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The Crisis of Philosophy

The most difficult task of philosophy has always been to define itself in meaningful ways.[1]

A. Autonomous Science

A salient feature of the modern period of Western thought has been the narrowing of the province of philosophy and the reduction of its intellectual authority. This narrowing has been accomplished principally through the gradual but decisive emancipation of the empirical and formal sciences from traditional metaphysics and logic. In determining their own heuristic programs, methods of investigation, and theoretical principles, the new sciences have had to stake claim within what was originally philosophic territory. The reasons for this theoretical realignment have been complex, but the dominant note has been an erosion of confidence in the procedures and cognitive claims of philosophy coupled with a readiness to supplant them with the methods and theories of the emerging scientific disciplines.

The modern eclipse of philosophy finds its distant origin in the medieval period. In conceptually distinguishing theology from philosophy, Aquinas had invited human reason "to grow in consciousness of its departments of investigation, to determine its own methods, to operate on the basis of its own principles and precepts."[2] Aquinas' invitation was later accepted by the intellectual leaders of the scientific revolution and explicitly thematized in the philosophy of Descartes. Descartes' *Discourse on Method* proclaims the liberation of reason from the disciplining authority of the philosophical and

religious tradition. He believed that reason is and ought to be autonomous in determining the truth about created existence. Although Descartes clearly separated reason from religious faith, he did not effectively distinguish metaphysics from empirical knowledge. This failure can be traced to his classical heritage and to his passion for theoretical unity. Descartes argued from the unity of the human mind to the unity of rational method and logical system: as human reason is essentially one, so its method and theoretical achievement should also be one in every province that it surveys. Although Descartes divided the universe of rational investigation into mind and body, this metaphysical dualism was paired with a monism of method and theory. The method for discovering scientific truth is the same whether we are examining God, the human soul, or the physical universe. He expected rational method consistently applied to result in a unified axiomatic system founded on intuitively evident truths. In Descartes' famous metaphor of the tree of science, philosophy serves as the roots of the tree because it establishes the indubitable axioms from which the mathematical laws of nature (the trunk) are to be deduced.[3] Philosophical axioms and physical theorems, though distinguished as logical ground and consequent, belong to a single deductive system embracing both metaphysics and mechanics. The logical continuity between philosophy and physics is apparent in Descartes' attempt to deduce the conservation of momentum in nature from the demonstrated immutability of God.

The result of the Cartesian theoretical project was unstable. Although he distinguished metaphysics from mechanics by supporting a real distinction between mind and body, this ontological division is effectively subordinated to the monism of method and theory. Descartes's successors were restless with his uneasy compromise. On the rationalist side, Spinoza refused to accept the ontological dualism; on the side of classical mechanics, Newton rejected Cartesian philosophical premises as the theoretical foundations of physics. As Galileo had struggled earlier to emancipate cosmology from Aristotle's metaphysical authority, Newton felt compelled to do the same against Descartes. With the advance of the scientific revolution from physics into biology and the empirical sciences of man (from natural to moral philosophy), a second and more subtle claim for autonomy was raised: that the liberation of reason from faith should be complemented by the liberation of empirical science from philosophy.

During the eighteenth and nineteenth centuries, this proposed emancipation was achieved. Philosophy surrendered its regulative control over science and suffered a crisis of identity and definition that it has not yet resolved. The low estate of philosophy, like that of religion, was due in part to their fighting unsuccessful rear guard actions against science. But there were other, deeper grounds for the malaise. Since the time of Plato and Aristotle the theoretical enterprise had been essentially coextensive with philosophy.

Philosophy symbolized the human effort to achieve systematic comprehensive knowledge about reality. With the advent of the scientific revolution and the gradual differentiation of the empirical sciences, this symbolism lost its force. Rather than representing the dynamic development of new knowledge, philosophy came to appear as the major obstacle to scientific progress. The modern sciences of nature, though in part a legacy of Greek speculative curiosity, were tied inseparably to considerations of power and productivity. The clear primacy accorded by the ancients to theory over practice was reversed in modern intellectual culture. Bacon's emphasis on fruits and works and Descartes's appeal to the flowering branches on the tree of science signaled a new alliance of scientific inquiry with the project of mastery and control over nature. The Greek identification of knowledge and virtue was transmuted by the moderns into a new indentity of knowledge with power.

The intellectual authority of Aristotle, against which the leading modern thinkers struggled, heightened the perceived opposition between philosophy and science. The original insights of Copernicus, Kepler, Galileo, Newton, and Darwin all faced resistance by central cosmological or metaphysical principles in Aristotle's thought. Although Aristotle in fact had been a deeply empirical thinker, he symbolized to the moderns the unhappy contrast between the speculative philosopher and the experimental scientist. This way of conceiving the contrast between Greek theory and modern physics was deeply misleading, emphasizing Aristotle's stress on logical demonstration to the exclusion of his empirical methods of discovery. But the moderns knew Aristotle through his supposedly finished system not through his practice of inquiry; and against that system, attributed to *the Philosopher*, they rebelled.[4]

Aristotle was an obstacle to the acceptance of modern scientific theories not because he was unempirical but because his heuristic principles and cosmological beliefs, invested with epistemic authority, were opposed to those of the leading moderns. The emphasis in classical mechanics on the measurement of physical variables, the correlation of those measurements through mathematical laws, the verification of those laws through observation and experimentation, and the potential utility of these results for prediction and control—for many these features became canonical indices of all authentic knowledge. As once physics had been required to satisfy the metaphysical and epistemic demands of philosophy, now the situation was reversed. The prestige of physics rose as that of philosophy declined, until the old representative of theory came to be judged by the standards of the new. The criterion of continuous intellectual progress was used with particular force to put philosophy on the defensive. A clear line of theoretical development could be traced from Copernicus to Newton, a line apparently without parallel in the history of metaphysics or epistemology. Neither the ancient concern with being nor the modern preoccupation with knowledge had established clear criteria by which conflicting philosophical claims might be adjudicated.

Philosophy lacked a decision procedure to bring its quarrels to a halt; it seemed to its critics to "revolve in a circle with mean and contemptible progress."[5]

Numerous interpreters of the crisis of philosophy have viewed its decline as the beginning of its disappearance. Positivism, philosophical naturalism and certain strains within pragmatism all foresee the eventual elimination of philosophy as the positive sciences become sovereign in the realm of inquiry. Once the theoretical enterprise was indistinguishable from philosophy; they believe it will soon be universally equated with the different branches of empirical science. Philosophy will have passed from the scene of knowledge, like royalty, never to return.

Historical communities find themselves in crisis when important developments or declines, both theoretical and practical, prevent their members from taking accepted judgments or practices for granted. Crises often reveal these uncritical acceptances to be prejudices or prejudgments; they force human beings to rethink the questions to which those judgments were originally answers or to confront new questions to which earlier answers are no longer relevant. It is now evident that the scientific revolution occasioned a crisis for philosophy and for the whole of Western culture.[6] The emancipation of empirical science from philosophical authority required philosophers to reconceive their intellectual purpose. Philosophy no longer controlled the sphere of theoretical inquiry. Did it any longer have a significant theoretical function? How was that function to be distinguished from the purposes of empirical science? Could philosophy be defined with a distinctive identity that made it a valued colleague rather than an archaic rival of the emerging scientific disciplines? One purpose of this book is to answer these questions as clearly and accurately as possible. But the answers I propose are informed by careful scrutiny of prior philosophical reflection on these issues. The unparalleled emphasis on metaphilosophy in the last one hundred years is the result of the intellectual dislocation just described. I do not consider this emphasis unjustified, nor do I think that contemporary philosophers should suspend their activity until they fully understand what they ought to be doing. In philosophy, as in other human pursuits, a crisis presents an opportunity for remembrance and for original reflection. Remembrance is needed to identify the sources of the present impasse; fresh thinking, if it is well aimed, may discover a new way for philosophy to go in the aporetic situation created by empirical science's achievement of autonomy.

It is important to recognize that the ongoing crisis of philosophy has resulted more from cognitive development than theoretical decline. Important distinctions were neglected by modern philosophers, earlier insights were often lost, and numerous errors were made; there was, I believe, a general decline in the level of philosophical understanding. But the emergence of modern natural science was a cognitive *advance* that produced a crisis precisely because it was

a radical *development*. Earlier frameworks of integration supplied by traditional philosophy were not able to assimilate it successfully; nor, I would contend, were the new frameworks of integration proposed by the great modern philosophers. The intellectual culture of modernity still has not learned to understand and appraise its most influential achievement.

Every significant change requires adjustment by the environment that it affects; the depth of the required adjustment is proportionate to the depth of the corresponding change. The following sequence of epistemic categories is serially ordered to reflect progressively more important kinds of cognitive change. Note that in each case both identity and difference are required for an intelligible change to occur.[7]

1. *Change of belief*—a change in the truth-value of a proposition whose truth-conditions remain constant.
2. *Change of intension or sense*—a change in the truth-conditions of a proposition or the defining marks of an explanatory concept whose role in a system of theoretical explanation remains constant.
3. *Change in categorial framework*—a change in the truth-value of the set of propositional principles that define an existing horizon of inquiry or a change in the explanatory categories and vocabulary used to systematize knowledge in an ongoing specialized discipline.
4. *Change in heuristic structure*—the acceptance of a new model of intelligibility and explanation by a discipline that traditionally had been committed to an older one; when physics shifted from understanding nature in terms of Aristotle's four causes to understanding it in terms of empirically verified mathematical laws, a radical shift in its operative heuristic structure occurred.
5. *The emergence of new realms of meaning*—differences in realms of meaning have their source in novel developments of intentional consciousness. New realms emerge with the adoption of a specialized language and a distinctive mode of questioning, understanding and verification that constitutes a group as an intellectual community unintelligible to those not apprenticed in its ways of speaking, thinking, and acting. Different realms of meaning have different purposes and norms with reference to which they appraise internal success or failure. The purposes, exigencies, language, and mode of apprehension of common sense constitute a practical realm of meaning from which the theoretical realm of meaning has been progressively differentiated in Western culture. As common sense is a specialization of human intelligence in understanding the concrete and particular, so theoretical science is a complementary specialization in the abstract and universal on which the concrete converges or from which it diverges nonsystematically.[8]

6. *The historical evolution of a new stage of meaning*—cognitive development occurs through the specialization and differentiation of human inquiry. When common sense and theory were rudimentarily distinguished by Aristotle (as what is first for us and what is first in itself)[9] and more sharply divided later by Galileo in the first phase of the enlightenment, a new stage of meaning emerged based on the recognized distinction of complementary realms of meaning. At the outset of both classical and modern philosophy, no clear distinction was drawn between science and philosophy as forms of theoretical meaning. This presumed homogeneity was broken by the scientific revolution of the seventeenth century and fully destroyed in the nineteenth century by the development of numerous empirical sciences effectively independent of philosophical control. The emergence of the specialized sciences as autonomous theoretical disciplines is the first step in the evolution of a new stage of cognitive meaning, a step that has occasioned the present crisis in philosophy. But this historic transition is only the beginning of our story and only the first of the two major sources of the crisis. For, in the course of the scientific revolution, radical changes of belief, intension, categorial framework, and heuristic structure finally climaxed in a revised concept of scientific theory itself. This change in the *theory of science* is more important than any alteration in particular *scientific theories*. However, the two occurrences are not causally independent, for the emergence of historical consciousness in the human understanding of nature and knowledge precipitated the revised understanding of the theoretical enterprise and required a new definition of philosophy. The historical argument that I will be defending in this chapter can be put summarily: The crisis of philosophy since the nineteenth century is the joint result of the autonomous development of the empirical sciences within the theoretical realm of meaning and the transition from classical to historical consciousness in the understanding of scientific theory itself.[10] How is that second critical transition to be defined?

B. From Classical to Historical Consciousness

By *classical consciousness* I refer to a conception of theoretical science that dominated Western philosophy from Aristotle until Kant. It is a conception that originates in Greek geometry but was later extended to all the sciences of nature. As thematized by Aristotle in his *Posterior Analytics*, it holds that scientific knowledge is true, certain, knowledge of causal necessity reached by

empirical methods of inquiry and systematized in an axiomatic deductive structure based upon self-evident definitions and principles. Science is conceived as the permanent achievement of truth attained through a disciplined but finite course of individual investigation. Theoretical invariance is to be found in the truths discovered by scientific inquiry, in their logical systematization, and in the objects whose intelligible structure the scientific propositions articulate. As the intelligible structure under investigation is permanent, so are the truths that give it scientific expression, mirroring in their logical progression the pattern of causal dependence within the order of being itself.

A clear distinction is required within this account of science between the order of inquiry and the order of demonstrated[11] knowledge. Science is the goal or *telos* of theoretical inquiry. It is the acquired epistemic power to demonstrate or deduce the essential truths about a subject matter, a power achieved through the successful completion of the process of discovery. As long as exploratory inquiry continues within a specific discipline, the ideal of science has not been achieved. According to Aristotelian principles, the nature of any reality is disclosed fully in its completed form (its *eidos* is revealed in its *telos*). A philosophical theory of science should articulate its constitutive essence; to do so it must be based on an examination of knowledge in its logically perfected state. To understand the oak tree you look to the mature specimen rather than the acorn; you look to the end or completion of the process not to its origin or stages of development.

Though Aristotle had a nuanced sense of empirical inquiry, the theory of science outlined in his logic focuses not on the ongoing process of discovery but on the permanent achievement to which it ideally leads. The impression given by the *Organon* as a whole is that scientific knowledge is a difficult but attainable objective, that it is an individual accomplishment admitting of closure and finality. Because of this expectation of closure, the acquisition of scientific knowledge brings certainty. Cognitive certitude and finality are necessary though not sufficient conditions of science. The truths of science, though discovered individually, can be taught to others as part of a timeless, permanent, public fund of knowledge. Because the conclusions of science are founded on the intuitively evident principles reached through inquiry, direct challenge to the truth of those principles puts the claim to science in jeopardy. The public dimension of science is compromised if the axiomatic principles of knowledge lose their compelling evidence. A central epistemic dilemma posed by this theory is the validation of axioms whose intuitively evident truth is denied. Whereas Aristotle recognizes that insight into first principles is the epistemic fruit of sustained investigation, he does not seem to anticipate the problem posed by alternative sets of explanatory axioms. His is an innocent confidence that foundational truths exist, that they admit of eventual discovery, and that their truth and explanatory priority will compel rational assent.

This confidence was shaken by the Copernican revolution in physics, which led in time to the repudiation of Aristotle's cosmology. Through the discoveries of Kepler, Galileo, and Newton, the axiomatic principles of Aristotle's physics were shown to be neither evident, certain, nor true. But the logical *ideal of science* first articulated by Aristotle retained its power even as his specific *scientific theories* were openly denied. The Cartesian quest for certainty, with its insistence on intuitively evident axioms, its conception of science as a permanent individual achievement, and its aspiration to true certain knowledge of causal necessity, retains the Aristotelian or classical legacy nearly unimpaired. It is true that Aristotle's concept of causality was abandoned by modern physics and replaced with a heuristic ideal based on invariant mathematical laws; and it is also true that the moderns subordinated theoretical understanding to practical power as the primary motive of science. But, with these important exceptions, the classical theory of science was faithfully preserved. The relentless search in modern rationalism and empiricism for indubitable foundations on which to erect the structure of science is unintelligible without the tacit acceptance of the classical ideal. *The problem of knowledge dominates modern philosophy insofar as it tried to fit modern scientific theories to the classical theory of science.* Kant's Copernican revolution in epistemology, despite its radical reconception of the metaphysical standing of the object of science, is still conservative in its endorsement of the classical position. For Kant, Euclidean geometry, Newtonian mechanics, and Aristotelian formal logic are all permanent theoretical achievements. Pre-critical philosophers had failed to uncover the full conditions of their possibility and thus had erred in their metaphysical interpretation, but they had not erred in upholding universality, strict necessity, and apodicticity as essential criteria of scientific knowledge.

As E. W. Beth has argued, there were dissenters from the Aristotelian canons of science in pre-Kantian thought but they were a distinct minority.[12] The classical conception of science survived the skeptical spirit of modernity. By its survival, it imposed on philosophy a distinctive conception of epistemology. Given that science must be a logically organized structure of truths founded on self-evident axiomatic principles, philosophy's task was to uncover those underlying principles, to establish their certainty, and to show, at least in principle, how the legitimate scientific disciplines could be reconstructed on this foundational base. Epistemic skeptics, like Hume, swim against the tide with their denial that this program can be executed. Hume's quarrel, however, is not with the definition of the project but with the power of human reason to complete it.

Despite significant changes in belief, intension, categorial framework, heuristic structure, and metaphysical conviction, the theoretical realm of meaning preserved its identity for two thousand years through constant adherence to the classical theory of science first outlined in Aristotle's logic.

That theory imposed on scientific inquiry a rigorous normative ideal, and it imposed on philosophy the task of monitoring scientific compliance with it. But in the nineteenth century, as the result of diverse cognitive pressures, the classical conception of science was subverted. By this I do not mean that philosophers universally abandoned it or that scientists explicitly repudiated it. Rather, it lost touch with the heuristic anticipations of actual scientific practice and eventually with the implicit meaning of the term *science* as used by those within and without the scientific community.[13] One way to describe the shift from classical to historical consciousness is to note that scientists surrendered the quest for epistemic certainty and adopted the ideal of complete explanatory understanding. Rather than perceiving the revision and replacement of scientific theories as a sign of defeat or failure, scientists came to view fundamental theoretical revisions as occasions of triumph.[14] These revisions, in turn, were not expected to be permanent achievements but relatively stable systemizations of understanding subject to further development and refinement. Classical consciousness defined science in terms of an allegedly finished propositional achievement; its successor, historical consciousness, defined it as an ongoing normative process of inquiry, unified by canons of method, resulting in a continuing succession of theoretical systems. No longer an affair of solitary individuals, science has become an essentially communal enterprise, marked by the specialization and division of labor, open to the collaborative sharing of controlled belief, and unified by the constant of empirical method. It no longer seeks theoretical invariance in permanent essences, unchanging natural laws, self-evident principles, or perfected categories of explanation but in the operative method by which laws are discovered and verified and categories and principles revised and refined. Bernard Lonergan's compact formulation effectively summarizes this most profound cognitive change:

> The Greek formulation as envisaged by Aristotle demands of science true certain knowledge of causal necessity. But: 1) Modern science is not true but only on the way to truth. 2) It is not certain; for its positive affirmations it claims no more than probability. 3) It is not knowledge, but hypothesis, system and theory, i.e. the best scientific opinion of the day. 4) It's object is not necessity but verified possibility. Natural laws aim at stating not what cannot possibly be otherwise but what in fact is so. 5) Finally, while modern science speaks of causes, still it is not concerned with Aristotle's four causes of end, agent, matter and form, but with verifiable patterns of explanatory intelligibility. For each of the five elements constitutive of the Greek ideal of science, the modern ideal substitutes something less arduous, more accessible, dynamic and effective.[15]

The transition from classical to historical consciousness had decisive implications for philosophy. At approximately the same time that philosophy lost its metaphysical authority over science, it lost its epistemic function of testing the compliance of actual scientific theories with the classical ideal of knowledge. Scientific practice proceeded without concern for philosophical direction and approval, while philosophy, deprived of its traditional theoretical functions, became divided and uncertain about its cognitive purpose.

The cumulative effect of these cultural and technical changes has been the creation of a climate in which human rationality and epistemic objectivity are in doubt. The demise of foundational epistemology has confronted philosophy with a new set of challenging questions:

1. What are the appropriate norms of rational consciousness, given that the Cartesian requirement of apodictic certainty no longer seems plausible?
2. Is the ideal of cognitive invariance and unity still credible in the face of conceptual pluralism and theoretical change; if it is viable, where might such foundational invariants be located?
3. What concept of semantic and epistemic objectivity is consistent with the essentially social and historical character of human inquiry?
4. What notion of truth and what kind of ontological import are still predicable of scientific theories, given the indirect nature of hypothetical verification and the lack of algorithmic decision procedures to resolve scientific disagreement?
5. What distinctive cultural contribution can philosophy make in an age of autonomous and specialized practices resistant to all forms of governing authority.

C. The Matrix of Cognitive Meaning— An Orienting Map

By stressing the historical horizon of philosophy in the second half of the nineteenth century, I have not meant to imply that philosophy lacks a transhistorical purpose. A central argument of this text is that philosophy has a permanent integrative function to perform, but that reasonable strategies of integration will vary with the complexity of the materials to be integrated. Philosophic strategies of integration evolve as cognitive developments outside philosophy disrupt traditional frameworks of synthesis. The transition from classical to historical consciousness and the autonomous development of science which accelerated that transition have required contemporary philosophers to reconsider whether and how the integration of knowledge could now

be achieved. As the succeeding chapters will confirm, there is no philosophical consensus about the strategy to follow in the project of cognitive synthesis. Some major philosophers in the contemporary period have resisted the transition to historical consciousness, fearful that it leads to epistemic relativism and the loss of theoretical objectivity. Others, like the positivists and philosophical naturalists, have proceeded boldly from the autonomy of science to the assertion of its exclusive theoretical legitimacy; they have sought either to eliminate the cognitive functions of traditional philosophy or to perform them with empirical replacements. Transcendental thinkers, like Cassirer, Husserl, and the early Wittgenstein, have opposed the reduction of philosophy to the level of factual knowledge while struggling to define the distinctive theoretical insight philosophy might continue to provide. There is no shared answer to the central question: What is the theoretical contribution of philosophy to be once the autonomous and historically developing sciences abandon the quest for certainty?

In the narrative that follows, I will explore and appraise opposing philosophic attempts to answer this basic question. To assist the reader's understanding of the narrative, I propose to outline a matrix of cognitive meaning. This matrix is meant to serve as a provisional map that will permit us to grasp the basic issues in the contemporary crisis and to chart realignments in the province of philosophy during the transition from classical to contemporary thought. The full significance of the matrix, its expository and critical power, should emerge with the gradual progression of the text. Distinctions asserted at this preliminary stage shall be defended as the argument of the work unfolds.

Let me begin with a brief introductory note on meaning. Animals live in an environment with which they enjoy both causal and intentional relations. But the limits of an animal's intentionality restrict the scope of its world. Animals clearly possess sensitive consciousness that they use effectively in adapting themselves to their immediate circumstances. They manage to survive both individually and collectively by orienting themselves within the world they experience directly. To the best of our knowledge the horizon of their consciousness is limited to this world of immediacy. The prelinguistic child is akin to the animals in the correlation between his or her consciousness and his or her world.* The infant also lives in a world of immediacy. With the acquisition of linguistic and symbolic powers, the child transcends its restricted environment and enters a larger world mediated by meaning. As the human person develops intellectually and morally, his horizon of meaning and responsibility continually expands. There is no fixed limit to the world of the human being because there is no fixed limit to human intentionality in its

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**Terms such as "his" and "himself" should throughout the work be taken as abbreviations for "his or hers," "himself or herself," and so on.* M.H.M.

intellectual and rational forms. Human perceptual consciousness, like that of the animals, is inherently limited, though it can be extended dramatically through the mediation of instruments devised by the mind and shaped by the hands. Intellectual and rational consciousness, however, are marked by an immanent tension. Although their actual achievement is always finite, their native orientation and tendency are inherently unrestricted. There is a restless dynamism characteristic of human intentionality that regularly goes beyond any finite achievement.

Because of intentionality, the human being's relation to the world is essentially mediated by meaning. The scope of our awareness and concern extends into the past and the future; the close-at-hand and the spatially remote; the possible, and obligatory as well as the actual. This many-dimensional world is open to us because of meaning. But human meaning is not a natural given like the sky above our heads or the earth beneath our feet. It has its source in intentional operations, both our own and that of the intersubjective communities to which we belong. This intentionality creates the meaning by which we understand the world and conduct ourselves within it. Purposive human transactions with the world are as complex as the patterns of intentional experience. We engage the world biologically, aesthetically, artistically, dramatically, practically, intellectually, and so forth. These different types of transaction are mediated by different functions of meaning. Intentional meaning is *effective* when it guides our productive and artistic relations to the world; it is *constitutive* when it gives identity and significance to our responsible decisions and actions; it is *communicative* when it regulates our intersubjective transactions through speech and writing; and it is *cognitive* when it mediates our efforts to know the world as it really is.

Animal knowing appears to be essentially intuitive in nature; but properly human knowing, although it has an intuitive component, is deeply discursive. It advances through asking and answering questions. Human beings know the world not through their immediate experience of it but through the intelligent generation and reasonable affirmation of intentional signs. The world of our knowledge is a world mediated by true propositions, by the justified answers we give to the questions we ask one another. In this way, we know not only the past and the spatially remote but potentially the entire universe of being and value. Once the discursive nature of human knowledge is recognized, a basic question confronts the philosopher. Shall we start our analysis of cognitive intentionality with these mediating signs or can we go behind them to their originating source and ground in the intentional subject? This is the critical issue dividing conceptualists and intellectualists in the philosophy of mind and the theory of knowledge. The following account of cognitive meaning is openly intellectualist in its underlying commitments.[16]

1. *The core of cognitive meaning* is the unrestricted human desire to know: unlimited in scope, disinterested in nature, and detached in its

normative operation, it is the permanent ground or principle (*arche*) of all human inquiry.[17]

2. *The sources of cognitive meaning* are the conscious intentional operations that jointly constitute the process of human cognition.[18] When not obstructed by alien desires, the desire to know unfolds in a normative pattern of recurrent and related operations, yielding progressive and cumulative results. Cognitive meaning is generated, refined, systematized, and eventually revised through this recurrent intentional process.
3. *The acts of cognitive meaning* are the basic intentional operations that formulate or posit answers to the questions that initiate and guide human inquiry. Questions for intelligence—what, why, how often, and so on—are met by formal acts of meaning in which tentative and hypothetical answers are submitted for critical verification. The question that guides critical reflection—is the tentative answer true—is met by a full act of meaning, an assertion (yes), denial (no), or suspension of judgment (I don't know). Full acts of meaning affirm or deny the correctness and adequacy of the answers articulated in formal acts of meaning to the exploratory questions of intelligence.
4. *The terms of cognitive meaning* are the successive answers fashioned by human inquiry to its own questions for intelligence and reflection. Formal terms of meaning are the propositions provisionally hypothesized in formal acts of meaning and subjected to truth appraisal in critical reflection. Full terms of meaning are truth-bearing propositions whose truth value has been determined and asserted in full acts of meaning. All the acts and terms of meaning have their proximate intentional source in direct and reflective insights, the pivotal acts in the complex structure of cognitional process.[19]
5. *The norms of cognitive meaning* are the standards of appraisal by which the process of inquiry and its resultant acts and terms of meaning are reflectively evaluated. Canons of method articulate normative standards for the appropriate conduct of inquiry; the principles of logic express the standards of clarity, consistency, and rigor for formal terms of meaning; epistemology makes explicit the standards of objectivity and truth for full terms of meaning. The norms of cognitive meaning are the immanent critical exigencies regulative of the mind's intentional activity in the pursuit of knowledge. Logic, epistemology, and cognitional theory articulate and thematize standards of correctness already operative implicitly in the prereflexive exercise of human intelligence and reason.
6. The human desire to know normatively unfolds in cognitional process and climaxes in the assertion or denial of full terms of

meaning. *The objects of cognitive meaning* are the reality that is known through this self-correcting process of learning. Rationally affirmed propositional truth is the medium through which objective existence is humanly known. The core of cognitive meaning, the unrestricted desire to know, is fully united to the objects of cognitive meaning, the reality that is to be known, through the sources, acts, terms, and norms of meaning in which it normatively unfolds. A philosophical theory of knowledge is required to give a full account of these interdependent dimensions of cognition and the structure of being isomorphic with them.

7. *The linguistic expressions of cognitive meaning*: human beings conduct their inquiry and communicate and criticize its results in the medium of a common language. Questions for intelligence and reflection, formal and full terms of meaning, though they have their ground in intentional desires, operations, and norms, receive their full objectification in discourse. The complex network of theories, hypotheses, sentences, and sentence fragments in which partial, formal, and full terms of meaning are objectified and publicly communicated are the linguistic expressions of cognitive meaning.
8. *Realms of cognitive meaning*—cognitive development occurs through the differentiation and specialization of cognitional process. Distinct *exigencies* of the human spirit are met by specializations of inquiry that generate original realms of cognitive meaning while creating new and continually evolving linguistic communities. The members of a realm of meaning share a common tradition and a common intentional life, that is, a common field of experience, a common method of understanding data, conceptualizing questions and answers, and verifying results, a common estimate of importance and relevance. To paraphrase Wittgenstein, learning one of these languages is learning a new form of cognitive life.[20]

a. *The practical exigence* of human beings unfolds in the specialization of intelligence known as common sense. What is common to the numberless varieties of common sense is their intentional standpoint rather than their explicit cognitive content. The common sense of one region, time, or specialized group will differ from that of others, but the intentional pattern of questioning, understanding, and judgment will be essentially the same. Common sense is a collaborative intellectual mastery of the concrete and particular insofar as it is relevant to the practical purposes, desires, and fears of specific historical communities. The transactions of common sense are conducted in ordinary discourse through a mode of linguistic expression exempt from the strict logical requirements of clarity, coherence, and rigor. Common sense has no theoretical inclinations.

Its questions and answers are bounded by the interest and concerns of daily human living within the appropriate group; its canons of relevance restrict further questions to those that make an immediately palpable difference to particular problematic life situations in the community.

b. *The systematic theoretical exigence* has gradually developed, over two millennia, into the specialization of intelligence known as *empirical science*. Theoretical science seeks to understand things not in their descriptive relations to human perceivers but in their explanatory relations to one another. The theoretical realm of meaning is the fruit of the collective human aspiration to universally valid explanatory knowledge. Technical canons of method and statement are devised to control its terms of meaning whose linguistic expressions are subject to the exacting norms of logic and epistemology. Communities of scientific meaning train new members in their methods and logic, operate within a shared technical language and paradigm unintelligible to outsiders, and conduct their inquiry within a highly complex network of interlocking beliefs. The community of theoretical science is a family of interdependent, hierarchically organized, normative practices based on tradition and authority, which historically put their own traditions and authorities into question.[21]

c. The *reflexive methodological exigence* becomes prominent when common sense and theoretical science have become historically distinct and relatively autonomous realms of meaning. The increasing heterogeneity of consciousness and discourse prompts human beings to become reflexive about their cognitive activity, to seek understanding of what they are doing and achieving in the practice of mathematics, empirical science, historical inquiry, common sense, philosophy, theology, and so on. This exigence promotes a specifically *philosophical realm of meaning* distinct from the practical and the scientific realms it investigates. Its purpose is to distinguish, intentionally ground, critically analyze, and finally integrate the successive historical achievements of the sciences and common sense. Although the aspirations of reflexive philosophy remain theoretical, in the present context of philosophical crisis, it lacks the agreement on method, language, and inherited belief characteristic of empirical science. Philosophers today are implicitly united by a common synoptic goal, but they clearly do not possess a common program for achieving it.[22]

d. The *transcendent exigence* drives the human spirit to raise questions about the ultimate foundations of existence and value. Is there an absolute, intelligent, unconditional ground of contingent reality? Is

this ground a personal center of moral responsibility and a proper subject for moral evaluation? These ancient questions about God and the answers and aspirations they evoke receive diverse linguistic expression in the different realms of cognitive meaning; for example, the ordinary religious discourse of common sense, theological doctrines modeled on the classical ideal of science as well as historically sensitive theologies, aware of the difference between transcendent and contingent being and sensitive to the need for functional specialization in theological inquiry.[23] Human discourse about God may be phrased in ordinary language as in the prayers, symbols, and homilies of pastoral common sense, or it may be technical and theoretical as in the formulations of systematic theology.

9. Successive differentiations of intentional consciousness in response to distinct exigencies of the human spirit have created three historically distinct *stages of cognitive meaning*.

a. *The pretheoretical* stage of practical common sense dominated the West until the advent of pre-Socratic philosophy and ended when Aristotle's logic systematized the classical ideal of scientific theory.

b. In the second stage of meaning, common sense and systematic theory became distinct forms of cognition but empirical science had not yet become independent of philosophy. Either metaphysics or epistemology functioned as the foundational discipline on which theoretical science rested. This stage of *classical consciousness* in the realm of theory extended roughly from Aristotle to Kant. The historical sensitivity of Hegel, the evolutionary interests of Lyell and Darwin, the emergence of non-Euclidean geometries and non-Aristotelian logics, the liberation of empirical science from philosophy all propelled cognitive meaning into a third stage.

c. In the third stage of *historical consciousness*, common sense, empirical science, and philosophy have become distinct, complementary, and independent realms of cognitive meaning; the classical ideal of scientific theory and the quest for certainty have been abandoned, but the undefined character of foundational analysis and the uncertain prospects for theoretical integration face philosophy with a serious crisis of identity and self-definition.

10. *The architecture of philosophy in the third stage of meaning*. The different dimensions of human knowledge that I have outlined in the matrix of meaning offer a specialized subject matter for distinct though related philosophical disciplines.

a. *Cognitional theory* distinguishes the core, sources, and acts of cognitive meaning and explores their intentional relations; through intentional analysis of the origin and process of human cognition, it

proposes an explanatory account of what human beings are doing when engaged in the pursuit of knowledge.[24]

b. *Formal logic* studies the relations of presupposition, implication, and deducibility among formal terms of meaning (actual or potential); it articulates the normative standards of intelligibility that a truth-vehicle or deductively ordered system of truth-vehicles must satisfy.

c. *Epistemology* studies the necessary conditions under which the assertion or denial of full terms of meaning is rationally justified; it articulates the normative requirements and implications of objective knowledge and truth.

d. *Metaphysics* studies the basic intelligible structure of the objects of cognitive meaning (actually existing things and their properties); it also seeks to integrate the multiple realms of cognitive meaning without conflating their essential differences. Competing metaphysical strategies of integration are based on opposing estimates of the locus of theoretical invariance within the comprehensive matrix of cognition.

e. *Semiotic analysis* investigates the linguistic expressions of cognitive meaning in terms of their correlated sense and reference. Its task is to explicate the concepts (*Begriffe*) or thoughts (*Gedanke*) expressed by linguistic signs and to fix the objects, if any, to which those signs refer. Cognitive semiotic analysis broadly divides philosophers into those who explicate formal terms of meaning through the assignment of truth conditions and those who do it by specifying their conditions of knowledge and verification.[25]

f. The different *realms of cognitive meaning*, common sense, empirical science, philosophy, and theology, admit of analysis by each of these distinct philosophical disciplines. In successive historical periods, the leading philosophers have given priority to different disciplines, treating their basic questions and answers as foundational to the philosophic examination of knowledge as a whole. The central issue in this dispute over foundations is the most effective order of philosophical inquiry. Classical consciousness, with its anticipation of permanent theoretical meaning, emphasized the order of logical systematization. One discipline is systematically prior to another if its explanatory categories and principles are logically presupposed in the statement and solution of the other's problems.

In the comprehensive theoretical project of Aristotle the order of systematic exposition proceeded from *metaphysical* analysis of the objects of meaning (the theory of being) to *logical* analysis of the terms and norms of meaning (the theory of science) to *cognitional* analysis of the psychological

sources of meaning (theory of sensitive and intellectual operations). The explanatory categories of metaphysics were used to define the central terms of logic and rational psychology. Metaphysics was treated as the foundational form of theoretical knowledge because its universal categories of potency, form, and actuality were presupposed in the systematic expression of the results of all human cognition.

Modern philosophy begins with the repudiation of Aristotelian metaphysics and the comprehensive cosmology it supports. Descartes established the heuristic program of modernity by making epistemology systematically prior to the theory of being. Epistemic analysis of the norms and terms of meaning (Cartesian ideas) became the primary philosophical task. Once indubitable axioms are discovered through clear and distinct intuitions, the system of scientific truths can be rationally reconstructed with deductive rigor. The existence, nature, and properties of the objects of meaning (formal reality) are determined by appeal to the deductively ordered true ideas of axiomatized science. For Descartes philosophy began with epistemology, proceeded to the logical reconstruction of science, and climaxed in a metaphysics of nature based on the conclusions of the prevailing mathematical physics.

Within the horizon of Cartesian epistemology, the terms of cognitive meaning were conceived of as ideas. Descartes's way of ideas was new because it displaced the Aristotelian priority on the causal analysis of sensible substances. According to representational theorists of consciousness like Descartes, the intentional awareness of mind-independent objects was mediated by a prior intuition of mind-dependent ideas. The subordination of metaphysics to epistemology in the Cartesian architectonic reflected this mediated dependence of things on ideas in the order of awareness. Deep confusions about the nature of ideas and doubts about their suitability as vehicles of intersubjective inquiry and objective truth encouraged modern analytic thinkers to give an unprecedented emphasis to the linguistic expressions of meaning. Though words replaced ideas as the focus of philosophical attention, the priority accorded to terms of meaning was preserved. The semiotic analysis of linguistic expressions thus became the critical philosophical project on which both epistemology and metaphysics were now dependent.

Followers of the linguistic turn, although committed to the priority of semiotic analysis in the architecture of philosophy, are themselves divided into partisans of classical and historical consciousness. Frege and the early Wittgenstein, as representatives of the classical ideal, anticipated theoretical invariance either at the object-linguistic level of scientific terms of meaning or at a level of transcendental logic (universal and invariant syntactical laws) underpinning all conceivable object languages. Quine, Sellars, Rorty, and the later Wittgenstein have abandoned the anticipation of theoretical permanence

and of epistemically prior terms of meaning and have fallen back on various pragmatic strategies for choosing between competitive object languages and theories as a whole. These pragmatic canons of selection became the ultimate court of appeal in the adjudication of reputed theoretical conflict.

With the transition from classical to historical consciousness, philosophical emphasis had to shift from the unification of permanent theoretical systems to the need for integration of a regular succession of such theories. Cognitive invariance is no longer anticipated in objects, terms, or expressions of meaning, if at all, but in the intentional core and sources of meaning that generate and then eventually revise the evolving judgments of science and common sense. This major change in heuristic anticipation has suggested a new architectural model for philosophy. In the strategy recommended by Bernard Lonergan for the third stage of meaning, philosophy should begin with intentional analysis of the process of cognition, proceed to a logical and epistemological analysis of the terms of meaning generated through that process, and conclude with a metaphysical investigation of the objects known though those terms. The basic philosophical principles and categories are drawn from cognitional theory which thus emerges as the primary philosophical discipline. One enduring function of philosophy remains the integration of cognitive meaning, but the critical base from which to execute that function becomes the self-appropriation by the intentional subject of the core, sources, and norms of cognitive development and revision that he discovers in his own intentional experience. Moreover, the model of synthesis ceases to be the logical systematization of diverse terms of meaning drawn from the sciences and common sense and becomes instead the methodological coordination of complementary heuristic structures. Cognitive integration in the natural and human sciences is no longer considered to be a permanent accomplishment founded on self-evident and certain truths but an ongoing and collaborative theoretical process to be conducted from a strategic and invariant critical standpoint. The elaboration and defense of this concept of philosophy will be given in Chapters VII and VIII.

In introducing this matrix of cognitive meeting, I have hoped to do several things at one time: to articulate the structural complexity of human cognition; to outline a possible division of philosophical labor in the territory of knowledge; to survey historical realignments in the architecture of philosophy while suggesting their epistemic causes; to situate and define the existing crisis of philosophy, and to outline competing strategies for resolving it; and to indicate how philosophy could be historically minded without abandoning its permanent theoretical purpose of cognitive integration. My objective has been to prepare the reader for the ensuing philosophical narrative rather than to persuade him of my own beliefs. I have tried to lay the conceptual groundwork for a sustained investigation of the sources and shifts of metaphilosophical controversy during the last two centuries.

D. Pure Mathematics and the New Logic

The seventeenth -century revolution in physics led to the liberation of natural science from philosophy. The nineteenth-century revolution in logical theory had a parallel effect on the formal sciences, since its major innovations were equally subversive of accepted philosophical principles. The novel developments in this movement were the axiomatization of mathematics, the radical formalization of arithmetic, and the algebraicizing of logic.

The dominant influence with which axiomatization had to contend was the Kantian philosophy of mathematics.[26] In the transcendental aesthetic of the *Critique of Pure Reason*, Kant developed a theory of mathematics designed to account for the instantiation of mathematical structures in the physical universe. Reduced to its essential structure, the Kantian argument had this form. Euclidean geometry is the a priori science of physical space and first order arithmetic the a priori science of physical time. Though mathematical knowledge applies directly to the objects of perceptual experience, it is not derived from the empirical examination of these objects nor justified by recourse to them. The unified structures of geometry and arithmetic are constitutive of the empirical world, not abstractions from it; they are necessary conditions of the world's intelligibility. But space and time, though empirically real, (that is, verifiable features of perceptual experience), are understood by Kant to be transcendentally ideal, since they are pure forms of human sensibility and not mind-independent properties of things in themselves. According to Kant, the truths of mathematics are synthetic a priori judgments; a priori because they apply with strict necessity to all possible experience, synthetic because their truth value cannot be determined on purely logical grounds or by means of purely logical operations.

Kant based his philosophy of mathematics on a specific account of the heuristic procedures required to discover and verify mathematical truths. According to this account, pure intuition plays the central role in the acquisition and justification of mathematical knowledge. The fundamental reliance on pure intuition for the discovery and verification of arithmetic and geometrical truths ensures their synthetic a priori character. "Arithmetical propositions are therefore always synthetic. This is still more evident if we take larger numbers, for it is there obvious that, however we might twist and turn our concepts, we could never by the mere analysis of them, and without the aid of intuition, discover what the number is that is the sum."[27] Kant's strategy stresses the contribution of pure intuition to mathematical understanding, but it does not encourage a rigorous examination of the logical structure of mathematical theories. Three major developments in nineteenth-century mathematics radically reverse his order of priorities. These were the construction of non-Euclidean geometries, the acceptance of a positive theory of transfinite cardinals, and the renewed emphasis on argumentative