# Scientific Knowledge and Ontological Relativity

**David Paul Boaz**

> When we try to pick out anything by itself we find it hitched to everything else in the universe.
>
> —John Muir

## Discourse on Method

Science's view of science, as exemplified by philosopher of science Karl Popper, is that "scientific method" is the apotheosis of rational, logically defensible knowledge. The uncritical adulation and valorization of the Western scientific materialist tradition (Scientism) views science as the triumphal result of cumulative scientific progress. Thomas Kuhn's historical, sociological view denies this. These two interpretations outpicture the profound intellectual tension between traditional and historical sociological hermeneutics.

**Against Method: Kuhn's holistic paradigm paradigm**. In 1962, physicist, philosopher and historian of science Thomas Kuhn shattered this idealized view of objective scientific rationality, knowledge, and progress, along with science's primary explanatory ideology, Logical Positivism (with the help of Wittgenstein and Quine), with his immensely influential book *The Structure of Scientific Revolutions* (a million plus best-seller, unprecedented for an academic book).

Building upon the work of Alexandre Koyré, Kuhn utilized a close reading—not of the philosophy of science, and not of the heroic breakthroughs of science—but of the natural history of everyday "normal science." Kuhn's deflationary, antirealist sociological account of science demonstrated that scientific knowledge is not rational and objective, but dogmatic and close-minded as to its fundamental metaphysical assumptions, and is not cumulative or progressive, other than in an instrumental intra-paradigm sense. "Mature science"—the "hard" physical and biological sciences—are not openly divergent, but rather convergent with its own unconscious material realist worldview, opinions and expectations. Here, scientific research is not, on Kuhn's account, so much evidentiary as metaphysically dogmatic.

Such "normal science" is always governed by a "paradigm," a temporary general consensus among a community of practitioners about current methodology and foundational and fundamental principles. These paradigms then become ideologically entrenched and dogmatically defended. In due course "anomalies" arise—problems or "puzzles" that cannot be resolved within the established paradigm. Such unsolved puzzles cause a "breakdown of the paradigm." This precipitates a "scientific crisis" of confidence and an incipient openness to a competing alternative paradigm. The Standard Model of contemporary physics may be a case in point. As this new paradigm ascends, the old paradigm recedes and finally a "scientific revolution" occurs. Such radical change represents a "paradigm shift" or "gestalt shift." Competing paradigms are "incommensurable," that is, they cannot be evaluated by neutral or common methods, making inter-paradigm comparisons exceedingly difficult. Paradigm-neutral observation is nearly impossible according to Kuhn. Unbiased communication across paradigms cannot or does not occur. With incommensurability follows the untenability of

scientific reduction. For example, Newton's conception of mass is incommensurable with Einstein's view.

Here then is the dialectic: a crisis in a scientific paradigm causes a scientific revolution. The dogmatism in the revolutionary new paradigm eventually generates the next crisis and its revolution, and so forth. Cases in point: the transcend and include dialectic of Newtonian mechanics to relativistic mechanics to quantum mechanics.

Thus, scientific knowledge occurs within paradigms, but not across paradigms. For Kuhn, there is no extra-paradigmatic reality. There is no necessary "real world out there" (RWOT) independent of the nomic theoretical contents of the paradigm. Further, scientific observation within a paradigm is "theory laden" (Kuhn has been reading Quine). What scientists (and the rest of us) observe is merely a function of what we believe and expect to see. *There is no ideal norm of objective scientific evidence independent of theory. All observation and belief is theory dependent and theory is always "underdetermined by its (empirical experimental) evidence."* Because of the inevitable dogmatic attachment to the current constituting theories, ideology and idiom of the prevailing paradigm, cognitive "gestalt shifts" across competing paradigms are akin to a religious conversion. Believers on each side participate in "different worlds." A scientific paradigm finally succumbs when the old school believers die off and the new vanguard achieves academic tenure.

What shall we make of Kuhn's thesis that all perception is theory-laden? This seems overdrawn. Clearly theory and belief effect perception. But not all perception is entirely theory laden, e.g. the top hat illusion. Moreover, during paradigm transition, there are interparadigm areas of rational agreement as well as disagreement. Kuhn's profound deflation and reconstruction of realist, objectivist scientific knowledge continues the antinomian, relativist and often cynical Postmodern critique of Modernity's dogmatic, romantic valorization and idealization of scientific objectivity and truth as foundational Realism—reality's direct correspondence with appearances (the now defunct "correspondence theory of truth").

**In recovery.** Modernity's rational, realist, materialist idealization of human rationality resulted in the unspeakable horror of the first half of the 20th century, leaving a Faustian legacy of geopolitical viciousness, despotism, insecurity and terror. The Postmodern reformation then, has been a radical antirealist reassessment of this modernist "Enlightenment Project" with its idealization of representational Scientific Realism, reason and epistemological, political and scientific "progress." Here both Derrida and Rorty have sacked the entire modern Enlightenment ideal, arguing instead for a nihilistic and skeptical, even utopian ideal, free of the terror that unenlightened reason bestows upon us. Is there a middle Way?

The Western mind is now in recovery from the nihilism of the Postmodern metaphysical pretension to skepticism, and relativism, and from the empiricist metaphysics of its Modernist precursor, the obsessive proto-religion of objectivist functionalist Scientific Materialism (Scientism) with its infernal "taboo of subjectivity." Indeed, I will argue here that this recovery is nothing less than a new reformation in religion, science and culture—a pragmatic, anti-foundationalist, antirealist new Noetic Revolution—with quantum field theory and quantum cosmology, neurobiology, consciousness studies, philosophy of mind and *Madhyamaka* Buddhist epistemology as vanguards of the way.

**Ontological Relativity.** Niels Bohr, author of the holistic quantum Principle of

Complementarity concluded that the purpose of scientific theory is not the discovery of intrinsic truths about a representational pre-given pre-existing independent reality "mirror of nature" (Rorty), but rather to clarify and explore the relationship of our cognitive perceptual frameworks—our consciousness—to the quantum information bits (qubits/*visana*) arising from this presumed atomic reality *(Atomic Theory and the Description of Nature,* 1934). This vital ontologically relativist, antirealist alternative philosophy of physics, that the theoretical constructs of physics—waves, particles, fields, forces etc.—are merely pragmatic descriptive instruments, not independently existing "real" things, is called Instrumentalism, (or operationalism, or nominalism). It opposes the Neorealism of Einstein and the "hidden variables" realists, and the stochastic "Probable Realism" of Pragmatist C.S. Pierce, neither of which presume the existence of an independently real physical cosmos.

*Both Werner Heisenberg—the author of the other essential principle of the Quantum Theory, the "Uncertainty Principle"—and Bohr understood that the Quantum Theory makes no assumptions about an inherently existing "real" objective physical reality, or the objective existence of its elementary particles, but is rather, about the cognitive relationship of the consciousness of the experimenter/observer to the measurement of quantum event information.* Indeed, Schrödinger's "collapse of the wave function" (the state-vector reduction) at the instant of a measurement (or of a perception) by a consciousness, is the persistent quantum "measurement problem" that abides at the margin between subjective "virtual" reality and ostensibly objective physical reality, be it microscopic particles and waves or macroscopic cats, persons, trees and stars.

Kuhn, Bohr, Quine and other Postmodern philosophers of science (physics, biology and psychology) have pointed out that the laws of physics are highly idealized nomological cognitive constructs that describe the behavior of appearing objects within the context of a theoretical model, and do not descriptively, and should not prescriptively pretend to describe any ontological nature or essence or independent reality of appearing objects, nor of the subjective depth of the unbroken, interdependent whole in which they arise. This whole is necessarily closed by the Planck limit and the quantum uncertainty relations to such theoretical conceptual penetration. Such idealized models are limited by their mathematical formalism and cannot, *ipso facto*, causally enrich speculative ontology. *Scientific laws give us left brain, exoteric, nomic conventional explanations of the behavior of phenomena arising through the ineffable ultimately subjective noumenon, the esoteric basal matrix that is the Platonic/Kantian diaphanous "thing-in-itself," Plato's "first principle," beyond or prior to the exoteric "ambiguity barrier" created by the phenomenological limit of discursive theory, concept and belief.* To penetrate this ostensible barrier we utilize "spiritually empirical" first person contemplative technologies.

In his excellent *Hidden Dimensions* (2007), Alan Wallace agrees. He concludes that there is a "broad consensus among psychologists, neuroscientists, and physicists. . . [that] perceived objects, or observable entities, exist relative to the sensory faculties or systems of measurement by which they are detected—not independently in the objective world." This is, as we shall see, a step toward the ontological relativity of Buddhist *Madhyamaka Prasangika* and the *Dzogchen* view of the interdependent arising (*pratitya samutpada*) of impermanent (*anitya*), selfless (*anatman*) phenomena which are emptiness (*shunyata*), that is, empty of any intrinsic existence. Introducing his seminal "Theory of Ontological Relativity" Wallace states:

> There is one truth that is invariant (absolute) across all cognitive frames of reference; everything that we apprehend, whether perceptually or conceptually, is devoid of its own inherent nature, or identity, independent of the means by which it is known… Nothing exists by its own nature... In other words, there is no way to separate the universe we know from the information we have about it… Natural science is a science of information, not a science of a world that exists prior to and independent of information. (Wallace (2007).

**For Method.** We will herein, from time to time, indulge in bits of unbridled ontological speculation—not for the metaphysically squeamish—upon *this one "truth" that is, most verily the ultimate nature of Reality Itself, the very essence or Nature of Mind, "The Bright" that is the outshining clearlight awareness of mind. This is after all, the heart of the emerging view and method of the epistemic Noetic Revolution that is now upon us.* This revolutionary nondual view—introduced in the first Noetic Revolution on the cusp of the 3rd century by Nagarjuna and Plotinus—simultaneously cognizes the prior unity of the objective scientific study of nature/matter with the direct yogic perception (*kensho*, *pratyaksa*), and direct knowing *(vidya/rigpa/epinoia)* of our perfectly subjective basal sourceground *(cittadhatu)*, all-embracing nondual Spirit that transcends yet embraces nature, and in which or in whom everything arises. Organized religion seeks this ground through exoteric ritual, concept and belief. Esoteric spirituality experiences it perhaps more directly, through the meditative/contemplative practice of the Path, then unpacks it all through "valid cognition" (*pramana*) of the reflexive conceptual "View" (*darshana*) of the whole.

We shall return to a less metaphysically ambitious, critical inquiry into this radically empiricist methodology, and noetic soteriology with its its contemplative injunctions, and its fruition that is psychospiritual liberation or enlightenment, our ultimate individual and, in due course, collective happiness.

Through all of this I will attempt to avoid logocentric prosody and theosophy, that is, I will attempt not to reify, entify or posit metaphysical/ontological entities—"transcendental signified" logocentric absolutes arising in or to consciousness—whether propositionally or mythologically/metaphorically—through the modalities of matter/mind/spirit (physical, mental, subtle, causal, nondual)—not even the "Absolute Truth" (*paramartha satya*) that is Tao, Brahman, emptiness, Dharmakaya and the rest, for all of this is utterly empty of attributes and absent any shred of independent intrinsic identity or existence. Rather, I will follow a post-Kantian, post-transcendental, post-Postmodern noetic methodology, namely that these apparent transcendent "spiritual" dimensional strata and states are inherently nondual and non-separate from the dualistic conventional consciousness that apprehends them, yet may be fruitfully, if dualistically explored and confirmed by practitioners "on the path" through the vertical, "spiritual empiricism" (Ken Wilber) of the masters and *mahasiddhas*, "those who know" and teach the various meditative contemplative injunctions, *poiesis* and *praxis* (View, Meditation, Conduct). Through this noetic methodology we shall explore our relationship to the vast multidimensional, interdependent one truth "that is invariant across all cognitive frames of reference."

But now, W.V. Quine's ontological relativity, a cognitive bridge between the "incommensurable paradigms" that are Western Science and Eastern Spirituality.