

WIM VAN DEN DUNGEN



Critical Metaphysics of Process

Volume I : Conditions, Limits,
and Ultimate Analysis

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Permanence can be snatched only out of flux ;
and the passing moment can find its adequate
intensity only by its submission to permanence.
Those who would disjoin the two elements can
find no interpretation of patent facts.

Whitehead, A.N. : *Process and Reality*, p. 338.

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Preface

These volumes bring together several lines of inquiry that have occupied much of my philosophical work : criticism, metaphysics, process, consciousness, contemplative experience, and the question of the Divine. They do not merely collect earlier positions. They reconsider them under stricter conditions and, where necessary, abandon formulations that no longer survive criticism.

The immediate background is provided by two recent projects.

The *Regulae* trilogy develops the normative side of philosophy through epistemology, aesthetics, and ethics. Its governing conviction is that the principles regulating thought, feeling, and action cannot be grounded in a prior ontology, because any such ontology already presupposes the normative conditions it is supposed to ground. The first principles disclosed by transcendental reflection have a special status : they cannot coherently be rejected without being used in the attempt to reject them. Metaphysics cannot first construct a picture of reality and then use that picture to justify the rules of thinking by which the construction itself was produced.

Normative philosophy must precede descriptive philosophy, including metaphysics. The relation is architectonic but does not amount to deduction. The *Regulae* establish conditions under which conceptual construction can be valid ; they do not determine which metaphysical construction must be adopted. The present metaphysics begins where that normative inquiry leaves off and enters a weaker epistemic register : its process orientation, ontological scheme, and later constructions are arguable, corrigible, and provisional. The question is consequently not what metaphysics follows necessarily from the *Regulae*, but what metaphysics may legitimately be constructed within the limits they establish.

The descriptive philosophy developed here is a *critical process metaphysics*. It is critical because speculative construction remains subordinate to prior normative conditions and must avoid reification, category mistakes, and claims exceeding conceptual warrant. It is processual because actuality is interpreted through becoming, relation, dependence, organization, and transformation rather than self-sufficient substances.

This metaphysics rejects inherent existence while retaining conventional actuality, causal efficacy, organization, consciousness, individuality, and continuity. Matter, information, and consciousness are understood in conjoint operation and extended toward cosmos, God*, the Divine, and full-emptiness without becoming absolute grounds.

Whitehead remains the principal process-metaphysical interlocutor, modified by Kantian criticism, Oger's normative epistemology, Ockhamite nominalism, Buddhist dependent arising and emptiness, contemporary science, and contemplative phenomenology.

Volume I establishes the conditions, limits, and ultimate analysis ;

Volume II develops the positive reconstruction.

Metaphysics may seek speculative depth, provided it does not reify its own constructions.

Human reason has a peculiar fate in one kind of its cognitions : it is troubled by questions that it cannot dismiss, because they are posed to it by the nature of reason itself, but that it also cannot answer, because they surpass human reason's every ability.

Kant, I. : *Critique of Pure Reason*, Preface to the First Edition, A vii.

Introduction

Metaphysics, like God, is said to have died. Feuerbach, Comte, Nietzsche, and Carnap took care of that ! Did they ? Sure, with them, a *certain kind* of metaphysics disappeared. They all died. Did the ‘God of the philosophers’ ?

What disappeared, or should have disappeared, was metaphysics as a *science before science* : the attempt to determine what ultimately exists and then derive from this ontology the conditions under which knowledge, value, or action become possible. In this pre-critical order, being precedes knowing. Substance, matter, mind, Spirit, nature, history, or the Divine is installed as a *self-sufficient ground*, and the rules governing thought are subsequently derived from what the metaphysical system has already declared to be real. Yet every such declaration is *itself a conceptual act*. It employs language, logic, distinctions, inference, and standards of validity before the alleged ontological ground has done any explanatory work. The foundation arrives too late.

Criticism reverses this order. The reversal has already been worked out across the three normative inquiries of the *Regulae* trilogy, dealing respectively with thought, feeling, and action. Rather than deriving their binding rules from an ontology, each begins *reflexively* from a transcendental principle internal to the practice being examined and asks what cannot coherently be removed without undermining that practice itself. These transcendental conditions are not *descriptions* of how human beings contingently happen to think, feel, or act. They identify what normatively *must already* be operative for valid conceptual knowledge, aesthetic judgment, and imputable action to be possible at all (Regulae I, 2025 ; Regulae II, 2025 ; Regulae III, 2026).

Regulae I begins from the *fact of reason* : the irreducible dyad of something known and someone knowing it. Neither transcendental object nor transcendental subject can be eliminated without being presupposed in the attempted elimination. From this ‘groundless ground’ (Oger) arise the principles, norms, and maxims governing valid conceptual thought, including the critical tensions between correspondence and consensus, and between factual testing and argumentative justification, under the regulative ideas of the Real and the Ideal.

Regulae II relaxes this architectonic toward feeling. Its *fact of feeling* joins aesthetic attitude and aesthetic properties in the meeting through which beauty becomes possible, moving normatively from the pleasant and satisfying through exquisiteness and excellence toward exemplarity and sublimity.

Regulae III turns to action. Its *fact of action* joins an agent with an attributable outcome and develops this relation through the action vector, whose direction and intensity are shaped by the action drivers intent, duty, conscience, and vocation. Freedom-from and freedom-in-immediacy secure respectively the release from determining constraint and the leeway required for genuine choice and ownership. Actions unfold within concrete action domains and are normatively assessed through the lenses of good and evil, justice and injustice, fairness and unfairness, and love and hate. Together, vector, drivers, freedoms, domains, and lenses provide a unified grammar of responsible action without reducing ethics either to intention or to consequence.

The same three-tier movement governs all three inquiries : transcendental principles identify the indispensable conditions of the domain ; theoretical norms articulate the general rules under which judgment becomes possible ; applied maxims guide practice under contingent conditions. Their normative force is calibrated rather than mechanically identical. Epistemology is strictest because contradiction and invalid inference undermine conceptual knowledge itself ; aesthetics retains a relaxed but genuine normativity of cultivated and expectant judgment ; ethics must carry its principles and norms into the contingency, resistance, and consequences of actual deeds and their combination as domains. Thought, feeling, and action thus constitute three irreducible but coordinated normative fields. None receives its bindingness from a *prior* theory of being.

This is the critical inheritance from which the present inquiry begins. Before metaphysics may ask *what exists*, it already stands *under rules* governing what can be coherently thought, responsibly related to scientific knowledge, validly argued, and distinguished from what exceeds conceptual determination. Metaphysics cannot ground these rules because every metaphysical proposition *already employs them*. Nor can a preferred ontology of matter, information, consciousness, process, substance, nature, or the Divine retrospectively confer validity upon the conceptual activity through which that ontology was constructed.

Metaphysics therefore loses its *foundational privilege* without losing its philosophical task. It comes after criticism in the order of justification and inherits the critical architectonic with the relaxation appropriate to a register that is arguable but not testable. The question is no longer whether ontology can ground philosophy, but *what* metaphysics may *legitimately construct* once the normative conditions of philosophy are already in place.

This reversal has consequences for science as well.

Science produces the most reliable factual knowledge available to us because its propositions remain exposed to testing and argument. Its objects are identified, measured, modeled, interpreted, and revised within conceptual and institutional practices, while the facts produced through these practices must nevertheless be treated as answering to something not constituted by the assertions made about them. Scientific knowledge is therefore conventional without being arbitrary, objective without becoming absolute, and corrigible without collapsing into skepticism. Its strength lies precisely in its *refusal of finality*.

Metaphysics occupies another epistemic register. Its totalizing claims cannot be experimentally tested as totalities. They remain arguable. Logic, semantic clarity, argumentative discipline, compatibility with valid science, explanatory adequacy, resistance to reification, comparative scope, heuristic fertility, and corrigibility govern their admissibility. Metaphysical speculation consequently enjoys greater latitude than scientific theory but weaker epistemic warrant. It may integrate, orient, compare, and creatively reorganize what the sciences disclose. It may not borrow scientific authority for conclusions no experiment could establish.

This difference does not make metaphysics dispensable. Scientific knowledge does not *spontaneously* organize itself into one comprehensive interpretation of the world. Physics, biology, neuroscience, psychology, information theory, cosmology, and the human sciences investigate *distinct* objects under domain-

specific conditions. Their results do not *by themselves* determine what kind of world contains them all, whether one domain is ontologically fundamental, how physical efficacy relates to organization and consciousness, what kind of unity may legitimately be attributed to the world-system, or how actuality relates to possibility. Whenever such questions are answered, explicitly or implicitly, *metaphysical choices have already entered*.

So the attempt to eliminate metaphysics risks *concealing* rather than *removing* it. Physicalism, informationalism, idealism, reductive naturalism, emergentism, panpsychism, dualism, monism, and pluralism are not simply read from scientific facts. They *interpret* those facts within *wider conceptual schemes*. Even the declaration that ‘only what science can test should be admitted as real’ is not itself a proposition established by scientific testing. It is a philosophical rule concerning what may count as real.

Metaphysics returns at the moment its elimination is asserted.

The task, then, is not to decide whether metaphysics should exist. It is to distinguish disciplined metaphysics from *metaphysical inflation*. The present inquiry calls the former critical metaphysics. It is critical because it accepts the priority of the conditions governing thought, feeling, and action ; because it distinguishes scientific testing from metaphysical argument ; because it refuses to convert conceptual necessity into ontological necessity ; because it treats reality-as-such as beyond conceptual possession ; and because every metaphysical construction remains answerable to the possibility that another construction may perform its work better. Its concepts may totalize. They may not absolutize themselves.

Within this critical framework, a substantive orientation is nevertheless required. Criticism alone does not dictate which metaphysics must be adopted. It establishes conditions of admissibility, not a *compulsory ontology*. So the present work makes a declared metaphysical choice : process over substance, relation over isolation, dependence over self-sufficiency, condition over essence, becoming over immutable being, and organized continuity over inherent identity. These preferences are *not* transcendental necessities. They are adopted because they resist reification, remain consonant with valid scientific knowledge, and provide a more fertile interpretation of actuality than metaphysical schemes organized around self-existing substances.

Substance, in the strong metaphysical sense rejected here, is not merely something enduring. It is something alleged to possess its identity and essential properties from its own side, independently of conditions, relations, parts, functions, and acts of identification. Such independence becomes increasingly difficult to reconcile with the very phenomena substance is supposed to explain.

What acts must *enter relations*. What changes must *inherit conditions*. What persists must *sustain organization across transformation*. What appears isolated proves *dependent* upon histories, environments, structures, and interactions.

The supposed metaphysical surplus of inherent existence adds little explanatory force while generating considerable difficulty.

Process metaphysics begins elsewhere. It asks how something exists, arises, becomes determinate, functions, persists, changes, enters relations, transmits effects, endures, and ceases. Identity is retained, but as *organized continuity*. Individuality is retained, but as *bounded and relatively autonomous process*. Stability is retained, but as *recurrent organization*. Things do not disappear. What disappears is the demand that they possess an immutable metaphysical core beneath what they do and undergo.

Whitehead is the principal process-metaphysical interlocutor of this inquiry, but the present system is not a reconstruction of Whiteheadian philosophy and departs from it wherever criticism, ultimate analysis, the three-operator thesis, or the reconstruction of the world-ground requires another course.

The elementary ontological unit adopted is the *actual occasion* : a determinate episode of becoming entering into relations with antecedent actualities and contributing to subsequent process. Actual occasions form aggregates, organizations, societies, individualized conscious societies, persons, institutions, biological systems, and wider historical formations. Their persistence does not require an *underlying substance*. It requires *sufficient continuity* of organization, inheritance, function, and relation.

Yet 'process' alone is too indeterminate to account for the differentiated ways actuality operates. The present metaphysics therefore proposes three irreducible, interpenetrating, and interdependent *operators* : matter, information, and consciousness. Matter names energetic efficacy and efficient determination. Information names formative organization, architecture, constraint, differentiation, and integration. Consciousness names mere cognizing presence and, where individualized, makes possible meaning, valuation, intention, deliberation, and choice. These operators are not substances, autonomous realms, or layers added one above another. They are distinguishable modes of operation jointly instantiated in concrete actuality.

Their distinction opposes three familiar *reductions*. Materialism or physicalism becomes reductive when energetic efficacy is made sufficient to explain organization and first-person presence. Informationalism becomes reductive when organization is treated as though it could replace both physical efficacy and consciousness. Mentalism becomes reductive when consciousness is inflated into the constitutive source of physical and informational actuality. The three-operator thesis instead proposes *irreducibility without isolation* and *interdependence without identity*.

This triadic articulation also determines the relation between actuality and possibility. The *actual* world is what *determinately happens*. Yet what happens does not *exhaust* what may happen. Every achieved actuality establishes conditions, closes possibilities, preserves others, and may *open possibilities previously unavailable*. So the world possesses a *virtual* aspect : a horizon of conditioned possibilities of further actualization. This virtual world-ground is not another world, a primordial substance, a hidden reservoir, or a domain existing independently beneath actuality. It is the same world-system considered according to what *may become* actual under the conditions established by what has become actual.

Proceeding by a controlled reversal from the three operators discerned in concrete actuality, the virtual world-ground may be specified through primordial matter, primordial information, and primordial consciousness. These are not independently existing primordial entities. They are speculative *modal correlates* : the possibility of energetic actualization, the possibility of formative organization, and the possibility of sentient actualization. Their metaphysical status remains arguable, non-testable, corrigible, and empty of inherent existence.

Here the critical (normative) and constructive (descriptive) movements meet. The concepts needed to escape substance metaphysics are themselves liable to substantialization. Matter can become a cosmic substance. Information can become an immaterial realm of forms. Consciousness can become a universal mind. The world-ground can become an occult foundation. Even emptiness can become the Void. Critical metaphysics must therefore apply its anti-reifying control recursively to its own preferred concepts. No term is exempt merely because it was introduced to eliminate reification elsewhere.

The Buddhist analysis of dependent arising becomes decisive at this point. Whatever exists conventionally does so dependently : through conditions, relations, parts, functions, histories, and designation. This dependence does not abolish the object ; it excludes only the attribution of inherent existence, *svabhāva*, understood as existence from the object's own side independently of the conditions through which it arises, functions, and is identified. Emptiness therefore does not mean non-existence. It names the absence of this substantial mode of being in what nevertheless exists and functions conventionally.

Volume I, *Conditions, Limits, and Ultimate Analysis*, establishes the critical conditions under which this reconstruction is possible. The Prolegomenon determines the order of justification. Normative philosophy precedes metaphysics. Science tests and argues. Immanent metaphysics argues without being testable. Transcendent metaphysics marks the limit at which positive conceptual determination must cease. The inquiry then asks how metaphysical thought can nevertheless advance ; it develops the immanent and transcendent registers, reconstructs ontology under processual conditions, examines the nature and continuity of individualized mind, and considers the person, ego, selflessness, and mental pliancy required for sustained critical inquiry.

This volume culminates in ultimate analysis.

Persons and phenomena are examined to determine whether the identities conventionally attributed to them can be established as inherently existing realities. Under the accepted formal-logical conditions of ultimate analysis, no *svabhāva* can be established. This result is not nihilistic. Conventional existence, function, causal efficacy, organization, individuality, first-person presence, and relational continuity remain intact. What is removed is substantial instantiation : the attribution of an independent identity to what exists only through dependent arising. This ending makes positive metaphysics possible rather than impossible.

Volume II, *Actuality, Cosmos, and the Divine*, begins from what survives ultimate analysis. Its first task is general metaphysical reconstruction. Existence and non-existence, actuality and virtuality, the three operators, their irreducibility and interdependence, and their conjunction within the world-system are examined

under the controls established earlier. Matter, information, and consciousness are then treated separately before being brought together again. The aim is not to discover ultimate substances but to articulate the most general modes through which dependent actuality becomes efficacious, organized, and consciously present.

General metaphysics then passes into special metaphysics. The general scheme is applied to two encompassing objects : cosmos and the Divine.

Metaphysical cosmology asks what contemporary cosmological knowledge permits philosophy to argue concerning the observable universe, cosmic development, horizons, origins, possible futures, multiverse hypotheses, and the relation between physical possibility and the virtual world-ground. Scientific cosmology remains decisive, but its results do not determine one complete metaphysical interpretation of the world-system.

Metaphysical theology's question is still more delicate. The critical rejection of a transcendent, omnipotent, self-existing Creator does not by itself determine whether anything warranting the designation God* remains possible within an immanent process metaphysics. The decisive question becomes one of *agency*. If primordial consciousness is entirely non-agentive, there is no sufficient reason to designate it God*. If purposive valuation, responsiveness, or influence can be warranted, however, another possibility opens. Metaphysical theology must therefore determine what kind of Divine agency, if any, is compatible with process, emptiness, finite freedom, evil, scientific knowledge, and the experiential claims associated with mystical, yogic, and contemplative life.

Neither cosmology nor theology is allowed to escape the restrictions governing the rest of the inquiry. A cosmological totalization does not become fact because it employs scientific vocabulary. A theological construction does not become knowledge because it satisfies existential or religious need. Mystical experience may carry phenomenological and transformative significance without automatically delivering a conceptual description of reality-as-such. The transcendent limit remains intact throughout.

The final term of the inquiry is full-emptiness. Its two moments must be held together. Fullness names the inexhaustible actuality of dependent process : energetic efficacy, organization, sentient presence, relation, novelty, value, action, history, cosmos, and whatever Divine significance may survive criticism. Emptiness names the absence of inherent existence in all of these. Fullness without emptiness reifies. Emptiness without fullness nihilizes.

The conjunction is the Middle Way of the present metaphysics.

Accordingly, the ambition of these volumes is neither modest in scope nor absolute in claim. The inquiry asks how far conceptual thought can move toward a comprehensive metaphysics while remaining conscious of its own conditions. It seeks an account broad enough to include matter, information, consciousness, persons, cosmos, and the Divine without reducing them to one substance ; disciplined enough to remain answerable to science and argument ; and critical enough to prevent its most successful concepts from being mistaken for self-existing realities.

Metaphysics survives its alleged death by abandoning the privilege that once made its death seem necessary. It no longer legislates knowledge from an imagined position beneath or above it. It works within the world, with concepts it knows to be constructions, under rules it did not invent, against facts it does not control, toward a totality it cannot possess.

What remains is not the old dream of Being.

It is the critical existential adventure of becoming.

As is the case with fundamental moral norms, the norms of knowledge must also be posited as inevitably presupposed in every cognitive act. It means that in this knowledge, one cannot choose in favor of or against these norms. Moreover, because not a single fact can explain them, they constitute the groundless ground of knowledge.

Oger, E. : *Kennis en Waarheid*, 1976, p. 298, my translation.

Prolegomenon | The Critical Spine

Before metaphysics may ask what exists, how the world hangs together, or whether process provides its most adequate ontological outlook, it must clarify the *rules* governing the conceptual activity by which such questions are posed and answered. Without this preliminary criticism, metaphysics risks placing being *before* knowing, converting regulative ideas into substances, and confusing scientific validity, speculative arguability, and transcendent claims.

The present *Prolegomenon* therefore reconstructs the critical spine presupposed by the inquiry that follows. It establishes the priority of normative philosophy, the conditions and limits of scientific knowledge, and the point at which a change of epistemic register permits metaphysical speculation without allowing it to ground the rules it already employs.

Its task is not to anticipate the metaphysics developed in what follows, but to secure the *order of justification* within which that metaphysics can proceed critically rather than pre-critically. Because metaphysical speculation is untestable and only arguable, its admissibility must be secured through language, logic, and disciplined argumentation.

A. Normative Philosophy

Normative philosophy is the *critical core* of philosophy. It does not begin by asking what ultimately exists, nor does it derive the rules of thought, judgment, or action from a *prior account of being*. That procedure belongs to pre-critical metaphysics : ontology is placed *before* epistemology, and a supposedly self-sufficient ground *outside* knowledge is invoked to explain how knowledge is possible.

Whether this ground is located in an independent reality (realism), a constituting mind, a substantial subject, nature, history, or the Divine (idealism), the same reversal occurs. A metaphysical proposition, already formulated within knowledge, is made to ground the conditions under which knowledge itself is possible. Criticism rejects this reversal. Before philosophy may speculate about what exists, it must clarify the rules governing the conceptual activities by which such speculation is undertaken.

This priority does not eliminate metaphysics but determines its place in the order of justification. Because metaphysical statements already presuppose correct thought, meaningful concepts, and valid argument, they cannot ground these conditions. Normative philosophy therefore establishes the critical demarcations within which science and metaphysics operate.

For this reason, normative philosophy is neither an empirical science nor a speculative world-picture. Science produces empirico-formal propositions whose validity is always provisional, conventional, and *pro tem*. Normative philosophy does not add another class of facts to those produced by science. It asks what *must* be presupposed for producing, testing, arguing, accepting, and revising facts to be possible at all.

In this qualified sense, it is a meta-science : not a higher science describing the sciences from above, but a *reflexive discipline* identifying the rules and demarcations already operative in valid conceptual practice. It does not describe a possible world. It clarifies the conditions under which a possible world-description can count as coherent and valid, an appearance as aesthetically judgeable, or an action as ethically answerable.

Normative philosophy is thus anti-foundational without being relativistic, transcendental without being transcendent, and critical without becoming skeptical. It refuses to derive obligation from being, yet it does not reduce rules to convention, preference, or decision. It discovers their bindingness within the practices they govern. Its task is not to legislate the world from an imagined position *outside it*, but to keep intact the conditions under which truth may be distinguished from falsehood, beauty from ugliness, and responsible action from its failures.

Normative philosophy does not dictate which scientific facts will be found or which metaphysical worldview must be adopted. It establishes the conditions under which scientific and metaphysical inquiry remain coherent, arguable, corrigible, and free from reification. It is not the totality of philosophy. It is the indispensable discipline preventing philosophy from becoming pre-critical again.

§ 1 Normativity without Metaphysics

Normativity without metaphysical grounding does not mean epistemology is *without* a ground. It means the possibility and validity of knowledge cannot be grounded in a *self-sufficient* substance, subject, mind, history, language, or Divine intellect situated *outside* or *prior* to knowledge. Any claim concerning such a ground must itself be formulated, understood, and justified as knowledge. It therefore already presupposes the rules it is invoked to establish. Pre-critical metaphysics reverses the proper order : what can become known only under epistemic conditions is made to ground those very conditions. The result is a *hysteron proteron* in which *being* is placed before *knowing*, although every proposition about being *already belongs to knowing*.

This reversal also involves a naturalistic fallacy. A statement concerning what exists does not by itself establish how one ought to think, argue, test, or validate. Even were a metaphysical ground known to exist, its existence would not generate the normative force of logical consistency, evidential accountability, or argumentative justification. Epistemic rules cannot be deduced from an ontology without already being used in the deduction. The doctrine of knowledge must therefore cease to be a doctrine of being and become a normative theory of the conditions under which conceptual knowledge is possible and can advance.

This normative solution also rejects the apparent alternative between metaphysical grounding and decisionism. The rules of knowledge are not secured by an ontological foundation, but neither are they adopted through an arbitrary decision, an irrational faith in reason, or a convention one may simply abandon. They are already operative whenever conceptual knowledge is attempted. Reflection does not create them. It makes explicit what has always been used in asserting, denying,

questioning, arguing, and testing. Their force is internal to the practice of knowledge, not imposed on it from elsewhere.

The fundamental error of pre-critical epistemology is reification. A necessary function or regulative idea is treated as a constitutive entity existing from its own side. In *Regulae I* (2025), the principal epistemological reifications concern the ideas of the Real and the Ideal. Both are indispensable orientations of knowledge. The Real regulates the pursuit of correspondence with what constrains the knower ; the Ideal regulates the pursuit of argumentative agreement among knowers. The ontological illusion begins when either idea is converted into the self-sufficient ground of knowledge.

Realist reification turns the Real into a reality entirely independent of every knower and then treats this unknowable reality as the foundation of knowledge. Facts are supposed to possess no theory-dependent side and to coincide directly with the noumenon. The subject is reduced to a passive receiver whose task is merely to register what is already fully constituted outside it. Knowledge then appears to be a reproduction, copy, or mirror of a ready-made world. The active contribution of the knower—conceptualization, categorization, interpretation, instrumentation, selection, and theoretical framing—is downgraded or denied.

Classical empiricism provides one example. The mind is understood as a *tabula rasa* receiving neutral impressions from outside. Sense data are supposed to arrive before interpretation and to supply an unquestionable basis on which knowledge can be constructed. Yet there are no conceptually articulated facts without the activity of a knower. Once an impression is identified, classified, compared, or stated, it has already entered a theoretical and semiotic field. The attempt to eliminate this contribution does not recover pure objectivity ; it merely conceals the conditions under which the object became knowable.

Positivism, materialism, physicalism, and scientism repeat the same realist reification when they treat the subject as a secondary product of objective processes while continuing to rely on the subject's theories, experiments, measurements, and arguments. The knower becomes a biological mechanism, a neurological output, or a passive point of registration, while scientific facts are granted an independence no scientific practice can display. Theory-ladenness is then treated as a defect that further experimentation might eventually remove. Critical epistemology rejects this expectation. No accumulation of facts can eliminate the conceptual contribution through which anything counts as a fact.

Realist reification must not be confused with the critical admission of extra-mental constraint. The object of knowledge is not created at will, and facts cannot be reduced to intersubjective agreement. Something resists, corrects, and sometimes overturns what is thought. But this theory-independent pole cannot be transformed into absolute knowledge of reality-as-such. The Real remains a regulative idea, not an object directly possessed. Critical realism affirms objectivity without claiming access to a reality without a knower.

Idealist reification proceeds in the opposite direction. It turns the Ideal into an object-constituting subject and makes this subject the foundation of everything known. Facts are then deprived of their theory-independent side and reduced to products of consciousness, reason, language, history, or consensus. The object no

longer constrains the subject from outside the subject's own constructions. What is known becomes wholly dependent on the activity of the knower.

The substantial Cartesian ego is an early example. The thinking subject is treated as a self-sufficient substance whose certainty precedes and grounds the world it knows. Leibniz's monad radicalizes this closure : the knower becomes a windowless center whose relation to what lies beyond it must be guaranteed by a prior metaphysical harmony. In both cases, the functional subject-pole of knowledge is reified into an independently existing entity. The transcendental subject is no longer a necessary condition of cognition but a thing behind cognition.

Hegelian absolute idealism provides a more comprehensive example. Conceptual reason is allowed to culminate in absolute knowledge, and the difference between thought and being is finally absorbed into the self-development of Spirit. The Ideal ceases to regulate the pursuit of argumentative unity and is converted into an ontological totality capable of incorporating every difference. The critical distinction between phenomenon and noumenon disappears, and reason claims to possess what conceptuality can only approach under conditions and limits.

Psychologism, mentalism, and radical constructivism repeat this idealist movement in other forms. Logical validity may be reduced to psychological processes ; factuality may be reduced to linguistic construction ; truth may be reduced to consensus within a community. In each case, the known loses any status independent of the knower. But agreement alone cannot produce objectivity. A community may stabilize a belief, vocabulary, or paradigm without thereby making its propositions factually adequate. Consensus without correspondence remains enclosed within the Ideal.

The normative position avoids both reifications. It does not reduce the subject to the object, as ontological realism does, nor the object to the subject, as ontological idealism does. It retains both as irreducible conditions of conceptual knowledge. The object prevents knowledge from collapsing into construction or consensus ; the subject prevents it from pretending to be an unmediated copy of reality-as-such. Their relation is an armed truce : neither may eliminate the other, and neither may be elevated into the metaphysical ground of the whole.

Normative epistemology thus replaces ontological foundations with rules internal to knowing. It accepts the Real and the Ideal as regulative orientations while refusing to turn either into a constitutive reality. Correspondence must answer to consensus, and consensus must remain answerable to correspondence. Knowledge is possible, but it is always knowledge-for-us : fallible, conventional, theoretically mediated, and corrigible. The ground of its validity is not a reality beneath knowledge or a subject above it, but the normative structure disclosed within the practice of knowing itself.

§ 2 The Groundless Ground

The 'groundless ground' (Oger) of knowledge is reflexively uncovered through the transcendental method. The term 'transcendental' does not refer to what lies beyond the world or outside possible experience. That would be 'transcendent.' It

refers to the necessary conditions under which conceptual knowledge is possible. Transcendental inquiry does not ask what causes cognition as a psychological, neurological, historical, or social event. It asks what *must* already be operative whenever something is conceptually known. Its object is not another domain of beings, but the formal structure presupposed by every cognitive act involving concepts.

The transcendental method is *reflexive*. Reason bends back upon its own activity and uncovers the conditions *it has always already employed*. These conditions are neither inferred from repeated observations nor deduced from a metaphysical ground beyond knowledge. They are found *within* knowledge itself by examining what cannot be removed without making cognition antinomic, paralogical, or 'perverse' (Kant). It is an uncovering rather than a construction, making explicit the first principles tacitly operative in every cognitive act using concepts to assert, deny, question, interpret, or argue. The transcendental ground of conceptual knowledge is the *factum rationis*, the fact of reason. It names the unavoidable form in which conceptual cognition occurs : there is something known and someone knowing it. Every conceptual act therefore presupposes two irreducible poles, the transcendental object and the transcendental subject. The former is whatever is placed before thought as its known object ; the latter is the knower for whom this object appears and by whom it is conceptually articulated. The fact of reason is the necessary conjunction of these two poles.

Neither pole should be reified. The transcendental subject is not a substantial soul, Cartesian ego, Leibnizian monad, or self-existing consciousness. It names the subject-function necessarily present whenever knowledge occurs. Nor is the transcendental object a metaphysical thing-in-itself directly possessed by cognition. It names the object-function : conceptual knowledge must always be knowledge **of** something. The two poles are formal conditions of cognition, not independent substances situated behind it.

Their necessity becomes apparent through the performative contradiction. To deny the transcendental subject, someone must formulate, understand, and assert that denial. The act of denial therefore employs the subject it rejects. To deny the transcendental object, the alleged absence of an object must itself become the object of thought. Here too, the denial presupposes what it denies. Conceptual knowledge without a knower or without something known is not merely unusual or empirically absent ; it is logically self-defeating.

The *factum rationis* is thus *a priori* because it is necessary and cannot be coherently denied. Yet it is reflexively discovered *a posteriori*, after conceptual cognition is already underway. There is no contradiction here. The order of discovery differs from the order of justification. Historically and psychologically, thought first operates without having made its conditions explicit. Critical reflection subsequently uncovers these conditions and places them at the head of the systematic exposition. What comes last in the reflective inquiry comes first in the architectonic of epistemology.

The *fact of reason* is called the 'groundless ground' (Oger) of conceptual knowledge. It is a ground because every act of conceptual cognition presupposes it. It is groundless because it cannot be derived from a deeper metaphysical

foundation without already being used in that derivation. Any attempted grounding of knowledge in being, nature, mind, language, history, or the Divine must itself take the form of a conceptual claim made by a subject about an object. The proposed foundation therefore arrives too late : the fact of reason is already operative.

A certain circularity is unavoidable. Reason employs reason to uncover the principles of reason. This is not a vicious circle, because the inquiry does not pretend to deduce its first principles from something more fundamental. It reflexively identifies what every possible deduction, argument, or investigation must already presuppose. The circle closes when the principles uncovered within cognitive practice are formulated as the *necessary conditions* governing that same practice. They are first in the normative order, although they become explicit only through reflection.

The transcendental ground also sets the limit of conceptual knowledge. Because the subject actively co-constitutes every known appearance through concepts, signs, categories, and theoretical frames, knowledge cannot coincide absolutely with reality-as-such. Because the object remains irreducible, knowledge cannot be reduced to subjective construction or intersubjective consensus. The transcendental subject and object consequently remain in an armed truce : each is indispensable, neither may absorb the other, and their tension makes valid but provisional knowledge possible.

The *factum rationis* therefore occupies the middle ground between metaphysical foundationalism and radical skepticism. Against foundationalism, it denies that knowledge can be grounded in a self-sufficient substance. Against skepticism, it establishes that valid conceptual knowledge is possible because its elementary conditions cannot be coherently rejected. The transcendental ground is not the first object of metaphysics. It is the critical structure that must be acknowledged before science or metaphysics can begin.

§ 3 Principles, Norms, and Maxims

Normative philosophy is organized around three kinds of rules: principles, norms, and maxims. These do not form three independent collections. They articulate one descending architectonic in which the binding force of the transcendental ground is gradually translated into theoretical judgment and practical use.

Principles state what must be presupposed ; norms determine how a domain is to be judged ; maxims guide practice under concrete conditions. The movement from principles to norms and from norms to maxims is therefore a controlled relaxation of stringency, not an abandonment of normativity.

Principles belong to transcendental logic. They express the conditions without which the practice under consideration could not be coherently understood. Their necessity does not derive from observation, convention, or metaphysics, but from the performative contradiction arising when what they articulate is denied while still being used.

Principles are therefore *a priori*, formal, and non-negotiable within the domain they constitute. They do not determine the entire content of epistemology,

aesthetics, or ethics. They establish the irreducible structure from which the more determinate rules of these disciplines may be developed.

Norms belong to the theoretical level. They translate transcendental principles into general rules for assessing knowledge, beauty, or action. Unlike principles, they no longer state only the elementary conditions of possibility. They organize the objects, distinctions, criteria, and procedures proper to a particular normative discipline. They answer *Quid iuris* ? : by what right may a proposition be regarded as valid, an appearance judged beautiful, or a deed appraised as good, just, fair, or loving ? Norms remain *a priori* insofar as their bindingness is derived from the transcendental structure of the domain, but they contain more interpretation and differentiation than principles.

Maxims belong to the applied level. They translate principles and norms into practical precepts governing actual inquiry, aesthetic observation and production, or action. They answer not only what is binding in general, but how one should proceed here, under these conditions.

Maxims are therefore *a posteriori*, contextual, and corrigible. They take account of circumstances, available means, historical conditions, institutional pressures, habits, interests, and unforeseen resistance. Yet a maxim is not merely a description of what people happen to do. It remains a rule of good practice and must remain answerable to the principles and norms from which it descends.

The three levels prevent two opposite mistakes. Were principles applied directly to particular cases without mediation, normative philosophy would become abstract legislation insensitive to context. Were practice left entirely to maxims without principles and norms, it would collapse into opportunism, preference, or convention without critical control. Norms provide the necessary middle level : they preserve the bindingness of principles while making them sufficiently determinate to guide practice. The hierarchy thus joins necessity and contingency without confusing them.

In epistemology, this architectonic appears in its strictest form. The principles of transcendental logic unfold the fact of reason into the transcendental object and transcendental subject. Neither pole can be denied or reduced to the other without undermining conceptual knowledge itself. These principles protect epistemology against realist and idealist reification and establish the irreducible field within which truth may be sought.

The norms of theoretical epistemology then regulate valid conceptual knowledge within this field. They govern the relation between correspondence and consensus, testing and arguing, fact and theory, object and community of sign-interpreters. They also sustain the demarcations between valid and invalid knowledge, science and metaphysics, and immanent and transcendent metaphysics. Here, norms determine the conditions under which empirico-formal propositions may count as true *pro tem* and metaphysical statements as arguable without being testable.

The maxims of applied epistemology concern the production of knowledge in research cells. They govern communication, the use of the ‘as if,’ *a posteriori* judgment, optimization, fact-production, and productive opportunism. The latter does not mean ‘anything goes.’ It means that methods must be adapted to the

object, available instruments, research context, and contingencies of discovery without violating the higher norms of testing and argumentation. In epistemology, maxims therefore organize scientific practice while remaining subordinated to the relatively stringent norms of validity.

In aesthetics, the same three-tier architecture is retained, but its force changes. The principles of transcendental aesthetics unfold the *fact of feeling* into the aesthetic attitude and aesthetic properties. Beauty cannot be reduced either to a private feeling in the observer or to an objective property existing independently of aesthetic observation. The two poles meet in an unarmed truce. Yet the necessity of these principles is already less stringent than in epistemology, because aesthetic judgment concerns shareable appearance rather than objective truth.

The norms of theoretical aesthetics regulate the forms this meeting can assume. They organize the movement from the pleasant through satisfaction and exquisiteness toward excellence, exemplarity, and sublimity. They also govern the judgment of taste and the expectation that others, under an adequately cultivated aesthetic attitude, may assent to the beauty displayed. Their bindingness is therefore expectant rather than categorical. Aesthetic norms do not compel agreement as factual proof does ; they authorize an appeal to competent and prepared judgment.

The maxims of applied aesthetics acquire a more formative role than their epistemological counterparts. They guide soft observation, the delay of premature naming, the cultivation of aesthetic attention, the making of art, and the employment of harmonic keys and artistic modes. In aesthetics, practice does not merely apply an already completed judgment. It helps bring about the very competence through which aesthetic properties can be properly received and presented. Maxims therefore train the observer and maker. Their role is methodological, pedagogical, and creative.

In ethics, the architecture changes again. The principles of transcendental ethics unfold the fact of action into the agent and the attributable outcome. Action cannot be reduced to inward intent alone, nor to an external result detached from agency. The principles establish the minimal conditions under which a deed can be owned, imputed, and assessed. Their object is not a static moral property but the directed passage from an agent toward an outcome.

The norms of theoretical ethics articulate the grammar of this passage. Intent, duty, conscience, and vocation regulate the action from its uptake through its relation to others, its retention in moral memory, and its public or social horizon. The four action lenses—good and evil, justice and injustice, fairness and unfairness, love and hate—provide progressively more comprehensive forms of ethical appraisal. These norms do not derive morality from nature, society, or metaphysics. They remain rooted in the fact of action and specify how action-worth is to be judged.

The maxims of applied ethics answer *Quid faciendum* ? : what is to be done here, in this action domain, under these actual constraints ? They deploy the principles and norms within health, persons, family, property, education, society, Spaceship Earth, and death. These domains are not illustrations added after the theory. They are historically and institutionally formed vector fields in which actions become possible, obstructed, rewarded, misdirected, or repaired. Ethical maxims must

therefore take account of habit, asymmetry, inherited structures, consequences, and the availability of genuine alternatives.

In ethics, the maximatic level carries greater weight than in epistemology and aesthetics because action cannot be completed in abstraction. A correct principle and an appropriate norm do not by themselves decide what should be done in a singular situation. Circumstances must be interpreted, relevant features selected, likely outcomes considered, and conflicting claims ordered. Conscience and vocation become especially important here : conscience retains the history of deeds and their appraisal, while vocation projects action into a wider horizon of role, responsibility, and participation. Maxims convert normative form into worldly direction.

The changing role of the three levels across the trilogy can therefore be stated precisely. In epistemology, principles dominate, norms secure validity, and maxims regulate knowledge-production. In aesthetics, principles establish the meeting, norms guide judgments of excellence and exemplarity, and maxims cultivate the capacities of observation and making. In ethics, principles secure imputable action, norms organize its drivers and lenses, and maxims determine responsible direction within concrete domains.

This is not a simple decline from strong rules to weak ones. It is a redistribution of normative weight. Epistemology concentrates necessity at the transcendental and theoretical levels. Aesthetics transfers more responsibility to cultivated judgment. Ethics places the greatest burden on the maximatic mediation between binding form and singular action. Principles prevent relativism ; norms prevent indeterminacy ; maxims prevent formalism. Together they allow normative philosophy to remain critical without becoming rigid, and practical without surrendering its ground.

§ 4 The Rules of Truth, Beauty, and Action

The *Regulae* trilogy articulates three coordinated systems of rules governing thought, feeling, and action. These rules do not derive from a metaphysical account of what the world, the subject, beauty, or goodness ultimately are. Each system begins instead from a transcendental fact disclosed within the practice it regulates : the fact of reason, the fact of feeling, and the fact of action. These facts identify irreducible relations without which the corresponding practices become antinomic, paralogical, and therefore perverse. From each transcendental fact follow principles, norms, and maxims appropriate to its domain.

The rules of truth govern conceptual knowledge. Their transcendental ground is the *factum rationis*, the irreducible dyad of transcendental object and transcendental subject. Knowledge requires both something known and someone knowing it. Realism becomes perverse when it reduces the subject to the object and treats knowledge as the passive reception of a fully constituted reality. Idealism becomes perverse when it reduces the object to the subject and treats factuality as constituted by thought, consciousness, language, or consensus. Critical epistemology preserves both poles in an armed truce : each is necessary, neither is allowed to become the metaphysical ground of the other.

At the theoretical level, the object of knowledge is regulated by the idea of the Real and the subject of knowledge by the idea of the Ideal. The Real directs inquiry toward correspondence between proposition and fact ; the Ideal directs it toward argumentative consensus among relevant sign-interpreters. Neither idea constitutes truth. Reality-as-such is not directly possessed, and consensus cannot make a false proposition true. Truth is therefore the provisional coherence achieved when factual testing and argumentative justification point in the same direction. A proposition counts as scientifically valid *pro tem* when it survives testing and arguing.

The applied rules translate these requirements into maxims governing communication, experimentation, fact-production, optimization, and productive opportunism within concrete research cells. The rules of truth thus safeguard valid knowledge without elevating it into absolute knowledge.

The rules of beauty retain the same architectonic but relax its stringency. Their transcendental ground is the fact of feeling : beauty becomes possible when an aesthetic attitude encounters aesthetic properties in one aesthetic experience. Beauty is not located exclusively in the observing subject or in the observed object. Subjectivism reduces beauty to private sentiment and forfeits the claim to shareable judgment ; objectivism reifies aesthetic properties and neglects the attitude through which they can appear as beautiful. The fact of feeling preserves the two poles in an unarmed truce : their relation is governed by meeting and harmonization rather than epistemological contest.

The aesthetic norms govern the movement from pleasantness and satisfaction through exquisiteness toward excellence, exemplarity, and sublimity. Their central issue is the judgment of taste. Such a judgment is not a factual assertion compelling assent, but neither is it a report of private preference. When a cultivated aesthetic attitude meets an object fit to elicit beauty, the judgment rightfully expects agreement from other adequately prepared observers. Its normativity is therefore shareable, prescriptive, and expectant rather than categorical.

The aesthetic maxims cultivate the attitude required for such judgment through soft observation, restraint of premature naming, sensitivity to presentation, and the recognition or creation of excellence and exemplarity. Their characteristic failure is misattunement rather than contradiction.

The rules of action move from the scale to the vector. Their transcendental ground is the fact of action : the irreducible relation between an agent and an attributable outcome. An ethical deed is neither reducible to inward intention nor to a terminal result. It is a directed and imputable passage from agent toward outcome, involving uptake, aim, intensity, execution, resistance, and landing. Deontology becomes reductive when the agent's intention eclipses the outcome ; consequentialism becomes reductive when the outcome eclipses the agent, intention, freedom, and ownership of the deed.

The theoretical rules of action organize this passage through intent, duty, conscience, and vocation. Intent concerns the agent's adopted direction ; duty introduces the freedom and claims of others ; conscience retains and evaluates what has been done ; vocation situates the deed within a wider social and temporal

horizon. The action is then appraised through the lenses of good and evil, justice and injustice, fairness and unfairness, and love and hate. Together these rules prevent ethical assessment from becoming either a private morality of intention or an impersonal calculation of consequences.

Ethical maxims mediate these norms within concrete action domains marked by freedom, resistance, institutions, unequal power, and uncertain outcomes. Their characteristic failure is misdirection : an action may be forceful, efficient, legally permitted, or well-intended and nevertheless land wrongly.

Across the trilogy, normativity remains constant in kind but changes in degree and operation. Truth demands the greatest stringency because contradiction and invalidity corrupt conceptual knowledge itself. Beauty retains bindingness in the form of cultivated and expectant assent. Action remains critically governed but must pass into the contingency of the world, where responsibility includes both direction and landing. The characteristic dangers are therefore incoherence in epistemology, misattunement in aesthetics, and misdirection in ethics.

The three systems are distinct but not isolated. Thought must answer for the validity of its claims ; feeling must answer for the quality and shareability of its judgment ; action must answer for the trajectory and outcome of what it does. Epistemology prevents aesthetics and ethics from confusing conviction with validity. Aesthetics prevents thought and action from becoming insensitive to presentation, proportion, and harmony. Ethics returns consequence, responsibility, and worldly resistance to both knowing and feeling. The trilogy thus establishes one critical method under three calibrated forms : the rules of truth, beauty, and action.

B. Science

Science is the first domain in which the rules of truth acquire determinate methodological and institutional form. It does not ground these rules, but operates under their binding force, producing conventional knowledge by submitting propositions to factual resistance and argumentative correction.

Because every fact is theory-dependent while necessarily being known as independent of the assertion in which it appears, science must continually avoid the opposed traps of ontological realism and idealism. Its authority therefore does not rest on access to reality-as-such, the *noumenon*, but on the disciplined corrigibility of its claims.

Critically bound science is neither metaphysics nor a mere technique or instrument. It is the exemplary practice in which conceptual precision, empirical accountability, openness to dissent and provisional agreement, and acknowledgment of epistemic limit are dynamically held together.

§ 1 Science under Normative Conditions

Science operates under normative conditions when the production of knowledge is organized so that claims remain answerable to both factual resistance and critical discussion. Its scientific status does not follow from institutional

recognition, technical sophistication, predictive usefulness, or agreement within a discipline. It follows from the manner in which propositions are formed, tested, argued, corrected, and provisionally accepted.

Within the research cell, these conditions become procedural. Hypotheses must be distinguished from observations, observations from interpretations, and interpretations from wider theoretical or metaphysical assumptions. Methods must be open to inspection, inferential steps reconstructible, objections admissible, and results corrigible. A proposition acquires scientific status only when the procedures by which it was produced permit both the object investigated and other investigators to correct it.

Science under normative conditions therefore maintains a disciplined openness. Facts are not protected from theoretical revision, and theories are not immunized against contrary facts. Consensus remains provisional, dissensus remains legitimate, and authority does not replace argument. The accepted paradigm supplies continuity and orientation, but it may not declare its own conceptual framework immune from criticism. Scientific stability is necessary ; closure is not.

These conditions are violated when the production of knowledge becomes strategically organized. Funding, prestige, institutional hierarchy, political interest, commercial utility, or paradigmatic loyalty may then determine which questions are asked, which results are circulated, and which objections are excluded. Such influences do not automatically invalidate research, but they become epistemically corrupting when they are concealed or allowed to replace testing and arguing.

A second violation occurs when methodological success is mistaken for truth. A model may predict effectively, an instrument may produce stable measurements, or an intervention may yield useful results without the underlying theory being finally established. Instrumental adequacy is scientifically important, but it does not authorize the conversion of provisional success into an absolute account of reality. When usefulness becomes the sole criterion, science loses the distinction between working and being true.

A third violation appears when anomalies are neutralized rather than investigated. Data may be dismissed because they conflict with the dominant paradigm, definitions may be altered to protect a theory, or auxiliary assumptions may be multiplied until refutation becomes impossible. The theory then ceases to expose itself to factual correction. It may retain the language and institutions of science while functioning dogmatically.

A fourth violation occurs when consensus becomes coercive. Agreement produced by authority, professional dependence, exclusion, or repetition is not epistemic consensus. Nor is the isolation of dissent sufficient to prove dissent correct. The relevant condition is whether disagreement can be articulated, examined, and answered without strategic suppression. A scientific community unable to tolerate criticism undermines the very procedure by which its claims acquire validity.

A fifth violation is scientism. Here, the authority of science is extended beyond the domain of testable propositions, and an untestable worldview is presented as though it were an empirical conclusion. Materialism, physicalism, or any other

totalizing position may be argued metaphysically, but it cannot acquire scientific status merely by association with scientific results. The transgression consists in concealing the change of register.

When such violations are occasional, science becomes defective. When they are systematic, it becomes pathological : technically productive perhaps, institutionally powerful perhaps, but normatively compromised. The danger is not only falsehood. It is the erosion of the procedures by which falsehood can still be recognized and corrected.

The normative principles are safeguarded first by the discipline of *critical thought*. Science must continually navigate between realism and idealism without allowing either pole to become ontologically sovereign. The object may not be reified into a self-sufficient reality reducing the subject to passive reception, while the subject may not be inflated into a constituting power absorbing factual resistance into theory, language, or consensus. Critical vigilance therefore rejects every substantialist or essentialist grounding of knowledge, whether located in matter, mind, method, paradigm, or institution.

It also requires regulated switching between hard and soft observation (*Regulae II*, 2025). Hard observation isolates, measures, compares, and tests ; soft observation suspends premature closure and attends to emergence, context, and salience. Their alternation keeps science both critical and receptive.

In the practical setting, the principles are safeguarded by keeping the research cell *open to correction*. Assumptions must be declared, methods exposed, results independently examinable, and conflicts of interest made visible. Testing, interpretation, and metaphysical background information must remain distinct. Anomalies must be treated as possible correctives rather than automatic nuisances. Productive opportunism is legitimate only when it remains answerable to the higher norms of validity.

Safeguarding also requires the institutional *protection of dissensus*. Science advances through disagreement disciplined by evidence and argument, not through forced unanimity. The paradigm must be stable enough to sustain cumulative work but permeable enough to permit conceptual and factual revision. Without stability, inquiry fragments ; without permeability, it fossilizes.

Science under normative conditions is therefore not defined by purity from error, interest, or contingency. Such purity is impossible. It is defined by the maintenance of procedures through which error can be exposed, interest disclosed, contingency negotiated, and claims revised.

Its integrity lies not in infallibility, but in *organized corrigibility*.

§ 2 Testing and Arguing

Science tests and argues. These are not two successive stages of one uniform method, but two distinct operations that continually correct one another. Testing confronts a proposition with what is observed ; arguing determines whether the proposition, the test, and the interpretation of its result can be rationally sustained.

Scientific work advances through their recurrent alternation, not through either operation in isolation.

The relation between testing and arguing is a *concordia discors*, an armed truce. Testing gives methodological priority to the object and its capacity to resist what is claimed about it ; arguing gives methodological priority to the subject, understood as the community of relevant sign-interpreters examining the claim. Neither operation may absorb or subordinate the other. Testing without arguing degenerates into blind factualism, while arguing without testing becomes speculation. Their tension is therefore not a defect awaiting final reconciliation, but the productive condition of scientific validity. Each continually limits, corrects, and reactivates the other.

Testing begins with a question ‘put to nature.’ A hypothesis is operationalized, relevant variables are isolated, instruments and procedures are selected, and conditions are arranged so that what is investigated may answer in a determinate way. The point is not merely to collect data, but to expose a claim to resistance. A successful test may support the claim ; an unsuccessful one may weaken it, disclose an error in the procedure, or require a revision of the theoretical frame.

The image of testing as a ‘monologue of nature’ identifies its proper intent. During the test, attention is directed as far as possible toward what the object does rather than toward what investigators wish it to do. Personal conviction, authority, rhetorical force, and group agreement cannot determine the outcome. Nature must be allowed to ‘kick back.’ Yet this monologue is never completely independent of theory. The question asked, the apparatus used, the quantities measured, and the criteria governing the result have already been conceptually organized. Testing seeks objectivity ; it never produces an observation without mediation.

Hard observation predominates in testing, but soft observation becomes necessary when unfamiliar, ambiguous, or context-sensitive phenomena resist established categories. Soft observation reopens the field ; hard observation then stabilizes what has been disclosed. Their switching is methodological, not a conflict between reason and receptivity.

What counts as adequate testing varies with the scientific domain. In physics-like sciences, controlled repetition and mathematical precision may be central. In biology, medicine, psychology, and the human sciences, individual variation, historical development, context, and complex interaction limit exact repetition. Statistical replication, comparative studies, longitudinal inquiry, converging evidence, case histories, and carefully controlled observation may therefore replace the model of the repeatedly identical experiment. The requirement of testability remains, but its practical form changes with the object investigated.

Arguing begins where observations and experimental results must be conceptually articulated. It includes hypothesis formation, theoretical construction, semantic clarification, inference, criticism, dissensus, rebuttal, revision, and provisional consensus. Unlike testing, argumentation is intrinsically dialogical. It takes place among relevant sign-interpreters who must make their reasons public and expose them to counterargument. A theory is arguable when it is logically well-formed, does not violate the conditions of the ideal speech situation, and does not foreclose dialogue and discussion.

The ideal speech situation supplies the normative conditions under which argumentation can genuinely seek agreement. Participants must be able to understand the claims being made, question assumptions, introduce objections, defend positions, and submit every relevant proposition to critical review. They must enjoy equal freedom to enter the discussion and speak without coercion, exclusion, institutional pressure, or strategic manipulation. Argumentative communication is therefore symmetrical in principle, even when actual scientific institutions remain asymmetrical in practice. When authority, prestige, funding, hierarchy, or private interest determines which claims may be voiced or accepted, communication becomes strategic rather than scientific.

These ideal speech conditions are presupposed and anticipated in every genuine argument, but they are never completely realized. They function as the regulative idea of the Ideal on the side of the subject of knowledge. The consensus omnium is consequently not an attainable final agreement, but the indefinitely postponed horizon toward which scientific discussion is directed. Actual science reaches only a consensus *pro tem* : the provisional agreement of relevant sign-interpreters under the best presently available conditions of communication.

The regulative idea guides and corrects argumentation without constituting truth. Even perfect agreement would not make a proposition factually adequate, for consensus cannot replace the object of knowledge. To treat the ideal speech situation or consensus omnium as sufficient for truth would be an idealist transgression. The Ideal regulates the dialogical pursuit of consensus, just as the Real regulates the monological pursuit of correspondence. Neither is an object possessed by knowledge ; both orient its order and expansion.

Scientific consensus is therefore neither unanimity nor conformity. It is the provisional stabilization of a claim after objections have been stated and answered under communicative rather than strategic conditions. Dissensus is not a failure external to science but one of its productive moments. It forces assumptions into the open, separates substantive disagreement from terminological confusion, and may generate new theories or new tests. Consensus closes an inquiry only temporarily.

Scientific authority is legitimate only as *delegated* epistemic authority. Expertise, peer review, journals, academies, and research institutions preserve methods, accumulate judgment, and coordinate the provisional acceptance of results across a community of sign-interpreters. Yet no person or institution validates a proposition through *status alone*. Its authority derives from publicly reconstructible testing and argumentation and *remains corrigible by them*. Because knowledge is produced within research cells shaped by funding, prestige, institutional hierarchy, political interest, commercial utility, and paradigmatic loyalty, the *sociology of science* belongs to the conditions under which validation is actually pursued. These forces do not *automatically* invalidate a result, but they become epistemically corrupting when they determine *which* questions may be asked, *which* findings circulate, or *which* objections receive a hearing (a common practice in most contemporary academia). Authority must secure the *procedures of correction* rather than substitute for them : peer judgment is indispensable, but the *tyranny* of peers begins when institutional agreement is confused with truth, and when tenure and prestige are more important than genuine academic activity.

Testing and arguing form an iterative movement within the research cell. A theory directs attention toward possible facts ; testing may confirm, modify, or disrupt that direction. Argumentation then determines whether the test was well conceived, whether its procedures were appropriate, whether its result is relevant, and whether alternative explanations remain possible. An apparent refutation may disclose an instrumental defect, while a successful prediction may rest on an inadequate model. Discussion may consequently require another experiment or conceptual frame. New theories permit new observations, while new observations force theories to change. Neither operation has final precedence ; their sequence depends on the actual course of inquiry.

The two operations nevertheless retain different responsibilities. Testing must not be replaced by argumentative ingenuity. A theory protected by auxiliary devices against every possible counter-instance ceases to be genuinely exposed to correction. Conversely, arguing must not be replaced by the authority of data. Measurements do not interpret themselves, and no factual result becomes scientific knowledge without conceptual integration and public justification.

When testing proceeds without adequate argument, science risks becoming an accumulation of measurements lacking theoretical meaning, or a technical practice unable to justify its own conclusions. When argument proceeds without possible testing, the discourse leaves science and enters metaphysics, however coherent it may be. When neither operation is properly sustained, only assertion, ideology, or irrationality remains. Scientific status therefore depends not on the presence of instruments, mathematics, or institutional recognition, but on the effective conjunction of testability and arguability.

The outcome of this conjunction is not certainty. It is a proposition that has survived the best available confrontation with both the object investigated and the community examining the claim. Testing supplies factual resistance ; arguing supplies rational accountability. Their continuing interaction gives science its distinctive strength : not the possession of final truth, but the disciplined production of knowledge that can correct itself.

§ 3 Facts and Conventional Truth

Critical realism becomes decisive at the level of the fact. Science cannot compare its propositions directly and one-to-one with reality-as-such. It compares hypotheses, predictions, and theories with facts produced through observation and experimentation. Yet a fact is neither a self-standing thing waiting to be copied by the mind nor merely a proposition declared true by a scientific community. A fact is what becomes known in an assertion while necessarily being known as independent of that assertion. This dual determination gives the fact its 'Janus-face' (Oger, 1976).¹ One face of the fact is turned toward the subject of knowledge. A fact can be identified only within a language, a theoretical frame, a method, and a research practice. Instruments must be designed, measurements selected, thresholds established, results classified, and observations interpreted. Even the distinction between relevant and irrelevant data depends on *prior* questions and expectations. A fact does not enter knowledge *without concepts*.

The theory-dependent face of the fact begins at the *incipit* of sensory cognition. Naive realism assumes that something *initially given* can be apprehended *before* interpretation and can therefore serve as an *uncontaminated* foundation for empirical knowledge. Critical epistemology rejects this assumption. ‘Perception’ does not name accessible sensory content, an elementary datum, or a first appearance. It is a normative placeholder that marks the *necessary* givenness of an input prior to any structuring activity. Because it is only a normative placeholder, perception cannot itself be described. The moment determinate content is attributed to it, interpretation has already occurred.

Sensation is perception $\times$ interpretation. Everything that actually appears in the phenomenal field—color, sound, pressure, warmth, shape, movement, or any alleged ‘raw feel’—is therefore already sensation, not perception as such. The expression ‘raw feel’ is misleading precisely because feeling is already an *articulated appearance*. It may precede *explicit* naming or conceptual judgment, but it does *not* precede interpretation. Attention, retention, bodily organization, habitual discrimination, expectation, and prior learning already participate in how anything appears.

Even the apparently elementary statement that a photon strikes the retina is not a description of perception. ‘Photon,’ ‘striking,’ and ‘retina’ are subject to highly developed physical, physiological, and instrumental interpretations. They articulate a third-person scientific reconstruction of the conditions under which sensation is *assumed* to arise. They do *not* disclose an *uninterpreted datum* lying beneath sensation. The attempt to descend from theory to an allegedly neutral sensory foundation merely encounters further theory, as the history of positivism and logical positivism made clear (*Regulae I*, 2025).

The theory-ladenness of observation does not begin when an investigator formulates a hypothesis about an already given object. It is operative in the formation of the sensate object itself. Scientific observation intensifies this interpretive activity through instruments, measurement, classification, mathematical modeling, and experimental design, but it does not introduce interpretation into an otherwise *innocent* sensory field. No such field may be posited as a cognitively valid ground, because the moment it is identified as a *determinate* sensory content, interpretation *has already entered*.

This conclusion does not imply idealism. Interpretation cannot function without *something* interpreted. The givenness of perception must therefore be *presupposed* as the necessary condition without which sensation would collapse into a self-enclosed production of the subject. This presupposition blocks idealist reduction. This input cannot be described as an independently constituted object, as every such description would again belong to sensation and theory. Perception blocks idealist reduction without restoring naive realism : it secures the givenness normatively while withholding any ontological characterization of what is given.

Only from this critical starting point can the Janus-face of facts be properly understood. The theory-dependent face is not added to a previously independent datum but belongs to every fact from its first appearance onward. The theory-independent face must nevertheless be assumed, because without an irreducible givenness not constituted by interpretation, facts would cease to concern anything

extra-mental. Critical realism therefore begins neither from a neutral datum nor from an interpreting subject alone, but from the binding requirement that sensation involves both interpretation and a givenness that interpretation cannot describe.

Scientific facts are consequently produced or manufactured, not freely invented. Production names the sequence of decisions, experimental interventions, technical operations, and interpretive judgments through which something becomes observable, measurable, communicable, and scientifically relevant. The research cell does not create the reality investigated, but neither does it receive neutral fragments of a ready-made world. Once something is measured, named, compared, or stated, *it has already entered the conceptual field*.

Critical realism accepts this contribution of the subject without allowing the fact to *collapse* into it. The other face of the fact is turned toward the object of knowledge. A fact must therefore be treated as something not determined solely by the assertion in which it is known. It may confirm an expectation, but it may also resist, surprise, correct, or overturn it. The factual claim is therefore more than the report that a particular theory or community has organized experience in a certain way. It claims that something is the case independently of the claim that it is. If this were not the case, the epistemic field would have succumbed to idealism. A fact has tenacity.

This theory-independent face cannot be isolated and observed on its own. Were it observed, it would *already be conceptually identified* and would *once more* belong to the theory-dependent face. Nor can the theory-independent component be separated from its conceptual mediation as though the two were detachable parts of a compound. The Janus-face is not an empirical division within the fact. It expresses two inseparable *directions* of factual knowledge : toward the conceptual activity through which the fact becomes known and toward the extra-mental reality to which it *must* be taken to refer.

The second direction is what makes critical realism realist. Yet this realism is not an ontology. It does not describe reality-as-such or attribute determinate properties to the *noumenon*. It does not affirm that the senses copy an independently constituted world, that scientific objects exist exactly as theories represent them, or that factual propositions correspond one-to-one with things in themselves. Such claims would again place ontology before epistemology and turn the regulative idea of the Real into a constitutive ground.

Critical realism instead advances a norm. We *must* suppose that the *noumenon* is revealed through facts, although we can never conceptually know whether this is actually the case. The word ‘revealed’ does not mean that the *noumenon* becomes transparently present or that its intrinsic nature is disclosed. It means that facts *must* be regarded as carrying an extra-mental contribution *not* constituted by the knower. Through their resistance, recurrence, and capacity to correct our theories, facts must be treated as manifestations of *some thing* that is not exhausted by our assertions about them.

The factual may therefore be said to bear the *noumenon*’s ‘letters of belief.’ These *credentials authorize the belief* that factual knowledge reaches *beyond* language, theory, and consensus. Yet the conceptual mind cannot inspect the authority that issued them. To verify the credentials, it would have to step outside conceptual

knowledge, compare the fact with reality-as-such, and determine whether the two correspond. But every such comparison would itself be a conceptual act employing another fact, theory, or interpretation. The proposed verification would repeat the condition it was meant to transcend.

The *noumenon* is thus *not known as an object behind the fact*. Neither is it an occult substance causing factual appearances. It marks reality-as-such insofar as this remains independent of the conditions under which it becomes reality-for-us. Critical realism must think this independence, but it cannot describe it. The theory-independent face of the fact is consequently a necessary presupposition, not a piece of discovered information.

This changes the entire status of realism. Ontological realism states that facts *disclose* reality because reality possesses a determinate structure directly accessible through observation. Critical realism states that facts must be taken to disclose reality because scientific object-knowledge would otherwise lose its objectivity. The first provides a description of being ; the second formulates a norm governing conceptual knowledge. The first claims possession of the *noumenon* ; the second acknowledges an obligation toward it and lets it regulate.

The necessity involved is not empirical. No series of experiments could prove that facts possess a theory-independent face, because every experiment already presupposes facts and their extra-mental reference. Nor is the necessity metaphysical. It is not derived from matter, nature, consciousness, a Divine intellect, or any other supposed foundation. Its bindingness arises *reflexively* from the conditions of conceptual knowledge itself.

A scientific proposition claims to be about more than the proposition itself, the theory supporting it, or the community accepting it. To deny this while continuing to present propositions as factual is to empty the term ‘fact’ of its distinctive function. A fact wholly constituted by theory would be, in principle, indistinguishable from a coherent fiction stabilized by agreement. It might be useful, persuasive, or universally accepted, but it could no longer answer to anything beyond the conceptual system producing it. The normative obligation to affirm the theory-independent face safeguards the difference between fact and fiction. It also preserves the possibility of error. A theory can be wrong only if what it claims to know is not wholly constituted by that theory. If reality contributes nothing independent, every coherent construction would be adequate to the world it constructs. Correction would then amount to nothing more than replacing one convention with another, and factual refutation would lose its force.

The possibility of surprise likewise presupposes *extra-mental* constraint. An unexpected result is not merely an event that a theory has not yet assimilated. It is experienced as a possible correction because the object is assumed to contribute something the subject *did not anticipate*. Anomaly, resistance, and falsification acquire epistemic significance only because facts are normatively regarded as reaching beyond the theory-dependent conditions under which they appear.

Critical realism opposes *radical* constructivism without returning to naive realism. Every fact is conceptually and socially mediated, but mediation does not exhaust factuality or imply that objects are generated by consciousness, language, or consensus. Knowledge is constructed, yet it must remain bound by what it does

not construct : the knower co-determines the form in which the object becomes known without creating its extra-mental constraint.

Critical realism nevertheless cannot prove that the *noumenon* is genuinely disclosed. Every factual appearance, stable law, and successful theory could belong to a universal illusion, for conceptual thought has no independent position from which appearance may be compared with reality-as-such. This possibility introduces a mitigated skepticism : science may establish that a proposition has survived testing and arguing, but not that its objects exist exactly as conceptualized.

This limitation does not cancel the normative obligation of critical realism. The presupposition that facts carry an extra-mental contribution may be unprovable, yet it remains indispensable if scientific objectivity is not to collapse into idealism.

The idea of the Real consequently functions as a regulative *focus imaginarius*. It directs inquiry toward improved correspondence without presenting reality-as-such as an attainable object, requiring investigators to repeat tests, refine instruments, examine anomalies, and revise theories. It neither dictates what reality must contain nor secures the final truth of any theory.

Correspondence therefore remains conventional and *pro tem*. New instruments, observations, and theories may reorganize what had appeared stable. Facts are revisable because they are theory-dependent, yet revision remains more than a change of language because their theory-independent face binds inquiry to what it does not construct.

Conventional truth emerges from this Janus-faced structure. It is conventional because propositions, facts, methods, measurements, and standards of relevance depend on historically formed languages and practices. It is truth because these conventions do not operate freely but remain bound to factual resistance and argumentative accountability.

Conventionality indicates mediation, not arbitrariness.

Scientific propositions may therefore be *valid* while remaining *mistaken* with regard to reality-as-such. 'Mistaken' does not mean simply false. It means that the appearance stabilized by a valid proposition cannot be identified with the *noumenon*. The proposition may work, predict, explain, and survive repeated testing while still presenting its object under conceptual conditions that do not belong to the object *as it is in itself*.

The distinction between validity and absolute truth is decisive. Validity can be established through the coherence of testing and arguing. Absolute truth would require the identity of conceptual appearance and noumenal reality. The former is possible ; the latter is conceptually *undecidable*. Science therefore produces true conventional knowledge without possessing the ultimate truth of its objects.

Critical realism is consequently neither a compromise assembled from portions of realism and idealism nor a temporary position awaiting an ontological resolution. It is the normative form required by the Janus-face of facts. The theory-dependent face prevents objectivist reification ; the theory-independent face prevents idealist enclosure. Neither face grounds the other, and neither can be eliminated.

The fact thus becomes the point at which knowledge acknowledges both its power and its limit. Through facts, science reaches beyond itself ; through their theory-dependence, it never leaves the conditions of conceptuality. The *noumenon* must be believed to reveal itself, but it can never be seized by the concepts through which that revelation becomes scientifically intelligible. This unresolved but binding relation is the core of critical realism and the ground of conventional truth.

§ 4 The Limit of Scientific Knowledge

The limit of scientific knowledge is not an empirical discovery concerning the restricted capacities of the human brain, the temporary inadequacy of instruments, or the incomplete state of present research. Such limitations may be overcome by further scientific work.

The critical limit is normative : it follows from the *conditions* under which a proposition may count as scientific knowledge at all. Science may extend its observations, sharpen its measurements, and enlarge its theories indefinitely, but it may not convert the results of these activities into unconditional knowledge without violating the rules that make their validity possible.

Scientific propositions are synthetic propositions *a posteriori*. Their validity depends on testing and arguing and therefore remains conditional upon the continuation of both. Even a proposition confirmed by innumerable experiments and accepted by every presently relevant investigator remains binding only *pro tem*. Its probability may be extremely high, its predictive force outstanding, and its integration into the scientific paradigm nearly complete ; none of these transforms it into a *necessary* proposition. Necessity belongs to the principles and norms governing scientific knowledge, not to the empirico-formal results produced under them.

The distinction is decisive. The scientific proposition may be strongly warranted, but the rule requiring it to remain open to testing and argument cannot itself be suspended whenever its warrant becomes strong. To treat an established theory as irrevocable would not perfect scientific validity but abolish one of its conditions. Dogmatism begins when the stability of a result is confused with necessity and the present success of a theory is made to guarantee its permanent truth.

Scientific knowledge must therefore remain conventional *without* becoming arbitrary. Its concepts, units, classifications, models, instruments, procedures, and standards of relevance are historically formed and practically instituted. Yet they do not operate freely. They are constrained by factual resistance, argumentative criticism, and the possibility that another convention may disclose or organize the object more adequately. Conventionality names the mediated form of scientific truth ; it does not reduce truth to decision or agreement.

The limit also follows from the Janus-face of facts. Science must treat facts as trustworthy messengers of the *noumenon* without claiming to possess it through them. Every newly discovered fact remains mediated by sensation, interpretation, language, theory, and method ; increasingly sensitive instruments refine this mediation rather than remove it. Scientific progress may deepen and correct

reality-for-us, but it may not convert it into conceptual possession of reality-as-such.

The ideas of the Real and the Ideal consequently remain regulative and may never be treated as constitutive grounds of knowledge. On the side of the object, the Real directs inquiry toward ever more adequate correspondence. On the side of the subject, the Ideal directs argumentation toward an unrestricted *consensus omnium*. Neither horizon can be reached. Complete correspondence would require a comparison between conceptual knowledge and the *noumenon* outside every conceptual condition ; universal consensus would require the conclusion of every possible argument among every possible relevant sign-interpreter. Both are knowledge-regulating ‘fictions’ preventing premature closure, not attainable states constituting final knowledge.

Scientific advancement should therefore not be understood as movement toward a *completed* representation in which thought and reality finally coincide. It is the *indefinite correction of propositions* under the double pressure of testing and arguing. Earlier theories may be incorporated as approximations, restricted to particular domains, or replaced by more encompassing accounts. But no position within this development permits science to look backward from its imagined completion and certify that the noumenon has finally been captured.

The predominance of hard observation belongs to both the strength and the limitation of scientific practice. Hard observation isolates, identifies, classifies, measures, compares, and relates. It transforms an open field of appearances into determinate objects capable of entering hypotheses, experiments, calculations, and theories. Without this determination, no reproducible test, public measurement, or empirico-formal proposition could be produced. The precision of science depends on its ability to draw boundaries, stabilize variables, and hold selected features constant.

The ‘day eye’ is the appropriate metaphor for this mode of observation. It seeks clarity, distinctness, repeatability, and publicly communicable determination. Under the day eye, the object is brought into conceptual focus, named, divided into components, connected with functions, and placed within a network of established relations. The day eye allows investigators to state what has been observed, how it has been measured, and under which conditions the result may be repeated. It makes scientific accountability possible. Yet the day eye sees by delimiting. It selects a figure from a field, separates variables from their contexts, and treats processes as sufficiently stable to be identified. These operations are legitimate and indispensable, but their products may not be reified. A scientific object is not an essence uncovered beneath appearances. It is a nominally identified and functionally defined object constructed for inquiry under factual constraint. Identity and function are sufficient for valid conventional knowledge ; the addition of an inherent, self-existing nature is an illegitimate ontological step.

Hard observation exceeds its critical mandate when its useful stabilization is mistaken for the *discovery of substance*. A recurring pattern becomes a permanent law existing from its own side ; a functional distinction becomes an ontological division ; a model becomes the architecture of reality ; a measurable property becomes the essence of the object. The danger lies precisely in the persuasive force

of exactness : the clearer, more stable, and more successful a scientific object becomes, the easier it is for the day eye to forget the interpretive and operational conditions under which it was constituted and to transform the clarity of its own determinations into the alleged transparency of being.

Critical epistemology does not weaken hard observation. It prevents exactness from serving as a vehicle of reification.

For this reason, critically bound science must retain the capacity to switch from hard to soft observation. Soft observation does not supply an alternative foundation or an allegedly purer access to reality. It suspends established naming sufficiently to reopen what hard observation has closed. It becomes necessary when novelty, ambiguity, anomaly, contextual complexity, or unexpected interaction indicates that the existing classifications may be preventing relevant features from appearing.

The 'night eye' does not replace the day eye. It loosens the grip of settled categories, allows multiplicity and relation to become salient, and postpones identification until the field has been attended more fully. The day eye must then return. Without its return, what has appeared cannot be stabilized, tested, argued, or integrated into public knowledge. Soft observation opens ; hard observation articulates. Their switching is critically productive because it preserves both receptivity and determination without turning either into an absolute method.

Unwavering hard observation is therefore not the apex of scientific rigor. It may become an obstacle to rigor when it prevents the reformulation of the object or the discovery of another relevant relation. A method that always sees through the same classifications eventually sees only confirmations of its own structure. The day eye remains scientific only when it can recognize the need for darkness : a temporary suspension in which what has been excluded, backgrounded, or prematurely named can again become available for inquiry.

This alternation also clarifies the place of the paradigm. A scientific paradigm must provide enough closure for cumulative research, shared terminology, and coordinated testing. Without this stability, every inquiry would begin anew. Yet the paradigm must not transform methodological closure into ontological closure. Anomalies, unresolved observations, and alternative conceptualizations must be permitted to reopen its objects. The paradigm is an instrument of scientific continuity, not the final measure of what reality can disclose.

Another limit concerns the relation between facts and norms. Science may describe, compare, and explain ethical conduct, aesthetic responses, political institutions, religious practices, and the psychological effects of particular choices. It may establish what people do, what consequences follow, and which regularities recur. It may not derive from these descriptions what must be done, what deserves to be called beautiful, or which ends should govern action. From a scientific statement concerning what is, no binding norm follows without a normative premise already being introduced.

Science likewise cannot scientifically establish the principles governing its own validity. Testability, arguability, non-contradiction, openness to correction, factual accountability, and communicative freedom are not results discovered

through experiments. Every experiment already presupposes them. An attempt to test whether testing ought to bind science, or to establish through consensus whether argument ought to remain free, merely employs the rule whose force it proposes to derive. Normative philosophy does not compete with science at this point ; it makes explicit the conditions science necessarily uses.

Testability marks the outer boundary of the scientific register. A proposition that cannot in principle be confronted with factual scrutiny may be coherent, illuminating, or indispensable as metaphysical background information, but it is not scientific. Scientific authority may not be transferred to it merely because it accompanies scientific theories or draws upon scientific results. Where testing ends and argument remains possible, immanent metaphysics begins. The distinction does not demean metaphysics ; it prevents an untestable speculation from disguising itself as a scientific fact.

The critical limitation of science should not be understood as a humiliation of reason. It makes the excellence of scientific practice possible. Science excels not by claiming an unrestricted access to reality, but by binding itself to procedures capable of correcting what it presently accepts. Its precision is joined to fallibility ; its explanatory power to argumentative answerability ; its technical success to a refusal of finality. Because it may be wrong, it can learn. Because no theory is exempt from scrutiny, valid knowledge can advance.

Critically bound scientific practice displays excellence when it identifies its objects with maximum clarity without treating them as substances ; when it tests rigorously without imagining uninterpreted facts ; when it argues forcefully without turning consensus into coercion ; when it uses the day eye without denying the need for the night eye ; and when it draws upon metaphysical ideas without presenting them as scientific conclusions. Its discipline consists in holding together determination and restraint.

Such science is neither skeptical nor modest in the sense of intellectual timidity. It is capable of extraordinary theoretical reach, experimental refinement, technological efficacy, and predictive power. Its restraint concerns epistemic status, not ambition. It may investigate every aspect of the world accessible to test and argument, but it must state precisely what has been established, under which conditions, and with what degree of probability. It must also mark where inference becomes speculation and where description is being asked to perform normative work.

The highest achievement of science is therefore not absolute knowledge but excellent conventional knowledge : propositions that are empirically accountable, formally articulated, publicly arguable, technically reproducible where appropriate, and corrigible in principle. These propositions may become extraordinarily reliable without becoming irreversible. Their excellence lies in the disciplined relation between strength of warrant and acknowledgment of limit.

The limit of scientific knowledge is thus internally connected with its success. Without the limit, hard observation becomes reification, theory becomes ontology, consensus becomes dogma, and technical power becomes scientism. Under critical conditions, the day eye attains its proper clarity. It sees distinctly without pretending to see absolutely. Science then becomes what it can validly be : the

most reliable production of factual knowledge available to us, precisely because it remains bound to correction, resistant to closure, and conscious of the border it may approach but never cross.

The critical limitation of science also cultivates *epistemic humility*. This is neither a psychological posture nor skeptical hesitation, but disciplined confidence proportionate to the conditions under which a claim has been established. Strong evidence warrants firm assertion, yet no scientific proposition ceases to be corrigible, and no investigator, theory, paradigm, or institution may identify present success with possession of reality-as-such. The same humility governs the scientific use of the day eye. Precision, resolution, and explanatory power readily create the impression that what has been clearly determined has been exhaustively known. Critical thought resists this conversion of clarity into completeness. What has been isolated and measured may be validly known under the adopted conditions without thereby exhausting the phenomenon, its relations, or the possible perspectives from which it may become scientifically relevant.

Humility also concerns the scientific community. No authority, however accomplished, is exempt from argument ; no consensus, however broad, is immune to revision ; no paradigm, however productive, may close the field of possible correction. The readiness to expose one's work to objection is therefore not an optional moral ornament added to scientific practice. It is a practical expression of the normativity constituting that practice.

Critically bound science is humble because it knows precisely what it can claim and where its claim must stop. It does not deny its extraordinary capacity to produce reliable knowledge, but neither does it turn reliability into finality, method into ontology, or success into omniscience. Its humility is the reflexive awareness that the object may always exceed its present articulation and that another test, another argument, or another mode of observation may still require knowledge to change.

C. The Critical Passage to Metaphysics

Metaphysics begins where testing ends but argument remains possible. The passage is critical only when the loss of factual adjudication is openly acknowledged and answered by stricter logical, semantic, and dialogical discipline. The following sections do not yet develop the metaphysical system of this book. They establish the conditions under which speculation may become admissible, non-foundational, scientifically responsible, and resistant to reification, before process is selected as the preferred hyper-conceptual orientation.

§ 1 The Change of Epistemic Register

The passage from science to metaphysics is not a movement from one subject matter to another. Science and metaphysics may address the same world, the same objects, and even the same concepts. Matter, life, consciousness, causality, order, and time may all become objects of scientific and metaphysical inquiry. The decisive difference lies not in what is considered, but in the conditions under

which claims concerning it are advanced and validated. The change is therefore epistemic : it concerns the status a proposition may claim, the procedures to which it must submit, and the kind of assent it may legitimately demand.

An epistemic register is defined by its rules of admissibility. Within the scientific register, propositions must be both testable and arguable. They must be capable of confrontation with facts and of public assessment within argumentative discourse. Their validity is empirico-formal, conventional, corrigible, and *pro tem*. Whatever their explanatory force or probability, their scientific status depends on the continued possibility of testing and arguing.

The metaphysical register begins when factual testing is no longer possible while conceptual argument remains. Its propositions do not become metaphysical because they concern invisible, spiritual, or extraordinary objects. Nor does metaphysics begin merely where current instruments fail to provide observations. A presently untested proposition may still be scientific when a possible test can be specified. The change of register occurs only when the claim cannot in principle be decided through factual confrontation and must therefore be assessed without experimental adjudication.

Facts mark the boundary. Within science, disagreement can eventually be returned to observation, measurement, experimentation, or another form of possible factual scrutiny. Within metaphysics, no decisive fact can be produced to settle the totalizing claim as a whole. Scientific results may constrain it, support parts of its argument, or render it implausible, but they cannot test the speculative totality itself. The phrase ‘metaphysical experiment’ is therefore a contradiction in terms.

Crossing this boundary does not mean abandoning reason. Metaphysics remains conceptual and must therefore remain arguable. Logic, semantic intelligibility, conceptual differentiation, and critical discussion continue to bind it. What changes is that correspondence with facts can no longer function as a direct procedure of validation. Argumentation carries the burden formerly shared with testing.

This loss of testability changes what a proposition may claim. A scientific proposition may claim factual validity *pro tem*. A metaphysical proposition may claim argumentative admissibility, coherence, comprehensiveness, or heuristic relevance, but not scientific factuality. To retain the authority of science after leaving its register would be to borrow a legitimacy the metaphysical claim has not earned. The change must therefore be declared rather than concealed.

The same sequence of words may function differently according to the register in which it is asserted. Presented as a hypothesis connected with possible observations, a proposition belongs to science. Presented as an interpretation of the world as a whole, exceeding every possible test of the totality it articulates, it belongs to metaphysics. Its grammatical form does not determine its epistemic status. The decisive question is what could count for or against it and whether factual correction is possible in principle.

The passage is neither a promotion from lower to higher knowledge nor a movement from relative to absolute knowledge. Metaphysics does not ascend to a superior vantage point from which science can be certified or the world compared

with its total representation. It relinquishes testability and therefore accepts a weaker epistemic claim even as its conceptual scope widens. What it gains is not certainty but latitude : it may ask how different regions of knowledge hang together, what conceptual pattern permits them to be viewed as one world, which possibilities are opened or excluded by a given scheme, and which most general interpretation best orients further thought. Its movement is synthetic and totalizing rather than experimentally determinative.

Totalization enlarges *latitude* ; it does not abolish epistemic *finitude*.

The transition becomes necessary because scientific knowledge does not automatically organize itself into a comprehensive worldview. A collection of valid propositions, however extensive, does not by itself determine how its heterogeneous domains are to be integrated, which concepts should carry the greatest unifying force, or how the possible should be understood in relation to the actual. These are speculative questions. They arise from science and remain answerable to it, but they are not solved by adding another scientific fact.

The boundary must nevertheless remain permeable. Science supplies metaphysics with its most reliable knowledge of the world, while metaphysics may supply science with alternative orientations, wider conceptual arrangements, and suggestions for inquiry. This exchange does not erase the difference between the registers. A metaphysical idea may inspire a testable hypothesis, but it becomes scientific only when reformulated so that testing is possible. Conversely, a scientific theory becomes metaphysical when its tested domain is expanded into an untestable claim about the totality of what exists.

The change of register is therefore also a change in discursive responsibility. Scientific discourse must specify how its claims can be tested. Metaphysical discourse must acknowledge that they cannot be tested and must not disguise this absence through scientific vocabulary, mathematical appearance, technical complexity, or selective reference to empirical results. Such devices may clarify an argument, but they cannot transfer factual validity to a speculative conclusion.

Failure to mark the transition produces scientism in one direction and pseudo-science in the other. Scientism turns a metaphysical totalization into an alleged result of science, as when the success of a particular explanatory method is converted into a claim about everything that can exist. Pseudo-science presents an untestable assertion as empirically established while protecting it from the factual conditions capable of correcting it. Both violations depend on a concealed change of register.

The critical passage avoids both reduction and conflict. It does not reduce metaphysics to science, because not every meaningful and arguable conceptual question is testable. It does not oppose metaphysics to science, because admissible speculation remains constrained by valid scientific knowledge and may serve its advancement. The abyss between testing and non-testing remains, but argument permits a disciplined relation across it.

This relation is asymmetrical. Metaphysics may orient science, but it cannot confer scientific validity upon it. Science may provide the factual materials and constraints of metaphysical speculation, but no accumulation of scientific

propositions can by itself establish a totalizing worldview. Each register retains its own responsibility, and neither may usurp the authority of the other.

The critical passage to metaphysics is therefore an act of epistemic restraint. Thought widens its scope while lowering the status of its claims. It passes from factual investigation to speculative totalization, from testing and arguing to arguing alone, and from scientific significance to metaphysical relevance. Nothing in this passage authorizes reification, foundationalism, or an absolute view. It authorizes only a different use of conceptual thought, explicitly marked, critically limited, and answerable to the knowledge from which it departs.

§ 2 The Conditions of Admissible Speculation

Once metaphysics relinquishes testability, argumentation carries the entire burden of its admissibility. A metaphysical proposition cannot be corroborated by a decisive experiment, but it can be formulated, defended, criticized, revised, or rejected through reasons. The absence of factual adjudication therefore does not grant speculation unlimited freedom. On the contrary, because testing is no longer available to correct it, metaphysical thought must submit itself with particular rigor to the rules of language, logic, and dialogue.

Admissibility must be distinguished from truth. To call a metaphysical proposition admissible is not to claim that it corresponds with reality-as-such, nor that the totality it proposes has been established as factual. It means that the proposition may legitimately enter critical discussion because its epistemic status is declared, its concepts are sufficiently determinate, its inferences can be reconstructed, and its thesis remains exposed to objection. Metaphysical admissibility is therefore argumentative rather than evidential.

The first condition is explicit recognition of the change of register. A speculative proposition must not present itself as a scientific result, conceal its untestability behind technical language, or borrow the authority of facts from which it has been extrapolated. It must state that it is speculative and identify which parts of its construction derive from scientific knowledge, which parts consist of conceptual interpretation, and which part performs a totalizing synthesis. The epistemic status of every major claim must remain visible.

The second condition is logical and semantic articulation. A metaphysical thesis must be expressed in language whose principal terms are stable enough to permit attack and defense. Ambiguity may open creative possibilities, and analogy may assist totalization, but neither may be used to protect a proposition from criticism. A concept cannot change its meaning whenever an objection arises, and a metaphor cannot function as an argument merely because it is evocative. Speculation becomes admissible only when another thinker can identify what has been claimed and what would count as a relevant objection.

The criteria of discourse developed in *Regulae I* (2025) provide a precise model for this argumentative discipline. Following Barth and Krabbe,² three levels must be distinguished : formal₁ rules, governing the *logical constants* of the language ; formal₂ rules, governing the *use of those constants* within a chosen logical system ; and formal₃ rules, governing the *argumentative dialogue* itself. Metaphysical

rationality cannot be secured by formal validity alone. It also depends on whether the logical system is *appropriate* to the problem and whether the thesis has been defended under fair and explicit dialogical rules.

The formal₁ rules determine whether individual inferential moves have been correctly made. They prevent invalid transitions, equivocations, illicit conclusions, and unacknowledged contradictions. Yet a metaphysical system is not merely a sequence of deductions. Its concepts carry broad semantic fields, its totalizations connect heterogeneous domains, and its arguments frequently employ analogy, abduction, comparison, and systematic interpretation. Formal correctness is necessary, but it cannot by itself determine whether the speculative construction is adequate to its task.

The formal₂ rules govern the logical system within which these moves are made. A Fregean system emphasizes consistency, clarity, axiomatization, and truth-preserving inference. Such a system is indispensable when metaphysical claims can be ordered deductively and their consequences precisely traced. But metaphysics also confronts complexity, probability, emergence, recursive relations, and local tensions that may not be adequately represented by a single linear calculus. Non-Fregean systems may then employ analogical ‘mini-worlds,’ lateral relations, and paraconsistent procedures to handle problems without pretending to achieve completeness.

This logical latitude does not authorize opportunism. The metaphysician may not invoke classical consistency when it supports the thesis and then appeal to ambiguity or paradox when criticism becomes inconvenient. The adopted logical register must be *declared* and *remain sufficiently stable* throughout the relevant argument. A change of logic may be legitimate, but the *reason* for the change and its consequences must themselves be argued.

The logical system is therefore not *imposed* as an unquestionable framework. It must *display problem validity*. One system is preferable to another when it can adequately resolve at least one logical-intellectual problem that the other cannot, without becoming inadequate where the other succeeds. The choice of logic is thus related to *the work it can and has to perform*. In addition, it acquires conventional validity when the participants in the dialogue agree to use it. Because such agreement is rarely complete, actual argument usually proceeds under *semiconventional conditions* that must remain *open to review*.

This point is especially important in metaphysics. No speculative system may declare its own logic immune from criticism and then use that immunity to guarantee its conclusions. The rules through which a worldview is constructed belong within the critical dialogue. A system that can defend itself only by granting its first principles, definitions, or inferential privileges an exceptional status has not established admissibility. It has merely built its conclusion into its point of departure.

The formal₃ rules organize the dialogue in which a metaphysical thesis is assessed. In the Barth–Krabbe model, the proponent P advances a thesis T and undertakes to justify it. The opponent O attacks T but is not required to replace it with a rival thesis. This asymmetry is decisive. The burden of justification remains with the

person who makes the speculative claim. A metaphysician may not evade criticism by demanding that the critic *first construct a complete alternative worldview*.

The opponent's task is to identify weaknesses in the thesis, its concepts, its presuppositions, its inferential transitions, or its consequences. The proponent may defend the thesis directly, modify an auxiliary claim, expose an inconsistency in the attack, or revise the formulation. But every move must remain a language act directed toward another language act. Authority, revelation, private certainty, personal status, and rhetorical intimidation cannot decide the dispute. They may explain why someone holds a belief ; they do not defend the proposition philosophically.

The dialogue is governed by five elementary demands. Both parties must accept the roles of proponent and opponent ; each must maintain a recognizable argumentative position ; defense and counterattack must remain connected with the thesis under discussion ; argumentative moves must be linguistically articulated ; and either party may withdraw without defeat when the other abandons the rules and thereby becomes irrational within the present dialectical situation. Argumentation cannot be compulsory when the conditions of argumentation have been destroyed.

The system also formulates five basic standards : systematics, realism, radicality, orderliness, and dynamism.

- 'Systematics' requires that the proponent always be given the opportunity to defend an attacked statement. No thesis is refuted merely by announcing an objection. The objection must be stated, the defense heard, and the relation between them made explicit.
- 'Realism' has a technical dialogical meaning here and must not be confused with ontological realism. It permits a participant to invoke what the other participant has already asserted. The formula *Ipse dixisti !* exposes an attack that contradicts a prior commitment of the attacker. A critic may not first use a proposition and later attack the proponent merely for relying on it. This standard safeguards argumentative accountability by preventing participants from disowning their own commitments whenever this becomes strategically convenient.
- 'Radicality' requires that the thesis be open to every relevant form of attack and defense. No privileged zone may be declared inaccessible merely because it contains the system's deepest assumptions. Definitions, axioms, analogies, totalizing concepts, and claims concerning the limits of thought must all remain discussable. A metaphysical proposition protected from radical questioning is no longer arguable and therefore ceases to be critically admissible.
- 'Orderliness' requires that the participants retain an overview of their rights, obligations, concessions, and unresolved disagreements. Because metaphysical systems contain many interdependent propositions, the dialogue should be divided into successive local discussions. A disputed definition, an inferential transition, and a totalizing conclusion should not be attacked simultaneously as though they were one problem. Localizing the dispute prevents complexity from becoming

confusion and makes clear which part of the system survives criticism and which part must be revised.

- ‘Dynamism’ requires that the circulation and revision of positions proceed without unnecessary delay. This does not call for haste. It prohibits the indefinite postponement of an answer, the repeated restatement of an already defeated claim, and the strategic multiplication of irrelevant distinctions. A metaphysical system should be capable of learning from criticism. When every objection produces only further insulation, argumentative movement has stopped.

The profit-and-loss rules make the outcome of each argumentative chain explicit. A participant loses a chain when an *Ipse dixisti* ! objection is justified, when the proponent has exhausted all relevant defenses, or when the opponent has exhausted all relevant attacks. The result is local before it is global. Losing one chain need not destroy the entire metaphysical system ; winning one chain does not establish the system as true. It establishes only that, under the agreed rules and against the objections actually raised, the relevant thesis presently stands or fails.

This limitation is essential. In science, an argumentatively successful theory must still confront facts. In metaphysics, no corresponding experimental tribunal is available for the totalizing thesis. A dialectical victory can therefore establish argumentative resilience but never factual truth. The strongest metaphysical conclusion remains : no decisive objection has yet defeated this proposition under the adopted rules. Its standing is provisional and remains open to stronger attacks, alternative conceptual schemes, and superior totalizations.

The formal₃ dialogue also *presupposes the ideal speech conditions* already governing argumentative inquiry. Participants must be free to introduce objections, question presuppositions, clarify meanings, and alter their positions without coercion. Prestige, institutional power, inherited authority, and strategic exclusion may influence the historical reception of a metaphysics, but they cannot contribute to its rational admissibility. A tradition may be ancient, influential, or culturally central and still fail when its propositions cannot survive free critical discussion.

Metaphysical dialogue nevertheless *differs* from scientific dialogue in one decisive respect. A theoretical disagreement in science can, in principle, be *redirected toward testing*. A metaphysical disagreement remains within argumentation. The dialogue does not ask which experiment will ultimately decide between the worldviews, but which position is more coherent, more comprehensive, more semantically precise, less reifying, more compatible with valid knowledge, and better equipped to solve the conceptual problems that generated the dispute.

Compatibility with science is therefore another condition of admissibility. Metaphysical speculation may reinterpret the wider significance of scientific propositions, question ontological extrapolations drawn from them, or propose a different integration of scientific domains. It may not simply deny well-established facts because they *disturb its architecture*. A factual disagreement must be pursued within science and exposed to testing. It cannot be settled metaphysically by assigning the inconvenient result a lower ontological status.

This dependence remains one-sided in the order of validity. Science supplies facts that *constrain* metaphysical speculation, but metaphysics *cannot supply facts to science*. A metaphysical scheme may inspire a scientific hypothesis, yet the hypothesis acquires scientific status only when it becomes testable. Until then, the scheme remains an orienting conjecture whose value is argumentative and heuristic.

Admissible speculation must also *resist reification*. Its totalizing concepts may organize thought, reveal relations, and suggest possible unities, but they may not be treated as self-sufficient entities existing from their own side. ‘World,’ ‘process,’ ‘matter,’ ‘information,’ ‘consciousness,’ ‘ground,’ and ‘actual occasion’ are conceptual instruments whose metaphysical use must be argued. Their systematic importance does not convert them into substances. A concept may occupy the center of a worldview without becoming the ontological foundation of knowledge.

Nor may metaphysics *ground the bindingness* of normative philosophy. A speculative account of nature, consciousness, history, or the Divine cannot establish the principles of truth, beauty, or action because those principles are already presupposed in constructing and defending the account. Metaphysical speculation may *orient* normative inquiry or provide an *immanent horizon* within which its consequences are considered. It may *not* legislate the rules by which its own claims are judged.

The semantic breadth required by *totalization* also demands restraint. A metaphysical concept should be broad enough to connect different domains but not so indeterminate that every phenomenon would confirm it. A scheme that explains everything, regardless of what occurs, explains nothing. Its concepts must differentiate possibilities, exclude certain combinations, and generate consequences that can be argued over, even when those consequences cannot be tested as a totality.

Analogy has a legitimate but restricted place. It may transfer a structural relation from a familiar field to a less familiar one, disclose a possible organization, or construct a limited model within which a problem becomes intelligible. But the resemblance must be specified, and the differences must remain visible. An analogy becomes invalid when the properties of the model are silently attributed to what it models or when poetic similarity is made to perform the work of inference.

Paraconsistency likewise does not mean tolerance of every contradiction. Local tensions may be retained when they reveal the limitations of a conceptual scheme or when eliminating them would destroy distinctions required by the problem. But performative contradiction, equivocation, and mutually destructive first principles remain critical defects. A metaphysical system may acknowledge unresolved tensions ; it may not use them to exempt itself from rational accountability.

Admissible metaphysics is therefore neither a closed deductive monument nor a free proliferation of images. It combines formal discipline with semantic reach, systematic architecture with dialogical exposure, and speculative creativity with the willingness to lose particular argument chains. Its integrity is shown not by

immunity to attack, but by the clarity with which it distinguishes what has been defended, what remains undecided, and what must be abandoned.

A speculative system advances when it resolves logical or semantic problems that rival systems leave unresolved, integrates a wider range of valid knowledge without suppressing differences, and opens paths of inquiry that would otherwise remain invisible. Such advancement is comparative and provisional. It does not culminate in absolute metaphysical knowledge, but in a worldview that presently performs its totalizing task better than the alternatives available.

The Barth–Krabbe dialogue system gives critical metaphysics its principal mode of validation. The proponent bears the burden of the thesis ; the opponent may test it argumentatively ; the rules of logic and dialogue remain open to examination ; and every outcome is local, revisable, and non-factual. Admissible speculation is therefore logical without being reducible to formal calculus, semantic without permitting drift, dialogical without reducing validity to consensus, and creative without becoming arbitrary. Argumentation cannot make metaphysics factual, but it can distinguish disciplined speculation from irrational assertion.

§ 3 The Non-Foundational Task

The critical passage alters not only the epistemic status of metaphysical propositions but also the task assigned to metaphysics. Pre-critical metaphysics sought to ground knowledge, normativity, and the world in a self-sufficient substance or essence. Critical metaphysics relinquishes this archaeological ambition. It does not *descend* beneath thought to discover what makes thought possible, nor does it *ascend* beyond thought to a position from which the whole can be finally secured. It begins after normative philosophy has established the necessary, *a priori* rules of conceptual activity and after science has produced the valid conventional knowledge to which speculation must remain answerable.

Non-foundational metaphysics is not metaphysics without rules, premises, or organizing concepts, nor does it imply that every worldview is equally admissible. It means that no metaphysical object may be invoked as the *source of the bindingness* already operative in thought, feeling, action, testing, or argumentation. Normative philosophy therefore *precedes* metaphysics in the order of justification, while science supplies the valid factual knowledge to which speculation must remain answerable. Metaphysics comes last not because it is insignificant, but because it presupposes materials and rules whose validity it did not establish.

The foundational reversal occurs when a metaphysical proposition formulated under these conditions is made to *explain the conditions themselves*. Matter, information, consciousness, nature, history, language, society, evolution, or the Divine may be proposed as the ultimate ground of reason, truth, beauty, or action. But every such proposal is already a conceptual assertion employing the logical and normative rules it is supposed to produce.

The alleged foundation arrives *after* the activity it claims to found.

This reversal is the *hysteron proteron* of ontological archaeology. That which is *later* in the order of justification is placed first, and the *result* of speculative thought is presented as the *cause* of its possibility. The mistake is not corrected by changing the identity of the ground. Realism and idealism, materialism and mentalism, naturalism and historicism, theism and atheism may propose radically different foundations while repeating the same structure. In every case, being is asked to generate the rules by which propositions about being are already being advanced.

Ontological archaeology also involves a naturalistic fallacy. From the proposition that something exists, no rule follows concerning how one must think, test, argue, judge, or act unless a normative premise has already been introduced. A complete scientific account of the neurological, biological, linguistic, or social causes of belief would still not establish whether the belief is justified. Description may explain how a judgment arose ; it cannot, by itself, supply the bindingness by which the judgment ought to be assessed.

The corresponding error appears in ontological teleology. A regulative orientation is transformed into an already existing destination. Because reason seeks unity, a completed unity of the world is posited as given. Because inquiry aims at correspondence, reality-as-such is treated as an accessible structure. Because argumentation anticipates unrestricted agreement, consensus is converted into the constitutive source of truth. What ought to regulate inquiry is thereby reified into what supposedly exists independently and grounds it.

Critical metaphysics may retain teleology only in a *regulative* sense. A unifying idea may orient inquiry without constituting a final unity already possessed. A speculative horizon may organize concepts without becoming an existent toward which reality necessarily moves. Metaphysics may propose what could make a range of phenomena intelligible ; it may not infer, from the necessity of orientation, the existence of the object toward which the orientation points.

Non-foundationalism consequently changes the meaning of metaphysical explanation. Metaphysics does not explain by identifying an ultimate substance from which everything else follows. It explains by assembling relations, conditions, functions, dependencies, possibilities, and general patterns into a coherent configuration. These are not regular concepts but 'hyper-concepts' that seek to totalize. Such an explanation is architectonic rather than archaeological. It concerns how the parts of a worldview can be arranged and understood together, not what self-sufficient entity lies beneath them.

The task is *synthetic*. Science differentiates its objects into increasingly specialized domains and investigates determinate relations within them. Metaphysics asks how the results, concepts, and presuppositions of these domains may be brought into a wider relation. This synthesis does not abolish their differences or reduce them to one scientific vocabulary. It proposes a conceptual framework in which their distinct contributions can be viewed as belonging to a single world.

The task is also *orienting*. A metaphysical scheme brings certain relations into the foreground, assigns relative importance to concepts, and suggests which questions should be pursued. It may direct attention toward continuity rather than isolation,

emergence rather than reduction, possibility rather than fixed actuality, or participation rather than external juxtaposition. These orientations are not neutral descriptions. They are declared speculative choices whose adequacy must be argued.

The task is *totalizing*, but totality must be handled critically. The totality of the world is not an object presented to an observer standing outside it. No inventory can certify that every possible phenomenon has been included, and no conceptual system can compare itself with the completed whole. Metaphysical totalization is therefore an *open operation* : the attempt to integrate the widest available range of phenomena under a limited set of hyper-concepts, while acknowledging that the resulting whole remains provisional.

A worldview is consequently not a representation of the world from a Divine vantage point. It is a construction within the world, made by a finite subject using conventional knowledge, inherited language, selected concepts, and arguable connections. Its scope may be universal, but its epistemic position remains situated. The universality of its intent must not be mistaken for absoluteness of possession.

This situatedness does not reduce metaphysics to autobiography or historical perspective. The Barth–Krabbe dialogue system prevents the speculative construction from being protected as the author’s private vision. Although the choice of axioms, concepts, and orientation may originate in a singular philosophical project, the resulting thesis must enter public argument. What begins as a perspective becomes metaphysically admissible only insofar as it can be detached from personal certainty and defended among relevant sign-interpreters.

An axiomatic base is therefore permitted, but an axiom is not a foundation in the pre-critical sense. It is an explicitly chosen starting proposition whose implications are to be unfolded and whose adequacy remains open to comparative judgment. It does not exist from its own side, authenticate itself, or terminate every request for reasons. The metaphysician assumes responsibility for the choice and must show what the axiom makes intelligible, what it excludes, and which problems it resolves or generates.

Non-foundationalism similarly does not forbid the later use of terms such as ‘ground,’ ‘world-ground,’ ‘condition,’ or ‘origin.’ It disciplines their use. A ground proposed within immanent metaphysics may function as a sufficient condition, a generative possibility, a structural background, or an explanatory relation. It may not be converted into a self-sufficient substance standing outside the system and producing the system together with the rules by which it is understood. Every such concept remains part of the speculative construction and shares its arguable, untestable, and revisable status.

This distinction is especially important in a metaphysics concerned with existence as a whole. The demand for unity easily revives the search for a first entity, an ultimate bearer, or a ‘substance of substances.’ Once posited, this entity appears to explain multiplicity while merely relocating the problem : What secures the ground, how does it relate to what it grounds, and why should its existence terminate inquiry ? The Münchhausen trilemma shows that absolute justification ends in infinite regress, circularity, or arbitrary interruption. Critical metaphysics

avoids the trilemma by abandoning the demand for a self-justifying terminus rather than by selecting one of its failures.

The positive role of metaphysics now becomes clearer. It acts as an *ars inveniendi*, an art of discovery. Reorganizing established knowledge under new hyper-concepts may reveal neglected relations, expose hidden assumptions, and suggest possible objects of inquiry. It can challenge a paradigm's implicit ontology, enlarge its conceptual horizon, and propose questions for which scientific tests do not yet exist. Metaphysical speculation becomes fruitful when part of it can be translated into hypotheses, models, or distinctions that can enter scientific work.

The relationship remains asymmetrical. Metaphysics may inspire scientific inquiry, but it cannot guarantee the truth of the scientific results eventually obtained. Science may correct or constrain a metaphysical scheme, but it cannot test the totalization as a whole. Metaphysics is the heuristic background of inquiry, not its tribunal.

Science tests and argues ; metaphysics orients, integrates, and argues.

The same restraint applies to normative philosophy. A metaphysical worldview may illuminate the significance of truth, beauty, and action, but it may not *legislate* their principles. A process ontology may offer a compatible background for change, relation, feeling, and action, yet were that metaphysics replaced, the transcendental facts and their normative consequences would remain. The relation is one of regulated compatibility, not derivation : normativity sets the guardrails ; metaphysics selects and develops a route within them.

The non-foundational task also transforms metaphysical criticism. A system is not defeated merely because it lacks an ultimate foundation, for every admissible system lacks one. It is criticized instead for concealed reification, logical failure, semantic instability, incompatibility with valid knowledge, inadequate integration, limited explanatory reach, or heuristic sterility. The question is no longer 'What absolutely secures this worldview ?' but 'What does this worldview allow us to understand, at what conceptual cost, and under which acknowledged conditions ?'

This shift makes metaphysical advancement possible without promising finality. A later system may preserve what an earlier system rendered intelligible while correcting its exclusions or reducing its dependence on substances. It may enlarge the field of integration, sharpen distinctions, or supply more fertile hyper-concepts. Such advancement is comparative and problem-directed. It does not converge upon a final metaphysical picture whose correspondence with reality-as-such could be certified.

Critical metaphysics is therefore constructive without being foundational, comprehensive without claiming completion, and explanatory without positing an ultimate substance. It receives its rules from normative philosophy, its factual constraints from science, and its distinctive task from the need to integrate and orient what neither can totalize by itself. It does not provide the ground beneath valid thought. It constructs an arguable horizon within which valid thought may see its domains together.

The non-foundational task leaves one decisive question open. If metaphysics must choose the hyper-concepts through which the world is totalized, why should this inquiry choose process rather than substance, relation rather than isolation, and dependent condition rather than self-existing essence ? Criticism permits these choices but does not necessitate them. Their justification belongs to the substantive metaphysical commitment that follows.

§ 4 Process as a Metaphysical Choice

Criticism does not deduce process from the transcendental conditions of conceptual thought. The fact of reason establishes the irreducibility of subject and object ; it does not determine which metaphysical account of existence must be adopted. Process is therefore a substantive metaphysical choice rather than a transcendental principle. Yet metaphysical choices are not arbitrary. They can be compared in terms of their logical coherence, resistance to reification, compatibility with valid science, integrative range, and heuristic fertility.

Under these controls, process is preferable to substance.

Traditional metaphysics sought a self-sufficient foundation beneath appearances, a *hypokeimenon*. Whether identified as matter, consciousness, information, form, soul, mind, nature, Spirit, or the Divine, this foundation was supposed to possess its identity and properties from its own side, as it were 'self-powered.' It did not depend upon anything outside itself and therefore terminated the search for a ground. What changes was explained by what does not change ; what depends was grounded in what is independent ; what acts was understood through something that first possesses being.

Substance, in this traditional sense, is not merely an enduring object. It is an essence or underlying ground beneath change : permanent, self-powered, independent, indivisible, and endowed with inherent properties. An ordinary object may persist for a long time without being substantial in this sense. The metaphysical surplus appears only when relative stability is converted into inherent existence, and the object is assumed to be what it is independently of all conditions, relations, parts, functions, and acts of identification.

Criticism has already shown why such a foundation cannot ground knowledge. Any assertion identifying a self-sufficient reality as the condition of conceptual cognition must itself be formulated and justified within cognition. The alleged ground therefore presupposes the principles it is invoked to establish. When the object is made the foundation, realism suppresses the necessary contribution of the subject ; when the subject is made the foundation, idealism suppresses the irreducibility of the object. Both reductions violate the *factum rationis* and produce the antinomies and paralogisms of pre-critical thought.

This result does not by itself prove that no substance exists anywhere. Transcendental criticism demarcates the legitimate use of concepts ; it does not transform itself into an ontology. It does, however, remove every right to treat substance as the self-evident or necessary foundation of metaphysics. Once substantial grounding has lost this privilege, substance must compete with other

metaphysical interpretations under the conditions governing admissible speculation.

The difficulties of essentialism, or substantialism, are considerable.

A substance is supposed to exist independently, yet it must somehow enter relations. It is self-powered, yet it must act upon and be affected by other existents. It remains identical, yet it must explain alteration. Its properties inhere in it, yet these properties are known only through their functions, effects, and relations. The more strictly substantial independence is asserted, the more obscure interaction and transformation become. The stronger the isolation, the weaker the explanatory connection with what actually happens.

Regulae I (2025) condenses the contrast. Substance-based metaphysics privileges being and essence, permanence, self-power, inhering properties, independence, indivisibility, discrete individuality, static stability, separateness, fixed things, uniformity, and descriptive fixity. Process-based metaphysics privileges existence, impermanence, determination and conditioning, other-power, non-inhering processes, interdependence, divisibility, interactive relatedness, dynamic fluidity, wholeness, relations, novelty, productive transformation, and open possibility. The traditional maxim *operari sequitur esse*—action follows being—is reversed as *esse sequitur operari*—being follows operation. The reversal is a hyper-conceptual choice within the immanent register, not a transcendental deduction : it states how existents are best interpreted under the controls, not what they must be from their own side. Read as an ontological pronouncement, it would reinstate the very self-grounding it was formulated to refuse.

This reversal does not mean that existents dissolve into an undifferentiated flux. A process may display identity, continuity, structure, and relative stability. But these are achieved and maintained rather than secured by an immutable core. An existent persists because a pattern of relations and operations continues within changing conditions. Stability is a form of regulated recurrence ; identity is continuity across transformation ; individuality is a bounded organization within wider fields of dependence.

Process therefore replaces the question ‘What permanent thing lies beneath this ?’ with ‘How does this existent arise, persist, operate, change, and cease under these conditions ?’ The change is not merely verbal. It redirects metaphysical attention from hidden bearers toward determinations, functions, relations, transitions, and effects. Instead of positing an invisible essence behind what happens—a *Hinterwelt* or *arrière-monde*—process metaphysics seeks the intelligible organization of the happening itself.

Existence is consequently more fundamental than being understood as permanent self-identity. To exist is to arise, become determinate, persist for an interval, interact, and eventually cease or transform. Nothing needs an additional metaphysical core beneath these operations to make it real. Identity and function suffice for conventional determination ; adding inherent existence contributes no further knowledge and introduces the very reification criticism has rejected.

The difference may also be expressed through ‘self-power’ and ‘other-power.’ A substantial existent is what it is from its own side. A processual existent is what it

is through conditions extending beyond it : antecedent events, constituent parts, environmental relations, inherited structures, functional roles, and acts of conceptual identification. This does not make the existent unreal. It explains how its reality is possible without granting it an isolated and permanent essence.

Interdependence is therefore not an accidental relation entered by already completed entities. It belongs to their constitution. The relata do not first exist in isolation and afterward establish external connections. What they become depends upon the connections through which they arise and persist. Relations are not secondary links suspended between substances ; they participate in determining what the related existents are.

Process is also better suited to novelty. A substance-based scheme tends to explain change as a rearrangement, modification, or actualization of what is already contained in enduring beings. Genuine novelty then becomes difficult to think, because whatever appears must somehow have been prefigured in the substance, its essence, or its fixed possibilities. A process-based scheme treats becoming as productive. The past conditions the present without completely enclosing it, and the present may integrate inherited determinations into a configuration not previously actual.

This does not entail randomness. Process requires determination and conditioning. What arises does so within limits, under pressures, and through relations inherited from what preceded it. Yet determination is not predestination. Conditions shape possibilities without reducing actuality to the repetition of an eternal form. Process can therefore combine continuity with novelty and lawfulness with creative advance.

The preference for process is reinforced by the development of the sciences.³ This does not mean that science tests or proves process metaphysics. A totalizing metaphysical interpretation remains untestable. Scientific knowledge nevertheless constrains the available choices, and a metaphysics systematically discordant with established knowledge loses admissibility. Across several domains, contemporary science has moved away from the image of isolated, permanent, self-sufficient entities and toward descriptions involving fields, interactions, transformations, networks, histories, feedback, and emergence.

Relativity weakened the metaphysical picture of absolute space, absolute time, and independently located material substances. Spatial and temporal determination became inseparable from relational structure and physical conditions. Matter itself could no longer be treated simply as an indestructible substance occupying an independently existing container. The scientific description shifted toward events, fields, transformations, and the structural relations through which physical quantities acquire determinate meaning (Einstein, 1916).

Quantum physics further unsettled the classical image of objects carrying fully determinate properties independently of experimental context. Superposition, entanglement, probabilistic transition, and the inseparability of preparation, measurement, and result do not establish a particular process ontology. But they do show that physics does not require a world composed exclusively of self-contained substances bearing intrinsic properties and joined only by external

relations. A relational and event-based interpretation is at least more consonant with these findings than traditional substantialism (von Neumann, 1955 ; Bell, 1964 ; Kochen & Specker, 1967).

Cosmology presents the universe itself as historical. The cosmos expands, structures emerge, stars and elements form, and physical conditions change over immense timescales. The universe is not a completed arrangement of eternal kinds but an unfolding order with a history. A metaphysics centered on becoming can integrate this temporality directly. A substance metaphysics must repeatedly translate cosmogenesis into changes affecting something presumed more fundamental and unchanging (Burbidge et al., 1957 ; Planck Collaboration, 2020).

Biology makes dependence even more conspicuous. Evolution explains forms of life through descent, variation, selection, inheritance, and environmental interaction rather than through fixed essences. Organisms maintain themselves through metabolism, exchange, regulation, adaptation, and reproduction. They are not closed substances later entering an environment ; their continued existence depends upon continuous transactions with what surrounds them (Darwin, 1859 ; Maturana & Varela, 1980).

Endosymbiosis gives this interdependence constitutional force. The eukaryotic cell is the outcome of the integration of formerly distinct biological lineages, while mitochondria and chloroplasts remain traces of this inherited togetherness. Likewise, the relation between an organism and its microbiome makes it increasingly difficult to identify the living individual as a self-enclosed unit. Health, metabolism, and immune regulation arise within coupled systems. The organism is better conceived as an organized process maintaining relative individuality through exchanges than as an indivisible substance protected from them (Sagan, 1967 ; Turnbaugh et al., 2006 ; Human Microbiome Project Consortium, 2012 ; Belkaid & Hand, 2014).

Ecology extends the same insight. An organism's identity, viability, and activity depend upon food webs, climatic conditions, material cycles, habitats, symbioses, competition, and cooperation. The existent is not unreal because it is dependent. Its dependence is precisely how it exists. The substantialist contrast between full independence and deficient dependence is thereby reversed : independence becomes an abstraction from the relations enabling actuality (Tansley, 1935 ; Lindeman, 1942).

In psychology and cognitive science, embodied and enactive approaches increasingly interpret cognition in terms of organism–environment coupling. The mind is not adequately described as a self-contained inner substance that receives representations of the external world. Cognition occurs through situated engagement, bodily organization, environmental affordances, memory, anticipation, and reciprocal adjustment. The subject remains distinct, but its identity and activity are constituted through relations rather than sealed off from them (Varela et al., 1991 ; O'Regan & Noë, 2001).

These scientific developments do not all express one theory, nor do they compel a Whiteheadian ontology. Their objects, methods, and explanatory levels differ. What they share is a growing explanatory reliance on relational determination, temporal development, organization, and interaction. They render the

substantialist picture progressively less fertile and make process a more comprehensive metaphysical orientation.

The point must remain critically exact. Science does not discover that 'everything is process' as a tested universal fact. No experiment can test the totality of all possible existents. The movement from scientific findings to process metaphysics is a speculative integration. Yet it is an integration that respects the direction of valid knowledge and requires fewer compensating assumptions than a scheme based on self-sufficient substances.

Process also possesses greater heuristic value. It encourages inquiry into transitions, dependencies, emergence, organization, and the conditions sustaining apparent stability. It does not ask science to search for hidden metaphysical cores but to examine how phenomena operate and relate to one another. When new findings revise the relevant processes, the metaphysical scheme can adapt without abandoning an allegedly immutable substance placed beyond correction.

The choice for process is therefore not merely negative. It does more than eliminate substance. It offers a positive constellation of hyper-concepts : arising, conditioning, relation, transformation, interaction, organization, novelty, and creative advance. These concepts allow the diverse results of physics, cosmology, biology, psychology, and the social sciences to be brought into an arguable totality without reducing their differences to one material or mental essence.

Nor does process entail the denial of things. Tables, trees, cells, persons, and stars remain validly identifiable existents. What is rejected is the surplus claim that their identity and functioning require an inherent core existing independently of their parts, conditions, relations, and history. Things remain ; thinghood is redescribed as organized persistence within process.

This distinction protects process metaphysics against its own reification. 'Process' must not become a new substance, an absolute fluid, an underlying cosmic stuff, or a self-powered principle ; it names the orientation according to which existents are interpreted through what they do, undergo, inherit, transmit, and become. Nor is interdependence a universal substance binding otherwise separate things. It denies that existents can be adequately understood as self-sufficient while requiring their specific dependencies to be identified and argued in each case.

Process is thus the best metaphysical choice available under critical conditions because it avoids the contradictions of self-sufficient grounding, is more consonant with the relational and historical direction of scientific knowledge, integrates stability without permanence, and permits novelty without disorder. It replaces the search for an immutable support with the study of organized becoming. However, its superiority remains comparative rather than absolute. Process metaphysics is arguable, untestable, revisable, and scientifically underdetermined. Another metaphysical orientation could displace it by integrating the same knowledge more coherently, avoiding reification more thoroughly, and resolving problems process leaves open. Critical commitment does not require weak commitment ; it requires that even the preferred framework remain open to argument.

The verdict can nevertheless be stated without hesitation. Substance is a poor choice because it posits what criticism cannot legitimate and what science increasingly does not require. Process is the better choice because it interprets existents in terms of dependence, operation, relation, and transformation—the very features by which they become intelligible.

Postulating substance splits the stream. Choosing process allows it to flow.

D. The Limit-Concepts of Reason

§ 1 Finite Series and the Infinite⁴

a. A finite sequence contains a determinate number of members and therefore has a final member. A finite series, strictly understood, is the sum of the members of such a sequence. Although the number of members may be extremely large, it remains finite and can in principle be specified. Finitude does not mean smallness. It means determinate limitation.

An infinite sequence, by contrast, has no final member. For every member reached, another can be generated according to the rule defining the sequence. The natural numbers provide the clearest example : however far counting proceeds, the operation can continue. This is potential infinity, the indefinitely continued passage beyond every determinate finite position (Aristotle, 1996).

a.1 Potential infinity should not be confused with an infinitely distant final term. No such term is reached. The sequence does not end with ‘infinity,’ for infinity is not the largest natural or real number. Adding one to any finite number always yields another finite number. The infinity involved lies in the absence of a terminal bound, not in the presence of a final numerical object.

The same distinction applies in calculus. When a variable tends toward infinity, the sign ∞ does not designate a value assumed by that variable. It indicates that the variable increases beyond every finite bound relevant to the operation. Likewise, when a function tends toward infinity, this means that its values become arbitrarily large, not that the function eventually reaches an infinite number.

A point at infinity is therefore not the inevitable outcome of asymptotic increase. It is introduced only within mathematical constructions that extend an ordinary domain, such as projective geometry or the extended number line. Within such a construction, it performs a precisely defined formal function. It should not be detached from that function and interpreted as a metaphysical object situated beyond all finite values.

b. Modern set theory introduced another meaning of infinity. An infinite set may be treated as a completed formal totality rather than merely as a sequence that can always be continued. The set of natural numbers can be placed in a one-to-one correspondence with a proper subset of itself and is therefore infinite in Dedekind’s precise sense. Its cardinality is designated by aleph-null, $\aleph_0$ (Dedekind, 1963 ; Cantor, 1955).

Transfinite numbers articulate determinate differences among infinite sets and orders. Aleph-null is the smallest infinite cardinal number. Aleph-one, $\aleph_1$, is the

next greater infinite cardinal. Omega, ω , is not another name for the Absolute Infinite but the first infinite ordinal, representing the order type of the natural numbers. Cardinals concern how many members a set has ; ordinals concern their ordering (Cantor, 1955).

b.1 These transfinite numbers may be regarded as rungs on an indefinitely extendable ladder. For every transfinite cardinal, a greater cardinal can be generated. No final transfinite number completes the hierarchy. The hierarchy is actual in the formal sense that its members are treated as mathematically determinate objects, but no member is Absolute simply because it is infinite (Cantor, 1955).

Cantor consequently distinguished the transfinite from the Absolute Infinite. The transfinite remains mathematically articulated : its cardinals and ordinals stand in determinate relations and belong to an extendable hierarchy. The Absolute Infinite does not stand at the top of that hierarchy as its greatest member. It cannot be designated by omega, by a final aleph, or by any other transfinite number. Were it another determinate member, it would belong to the hierarchy and would no longer be Absolute (Dauben, 1979).

This distinction is decisive. Mathematical actual infinity does not provide a mathematical object corresponding to metaphysical absoluteness. The transfinite remains internally differentiated, formally determinable, and relative to mathematical operations. The Absolute Infinite marks what cannot become one more element within the series it is supposed to surpass.

c. Mathematical infinity is conceptually legitimate within mathematics. It is governed by definitions, axioms, operations, and proofs. It does not require a transcendent object existing independently of these formal conditions. Potential infinity, infinite limits, infinite sets, transfinite cardinals, and transfinite ordinals are different mathematical objects or operations and must not be merged into one obscure idea of ‘the infinite.’

Nor may a metaphysical conclusion be deduced from them. The fact that mathematics can define infinite sets does not establish that the world is an actually completed infinite set. The existence of an endless sequence does not prove the existence of an infinite substance. The hierarchy of transfinite numbers does not disclose an Absolute Being. Formal determinability within mathematics is not ontological proof outside mathematics.

The movement from mathematical infinity to a metaphysical Absolute is therefore a change of register. Unless this change is explicitly acknowledged, a mathematical concept is reified and made to perform work for which it was not defined. Infinity then ceases to be a formal determination and becomes a supposed object existing from its own side.

d. Outside mathematics, infinity functions critically as a limit-concept. A limit-concept does not designate an object found at the limit. It marks the point at which a mode of conceptual determination can no longer continue without changing its epistemic status. Infinity indicates that no finite determination, enumeration, or conceptual synthesis exhausts what is being considered.

This does not make infinity meaningless. On the contrary, it performs a necessary regulative function. It prevents reason from mistaking a finite collection, model, or account for an exhaustive whole. It directs thought beyond every achieved determination while withholding the claim that what lies beyond has thereby become conceptually known. In this use, an idea guides the systematic employment of reason without becoming constitutive of a corresponding object (Kant, 1781/1787).

Infinity is therefore both operative and restrictive. It is operative because it opens finite inquiry toward what remains undetermined. It is restrictive because it forbids the transformation of this openness into a positively known infinite object. It guides conceptual thought while marking the boundary of conceptual possession.

The Absolute Infinite, when transferred into metaphysics, can consequently function only as a transcendent limit-signifier. It does not name an entity, substance, final magnitude, or supreme member of a hierarchy. It signals that what is Absolute cannot be introduced as another determinate object without forfeiting its alleged absoluteness. Any positive conceptual determination returns the term to the conditioned field from which it was meant to depart.

e. *Totality* and *infinity* are related but not identical. Totality is the regulative horizon of immanent metaphysics. It directs thought toward the world as the sole field of actualities and toward the comprehensive articulation of their relations. This totalization is never a complete apprehension of every actual occasion. It is a conceptual orientation toward the whole, undertaken from within that whole and therefore without access to an external standpoint.

Infinity marks the non-exhaustibility of this totalization. Every attempt to formulate the whole remains finite, selective, and revisable. The world may be totalized as an open process, but it cannot be converted into a completed object fully present to conceptual thought. Infinity does not name a second domain lying beyond totality ; it prevents totality from closing upon itself.

In this restricted sense, infinity marks totality from within. This 'within' is epistemic rather than ontological. It does not mean that a transcendent substance penetrates the world or that infinity is an ingredient immanent to every actual occasion. It means that every conceptual construction of totality encounters the impossibility of exhausting what it seeks to totalize.

The totality of immanence and the infinity of transcendence may therefore serve as two leading ideas of metaphysics, provided their registers remain distinct. Totality guides the arguable construction of an immanent world-picture. Infinity, as a transcendent limit-signifier, marks what no such construction can contain or positively determine. The former licenses speculative integration ; the latter restrains its reification.

No inference to nonduality follows from this distinction alone. To claim that totality and infinity ultimately coincide, or that the absolutization of duality necessarily gives rise to nonduality, would already move beyond the critical function established here. The present conclusion is more disciplined : finite reason can think unbounded continuation, formalize transfinite structures, and

orient itself toward totality, but it cannot convert the limit of these operations into conceptual knowledge of the Absolute.

This distinction prepares the treatment of soul, world, and God. Each arises when reason seeks an unconditioned completion of a conditioned series. Whether these ideas remain regulative or become reified into objects is the question governing the next section.

§ 2 Soul, World, God as Limit-Concepts

a. From the Conditioned to the Unconditioned

Conceptual knowledge proceeds through conditions. An event is explained by reference to antecedent events, an appearance by the circumstances under which it appears, and a judgment by the grounds supporting it. Yet reason does not rest content with any isolated condition. For every conditioned term, it asks for the condition on which that term depends and then for the condition of that condition. It thereby seeks the complete series of conditions and, ultimately, the unconditioned.

This movement is legitimate as long as it regulates inquiry. It becomes illegitimate when the demand for completeness is converted into knowledge of a completed object. The unconditioned is then no longer a rule directing the search for further conditions but is hypostatized as an independently existing ground that terminates the series. What reason requires for systematic unity is mistaken for what exists as a self-sufficient actuality.

Before criticism, this conversion was characteristic of metaphysics. Substance was assumed to provide the permanent ground beneath alteration. Movement, relation, and change were treated as accidents occurring to something whose essential identity remained unaffected by them. The search for the condition of conditioned phenomena was brought to an end by positing a self-grounding subject, a completed world-whole, or an absolutely necessary being.

Soul, world, and God are the three classical forms taken by this demand for unconditional completion. The soul completes the series on the side of the subject. The world completes it on the side of objects and their conditions. God completes it by gathering all possibility and determination into one supreme ground. These ideas are not arbitrary inventions. They arise from reason's own drive toward unity. The critical question is whether they may be used only to orient thought or may also be affirmed as independently existing objects.

b. The Soul

The idea of the soul arises from the unity accompanying the manifold activities of thought. Judgments, memories, intentions, sensations, and reflections are attributed to one subject. However variable their contents may be, they must belong together sufficiently for them to be recognized as moments of one conscious life. Reason therefore seeks the unconditional subject of all these predicates : something that thinks but is not itself merely another predicate of something else.

Rational psychology converted this necessary unity into a substance. Because 'I think' can accompany conceptual cognition, it inferred the existence of a simple, permanent, immaterial, and personally identical soul. The formal unity required for cognition was thus transformed into knowledge of a self-existing entity.

The inference is invalid. The transcendental subject is the necessary subject-pole of cognition, not an object encountered through cognition. That thoughts are attributed to one subject does not disclose what that subject is in itself. Unity does not prove simplicity ; continuity does not prove permanence ; first-person identity does not prove an immaterial substance ; and the inability to divide the thinking subject conceptually does not establish the existence of an indivisible soul.

The empirical ego must likewise be distinguished from the transcendental subject. The empirical ego is the historically formed person appearing through memory, embodiment, language, feeling, action, and social attribution. It can become an object of psychological, biological, and philosophical investigation. The transcendental subject, by contrast, is the formal condition under which these contents can belong to one field of cognition. Neither warrants the inference to a soul existing from its own side.

This criticism does not deny the continuity, depth, or complexity of subjective life. It denies only that these features establish a self-sufficient bearer beneath them. The concept of soul may remain useful as a historical term, a religious symbol, or a speculative designation for the unity and continuity of mental life. Under critical conditions, however, it cannot name an inherently existing substance possessing thought, identity, or consciousness as properties belonging to it independently of all conditions and relations.

As a limit-concept, the soul directs reflection toward the greatest attainable integration of subjective life. It asks how cognitive, affective, volitional, embodied, and interpersonal processes belong together without pretending that their unity has been explained by positing an immutable thing beneath them. The soul then ceases to be an ontological foundation and becomes a regulative idea of subjective totalization.

c. The World

The idea of the world arises when reason seeks the complete series of conditions on the side of objects. Every observed event belongs to a wider network of events. Every spatial region opens onto further regions, and every temporal condition refers backward and forward to other conditions. Reason consequently forms the idea of the world as the totality of all appearances and of the relations connecting them.

Yet the world as a completed whole is never given as an object of experience. Experience always occurs from a finite position within the world and concerns a determinate part of it. No observer can step outside the field of possible experience and apprehend the totality as a finished object. The world is presupposed as the horizon within which particular objects and events are situated, but it is not itself one more object situated inside that horizon.

When reason treats the world as a determinate thing in itself, antinomies arise. The world may then be argued to have a beginning in time or to have no beginning ;

to be spatially bounded or unbounded ; to consist ultimately of simple parts or to contain nothing simple ; to be wholly governed by natural causality or to admit freedom ; to depend on a necessary being or to contain no such necessity. Each side can be defended once the world-whole is assumed to be an object available for determination, although the opposed conclusions cannot both be true in the same respect.

The antinomies reveal a defect in the question rather than a concealed contradiction in the world. Reason has treated the complete series of appearances as though it were itself an appearance. It has converted the regulative demand to seek further conditions into a constitutive claim about an already completed totality.

As a limit-concept, the world does not close the series of conditions. It directs inquiry toward the widest possible integration of them. Scientific investigation can continually enlarge the known world, connect domains, reconstruct histories, and propose cosmological models. None of these achievements gives the world as a whole in an absolute sense. Every model remains an empirico-formal construction produced within the world and answerable to further testing and argumentation.

Immanent metaphysics adopts the world as the sole field of actualities without turning it into a completed substance. The world is not a gigantic container in which independently existing things happen to be placed. Nor is it a self-powered total object possessing its relations as secondary properties. It is the open process of actual occasions entering into relations, inheriting conditions, and contributing to further actualization.

Totality therefore remains necessary but unclosed. Without the idea of the world, inquiry would fragment into unrelated local descriptions. With the reification of that idea, inquiry would falsely claim possession of the completed whole. The critical use retains comprehensive orientation while refusing ontological closure.

d. God

The idea of God arises when reason seeks not merely the complete series of conditions but the unconditional unity of all possibility and determination. Every finite object is determined through some predicates rather than others. Reason gathers the totality of possible predicates into the idea of an all-encompassing reality and then represents this unity as the most real and most perfect being.

The movement from the *ens perfectissimum* to the *ens realissimum* marks the decisive transgression. The *ens perfectissimum* is the concept of the most perfect possible being. The *ens realissimum* is that concept hypostatized as an actually existing being containing the ground of all reality. Conceptual completeness is thereby converted into ontological actuality.

The ontological argument seeks to derive existence from the concept of supreme perfection. It fails because existence is not another predicate added to the concept of a thing. A concept is not enlarged by asserting that its object exists. The cosmological argument begins from contingent existence and infers an absolutely necessary cause, but it can identify the alleged necessity only by returning to the concept employed by the ontological argument. The physico-theological argument moves from order, adaptation, and apparent purposiveness in the world to an

intelligent cause. At most, however, this could suggest an architect operating in relation to given materials, possibilities, and laws. It cannot establish a transcendent Author who creates the world and all its conditions from nothing.

Reason may legitimately seek the systematic unity of phenomena and investigate the patterns, regularities, and convergences exhibited by the world. Nothing conceptual, however, warrants the transition from this architectonic unity to a self-existing Creator outside the world. Interconnection does not prove authorship. Order does not prove an ordering substance. Possibility does not prove a Lord of Possibilities.

The mere occurrence of conservation does not prove a First Conserver. Only if the world-system forms an order of concurrent dependent conservation, and an actual infinity of simultaneously operative conservers is impossible, does at least one first immanent conserver follow. Nothing in this conclusion establishes a transcendent Creator.

Revelation cannot repair this argumentative gap. It may supply religious interpretation, organize communal faith, and give symbolic form to an experience of the Divine. Within metaphysical argument, however, revelation cannot function as evidence available to all relevant sign-interpreters under shared conditions. To fill the conceptual gap per revelatio is to change registers, not to complete the argument.

The critical restriction does not prove that God does not exist. It establishes that no conceptual route leads from the conditioned world to knowledge of a transcendent, self-sufficient Divine substance. Affirmation and negation become equally excessive when they claim to determine what lies beyond the conditions of conceptual cognition. A transcendent God can neither be conceptually established nor conceptually eliminated as though the transcendent were another possible object of knowledge.

As a limit-concept, God represents reason's demand for the highest systematic unity. It gathers the search for completeness, intelligibility, and unconditionality into a single idea. Used regulatively, the idea may direct thought toward maximal coherence and prevent local explanations from being mistaken for final ones. Used constitutively, it becomes a hypostatized being invoked to terminate inquiry and ground what cannot be grounded without circularity, regress, or dogmatic interruption.

The terms 'Architect of the World,' 'Anima Mundi,' and 'Creator' must consequently remain distinct. An architect would still stand in relation to a world whose possibilities and materials are presupposed. An *Anima Mundi* would be immanent to the world as a principle of its unity or animation. A transcendent Creator would be posited as the independent Author of the world and of every condition under which it exists. No argument permits these terms to be exchanged without remainder. Their conflation conceals the passage from immanent speculation to transcendent affirmation.

e. Paralogism, Antinomy, and Hypostatization

The three ideas generate three characteristic failures when used constitutively. The soul gives rise to paralogism : an invalid inference from the formal unity of

thought to a substantial thinking entity. The world gives rise to antinomy : opposed determinations of a totality that cannot be given as an object. God gives rise to hypostatization : the transformation of the systematic unity of all possible predicates into an absolutely real and necessary being.

These failures share one structure. Reason begins with a legitimate demand for unity, completeness, and intelligibility. It then treats this demand as evidence that a corresponding object exists. A condition of thought becomes a thing ; a regulative idea becomes a constitutive principle ; and the unconditioned, sought as the completion of a series, is posited as a self-sufficient ground terminating it.

The resulting entities are not ordinary speculative hypotheses. They are supposed to explain the possibility of every object, subject, or relation while remaining outside the conditions governing objects, subjects, and relations. Yet the concepts used to describe them have been produced within those very conditions. The proposed ground is known only through a cognition whose possibility it is then invoked to explain. The order of explanation is reversed.

Criticism interrupts this reversal. It does not suppress reason's movement toward totality but clarifies its status. Soul, world, and God are unavoidable ideas insofar as reason seeks the unconditional completion of subjective, objective, and systematic unity. They become deceptive only when their necessity for thought is mistaken for the necessary existence of corresponding substances.

f. Critical Reconstruction

The critical reconstruction neither discards the triad nor preserves its pre-critical ontology. It reassigns each term a restricted function.

The soul names the regulative totalization of subjective life without establishing a simple, permanent, or independently existing bearer. The world names the regulative totalization of all actualities without becoming a completed object standing before an external observer. God (as Creator) becomes God*, naming the highest demand for systematic unity without becoming a transcendent substance, efficient cause, or Author whose existence is supposedly inferred from that demand.

The three limit-concepts correspond to three directions of reason. The soul gathers inwardly toward the unity of the subject. The world expands outwardly toward the totality of conditions. God* raises both toward the idea of unconditional systematic unity. These directions are indispensable to metaphysical thought, but none grants conceptual possession of what it seeks.

Their legitimate use is therefore heuristic and regulative. They orient inquiry, disclose the tendency of reason toward totalization, and identify the points at which conceptual thought is most likely to reify its own products. Their illegitimate use is foundational and constitutive. It asserts the existence of a self-grounding soul, a completed world-whole, or an absolutely necessary Divine being and then treats this assertion as an explanation.

Soul, world, and God* remain major ideas of metaphysics because they articulate the limits toward which reflection on subjectivity, actuality, and unity is driven. Yet they are not objects waiting at those limits. They mark the boundaries of what conceptual reason can totalize without possessing. Their critical value lies

precisely in preventing the demand for the unconditioned from becoming the dogmatic affirmation of an unconditioned thing.

The result is neither skepticism nor theology. Reason retains the right to totalize, speculate, and seek systematic unity. It relinquishes only the claim that its unavoidable ideas disclose substances existing from their own side. Soul, world, and God* are critically admissible as limit-concepts ; as self-sufficient grounds, they are reifications.

This triad prepares the next distinction. The soul concerns the drive toward subjective unity, the world the drive toward objective totality, and God* the drive toward their unconditional integration. Their critical reconstruction leads to the two regulating poles under which conceptual knowledge advances : the Real and the Ideal.

§ 3 The Four Turns

a. The Progressive Discovery of the Knower

The four turns—the Cartesian, Copernican, phenomenological, and linguistic—constitute a cumulative uncovering of the constructive activity of the knower in every act of conceptual knowing. They do not form a simple succession in which each later position eliminates the earlier one. Each retains a decisive insight of its predecessor, corrects its reifications, and deepens the account of how the known becomes conceptually available.

The Cartesian turn establishes that knowledge cannot be considered independently of the subject who knows. The Copernican turn shows that the subject does not merely receive an *already articulated* object but contributes the formal and categorial conditions under which anything can become an object of conceptual knowledge. The phenomenological turn extends this insight by showing that objects are presented within intentional, temporal, embodied, and meaningful horizons. The linguistic turn finally demonstrates that conceptual determination is neither a private achievement nor an immediate relation between an isolated consciousness and an independently finished world : it is mediated by public signs, shared rules, and intersubjective practices.

Through these turns, the knower becomes progressively less eliminable and progressively less substantial. The constructive activity of the subject cannot be denied *without being exercised in the denial*. Yet this transcendental necessity does not establish the ontological primacy of the subject. Construction is not creation. Mediation is not production of the actuality mediated. The fact that an object can be known only through the activity of a knower does *not* entail that the object exists only *because* it is known.

The turns therefore support criticism rather than ontological idealism. They dismantle naive realism, according to which conceptual knowledge passively copies a world already divided, identified, and interpreted from its own side. They do not dismantle the object. The object remains the irreducible pole that prevents cognition from closing upon its own constructions.

b. The Cartesian Turn

The Cartesian turn relocates the point of departure of philosophy from the authority of tradition and the presumed self-evidence of the external world to the reflexive certainty of the thinking subject. Methodical doubt suspends inherited beliefs, sensory assurances, and accepted demonstrations. Yet doubt cannot suspend the activity of doubting itself. Even radical deception presupposes someone being deceived. The act through which certainty is questioned therefore discloses the presence of the questioning subject.

The lasting achievement of this turn is not the substantial ego but *reflexivity*. Knowing cannot be adequately understood from a standpoint that *omits* the knower. Any proposition, argument, denial, or doubt is an activity *performed by a subject*. The subject is therefore not an accidental addition to knowledge but one of its necessary poles.

Descartes nevertheless converts this functional necessity into an *ontological* foundation. The thinking subject becomes a *res cogitans*, a self-sufficient thinking substance whose existence is allegedly more certain than the existence of the extended world. The unity of cognitive activity is transformed into a thing possessing thought as its *essential* property. The epistemic priority of reflection is thereby mistaken for the ontological priority of a substantial self.

This reification generates the problem of representation. Once mind and world are divided into two independently existing substances, the subject no longer encounters objects *but only ideas representing them*. The question then becomes how an inner representation can correspond to an outer object. The external world must be reconstructed from within the subject, and its reliability must ultimately be ‘guaranteed’ by a *metaphysical principle*.

The Cartesian turn thus produces both a gain and an impasse. Its gain is the recognition that the knower cannot be *eliminated* from the act of knowing. Its impasse is the transformation of this necessary subject-pole into an *independently existing substance*.

Criticism retains the former and rejects the latter. The subject is transcendently necessary but not thereby ontologically self-sufficient.

c. The Copernican Turn

The Copernican turn *radicalizes* the constructive role of the knower while *dereifying* the Cartesian ego. Instead of asking how cognition can conform to independently constituted objects, it asks *under which conditions* objects can become known. The object of conceptual knowledge is not merely received. It is articulated through forms, categories, distinctions, and syntheses contributed by cognition.

What is consciously presented in sensation does not enter conceptual knowledge as an *already classified fact*. Identification, comparison, relation, quantity, causality, possibility, and necessity are not simply read from a theory-free given. They belong to the formal activity through which a manifold becomes a determinate object about which assertions can be made. The known is therefore never the object stripped of every contribution by the knower. It is the object as conceptually determined under the conditions of possible knowledge.

This constructive activity is *unavoidable*. Any attempt to deny that cognition contributes to object-knowledge must itself employ concepts, distinctions, inferential relations, and rules of identification. *The denial performs what it rejects*. Yet what is transcendently established is the *necessity* of constructive activity in general, not the finality of every particular categorial scheme. Kant's own inventory of categories may be criticized, modified, or reconstructed without reversing the Copernican turn.

The distinction between *phenomenon* and *noumenon* follows. The phenomenon is not a deceptive veil placed between the subject and the real object. It is the object *insofar as it becomes knowable under the conditions of conceptual cognition*. The *noumenon* is not another object hidden behind the phenomenon, nor an unknown substance causing appearances from outside every possible relation. It is the limit-concept *preventing* the phenomenon from being identified with reality-as-such.

The *noumenon* therefore performs a critical function. It marks that object-knowledge is never *exhaustive possession* of the object independently of every condition of knowing. The mind contributes to the determination of what is known, but it does not follow that it produces the actuality known. The object remains irreducible even though it can never be conceptually encountered apart from the conditions under which it becomes an object-for-us.

This is the proper meaning of critical idealism. It affirms that the forms and interpretations contributed by the knower are indispensable to conceptual knowledge. It does not affirm that the subject creates the world or that actuality consists in representations. The ideality at issue is epistemic and normative, not ontological.

The complementary position is critical realism. One must think that the noumenon becomes conceptually known in the fact while remaining irreducible to the constructive contribution of the knower. Reality-as-such must be presupposed as independent of the assertion through which something becomes known, although it cannot be conceptually possessed apart from such assertions. It may nevertheless be the case that conceptual knowledge as a whole constitutes a universal illusion.

The Copernican turn consequently establishes the critical middle. Naive realism is rejected because the known cannot be separated from the constructive activity of the knower. Ontological idealism is rejected because the constructive conditions of knowing cannot be converted into the constitutive ground of what exists.

d. The Phenomenological Turn

The phenomenological turn deepens the Copernican insight by shifting attention from general formal conditions to the concrete relation between consciousness and its objects. Consciousness is intentional : it is consciousness of something. An object is correspondingly presented through determinate acts, perspectives, horizons, anticipations, recollections, and modes of attention.

The subject and object are therefore not first two isolated things that subsequently enter into relation. They are distinguishable poles within an intentional correlation. No act of consciousness is without an intended object, and no object-as-presented is available apart from a mode of presentation. This does not abolish the difference

between object and subject. It shows that their epistemic relation is more primordial than their later ontological separation into independent substances.

The phenomenological suspension of the natural attitude makes this correlation visible. What is bracketed is not the appearing world but the unexamined belief that the world is known exactly as it exists independently of every condition of appearance. The same world remains at issue, but it is now considered according to how it is presented, intended, remembered, anticipated, and judged.

The constructive activity of the knower is thereby shown to extend beyond explicit conceptual categorization. Objects become meaningful within temporal horizons, practical engagements, embodied orientations, affective salience, and fields of attention. What is encountered is never a bare, self-interpreting datum. It is presented within an already organized field of relevance and possible action.

This extension does not alter the strict status of perception. Perception remains the necessary givenness that must be presupposed for sensation to be possible. Phenomenological description concerns the modes in which objects are consciously presented in sensation and taken up within intentional life. It does not convert perception into a describable content or process.

Phenomenology also corrects the Cartesian enclosure of consciousness. The subject is not a sealed interior inspecting private representations. Intentionality is directed outward ; embodiment situates the subject in the world ; temporality extends it beyond the isolated present ; and intersubjectivity belongs to the conditions under which a common world can appear. The subject becomes an open, relational, and worldly activity rather than a windowless substance.

Yet the phenomenological turn can itself become reified. When intentional constitution is interpreted as the production of the being of the object, phenomenology crosses into ontological idealism. When structures disclosed through phenomenological reflection are presented as self-existing essences, description crosses into essentialism. When the transcendental ego is treated as an absolute source of meaning, the Cartesian substance returns in a refined form.

Criticism retains the intentional correlation while rejecting these inflations. The object-as-presented is co-constituted through intentional activity, but the object is not therefore reducible to its presentation. Meaning arises within the relation between knower and known ; actuality does not become a product of that meaning. The phenomenological turn deepens the constructive role of the subject without granting consciousness ontological sovereignty.

e. The Linguistic Turn

The linguistic turn further displaces the isolated subject by demonstrating that conceptual meaning depends on signs, rules, and publicly shared practices. Concepts are not private mental possessions whose meanings are first complete within consciousness and only later communicated to others. Their identity depends on their use within a community of sign-interpreters.

Language is therefore not merely an external instrument used to report knowledge already formed in silence. It participates in conceptual formation itself. To identify something as an object, property, event, cause, person, fact, or possibility is already to employ distinctions stabilized through linguistic practice. The knower

does not first possess a complete, nonlinguistic world-picture and subsequently attach words to it. Language contributes to the articulation of the world as conceptually known.

The constructive activity of the knower is thus revealed to be intersubjective. Categories and meanings are inherited, learned, contested, and revised within historical communities. The subject speaks with words it did not privately create and follows rules whose application depends on shared criteria. Even first-person reports presuppose a language whose meanings cannot be secured by private reference alone.

This turn corrects the remaining solitariness of Cartesian and transcendental philosophy. The knower is not an isolated ego but a participant in practices of communication, argumentation, interpretation, and correction. Conceptual knowledge is produced within a community capable of asking for reasons, challenging assertions, testing claims, and revising its vocabularies.

The linguistic turn also deepens the conventionality of knowledge. Different conceptual schemes may divide, emphasize, and organize what is encountered in different ways. Naming stabilizes transient processes into identifiable objects. Grammar can suggest substances where only functions and relations are warranted. Metaphors can guide inquiry but may later be mistaken for descriptions. Language does not simply disclose a ready-made ontology ; it participates in constructing the forms under which actuality becomes discussable.

Yet linguistic mediation does not imply linguistic idealism. The fact that knowledge is articulated through language does not mean that language creates what exists. A vocabulary can determine how an object is identified without determining whether the object answers to the claims made about it. Assertions may fail. Expectations may be frustrated. Experiments may resist a theory. Different speakers may agree and nevertheless be wrong.

Consensus is therefore necessary but insufficient. Knowledge claims must be intelligible and arguable within a community, but intersubjective agreement cannot replace factual constraint. A community may stabilize an error, institutionalize a fiction, or exclude relevant evidence. The Ideal must remain answerable to the Real.

The linguistic turn thus completes the displacement of the substantial knower without dissolving the subject altogether. The subject becomes a historically situated, embodied, and socially formed sign-interpreter. This subject does not possess language from outside but participates in it, modifies it, and remains responsible for its assertions. Construction is communal and conventional, but it is not arbitrary.

f. The Accumulated Result

The turns form a progressive arc. The Cartesian turn establishes the reflexive necessity of the subject. The Copernican turn establishes the subject's formal and categorial contribution to object-knowledge. The phenomenological turn discloses the intentional, temporal, embodied, and meaningful organization of presentation. The linguistic turn shows that conceptual meaning and justification are embedded in public practices of signification and argumentation.

Each turn removes a reification left by its predecessor. The substantial Cartesian ego becomes the transcendental subject-pole. The abstract transcendental subject is situated within intentional and embodied life. The apparently self-contained field of consciousness is opened to language, history, and intersubjectivity. The subject becomes less a thing and more a function, relation, activity, and participant in a process.

This progressive desubstantialization does not diminish the constructive activity of the knower. It makes that activity more comprehensive. Construction is not performed by a solitary soul standing outside the world but by embodied, historical, linguistically formed subjects acting within it. Knowing is an event in the world and not a view upon the world from elsewhere.

Nor do the turns progressively eliminate the object. They progressively eliminate naive conceptions of the object. The object is no longer treated as something conceptually complete before it enters cognition, as an appearance generated by consciousness, or as a product of language. It remains what cognition is about and what prevents interpretation from becoming self-enclosed.

The constructive activity of the knower and the irreducibility of the known are therefore equally undeniable. Remove the subject, and there is no one to know, no interpretation, no assertion, and no validation. Remove the object, and there is nothing known, no factual constraint, and no distinction between discovery and invention. Any account eliminating either pole must covertly reintroduce what it denies.

g. Critical Realism and Critical Idealism

The accumulated result of the turns is expressed by the coordination of critical realism and critical idealism. These are not two competing ontologies. They are complementary restrictions governing the possibility and validity of conceptual knowledge.

Critical realism states that one *must* think that the *noumenon* becomes conceptually known in the fact while remaining irreducible to the constructive contribution of the knower. A fact is what becomes known in an assertion while necessarily being known independently of that assertion. Reality-as-such must therefore be presupposed as independent of the assertion, although it cannot be conceptually possessed apart from assertions. Yet it cannot be conceptually separated from every condition under which it becomes known. It remains a necessary limit-signifier, not an object possessed without mediation.

Critical idealism affirms the irreducibility of the subject. No fact becomes known without selection, interpretation, conceptual articulation, and linguistic formulation. The knower contributes forms, distinctions, theoretical connotations, and standards of relevance. Knowledge is therefore always knowledge-for-us : conventional, fallible, historically situated, and corrigible.

Critical realism without critical idealism becomes naive realism. It treats facts as self-present and the knower as a passive registrar. Critical idealism without critical realism becomes ontological idealism. It treats the object as a construction of mind, consciousness, language, or consensus. Criticism prevents both reductions.

The Real and the Ideal name the regulative orientations corresponding to these poles. The Real directs inquiry toward factual independence, correspondence, and the resistance of the object. The Ideal directs it toward argumentative unity, consensus, coherence, and the constructive activity of the subject. Neither is a constitutive ground. Neither may absorb the other.

Their relation is an armed truce.

Testing without interpretation is impossible ; interpretation without factual constraint is empty. Correspondence without consensus cannot become shared knowledge ; consensus without correspondence cannot become factual knowledge. Scientific practice advances by maintaining this tension rather than resolving it through an ontology of matter or mind.

h. The Critical Verdict

The four turns make the constructive activity of the knower undeniable. They do not establish that the knower constructs reality-as-such. Their conclusion is epistemic : objects become known only through the formal, intentional, embodied, linguistic, and intersubjective activities of subjects. Their conclusion is not ontological : the existence of what becomes known is not thereby reduced to those activities.

Construction must therefore be distinguished from fabrication. The knower constructs object-knowledge by identifying, interpreting, relating, and asserting. The knower does not create the actuality to which valid knowledge answers. The known is co-constituted as known, not produced as existent.

This distinction is decisive for metaphysics. Immanent metaphysics cannot claim to describe the world independently of every contribution by the metaphysician. Its hyper-concepts are constructive, conventional, arguable, and revisable. Yet neither may it conclude that the world is merely a metaphysical construction. The world remains the sole field of actualities to which every admissible speculation must answer.

The turns thus establish the position from which metaphysical reason must proceed. The subject cannot be eliminated, the object cannot be reduced, and their relation cannot be grounded in a substance standing outside knowledge. Criticism accepts the constructive activity of the knower while refusing the ontological inflation of that activity. It is critically idealist concerning the conditions of knowing and critically realist concerning the irreducibility of what is known.

What remains is to determine the precise limits this position imposes upon metaphysical speculation.

§ 4 The Real and the Ideal

The Real and the Ideal do more than prohibit realist and idealist reification. They supply the two positive vectors by which a metaphysical worldview becomes genuinely totalizing. In *Regulae I*, the Real guarantees expansion on the side of the object, while the Ideal guarantees unity on the side of the subject and intersubjective discourse. Their conjunction regulates the movement toward a comprehensive coherence between, on the one hand, knowledge, and, on the other

reality (correspondence) and ideality (consensus), although this imagined convergence—the Real-Ideal—remains a *focus imaginarius* rather than an attainable object.

The term ‘guarantee’ must be understood transcendently and architectonically, not ontologically. The Real does not guarantee that reality-as-such possesses *diversity* as an inherent metaphysical property, and the Ideal does not guarantee that the world is *ultimately unified*. They guarantee that any critically admissible construction of knowledge or metaphysics must preserve both the *expansion* demanded by factual diversity and the *integration* demanded by rational unity. A worldview failing either demand ceases to be totalizing : without the Real, it closes into idealist self-reference ; without the Ideal, it fragments into unrelated facts.

a. Two Ideas of Critical Reason

The ideas of the Real and the Ideal arise from the irreducible duality of the object and subject of knowledge. The Real corresponds to the object-pole : what constrains cognition, resists arbitrary interpretation, and remains independent of any particular assertion made about it. The Ideal corresponds to the subject-pole : the constructive, argumentative, and intersubjective activity through which what is encountered becomes conceptually articulated, ordered, and shareable.

Neither idea denotes an object. The Real is not reality-as-such converted into a self-existing thing outside every relation to a knower. The Ideal is not an absolute subject, supermind, or self-grounding reason constituting the world. They are regulative ideas governing the two vectors necessarily involved whenever conceptual knowledge is produced.

Their function is not exhausted by guarding against reification. They also give direction to inquiry. The Real drives cognition outward toward greater factual differentiation, broader inclusion, and correction by what has not yet been adequately known. The Ideal drives cognition toward unity, coherence, intelligibility, and argumentative integration. Together, they prevent knowledge from becoming either a disconnected accumulation of particulars or an internally coherent construction answering to nothing beyond itself.

b. The Real and the Expansion of Diversity

The Real regulates the *expansion* of conceptual knowledge. Every factual claim remains open to further testing, revision, differentiation, and contextualization because the object cannot be exhausted by the assertion through which it becomes known. What is known always leaves a remainder : further properties, relations, conditions, histories, and possible modes of investigation.

This inexhaustibility guarantees the *open-endedness of inquiry*. No finite description, theory, paradigm, or metaphysical scheme may identify itself with reality-as-such. However comprehensive an account becomes, the Real continues to direct attention toward what has been omitted, resisted assimilation, or emerged through new observation.

It keeps the field of knowledge open.

In metaphysics, the Real therefore secures *diversity*. A totalizing worldview must include the *plurality* of actual occasions, domains, processes, relations, and levels

disclosed by valid science and experience. It may not reduce these differences prematurely to a single substance, mechanism, mental act, or explanatory principle. The demand for totality is not satisfied by erasing the manifold.

The Real thus protects metaphysical *breadth*. It asks whether the scheme can admit physical, informational, sentient, biological, psychological, social, and historical processes without reducing them to one privileged domain. It requires the worldview to expand as knowledge expands and to alter its hyper-concepts when new distinctions become indispensable.

This expansion is not the indefinite addition of unrelated facts. Diversity must be preserved as *articulated* diversity : differences among actualities, functions, and processes that enter into determinate relations.

The Real guarantees plurality without converting plurality into isolation.

c. The Ideal and the Achievement of Unity

The Ideal regulates the *unification* of knowledge. Facts do not organize themselves into theories, and theories from different domains do not spontaneously form a worldview. Their integration requires selection, comparison, abstraction, interpretation, argumentation, and the construction of concepts capable of relating what initially appears dispersed.

The Ideal therefore directs cognition toward *coherence*. It demands that propositions not merely coexist but stand in intelligible relations, that contradictions be identified, that concepts retain stable meanings, and that local explanations be situated within wider structures. Its movement is synthetic : it gathers the manifold without denying its distinctions.

In science, the Ideal guides the search for argumentative agreement among relevant sign-interpreters. In metaphysics, where propositions are arguable but not testable, its role becomes even more prominent. It governs the construction of comprehensive, arguable hyper-concepts capable of coordinating the factual results and domain-specific models supplied by the sciences.

The Ideal consequently guarantees *unity* within the worldview. This unity is not the substantial unity of an underlying One, nor the absolute identity of thought and being. It is architectonic unity : the orderly coordination of diverse elements within one intelligible scheme. The worldview is one because its parts can be related, not because their differences have been dissolved.

The Ideal protects metaphysical *depth*. It asks what general relations, recurrent structures, dependencies, and processual patterns permit heterogeneous actualities to be thought together. It prevents the totalization from remaining an encyclopedia of juxtaposed findings.

d. Diversity and Unity as the Two Demands of Totalization

A totalizing worldview must satisfy two simultaneous demands. It must expand toward *maximal diversity* under the guidance of the Real, and it must integrate that diversity into *maximal unity* under the guidance of the Ideal.

Neither demand may be fulfilled at the expense of the other.

Expansion without integration produces *fragmentation*. The worldview becomes an inventory of facts, domains, and perspectives lacking an account of how they belong to one world. Such a scheme may be descriptively abundant but is not metaphysically comprehensive.

Integration without expansion produces *reduction*. The worldview acquires elegance by forcing heterogeneous phenomena into a privileged explanatory form. Materialism reduces sentience and meaning to physical process ; mentalism reduces actuality to consciousness ; substantial monism reduces becoming to modifications of an underlying identity. Such schemes possess unity, but they purchase it by *suppressing diversity*.

Critical totalization differs from both. It seeks unity-in-diversity : a scheme comprehensive enough to accommodate the manifold and integrated enough to show how its components participate in one world-process. Diversity prevents unity from becoming identity ; unity prevents diversity from becoming dispersion.

The relation is dynamic.

As the Real introduces new differentiations, the Ideal must reorganize the scheme. As the Ideal proposes broader integrations, the Real must test their adequacy against what the scheme seeks to include.

Metaphysical advancement occurs through this recurring movement of expansion and reconstruction.

e. Critical Realism and Critical Idealism in Metaphysics

Critical realism is the metaphysical discipline imposed by the Real. It requires the worldview to *answer to factual resistance*, scientific knowledge, and the theory-transcendent side of every fact. Metaphysical concepts may coordinate scientific findings but may not replace them, contradict them without argument, or reinterpret them solely to preserve a *favoured system*.

Critical idealism is the metaphysical discipline imposed by the Ideal. It acknowledges that no worldview arises through passive reception. Totalization requires *constructive* thought : the selection of relevant domains, the formation of hyper-concepts, the articulation of relations, and the argumentative ordering of the whole. The worldview is made, not found ready-made.

This making is not fabrication. Critical idealism concerns the construction of the worldview, not the creation of the world. Critical realism concerns the independence and resistance of what is totalized, not access to reality stripped of every condition of cognition. The former guards the constructive unity of the scheme ; the latter guards its factual openness.

The two positions must therefore remain coordinated. Critical realism without critical idealism mistakes the worldview for a mirror of a ready-made reality. Critical idealism without critical realism mistakes the coherence of the worldview for the constitution of reality. The metaphysical scheme is constructed under constraint.

f. The Real-Ideal as *Focus Imaginarius*

The Real and the Ideal tend toward an imagined convergence. The Real directs knowledge toward complete correspondence with reality ; the Ideal directs it toward complete argumentative unity and coherence. Their perfect intersection would be a worldview in which every actuality was adequately known and every item of knowledge integrated without contradiction or remainder.

This *intersection* may be called the Real-Ideal. It is not an achieved synthesis, an absolute object, or the ontological unity of thought and being. It is a *focus imaginarius* : an *imagined point* orienting the two vectors without ever becoming conceptually attainable.

The Real-Ideal is therefore not a third principle standing above the Real and the Ideal. Nor is it a world-ground, Absolute Spirit, Divine intellect, or nondual state. It names the unattainable coincidence of exhaustive correspondence and complete coherence to which all conceptual, dualistic cognition is bound. Like the horizon, it guides movement while receding from every finite position.

Its metaphysical value is nevertheless considerable. It prevents totalization from *settling prematurely*. A worldview remains revisable because its correspondence is incomplete and its coherence provisional. The Real-Ideal thus supplies an asymptotic measure of metaphysical adequacy : greater inclusion of diversity, greater integration into unity, but never absolute completion.

g. The Positive Architectonic Function

The Real and the Ideal provide immanent metaphysics with its most general architectonic polarity. The Real supplies the manifold to be totalized ; the Ideal supplies the conscious synthesis through which it becomes a worldview. The Real keeps the totality open ; the Ideal makes it intelligible. The Real introduces difference and novelty ; the Ideal seeks relation and convergence.

In the language of process metaphysics, the Real directs attention toward the many actual occasions constituting the world *disjunctively*. The Ideal directs attention toward their relational integration into the world *conjunctively*. This does not transform Whitehead's formula into a transcendental deduction. It shows why a process orientation is *especially compatible* with the two critical demands : process can preserve the many without isolating them and think their unity without reducing them to an underlying substance.

The Real and the Ideal also provide criteria for judging rival metaphysical schemes. A scheme is deficient on the side of the Real when it excludes relevant domains, suppresses differences, ignores factual resistance, or presents speculation as science. It is deficient on the side of the Ideal when its concepts remain disconnected, contradictory, semantically unstable, or incapable of integrating the material they claim to encompass.

A critically adequate worldview must therefore be evaluated along two axes : scope and integration. Scope concerns how much diversity the scheme can admit without distortion. Integration concerns how coherently that diversity can be related without reduction. Neither criterion is sufficient alone.

h. The Critical Verdict

The Real and the Ideal are not merely prohibitions against ontological realism and ontological idealism. They are the *positive conditions of metaphysical totalization*. The Real guarantees the expansion, plurality, and openness of the worldview. The Ideal guarantees its coherence, unity, and intelligibility. Their coordinated activity enables the construction of a comprehensive picture of the world without converting that picture into absolute knowledge.

They guarantee diversity and unity only within the critical practice of totalization. They do not prove that reality-as-such is intrinsically divided according to the Real and the Ideal, nor that the world possesses a final synthesis in which all difference is overcome. Their necessity is methodological and architectonic, not ontological.

The totalizing worldview is therefore bipolar.

It must remain open to the inexhaustible diversity indicated by the Real and continually seek the non-reductive unity required by the Ideal. The convergence of these vectors is *regulative* and *asymptotic*. It guides metaphysics toward maximal comprehensiveness while preventing the completed worldview from being reified as the Real-Ideal itself.

The two ideas thus do more than *guard the borders* of metaphysics. They generate its constructive movement : outward toward the many, inward toward their intelligible togetherness, and forward toward a totality that can be approached but never possessed.

§ 5 The Limits of Metaphysical Reason⁵

a. Limitation as Critical Determination

To call metaphysical propositions ‘untestable but arguable’ establishes their epistemic register, but it does not yet specify the limits governing metaphysical argument. Untestability distinguishes immanent metaphysics from science. Arguability distinguishes it from arbitrary assertion, revelation, private conviction, and transcendent un-saying.

These demarcations are indispensable, but they remain preliminary.

Metaphysical reason is limited by the conditions under which it operates. Its arguments must conform to logic, its concepts must remain semantically determinate, its claims must acknowledge the constructive activity of the knower, its interpretations must remain compatible with valid science, its inferences must not convert possibility into actuality or explanatory demand into existence, and its totalizations must remain open to what they have not included.

At the final boundary, reason, always conceptual, must refrain from assigning positive determinations to what has been introduced as transcendent.

These limits do not prohibit metaphysics. They constitute the difference between admissible speculation and *pre-critical inflation*. A metaphysics without limits becomes an ontology claiming to disclose what exists from its own side. A metaphysics reduced to its limits alone becomes skepticism or linguistic policing. Critical metaphysics occupies the field between these extremes : it constructs a

worldview while identifying the conditions, restrictions, and possible failures of that construction.

b. The Transcendental Limit

Every metaphysical claim is made within the *fact of reason*. It presupposes the distinction between what becomes known and the constructive activity through which it becomes known. No metaphysician can leave this relation behind, adopt a position *outside* knowledge, and compare the conceptual worldview with reality-as-such as though both were available from a *third standpoint*.

The metaphysician therefore cannot *describe* the world exactly as it would be *independently* of every possible knower. Nor can the constructive activity of the knower be elevated into the ontological source of the world. Critical realism and critical idealism remain jointly operative. One *must* think that the *noumenon* becomes conceptually known in the fact while remaining irreducible to the constructive contribution of the knower. Reality-as-such *must* be presupposed as independent of the assertion through which something becomes known, although it cannot be conceptually possessed *apart* from such assertions. It may nevertheless be the case that conceptual knowledge as a whole constitutes a universal illusion.

The possibility of universal illusion does not invalidate conventional knowledge. No comparison can be made between the whole conceptual order and a non-conceptual representation of how reality 'really' is, for the latter would already be another conceptual construction. Science retains its conventional validity because testing and arguing remain binding within the only conceptual field available. Metaphysics retains its admissibility because its arguments can be assessed within that field. What neither can claim is absolute correspondence apprehended independently of the conditions of cognition.

The transcendental limit therefore restricts the kind of objectivity metaphysics may claim. Its worldview may be comprehensive, coherent, and answerable to factuality. It cannot be a view from nowhere or a conceptual duplication of reality-as-such. Its objectivity is critical : the construction remains answerable to what cannot be reduced to the construction.

c. The Logical and Modal Limits

Logic is a necessary but insufficient condition of metaphysical validity. A contradictory scheme defeats itself, and an argument that violates its own presuppositions cannot be repaired by the grandeur of its conclusions. Yet consistency *alone* does not establish truth. Several incompatible metaphysical schemes may each be internally coherent. Logic determines what follows from accepted premises ; it does not establish those premises.

This restriction bears directly on traditional metaphysics. A concept cannot prove the existence of its object merely because existence has been included in its definition. The necessity with which a conclusion follows from premises must not be confused with the necessary existence of what the conclusion names. Deductive necessity belongs to the inferential relation. Ontological necessity would belong to the object. The first cannot produce the second without an additional premise already asserting the required connection (Kant, 1781/1787).

The same distinction governs metaphysical modality. Conceivability does not by itself establish possibility. Inconceivability does not establish impossibility. Formal consistency does not automatically establish physical, metaphysical, or existential possibility. A description may be logically well formed while failing to correspond to any actual or possible configuration of the world.

Nor does explanatory indispensability establish existence. That a theory appears incomplete without a ground, cause, conserver, designer, or final principle does not entail that such an entity exists. The need of reason for completion may disclose the architecture of reason rather than the architecture of the world. A terminus introduced to stop a regress does not become self-grounding merely because an explanatory sequence has been brought to an end.

Metaphysical reasoning must therefore keep distinct :

1. what can be conceived ;
2. what is logically consistent ;
3. what is metaphysically possible ;
4. what is compatible with valid science ;
5. what is actual ;
6. what must necessarily be the case.

A passage from one modality to another requires argument. Without it, conceptual possibility is inflated into ontological actuality, and the demand for explanation becomes a supposed explanatory being.

d. The Semantic and Nominalist Limits

Metaphysics operates through general concepts, but generality does not establish a corresponding universal entity. The term ‘process’ does not prove the existence of process as a self-sufficient universal. ‘Matter,’ ‘information,’ ‘consciousness,’ ‘world,’ and ‘world-ground’ do not name substances merely because they function grammatically as nouns. Their metaphysical status must be determined by the role they perform within the scheme.

Ockham’s critique of universals remains decisive here. Whatever exists outside the mind is individual. A universal, by contrast, is predicable of many. Suppose a universal were one extra-mental substance existing in several individuals. The numerically same thing would then be wholly present in distinct particulars and would be both one and many in the same respect. Suppose instead that the universal were multiplied in its instances. Each multiplication would be an individual and would therefore no longer be the universal allegedly common to them. Universality consequently belongs to signification and predication, not to a common substance existing outside the mind (Ockham, 1974).

A universal is a terminus conceptus, a concept able to signify or stand for many individuals in propositions. Spoken and written terms depend upon conventional languages ; the mental term performs the conceptual function through which individuals are classified and discussed. Science may formulate universal propositions, but it need not posit universal entities corresponding to their general terms. The proposition concerns individuals through terms predicable of them.

This nominalist argument limits metaphysics in two directions. On the side of the object, it prohibits the automatic conversion of common predicates into common substances, essences, is-nesses, being-nesses, or ipseities. On the side of the subject, it prevents conceptual unity from being projected into the world as though the organization of a vocabulary disclosed an independently articulated ontology.

Ockham's nominalism does not itself yield a process metaphysics. He retained individual substances and individual qualities as basic *extra*-mental realities. His argument instead establishes a semantic and ontological economy : no entity should be posited merely because a general term occurs in a proposition.

The present process orientation carries this economy further by treating substances as provisional stabilizations of processes, relations, and functions. That extension is a metaphysical choice, not an implication contained in Ockham's logic.

The semantic limit also applies to metaphor and analogy. A 'world-ground' may orient thought toward formative possibility, but it must not quietly become a substrate beneath the world. A 'field' may indicate relational organization without becoming a physical field. An 'operator' may indicate a distinguishable mode of functioning without becoming an agent performing operations.

A metaphor becomes reifying when its grammatical implications are treated as ontological discoveries.

Every major metaphysical concept must therefore be accompanied by an account of its *function*. Does it identify an actuality, a relation, a condition, an operation, a model, a regulative idea, a hyper-concept, or a limit-signifier ? A concept whose epistemic status remains indeterminate can move unnoticed between these functions and acquire an ontological force that no argument has established.

e. The Epistemic and Scientific Limits

Immanent metaphysics depends upon valid science but is not determined uniquely by it. Scientific theories constrain the metaphysical picture by establishing which claims are factually admissible *pro tem*. A metaphysics contradicting firmly established results without supplying scientific reasons for their revision is defective. Yet the same body of scientific knowledge may remain compatible with several metaphysical interpretations.

This is the underdetermination of metaphysics by science. Empirical findings do not arrive with one compulsory ontology attached. A physical theory may be interpreted realistically, instrumentally, structurally, relationally, or processually while preserving much of the same predictive apparatus. Theories are tested in conjunction with auxiliary assumptions, measurement procedures, background knowledge, and interpretive decisions rather than as isolated propositions (Duhem, 1906 ; Quine, 1951).

Metaphysical disagreement therefore cannot always be resolved by requesting one further experiment. The experiment may constrain the available positions, eliminate a scheme that entails a failed prediction, or force revision of an inherited category. It may not decide among schemes that remain empirically equivalent or whose differences concern the interpretation of the whole.

This does not free metaphysics from science. Scientific underdetermination is not metaphysical license. Compatibility is a necessary but insufficient condition. A metaphysical scheme must also display logical consistency, semantic clarity, scope, integration, explanatory economy, and heuristic relevance. It must show why its hyper-concepts improve the organization of knowledge rather than merely redescribe it in another vocabulary.

The distinction between scientific and metaphysical claims can also change. A speculative concept may later acquire operational definitions and testable consequences. At that point, the relevant part of the speculation enters science and must submit to empirical adjudication. Conversely, scientific concepts may carry metaphysical interpretations not themselves tested by the experiments supporting the theory. The boundary is functional and revisable, not a permanent division of subject matter.

A metaphysics can therefore be undermined indirectly. When scientific developments invalidate factual assumptions on which its construction depends, the construction must change. A system tied to absolute space, immutable species, strict causal locality, or an unchanging cosmos cannot preserve those commitments merely by calling them metaphysical. Its scientific background has altered, and its totalization must be reconstructed.

f. The Limit of Totalization

Metaphysics seeks totality, but totality is never given to it as a completed object. Every worldview is constructed from within the world, at a determinate historical moment, through a finite body of knowledge and a limited conceptual vocabulary. The totality it presents is therefore orienting rather than exhaustive.

The Real directs the scheme toward greater diversity and expansion. The Ideal directs it toward greater unity and integration. Neither vector reaches completion. New actualities may become known, existing domains may be differentiated more precisely, and relations previously overlooked may become decisive. At the same time, new forms of integration may reorganize what had appeared settled.

A totalizing worldview must consequently remain revisable in both content and architecture. Revision of content adds, removes, or corrects particular claims. Revision of architecture alters the concepts through which the claims are related. A discovery may require more than adding another fact ; it may reveal that the scheme's distinctions between matter and life, organism and environment, subject and object, or individual and society were wrongly drawn.

Comprehensiveness also increases risk. The broader a metaphysical system becomes, the greater the danger of equivocation, concealed shifts of register, unsupported analogies, and reduction of heterogeneous domains to one privileged vocabulary. Totalization must therefore preserve distinctions while seeking relations among them. Unity without diversity is reduction ; diversity without unity is aggregation.

No metaphysical system can prove that all viable alternatives have been considered. An unconceived scheme may coordinate the same knowledge more coherently, preserve more relevant distinctions, or disclose assumptions shared by all current competitors. The possibility of such alternatives places every immanent metaphysics under a permanent condition of provisionality.

Whitehead's demand that speculative philosophy be coherent, logical, applicable, and adequate expresses an orientation rather than an attainable completion. No system can demonstrate its adequacy to every possible element of experience, including those not yet encountered or conceptually recognizable (Whitehead, 1929). The totalizing worldview remains an open architectonic, not a closed inventory of reality.

g. The Explanatory Limit

Metaphysics seeks explanations of the widest scope, but an explanation is always relative to a question, contrast, vocabulary, and accepted background. To explain why one event occurred rather than another differs from explaining why there are events, why causality operates, or why anything exists. A principle successful at one explanatory level cannot automatically answer a question arising at another.

An explanation may identify antecedent conditions, constitutive relations, functional roles, formal constraints, probabilities, or aims. These forms must not be conflated. To say that a structure conditions an event is not necessarily to identify its efficient cause. To say that a process performs a function is not to establish that it was designed for that function. To identify a recurrent order is not to establish an ordering intelligence.

The demand that every explanation terminate in something self-explanatory is itself metaphysical. Nothing guarantees that the world must satisfy this demand. A self-grounding terminus threatens contradiction : if it is explained by its own nature, that nature performs the work of another ground ; if it needs no explanation, the demand for universal explanation has been abandoned at the point selected to end it.

Critical metaphysics may therefore identify basic terms relative to its scheme without declaring them absolutely self-grounding. The actual occasion may be adopted as the elementary unit of process. Creativity may designate the passage from inherited multiplicity to novel unity. The world-ground may orient thought toward formative possibility. None becomes an explanation of why there is something rather than nothing merely by occupying a basic place in the system.

The limit of explanation is thus not silence at the first difficulty. It is the refusal to mistake systematic primitiveness for absolute self-sufficiency. A metaphysical primitive is where a given scheme begins its construction. It is not thereby where reality begins or what reality ultimately is.

h. The Transcendent Limit

Immanent metaphysics reaches its final limit when its concepts can no longer retain determinate application. It may identify the boundary of conceptual thought and introduce terms such as 'Absolute,' 'ultimate,' 'infinite,' 'Divine,' or 'nondual' as limit-signifiers. It cannot assign them positive properties and then continue arguing as though an object had been conceptually secured.

A transcendent signifier does not explain the world. Were it to enter an explanation, it would have to stand in determinate relations to what it explains and would thereby return to the immanent conceptual field. A transcendent cause, ground, mind, or being is consequently self-defeating when treated as a positive metaphysical object : the predicates intended to place it beyond the world make it conceptually part of a relational scheme concerning the world.

Nor can contradiction serve as evidence of transcendence. Paradox may expose the breakdown of a conceptual framework, but it does not disclose what lies beyond that framework. To affirm both sides of a contradiction because the transcendent allegedly exceeds logic destroys the distinction between a disciplined limit and arbitrary speech.

Transcendent metaphysics can therefore proceed only apophatically. It may identify reifications, withdraw illegitimate predicates, and indicate that conceptual possession has ended. Mystical experience, nondual cognition, poetry, and sacred symbolism belong to later inquiries concerning experience and its superstructures. They cannot supply positive premises for immanent metaphysical argument.

The world-ground must not be placed beyond this boundary. As used in immanent metaphysics, it is a hyper-concept of the formative possibilities implicated in the world-process. If it is converted into a transcendent source, absolute reservoir, Divine mind, or self-sufficient cause, its epistemic register changes and its explanatory function becomes invalid.

i. Ockham's Argument for a First Conserver

Ockham's proof of a first conserver is relevant to the limits of metaphysical reason because it shows how far a causal argument may legitimately proceed without crossing into transcendent inflation.

The argument does not establish a Creator *outside* the world, a necessary Being, or the God of monotheism. It establishes, at most, that an actual order of simultaneous conservation cannot consist entirely of dependent conservers and must therefore terminate in at least *one first conserver immanent to that order*.

As the world of the world system is such an order, Ockham's logic proved that a first conserver of it must exist.

Its importance is methodological : the conclusion remains strictly proportionate to the premises. What is demonstrated is a functional terminus within a specified relation of dependence, not a self-sufficient substance possessing omnipotence, omniscience, personality, uniqueness, or transcendence. The proof therefore marks a precise boundary. Metaphysical reason may infer a first immanent conserver where present conservation requires one, but it cannot convert this limited result into an ens realissimum without introducing premises the argument itself does not supply.

Ockham's causal argument begins by distinguishing two orders that traditional proofs had insufficiently separated : the order of efficient causes and the order of conserving causes.

An infinite temporal succession of efficient causes can be conceived because its members occur successively rather than simultaneously. It does not thereby exist

as an *actual infinite*. This temporal series therefore does not supply the actual infinity involved in the order of concurrent conservation. Conserving causes differ because all those required for the present effect must exist and operate simultaneously. The absence of a *demonstrable* prohibition blocks the inference to a first efficient cause. Ockham therefore shifts the argument to *conserving causes*, whose causal activity must be present together with the effect conserved.

The order of conserving causes differs from that of efficient causes.

A conserving cause is not *merely* an earlier producer of an effect. It is that on which the *continued existence of an effect presently depends*. If one conserver depends upon another, all members of the conserving order *must concur simultaneously in sustaining the effect*. Ockham argues that such a simultaneous order *cannot* proceed to infinity because it would require an *actually infinite number of concurrently existing conservers* (Ockham, 1984).

The argument may be reconstructed in full as follows.

Case to be tested : At least one first conserving cause exists.

1. Major premise : nothing dependent upon another for its present conservation can be the sufficient conserving cause of itself.
2. Minor premise 1 : some contingent actualities continue to exist only insofar as they are conserved by causes other than themselves.
3. Minor premise 2 : if a conserver is itself dependent upon another concurrent conserver, it is not first in the relevant conserving order.
4. Minor premise 3 : if every conserver were dependent, the order of conserving causes would proceed without a first member.
5. Minor premise 4 : unlike temporally successive efficient causes, all conserving causes required for a present effect must concur here and now.
6. Minor premise 5 : an infinite regress of such causes would therefore entail an actually infinite multitude of simultaneously existing conservers.
7. Lemma : an actually infinite multitude of simultaneously existing conserving causes is impossible.
8. Conditional conclusion : the present conserving order cannot consist entirely of dependent conservers.
9. Conclusion : at least one first conserving cause must exist within the order.

The argument is more disciplined than the ordinary cosmological inference because it does not simply reject every infinite regress. It identifies a particular kind of regress and states why its members would have to exist simultaneously. It also moves from present dependence rather than from an alleged temporal beginning of the world. Ockham could therefore leave open the eternity of the world while arguing for a first term in an order of conservation.

Nevertheless, the conclusion remains strictly limited. It establishes a first conserver only if all the premises are granted. The argument does not prove that everything contingent requires continuous conservation in the intended sense. It does not independently establish the impossibility of an actual infinite in the

physical world. Mathematical treatments of actual infinity neither validate nor refute that physical premise. Nor does the argument show that the first conserver is unique, transcendent, omnipotent, omniscient, perfectly good, or the Creator of every actuality.

Ockham himself acknowledges the narrowness of the conclusion. Natural reason cannot exclude a plurality of first conservers or demonstrate that an immanent created order is insufficient for the conservation of the phenomena under consideration. The argument therefore has little force as a proof of the God of monotheism. It yields, at most, at least one non-derivative conserver relative to a specified order of dependence.

This limitation is philosophically instructive. The expression ‘first’ is relative to the causal order established by the premises. It does not mean absolutely first in every respect. ‘Conserver’ identifies a function. It does not establish a substance possessing necessary existence. Nothing in the conclusion warrants the move from an immanent condition of conservation to a transcendent Author of the world.

The argument therefore demonstrates the critical rule it was once intended to surpass : conclusions must remain proportionate to their premises. Even if the argument succeeds, the First Conserver cannot be inflated into an *ens realissimum*. The inference terminates within immanent metaphysics. The addition of transcendence, personality, intelligence, will, or Divine perfection would require independent premises unavailable to the causal argument.

So, Ockham argues that, if the world-system is an order of contingent actualities requiring concurrent conservation, at least one first immanent conserver must exist.

j. The Argument from Design

The argument from design begins from the order, variety, fitness, and beauty encountered *in* the world and infers that such organization requires an intelligent, purposive *cause*. Its underlying structure is straightforward : where heterogeneous elements cooperate in producing determinate forms or functions, their coordination cannot be explained by the elements taken separately ; purposive coordination requires selection and arrangement ; therefore, an intelligence must be responsible for the organization of the world.

The argument first breaks at the level of its object. The world as a completed, organized whole is *not* given in experience. What is given are local and large-scale regularities, systems, organisms, environments, and relations, from which the idea of a unified world-order is constructed. The argument therefore begins by treating a regulative totalization as though it were an observed object possessing one determinate design.

It breaks again in the transition from organization to intelligence. The claim that ordered cooperation cannot arise without purposive arrangement is not established. Order may arise through physical constraints, spontaneous organization, cumulative selection, feedback, environmental adaptation, and the historical stabilization of successful configurations. These processes do not eliminate the metaphysical question of order, but they prevent order from serving as direct evidence of an ordering intelligence.

Apparent purposiveness is not equivalent to an *intended purpose*.

The term 'aim' is itself equivocal. An organism, organ, institution, or process may possess a *function* relative to a larger system without that function having been consciously selected in advance. A heart has a function within an organism, but this does not by itself imply that the organism or the world was designed by an external intelligence. Immanent direction, functional organization, and extrinsic purpose must therefore be distinguished. The argument moves illegitimately from the first two to the third.

The analogy with human artifacts is also insufficient. A building warrants an inference to a builder because buildings and builders are independently known, and because numerous instances establish the relevant connection. No comparable experience of manufactured worlds or world-makers is available. Similarity between the world and an artifact cannot bear the conclusion that the former was produced *in the same manner* as the latter.

Nor does the unity of observed relations establish the unity of an intelligent cause. A relatively integrated order may result from shared constraints, distributed interactions, several coordinating agencies, or one historical process without a central designer. The movement from *unity of organization* to *one organizing intelligence* is underdetermined. Even were an intelligent cause admitted, nothing in the argument would establish its uniqueness.

Kant was therefore correct to restrict the physico-theological argument to a stage of *admiration*. The order and magnificence of nature may arouse wonder and encourage inquiry into increasingly comprehensive forms of organization. They cannot prove an Author (or creator). At most, the argument suggests an *architect* working with given materials, laws, and possibilities. Such an architect would remain proportionate to the world and restricted by what can be organized. It would not be the self-sufficient Author of the world, the source of its materials and laws, or the transcendent ground of all possibility.

Even this proximate architect is not demonstrated. The argument licenses, at most, a heuristic interpretation of the world in terms of architectonic unity, formative order, or immanent direction. It does not establish an *intelligent agent*. To call this ordering 'intelligent' already *personifies* the organization that the argument was meant to explain.

The terms 'Architect of the World,' '*Anima Mundi*,' and 'God*' may nevertheless be retained as speculative hyper-concepts, provided their status is explicit. They may personify the unity, conservation, and formative organization of the world-process. They may not be treated as independently existing minds, efficient causes, or bearers of omniscience, omnipotence, freedom, or moral perfection. No conclusion regarding their knowledge of the past, present, or future follows from the argument. Under critical conditions, the 'Architect,' etc. may be retained only as a regulative schema or immanent hyper-concept of architectonic unity, formative order, and purposive direction.

The presence of orders *inimical* to life further restricts any theological interpretation. The world produces not only organisms, beauty, and sentience but extinction, parasitism, predation, disease, sterility, and configurations indifferent

or hostile to life. Selective attention to harmonious results cannot establish a benevolent design. Any architectonic interpretation must encompass destructive and life-denying orders alongside creative advance.

Nor can the *eschaton* or end of the world-process be defined as the actualization of all possibilities. Mutually incompatible possibilities cannot all be actualized within the same conditions. Actualization is selective : some possibilities become actual through determinate relations and constraints, while others remain unrealized or cease to be possible once a course of development has occurred. The world-process may therefore be interpreted as an *open exploration of possibility*, not as the guaranteed realization of every possibility.

The argument from design consequently fails as a proof. It does not establish a transcendent Creator, a unique architect, or even an intelligent proximate cause. Its critically admissible remainder is more modest : the organization of the world invites metaphysical reflection on *formative order, convergence, functionality, and the emergence of complex unity*. These may be articulated through immanent hyper-concepts, but they may not be reified into an ordering intelligence.

k. Critical Admissibility

The limits of metaphysical reason can now be stated positively. An admissible metaphysical claim must declare its epistemic status, identify the conditions of its intelligibility, remain logically consistent, define its principal terms, distinguish reference from metaphor, avoid the reification of universals and limit-concepts, remain compatible with valid science, proportion causal and modal conclusions to their premises, acknowledge viable alternatives, and remain revisable under the expansion and reorganization of knowledge.

These conditions exceed the formula ‘untestable but arguable.’ Not every untestable proposition deserves metaphysical standing, and not every sequence of reasons constitutes a sound argument. Metaphysical argument is disciplined by transcendental, logical, semantic, nominalist, modal, scientific, explanatory, totalizing, and transcendent limits.

The result is not a weakened metaphysics. It is a metaphysics stripped of claims it cannot sustain. Within these limits, reason may construct comprehensive worldviews, compare their scope and integration, develop hyper-concepts, disclose relations among scientific domains, and orient further inquiry. What it relinquishes is the conversion of its constructions into absolute reality, its primitives into self-grounding substances, and its limit-signifiers into transcendent objects.

The final verdict is therefore exact : immanent metaphysics is critically admissible, heuristically productive, scientifically constrained, epistemically underdetermined, semantically conventional, and permanently revisable. It becomes invalid when it presents its totalization as complete, its concepts as inherently existing realities, its preferred explanation as necessary, or its transcendent limit as positively known.

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