Varieties of Twentieth Century American Naturalism

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NATURALISM DOMINATED TWENTIETH CENTURY American philosophy.[1] Naturalism is a philosophical worldview that relies upon experience, reason, and especially science for developing an understanding of reality. Naturalism demands that these three modes of understanding together shall control our notion of reality. Varieties of naturalism emerge because the many essential factors of experience, reason, and science can be coherently related in numerous ways. All naturalisms demand that experience, reason, and science be taken most seriously so that no fourth mode of understanding can be permitted to override them. This triadic unity moderates the excesses of phenomenalism and idealism, and filters out spiritualism and supernaturalism for their introduction of radical and mysterious discontinuities into knowledge and reality.

Scientific method and knowledge play a crucial role in all naturalisms. Varieties of naturalism may be distinguished along three dimensions: the degree of ontological confidence given to science; the breadth of explanatory discretion given to science; and the number of scientific fields permitted to describe reality. From the logically possible combinations resulting from these dimensions, seven viable varieties of naturalism are distinguished and contrasted. Each of these varieties of naturalism has had champions in the course of twentieth century American philosophy, such as Dewey, Whitehead, Santayana, and Quine to Sellars, Davidson, Churchland, Putnam, and Searle.

The conclusion discusses the three major competitors during the twentieth century for the title of the "genuine" naturalism: Reductive Physicalism, Non-Reductive Physicalism, and Perspectival Pluralism. The struggles among these great naturalisms and the other viable varieties of naturalism have been bequeathed to the twenty-first century, and their outcomes may decide the ultimate fate of naturalism itself.

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I.

Stage One: Science, Knowledge, and Reality. There are six primary options when considering whether science yields knowledge about reality:

(1) Reality cannot be known at all—radical skepticism.
(2) Reality only consists of what science cannot know about—only other non-sciences know reality.
(3) Science rarely gives reliable knowledge about reality—other non-sciences know reality far better.
(4) Science is able to give increasingly reliable knowledge about reality.
(5) Science is the only source of knowledge about reality.
(6) Reality only consists of what science knows about.

Each of these six options present pathways to many different worldviews. Because naturalism at minimum presupposes that the knowledge about reality provided by science can seriously rival any other alleged source of knowledge, options 1, 2, and 3 are rejected by naturalists. Options 4, 5, and 6 can lead to varieties of naturalism.

(4) Science is able to give increasingly reliable knowledge about reality. There may be other ways besides science for knowing reality, but those ways are not better than science. Science needs assistance from other ways of knowledge to fully understand reality. This option searches for a comprehensive worldview formed by blending together ways of knowledge. Two interesting varieties:

(4)A. Ontological Dualism: there are two (or more) kinds of reality, knowable through two or more ways. For example, perhaps introspection is a non-scientific way of knowing reality because we are consciously aware of mental realities that science can never explain—leading to Mind-Body Dualism.

(4)B. Synoptic Monism: there is only one kind of ultimate reality, but it is knowable through two or more ways. We consciously know of realities (perhaps mental in nature) that science cannot fully explain. Varieties include Dual Aspect Monism and also Panpsychism, which holds that the natural world explored by science is ultimately composed of entities that have a mental/spiritual aspect. Unlike option (4)A, synoptic monism can be used to develop kinds of naturalism.

(5) Science is the only source of knowledge about reality. The only type of knowledge is scientific knowledge. However, some of reality consists of entities that cannot be known by science, simply because science is not designed to provide knowledge about these entities. Two interesting varieties:

(5)A. Perspectival Realism: we are acquainted with the entities unknowable through science because we experience these entities in some other way. For example, much of experience that provides the data for science is not itself also known by science. Specific types include Emergent Naturalism (mental entities emerge from, but are not reducible to, physical entities) and Pragmatic Naturalism, which both offer attempts to coordinate experience with science. However, unless the perspectives of ordinary experience on reality are carefully reconciled with scientific knowledge, excessive concern for ordinary experience can lead toward option (4).

(5)B. Transcendent Realism: there must be entities unknowable by science, since science's own limitations suggest that some of reality is beyond scientific knowledge.

(6) Reality only consists of what science knows about. Only what can be known by science really exists. Two interesting varieties:

(6)A. Current Scientific Exclusivism: reality only consists of what current science knows now. This option is not widely favored because science frequently revises its understanding of reality. However, on this option there is no other rational way to understand reality, so current science's worldview is the only reasonable choice.

(6)B. Scientific Exclusivism: reality only consists of what perfected science would know. This thesis is sometimes called Eliminative Materialism or Physicalism. This option cannot yet depict reality accurately since we cannot know which parts of science have been perfected already, and hence this option cannot be useful for developing a concrete worldview.

Only three of the six primary worldviews described above can lead to kinds of naturalism: Synoptic Monism, Perspectival Realism, and Scientific Exclusivism. Transcendent realism may be ignored here because any transcendent natural reality, if it exists, cannot be an important part of the contest between naturalism and non-naturalism. Current scientific exclusivism may also be ignored here because the scientific exclusivist, when challenged over something that current science cannot yet explain, will eventually resort to the claim that future science will probably explain it.

Stage One Summary: Three Kinds of Naturalism

Synoptic Monism	Perspectival Realism	Scientific Exclusivism

II.

Stage Two: Explaining Experiences Using Science's Theories. Let us further consider ways of distinguishing kinds of naturalism. Consider these three kinds of naturalism:

Narrow Naturalism: If some X is among those things (or among the properties of those things) that are described by science's best theories, then the existence of X is accepted; otherwise, its existence must be denied.

Fitting Naturalism: All the entities accepted by narrow naturalism exist, plus additional things as follows: If some X is successfully hypothesized as really being a Y that is among those things (or among the properties of those things) that are described by science's best theories, then the existence of X may be accepted.

Broad Naturalism: All the entities accepted by fitting naturalism exist, plus additional things as follows: If some X is successfully explained by a hypothesis about why X exists that references only those things (or properties of those things) that are described by science's best theories, then the existence of X may be accepted.

So far we have distinguished six kinds of naturalism, along two dimensions: (1) the degree of ontological confidence given to science, from synoptic monism to perspectival realism to scientific exclusivism; and (2) the breadth of explanatory discretion given to science, from narrow to fitting to broad naturalism.

Stage Two Summary: Three More Kinds of Naturalism

Narrow Naturalism	Fitting Naturalism	Broad Naturalism

III.

Stage Three: How Many Sciences Describe Reality? There is one more dimension that further distinguishes kinds of naturalism: (3) the number of scientific fields permitted to describe reality. Some naturalists are happy with letting many sciences know reality, while other naturalists want only one scientific field to know reality.

The latter type of naturalists have typically accepted a methodological principle that may be called "reductionist universalism"—only the smallest parts of reality really exist, and the natural laws about those parts are uni-

versally valid (they hold in all regions of the universe), exclusively valid (no other laws have independent validity), and exhaustively valid (all events are dictated by these laws). As physics is the scientific field that knows the smallest parts of reality, reductionist universalism amounts to the claim that all of reality ultimately consists solely of subatomic particles and that all events in the natural universe are ultimately dictated by the laws those subatomic particles obey. The naturalist who follows reductionist universalism will be the sort of materialist who puts physics first—this naturalism can be called "physicalism."

Other kinds of naturalism do not agree with reductionist universalism and feel comfortable with permitting other scientific fields to describe reality with just as much legitimacy as physics. Because the biological and social sciences have traditionally used some methodological principles and modes of causality that depart from the physical sciences, many naturalists want to draw a line between trustworthy physical sciences (physics, chemistry, geosciences, astronomy, cosmology) and suspicious biological and social sciences.

The naturalists who would permit just the physical sciences to describe reality ("scientism") form a separate camp from those naturalists who are comfortable with all of the physical, biological, and social sciences describing reality ("pluralism").

Stage Three Summary: Three More Kinds of Naturalism

Physicalism	Scientism	Pluralism

IV.

Stage Four: How Many Naturalisms? The varieties of naturalism may be distinguished along three dimensions: (1) the degree of ontological confidence given to science, from synoptic monism to perspectival realism to scientific exclusivism; (2) the breadth of explanatory discretion given to science, from narrow to fitting to broad naturalism; and (3) the number of scientific fields permitted to describe reality, from just physics to the physical sciences to all sciences.

If all combinations of these nine kinds of naturalism were created, twenty-seven varieties of naturalism would result. Let us first combine breadth of explanation with the number of scientific fields (see Table 1).

Table 1. Nine Kinds of Naturalism

	Best Science		
Naturalism	Physics	The Physical Sciences	All Natural, Biological, and Social Sciences
Narrow Naturalism	Eliminative Physicalism	Eliminative Scientism	Eliminative Pluralism
Fitting Naturalism	Reductive Physicalism	Reductive Scientism	Reductive Pluralism
Broad Naturalism	Liberal Physicalism	Liberal Scientism	Liberal Pluralism

Now combine these nine kinds of naturalism with the three kinds of naturalism that express the degree of ontological confidence given to science, from synoptic monism to perspectival realism to eliminative materialism. These combinations generate twenty-seven potential varieties of naturalism. However, many of these varieties are not viable because of coherence problems, and some are not practical because their principles would conflict (see Table 2).

After eliminating sixteen varieties of naturalism because they are either incoherent or impractical, and leaving aside the four "poor fits" asking for unstable combinations, there are seven viable varieties of naturalism remaining.

V.

Stage Five: The Seven Viable Varieties of Naturalism. The seven varieties are listed in order from the very restrictive to the very open assertions about what reality is like.

1. *Eliminative Physicalism*: reality only is what physics says. This variety is the most austere and rigid naturalism, restricting reality most sharply. According to Eliminative Physicalism, the only realities are those that number among those things (or among their properties) that are described by physics's best theories. This eliminativism typically accepts the principle of "reductionist universalism." Once eliminativism rejects the existence of some X, then any belief or judgment or knowledge claim about X is strictly false or quite meaningless. Trouble soon erupts, because the other physical sciences, such as chemistry, do not regard their respective claims about nature as meaningless and may not agree that reductionism will ever work. Sometimes eliminative physicalists relent from this harsh treatment of eliminable entities, saying that discourse about many condemned Xs can still be partially and temporarily meaningful (at least until replaced with physicalist discourse), and "second-class" practical language and knowledge about these Xs may be needed. For example, naturalistic philosophy of mind can treat folk psychology as not

Table 2. Twenty-Seven Varieties of Naturalism?

	Ontological Confidence		
Explanatory Function	Synoptic Monism	Perspectival Realism	Scientific Exclusivism
Eliminative Physicalism	not coherent: eliminativism conflicts with synopticism	not coherent: eliminativism conflicts with perspectivism	good fit: reality only is what physics says—Eliminative Physicalism
Eliminative Scientism	not coherent: eliminativism conflicts with synopticism	not coherent: eliminativism conflicts with perspectivism	poor fit: can reality be only what the physical sciences say?—Eliminative Scientism
Eliminative Pluralism	not coherent: eliminativism conflicts with synopticism	not coherent: eliminativism conflicts with perspectivism	not practical: the many sciences yield diverse views on reality
Reductive Physicalism	not coherent: why reduce when reality has multiple modes?	not practical: why reduce what is only experienced?	good fit: reality must be reducible to physics—Reductive Physicalism
Reductive Scientism	not coherent: why reduce when reality has multiple modes?	not practical: why reduce what is only experienced?	poor fit: is reality reducible to the physical sciences?—Reductive Scientism
Reductive Pluralism	not coherent: why reduce when reality has multiple modes?	not practical: why reduce what is only experienced?	not practical: many sciences yield contrary views on reality
Liberal Physicalism	not practical: using only physics diminishes diverse views on reality	not practical: physics alone cannot explain diversity of experience	good fit: physics alone supplies explanations of all reality—Exclusivist Liberal Physicalism
Liberal Scientism	poor fit: why demand explanations when reality has multiple modes?—Synoptic Scientism	poor fit: can the physical sciences fully explain diverse experience?—Perspectival Scientism	good fit: the physical sciences supply explanations of all reality—Exclusivist Liberal Scientism
Liberal Pluralism	good fit: the many sciences indicate plural modes of reality—Synoptic Pluralism	good fit: the many sciences indicate plural perspectives on reality—Perspectival Pluralism	good fit: the sciences supply explanations of all reality—Exclusivist Liberal Pluralism

entirely false since its talk of perceptions and other mental things may at least point to real phenomena that require better description rather than no description. For example, Paul Churchland's endorsement of eliminative materialism treats the ontology of perceptions and beliefs as "illusion," yet his own cognitive science admits the existence of the "qualitative character of

a sensation" in the course of explaining it.[2] Successful explanations, even of the most austere reductive sort, tend to confirm the reality of the things explained (failed explanations arouse doubt). Genes are not unreal because they are composed of nucleotide molecules. The Eliminative Physicalist who is too generous with "second-class" language and knowledge, especially regarding mental affairs, risks sliding over to Exclusivist Liberal Pluralism, and is under great pressure to at least admit the superiority of Reductive Physicalism.

2. *Reductive Physicalism*: reality must be reducible to physics. This variety is almost as austere as eliminative physicalism. According to Reductive Physicalism, the only realities are those of physics's best theories, plus those additional things that can be theoretically and ontologically reduced to them. Reductive Physicalism accepts reductionist universalism but resists collapsing into eliminative physicalism by permitting the existence of things that can have their own properties, behaviors, and laws that physics itself does not investigate. Most eliminativists gain their confidence in the non-existence of X after reductivists have done their work, and most physicalists are eliminativists about some things (the paranormal, the mythical) and reductivists about other things (the biological, the social). Reductive Physicalism must demand complete submission to the principle of reductionist universalism from all other sciences, or else it must admit the superiority of Exclusivist Liberal Pluralism. The practical difference between a reductivist and an eliminativist is that an eliminativist about some X would not seek any reductive explanation of X, since it is irrational to attempt to explain the non-existent. However, most eliminativists gain their confidence in the non-existence of X after reductivists have done their work, and most physicalists are eliminativists about some things (the paranormal, the mythical) and reductivists about other things (the biological, the social). Challenges to reductionism can arise from the natural sciences, such as biology or geology—the reductive physicalist demands that these sciences' entities and laws be reducible in principle to those of physics, but no one knows how to even attempt such a reduction. In light of such troubles among the physical sciences, the social scientist, not surprisingly, is tempted to rebel against this imperial demand of physics. Resistance to reductive universalism among social scientists is not necessarily matched by enthusiasm for theoretical pluralism in their own fields, however; a separate defense of theoretical pluralism is needed.[3] Psychology in particular must deal with the first-person situated and subjective perspective of consciousness, and many philosophers also want to preserve legitimate discourse and inquiry into such experience. Churchland may be better located here with Reductive Physicalism, along with Jaegwon Kim, who

admits that some mental features may not be entirely eliminable as unreal by proven reductions.[4]

3. *Exclusivist Liberal Physicalism*: physics alone supplies explanations of all reality. This variety is attractive to naturalists who are skeptical about reductive explanations of all realities to physical realities. Exclusivist Liberal Physicalism holds that reality consists of what can be explained by physics. This variety of naturalism does not adhere to the principle of reductionist universalism, keeping it distinct from its eliminativist and reductivist cousins. Exclusivist Liberal Physicalism does maintain an analogue of reductionist universalism, which can be called "explanatory universalism," which instead declares that only the things and laws theorized by physics may be referenced when fully explaining reality, so that explanations of things are best given solely in terms of the things recognized by physics alone, if only by some future final physics. This prioritization of physical explanation is frequently signaled by hostility toward consciousness, free will, social forces, or anything that could challenge strict determinism. Ernest Nagel's naturalism might be best classified here; his hostility toward life and social science explanations using suspicious teleologies was matched by his confidence in his "bridge-laws" for reducing such "explanations" to those of physics.[5] These "bridges" are multiply realizable and must endlessly proliferate, however. The primary difficulty that confronts Exclusivist Liberal Physicalism is causality: physically explainable but irreducible things can appear to have their own causally lawful relationships, and so one event might be described as having two sufficient causes, or the very notion of "cause" can fracture into distinct senses. The work of Wilfrid Sellars and Daniel Dennett make strenuous efforts to reconcile the normative, manifest, and folk ways of living and speaking with physicalism's underlying truth. By denying complete reductionism in practice, Sellars and Dennett can sound like pluralists or even perspectivalists, but their firm commitment to the exclusive ontological reality of the strictly physical ultimately belies their generosity toward normative, intentional, and psychological modes of language. Unless the descriptive and causal overdetermination issues are eventually resolved, however, Exclusivist Liberal Physicalism is under great pressure to either collapse into Reductive Physicalism or else to go in the opposite direction and mutate toward Perspectival Pluralism.

4. *Exclusivist Liberal Scientism*: the physical sciences supply explanations of all reality. For reasons given below, this position is better labeled as Non-Reductive Physicalism. Like any middle position that tries to compromise all things, this variety is highly unstable, under intense pressure to resign the field in favor of its exclusivist cousins. According to this position, reality

consists only of those things that are explainable by the physical sciences. But why just the physical sciences? The Exclusivist Liberal Physicalist will complain that purely physical explanations must in principle prevail across all the physical sciences anyway. The Exclusivist Liberal Pluralist will complain that admitting the explanatory power of the physical sciences should be extended to all the sciences. Even worse than competition from its cousins, this variety suffers from both of the severe difficulties confronting its cousins. Like Exclusivist Liberal Physicalism, this variety must resolve the issue of causal overdetermination, lest it admit the superiority of Reductive Physicalism. Like its other cousin, Exclusivist Liberal Pluralism, this variety must also resolve the issue of incoherence between the physical sciences, which can be handled more easily by Reductive Physicalism on the one hand or by Perspectival Pluralism on the other. During the twentieth century, the two most popular forms of Exclusivist Liberal Scientism were Non-Reductive Physicalism and the closely related position of Emergent Supervenient Naturalism. For Non-Reductive Physicalism, the only realities are those of physics's best theories, plus those additional things of the other physical sciences that can be theoretically reduced to them, plus those non-reducible experiential/mental/social properties or powers that are ontologically dependent on physical things. This position is widely labeled as "Non-Reductive Naturalism," but that label is too broad, obscuring the remaining varieties of naturalism (varieties 5, 6, and 7, below) and omitting its distinctive prioritization of physics. For this position, the most urgent priority in the defense of naturalism is ontological: mental properties are distinguishable from, but still entirely dependent on, physical things. Dynamic and causal supervenience holds globally. Non-reductive physicalists sometimes express this position in terms of Emergent Naturalism: reality includes many entities that are emergent (neither explanatorily nor ontologically reducible to physics) even though these entities entirely supervene on (cannot exist without) realities known by perfected physics. Emergent Naturalism has enthusiasm for the supervenience strategy and would not obstruct the search for correlation, dynamic, and causal superveniences. Dubious whether the supervenience strategy will ever culminate in satisfactory reductions of all phenomenal/mental entities, the option of emergence can seem attractive. There are no non-physical things, yet there are non-physical "mental" properties that can be experienced, even though they must really be properties of physical things. Even if other sciences besides physics experimentally confirm theories about "mental" things as having somewhat independent existences and/or causal powers from physical things, such knowledge is inferior to physics, and any

suggested quasi-independence of the mental from the physical is only illusory. To summarize, this Non-Reductive Physicalism is the compromise position taken by a philosopher who admires the reductivist program and endorses physicalism yet also believes that some experiential/biological/social properties will likely forever resist theoretical reduction. W. V. Quine's holistic scientism is probably best categorized here, and his philosophy spawned a wide variety of non-reductive naturalisms projecting at least a "token-token" identity if not "type-type" identity of mind and matter. Although Quine was notoriously hostile toward mental states, he was not a straightforward reductive physicalist, by endorsing the knowledge of the several natural sciences while demanding strict supervenience over micro-physical matters. Donald Davidson's Anomalous Monism is in this non-reductive tradition, along with many similar formulations. Non-Reductive Physicalism is inherently unstable, because any devout endorsement of physicalism is embarrassingly compromised by the admission that some phenomenal/mental entities will never be reduced: not by any semantic, epistemic, explanatory, scientific, functional, or ontological means. Non-reductive physicalists are torn by this position's conflicting pressures. A genuine physicalist should instead bravely vow that future science will supply all necessary reductions, while a stubborn non-reductivist should instead slide over to Emergent Supervenient Naturalism (which in turn is under pressure to mutate toward Perspectival Pluralism) or Exclusivist Liberal Pluralism (which is similarly under pressure to mutate into Perspectival Pluralism).

5. *Exclusivist Liberal Pluralism*: the many sciences supply explanations of all reality. This variety is attractive to naturalists who are skeptical about reducing all realities to physical realities on the one hand, and also skeptical about any naturalistic ontology that permits experience to yield genuine perspectives on reality that can never be fully explained by the sciences. Exclusivist Liberal Pluralism holds that reality consists of what can be explained by the many sciences, including the life sciences and social sciences. Its pluralism encourages all of the sciences to draw their own conclusions about reality. But this liberality also encourages such a diversity of conclusions about reality, and such a multiplicity of entities for theorizing, that incoherence among them will inevitably result. The only way to manage this diversity is to assign each science its own task of exploring a "level" or "aspect" of reality, so that clashing scientific theories are kept apart. For example, chemistry studies the laws peculiar to interacting molecules, while subatomic physics studies the quite different laws peculiar to subatomic particles—without worrying how these entities and laws specifically relate to each other. The naturalistic pluralist

must accept the "disunity of science" and defend each science's theoretical autonomy for deciding how to best satisfy the methodological standards of empirical inquiry. Exclusivist Liberal Pluralism is also burdened with showing how all of experience and the mental life is in principle explainable by the many sciences. The first-person situated and subjective perspective of consciousness must be ultimately explainable in terms of the third-person objective knowledge of the sciences. Taking up the eliminativist challenge to empirically justify talk of intentions, beliefs, and the like, a philosopher of mind cannot merely praise the utility of the "intentional stance," but can also thereby justify it over reductionist accounts as well.[6] This liberal pluralism can proclaim its advantages over all pretenses to physicalist reductionism, but its dealings with experience remain extremely hazardous. Any experiences not satisfactorily explained by the sciences will pressure this naturalism to mutate into Perspectival Pluralism. Barry Stroud, recognizing the position of Exclusivist Liberal Pluralism and labeling it as "open-minded or expansive naturalism," prefers it over all reductionisms. However, Stroud warns that excessive expansiveness, a willingness to undertake explanations for almost everything we encounter, may remove substantive meaning from the term "naturalism."[7] John Searle's "biological naturalism" is caught up in this problem, too, when he simultaneously insists that the life sciences can deal with subjective consciousness in a way that mere physicalism or machine functionalism will never succeed.[8] However, Searle's strong insistence on the separate ontological category of subjectivity makes one wonder if even the life sciences or psychological/social sciences could ever handle such subjectivity, making his stance sound much more like Perspectival Pluralism or even Synoptic Pluralism.

6. *Perspectival Pluralism*: the many sciences along with experience indicate plural perspectives on reality. This variety offers a middle path between Exclusivist Liberal Pluralism's reliance on science alone and Synoptic Pluralism's hypostatizations of ways of experiencing and knowing reality. Perspectival Pluralism concludes that the sciences are unable to fully explain experience and the mind, yet it also respects how the sciences can cohere with, and frequently illuminate, much of experience and the mind. Perspectival Pluralism finds that experience and scientific knowledge present multiple perspectives upon the same reality. The first-person situated and subjective perspective of consciousness is neither inexplicable nor incongruent with the third-person objective knowledge of the sciences, since all experience and knowledge is embedded in situated contexts. Our mental lives are correlated to some degree with nervous processes, scientific knowledge grows from our careful

observations of the world, and our experiences of the world can be usefully coordinated with scientific knowledge. Appreciation for the many vital and practical relationships and interpenetrations among experiences and scientific knowledge inspires the Perspectival Pluralist to postulate one natural world that experience and science both reveal. Pleas for perspectivalism and pluralism resound throughout the works of pragmatists, including John Dewey, a paradigmatic example of a perspectival pluralist. Nicholas Rescher applies the label of "perspectival pluralism" for his metaphilosophical stance in addition to "pragmatic idealism."[9] Ronald Giere also calls his position "perspectival pluralism," and in recent writings he has acknowledged his connection with pragmatism.[10] Pragmatic pluralists understandably express high confidence in science's ability to find explanations for all phenomena, since they oppose the positivisms, constructivisms, and anti-realisms that lead away from naturalism. Such confidence is actually the defining characteristic of Exclusivist Liberal Pluralism, which means by "explanation" something stronger than the weak coordination between science and experience sought by Perspectival Pluralism. For example, an Exclusivist Liberal Pluralist will anticipate that neurophysiology may someday "explain" human emotions in a near-reductionist manner (romantic love is "caused" by certain neurotransmitters, for example). The Perspectival Pluralist resists such narrow causality, preferring to emphasize how science can help understand the plurality of interrelationships between social conduct, personal feelings, and brain modifications. The Perspectival Pluralist must tread carefully when explaining science's "explanations" of experience and the mental life. To justify confidence in one natural reality, the Perspectival Pluralist develops an ontological system to show how all experience and all scientific knowledge can be coordinated together. Any irreconcilable contradiction between some aspect of experience "E" and some part of scientific knowledge "K"—a contradiction so severe that it is impossible to see how E and K could both be about the same natural reality—dooms Perspectival Pluralism. Making this task easier is the view held by Perspectival Pluralism (but not Synoptic Pluralism) that experience is not itself a kind of knowledge that could challenge scientific knowledge. Synoptic Pluralism is designed to handle conflicts between experiential knowledge and scientific knowledge by assigning what each knows to sharply dichotomized modes of reality. The Perspectival Pluralist worries that such an accommodating synopticism is tantamount to a resignation to ontological dualism. The disagreements between Dewey's perspectival pluralism and the systems of his contemporaries George Santayana and Alfred North Whitehead (both Synoptic Pluralists) prefigure much of the contemporary debate between

naturalisms. This disagreement has more recently erupted over Dual Aspect Monism. Can Dual Aspect Monism make any proper claim to naturalism? David Chalmers suggests that ample psychophysical laws ensure a fundamental ontological connection between mind and matter, holding out hope for naturalism's victory over ontological dualism in a manner suggestive of Perspectival Pluralism.[11] Psychophysical laws only raise the problem of causal overdetermination once again. Pragmatic pluralists such as Hilary Putnam and John Dupré find that multiple modes of explanation generate multiple modes of causality.[12] Can a vision of multiple modes of one reality be adequately distinguished from a straightforward ontological pluralism of many worlds? Nelson Goodman notoriously raises doubts about halting short of ontological pluralism.[13]

7. *Synoptic Pluralism*: the many sciences, reason, and experience indicate plural yet related modes of reality. This variety is the most open and flexible naturalism, defining reality most generously. According to Synoptic Pluralism, reality has a variety of aspects or modes as known by the many sciences, and also has aspects or modes known by experience and perhaps pure reason as well that the sciences are incompetent to describe or explain. The simplest forms of Synoptic Pluralism include Dual Aspect Monism (the sciences deal only with reality's physical aspect while the introspective mind deals only with reality's mental aspect) and Panpsychism (the sciences accurately but only partially describe all realities, because the sciences cannot capture the sentient or feeling aspect of these realities). Dual Aspect Monism has the heavy burden of confidence that science will figure out the deepest ontological relations between mind and matter despite the irreducible subjective/objective dichotomy; Thomas Nagel is a recent illustration. Epiphenomenalism is another intriguing form of Synoptic Pluralism (although the epiphenomenalist who denies that irreducible qualities of experience are themselves objects of knowledge would instead be a Perspectival Pluralist). Synoptic Pluralism requires some sort of naturalistic ontology—an account of reality that constructs a coherent understanding of one single natural reality with multiple aspects, experienced/known in multiple ways. Synopticism can more easily segregate incompatible aspects into distinct modes of reality that need not fully overlap or intersect. Charles Peirce and William James prefigure much of twentieth century Synoptic Pluralism in America. Santayana's four Realms of Being and Whitehead's panexperiential Process Philosophy emphasize their capacious accommodation of diverse modes of experiencing/describing/knowing. Stephen Pepper's *World Hypotheses*, Paul Weiss's *Modes of Being*, Nelson Goodman's *Ways of Worldmaking*, and

Richard Rorty's *Linguistic Turn* have similar merits.[14] A synoptic naturalist ontology is not testable by ordinary experimental methods, because it is designed to be maximally compatible and coherent with all knowledge and experience from all sources. Since experience increases and knowledge evolves, a naturalistic ontology must adapt to keep pace, and this adaptability serves as its test of adequacy. Synoptic Pluralism distinguishes itself from Perspectival Pluralism by concretizing and hypostatizing experienced and known entities for their classification into sharply distinct ontological categories, to forbid the merging of these entities into coordinated perspectives upon reality. On the other hand, unless Synoptic Pluralism can develop its own compelling naturalistic ontology, its enthusiasm for multiple modes of reality can easily amount to ontological dualisms and pluralisms that entirely depart from naturalism.

VI.

Stage Six: The Great Naturalisms. Each of the seven major varieties of naturalism suffers from unresolved problems requiring further intense philosophical work. Lacking satisfactory resolutions to their problems so far, each is under great pressure to mutate into some other variety of naturalism. The next table diagrams the seven major naturalisms, their most urgent issues, and the direction of pressure for mutation (see Table 3).

As evident from the lines of pressure indicated in Table 3, most naturalisms gravitate around the three great naturalisms: Reductive Physicalism, Non-Reductive Physicalism, and Perspectival Pluralism. They stand opposed across a wide divide that separates the physicalists from the pluralists. The essential issue for naturalism consists of the fundamental disagreement that divides Reductive Physicalism apart from Perspectival Pluralism—does any science's knowledge, and the reality it knows, have priority (epistemic and ontological) over all other knowledge and experience?

Table 3. Seven Varieties of Naturalism and Their Issues

Eliminative Physicalism	Reductive Physicalism	Exclusivist Liberal Physicalism	Non-Reductive Physicalism	Exclusivist Liberal Pluralism	Perspectival Pluralism	Synoptic Pluralism
What about "second class" knowledge?	Must justify reductionist universalism	What about causal over-determination?	Why appeal to just physical sciences?	Why not admit superiority of perspectivism?	Must justify perspectival ontology	Goes to ontological extremes?
pressure→		←pressure	←pressure→	pressure→		←pressure

How can we begin to decide this most fundamental issue over reductionism versus perspectivism? What can these great naturalisms do to gain the advantage over the other? We conclude by suggesting a few recommendations for pursuing these debates among naturalisms in the twenty-first century.

Reductive Physicalism must (1) display more successful and significant reductions to physics, to increase confidence that reductions are essential to science; (2) guarantee that reductive universalism is consistent with science's actual use of theoretical models and natural laws; (3) demonstrate that avoiding entity duplication and causal overdetermination is essential to scientific progress; (4) explain why its categorization of all sciences but physics as "second-class" is not just as curious as perspectivism's categorization of all sciences as partial and limited; and (5) justify the view that experience is either eliminable or reducible, at least in principle.

Non-Reductive Physicalism must (1) show how the lack of reductions to physics is not simultaneously a clinching argument for perspectivalism; (2) restrict the domain of legitimate scientific reductions so that they are neither universal nor disposable; (3) argue that entity duplication and causal overdetermination are tolerably inevitable results of scientific progress; (4) explain why a compromise view of physics as "first among equals" is still justifiable in light of the admitted entity duplication and causal overdetermination; and (5) justify the view that closely interconnecting experience with physical processes yields confidence in a "token-token" identity of the mental and the physical.

Perspectival Pluralism must (1) produce more impressive ontological systematizations across the sciences and experience, to increase confidence that such systematizations are essential to the progress of knowledge; (2) show that reductive universalism is inconsistent with science's actual use of theoretical models and natural laws; (3) demonstrate that entity duplication and causal overdetermination are not detrimental to scientific progress; (4) explain why the standard of scientific method should prevail without any amendment awarding preference to reductive accounts; and (5) justify the view that scientific theorizing is continuous with ordinary experience and should be coordinated with experience in a naturalistic ontology.

NOTES

1. A judicious sampling is collected in *American Philosophic Naturalism in the Twentieth Century*, ed. John Ryder (Amherst: Prometheus, 1994).

2. Paul Churchland, *A Neurocomputational Perspective: The Nature of Mind and the Structure of Science* (Cambridge: MIT Press), 6, 25.

3. See Helen Longino, "Theoretical Pluralism and the Scientific Study of Behavior," *Scientific Pluralism*, ed. Stephen H. Kellert, Helen E. Longino, and C. Kenneth Waters (Minneapolis: U of Minnesota P), 102–31.

4. Jaegwon Kim, *Physicalism, or Something Near Enough* (Princeton: Princeton UP, 2007).

5. Ernest Nagel, *The Structure of Science* (New York: Harcourt, Brace and World, 1961).

6. See, for example, Robert Audi, "Mental Causation: Sustaining and Dynamic," *Mental Causation*, ed. John Heil and Alfred Mele (Oxford, Eng.: Oxford UP, 1993), 53–74.

7. Barry Stroud, "The Charm of Naturalism," *Naturalism in Question* (Cambridge: Harvard UP, 2004), 32–35.

8. John Searle, *The Rediscovery of the Mind* (Cambridge: MIT P, 1992).

9. Nicholas Rescher, *A System of Pragmatic Idealism*, Vol. 3 of *Metaphilosophical Inquiries* (Princeton: Princeton UP, 1994).

10. Ronald Giere, "Perspectival Pluralism," *Scientific Pluralism*, ed. Kellert, Longino, and Waters, 26–41; and Giere, *Scientific Perspectivism* (Chicago: U of Chicago P, 2006).

11. David Chalmers, *The Conscious Mind: In Search of a Fundamental Theory* (New York: Oxford UP, 1996).

12. Hilary Putnam, "Causation and Explanation," *The Threefold Cord: Mind, Body, and World* (New York: Columbia UP, 1999), 137–50; and John Dupré, *The Disorder of Things: Metaphysical Foundations of the Disunity of Science* (Cambridge: Harvard UP, 1993).

13. Nelson Goodman, *Ways of Worldmaking* (Indianapolis: Hackett, 1978).

14. Goodman is cited in note 13. See Stephen Pepper, *World Hypotheses* (Berkeley: U of California P, 1942); Paul Weiss, *Modes of Being* (Carbondale: Southern Illinois UP, 1958); and Richard Rorty, "Introduction: Metaphilosophical Difficulties of Linguistic Philosophy," *The Linguistic Turn: Recent Essays in Philosophical Method*, ed. Rorty (Chicago: U of Chicago P, 1967), 1–39.