ABSTRACT. Naturalists seek continuity between epistemology and science. Critics argue this illegitimately expands science into epistemology and commits the ‘fallacy’ of scientism. Must naturalists commit this ‘fallacy’? I defend a conception of naturalized epistemology which upholds the non-identity of epistemic ends, norms, and concepts with scientific evidential ends, norms, and concepts. I argue it enables naturalists to avoid three leading scientific ‘fallacies’: dogmatism, one dimensionalism, and granting science an epistemic monopoly.

Naturalists seek continuity between epistemology and science so that epistemology may be conducted within science, as part of science. They propose creating such continuity by extending the epistemology of the sciences (e.g., their a posteriori methods, styles of explanation, and substantive findings) into the epistemology of *epistemology*. Critics, however, oppose naturalism on the grounds that it illegitimately expands science into epistemology and commits the ‘fallacy’ of scientism. Naturalism forsakes traditional features of our epistemic practices such as their normative-evaluative component and role as independent critic of science. It creates a sterile, one dimensional epistemology which grants science monopoly over what counts as evidence, knowledge and correct method. In order to avoid these shortcomings, critics maintain epistemology must remain an autonomous, extra-scientific affair employing sui generis, a priori methods and evidence.

I argue that naturalism need not commit the ‘fallacy’ of scientism. Section 1 explains how naturalists’ calls for continuity between science and epistemology are ambiguous. Some yield what I call *strong continuity*, others, *weak continuity*. After sketching some general features of weak continuity naturalism, Section 2 proposes an anthropological approach to meta-epistemological matters. Adopting this approach, Section 3 hypothesizes a conception of epistemology which conceives the epistemic point of view in terms of acquiring truth and avoiding error. Section 4 then conceives epistemic notions in terms of these ends. It adopts a reliabilist theory of justification which fits the meta-epistemological specifications of weak continuity. I call the combined view *weak continuity reliabilism*. Lastly, after exploring scientism, Section 5 argues that weak continuity...
reliabilism enables naturalists to avoid three scientistic ‘fallacies’: dogmatism, one dimensionalism and granting science an epistemic monopoly. My aim here is: (a) to demonstrate the existence of a conceptual space which allows us to naturalize epistemology at both substantive and meta-levels without replacing epistemology by or reducing it to successor subjects such as cognitive psychology or metascience; (b) to hypothesize a version of reliabilism which occupies this conceptual space; and (c) to show that this naturalist reliabilism circumvents three leading ‘fallacies’ of scientism.

1.

Naturalists reject epistemology as ‘First Philosophy’, i.e., as an autonomous, a priori enterprise prior to and normative for all other inquiry. However, their rejection is ambiguous as it may be understood as the denial of some subset of the following six theses, viz., that epistemology: (1) employs evidential concepts, norms and goals distinct from those of science; (2) employs evidential norms and standards that are epistemically higher or firmer than those of science; (3) employs sui generis, a priori methods or evidence; (4) proceeds from a vantage point (archimedean or otherwise) that makes no use of the substantive findings of science; (5) yields results epistemically firmer or higher than those of science; and (6) is epistemically prior to science.

What does epistemology look like upon being unified with science? Different meta-epistemologies (i.e., second order conceptions of epistemology) are created depending on which of these six theses one denies. Denying theses (1) through (6), for example, creates strong continuity between epistemology and science. Denying (2) through (6) while affirming (1) creates weak continuity. Both extend science into epistemology yet do so in different ways. In what follows I briefly survey two prevalent forms of strong continuity, eliminativism and identicism, as they are common targets of the charge of scientism. Doing so will also help highlight their differences from weak continuity.

Eliminativism sees rejecting autonomous epistemology as tantamount to overcoming epistemology in favor of the science of cognition. Epistemology becomes “science self-applied” (Quine 1969b, 293) by being discarded tout court and replaced with successor subjects such as cognitive psychology, neuroscience, the sociology of knowledge, etc. Epistemic justification, normativity, and value are tossed into the rubbish bin of outmoded notions alongside phlogiston and Zeus’ thunderbolts.

What I call identicism sees rejecting autonomous epistemology as tantamount to rejecting both a priori and folk (i.e., extrascientific) aspects of
traditional epistemology in favor of the self-evaluative practices of science itself. Simply put, identicism identifies epistemology with scientific self-criticism. In the absence of epistemology as first philosophy, science provides the best standard of epistemic justification. Thus, while traditional epistemology looks for standards of justification outside of science, identicism looks for them within science. Roth (1987, 33) writes:

Epistemology... shapes the constraints of science only in light of the acknowledged ends and purposes of science. The touchstone of correct epistemology is the better achievement of scientific goals based on the changes in scientific method. The traditional epistemologist looks for guidance – for standards of justification – elsewhere than in the practice of science. The Quinean epistemologist looks to science... [W]e hold science (and epistemology) liable to no other standard than what smooths the way for ongoing [scientific] research...

Epistemology becomes “science self-applied” by being reduced to epistemology of science which in turn is reduced to the self-critical offices of science itself. The epistemology of science is all the epistemology we need. Epistemic rationality is equated with scientific rationality. Cognition is epistemically liable to no other norms than scientific norms; and these are epistemically liable to no other goals than scientific goals. Identicists interpret claims about the absence of standpoints independent of science, etc., as saying that epistemic goals, norms and concepts are identical to the evidential goals, norms and concepts of science. So, rather than eliminate epistemic value, warrant and norms, identicists equate them with scientific value, warrant and norms. General epistemic questions about evidence, rationality and knowledge, for example, become scientific questions about scientific evidence, rationality and knowledge. Like psychologism’s equation of epistemic rules with the rules governing ordinary human reasoning, identicism equates epistemic rules with the rules governing scientific reasoning. How we epistemically ought to regulate belief is equated with how scientists do regulate belief; what we epistemically ought to deem worth pursuing is what scientists do deem worth pursuing. If science eschews truth in favor of utility, for example, then so does epistemology. Finally, identicism embraces an immanent notion of truth, à la Tarski, as well as immanent notions of factuality, reality and knowledge. Truth, reality, etc., are defined wholly internally to scientific theory.

2.

Denying theses (2) through (6) while affirming (1) creates weak continuity. Epistemology becomes continuous with science but neither identical to nor eliminated by science. Naturalists’ claims about the absence of standpoints independent of science, etc., are understood as saying that the ends,
norms, concepts, and properties of epistemology may be ascertained and applied using the evidential resources of the sciences yet are nevertheless not identical to the evidential ends, norms, concepts and properties of science. Although embedded within science, epistemology persists as a distinct province of inquiry by dint of retaining its own ends, norms and concepts; its own motivations, questions and problems; and its own evaluative (classifying) and normative (action-guiding) roles in our cognitive affairs.

In their rush to reject epistemology as first philosophy, identicists treat theses (1) and (2) as though inseparably wedded. They thus apparently think the denial of (2) entails the denial of (1): i.e., that the absence of epistemology as first philosophy entails that science provides the best standard of evidence. But it does not: that there is no epistemologically higher or firmer ground than science from which to criticize science does not entail that there is no epistemologically independent ground from which to criticize science. Weak continuity treats theses (1) and (2) as separable claims, affirming (1) while denying (2).

Given its denial of theses (2)–(6), weak continuity conducts metalevel epistemic inquiry into the ends, norms, concepts and properties of epistemology using the a posteriori methodological resources of the sciences: e.g., observation, induction, hypothetico-deduction, prediction, etc. It eschews common philosophical methods such as appealing to intuition, conceptual analysis, and reflective equilibrium unless (as Quine 1960; Boyd 1984, 1988; and Kitcher 1992 argue) properly refitted and reintegrated within a posteriori practices.

But if a priori intuitions about evidence, warrant and knowledge do not hold the key to epistemology, where do we look? While identicists look to practicing scientists, weak continuity naturalists look to the critical practices of reflective human beings. They theorize about the nature and province of epistemology as scientists, who, availing themselves of biology, anthropology, sociology, psychology and history, seek a posteriori answers to such questions as “Why do humans engage in epistemic reflection and evaluation?” and “What do they value from the epistemic point of view?” They seek an external, explanatory account of human folk epistemic activities analogous to accounts anthropologists and sociologists seek of other human cultural activities such as religion, science, morality and law. Rival theories of epistemic practices are adjudicated like rival theories of religion: viz., in terms of which best fits and explains the phenomena.

Weak continuity thus identifies and validates the ends, norms and concepts of epistemic justification using the a posteriori methods and results of
the sciences. Yet how it conducts substantive level epistemic inquiry into the scope, sources, and limits of justification and knowledge is governed by its affirmation of thesis (1). It employs epistemic norms and concepts – which it claims are contingently distinct from scientific evidential norms and concepts – when assessing the epistemic credentials of cognition. This enables weak continuity to resist eliminating epistemology or reducing it to scientific self-evaluation. That weak continuity evaluates cognition within the substantive and methodological context of science does not gainsay its axiological or evaluative independence from science. Although dependent upon anthropology, psychology, etc., for information regarding our folk epistemic practices and ends as well as for information regarding our beliefs, cognitive processes, and environment when evaluating cognition, weak continuity executes substantive evaluations of belief using distinctly epistemic norms. While these epistemic norms are ultimately no firmer than science because themselves scientific hypotheses (about human epistemic practices), they nevertheless suffice for independently evaluating science since not identical to scientific norms. If science fails these norms, then so does the scientific account of epistemic norms used in evaluating science. Its independence notwithstanding, epistemology is thus only as justified as the science it justifies.

Weak continuity’s stance towards theses (2)–(6) suggests a fundamental reorientation in our study of epistemic practices: one more akin to an historically-, socially- and cognitively-minded anthropology than to mathematics. As Dennett (1986) and Kitcher (1992) observe, mathematics has served as the paradigm for Frege-style, analytic epistemology and it is this paradigm which naturalists aim to supersede. Such an anthropology of epistemology approaches human epistemic practices in an a posteriori manner paralleling anthropological and sociological approaches to cultural practices such as magic, religion and law. It adopts an anthropologically distanced or ‘strange’ view of epistemology, seeking to understand its nature, aims and province in terms of the life circumstances in which it is organically rooted and sustained.6

Proposing we understand our epistemic practices from an anthropological perspective is not without precedent. Ancestral suggestions may be traced to Hume, Marx and Engels, Nietzsche and Dewey. More recently, Hallen and Sodipo (1986) and Oruka (1990) use the resources of cultural anthropology to explore the epistemology of the West African Yoruba and Kenyan “sage philosophers”, respectively. Closer to home, Goldman (1992) pursues an a posteriori account of “our epistemic folkways” (155) using “theoretical and empirical work from psychology and linguistics” (156).
Anthropology-tilting ethical naturalists (e.g., Boyd 1988; Railton 1986) similarly justify their views of moral ends, norms and concepts using the a posteriori methodological and substantive resources of anthropology, etc. These projects are particularly instructive for my purposes since few critics worry that they collapse morality into science by eliminating morality or identifying the ends and norms of morality with those of science. Rather, they apply scientifically identified and scientifically accessible moral norms in assessing the moral status of human behavior. Like weak continuity epistemology, ethics persists as a distinct province of inquiry within science by dint of retaining its own ends, norms and concepts; its own motivations, questions and problems; and its own evaluative and normative roles in our affairs. Anthropology-tilting ethical naturalist and epistemological naturalist alike employ scientific resources in determining whether human conduct promotes the ends of morality and epistemology, respectively.

Anthropology-tilting approaches to science have also become increasingly dominant since Kuhn’s and Quine’s criticisms of logical positivism’s Frege-style approach. Naturalist students of science such as Fuller (1989), Giere (1988), Kitcher (1992, 1993), Kuhn (1977), Laudan (1984), Nickles (1987), Pickering (1992), Quine (1951, 1960, 1976), Roth (1987) and van Fraassen (1980) (to name a few) adopt wholly a posteriori approaches to issues concerning scientific method, confirmation, explanation, etc. Projects kindred to anthropology of epistemology include Latour’s and Woolgar’s (1986) ethnography of biomedical research at the Salk Institute and Biagioli’s (1990) historical anthropology-sociology of incommensurability in the 1611-1613 debates between Galileo and the Tuscan Aristoteleans.

3.

Weak continuity naturalism affirms thesis (1), i.e., the distinctness of epistemic from scientific evidential ends, norms, concepts and properties. How does an anthropology of epistemology support thesis (1)? On the basis of an a posteriori rendering of the distinct motivations, tasks and histories of epistemic and scientific inquiry, it hypothesizes the ends of cognition from the epistemic point of view to be distinct from the ends of cognition from the scientific. Epistemology is primarily a reflection on cognition from the standpoint of believing what is true and not believing what is false. We evaluate belief from the epistemic point of view relative to the ends of acquiring true belief and avoiding false belief. In contrast, recent work on science suggests that scientists evaluate belief relative to such goals as
power, utility, empirical adequacy, consilience, informativeness, explanatory unification, simplicity and fruitfulness either at the expense of truth or to the exclusion of truth. 9

Why think humans engage in truth-aiming or “veritistic” (Goldman 1992) epistemic reflection? Our urge to theorize about the general nature of evidence and knowledge by an independent, truth-centered standard arises from the stresses and strains of real life. The ordinary course of affairs is disrupted by questions that stubbornly resist solution within the normal bounds of workaday evidential practices such as common sense, magic and divination. Doubts about evidence and knowledge arise in the daily course of cognitive experience. Impossible combinations of beliefs, norms, or judgments arise, creating tensions that progressively radicalize inquiry by pressing our questions further, pushing us more in the direction of theory, generality and systematicity. Radical disturbances at the level of workaday cognition regarding what is true, justified, or known cannot be settled at this level, prompting a more detached, abstract, systematic and self-conscious reflection concerning the nature of evidence or knowledge from the standpoint of truth and nothing but the truth. We momentarily set aside the attitude of everyday life with its practical constraints of time, resources, etc., and adopt the attitude of theory.

Veritistic epistemology emerges on the contested terrain of clashing evidential judgments, norms and practices as well as clashing cognitive authorities. Stymied by theories of spacetime which are logically incompatible yet evidentially equivalent by scientific standards, scientists set aside scientific constraints and theorize about the nature of evidence from the standpoint of truth and nothing but the truth. Beguiled by inconsistent testimony from oracles or bedeviled by inconsistencies between revelation and sacred text, lay person, shamen and clergy begin to reflect epistemically about evidence and method.

Skeptical worries and the desire to justify our beliefs überhaupt by a truth-centered epistemic standard arise from clashes between the “warring titans” (Max Weber) of science, religion, magic, folk wisdom, craft tradition and mythology. Each makes knowledge claims incompatible with those of the next while setting itself up as final arbiter. Each tenders beliefs with which we are to guide our lives. Yet none is able to put forward a non-question-begging, sound argument in favor of its own claims. Radical skeptical doubts thus arise in the ordinary course of human affairs; they are neither “artificial” (contra Williams 1986) nor ex hypothesi scientific (contra Quine 1975, 68). 10

In sum, veritistic epistemic queries and quandaries are confined neither to scientific cultures nor to early modern Europe’s crisis of conscience
over the conflict between religion and science. They arise in a variety of folk contexts, prior to and outside of science. It is in these moments of critical self-reflection that weak continuity naturalism finds the nature and province of epistemology.

4.

By affirming thesis (1) weak continuity naturalism affirms the distinctness of scientific and epistemic evidential norms, judgments, concepts and properties. It proposes we understand the latter consequentially in terms of folk epistemic ends. It thus looks first for an understanding of epistemic inquiry in terms of its governing ends (as in Section 3 above), and then proffers hypotheses concerning epistemic norms, etc., in terms of those ends. Validating specific hypotheses about epistemic norms thus involves seeing whether they objectively promote epistemic ends; not whether they conform to folk intuitions or norms (and not, for that matter, whether they promote scientific ends). We no more expect folk intuitions and norms to apprehend the real nature of justification than to apprehend the real nature of the physical world. Rather, justification-conferring processes are those which tend to objectively promote epistemic ends. Seeing as these ends are acquiring truth and avoiding error, reliable process theories appear to offer the best consequentialist account of epistemic notions. They conceive justification in terms of reliability (i.e., truth-conduciveness) and reliability in terms of a cognitive process’ objective propensity to produce a high ratio of truths per total output. Truth is defined realistically, i.e., in radically non-epistemic, non-normative terms such as non-trivial correspondence. Justification may be conceived quantitatively and keyed to degrees of reliability: the more reliable a cognitive process, the more justified its output. Justification is a descriptive fact about cognitive means-epistemic ends relationships. I call this view weak continuity reliabilism (WCR).

Reliabilism yields an externalist standard which assesses the epistemic credentials of belief in terms of the truth-conduciveness of the cognitive process(es) causally initiating or sustaining belief. It is a ‘thin’ view, leaving open to further inquiry which strategies and criteria of belief regulation are warrant-conferring in the actual world. As with other instruments, the epistemic utility of our cognitive instruments depends upon their concrete make-up and environment; and these are matters properly settled through a posteriori inquiry. Internal cognitive strategies (e.g., coherentism, foundationalism) and internal criteria of justification (e.g., certainty, social consensus) are evaluated in terms of their external truth-conduciveness.
When making these assessments, weak continuity reliabilism presupposes the (approximate) truth of our current scientific picture of the world. It adopts the strategy of hypothetical realism, i.e., it assumes the world to be as science describes it independently of human judgments, practices and theories. Consequently, adopting the epistemic point of view and selectively attending to the truth and falsity of belief does not require adopting an ahistorical, godlike ‘view from nowhere’. Similarly, evaluating belief from the standpoint of maximal truth and minimal error does not require having direct access to truth or reality an sich. As a species of post-archimedean epistemology, WCR conducts normative level inquiry hypothetically within the substantive context of science (more anon).

WCR stands uncommitted at the outset to the epistemic success of human cognition, be it commonsense or scientific. Unlike psychologism and identicism, it does not equate how ordinary folk or scientists actually reason with how we epistemically ought to reason. There is no presumption that the correct account of justification must leave intact scientific or commonsense judgments about our epistemic straits. Seeing as epistemic standards are defined in terms of non-scientific epistemic goals, it is appropriate to say that weak continuity evaluates science using independent, non-scientific standards. Scientific practices yield justified beliefs only if they satisfy these standards; yet nothing guarantees they will. What makes scientific conduct warrant-conferring is its conformity to epistemic, not scientific, standards. In sum, making epistemology scientific does not require making epistemic and scientific warrant identical. Although epistemology relies upon science, epistemic properties are defined independently of scientific judgments, theories and practices.

WCR preserves and maintains continuity with our pre- and extra-scientific interests, concerns and problems. It continues to address pre-scientific questions such as “Can humans acquire knowledge of themselves and their environment?” and “Do we really know what we claim to know?”, as well as extra-scientific questions such as, “Does science yield knowledge of the external world?” and “Ought we adopt scientific procedures and beliefs?” The current social, political and cultural hegemony of scientific views, practices and institutions no more renders these questions senseless than the hegemony of religious institutions renders senseless the analogous ethical questions, “Does religion offer an adequate morality?” and “Ought we adopt religious moral practices and beliefs?” Thus expurgating the a priori from epistemology as required by denying theses (2)–(6) does not require eliminating epistemology or recasting it as metascience. Shorn of its a priori pretensions, there remains a family of pre- and extra-scientific
concerns and problems which motivate our doing epistemology and which WCR continues to address.

WCR retains both evaluative (classifying) and normative (action-guiding) dimensions of epistemology. Reliabilism evaluates the epistemic justification of belief in terms of the truth-conduciveness of the cognitive process(es) causally responsible for belief. This enables us to evaluate the epistemic credentials of belief upon describing the causal genesis of belief. Causal explanation thus does double duty as description and epistemic evaluation. Epistemic evaluation assesses the instrumental fitness of cognitive means to epistemic ends: i.e., the likelihood of a belief’s being true given its causal ancestry. Epistemic warrant is a descriptive fact about such means-ends relationships.

As for the normativity of epistemology, WCR maintains that epistemology, like other descriptive endeavors (such as medicine and engineering), acquires a normative dimension contingently and hypothetically within the framework of instrumental reason. Its normativity is parasitic upon that of instrumental reason and a matter of its function, not essence. Epistemic evaluation becomes normative (i.e., intimately connected with human motivation and conduct and thus reason-giving, action-guiding, attitude-molding) within the context of its instrumental utility to our epistemic or non-epistemic ends. Its deontic character is likewise hypothetical: it concerns what we ought to do if we embrace the relevant ends. Whether the descriptive information offered by epistemology acquires normative force thus depends on an agent’s background beliefs and goals. For example, epistemic evaluations of science need not function normatively for scientists if they yield advice scientists deem irrelevant to pursuing their ends. Epistemology enjoys such an intimate relationship with human motivation and conduct – and so typically functions normatively for us – by dint of its centrality and widespread utility as a means to our variable, contingent ends. Given our make-up as human beings, environment and how we must act in order to reach our ends in our environment, it is by and large instrumentally rational for us to heed the epistemic.

What role remains for substantive epistemology on this view? Epistemology retains both theoretical and meliorative roles. It is a theoretical enterprise devoted to contributing to our understanding of the world by rendering its epistemic structure and the epistemic characteristics of human cognitive activity. Towards this end it assesses the reliability and warrant-conferring ability of cognitive processes and thereby their doxastic issue’s degree of epistemic warrant. Epistemology supplies this information to agents and policy makers for use in choosing optimum actions and social arrangements for realizing their various ends. Such advice acquires norma-
tive force contingently and hypothetically within the context of instrumental rationality, i.e., in terms of agents’ background beliefs and goals.\textsuperscript{13}

5.

A variety of Anglo-American philosophers including Nagel, Nielsen, Rorty, Siegel and Sorell opposes naturalism on grounds that it illegitimately expands science into epistemology and commits the ‘fallacy’ of scientism. Their objections resonate with those advanced by Frankfurt School philosophers such as Marcuse, Horkheimer and Habermas against positivism’s efforts to recast the human sciences in the image of the natural. This resonance is not surprising. Both see themselves resisting modern philosophy’s “infatuation with science” (Sorell 1991) and consequent tendency to force all inquiry into the mold of natural science. Indeed, many objections against naturalizing sociology, e.g., are easily recast as objections against naturalizing epistemology. Thus, although Marcuse \textit{et al.}, never explicitly address recent naturalized epistemology, I incorporate their objections in the following discussion.

What exactly is scientism?\textsuperscript{14} I propose we understand scientism broadly as the epistemological extension of natural science – its aims, norms, methods, substantive findings, etc. – into a field of inquiry from which it has been historically excluded, e.g., psychology, history and ethics.\textsuperscript{15} The scientism dispute in the social sciences (or \textit{Methodenstreit}), for example, pivots upon the question: “What is the proper epistemology of the social sciences?” In the present context, I propose we understand scientism as the epistemological extension of science into epistemology itself. Here the scientism dispute (or \textit{Erkenntnislehrestreit}) pivots upon the meta-epistemological question: “What is the proper epistemology of epistemology?” Naturalists contend epistemology employs a posteriori, scientific methods and evidence; non-naturalists contend it employs a priori methods and evidence.\textsuperscript{16}

Strong and weak continuity naturalism look scientistic. Both expand science into epistemology.\textsuperscript{17} However, why think scientism constitutes a fallacy? Can epistemology be scientistic without being fallacious? Critics maintain it cannot. Scientistic epistemology inevitably commits several fallacies. It: (A) establishes the epistemic monopoly of science; (B) yields a self-affirming, one dimensional epistemology; (C) is dogmatic; (D) embraces a Humean view of reason which places cognitive ends beyond the pale of rational scrutiny;\textsuperscript{18} (E) construes science as value free or neutral;\textsuperscript{19} and (F) eliminates the essential normative-evaluative component of knowledge and so eliminates epistemology.\textsuperscript{20} Fallacies (A) through (C) express overlapping worries, while fallacies (D) through (F) have been
I therefore focus on (A) through (C) below. I maintain weak continuity reliabilism allows naturalists to avoid these fallacies and thus to this extent secure a non-problematic form of scientism.

Fallacy (A): Scientism establishes the “cognitive monopoly” (Habermas 1971, 71) and “philosophical absolutization” (Horkheimer, quoted in Leiss 1972, 114) of natural science by granting it absolute, final and exclusive authority over what counts as evidence, knowledge and correct method. Scientism entails that we no longer understand science as just one form of possible knowledge but instead define knowledge as whatever explanation of experience is certified by current scientific standards. The theory of knowledge becomes the theory of science with the result that “the meaning of knowledge is defined by what the sciences do and can thus be adequately explicated through the methodological analysis of scientific procedures” (Habermas 1971, 67). Natural science becomes the model to which all other modes of inquiry must conform.

According to Nagel (1986, 9), “Scientism puts one type of human understanding in charge of the universe and what can be said about it . . .” That which fails to conform to scientific norms and methods is judged “either irrelevant or . . . illusionary” (Voegelin 1948, 462) and demoted to the mere subjective-relative. The only real knowledge is scientific knowledge and “what science cannot tell us humankind cannot know” (Nielsen 1991, 58). Granting science a monopoly over method and knowledge appears what Feyerabend has in mind when inveighing against “the chauvinism of science”, i.e., the attitude that science possesses “the only correct method and the only acceptable results . . .” (1978, 307) and “there is no knowledge outside science . . . .” (1978, 306).

Discussion: Both eliminativism and identicism appear guilty of this charge. By completely dispensing with normative epistemology and supplanting it with scientific (rather than, say, commonsense or religious) description, eliminativism effectively canonizes the de facto scientific evidential norms and methods underwriting scientific description (at the expense of those underwriting commonsense or religious description). Extirpating normative-evaluative epistemology creates a vacuum which suffocates criticism while at the same time tacitly grants science monopoly over what counts as evidence, correct method, and knowledge.

Identicism likewise canonizes the de facto norms and methods of science. However, it does so via a more subtle, Orwellian process: it eliminates extra-scientific epistemic evaluation, supplants it with scientific self-evaluation, and then redubs scientific self-evaluation, “epistemic evaluation”. Its redefinition of epistemic concepts (e.g., evidence, warrant and
knowledge) in terms of their scientific counterparts together with its redefinition of truth, factuality and reality in terms wholly internal to science establish ex hypothesi the absolutization and monopoly of science in matters epistemological. Here, too, the extirpation of extra-scientific sources of epistemic criticism creates a vacuum which suffocates independent criticism while at the same time granting science sole authority over what counts as evidence, correct method and knowledge.

Weak continuity reliabilism, in contrast, grants science no such monopoly. First, using the resources of anthropology, etc., it looks for the ends of cognition as well as abstract, general characteristics of justification, proper method and knowledge from the epistemic point of view in the pre-and extra-scientific practices of epistemologically reflective human beings in general; not in the daily practices of scientists (as does idealism). Secondly, while WCR employs the substantive and methodological resources of the sciences in evaluating beliefs, it remains axiologically and normatively independent of science since epistemic ends, norms and notions are not identical to scientific evidential ends, norms and notions. WCR conceives epistemic justification in terms of reliability and reliability in terms of realist truth. All three notions remain science-transcendent in the sense of being defined independently of scientific norms, theories, concepts and practices. Science must first demonstrate its success at promoting what we non-scientists seek from the epistemic point of view before we allow it to furnish the concrete specifications of correct method in the world we inhabit. WCR tells us to look for reliability; not which methods are reliable.

Furthermore, WCR precludes neither cognitive diversity nor methodological pluralism. Different cognitive processes and methods may be warrant-conferring and epistemically appropriate for different domains of inquiry. Doing so requires that they be reliable, not that they pursue the “slavish imitation of the methods and language of [natural] science” (Hayek 1952, 15). For example: despite its bashing at the hands of early 20th century behaviorists, introspection may be a reliable guide to first person mental states such as qualia (e.g., pains, colors, etc.) and neuroscientists may not be able to dispense with introspective testimony in arriving at an adequate picture of the brain/mind; self-conscious personal experience may enable individuals to be better judges of their own good than psychology or neuroscience; and ‘taking the role of the other’ may be a more reliable guide to other people’s behavior in one’s own socio-cultural milieu than theoretical social psychology or physics. Poetry, film and literature may be valuable sources of insight into human experience which physics, biology and psy-
chology rarely, if ever, provide. In sum, WCR judges cognitive practices by their epistemic fruits, not by their conformity to scientific methods.

Fallacy (B): Siegel (1984) accuses Quine and Roth of producing a “self-validating”, “rubber-stamp epistemology, which cannot rationally criticize [scientific] justificatory practices” (669). Because identicism aims merely to reconstruct science’s own evaluative practices, it loses all “power to [independently] evaluate, criticize and correct [scientific] practice” (669). This precludes ex hypothesi epistemology’s ability to raise significant questions about science überhaupt and trivializes its evaluations. Such an epistemology is compelled to give scientists a favorable rating as long as they observe their own rules.

Haack (1993) charges Quine’s identicism with “scientistic imperialism” (350). It reconceives epistemology as wholly internal natural science, thereby circumscribing epistemology and precluding epistemic evaluation transcending science. But Haack argues traditional epistemic concerns are “supra-scientific” (350), possessing an “unrestricted scope and generality” (349) which cannot be captured by scientific ones without loss and trivialization. Consequently, identicism is incapable of entertaining “epistemological issues not strictly internal to science, such as . . . the question of the epistemic standing of science itself . . . .” (336). Identicism replaces the traditional question, “Do we really know what we take ourselves to know?” with the more narrow, “Could we have arrived at [natural] science by means certified by [natural] science itself as truth-conducive?” (349). The latter, Haack claims, “trivializes” the substantial question, “Does natural science have a special epistemic status, and if so, why?”. After all, “reflecting . . . that what is said in the Sacred text is true may be certified by the Sacred text itself, one realizes that this is scarcely the reassurance for which one hoped” (350).

Similarly, identicism yields what Marcuse (1964) calls a “one-dimensional” epistemology suffering from “paralysis of criticism”. Collapsing epistemology into science and equating epistemic ‘oughts’ with de facto, scientific ‘oughts’ forecloses the possibility of meaningful, radical criticism of science. Epistemic questions are replaced on pain of unintelligibility by technological questions about the adequacy of scientific means to scientific ends. Any epistemology transcending science “succumbs to the same sentence of extravagance and meaninglessness that [positivism] once passed on metaphysics” (Habermas 1971, 67). Epistemology is stripped of all science-transcendent resources and power to oppose the scientific status quo with the consequence that the “existing system . . . becomes immune from challenge, since all externally determined ends and norms appear
Discussion: The preceding contains two distinct objections: naturalism creates an epistemology that is (i) “self-validating” and (ii) “one-dimensional”. First, identicism does not look guilty of creating a “self-validating”, “rubber-stamp” epistemology which inevitably validates science. Rather, it leaves ample room for our judging science to fail its own evidential standards and thus be evidentially unwarranted. (How identicism does this parallels how I argue WCR does this, below.)

Identicism does, however, appear guilty of creating a “one-dimensional” epistemology since it precludes ex hypothesi the possibility and intelligibility of appealing to a science-transcendent dimension upon which criticism may find a footing. It does this by redefining notions such as justification, truth, and reality in terms wholly immanent to science. It circumscribes epistemic criticism within the limits of scientific criticism by shrinking epistemic ‘oughts’ and warrant to fit scientific ones and by replacing the evaluation of science by independent epistemic standards with evaluation by scientific standards. Identicism thereby strips epistemology of the science-transcendent resources needed to pursue radical criticism of science überhaupt and renders impotent significant epistemological opposition to the scientific status quo. In the end, only science is allowed to evaluate science.

Weak continuity reliabilism, in contrast, creates neither a “one-dimensional” nor “self-validating” epistemology. I tackle these in turn. Unlike identicism, WCR does not look for epistemology in scientific practices. It neither reduces epistemology to scientific self-evaluation, redefines epistemic standards in terms of scientific ones, nor equates epistemic ‘oughts’ with scientific ‘oughts’. Furthermore, it conceives epistemic justification in terms of reliability and reliability in terms of realist truth – all three being science-transcendent because defined independently of scientific norms, practices and theories. This enables critics to challenge the scientific status quo by arguing that scientific processes of belief regulation are not reliable and hence not warrant-conferring because they do not tend to yield beliefs which correspond to a science-independent, external world. Because WCR’s conception of epistemic warrant, truth and reality are defined in science-transcendent terms, they remain uncircumscribed by science as well as fully abstract and general (in the manner required by Haack and Marcuse). WCR possesses the two-dimensional resources needed to pursue independent, radical criticism of science überhaupt.

Haack is certainly correct that traditional epistemological questions such as “Do we really know what we think we know?” and “Does science necessarily irrational in comparison to the inner rationality of science” (Piccone 1971, 125).
yield knowledge?” are important to us. She is also correct that by redefining these questions in terms of scientific norms, identicism asks a different set of questions. What we want to know is whether scientific belief formation furthers the realization of our folk epistemic goals, not whether it furthers scientific goals. Yet the latter is the only question identicism allows us to ask. For WCR these questions remain framed in terms of independent epistemic ends, concerns and norms, and thus remain “unrestricted in scope and generality”, non-trivial, and well-motivated. What’s more, they remain open questions. WCR is not obliged to “rubber stamp” science’s favorable evaluation of itself.

What about Haack’s sacred text analogy? WCR’s assessment of the epistemic credentials of science does not proceed in the manner suggested by her analogy. Given WCR’s distinctions between epistemic and scientific ends, norms and concepts, scientists must do more than satisfy their own evidential rules before succeeding epistemologically: they must satisfy epistemology’s. WCR asks, “Does science pass our epistemic rules?”, not “Does science pass its own rules?”. It tests the epistemic credentials of scientific practices by assessing their reliability against a set of contingent, fallible and hypothetical assumptions about cognizers and the world. Beginning from these, it asks: “Can creatures with these kinds of cognitive abilities acquire justified beliefs about and perhaps knowledge of an external world possessing those sorts of properties? Are there reasons for thinking scientific practices are truth-conducive and hence warrant-conferring in such a world?”. Haack’s sacred text, in contrast, dogmatically affirms its own veracity and epistemic credentials. Its self-test inevitably appeals to categorical assertions about divine existence and veracity, the reliability of revelation, or the infallible origins and epistemic authority of inspired text. Sacred truth is defined internally in terms of sacred text or sacred author.25

Testing the epistemic credentials of science takes different forms depending on how ‘thin’ vs. ‘thick’ we make these assumptions. Thicker assumptions make for a tighter circle and less powerful result since a smaller gap separates assumptions and results. Thinner assumptions make for a looser circle but more powerful result since a larger gap separates assumptions and results. Campbell (1959, 1974), Friedman (1979), Devitt (1984), Kitcher (1993) adopt a thicker set assuming the truth and referential success of our best and most recent theories in physics, psychology, etc. Rescher (1977) and Railton (1984) adopt a thinner set consisting of: the uniformity, responsiveness (to human intervention), and non-conspiratoriality of nature; and the activism, reasonableness, interactionism (with external world), sensitivity to feedback, purposive constancy, and methodological
continuity of inquirers (Rescher 1977, 89). Passing either test is non-trivial since the gap separating assumptions and results leaves ample room for failure. When cross checked in this manner, assumptions and results may fail to cohere. For example, naturalists such as Ruse (1989, 1990) argue evolutionary biology supports Humean-style scepticism regarding human cognitive access to the external world; others (e.g., see Harding 1986, 1991 and Keller 1985) argue feminist research in psychology, science studies, and the sociology of knowledge undermines science’s claim to reliability. In short, as Friedman (1979, 371) writes, “For all we know, the theories produced by our inductive methods will eventually undermine the reliability of those very methods”. The epistemic success of science is not a foregone conclusion.

Fallacy (C): Chisholm (1982) maintains epistemologists face two questions: “How do we know?” and “What do we know?” Skeptics argue neither question can be answered without knowing the answer to the other, and that we are therefore trapped in an inescapable circle. Particularists (e.g., Moore) respond by assuming we know certain propositions to be true (e.g., “This is my hand”) and then try to determine how we come to know them. Methodists (e.g., empiricists like Locke) assume we know how we know and then try to determine what we know. Yet as Chisholm points out, both are dogmatic since both beg the question. Bradie (1989, 402) applies Chisholm’s argument to naturalized epistemology and accuses it of dogmatic particularism. Almeder (1990), Habermas (1983) and Siegel (1984, 1989), on the other hand, accuse naturalism of dogmatic methodism.

Discussion: Neither WCR nor identicism is guilty of either dogmatic particularism or dogmatic methodism. Unlike Chisholm’s particularism, WCR’s assumptions about cognizers and the world are (i) hypothetical rather than dogmatic, and (ii) metaphysical rather than epistemological (i.e., they concern what we take to be the case rather than what we take ourselves to know). Unlike Chisholm’s methodism, WCR assumptions regarding the reliability of scientific methods are hypothetical rather than dogmatic. WCR seeks an openly conditional justification of scientific methods and beliefs and hence conditional response to skepticism. Like other naturalisms, WCR eschews the foundationalist desideratum of justifying all our beliefs, all at once, and makes no pretensions of refuting the skeptic ‘from scratch’. The exercise is non-viciously circular since it aims merely to demonstrate the internal fit between scientific methods and scientific picture of folk epistemic ends. As Field (1972, 373) remarks, we pursue such an exercise “not to tack our conceptual scheme onto reality from the outside” but to show that it does not break down from the inside.
By way of summary, let me underscore the differences between eliminativism, identicism and WCR by examining their ability to handle an example taken from the pages of Marcuse and others. I regard this as the sort of example which largely motivates their misgivings about scientism. As they perceive matters, the need for independent epistemological criticism of science is largely motivated by political considerations. That is, confronted with hegemonic worldviews which they perceive as contributing to the ideological foundations of their marginalization and disenfranchisement, “subaltern” (Gramsci 1971) groups (e.g., slaves, workers, women, people of color, or colonial peoples) commonly challenge the epistemic credentials of their oppressors’ evidential practices and worldview. Such groups commonly identify science, in particular, as playing an indispensable role in their oppression by virtue of lending its authority to – if not actively purveying – theories of sexual, racial, national, or ethnic superiority which underwrite policies of genocide, eugenics, segregation, political disenfranchisement, etc. Many feminists, African-Americans and third world nationalists reject the epistemic authority of science by the following line of reasoning. Science is inherently androcentric, racialist, or imperialistic; hence inherently unreliable; and hence inherently unable to confer epistemic warrant on its doxastic issue. They measure science against some external, non-scientific epistemic standard, argue science fails to meet this standard, and conclude science fails to yield a truthful picture of reality.

This felt need for independent epistemological criticism of scientific practices is met poorly, if at all, by eliminativism and identicism because they leave insufficient conceptual space for such criticism. Eliminativism, on the one hand, extirpates epistemic criticism root and branch and supplants it with scientific description. This leaves oppressed peoples with no cognitive alternative but accepting the racialist, etc., scientific descriptions of their day. Identicism, on the other hand, preserves criticism but criticism is, on pain of unintelligibility, immanent to and hence circumscribed by its intended target, viz., the scientific status quo. Epistemic criticism is redefined as a matter of internal or ‘in house’ review. Since science alone is allowed to judge science, critics of science must play by science’s own rules.

This looks deeply unsatisfactory on several scores. (i) Who reviews the reviewers? The concerns of subaltern groups are systematic rather than accidental. Theirs is not a local doubt concerning the occasional lone scientist’s deviation from an otherwise epistemically legitimate corpus of norms and aims, but rather a global or systematic doubt concerning the epistemic credentials of the institution of science itself. They thus have little reason to
be sanguine about an in-house review’s successfully detecting the relevant sources of bias and distortion since qua members of the scientific establishment, the reviewers themselves are likely to share these systematic biases and consequently be unaware of them. (ii) Members of subaltern groups are standardly excluded from the scientific community, their exclusion typically being underwritten by the very theories they seek to dispute. Thus, they are standardly precluded from participating in any in-house review. (iii) As potential critics, the subaltern are required to play by rules which they perceive as systematically rigged at the outset against their criticisms. As they see things, the rules belong to a cognitive institution which is inherently and systematically biased because historically generated and shaped by androcentric, racialist, etc., values, ideals and assumptions. (iv) As critics, the subaltern are only permitted to criticize science for failing to satisfy scientific norms and aims; not for failing to satisfy their own epistemic norms and aims. By adopting immanent notions of truth, fact and reality and by redefining evidence and knowledge in terms of scientific aims such as prediction and control, identicism precludes the intelligibility of the question, “Granted science yields theories scoring high marks in terms of pragmatic values such as prediction and control, but does it yield knowledge of the external world?” (v) All independent epistemic criticism is deemed non-scientific and hence epistemically irrelevant or ‘irrational’. Critics are thus precluded from arguing that scientific norms, values and aims are radically misconceived and that science überhaupt fails to yield knowledge of an extra-scientific reality. So, for example, if the racialist theories they oppose satisfy the evidential norms of the science of their day, the racially oppressed are left without epistemic recourse. Acquiescence, romanticism and ‘irrationalism’ appear their only cognitive alternatives. Science retains absolute, final and exclusive authority over what counts as knowledge, correct method, reality and truth. In sum, eliminativism and identicism grant science an epistemic monopoly and create a Marcusean “one-dimensional” epistemology. For both, science has both the only say and the final say.

In contrast, WCR conceives epistemic justification, reliability and truth in externalist, science-transcendent terms. Epistemic rationality is distinct from scientific rationality. Epistemology’s critical tools are defined in terms of folk epistemic aims, not scientific aims. Together, these features of WCR establish a conceptual gap separating the satisfaction of scientific standards and satisfaction of epistemic standards. WCR thereby preserves the intelligibility of the question, “Granted science yields theories scoring high marks in terms of pragmatic values such as prediction and control, but does it yield knowledge of the external world?” Science may pass its own stan-
standards yet still fail WCR’s. So, for example, a theory of racial determinism may advance scientific goals of utility, empirical adequacy, and simplicity while nevertheless failing to advance epistemic goals of maximizing truth and minimizing falsehood. This gap affords subaltern groups the necessary conceptual space for challenging the scientific status quo by allowing them to contend that science *überhaupt* fails to be truth-conducive and hence yield warranted beliefs about science-independent reality because science is systematically distorted by androcentric, racialist, etc., aims, assumptions and values. WCR thus neither grants science an epistemic monopoly nor creates a “one-dimensional” epistemology. After science has had its last say, weak continuity epistemology has yet to speak.31

In conclusion, continuity requires neither eliminating epistemology nor identifying it with scientific self-criticism. Weak continuity reliabilism naturalizes epistemology while preserving its normative and evaluative dimensions as well as its tradition of assessing science *überhaupt* by independent extra-scientific standards. While stronger forms of naturalism may indeed succumb to the sins of scientism, weak continuity reliabilism creates a working union between epistemology and science that avoids these sins.

NOTES

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2 Kitcher (1992) and Maffie (1990b) survey recent naturalism. Non-naturalists (e.g., Bealer 1987, Bonjour 1985) view epistemology as autonomous from science and employing sui generis, a priori methods.

3 There is another way naturalists may unify epistemology and science which I do not discuss. Goldman (1986) advocates a dualistic approach that is partly a priori, partly a posteriori. He affirms theses (2)-(6) as they pertain to meta-level epistemic inquiry but denies (2)-(6) as they pertain to substantive level inquiry. The findings and methods of science are relevant for determining the epistemic status of belief but not for determining the nature of epistemic ends, norms, concepts and properties. Meta-level inquiry into epistemic norms, concepts and properties remains a priori and autonomous from science. In contrast, strong and weak continuity reject theses (2)-(6) and conceive substantive and meta-level epistemic inquiry in wholly a posteriori terms. Despite its promise to preserve central features of traditional epistemology, more steadfast naturalists eschew dualistic naturalism due to their indefatigable doubts over the epistemic probity of the a priori methods it continues to employ. See Kitcher (1992) for discussion of naturalism’s rejection of a priori epistemology.

I have in mind here primarily Quine (1969a, b, 1974, 1975, 1986b) and Roth (1983, 1987, m) and secondarily Giere (1988, 1989) and Laudan (1984, 1987, 1990a, b). In the following, I direct my criticisms against Quine and Roth, although I suspect they also apply to Giere and Laudan. See Haack (1993) for an excellent discussion of the various strains in Quine’s naturalism.

I develop this view in ‘Towards an Anthropology of Epistemology’, (unpublished manuscript).

I develop this view in ‘Towards an Anthropology of Epistemology’. (unpublished manuscript).

See Kitcher (1992). Fuller (1993) contains an excellent discussion of science and technology studies (STS) and of recent ethnographies of science, in particular.

See Kitcher (1992). Here weak continuity overlaps with mainstream analytic epistemologists such as Alston (1985, 1989), Bonjour (1985), Chisholm (1977), Foley (1987), Goldman (1986, 1992), Schmitt (1992), and Williams (1978). I discuss the trade-off between these two ends in ‘Towards an Anthropology of Epistemology’. Truth is defined realistically, i.e., in radically non-epistemic, non-normative terms such as non-trivial correspondence. Defenses of realist truth and its role in epistemology include Devitt (1984) and Goldman (1986). Hallen and Sodipo (1986) discuss the role of correspondence truth in Yoruba epistemology, Oruka (1990), its role in Kenyan and Jayatilleke (1963), its role in Indian. Bloo (1991, 37) claims correspondence truth-talk is “probably universal”. Finally, this view must repulse Stich’s (1990) attack upon the relevance of truth for epistemology. Following Kornblith (1993), I submit our interest in acquiring truths and avoiding falsehoods is neither “arbitrary” nor “idiiosyncratic” (Stich 1990, 95) since rooted in the instrumental utility of true belief and disutility of false vis-à-vis the satisfaction of our ends.

Those defending the former disjunct include: Field (1982), Devitt (1984) and Kitcher (1992, 1993); the latter, Kuhn (1977), Latour and Woolgar (1986), Laudan (1984), Nickles (1987), Quine (1951, 1960, 1976), Quine and Ullian (1970), Roth (1987) and van Fraassen (1980). Defending either of these views requires discrediting two others: (i) the ends of science are truth and nothing but the truth; and (ii) the ends of science include simplicity, explanatory power, etc., in addition to truth. For criticisms of these two views, see the above.


The notion of scientism has a diverse history much of which falls outside of the scope of our concerns. According to Cameron and Edge (1979), much of the scientism literature addresses the social, cultural and ideological uses of science: e.g., (i) people’s use of the images of science (e.g., its method, language, etc.) in advancing their own ends, and (ii) the tendency to view science as the motor of progress in social justice, health, world peace, etc.

This formulation is deliberately neutral regarding the legitimacy of scientism. Critics
such as Nielsen (1991, 41). Hayek (1952) and Schoeck (1972) beg the issue by defining scientism as a fallacy and using “scientism” and “scientistic” exclusively as terms of abuse or contempt.

16 See note #2. Frisby (1976) contains an excellent discussion of the Methodenstreit.

17 Yet they do so in varying degrees. Denying theses (1) through (6) makes strong continuity more strongly scientistic than denying (2) through (6) makes weak continuity.


21 Using non-Humean views of instrumental reason, Dewey (1939) and Laudan (1984, 1987, 1990a, b) circumvent fallacy (D) by showing how ends may be rationally evaluated relative to other ends and background beliefs. Boyd, Giere, Laudan, Nickles, Quine and Roth affirm the value-ladenness of science and so avoid fallacy (E). Roth (1987) and Keat (1971) show how opponents typically base their objections to scientism upon positivist views of natural science which are rejected by contemporary naturalists. McCarthy (1978) shows this to be true of Habermas. Lastly, Kitcher (1992), Laudan (1987, 1990a, b), Maffie (1990a, 1993) and Quine (1986b) preserve the normativity of epistemology and so circumvent fallacy (F).


23 Haack (1993) identifies eliminativist, identicist, and what she calls “modest naturalist” strains in Quine. She rejects the first two as scientific but embraces the third.

24 Similar misgivings are expressed by Habermas (1971) and Horkheimer (1974), and attributed to Husserl by Marcuse (1964, 1978) and Piccone (1971). See Held (1980), Leiss (1972) and McCarthy (1978) for further discussion.

25 It also appears Haack’s analogy misses the point. The relevant issue is not whether the sacred text avers its own veracity, but whether the sacred text is internally consistent. The former does not entail the latter.

26 Although strictly speaking not naturalistic, Rescher’s (1977) strategy is easily adapted to naturalist purposes.

27 Given limitations of space I sketch a defense of WCR only and leave for the reader the parallel defense of identicism.

28 Naturalists such as Boyd, Devitt, Giere, Goldman, Laudan and Quine eschew the foundationalist project on grounds ranging from its unreasonableness and impossibility to its incoherence. Consequently, they do not intend their post-archimedean epistemological project to satisfy the demands of traditional, foundationalist epistemology. Friedman (1979) and Nickles (1987) observe that the circularity discussed by Chisholm also plagues our justification of deduction. For further discussion of non-vicious circularity, see Field (1972), Friedman (1979), Kitcher (1993) and Nickles (1987).

Note that Chisholm’s argument places epistemological non-naturalists in similar straits since they presuppose the reliability of a priori reason in the course of justifying a priori reason. Thus they either succumb to dogmatism or pursue conditional justification (like naturalists). Chisholm’s (1977) “critical cognitivism” pursues the latter strategy. If conditional justification is all we can expect in post-archimedean climes, we need to devote more attention to the metaphilosophical task of adjudicating between rival philosophical programs such as naturalism and non-naturalism. Boyd (1984) and Alston (1989) provide
useful tips towards this end. Following Boyd’s suggestions for disputes between scientific realists and anti-realists, I propose: firstly, that we minimize piecemeal skirmishes and evaluations (since these often beg the question) and concentrate instead on evaluating the overall merits of naturalist and non-naturalist meta-epistemologies; and secondly, that we do so using what Boyd calls “pair-wise theory-neutrality of method”. Naturalist and non-naturalist are to carry out their disagreement in terms of mutually agreed upon, conditional and contextually neutral values such as internal (logical and probabilistic) consistency, robustness, explanatory unification, or systematicity.

29 This perception is shared among: marxists (e.g., Marcuse, Horkheimer, Habermas, Gramsci, Leiss, Nielsen and Piccone); feminists (e.g., Harding 1986, 1991 and Keller 1985); African-Americans (e.g., Collins 1991); and third world intellectuals (e.g., Hoodbhoy 1991; Mudimbe 1988; and Sardar 1988). Interestingly, this perception is also shared by Russell (1941) and Popper (1963) who express similar misgivings about the Orwellian fate of independent, rational inquiry and criticism under the bootheel of ‘closed societies’ such as Nazi Germany and Communist Russia. They see the rejection of transcendent in favor of immanent notions of truth, knowledge and reality as contributing to the creation of seamless, ‘totalizing ideologies’ which foreclose meaningful opposition to officially promulgated ‘scientific truths’ (e.g., Nazi physics and Lysenkoism). Thus, their clashing political loyalties notwithstanding, Marcuse et al., on the one hand, and Russell and Popper, on the other, both see the need for independent epistemological criticism of science arising from political circumstances.

30 Chubin and Hackett (1990) and Fuller (1989, 1993) critically discuss the ability of science to police itself.

31 WCR does not, of course, provide the conceptual space afforded by the archimedean standpoint of a priori foundationalist epistemological projects. However, these projects no longer look viable. See note No. 28.

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