

NOTES AND DISCUSSION

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STRUCTURALISM AND BEYOND:

A CRITIQUE OF PRESUPPOSITIONS

The failure of past methods will force man to accept a new conviction lest the old Adam destroy him.

Lancelot Law Whyte

Structuralism, Robert Scholes tells us, embodies “a ‘scientific’ view of the world as both real in itself and intelligible to man.”¹ In order to achieve objectivity and descriptive adequacy in the human sciences, structuralists have generally adopted the linguistic model of Ferdinand de Saussure via Prague school structural linguistics.² The common assumption has it that structural

¹ *Structuralism in Literature*, New Haven, Yale University Press, 1974, p. 3.

² The basic premises of structural linguistics were first articulated, albeit rather sketchily, by Ferdinand de Saussure. This formulation may be understood primarily as a reaction against nineteenth century historical studies of language. Consequently, Saussure’s concerns lie chiefly in the realm of synchronic aspects of linguistic phenomena. (*Course in General Linguistics*, eds. Charles Bally and Albert Sechehaye, trans. Wade Baskin, New York, McGraw-Hill, 1966.) During the 1930’s N.S. Trubetsky and Roman Jakobson of the Prague school of linguistics, attempted to account for historical change in language without discarding the fundamental tenets of Saussurean linguistics. (Trubetsky, *Principes de Phonologie*, trans. J. Cantineau, Paris, Klincksieck, 1964; and Jakobson, “Principes de phonologie historique,” in Trubetsky, pp. 315-36.) More recently, the Danish linguist Louis Hjelmslev set the foundation for future linguist studies by reformulating the “structuralist” conception of language in an elaborate methodological scheme. (*Prolegomena to a Theory of Languages*, trans. R.J. Whitfield, Madison, University of Wisconsin Press, 1963.)

linguistics, given its method of abstracting language into an autonomous object for empirical analysis, now constitutes itself as a true science, worthy of emulation by other disciplines in the social sciences and in the humanities.³ However, there has been sparse inquiry into the validity of the general “scientific” foundations upon which the structuralist methodology rests.⁴ In response to this critical deficiency the present commentary will aim: (1) to subject the underlying presuppositions of structuralism to close scrutiny in the light of past and present scientific paradigms, and (2) to suggest, as a consequence of the first objective, that structuralism is based on premises which are not consistent with current scientific and epistemological lines of reasoning.

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All epistemologically sound analytical models must be constructed upon an intrinsically coherent set of presuppositions. On the surface it appears that structuralism complies with this exigency. The structuralists generally put forth the primary assumption that their field of study is analogous to a linguistic, or more precisely a phonological, system. For instance, Claude Lévi-Strauss considers that kinship is governed by rules analogous to those governing phonology.⁵ Jacques Lacan, after postulating that the unconscious is structured like a language, reinterprets the Freudian topology of the human mind in linguistic terms.⁶ And Roland Barthes proposes an analogy between the sentence (microcosm), which constitutes the limits of traditional linguistic study, and the literary text (macrocosm), which is the object of

³ See, for example, Claude Lévi-Strauss, *Structural Anthropology*, trans. Claire Jacobson and Brooke Grundfest, New York, Doubleday and Company, 1967, pp. 66-79.

⁴ For a perceptive critique of the particular methodologies of Lacan, Lévi-Strauss, and Piaget, see Anthony Wilden, *System and Structure*, London, Tavistock Publications, 1972.

⁵ *Structural Anthropology*, pp. 29-53.

⁶ “L’instance de la lettre dans l’inconscient,” in *Écrits I*, Paris, Editions du Seuil, 1966, pp. 249-89. Trans. of this article by Jan Miel in *Structuralism*, ed. Jacques Ehrmann, Garden City, N. Y., Anchor, 1970, pp. 101-37.

the critic's attention.⁷ It is further assumed, then, that the structuralist can study his *corpus* by use of a heuristic device analogous to that used by the structural linguist. Therefore, it follows that since the structuralist method is ultimately tied to a linguistic model, consideration of structuralism's underlying presuppositions entails simultaneously a general statement on the presuppositions of structural linguistics in so far as they overlap.

However, obvious pitfalls appear when attempting to generalize on the presuppositions of a heuristic model which is employed, now methodically, now indiscriminately, by a heterogeneous assemblage of analysts. An insect's eye view of all *ad hoc* analytical techniques formulated in the name of structuralism would be impossible, an interminable Cartesian division into smaller and smaller parts. Consequently, while certain facets of my statements on presuppositions may not apply to all varieties of structuralism, I have attempted to pinpoint in broad terms the general picture of the world which constitutes the epistemological foundations of the movement. These presuppositions are as follows:⁸

(1) The *corpus* chosen for study is an object of "empirical" analysis. However, since true reality "is never the most obvious of realities,"⁹ empirical observation of the entities making up this *corpus* is solely possible by the use of models which have been constructed *a priori*. Neither deductive principles nor empirical evidence can stand alone but they must complement and support one another.

(2) The *corpus* constitutes a closed, homogeneous system of signs which are related in terms of resemblances and differ-

⁷ "Introduction à l'analyse structurale des récits," *Communications*, 8 (1966), 1-27. See also Julia Kristeva, *Semiotike. Recherches pour une sémanalyse*, Paris, Editions du Seuil, 1969, p. 422.

⁸ I do not include in my generalizations the "genetic structuralisms" of Piaget and Lucien Goldmann, since their methodology constitutes a departure from the "static" variety of structuralism which I scrutinize. Nevertheless, on another level, "genetic structuralism" can be subjected to a similar line of inquiry.

⁹ Lévi-Strauss, *Tristes Tropiques*, trans. J. Russell, New York, Atheneum, 1964, p. 61.

ences.¹⁰ In this system composed of interdependent terms, “the value of each term results solely from the simultaneous presence of the others.”¹¹ Such an “instantaneous arrangement” of terms must be analyzed as a static state of existence irrespective of time, for it is absolutely impossible to study simultaneously relations in time and relations within the system.¹² For instance, in the case of language, the individual speaker is confronted with a system. As far as he is concerned at the moment he emits an utterance, time has no bearing; it is only a factor in the socio-historical context. His utterance exists instantaneously with all aspects of the linguistic system and past and future states are of no consequence. In other words, “language is for him a perpetual present, with the possibilities of meaning implicit in its every moment.”¹³

(3) The notion of a closed system implies an autonomous grouping of signs (linguistic or extralinguistic) which move laterally within the system from term to term rather than projecting outside the system from term to thing. This provides the system with an inner form where the concept of one sign becomes the denotate (object) of another sign. The relation between signifier and signified (the two elements making up the sign) is completely arbitrary since there are no physical cause and effect relations between them.¹⁴

(4) The system must be methodically decomposed into a set of abstract parts which are analyzed in terms of their mutual relations. This is accomplished by constructing a taxonomic chart of all possible permutations between the elements making up the system. Such a chart represents the underlying reality of the *corpus* as opposed to its surface empirical phenomena, and its analysis involves a reconstruction of the *corpus* during which

¹⁰ Barthes, *Elements of Semiology*, trans. Annette Lavers and Colin Smith, Boston, Beacon Press, 1970, pp. 97-98.

¹¹ Saussure, p. 114.

¹² *Ibid.*, p. 81.

¹³ Fredric Jameson, *The Prison House of Language*, Princeton, Princeton University Press, 1972, p. 6.

¹⁴ Saussure, pp. 67-69. However, see Emile Benveniste’s influential critique of Saussure’s concept of arbitrariness. “La nature du signe linguistique,” in *Problèmes de linguistique générale*, Paris, Gallimard, 1966, pp. 49-55.

time meaning is disclosed. Meaning, therefore, is not derived directly from the content but by explicating the potential and actual relations between all elements making up that content.¹⁵

(5) It follows from the preceding presupposition that the isolated terms, or elements, in the system are never absolute; they take on meaning only when integrated into the system. *Gestalt* psychology, an influence on both Lévi-Strauss and Jakobson, similarly focusses on patterns of mutual dependencies and indivisible wholes rather than on isolated elements. Obviously in reaction against atomistic empiricism, both *Gestalt* psychology and structuralism attempt to move toward a “unified field” approach which is not without analogy to twentieth century theories in the physical sciences. Just as in the sciences doubt has recently arisen concerning the substantive quality of the atom, so the structuralist approach posits that content is in reality form, and analysis of this unobservable form calls for a model which reveals to the observer that which is unavailable to immediate perception.¹⁶

(6) The *system* lies behind a general *process*. System is characterized as conservatism, stability, crystallization, process as a chaos of contingency, fortuitous links, and accidental encounters. Hence synchrony and diachrony (system and process) must be maintained in rigid opposition.¹⁷ For instance, Saussure strictly distinguishes between *langue*, the social product which “exists in the form of a sum of impressions deposited in the brain of each member of a community,” and *parole*, a conscious individual act.¹⁸ System, which can be analyzed objectively, must take precedence over process, which lends itself solely to subjective interpretation. By logical extrapolation of this pos-

¹⁵ See Barthes, *Elements of Semiology*, pp. 58-88.

¹⁶ See Hugo Nutini, “Some Considerations on the Notion of Social Structure and Model Building,” in *Claude Lévi-Strauss: The Anthropologist as Hero*, eds. E. Nelson Hayes and Tanya Hayes, Cambridge, The M.I.T. Press, 1970, pp. 70-107.

¹⁷ This intransigent synchrony-diachrony opposition is part of the Saussurean conception of language. On the other hand, Jakobson was one of the first to suggest that this opposition is to a large degree illusory, that it is a convenient device for analysis rather than a particular mode of being. “Principes de phonologie historique,” pp. 333-34.

¹⁸ Saussure, p. 19.

Structuralism and Beyond

tulate, it becomes possible to analyze the underlying reality of social phenomena and move from conscious phenomena to the study of unconscious infrastructure.¹⁹

(7) Change, with respect to the system, is unintelligible. It is only understood as the passage from one state to another, as a series of discontinuous shifts.²⁰ The system can never be modified directly. Certain elements replace others to throw the system out of equilibrium, but this disequilibrium will call for the establishment of new grounds of solidarity which bind all the elements to the whole. Although in this scheme, linear cause and effect is of no consequence, a form of “structural causality” prevails wherein the system determines not only the nature of systematic equilibrium at a given moment, but immanently contains vestiges of all past equilibriums and the seeds of all future states of affairs. The underlying system is simultaneously mutable and immutable: mutable as a collective though intangible entity undergoing “structural changes” in time,²¹ and immutable since, in language for example, the utterances of the individual speaker represent mere “accidents” in time and are totally incapable of changing the linguistic system.²²

(8) Man himself is excluded as an object of study. The subject and the situation cannot be considered since man (subject), his cultural products (object), and his socio-historical context (situation), are not susceptible to the same analytical model. Man is looked upon as the instrument through which cultural phenomena (i.e., language, myth, religion, art, etc.) manifest themselves, and he consequently “disappears,” as a concrete being toward which inquiry is directed, to become an idealized abstraction. For instance, while existentialism and phenomenology attempt to know man through personal identity between analyst and analyzed, the structuralist, as a detached observer devoid of moral or metaphysical pretenses, considers not man nor his situation but the products of his mental activity. The first may be conceived as an attempt to understand Being

¹⁹ *Structural Anthropology*, p. 31.

²⁰ Lévi-Strauss, *The Savage Mind*, Chicago, The University of Chicago Press, 1966, pp. 269-70.

²¹ Jakobson, p. 334.

²² Saussure, p. 78.

“in relation to oneself,” while the second is an attempt to understand “Being in relation to itself.”²³

(9) The eighth presupposition implies a relatively uninvolved spectator who organizes his data in accordance with *a priori* assumptions as well as by means of empirical observation. It follows, then, that if (a) the structures of the observed phenomena are organized by the preconceiving mind of the spectator, and (b) the *corpus* is studied in so far as it is the product of human mental processes, then (c) the true object of study is not substantive but mental; that is, a reciprocal exchange between the absent mind of the producer of cultural artifacts and the mind of the contemplator of those artifacts.²⁴ At the same time the structuralist, in contrast to the phenomenologist and the existentialist, purports to analyze the *corpus* from outside rather than relive the historical situation surrounding the phenomena. As a result, the structuralist perspective is doubly an abstraction. It abstracts by removing the observed data from its historical context (and hence the danger of falling into the “formalist fallacy”). And it abstracts in as much as man is removed from his cultural products (and the structuralists’ “disappearance” of man threatens to become a reality).²⁵

²³ Lévi-Strauss, *Tristes Tropiques*, p. 62. This presupposition leads directly to the “principle of immanence” which limits structural analysis to that which occurs in the mind, a tentative basis for the accusation that structuralism in general, and Lévi-Strauss’ structuralist methodology in particular, adheres to a Kantian approach to man and his cultural products. (Jean Dubois, “Estructuralismo y lingüística,” in *Estructuralismo y marxismo*, trad. Antonio G. Valiente, Barcelona, Ediciones Martínez Roca, 1969, pp. 46-60.) It is significant, therefore, that Paul Ricoeur refers to Lévi-Strauss’ structuralist method as Kantism “without a transcendental subject.” “Structure et herméneutiques,” *Esprit*, 31 (1963), 596-652.

²⁴ Lévi-Strauss proposes that it is “immaterial whether ... the thought processes of the South American Indians take shape through the medium of my thought, or whether mine takes shape through the medium of theirs. What matters is that the human mind, regardless of the identity of those who happen to be giving it expression, should display an increasingly intelligible structure as a result of the doubly reflective forward movement of the two thought processes acting one upon the other, either of which can in turn provide the spark or tinder whose conjunction will shed light on both.” *The Raw and the Cooked*, trans. John and Doreen Weightman, New York, Harper and Row, 1969, p. 13.

²⁵ See Lawrence Krader, “Beyond Structuralism: The Dialectics of the Diachronic and Synchronic Methods in the Human Sciences,” in *The Unconscious in Culture: The Structuralism of Claude Lévi-Strauss in Perspective*, ed. Ino Rossi, New York, E. P. Dutton, 1974, pp. 336-61.

Structuralism and Beyond

The epistemological roots of structuralism go deep. Embodied in the movement is a reaction against atomistic and mechanistic ways of thinking. Atomists conceive reality as an aggregate of individual elements while mechanists place their faith in a linear, materialistic cause and effect explanation of all phenomena. Structuralism, purportedly holistic, non-material, acausal, and non-linear, nonetheless discloses at the level of its root presuppositions, an incapacity to gain total emancipation from those very scientific conventions against which it is rebelling. It now becomes necessary to expound on those scientific conventions in order to determine the constraints preventing structuralism from constituting a truly novel approach to the study of man.

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The scientific world view up to and including the nineteenth century was identified primarily with the names of Galileo, Descartes, and Newton. Classical physics conceived the cosmos as a "giant machine," a homogeneous universe of perfect symmetry and clockwork precision; and God was precisely the guardian of the key with which to wind that clock. The dream of this new science which could transform and perfect man by making him a manipulable working part in this "great machine" was brought to its most sublime expression by Laplace. At the end of the eighteenth century, he euphorically proclaimed that a superhuman Intelligence could know at any given instant the exact positions of all cosmic bodies and the forces between them, and could derive from this configuration a prediction of their positions at any future time. Nothing would be uncertain. The future, like the past, would be simultaneously present to the eyes of this omniscient observer.²⁶

Laplace's superintelligence became the paradigm to be emulated by science. Natural phenomena, it was assumed, consisted of an aggregate of objects entirely detached from, and independent of, the observer-scientist. This assumption logically led to the notion of a "common sense" view of nature where there existed no discrepancy between appearance (the sense-data reaching the observer) and reality (the actual world of things). Such a belief constituted a philosophical creed in itself. No

²⁶ Floyd W. Matson, *The Broken Image: Man, Science and Society*, Garden City, N. Y., Doubleday and Company, 1966, p. 11.

attempt was made to justify it by abstract argument; so long as it worked satisfactorily none seemed to be needed, the success of the science based upon it providing a sufficient justification.²⁷

Moreover, according to classical physics, Euclidean space was regarded as a homogeneous, immutable medium whose existence was logically prior to the material objects contained within it. The binary opposition, “full: empty,” became a fundamental scientific metaphor. Space, it was assumed, constituted a void (emptiness) in contrast to matter, which was defined as a *plenum*. Since space was a neutral container totally independent of its material content, changes could be perceived solely in the positions of the bodies in space but none in space itself since it was, *ipso facto*, unchangeable. Time, like space, was considered independent with respect to its content. Just as matter “filled” portions of space, so changes “filled” segments of time, and just as space was a receptacle for all matter, so time was a neutral container for all changes. The difference rested in that while spatial relations were defined as juxtaposition, temporal relations were conceived in terms of succession, or contiguity. Consequently, the uniformity of space became counterpart to temporal uniformity, or more expressively designated, to *uniform fluidity*. Material bodies in space changed in time, but time itself could not undergo a change for it was considered, like space, a homogeneous medium. Hence the homogeneity of space demanded temporal homogeneity.²⁸

The upshot of the above formulations was finally that both space and time must be *instantaneous*.²⁹ Matter consisted of discrete, discontinuous corpuscles existing in empty, homogeneous space and time. The configuration described by the sum of these corpuscles was defined as a cross-section of simultaneous spatio-temporal entities. In this manner the universe was considered a succession of instantaneous configurations of matter, a static, closed, predetermined and forever determinable system. A moment of time became nothing but a “knife edge,” as William

²⁷ James Jeans, *The New Background of Science*, Ann Arbor, The University of Michigan Press, 1959, pp. 1-2.

²⁸ Milic Capek, *The Philosophical Impact of Contemporary Physics*, New York, American Book Company, 1961, pp. 7-53.

²⁹ Louis de Broglie, *The Revolution in Physics*, New York, Noontday Press, 1953, pp. 14-15.

James describes it, an instantaneous flash which photographs the simultaneous positions of matter partially filling up the void. At a given instant, the resultant configuration represented the predetermined effect of all past configurations and simultaneously implied all future configurations. Hence the universe was presented as a mathematical series of contiguous states, each constituting an instantaneous configuration of discrete corpuscles—quasi-infinite in number—with definite mass, position, and velocity. A transition from one state to another was no more than a variation in this configuration due to the physical interactions (mechanical cause and effect) between these corpuscles. As they were displaced in space a new configuration would ensue such that there could be no change in the inherent nature of the content (corpuscles) nor alteration in the attributes of the containers (space and time), but only in the positions of the elements composing that content. Matter thus became indifferent to the lapse of time, and time became a mere accident, a succession of instants totally independent of material attributes. Hence this quantitative and qualitative immutability of matter was counterpart to the homogeneous, but unrelated, flow of time.³⁰

In such a scheme of things, time became superficial, a dispensable entity delegated to secondary categories, while space, as the container in which material corpuscles must react, acquired paramount importance. This tendency to “spatialize time” may actually be traced to the dawn of Western thought, when Parmenides and the Eleatics attempted to reduce becoming to being, process to state, content to form.³¹ According to the Eleatic conception of the universe the directional flow of time loses its objective meaning and the hoary image of Nietzsche’s “eternal

³⁰ Alfred North Whitehead, *Science and the Modern World*, New York, The Macmillan Company, 1948, pp. 41-56.

³¹ Capek, p. 136. Similarly, Wylie Sypher, in his study of modern art and literature, maintains that an overemphasis on the visually perceptible qualities of art tends to “spatialize time.” (*Literature and Technology*, New York, Random House, 1968, pp. 78-79.) Henri Lefebvre alludes to this “spatialization” in Lévi-Strauss’ variety of structuralism as a “new Eleatism.” (“Claude Lévi-Strauss y el nuevo eleatismo,” in *Estructuralismo y filosofía*, ed. José Sazbón, Buenos Aires, Ediciones Nueva Visión, 1971, pp. 121-76.) It can be provisionally concluded, then, that this static quality of orthodox structuralist methodology, as well as any other analogous view of reality, is the result of an implicit “spatialization.”

return” becomes not merely a romantic illusion but a mathematical possibility, for:

In infinity, at some moment or other, every possible combination must once have been realized; not only this, but it must have been realized an infinite number of times. And inasmuch as between every one of these combinations and its next recurrence every other possible combination would necessarily have been undergone, and since every one of these combinations would determine the whole series in the same order, a circular movement of absolutely identical series is thus demonstrated: the universe is thus shown to be a circular movement which has already repeated itself an infinite number of times, and which plays its game for all eternity.³²

The image of man suffers in this classical picture of the world for it ultimately implies: (1) the elimination of all notion of *purpose* from the universe, since changes and future states are described simply as the inevitable consequences of prior conditions,³³ and (2) the removal of man, as a subjective feeling being, from the center of a universe mathematically defined in terms of primary qualities (that which is not observable by the senses but which can be qualitatively measured). Hence a “mathematical finality” was imposed on the physical as well as the human sciences.³⁴

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It was mentioned above that structuralism generally adopts the linguistic model. For instance, Jakobson posits the existence of a hierarchy of ever-widening linguistic systems (i.e., phonemes < morphemes < sememes, et al.).³⁵ These systems are “isomor-

³² *The Will to Power*, in *The Complete Works of Friedrich Nietzsche*, trans. Anthony M. Ludovice, London, T. N. Foulis, 1913, XV, p. 430. Quoted in Capek, p. 126.

³³ Neils Bohr, *Atomic Physics and Human Science*, New York, John Wiley, 1958, p. 95.

³⁴ Jacob Bronowski, *The Common Sense of Science*, Cambridge, Harvard University Press, 1955, p. 46.

³⁵ Jakobson, “Parts and Wholes in Language,” in *Parts and Wholes*, ed. Daniel Lerner, New York, The Free Press, 1963, pp. 157-62. See also, for

phic”; that is to say, rules governing a lower system will also govern a higher system. By extrapolation, what is true of the hierarchy of linguistic systems must also be true of semiological systems in general. Therefore, the linguistic model, one semiological system in the hierarchy, becomes analogous to patterns of exchange and “primitive” myth (Lévi-Strauss’ kinship and *Mythologiques*), foods (the “culinary triangle” of Lévi-Strauss), clothing styles (Barthes’ *Système de la mode*), bourgeois “myths” (Barthes’ *Mythologies*), literary structures (Barthes, Tzvetan Todorov, A. J. Greimas, et. al.), the topology of the mind (Lacan), economic infrastructures (Althusser), and even the myth of Superman (Umberto Eco).³⁶

Structuralism, then, appears to be guided by a “law of relative magnitudes,” the notion that as one proceeds from the infinitesimal to the infinite, he will encounter worlds within worlds, each “isomorphic” to the world enclosing it. What is true of the phoneme must obviously be true also for the morpheme, the sentence, discourse, myths, literature, kinship, culture, *ad infinitum*. This line of reasoning is analogous to the nature of Lilliput, that miniature world in *Gulliver’s Travels* constructed as a scale model of our own world. Such “chinese box” models have been posited time and time again as hypostats with which to interpret reality, but in general they have proved fallacious. For example, the “Lilliputian fallacy” was disclosed in the physical sciences when it was demonstrated that the assumed analogy between the atom and our solar system was false. Such fundamental errors in science may be construed as manifest proof that the tendency of the mind to move along pathways of least resistance does not necessarily lead to truth.³⁷ In reality,

instance, Greimas, who maintains that the scientific conception of the universe is that of a great “semiotic hierarchy.” “Sémantique, sémiotique et sémiologies,” in *Sign, Language, Culture*, ed. C. H. van Schooneveld, The Hague, Mouton, 1970, pp. 13-27.

³⁶ There has, however, been controversy concerning the respective positions of each system in the total hierarchy. For instance, Saussure originally forwarded the notion that the linguistic system is subordinate to general semiological systems. Barthes inverts this formulation suggesting the primacy of the linguistic system over all aspects of human activity. These two central propositions are antithetical, but tenable on their own grounds, as are the Kantian antinomies of thought. The argument could thus go on forever.

³⁷ Capek attempts to demonstrate how this tendency of human thought to follow the “pathways of least resistance” is a psychological phenomenon and

“macrosystems” do not always abide by the same rules nor do they inextricably manifest the same structures as the “microsystems” contained within them. On the contrary, while the phonemic system operates on a level of higher “logical typing” (i.e., greater simplicity and order) larger cultural systems manifest higher levels of organizational complexity whose “logical typing” is by nature highly differentiated, allowing for less order but more vagueness and ambiguity.³⁸

The problematic involved in *ad hoc* models constructed on the basis of what is known to be “common sense” knowledge has become apparent. In addition to the potential falsity of the models, a greater danger rests in what Arthur Eddington terms the “Procrustean treatment,” that is, the habit of forcing the

that psychology for this reason cannot be divorced from epistemology. He believes that epistemological conventions can become ingrained in the “subconscious” such that it is well nigh impossible to go beyond these conventions to view reality in a different light. The Newtonian paradigm has over the centuries become ingrained so as to “condition our minds” and prevent us from eliminating it overnight. Newtonian subconsciousness is incompatible with the conscious convictions of those modern physicists who outwardly profess allegiance to the relativity theory. These subconscious barriers must fall. Hence, the epistemology of modern physics “would profit enormously from a sort of ‘psychoanalysis of knowledge’ in Gaston Bachelard’s sense which would unmask the inhibiting influence of our Euclidean and Newtonian subconscious in the minds of those physicists who sincerely believe themselves to be entirely free from them.” (P. 299.) In conjunction with this view of the cultural “embedding” of ideas, see Gregory Bateson, “Style, Grace, and Information in Primitive Art,” in *Steps to an Ecology of Mind*, New York, Ballantine Books, 1972, pp. 128-52.

³⁸ This line of reasoning follows Bertrand Russell’s theory of logical types. To paraphrase and simplify (I hope without doing violence to a sophisticated and quite complex theory), all entities referred to in a *corpus* submitted for analysis may be thought of as a macrosystem which includes systems of systems, all arranged in a hierarchy of classes, or types. An individual of a particular class cannot be considered as the class itself, and conversely, a class cannot be a member of itself. To do so introduces paradox. The paradox of Epimenides the Cretan who said that all Cretans were liars effectively illustrates Russell’s point. In this statement a member of a particular class is considered on the same level as the class itself and the sentence is for this reason rendered nonsensical. In the context of the present commentary, to treat, as does structuralism, myths, the mind, dress codes, narrative texts, etc., *as if* they were language is to establish language as a model. However, whereas the explanatory model for structural linguistics is binarism, structuralism generally adopts binarism as a sort of “second order” model, language being the primary model. Therefore, the binary principle is for linguistics the model while for structuralism it is a metamodel, the model of a model. It is the use of this model of a model that constitutes a violation of the boundaries separating logical types and brings about a fundamental methodological problem.

data at hand into a preconceived mold.³⁹ It will be recalled that Procrustes cut down or stretched his guests to fit the bed he had constructed, and then wrote a scholarly paper "On the Uniformity of Stature of Travellers." Unfortunately in a world which rewards him who is consistently "right"—even though many who have contributed most to the history of thought have in the long run been wrong—to expose the falsity of one's model is anathema. The more "respectable" alternative is to alter things a bit so as to assert the model's validity.

To reiterate conclusions derived from the second section of this article, the classical conception of an instantaneous universe presupposes space as a homogeneous "container" to be "filled" by material objects, and time as a chronologically homogeneous "container" to be "filled" with a series of infinitesimal instants. Structuralism is founded upon presuppositions strikingly similar to those of Newtonian physics. An instantaneous configuration of structures is presumed to exist within an isolated system where the seeds of all future conditions of structure are contained within the present configuration which in turn is the logical culmination of all past states.

Furthermore, a form of "causality" is assumed possible in a system composed of a continuous series of instantaneous states, each being represented by a complex configuration of simultaneous, atomistic entities with sharply defined structures and boundaries. A given configuration is implied in all past configurations (since the structural changes consist of displacements of elements in the structures) and in turn implies all future ones. The root structural models (i.e., the "actantial" model of Greimas, the "triadic" model, of Bremond, the "homological" model of Lévi-Strauss, the "generative-transformational" model of Todorov, the "Schemes" of Lacan, etc.) assume structures composed of homogeneously organized elements existing in space and time. The flow of time, however, has nothing to do with the nature of the structures. One structure is replaced by another in a reversible, atemporal scheme devoid of traditional considerations of physical cause and effect. It is nonetheless causal: a form of "structural causality." According to this conception of things,

³⁹ *The Philosophy of Physical Science*, Ann Arbor, The University of Michigan Press, 1958, pp. 109 and 112.

a given instant of time is independent of all other instants. The passage of time becomes mere illusion since structure and its laws of commutation, permutation, transformation, etc., are identical whether considered diachronically in time or “spatially” across cultures at a given instant of time.⁴⁰ Therefore, history, or the chronological flow of time, becomes a mere “myth” created by Western thought to perpetuate the bourgeois idea of progress.⁴¹

“Structural causality,” in the final analysis, implies that from one particular instantaneous state of the universe (past, present, or future) all other states can be derived, a mechanistic scheme whose terminology is remarkably compatible with the Newtonian corpuscular-kinetic picture of the world. Spatial configurations of immutable structures determine the distinctions to be found in all successive configurations while the content of those structures is of little consequence. In such a timeless scheme, the universe becomes a conglomerate of subsystems which set up constraints and limit man to certain predetermined paths. Ultimately the end product is a static state not unlike the second law of thermodynamics; that is, the entropy principle, another convention of nineteenth century physics. This picture of the world is evoked by Saussure’s monstrous chess game analogy to language. On the chessboard an aggregate of “objects” can be rearranged in a calculable but quasi-infinite number of possible combinations. Saussure’s analogy automatically implies a closed universe, a Laplacean system *par excellence*, in which linguistic constraints are equally as immutable as the structures they determine.⁴² In such a universe the structuralist method of

⁴⁰ This is an apparent contradiction of Lévi-Strauss’ notion that anthropology studies structures through space while history constitutes a “functional” study through time. The fact does remain that “primitive” societies in twentieth century Brazil exist simultaneously with comparable societies ten or more centuries past. On the other hand, Edmund Leach maintains that Lévi-Strauss’ culinary triangle and other similar devices do not depend on the temporal status of societies but apply equally well to the so-called “hot” (industrialized) and “cold” (preindustrial) societies. Similarly, Jakobson’s phonemic triangle supposedly applies equally well to both “primitive” and modern languages. *Claude Lévi-Strauss*, New York, The Viking Press, 1970, pp. 15-52.

⁴¹ See Lévi-Strauss’ essay entitled “History and Dialectic” in *The Savage Mind*, pp. 245-69.

⁴² Jameson perceives a paradox in Saussure’s model (and it might be added that Saussure himself admits that “the comparison is weak”). The chess game

viewing man and his cultural products in terms of homogeneity, relations of similarity, opposition, reciprocity, etc., appears to be the line of least resistance.

The instantaneous arrangement structuralism posits is nowhere more explicit than in Lévi-Strauss' analogy between music and myth.⁴³ The "melody" (diachronic aspect) of the myth may be read as one reads any other story, but to derive meaning from the myth it must be read in terms of its "harmony" (synchronic aspect). This constitutes a timeless reading of "instantaneous chords" through space. Such a synchronic reading of the myth breaks it up into discontinuous (timeless) entities which are determined by their spatial relations rather than by their content. The subsequent system of relations must by nature be static, a hermetic chamber containing a finite number of elements continually displacing one another. Hence to base the study of myths, as does Lévi-Strauss, on a linguistic model implies automatic reduction of all myths to their discontinuous rudiments. The observation that the phonemic aspect of language consists primarily of discontinuous signs, oppositions, and static binaries is well taken and perhaps correct. However, explication of myths and other mental constructs in terms of these same discontinuous categories is undoubtedly tenuous. The problem harkens back to Heraclitus. Oppositions such as night and day, this Greek philosopher says, are illusions, since there is always a continuum of gradations between each element of the binary. Man unconsciously confers upon a dynamic reality those static linguistic categories which distort rather than fully explicate. Hence although our awareness of reality may be, as Michael Polanyi tells us, a form of "tacit knowledge,"⁴⁴ that reality must inexorably remain, due to our linguistic limitations, ineffable.⁴⁵

analogy, "satisfying historically because it makes of the successive synchronic states a kind of meaningful continuity, is not at all in the spirit of Saussurean thinking, for in the chess game, the rules remain the same throughout: whereas in the evolution of language it is precisely the rules that change." Hence the idea that diachronic changes in language are the result of "some meaningful force immanent in phonetic history." p. 22.

⁴³ *The Raw and the Cooked*, pp. 14-30.

⁴⁴ *Knowing and Being: Essays by Michael Polanyi*, ed. Marjorie Grene, Chicago, The University of Chicago Press, 1969, pp. 123-80.

⁴⁵ This is Wittgenstein's early thesis in *Tractatus Logico-Philosophicus*. We may "intuit" a particular reality but on attempting to describe that reality

As a result of the posited “instantaneous arrangement” of the *corpus*, structural analysis usually entails construction of static taxonomic systems. Taxonomy presumes a structured (dead) corpus as well as a closed system. It might appear at the outset that a rough analogy can be established between the present classificatory state of many structuralist studies and the state of botany under Linnaeus. Species and genera were, for Linnaeus, fixed forms rather than stages in an ongoing theory of evolution.⁴⁶ This analogy, however, disintegrates upon realization that while the natural sciences progressed from static classificatory systems to the notion of evolution, for the human sciences the situation was reversed. The evolutionary concept derived from within the natural sciences was dumped on the human sciences when in their infant stage. This evolutionary vision of reality consequently abetted the idea that Western societies represent a superior, more highly evolved form of civilization. Structuralism, especially that of Lévi-Strauss, can be conceived as a reaction against such ethnocentrism, a reaction well taken. But the consequent reversion to a static science of taxonomy is fraught with difficulties, chief of which is the structuralist movement’s discontinuous view of reality.⁴⁷ It is interesting to note that structuralism has been termed a “predialectics.”⁴⁸ This label attests to the static quality of the structuralist method while placing it historically prior to the birth of modern sociology, anthropology, economics, and other human sciences. In the final analysis, rather than looking beyond, the structuralist movement gives in to a conservative tendency, propagating images of static equilibrium, enclosure, timelessness, and

we are lost, for its essence is, *ipso facto*, unutterable. The unutterability will be reflected in what is said but cannot be explicitly stated. Hence poetic discourse displays, but cannot tell in objective fashion, and the reader must “intuit” that linguistic display just as the writer intuited the reality he displayed through language.

⁴⁶ Nevertheless, it was only on the basis of this Linnaean classificatory system that a viable model of evolution could be constructed. Norbert Wiener, *The Human Use of Human Beings*, New York, Avon Books, 1967, p. 93.

⁴⁷ See Jonathan Culler, “The Linguistic Basis of Structuralism,” in *Structuralism: An Introduction*, ed. David Robey, Oxford, Clarendon Press, 1973, pp. 20-36.

⁴⁸ Lucien Seve, “Método estructural y método dialéctico,” in *Estructuralismo y marxismo*, pp. 108-50.

spatialization.⁴⁹ This conservative element becomes more evident when observing that structuralism has been influenced by mathematics only in so far as closure can be maintained. For instance, the cybernetic model adopted by Piaget and Lévi-Strauss is, strictly speaking, the earlier closed-system cybernetics entailing a static form of equilibration (homeostasis) developed by Wiener and others during the 1950's.⁵⁰ Group theory, which has contributed much to structuralist methodology, implies a closed system of permutations wherein the "eternal return" is an ongoing reality, a system akin to the "cosmic cycle" of the Greeks.⁵¹ And information theory is adopted only in as much as it will not go beyond the hermetic enclosure established by structuralism.⁵²

Therefore, the structuralist "rage" is in reality the stepchild of the classical model of the universe. Although Democritean atomism is presumably discarded, structuralism remains in essence "macroatomistic." That is to say, while the elements within a given system are not considered as "atoms" *qua* atoms, but "real" only in so far as they fit into a combinatorial system, that system is nevertheless effectively isolated from all other systems to become a "macroatom."⁵³ A few structuralists, such

⁴⁹ Similarly, even though structuralism purports to be a holistic way of looking at man and at the world, in certain respects it is, as Capek says of the more "conservative" interpretation of relativity physics, still tied to the world view it attempts to supersede.

⁵⁰ Wilden, pp. 230-73 and 302-50.

⁵¹ Cassius J. Keyser, "The Group Concept," in *The World of Mathematics*, ed. James R. Newman, New York, Simon and Schuster, 1956, III, pp. 1538-57.

⁵² Wilden, pp. 351-94.

⁵³ Georg Lukacs' critique of Western empirical science is analogous to my own critique, even though from a distinct vantage point. Lukacs maintains that the traditional empirical method wrenches "facts" from their living content, isolates them, and fits them into an abstract theory. Phenomena, by means of this method, are reduced "to their purely quantitative essence, to their expression in numbers and numerical relations." (*History and Class Consciousness*, trans. Rodney Livingstone, Cambridge, The M.I.T. Press, 1971, p. 6.) A method of analysis based on immediately perceivable facts fails in so far as it cannot, as does dialectical materialism, take account of the historical character of the facts and glimpse their underlying reality. Both "bourgeois science" and "vulgar Marxism" abstract the parts and prevent them "from finding their definition within the whole and, instead, the whole was dismissed as unscientific or else it degenerated into the mere 'idea' or 'sum' of the parts. With the totality out of the way, the fetichistic relations of the isolated parts appeared as a timeless law valid for every human society" (p. 9). These "timeless laws"

as Jakobson, voice vague speculations concerning an integrative “system of systems,” but make little or no attempt to establish a rigorous intersystemic model. On the other hand, it has been proposed that “homologies” can be established between systems, but only a few, notably Lucien Goldmann, have attempted such a study.⁵⁴

In short, the Newtonian model “spatializes” time whereas the structuralist model “synchronizes” process. Space, according to the classical notion of the universe, is the eternal and immutable medium providing for perpetuation of a clockwork universe. Similarly, structure gives order to an otherwise chaotic universe which consists of an incessant flow of meaningless sense perceptions. Whether the system behind randomness is conceived as space (the eternal void to be filled with neutral material) or structure (the neutral emptiness which provides for eternal orderliness), man in either case is displaced from the “center” to become a passive object, acted upon by opposing material objects or existing as a mere instrument by means of which the system discloses itself.⁵⁵

have become an ideological weapon. For the bourgeoisie, “it is a matter of life and death to understand its own system of production in terms of eternally valid categories: it must think of capitalism as being predestined to eternal survival by the eternal laws of nature and reason. Conversely, contradictions that cannot be ignored must be shown to be purely surface phenomena, unrelated to this mode of production.” (pp. 10-11) Although Lukacs is referring to empirical “facts” in contrast to my criticism of “isolated structures,” the timeless character ultimately implied in both methodologies is analogous. Julia Kristeva’s contention that one must consciously rise above the ideologies that are implicit in traditional Western World heuristic models is also comparable. (*Semiotike*, pp. 27-42). Furthermore, Capek’s “ingrained Newtonian mentality” prevents integration of the concrete and the abstract just as does Lukacs’ ideologically motivated bourgeois science.

⁵⁴ And in Goldmann’s case, structure is conceived within a deterministic Marxist framework which becomes, in the long run, a “static” explication of the “static” relationships between instantaneous structures of a given point in history.

⁵⁵ According to Lévi-Strauss, “Mythological analysis has not, and cannot have, as its aim to show how men think. In the particular example we are dealing with here, it is doubtful, to say the least, whether the natives of central Brazil, over and above the fact that they are fascinated by mythological stories, have any understanding of the systems of interrelations to which we reduce them ... I therefore, claim to show, not how men think in myths, but how myths operate in men’s minds without their being aware of the fact.” *The Raw and the Cooked*, p. 12.

Consider for a moment that in the classical view of the universe and in the structuralist system, the “spatialization” of time and the “synchronization” of process derive from a tacit avoidance of history, a non-conscious effort to halt the threat of continually generated novelty. The Newtonian model was founded upon a faith in indefinite and inevitable progress. This convention, fortified by nineteenth century utopian philosophy, was predicated upon a “doctrine” whose underlying structure revealed a fundamental antinomy: the inherently static, cyclical nature of the explanatory model which was finally revealed by Nietzsche and others. In contrast, the structuralist conceptual framework rejects faith in the inevitable progress of human culture. Does this indicate that no comparable anomaly exists at the roots of the structuralist world view? An answer must be voiced in the negative. For on further observation it is ascertained that, implicitly in structuralism and explicitly in existentialism (the philosophical movement it was to displace), there is a preoccupation with non-Being, or nothingness. This preoccupation goes back to the philosophy of Pascal, whose *angst* stems from the realization of man’s finitude, in a Newtonian world, between the infinite vastness of an empty universe and the infinitesimal minuteness of atomic substance. In this classical view of the universe, space becomes paramount. Space is defined as non-Being (void) in opposition to Being, and it simultaneously takes on the attributes of the Deity, since by its very nature it must precede matter.⁵⁶ In a similar manner, structuralism tacitly assumes that the “holes,” or empty “slots” to be filled, precede the content. It is not as if Carroll’s Cheshire Cat were erased to leave only the smile (structure). The smile is the “emptiness” which demands to be filled. It exists prior to the Cat and requires that the Cat be “structured” to fit.

The structuralist notion of “emptiness” is perhaps best illustrated by Lacan’s “lack of being” (*manque d’être*) which is an attempt to conceptualize that persistent human yearning for the absent origin. The primordial “lack” is a sort of “hole” in the system,

⁵⁶ Newton compared the function of space to the function of the Supreme Being. See Capek, pp. 7-10 and 12-15.

a basic fault whose fulfillment is prompted by the subject's desire. It is the "movement" of language, an incessant play of signifiers taking place in a linguistic "space," which potentially fills the emptiness. Modern man, unlike the "primitive" described by Lévi-Strauss, enjoys no stable ontological "center." He has before him only the yawning void since the origin has been cut off from him. Consequently through language, desire attempts to symbolically fill up the "hole" and restore man's primordial "lack" to its full status as being.⁵⁷

A similar notion is found in the analyses of Lévi-Strauss where the structures embody an intrinsic "free play" without any external fixed point of reference. Lévi-Strauss chooses a "reference myth" to function as a prototype, an autonomous point about which his study of other myths can revolve. But this reference myth itself holds no privileged position; it is simply employed as a handle by means of which reality can be grasped.⁵⁸ Hence Lévi-Strauss' reference myth temporarily occupies the elusive center, and the myths he studies are situated in a sort of complex mosaic where, as in Baroque style, the "empty spaces" are conveniently filled. However, this system is still "a sort of Newtonian universe without any God to wind it up."⁵⁹ While Lacan's "emptiness" is potentially filled by the desiring subject, Lévi-Strauss' "empty slot" is temporarily filled—albeit at the expense of a stable point of reference—and the "center" becomes illusory, an "unmoved mover" which is neither God, nor man, but system. Through a series of myths which are not spoken by man but speak themselves through man, this system is revealed.

* * *

Although it is generally assumed that structuralism and existentialism are diametrically opposed, they remain on common

⁵⁷ "L'instance de la lettre."

⁵⁸ See Jacques Derrida's commentary on Lévi-Strauss. "Structure, Sign, and Play in the Discourse of the Human Sciences," in *The Language of Criticism and the Sciences of Man*, eds. Richard Macksey and Eugenio Donato, Baltimore, Johns Hopkins Press, 1970, pp. 247-65.

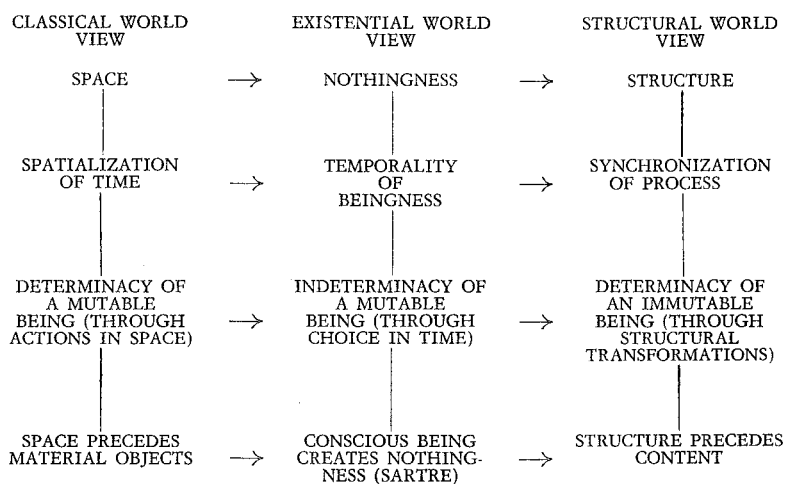
⁵⁹ Wilden, *The Language of the Self*, trans. and notes on Lacan's "The Function of Language in Psychoanalysis," Baltimore, Johns Hopkins Press, 1968, pp. 218.

grounds in so far as: (1) they reject conventional atomism, empiricism, and the Newtonian world, and (2) they have been unable to gain total emancipation from the earlier epistemological tradition. As was concluded above, according to the structuralist picture of the world, time is "accidental," structure (space) is paramount, and "emptiness" (nothingness in existentialist terminology) precedes substance. In contrast, the existentialist Martin Heidegger asks the fundamental question: Why is there something rather than nothing? Here the existence of "things" appears to be accidental, a situation brought about by the whims of contingency. Heidegger also contradicts structuralism's "synchronization" of process, contending that man is defined in and through time, and actively projects his temporality onto nothingness. However, contrary to Heidegger, who says that nothingness negates itself, Jean Paul Sartre claims that nothingness cannot negate itself but must be negated by an outside force: consciousness. In contrast to the structuralist view, then, man is defined by his consciousness rather than by motivations the nature of which he is unaware. This conscious being which brings nothingness into the world is its own nothingness; or in Sartre's words, "Nothingness lies coiled in the heart of being, like a worm."⁶⁰ Therefore, according to the existentialist, nothingness comes into the world through being, which is its own nothingness. This conception is analogous to that of the classical thinker. Imbued with the Newtonian picture of the world, he postulates that space is the emptiness in which material objects exist, and those material objects contain their own emptiness; that is, the emptiness which remains when they are displaced. The Pascalian fear of "empty spaces," as they are conceived from within the Newtonian cosmological framework, becomes a variant of the existentialist dread of nothingness. Emptiness is necessary for the existence of materialness and material objects give rise to the need for emptiness, a complementary (dialectical in the terminology of Sartre) relationship where the annihilation of one brings forth the creation of the other.

Existentialist *praxis* constitutes an attempt to come to grips

⁶⁰ *Being and Nothingness*, trans. Hazel E. Barnes, New York, Philosophical Library, 1956, p. 21.

with the void and with the contingency of beingness and death, since the existence of nothingness is dependent on consciousness of being. Structuralism, on the other hand, aims at the unconscious in human culture. An invariant topology of the mind becomes the paradigm for all structures (predominantly binary) which provide the “slots” to be filled with content. However, structure, Lévi-Strauss tells us, *is* content; it lies at the very heart of substantiality as the *conditio sine qua non* of the content’s existence.⁶¹ Hence, the following schema of “structural permutations” between the classical, existentialist, and structuralist world views can be constructed.⁶²



Structure “structurally” displaces space (the void) and nothingness in the first two cosmologies. This not only reveals the underlying import of the notion of non-Being but also further

⁶¹ Cited in Peter Caws, “What is Structuralism?,” in *Claude Lévi-Strauss: The Anthropologist as Hero*, pp. 197-215.

⁶² I have taken the liberty of constructing a “structural scheme” of the relations between the Newtonian, existentialist, and structuralist world views, aware of the fact that it might appear that I am employing the very analytical method I criticize. I do, however, believe that structural schemes are economical and potentially illustrate relations between structures and between elements in a structure more effectively than the conventional expository method. My criticism in this article is not directed toward the use of such schemes but toward the purpose for which they are used.

discloses the structural movement's incapacity totally to abolish past conventions. The structuralist paradigm represents in reality nothing more than a "permutation" of concepts rather than the replacement of one model by a new model. The above schema is analogous to the *Weltanschauung* approach to the philosophy of science which has become respectable in recent years. It behooves us to look into this approach in order to comprehend more adequately the structuralist movement.⁶³ According to Stephen Toulmin, a new scientific *Weltanschauung* is developed by a restatement of various laws, ideals, and hypotheses using terms borrowed from earlier scientific formulations. However, as the terms are transported from one *Weltanschauung* to another, their meanings are invariably altered. This incorporation of traditional terms into new explanatory models such that the meaning of the terms is changed constitutes what Toulmin calls a *language shift*.⁶⁴ The meanings of semantically transmuted terms occurring in scientific theories are theory dependent, and, when taken out of the context of their scientific *Weltanschauung*, the semantic fullness of these terms is inevitably destroyed.

Thomas S. Kuhn, in contrast to Toulmin, is concerned with the "structural" analysis of scientific thought.⁶⁵ Both epistemologists view science as operating from within particular world views which govern the perspectives by means of which phenomena are observed and regulate the criteria of theory formulation. However, while Toulmin maintains that science undergoes an evolutionary development by assimilating new concepts to the existing *Weltanschauung*, Kuhnian scientific thought is fundamentally discontinuous and revolutionary. All great scientific theories, Kuhn argues, have developed out of the general acceptance of a new pattern of thought, or a "paradigm," which

⁶³ While Frederick Suppe in a penetrating essay comments on various *Weltanschauungen* analyses of science, I will summarize what I consider the two approaches most applicable to the present study. See Suppe, "The Search for Philosophical Understanding of Scientific Theories," in *The Structure of Scientific Theories*, ed. F. Suppe, Urbana, University of Illinois Press, 1974, pp. 3-232.

⁶⁴ *The Philosophy of Science*, London, Hutchinson's University Library, 1953, pp. 13-16 and 159-170; *Foresight and Understanding*, New York, Harper and Row, 1961, pp. 62-98.

⁶⁵ *The Structure of Scientific Revolutions*, 2nd ed., Foundations of the Unity of Science, No. 2, Chicago, The University of Chicago Press, 1962, pp. 52-91.

leads to the construction of a particular view of reality. The acceptance of revolutionary paradigms such as the Copernican, Newtonian, and Einsteinian models of the universe, entails the construction of an entirely new map which is then used as a basis for further scientific theory making. However, "anomalies" gradually appear in a given scientific view of the world as it is subjected to successive refinement. The established paradigm is used to explain away the anomalies by auxiliary appendages. Gradual multiplication of these appendages leads to increased disenchantment within the scientific community until finally the model is rejected and another takes its place. Kuhn's "structural" interpretation contradicts the idea of progress inherent in Toulmin's conception of the history of science. Progress is only relative, for it is measured from within a given world of ideas that are conditioned by a choice of one from among a number of possible, but equally valid, models of the universe.

The general approaches of Toulmin and Kuhn are based on three assumptions: (1) perception is *Weltanschauung*-bound, since a given picture of the world determines to a large degree one's perception and consequent interpretation of reality, (2) meanings are perception-bound, since, if the *Weltanschauung* governs one's view of reality, the meaning conveyed to him by that reality will be incorporated into his mental scheme in a manner different from that of another person who possesses a distinct picture of the world, and (3) language does not imprison man's cognitive capacities, as the orthodox structuralists would have it, but it is used as an instrument by means of which man draws from the vast untapped pool of potential knowledge. Thus both epistemological hypotheses attempt to discover the underlying nature of scientific theories "through an examination of their linguistic formulations, and on occasion even seem to assume that the theory is its linguistic formulation."⁶⁶

⁶⁶ Suppe, p. 221. It is worthy of note that Michel Foucault develops a "structuralist" method of historical analysis which bears resemblance to that of Kuhn. Language, according to Foucault, constrains and limits human mental capacities, and only within this limiting horizon can human thought processes be properly understood. These constraints reduce the parameters of mental activity to invariant "epistemes," which are used much as Kuhn's "paradigms" to portray particular *Weltanschauungen*. (*The Order of Things*, New York, Random House, 1970.) Compare also this line of inquiry to Althusser's "epistemological breaks," a concept introduced by Gaston Bachelard

The problem with Kuhn's revolutions and Toulmin's language shifts is that they do not readily go to completion. Rather than one paradigm "structurally" replacing another or one meaning being replaced by another, generations are required for a community to adjust to a new way of thinking.⁶⁷ For instance, Capek asserts that centuries of conditioning have integrated the Newtonian paradigm into our "intellectual subconscious." Consequently, "we fail to realize that the very terms 'motion' and 'displacement' are thoroughly inadequate because they are tinged with misleading classical associations. The continued use of these terms ... indicates the reluctance of our Newtonian subconscious to depart from traditional habits of thought."⁶⁸ This "semantic inertia" is responsible for numerous incidents in the history of science where obstinate terminology reflecting conservative underlying mental habits prevents novel ideas from emerging in their fullness. Similarly, Anthony Wilden demonstrates how Piaget, Lacan, and Lévi-Strauss use "scientific terminology" in such a way as to depict a world view which is not compatible with contemporary scientific thought nor with what they are actually trying to say.⁶⁹

In short, according to the *Weltanschauung* approach, cognition takes precedence over language. The latter does not rule over the former although it might appear that way given the conservative tendency to follow the line of least resistance and yield to "semantic inertia."

in his *La formation de l'esprit scientifique* which describes "the leap from the pre-scientific world of ideas to the scientific world; this leap involves a radical break with the whole pattern and frame of reference of the pre-scientific (ideological) notions, and the construction of a new pattern." *For Marx*, trans. Ben Brewster, New York, Random House, 1970, p. 249.

⁶⁷ Percy W. Bridgman, *Reflections of a Physicist*, New York, Philosophical Library, 1950, p. 103.

⁶⁸ Capek, p. 264.

⁶⁹ Wilden, *System and Structure*, p. 230. Einstein once said, "If you want to find out anything from the theoretical physicists about the methods they use, I advise you to stick closely to one principle: don't listen to their words, fix your attention on their deeds." (Quoted in Toulmin, *The Philosophy of Science*, p. 16.) In many cases that same advice may apply to leading structuralists, for the language they themselves use in building their models is perhaps not entirely conscious.

Let us consider further the structuralist movement in light of the twentieth century "Einsteinian paradigm." It is now commonplace in the physical sciences that the notion of a detached observer is illusory. The mind cannot be excluded from the world since it is an integral part of that world, and mental processes, both conscious and unconscious, must be included in that which is observed. The scientist cannot know anything about anything without getting involved, either directly or indirectly, with the object of observation. Thus "no knowledge of any physical property or even mere existence is possible without interaction."⁷⁰ In this context a scientific theory becomes a picture of man's relationship with nature, and as this relationship changes, the theory also must undergo alteration.⁷¹ It is significant, then, that Eddington calls contemporary scientific theory "a priori knowledge," an epistemological stance he justifies on the grounds that the universe described by the scientist is not wholly objective but partially subjective.⁷²

Leading structuralists often voice platitudes concerning the synthesis of the Cartesian subject-object dichotomy. Nevertheless, in actual practice the structuralist method generally presupposes an objective, uninvolved observer who discloses the structure of either the *corpus* or, especially in the case of Lévi-Strauss, the mind that created the *corpus*.⁷³ It is an ironical turn of events that while the physical sciences have been hard at

⁷⁰ Bridgman, p. 95.

⁷¹ Werner Heisenberg, *Natural Law and the Structure of Matter*, London, Rebel Press, 1970, pp. 27-29.

⁷² *The Philosophy of Physical Science*, pp. 16-27.

⁷³ Lawrence Krader, "Beyond Structuralism," p. 352. It is conceded that structuralism generally assumes a subject who is incapable of taking an "objective" stance *vis-à-vis* the object under study. He is himself an "activity" rather than an entity, when observing the object, and as such rests on a level coequal with the object. Hence subject and object apparently become mutually inclusive and complementary, and neither has any being apart from the reciprocal activity between both. Nevertheless, the picture becomes confused, for it becomes difficult to "classify" without maintaining a distance from the *corpus*. Lévi-Strauss himself states that structures can appear only as the result of observation from outside. "Les limites de la notion de structure en ethnologie," in *Sens et usages du terme structure*, ed. R. Bastide, The Hague, Mouton, 1962, pp. 40-45.

work to liberate themselves from the “myth” of objectivity, predictability, and in general, the tyranny of method, in the human sciences the trend has been toward more rigidly defined methodologies. Models at times are taken at face value as *a priori* truths and relationships are usually considered to be invariant.

It is evident from the foregoing that structuralism’s underlying presuppositions stubbornly reveal vestiges of archaic epistemological conventions. Just as the special and general theories of relativity were unable in the first decades to replace effectively the Newtonian primacy of space with a genuine relativistic space-time fusion,⁷⁴ so structuralism has apparently been incapable of emancipation from an earlier dogmatic epistemology. For instance, the Newtonian timelessness of space is founded upon an assumed dichotomy and categorical separation between matter and space. Relativity theory dissolves this dichotomy, and space can no longer be considered merely a static, neutral container. Instead of matter partially filling the emptiness of space, “it would be more accurate to speak of space being fused with its changing and dynamic physical content.”⁷⁵ However, the classical distinction between “fullness” and “emptiness” was carried over into the early “unified field” theories of Einstein, Eddington, Schrödinger, and others, a notion that actually goes back to a Laplacean universe.⁷⁶ Nevertheless, in spite of this inevitable tendency toward “linguistic conservatism,” some of the great minds of the present century have brought forth a new image of the world which goes far beyond their original intent. The Newtonian image of empty space can now be looked upon as simply an artifact of our thinking.⁷⁷ Recent theories more rightly postulate that space does not exist prior to matter nor is it a neutral homogeneous container. The very existence of space comes into being in simultaneity with the appearance of matter at a given stage in the space-time continuum.

Equally, we can postulate that the “full: empty” distinction

⁷⁴ Capek, pp. 157-87.

⁷⁵ *Ibid.*, p. 184.

⁷⁶ Jacques Monod, *Chance and Necessity*, trans. Austryn Wainhouse, New York, Random House, 1971, p. 43.

⁷⁷ Bridgman, *The Way Things Are*, Cambridge, Harvard University Press, 1959, pp. 197-98.

is invalid with respect to structuralism. The universe, be it in the physical or the mental sense, does not consist of a system of invariant structures persisting through time and existing in space. Nor are structures simply empty containers, slots to be filled, prior to and independent of content. Structure comes into existence only as it is defined by content. It assumes a reality by virtue of the content's existence; and the content is a part of reality in so far as it is "structured." A qualitative change in the content leads to a warp, or distortion, in the structure which then, rather than reverting back to a static state of equilibrium according to Saussure's formulation, moves forward toward a higher, more complex system (the open world). Hence, content and structure are modifications of the notion of the diachronic-synchronic continuum, since the system is susceptible to changes in time and time is defined by those systemic changes. This suggests a priority of process rather than of structure, a transformation in human thinking not unlike that of twentieth century physics which ultimately abolished the classical notion of instantaneous states.

It may well be that the concept of *process* will dominate in the decades to come.⁷⁸ This trend began in the sciences themselves during the present century. Heisenberg's principle of indeterminacy, to cite only one instance, stands in stark contrast to the mechanistic determinism of classical physics. His indeterminacy principle denies the exact prediction and simultaneous measurement of both the position and velocity of subatomic entities in space and time. Consequently, since neither position nor velocity can be defined together, the exact state of the system cannot be precisely known. Heisenberg himself suggests that matter manifests to the physicist not a static state but a "potentia" in the sense of Aristotelian philosophy. In fact, he believes that "the language actually used by physicists when they speak about atomic events produces in their minds similar notions as the concept 'potentia'."⁷⁹ However, "semantic inertia" often prevents this concept from effectively revealing itself.

⁷⁸ See Ludwig von Bertalanffy, *Robots, Men and Minds*, New York, George Braziller, 1967, part II.

⁷⁹ *Physics and Philosophy*, New York, Harper and Row, 1962, pp. 180-81.

The task now at hand is to “dynamize” the general structuralist interdisciplinary methodology, as Paul Ricoeur believes Chomskyan linguistics is striving to dynamize structural linguistics in particular.⁸⁰ How can the static categories of structuralism be transformed into historical, dynamic categories? In search for an answer let us refer back to the analogy of the physical sciences. It is now generally conceded that: (1) the Newtonian primacy of absolute space is invalid, (2) the notion of separateness of space and time is a mathematical abstraction, a fundamental axiom upon which the Newtonian system was deduced, and (3) homogeneous and instantaneous states in time and space are imaginative logical constructs by means of which Newtonian mechanics could operate.

The current view has it that space and time are fused together in nature to produce a four-dimensional continuum. In the words of James Jeans, our “human spectacles” have created that spurious differentiation between space and time. When these spectacles are removed, “we see that an event no longer occurs at a point of the continuum, this point identifying both the time and place of its occurrence; we discover that the primary ingredients of nature are not objects existing in space and time, but events in the continuum.”⁸¹ Time, which must now be considered heterogeneous since events are not evenly spaced in the continuum, can no longer be separated from its own content. Moreover, content is merged into space while simultaneously space is fused with time. Time does not exist as an empty homogeneous flow prior to material content, its reason for existence is dependent upon that content. Hence, the “traditional distinction between time and concrete physical processes must be seen to be as artificial as that between *space* and its *material* content.”⁸² The physicist, then, observes not particles in time and space but spatio-temporal events in an ongoing transformational process. This is a radical departure from the notion of a discontinuous series of instantaneous states. Whereas it

⁸⁰ “Structure, Word, Event,” *Philosophy Today*, 12 (1968), 114-29.

⁸¹ Jeans, pp. 104-05.

⁸² Capek, p. 212.

was once assumed that an individual particle could be observed in terms of its position during successive instants, now we realize that the same event can never be observed twice.⁸³ Cognizant of this new image, Capek proposes a change in scientific terminology from “displacement” in space to “change” through time-space and from “particles” to “events.”⁸⁴ Therefore, the impossibility, in light of relativity physics, of an instantaneous configuration of independent, homogeneous, and empty time and space, of a universe of mechanistic determinism which, if logically extended, produces the image of a state of permanency, has been slowly eliminated. The static universe of classical physics has been superseded by an “open world.”⁸⁵ This reassertion of a dynamic world of becoming supports the “philosophers of process” (James, Bergson, Whitehead, and more recently, Whyte), and in a different vein, the proponents of “general systems theory” (von Bertalanffy, Laszlo, et al.).

In this view of things, the mind is a creator, not a passive observer, a “great thought” rather than a “great machine.”⁸⁶ Mental creativity does not act on a static machinelike universe; it unfolds itself in conjunction with the universe to reveal higher, more complex cognitive constructs which are concomitant with what Whitehead terms the “creative advance of nature.” Hence, the general epistemological transition I am proposing here is from configuration to process, static state to “potentia,” surface relations to underlying reality, and certainty to indeterminism. The first term of each of these binaries terminates inevitably in a state of chaos (the entropy principle); the second implies evolution toward higher, more complex levels of organization. For the first the unreal is always an impossible world and vice versa, while for the second, potentia is, though for the moment unreal, not ultimately impossible. Norbert Wiener remarks that indeterminacy, the idea of the possible, is a sort of parallel to

⁸³ Erwin Schrödinger, *What is Life?*, New York, The Macmillan Company, 1945, p. 175.

⁸⁴ Capek, pp. 328-29.

⁸⁵ Hermann Weyl, *The Open World*, New Haven, Yale University Press, 1934.

⁸⁶ Jeans, *The Mysterious Universe*, New York, Dutton, 1958, p. 181.

Structuralism and Beyond

Freud's irrationalism.⁸⁷ In reality, indeterminacy is irrational only in a universe conceived of in static Newtonian terms founded upon the fundamental algorithm of determinism.⁸⁸ Saussure himself alludes vaguely to a distinction between a destructive sort of "entropy principle" and an "ordering principle" which limits absolute arbitrariness:

The whole system of language is based on the irrational principle of the arbitrariness of the sign, which would lead to the worst sort of complication if applied without restriction. But the mind contrives to introduce a principle of order and regulation into certain parts of the mass of signs, and this is the role of relative motivation. If the mechanism of language were entirely rational, it could be studied independently. Since the mechanism of language is but a partial correction of the system that is by nature chaotic, however, we adopt the viewpoint imposed by the very nature of language and study it as it limits arbitrariness.⁸⁹

Saussure pits the "unconscious," (irrational and arbitrary) against the "conscious" (ordering and motivated) aspects of language. One is more lexical (phonological) in nature while the other is more grammatical (syntactic). Saussure's formulation is understandably couched in mechanistic nineteenth century terminology much as is Freud's language. Nevertheless, the seeds of a philosophy of purpose, or "motivation" in Saussure's words, is present. If structuralism and the nineteenth century Newtonian world are generally devoid of the notion of purpose, the twentieth century scientific paradigm revives this aspect of Aristotelian physics. Purpose presupposes a universe where novelty rather than invariance is the rule. There is nothing mysterious in the affirmation that the universe is somehow incomplete. It is certainly less preposterous than to consider time a mere figment of the imagination as do some structuralists. The notion of novelty, unlike what Piaget designates as "structureless genesis,"⁹⁰ does not indicate a chaotic, incoherent universe, nor

⁸⁷ Wiener, p. 19.

⁸⁸ Capek, p. 337.

⁸⁹ Saussure, p. 133.

⁹⁰ *Structuralism*, trans. Chaninah Maschler, New York, Harper and Row, 1970, pp. 3-16.

does it, as the nineteenth century argument goes, imply any sort of creation *ex nihilo*. On the contrary, novelty presupposes causal influence of the past due to principles of equifinality and multifinality (i.e., the same result from different beginnings or different results from the same beginnings). But there can be no causal factors between present and future. The future is potential, a probable state of affairs from among a quasi-infinite number of possibilities.

The structuralist might reject the concepts of potentiality and possibility as absurd since, according to his heuristic model, the instantaneous state of a given structure intrinsically possesses the character of all future constructions. Structures exist at present in the form of a sort of disguised reality which remains hidden from our present knowledge, but which can be discovered by the use of proper models. Futurity is merely a label given to that part of the present state of things which is unavailable to our immediate perception. Hence the temporal relationship between present and future is meaningless since future is not novelty but exists in the present and effectively loses its futurity on becoming actual.

In contrast to this orthodox structuralist view, according to the notion of process, the present can only point toward a number of potential future states. Presentness contains within it the past but, as Whitehead tells us, only "anticipation" of the future. This is to say that it would not have been "scientifically" possible for Goethe to predict a Joycean novel, for Marx to predict modern day "neo-capitalism," or for Laplace to predict Heisenberg's principle of indeterminacy, although in each case causal links leading up to the world views and works of these three outstanding individuals might be established. Presentness stands on the shoulders of pastness but is not bound by futurity.

To go beyond the limits of structuralism, therefore, we must consider "potentia" in terms of "space-time system," in terms of structure not as a static entity (in space) but as an entity defined by its combinatorial properties in so far as they are being transformed in (and through) time. The search focusses on *structuring process*. Whether or not a system is relatively static over a given period is not the only, nor is it the chief concern. Analysis does not seek to disclose solely *what* a particular "con-

Structuralism and Beyond

figuration” is but, in addition, *how* it got that way and *why* it exists as it does in its particular context. This does not imply that there is no room for universals, for to state that all systems change is itself a universal. The objective must be conscientiously to avoid a static classificatory schema of universals, and to attempt in the future a formulation of universals of *becoming* rather than universals of *being*.

* * *

I believe that if structuralism is to survive the test of time, it must itself be an ongoing process, an evolution from the study of those intransigent antinomies of human culture to an interpretation of the dynamic aspects of culture. This evolution demands the replacement of the notion of constraint by human choice and selectivity, of the monolithic institutionalized system which uses and stultifies by innovation and human creativity, of closure by a system which opens out through the use of a language continually referring to that which lies beyond itself. Ricoeur calls for a reappraisal of the *word*, the mediator between system and event:

The sentence... is an event: as such, its actuality is transitory, passing, vanishing. But the word survives the sentence. As a displaceable entity, it survives the transitory instance of discourse and holds itself available for new uses. Thus, heavy with a new use-value—as minute as this may be—it returns to the system. And in returning to the system, it gives it a history.⁹¹

Semiology involves analysis of the schema disclosing a system’s combinatorial properties. It assumes a clear-cut dichotomy between *langue* and *parole*. Focussing on the taxonomic possibilities of *langue*, it denies *parole* the status of scientific *corpus* due to its transitory, incoherent qualities. Semantics, in contrast, is identified with *usage*: that which rests between and mediates *langue* and *parole*. Semantics focusses on the word, which, transitory by its very nature and emerging for use in ever-evolving contexts, projects synchrony into the diachronic axis.

⁹¹ “Structure, Word, Event,” p. 126.

In an open system change cannot be described simply as a permutation of the elements in a system. Change implies a contextual transformation where the complex, more subtle relations between the elements in that system are radically altered. The system must be in dynamic equilibrium with respect to adjacent systems in the total hierarchy, which are themselves incessantly moving forward toward the undefined potentia. Hence, the structuralist technique must involve more than a gathering of observed structures to place them in a definite order, the nature of which is often decided upon *a priori*. It must ask how one structure comes forth from another, and seek an understanding of thought's processes in bringing about these transitions.

Consider the notion that structures emerge by means of cognitive rather than strictly defined linguistic processes. It has been generally concluded in the sciences that Einsteinian space-time is the product of "thought" and exists in basic conflict with sense-perception, or "common sense" knowledge. Thought, contrary to those structuralists who declare dogmatically that language "speaks itself" through man, is not a slave to language. The unfolding of thought is not uncompromisingly determined by language, nor is there a rigid correspondence between human thought processes and discourse; their relation is organic. Thought without language lacks the framework by means of which knowledge's edifice is constructed. At the same time, language without thought is no more than a defunct repertoire of empty signs.⁹²

Furthermore, language, as distinct from the contemporary positivist tradition, is not a direct reflection of, nor is it, nor should it necessarily be, a faithful reference to objective reality. The underlying, non-empirical reality postulated by modern physics is expressible solely by means of mathematical conventions, natural language being incapable of explicating these

⁹² It has been as much as demonstrated that language is not the determinant of thought (or, by extension, world view) but that language is grounded in thought. See the studies of: Piaget, synthesized in *The Child and Reality: Problems of Genetic Psychology*, trans. Arnold Rosin, New York, Grossman, 1973; Lev Semenovich Vygotsky, *Thought and Language*, trans. Eugenia Hanfmann and Gertrude Vakar, Cambridge, The M.I.T. Press, 1962; and Adam Schaff, *Language and Cognition*, trans. Olgierd Wojtasiewicz, New York, Mc Graw-Hill, 1973.

complex mental constructs.⁹³ This underlying reality is not the equivalent of the structuralist's so-called "deep structure," where the detached observer objectively, empirically, and consciously organizes, by the use of his model, the elements of a system which are to represent the product of unconscious human activity. Although the structuralist is correct in his assumption that true reality is never the most obvious of realities, he errs when positing that mental reality is nondevelopmental, or a closed system. Both thought and experience are ongoing dynamic processes. The problem is that when these processes are described in natural language they appear to be reduced to bits and pieces, binaries and static combinatory systems (the "Eleatic urge" again). In the long run, this linguistic system, or any other semiotic system, reveals a subject and object, matter and mind, motion and rest, reality demanding Parmenedean stasis. On another level, however, with its incessantly evolving connotations, this same natural language reveals word meanings, indices, and referents: a world of becoming where analytical preciseness gives way to synthesis although at the expense of inevitably introducing vagueness and ambiguity.

At the outset it appears that vagueness and ambiguity are the inextricable result of natural language's incapacity to depict faithfully the world as modern man conceives it, be he scientist, artist, or philosopher. Whereas natural language, it was assumed, could quite effectively and precisely describe Newtonian principles, when confronted with such products of the human mind as Bohr's "complementarity," Heisenberg's "indeterminacy," of Pauli's "exclusion principle," all of which can be concisely described in mathematical terms, the inadequacies of traditional Western languages becomes more apparent.⁹⁴ However, vague

⁹³ Eddington, p. 85.

⁹⁴ This concept relates indirectly to one aspect of the Sapir-Whorf hypothesis. Contrary to the thesis forwarded in this paper, Whorf believes that language governs an individual's perception of the universe to provide him with a particular world view. However, bracketing out this aspect of the Whorfian hypothesis, it might be stated that a language, given its syntactic structure, the breadth of its lexical repertoire, and its semantic scheme, is limited in its capacity to describe the universe from divergent and contradictory perspectives, a concept which is in line with Eddington, Bridgman, Capek, Toulmin, et. al. The Hopi language, for example, contains a particular "metaphysics," just as our language reveals the "naive" Newtonian view of space and time all Western languages are specifically designed to describe. On the other hand, the Hopi language describes a particular structure of the universe which cannot

and ambiguous language has nothing to do with human error or inadequacy; it is something at the very heart of physical reality as reflected in recent theories of microphysics. Vagueness, ambiguity, and even paradox, move hand in hand with the principles of indeterminacy and complementarity. There is thus a degree of truth to Wittgenstein's principle of ineffability in all languages. It is possible that in recent decades thought has drastically forged ahead of language, which is, Saussure tells us, the most conservative of social institutions. Obviously it is beyond our capacity to "purify" language; that was the abortive task of the logical positivists. We must learn to live with ambiguity and vagueness, aware that Cartesian "clear and distinct ideas" are impossible, at least given the present state of knowledge. Ultimately the task will involve an arduous swim upstream, against the Eleatic tradition, to abolish taxonomies, charts, and combinatory schemes, in favor of emergent forms and structuring processes.

I do not wish to suggest in this paper that we submit the social sciences and the humanities to methods created *sui generis* for the physical sciences. I do believe that to tap more effectively the resources hidden at the underlying level of reality, the structuralist method must undergo a "dynamization," shaking off those epistemological conventions of the past and abolishing the priority of structured events. This involves simultaneously a re-emphasis on man as agent of his creations, rather than the victim of demonic structures which take on a life of their own and reveal themselves through man. The alternative in a vast, incomprehensible and apparently chaotic world is for the analyst to isolate himself, in the presumed autonomy of those structures he intends to explicate, from which position he can do no more than peer out either into the disorderly world of materialness or into the void of nothingness, nostalgic for that long lost universe of total harmony.

be perfectly duplicated in Western languages. In the Hopi view, "time disappears and space is altered, so that it is no longer the homogeneous and instantaneous timeless space of our supposed intuition or of classical Newtonian mechanics." To extrapolate, Western languages, fettered as they are by Newtonian categories, are incapable of effectively describing the Einsteinian universe of space-time continuity, and they inexorably manifest what Capek calls "semantic inertia." See Benjamin Lee Whorf, "An American Indian Model of the Universe," in *Language, Thought and Reality*, ed. John B. Carroll, Cambridge, The M.I.T. Press, 1956, pp. 57-64.