a contingent matter. Ecosystems (or more specifically tundra or limnological ecosystems) are local and contingent—that is, systems thrown up by the contingencies of evolution within a limited planetary system. However, there are generalizations that hold for such systems. Ecology advances by coming to understand such regularities in terms of generalizations with a limited degree of invariance. Often, the understanding one has of such natural systems comes by way of deploying generalizations treating interrelated processes at various levels. Ecology has fairly weak generalizations to call its own but borrows heavily on generalizations from a range of related fields.

Methodological naturalists project parallel developments within fruitful social science. For example, suppose one sought to understand the prevalence of certain social norms in a certain cultural context. According to the methodological naturalist, one will be in a position to do so when one has developed and empirically refined a range of generalizations. Plausibly, some generalizations might have to do with the social transmission of cultural ideas—perhaps generalizations treating a replicator dynamics having limited analogies with genetics (as in evolutionary approaches to culture). Some generalizations might have to do with human psychology, particularly generalizations having to do with characteristic human social preference. Some generalizations might originate within general cognitive psychology and suggest ways in which norm representations might be stored and activated (as accounts of the dynamics of social norms suggest). In all cases, the generalization in question should be subject to refinement either in the lab or in other experimental settings, and with careful cross-cultural investigation.

While ontological naturalism has few natural enemies today, methodological naturalism is opposed by a form of methodological separatism that insists (a) that social phenomena are best appreciated by way of "interpretation" and (b) that the interpretation operates by a kind of logic that is unlike any in the natural sciences. This is reflected in the *hermeneutical* tradition. A recent, distinct version of interpretivism, originating from within analytic philosophy, takes inspiration from Donald Davidson's views on interpretation: He understands interpretation as essentially conditioned by a normative—nondescriptive—presumption of rationality. Some find this line of thought untenable, while others advance a moderate naturalist account of interpretation.

David K. Henderson

See also Biology and the Social Sciences; Causes Versus Reasons in Action Explanation; Explanation Versus Understanding; *Naturwissenschaften* Versus *Geisteswissenschaften;* Normativism Versus Realism; Reductionism in the Social Sciences; Social Ontology, Recent Theories of; Supervenience

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Naturalized Epistemology

Naturalism in its 20th-century American incarnation seeks to align philosophical inquiry with scientific inquiry generally. In this form, naturalism rejects a priori claims to knowledge (i.e., it rejects a view of knowledge as not explicable as part of the natural world) and links justification to the methods of science, broadly understood. Unlike positivism, naturalism offers no rigid demarcation criterion

regarding what defines a science. In post-positivism, questions arise on how to delineate what counts as a science, and this creates a lingering strain with naturalism as originally conceived.

Since much of the discussion of naturalized epistemology emanates from Willard Van Orman Quine's landmark essay on the topic, debate on this topic might be presumed to also inherit Quine's holism with regard to theories and his extremely liberal notion of what constitutes a science. But this has not turned out to be the case. Broadly specified in a Quinean spirit, naturalized epistemology could incorporate methodologically much beyond any list of methods native to the natural sciences and so includes those of, for example, any of the social sciences and history. As a naturalist, Quine assumes no fixed methodological essence that serves to demarcate disciplinary kinds. Read less in the spirit of American naturalism, naturalized epistemology can be taken to imply a reductionist program, with the natural sciences supplying the licit elements of any proposed reduction. But inasmuch as such readings beg the question of how to establish what to count as a science, they will not be considered further here.

Disagreements regarding what the term *naturalized* implies in consequence typically turn on ambiguities regarding what a science is, since explications of "naturalism" invoke some notion of science. It might be thought that agreement on the purview of the notion of epistemology would prove unexceptional no matter how contentious the interpretation given to the modifier "naturalized." But it turns out that using this modifier generates uncertainty with respect to epistemology so modified. Even supposing that everyone agrees that epistemology covers the philosophical analysis of knowledge, such apparent agreement would only mask a core philosophical controversy. For what knowledge is, and so what epistemology in fact examines and encompasses, will depend on how the term *naturalized* functions to modify *epistemology*. Thus, the topic of naturalized epistemology elicits controversy not only with regard to what to accept as a *naturalized* epistemology but also as to how to construe "epistemology" so modified. In short, determining what sets the scope of the term *knowledge* has emerged as a key point of contention with respect to providing any account of naturalized epistemology.

The "Autonomy of Knowledge" View

Two antithetical answers to the question of what knowledge is dominate contemporary epistemology. One answer, claiming a heritage to Thomas Reid and G. E. Moore, premises its approach to epistemology and a determination of its subject matter on what could be termed the "autonomy of knowledge" assumption. Knowledge so conceived constituted a domain prior to philosophy ever arriving on the scene. On this assumption, there exists a pretheoretic ("commonsense") notion of knowledge that any analysis of knowledge must respect. From this perspective, tests of philosophical analyses of knowledge then proceed by holding them hostage to "intuitions" regarding a fit between these analyses and a prior sense of what belongs in the domain.

On this "autonomy of knowledge" view, then, epistemology begins with an established subject matter—some pretheoretically ascertained domain of the known—prior to, and independently of, modifiers such as "naturalized." The modifier thus only signals a particular approach with respect to an independently established category, as in "Italian cuisine." But the category has independence and a breadth apart from its modifier.

Further, by assuming the "autonomy of knowledge" view of epistemology, any efforts to bring science to bear on knowledge claims will be circumscribed by knowledge pretheoretically understood. People pretheoretically have a great deal of knowledge, and they always already know (more or less) what propositions count as instances of knowledge. Philosophical analysis contributes just self-awareness in the form of a specification of the conditions (i.e., the analysis) of knowing. The object of analysis—knowledge—exists prior to, and independently of, any science. From this perspective, a naturalized epistemology only contributes whatever resources the sciences might offer that abet this task of making explicit already existing conditions of knowledge. Science then plays the handmaiden to philosophy.

The "Autonomy of Naturalized Epistemology" View

A second and very different view of naturalized epistemology emerges, however, on the assumption that pretheoretic views have no particular standing to determine or adjudicate what passes for knowledge. On what may be termed the "autonomy of naturalized epistemology" assumption, whatever falls within the scope of a naturalizing process determines the domain of epistemology and so defines knowledge. Rather than assuming, that is, an autonomous domain of knowledge before philosophy comes on

the scene, this approach to naturalized epistemology defines knowledge in naturalistic terms and proceeds from there. Here, the subject matter of epistemology can only be determined in conjunction with what current sciences endorse. People of course belong to linguistic communities that already use terms such as *knowledge, justification, good reasons,* and so on. But once in place, science sets the standard for what passes as knowledge. So even on the assumption that science evolves from ordinary understanding, the sciences ultimately come to constitute the domain of knowledge properly so called.

Quine argues for this view specifically, maintaining that with the collapse of foundational programs epistemology loses any standing to prescribe to science a standard of knowledge apart from whatever the sciences collectively endorse. For in the absence of foundationalism, there exists no extrascientific gold standard for adjudicating knowledge claims. And with the standards of the various sciences in hand, it can then be decided which candidates for knowledge meet them. Since standards come bundled with theories generally, knowledge then consists of all that these theories imply.

Framing the Debate

Although it might seem as if intermediate positions between these two extremes—the "autonomy of knowledge" and the "autonomy of naturalized epistemology"—should be possible, further consideration indicates otherwise. The chief sticking point arises with regard to what will count, in any approach, as knowledge. Either there exists an identified nonscientific standard of knowledge, or there does not. Naturalizers say that there does not. A consistent naturalizer cannot canonize both common sense and science; for that would be to certify as epistemologically appropriate methods not licensed by science. Nonnaturalizers hold to their Moorean sensibilities and so assign philosophical primacy to a pretheoretically determined knowledge domain.

Either pretheoretic intuitions about knowledge trump science or vice versa. For a nonnaturalist, invoking science as an aid begs all the critical philosophical questions. Assigning science an epistemological role must appear inexplicable or arbitrary. For if science sets a (rather than "the") standard of justification, what reveals this? Certainly, nothing related to "common sense" or pretheoretic intuitions about knowledge. So science on the nonnaturalist view awaits justification; it cannot plausibly function as a touchstone, however modest, of knowledge. Conversely, to endorse science would be to endorse a standard with no ultimate necessary connection to whatever informs commonsense intuitions about knowledge. Philosophically, one cannot have it both ways. Thus, as noted above, one will be pushed to the extremes represented by one or the other of the autonomy views.

Two red herrings often further cloud the debate with regard to naturalized epistemology. One, already mentioned, insists that a naturalized epistemology entails a reductionist program, with the terms of reduction having to come from the physical sciences. While it is not clear whether or not positivism even in its heyday mandated such an approach to epistemology, post-positivism, no such implication can be said to follow from naturalism. In the absence of a demarcation criterion, what to call a science can plausibly be said to include all disciplines that seek to provide an integrated and systematic account of their subject matter. A naturalized epistemology uses all the tools of the various sciences to study how the subject matters of these sciences (and so what can pass for knowledge) come to be, including how those sciences themselves as theories of these subject matters come to be. No necessary or sufficient conditions exist for separating sciences from nonsciences, but this hardly matters. Indeed, the disunity of science has emerged as a working hypothesis for understanding the sciences as we find them. Inevitably, a naturalized epistemology will depend on what a society recognizes as legitimate science.

A second red herring issue that also often surfaces in debates with regard to naturalized epistemology concerns the role of so-called normative factors with respect to an analysis of knowledge, for example, what makes for the goodness of reasons. The charge goes that science, and so by extension any naturalized epistemology, can only focus on descriptive/causal aspects of cognition. Nothing in science permits an analysis of evaluative practices, for evaluative practices can never be caught in a descriptive/causal net; they are items of another sort. Hence, according to this criticism, the very term *naturalized epistemology* constitutes an oxymoron; to the extent that the subject matter allows of naturalization, to that extent it cannot address the primarily normative concerns of epistemology.

Of course, those making this criticism cannot deny that many social sciences study the genesis,

evolution, and change of norms within groups. The complaint only has a point if the norms at issue cannot be identified with those "transitory" or "merely social" norms that have their lineage analyzed in this way. The investigation then must be in primary part conceptual, not empirical, since it asks after the appropriateness or rightness of a type of judgment, not how this or that rule came as a matter of fact to be taken for a norm. Only a mode of philosophy not fully or at all naturalized stands ready to undertake such inherently conceptual investigations.

Here, the debate seems to end. A naturalist can only dig in her heels and question why it must be the case that any norm has a more exalted status than whatever reasons led a group in the first place to adopt it. Does this imply that all norms receive a functional explication? No. It merely points to the fact that disciplines tend to settle over time what their norms are. These can be studied, explained, and, yes, critiqued by examining through various means—historical, sociological, economic, and so on—how norms come to be and pass away.

Naturalized epistemology denies what traditional philosophy took it to be the purpose of first philosophy to provide, namely, a metaperspective from which to adjudicate the "really best" from among those norms that wash up on a society's shores in the ebb and flow of history. But a naturalized epistemology offers no such promise of an atemporal or absolute perspective on cognitive standards. A naturalized epistemology can help one learn how what now passes for knowledge came to so pass, and by doing so possibly suggest what may have been problematic in that process. In this clear respect, a naturalized epistemology, qua epistemology, does contribute to the eternal philosophical project of increasing self-understanding. But *qua naturalized* epistemology, it promises no more than that, that is, a bringing to self-awareness through science how beings like us come to possess the sciences that we do.

Paul A. Roth

See also A Priori and A Posteriori; Duhem-Quine Thesis and the Social Sciences; Epistemology; Ethno-Epistemology; Feminist Epistemology; Naturalism in Social Science; *Naturwissenschaften* Versus *Geisteswissenschaften;* Normativism Versus Realism; Pragmatism and the Social Sciences; Reductionism in the Social Sciences; Social Epistemology

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Naturwissenschaften Versus *Geisteswissenschaften*

This entry presents the celebrated contrast between the natural and the human sciences as it developed historically in the 19th century around the core ideas of Wilhem Dilthey. The entry focuses on Dilthey's thought and discusses the various epistemological theses characterizing the distinction between the sciences of nature and the human sciences. It also presents the Neo-Kantian distinction between "nomothetic" and "idiographic" methods.

Introduction

The distinction in German between the *Naturwissenschaften,* or natural sciences, and the *Geisteswissenschaften* received its classical definition in the writings of the German philosopher and historian Wilhelm Dilthey (1833–1911) and has continued to shape our thinking about the sciences. The term *Geisteswissenschaften* is difficult to translate.

Encyclopedia of *Philosophy* and the *Social Sciences*

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