An Enquiry Concerning Human Understanding*. Indianapolis: Hackett.
- Hume, David. 2003. *The Elements of Mentality: The Foundations of Psychology and Philosophy*. Toronto: ECW Press.
- Huxley, Thomas H. 1869. *On the Physical Basis for Life*. New Haven, Conn.: The College Courant.
- Kurtz, Paul. 1968. "Pragmatic Naturalism and First Principles," in *Sidney Hook and the Contemporary World: Essays on the Pragmatic Intelligence*, ed. Paul Kurtz (New York: John Day Co.), pp. 337-352.
- Kurtz, Paul. 1989. *Eupraxophy: Living Without Religion*. Buffalo, N.Y.: Prometheus Books.
- Kurtz, Paul. 1997. *The Courage to Become: The Virtues of Humanism*. Westport, Conn.: Praeger.
- Lamont, Corliss. 1982. *The Philosophy of Humanism*. New York: F. Ungar.
- Lee, Mi-Kyoung. 2010. "Antecedents in Early Greek Philosophy," in *The Cambridge Companion to Ancient Scepticism*, ed. Richard Bett (Cambridge, UK: Cambridge University Press), pp. 13-35.
- Leslie, Alan M., and Stephanie Keeble. 1987. "Do Six-Month Old Infants Perceive Causality?" *Cognition* 25: 265-288.
- Lloyd, G.E.R. 1999. *Magic, Reason and Experience: Studies in the Origins and Development of Greek Science*. Indianapolis: Hackett.
- Macarthur, David. 2004. "Naturalism and Skepticism," in *Naturalism in Question*, ed. Mario De Caro and David Macarthur (Cambridge, MA: Harvard University Press), pp. 106-124.
- Marr, David. 1982. *Vision: A Computational Investigation into the Human Representation and Processing of Visual Information*. San Francisco, Cal.: Freeman.

- McKirahan, Richard D. 2010. *Philosophy Before Socrates: An Introduction with Texts and Commentary*, 2nd edn. Indianapolis: Hackett.
- Nagel, Ernest. 1966. "Naturalism Reconsidered," in *American Philosophy in the Twentieth Century: A Sourcebook from Pragmatism to Philosophical Analysis*, ed. Paul Kurtz (New York: Macmillan), pp. 544-556.
- Nietzsche, Friedrich Wilhelm. 2003. *Writings from the Late Notebooks*. Cambridge, UK: Cambridge University Press.
- Nozick, Robert. 1993. *The Nature of Rationality*. Princeton, N.J.: Princeton University Press.
- Pinker, Steven. 2009. *How the Mind Works*. New York: Norton.
- Plantinga, Alvin. 2000. *Warranted Christian Belief*. Oxford: Oxford University Press.
- Plantinga, Alvin. 2002. "Introduction" to *Naturalism Defeated? Essays on Plantinga's Evolutionary Argument against Naturalism*, ed. James K. Beilby (Ithaca, N.Y.: Cornell University Press), pp. 1-12.
- Plantinga, Alvin. 2011. *Where the Conflict Really Lies*. Oxford: Oxford University Press.
- Plantinga, Alvin, and Michael Tooley. 2008. *Knowledge of God*. Malden, MA: Blackwell.
- Popper, Karl R. 1972. *Objective Knowledge: An Evolutionary Approach*. Oxford: Clarendon Press.
- Putnam, Hilary. 2016. "'Naive Realism' and Qualia," in *Naturalism, Realism, and Normativity*, ed. Mario De Caro (Cambridge, MA: Harvard University Press), pp. 169-196.
- Quine, Willard Van Orman. 1969. "Natural Kinds," in *Ontological Relativity and Other Essays*. (New York: Columbia University Press), pp. 114-138.
- Quine, Willard Van Orman. 1973. *The Roots of Reference*. LaSalle, Ill.: Open Court.
- Quine, Willard Van Orman. 1975. "The Nature of Natural Knowledge," in *Mind and Language*, ed. Samuel Guttenplan (Oxford: Clarendon Press), pp. 67-81.
- Quine, Willard Van Orman. 2013. *Word and Object*, Cambridge, MA: MIT Press.

Ramsey, William. 2002. "Naturalism Defended," in *Naturalism Defeated? Essays on Plantinga's Evolutionary Argument against Naturalism*, ed. James K. Beilby (Ithaca, N.Y.: Cornell University Press), pp. 15-29.

Rescher, Nicholas. 2004. *Value Matters: Studies in Axiology*. Frankfurt, Germany: Ontos Verlag.

Striker, Gisela. 1996. "Κριτήριο Της Αληθείας," in *Essays on Hellenistic Epistemology and Ethics*, (Cambridge, UK: Cambridge University Press), pp. 22-76.

Stroud, Barry. 1984. *The Significance of Philosophical Scepticism*. Oxford: Clarendon Press.

Talbot, William J. 2002. "The Illusion of Defeat," in *Naturalism Defeated? Essays on Plantinga's Evolutionary Argument against Naturalism*, ed. James K. Beilby (Ithaca, N.Y.: Cornell University Press), pp. 153-164.