

*The Scope
of the
Fantastic—
Theory, Technique,
Major Authors*

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The Literature of the Unknowable

John M. Lipski

The inherent cognitive limitations that lie at the foundations of modern science and, more generally, of all epistemological inquiry suggest the possibility of a literature of the *unknowable*, of the creation of a situation that by its very essence precludes the complete transference of knowledge to the reader.

Fiction and *fantasy*—these terms have often been used loosely, implying only a quantitative difference, an order of magnitude jump to the level of the “fantastic.” In the realm of prose literature fantasy is fiction, but the converse is not always true. Surely, for example, no fictional character is more fantastic than the legendary Superman, whose feats transcend all bounds of probability and in some instances even of possibility. Mort Weisinger, writer of the Superman series, once received a letter from a group of MIT students informing him of Albert Einstein’s verdict on Superman’s extraordinary powers: “It is impossible for Superman to travel at 372,000 miles a second. According to my theory of relativity, nothing can exceed the velocity of light, which . . . is about 186,000 miles a second.” Science fiction writer Isaac Asimov provided Weisinger with a ready reply: “Professor Einstein’s statement is based on theory. Superman’s speed is based on fact.”¹ A lighthearted spoof, a humorous tip of the hat to one of history’s greatest theorists, a defense of the realm of science fiction—Asimov’s response is all of these things, and yet perhaps an even greater significance lurks behind these superficially banal words of a man whose writings have so often proved prophetic. During the twentieth century science has undergone several conceptual revolutions; the implications of these radical revisions extend far beyond the pale of the traditional scientific community to encompass virtually every human endeavor. It is ironic that “serious” fiction writers and their critics

vehemently defend their right to interpret "reality" as they see fit while looking askance at their colleagues in "science fiction" for attempting to rewrite this reality in other fashions, often with considerable technological sophistication. The present remarks are not designed to defend the *raison d'être* of science fiction, which needs no defense in any case, but to explore briefly some of the implications of current scientific thought on other nuclei of literary creation.

How did Einstein "know" that Superman could never travel faster than light? How do astrophysicists "know" about the existence of black holes, unseen and unseeable cosmological entities that may nonetheless be described in incredible detail? How do they "know" of the reactions going on within stars or of the evolutionary cycles of galaxies, which may take billions of years to go through a single cycle? On the scale of the infinitely tiny, how does the quantum physicist "know" that the uncertainty principle holds or that subatomic particles undergo evolutionary patterns that the theory itself states may never be directly observed? In all such cases the hypotheses result from formal models derived from coarser observations; the resultant theory is then used to generate predictions beyond the scope of the original data. One may permit oneself the luxury of questioning the essential validity of such an approach and ask: but is there any inconsistency or fallacy in assuming, for example, that a theory based on the interaction of particles traveling at velocities less than the speed of light can say anything *at all* about particles that may travel at or greater than the speed of light? Moreover, if the theory does indeed predict the impossibility of exceeding the speed of light, any counterpredictions about what might or might not happen beyond this barrier are undemonstrable and in fact disallowed.² In this embarrassment of riches there is something of a paradox: such a theory appears to yield more than is put into it, and yet it reflexively restrains itself by holding out tantalizing possibilities that may never be directly perceived. We are assuming that our conceptual function, which dictates the scientific method (and all other forms of thought), is extendable past its own limits and also that, in the absence of crucially finite-dimensional arguments, it is extendable to infinite dimensional cases. We are in effect assuming extendibility of our conceptual functions (viewing the dimension of cognition as a function space) not only isomorphic to the postulates of formal logic but metrically equivalent as well, that is, in which the same values of truth and falsity would result from equivalently valued derivations.

Let us borrow a further idea from mathematics, which may turn out to be much more than a simple metaphor. A *manifold* is a means of approximating a space that is locally equivalent to some well-known space, such as normal Euclidean geometry, but that globally may exhibit no such equivalence. For example, the surface of a sphere is locally equivalent to two-dimensional space, hence the possibility of covering the surface of the globe with partially overlapping flat maps, but the sphere in its totality requires a three-dimensional representation. Carrying this notion over to the realm of metaphysics, the cognitive space in which extensions of hypotheses or more general thought processes are carried out is a manifold in that, locally, it approximates the extendible system

that we think it to be, while globally, however, that is, in cases including "conceptual infinity," it may manifest some deviations from this regularity. If such is the case it might be a priori impossible to offer predictions that fall beyond the range of the input data. The difficulty lies in the apparent need to get "outside" in order to determine what the structure of cognition really is, vis-à-vis our own limited imagination (which is merely a product of the same cognition). It is impossible to use the normal mathematical recourse, which is embedding in a higher-dimensional space, for by definition such an enterprise removes us from the domain of human cognition. However, since all of our activities are confined to this same domain of cognition, it might be supposed that there is no fundamental harm in simply accepting as axiomatic the total extendibility of our cognitive functions; we may have our cake and eat it too, Superman and the theory of relativity.

Retreating from such easily achieved and trivial satisfaction, we may find it possible to determine at least some of the characteristics or limitations of the cognitive space, even given the essential impossibility of going "outside" to take one's bearings. A manifold may reveal its properties even when external travel is not allowed; for example, the curvature of the earth was determined and verified long before the advent of satellites made possible a direct visual representation of a complete sphere (flat-earth believers notwithstanding). Local perturbations in a manifold may in theory be perceived from observations made in or on the manifold itself, thus giving at least a modicum of insight into its global nature. In the case of our cognitive space, we then ask whether there have been any local perturbations that might qualify as pointers in the direction of a nonuniform and nonextendible structure. The answers to this question would be hotly debated, both in philosophy and in science, and at present I make absolutely no claim to rigor and precision in either area. Rather, I shall merely point out several areas that, at the current state of affairs, could be characterized as epistemological singularities, meaning, in other words, that knowledge runs aground at these points—the cognitive information sinks, so to speak. Such points of singularity imply that the theory, all theory, breaks down, and unexpected deviations may crop up that cannot be explained by any conceivable legerdemain.

The two greatest scientific breakthroughs of modern times are the theory of relativity and the theory of the quantum. Although addressing themselves to superficially different domains, the theories share much in common. As popularly conceived, *quantum* theory deals with the world of the atom and its constituents, and *relativity* is more frequently extended to cosmic dimensions and finds its most ready tests in astronomy. Nonetheless, when stripped of their pragmatic limits of application, both theories are profound epistemological statements. Each theory replaces earlier classical models, assumed to be valid everywhere and forever. Quantum theory represents the abandonment of the infinite divisibility of time and space and replaces it with the quantum as the minimal unit of discourse.³ It had been known for some time previously that matter could be

reduced to atoms and even subatomic particles, which might or might not be capable of further subdivision, but one still operated under the assumption that space and time themselves, although partitioned by these particles, were continuous variables and could be accurately described in the smallest units desired. The continuity of space is the basis for calculus and topology and their mathematical offspring; similarly, time was regarded as a linear continuum that could be partitioned into arbitrarily small units, asymptotically converging on the notion of the "instant." Quantum theory's uncertainty principle places a limit on the divisibility of space and time, stating in essence that there are definite (although in most applications negligible) limits to measurement, to the acquisition of knowledge. Beyond these limits, defined not only in absolute terms (for example, Planck's constant) but in terms of interactions among members of systems, space and time may no longer be said to "exist" in a unique fashion. Furthermore, this unsettling state of affairs is the result of the inevitable interaction, during any act of acquisition of knowledge, between the observer and the observed. From extensions of the theory one may further extrapolate that, at the subatomic level, space itself is not simply connected; for example, there is not a single uniquely specifiable universe but an infinite collection of eternally oscillating topological configurations.⁴

Relativity theory in its early form stated that the notions of simultaneity and successivity, regarded as intrinsic to the flow of the universe, were artifacts of the observation process, the framework in which the observations were taking place. The extension to general relativity states that the commonly accepted notions of space and time hold only locally, and the large-scale structure of the universe may be at once more complex and more indeterminate than ever suspected. Capturing the popular imagination have been "black holes," the ultimate in epistemological breakdown, representing the complete destruction and elimination of knowledge and all possibility of acquiring knowledge.⁵ Although black holes have not yet been conclusively demonstrated, an elaborate theory has evolved to describe their properties, and it is believed that they will be discovered in due time.

Even the most rudimentary considerations show that there exist limits on the acquisition of knowledge, points at which the theory, a human cognitive creation, destroys itself, with no possible redemption arising from the ashes. Science, which etymologically means knowledge itself, and which has always stood for enlightenment, is the vehicle of its own destruction, since the very theories designed to enhance our knowledge have, to the contrary, shown that much currently accepted knowledge may be spurious, and the acquisition of "true" knowledge may be out of the question. Reeling from these revelations, many scientists were driven to extreme claims, for example, the total elimination of time and the notion of "becoming," the elimination of causality, even locally, the existence of several universes, and so on.⁶ In the words of Werner Heisenberg, "quantum theory forcefully reminds us that natural science is made by man. This is not simply a symbolic representation of nature, but is part of the interplay

between nature and man. What it describes is not nature as such, but nature as exposed to man's method of questioning. It makes Descartes' sharp separation between the world and the I impossible."⁷ Max Planck believed that there exists a "real world" but that "it lies beyond our senses, and as such cannot be apprehended at all: as the view of the physical world is perfected, it simultaneously recedes from the world of sense; this process is tantamount to an approach to the world of reality."⁸ A modern physicist has stated that the right order of concepts may not be the idea that "here is the universe, so what must humans be?" but "here are humans, so what must the universe be?"⁹ Science is thrust into a new role not only of discovering the universe but in a very real sense of inventing it, creating it out of the human cognition. This not only is an extension of classical idealism but stems from modern views that certain scientific theories might simply be functions of the mechanisms of the human brain or that certain logical concepts might underlie the entirety of scientific discourse.¹⁰

Nor is the realm of the unknowable restricted to physics. Pure mathematics has its own questionable areas; for instance, there are (infinitely many) numbers whose structure can be explicitly and precisely specified but none of whose digits is, or can be, known. Even well-known numbers, such as *pi*, exhibit characteristics that are in theory inaccessible to empirical verification.¹¹ Similarly, general biological configurations, questions of form, and even the nature of life itself may be susceptible to unsurpassable epistemological limits.¹²

Under all of these views humans do not merely sit passively back as the universe evolves around them; they do not partake of a single unique "reality." Rather, humans, faced with the inherent indeterminacy, are at once the inventor and the recipient of the universe; their "reality" is a fluid, relative, and purely local concept that may not under any circumstances be arbitrarily generalized. This undercurrent of uncertainty and indeterminacy may give rise to feelings of anguish and bewilderment, but thinkers attuned to these ideas feel a tremendous sense of freedom from classical limitations. They are no longer restricted to global models of reality, which are extremely limiting, but are comparatively free to explore and even, when necessary, to invent local models not only compatible with their own experiences but consistent with any alternative vision of the universe that they might have.

The epistemological unchaining that results from considering cognition as only locally extendible may, at least in principle, be used to extrapolate an infinite variety of abnormal, bizarre, and ostensibly anomalous situations, configurations that, locally considered, do not at all match the world as we know it. Even given such comparative freedom, however, it is necessary to constrain the possibilities engendered by such an expanded cognition; one must normally establish at least a minimum of correlation between the novel configuration and the present state of the universe as we perceive it; a failure to do so creates a situation that most people would qualify as absurd or totally incomprehensible. It is equally clear that the restricting of cognitive operations only locally may be extended integrally to the domain of literature, where traditionally the fictional "reality" of the

author has had to adhere to the same standards as those used in the sciences. Although all authors have the right to construct their own domains, from photographic realist and minimalist works to the most outlandish flights of imagination, the model of reality is required to be internally self-consistent and subject to a single, global set of axioms of some sort. Fact and fiction must be specified in the classical model, since only thus could readers sort out for themselves the threads that bind them, by the act of reading, to the world created by the author and embedded in the text. Even further restrictions have applied to the literary text, for the author is expected to indicate, by some means, the various streams that unite the characters and scenes in the work, the extent of knowledge shared by each personage, or attributable to each situation.

This is not to suggest that there have not been departures from the rigid framework of classical epistemology in literature, but such departures were couched in normally acceptable genres. For example, the "classic" surrealist text often completely does away with any clearly definable epistemological basis; such in fact is a defining tenet of surrealism, where the syntagmatic flow predominates, if not totally overpowers, the normal paradigmatic association. A variant form, the stream-of-consciousness narrative, carries this syntagmatic hegemony even to further levels, and readers are led to expect no further correlations than those made available by the immanence of the text they are reading; any attempt to establish paradigmatic order is violating the "rigid rules" of the genre. More generally, in many types of texts regarded as inherently "poetic," the use of inconsistent, contradictory, or merely chaotic signifiers is allowed, since the thrust of these texts is not toward the creation of a single cognitive structure but the presentation of a series of locally isolated images. In nearly all such texts it is possible, by subdividing the structure to a fine enough point, to arrive at a stage where each image is locally self-consistent.

Tzvetan Todorov's well-known definition of the *fantastic* stresses the dynamic element, the tension of ambiguity between a real but unlikely situation and a purely imaginary and impossible configuration.¹³ Once the ambiguity is resolved the text passes into one of the above mentioned categories; thus the term *fantastic* refers not to a genre but to a state of (perhaps very tenuous) resonance between genres. In this definition Todorov came very close to articulating the type of cognitive nonextendibility that I have discussed in referring to the fantastic as an "evanescent genre." However, in the cases cited by Todorov, the true amplitude of the definition is not clearly visible. The authors discussed were firmly based in a classical view of the universe; whether their scenes were overtly supernatural or merely uncanny, they operated at all times with two well-defined states in mind, and the ambiguous tension that according to Todorov characterizes the fantastic is used as a literary gambit, a rhetorical device that is not meant to imply any philosophical disposition whatsoever. The authors are no more suggesting the duality of the universe than are the authors of serial thrillers, who leave their heroes apparently plunging to their doom, knowing full well that a complete (if only temporary) restoration to normality will occur in the succeeding

episodes. The tension is created by the ambiguity that surrounds the act of reading, the fact that readers are not afforded sufficient information until some critical moment (or perhaps not at all) in order for them to arrive at an acceptable interpretation; however, implicit in nearly all such works of fantasy is the assumption that were such knowledge to be imparted, a full acceptance of the situation as described would ensue. Regardless of the deviation between the fantastic situations described and the phenomenological world as perceived by readers, the readers are reasonably certain that the world of fantasy operates through its own well-defined laws, and underlying the enjoyment of the fantastic is the titillating supposition that, at least in theory, it would be possible for readers to fully grasp the inner workings of the fantastic universe. That is, traditionally, literature that has been classified as fantastic, whether in the realm of science fiction, allegory, or some less easily defined category, deals with that which is unknown or unexperienced but that is, within its own internal self-constraints, knowable.

The inherent cognitive limitations mentioned above, which lie at the foundations of modern science and, more generally, of all epistemological inquiry, suggest the possibility of a literature of the *unknowable*, of the creation of a situation that by its very essence precludes the complete transference of knowledge to readers. The nonuniqueness of the universe, and the accepted possibility for information-sinks and spontaneous deviations from all known phenomena, may be logically reflected in literary texts, to create a structure that seals itself off from the cognitive sphere of readers. This may be done in very trivial ways, either by adopting the superficial imagery of modern scientific inquiry or by explicitly creating situations in which the paradoxes of science are woven in amidst other plot details, in the tradition of avant-garde science fiction.¹⁴ It is also possible, however, to abandon all explicit reference to scientific epistemology and let the structure of the text itself, and the cognitive processes that it presupposes, be formed on the basis of the essential nonuniqueness and undecidability—to create a text, that is, of the unknowable, an inherently and intrinsically uncertain text.

These remarks may sound more programmatic than descriptive, a call to arms for a new form of liberated literature, and in a sense perhaps they are, since if literature is to evolve it must do so along pathways opened by more general aspects of human cognition. It is already possible to find works that demonstrate the nonregular extendibility of epistemological transfer, replete with singularities, indeterminacy, and simple unknowability. To describe even one such work in detail would make for a voluminous study that, in fact, remains a pressing need in contemporary literary studies. In briefly mentioning a few examples with which I am familiar, I make no claim about their superiority over others that might be proffered.

Among contemporary world literatures, two stand out as embodying a large number of epistemological innovations or at least departures from traditional molds, the literatures of France and Latin America. The latter literature, in

particular, may be characterized by a strong reliance on inherent multiplicity and on the embrace of paradox and the refusal to force its texts into the strait-jackets of univocal interpretation.¹⁵ Although most contemporary experimental Latin American novels use multiplicity in fact to form knowledge, since knowledge of multiplicity is knowledge gained, there are also works that may truly be considered to embody the unknowable. A prime example is the novel *Estudio Q* by the Mexican Vicente Leñero; ostensibly a novel about the filming of a soap opera about the filming of a soap opera, and so on, the novel's explicitly embedded levels open the possibility for an infinite number of embeddings, a series of mirror reflections inside mirror reflections whose only resolution comes at the asymptotal point of infinity, that is, beyond the human grasp. The reader is unable to sort out the levels of the text, not because the author is purposefully withholding information, but because such knowledge simply does not exist.

The Argentinian writer Ernesto Sábato, in his massive *Abaddón el exterminador*, placed himself and his previous novels as protagonists, and the text in effect describes its own creation. Sábato the author describes Sábato the character in the process of writing the novel itself, discussing his previous novels and sustaining discussions with characters from his earlier works, who come and go as though they were real personages. At no time is this ontological discrepancy explicitly revealed, but to make matters even more complicated, Sábato the author fills in the text with apparently realistic autobiographical details that purport to describe his genesis as writer. It turns out, however, that many of these details are pure fiction, and others are indeed truthful; thus the text of *Abaddón* oscillates between fiction and fact. Sábato the living author alternates with Sábato the hallucinating writer turned into a giant bat or the wonderstruck explorer experiencing mystical sites under the city of Buenos Aires. There is no possibility for experiencing any ontological priorities in the text, for the distinction between fact and fiction, and between "realistic" fiction and fantasy, is placed in the realm of the unknowable. The novel, through its infinite reflexivity, its describing its own genesis at every step of the way, precludes a voyage outside it to an external perspective where this epistemological vacuum may be filled.

The Mexican writer Salvador Elizondo has, in his celebrated novel *Farabeuf*, exemplified another case of the fantastic as unknowable. *Farabeuf* condensed the events of more than half a century, an incident of Chinese torture occurring during the Boxer rebellion, which then, in the fashion of Alain Robbe-Grillet, becomes replayed incessantly and in infinite places throughout the pages of the novel. Time and space are destroyed and, more importantly, so is the possibility for any unique recovery. The reader, led by the Ariadne's thread of divination with the *I Ching*, simply must accept the impossibility of further resolution in the pursuit of the text.

Examples of the unknowable could be multiplied, in Latin American literature and elsewhere, but it is not the purpose of these remarks to offer either a bestiary or a taxonomy. The limits of human cognition, sensed most clearly in the

academic pursuit of knowledge, return to haunt the literary creator, and with each step forward in the understanding of the universe we learn that we know less and less. In the literature of the unknowable, inherent indeterminacy and paradox reinforce the hypothesized cognitive nonextendibility not by destroying the double—or multiple—articulation of the text (since locally, it may be possible to extract a definite ontological configuration) but by placing the end of the epistemological rainbow in an ever-receding position impossible to reach. Only by stepping outside of the text's ontological realm, that is, outside our own limitations, could full knowledge be gained, knowledge that for mortals is impossible. By presenting only local approximations to an unknown and essentially unknowable global structure, one may entertain visions of a sort not hitherto dreamed possible, a world whose only bounds are those of the imagination itself, both creator of the text and captive in its implications.

NOTES

1. "Parade," *Detroit Free Press*, 23 Oct. 1977.
2. An extension of this theoretical limit, to include further aspects of the theory of relativity, is discussed in Robert Misner, Kip Thorne, and John A. Wheeler, *Gravitation* (San Francisco: Freeman, 1975), chap. 31.
3. Cf. Richard Schlegel, *Completeness in Science* (New York: Appleton-Century-Crofts, 1967), 235-36.
4. Most specifically, "quantum geometrodynamics." See John A. Wheeler, "From Relativity to Mutability," *The Physicists Conception of Nature*, ed. Jagdish Mehra (Dordrecht: Reidel, 1975), 202-47; and Misner, Thorne, and Wheeler, *Gravitation*, chap. 43.
5. Cf. John Taylor, *Black Holes* (Glasgow: Collins, 1973); Misner, Thorne, and Wheeler, *Gravitation*, chap. 33; Stephen Hawking and Gregory Ellis, *The Large Scale Structure of Space-Time* (Cambridge: Cambridge University Press, 1973), chaps. 8-10.
6. Cf. James Jeans, *Man and the Universe*, Sir Halley Stewart Lecture, 1935.
7. Werner Heisenberg, *Physics and Philosophy* (New York: Harper & Row, 1968), 42.
8. Max Planck, *The Universe in the Light of Modern Physics*, trans. W. Johnston (New York: Norton, 1931), 15.
9. Arne Petersen, *Quantum Physics and the Philosophical Tradition* (Cambridge: MIT Press, 1968), 22.
10. Cf. Jacob Bronowski, "The Logic of the Mind," *American Scientist* 4 (1966): 1-14; and Misner, Thorne, and Wheeler, *Gravitation*, chap. 44.
11. Martin Gardner, "Mathematical Games," *Scientific American*, November 1979, 20-34.
12. René Thom, *Stabilité structurale et morphogénèse* (Reading, Mass.: Benjamin, 1972).
13. Tzvetan Todorov, *The Fantastic: A Structural Approach to a Literary Genre*, trans. Richard Howard (Ithaca, N.Y.: Cornell University Press, 1973), chap. 2.
14. Cf. Charles H. Waddington, *Behind Appearance* (Cambridge, Mass.: MIT Press, 1968).
15. John M. Lipski, *Narrative Multiplicity in the Modern Spanish-American Novel*, forthcoming, treats this aspect more extensively.