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A radical epistemology of 'other worlds' : acausation, nonlinearity, consciousness.

Jerome Radin

University of Massachusetts Amherst

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A RADICAL EPISTEMOLOGY
OF 'OTHER WORLDS'
-- Acausation, Nonlinearity, Consciousness

A Thesis Presented
By
JEROME RADIN

Submitted to the Graduate School of the
University of Massachusetts in partial fulfillment
of the requirements for the degree of

MASTER OF ARTS

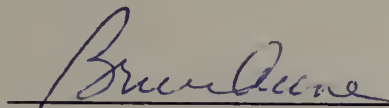
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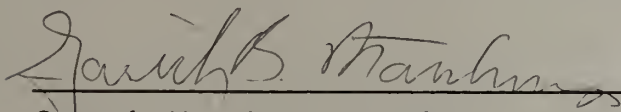
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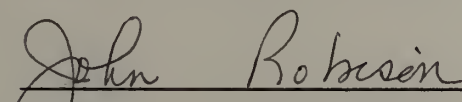
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Approved as to style and content by:


Bruce Aune, Chairperson of Committee


Gareth Matthews, Member


John Robison, Member



Michael Jubien, Department Head
Philosophy

TABLE OF CONTENTS

Chapter

I. INTRODUCTION	1
Forward	1
Definitions	2
II. THE 'OTHER WORLDS' OF THE PHYSICAL SCIENCES....	5
Scientific Innovation #1:	
Simultaneity Of Mind & Computers.....	6
Scientific Innovation #2: Evidence Of	
'Other Worlds" And Points Of View.....	6
Scientific Innovation #3:	
Exponential Von Neumann Machine.....	8
Conclusion of Chaper II	15
III. MERGER OF MECHANICAL & CONSCIOUSNESS	
SYSTEMS	17
Evolution's 'Punctuated Equilibrium'.....	18
Consciousness, <u>Causa Sui</u>	20
Consciousness of Bell's Theorem	21
Mathematical Nonlinearity	23
Conclusion of Chapter III	25
IV. SOCIAL SCIENCES	27
Nonlinear Brain Functions	28
Historicity	31
Reverse Historicism	33
Conclusion of Chapter IV	35

V. THE 'OTHER WORLDS' OF PHILOSOPHY.....	36
Hilary Putnam	37
Bas C. Van Fraassen	40
Michael Dummett	42
Bruce Aune	47
Conclusion of Chapter V	53
Resolution	56
VI. INTRODUCING THE 'BOHREAN COMPLEMENT'	58
.....	
FOOTNOTES	61
BIBLIOGRAPHY	64

C H A P T E R I

INTRODUCTION

This thesis attempts a multi-dimensional epistemology for our fast-changing scientific age, which is in an apparent need for an 'empirically adequate' understanding of complexed events. Causal sequence, linearity, and the classical Cartesian separation between mind and matter have already become obsolete; and replaced by (1) Acausation -- or events in the world not usually causally related; (2) Nonlinearity -- or events that are multi-dimensional and/or non-sequential or disconnected; and (3) Consciousness -- or events having some apparent 'knowledge' contained within itself -- which can be considered rational, irrational or both. Physical and social scientists, whose innovations will be documented, have been utilizing acausation, nonlinearity and consciousness for several decades.

Several contemporary philosophers are selected to demonstrate that there is a critical need for a new epistemology -- to 'bridge the gap' between the notion of truth and the theory of meaning. By combining the innovations of our physical and social scientists along with the theories of our contemporary philosophers, I hope to at least show a credible possibility for 'bridging the wider gap' between the physical and the social sciences.

FORWARD

"A Radical Epistemology of 'Other Worlds'" involves

three major themes: (1) Acausation, (2) Nonlinearity and (3) Consciousness. The attributes of each will be demonstrated within four sections.

SECTION I. The 'Other Worlds' Of The
Physical Sciences.

SECTION II. The Merger of Mechanical &
Consciousness Systems Into The Acausal
Behavior Of 'Other Worlds.'

SECTION III. The Social Sciences And Its
'Other Worlds.'

SECTION IV. The 'Other Worlds' Of Contemporary
Philosophy.

DEFINITIONS OF TERMS USED

All the following terms, though general in scope, will be further clarified in detail, and in all their relationships and variations where used in each section.

Acausation -- involves events occurring without cause.

Causa Sui -- are causes of itself which do not owe its being to something else.

Complex Events -- are more than one event that usually demonstrate a relationship toward each other.

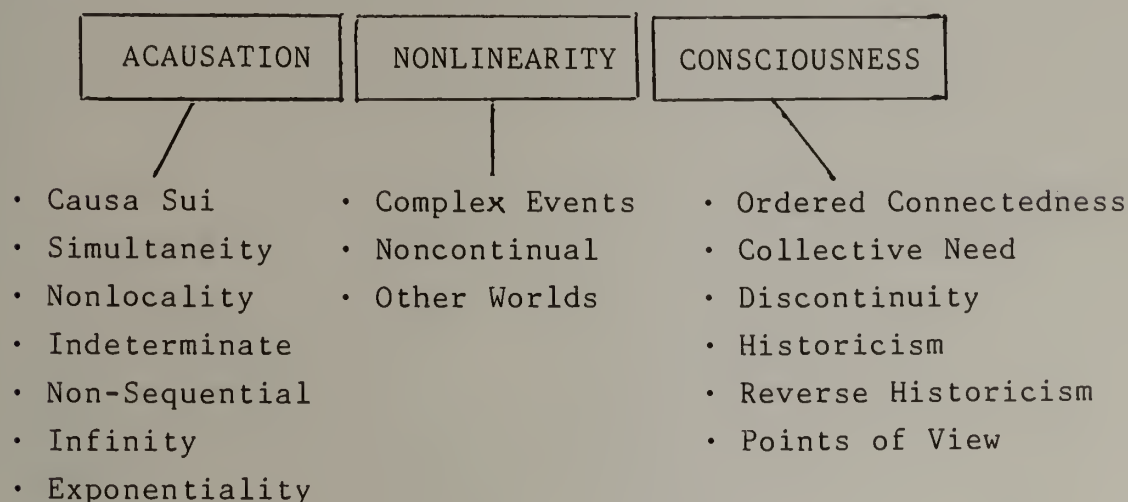
- Collective Need -- relates to mental or physical events that depend upon each other for completion.
- Consciousness -- involves events having some apparent 'knowledge' contained within itself -- which can be considered rational, irrational or both.
- Discontinuity -- involves events that demonstrate isolation and not connected to other events.
- Exponentiality -- involves the doubling of units by splitting in halves.
- Historicism -- involves the deterministic role that environment past and present plays upon mental and physical events.
- Indeterminancy -- is the lack of certainty for arriving at conclusions which usually require some correlation, translation and conditional points of view rather than absolute truths.
- Infinity -- whether physical or mental, demonstrates unlimited capacities within unlimited dimensions.
- Noncontinual -- are isolated qualifications.
- Nonlinearity -- involves events that are multi-dimensional and/or nonsequential or disconnected.
- Nonsequential -- are disconnected events that are unrelated, non-enumerative, and not continuous.
- Ordered Connectedness -- involve sets that have a consecutive relation within a determined system.
- Other Worlds -- generic term for events or things of other dimensions, other times, other places, other values or other systems.
- Points Of View -- assume uncertainty and attempts empirical adequacy with satisfactory probabilities.

Reverse Historicism -- is the ability of a single unit to affect time, determinancy and events.

Simultaneity -- is the ability of events to occur at an apparent same time. Since certainty is usually not acceptable (within this paper's scope), 'same time' has a relevance 'to all practical purposes' only.

Consequently, whenever the three major themes are used: (1) Acausation (2) Nonlinearity and (3) Consciousness, most of the defined attributes will qualify each theme.

Generally, the qualifying attributes will be found under these three major themes:



CHAPTER II

THE 'OTHER WORLDS' OF THE PHYSICAL SCIENCES

SCIENTIFIC INNOVATION #1: Simultaneity

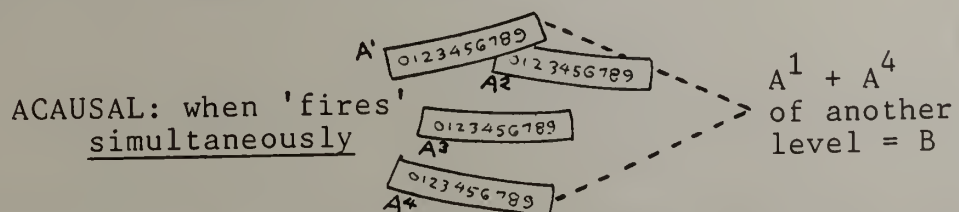
As recently as April 1984, an article appeared about robotics, describing the last but greatest difficulty for a computer to perform like the human brain: to solve problems simultaneously rather than consecutively. David McDonald, a professor of computer information science, stated that:

<The computer scientists'> goal is to create a machine that can obey written or spoken commands in several languages, reason logically, write computer programs without human supervision and, most importantly, solve hundreds of inter-connected problems sumultaneously rather than consecutively. 1

Called 'parallel processing,' the new technique will enable machines to perform many computations at once, much as the human brain does.

SEQUENTIALLY ARRANGED BUT NONLINEAR IN ACTION 'ONION SKIN' PARALLEL PROCESSING

Brain patterns overlap like an onion skin, with each neural pattern arranged for parallel processing. Although information in each neural pattern, like a computer bank, is stored sequentially, a few (or many) neural patterns in parallel will 'fire simultaneously to obtain an 'idea' or command for action.



Up until now, epistemologies of both the physical and social sciences have traditionally espoused a linear methodology, based upon a consecutive series of events. Computer Science has already presented us with a radical epistemology for empirically demonstrating that mental activities consist of:

- | | |
|--------------------------|---------------------------|
| 1. Complexed events | 5. Infinite capability |
| 2. Nonlinear methodology | 6. Consciousness |
| 3. Acausal activity | (a) Ordered connectedness |
| 4. Other worlds | (b) Collective need |

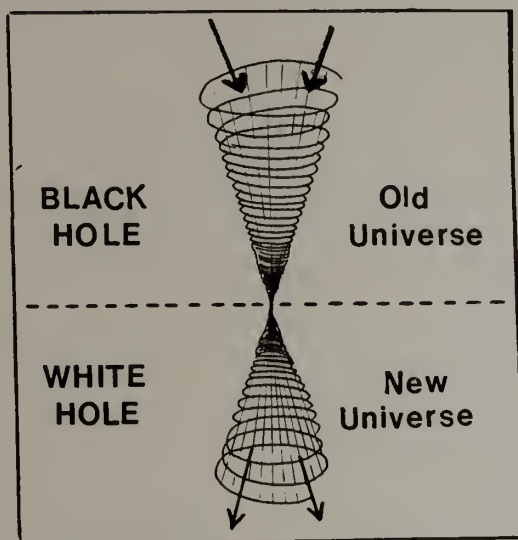
SCIENTIFIC INNOVATION #2: Contains evidence of

- (1) Physical 'other worlds' in the same universe
- (2) Opposite points of view can be equally correct

Cambridge Astronomer Stephen W. Hawking has revealed that in the regime (or 'world') of relativity, black holes expand. In the regime of quantum theory, black holes shrink. Both theories are correct, depending on which point of view taken.

According to Hawking, the black hole attracts matter within a galaxy and grows in mass and size. In the heart of a black hole lies something known as a "singularity"-- a point at a theoretical edge of space and time that may be infinitely small. Toward that edge, all the matter of a star or even a universe races at unimaginable

speed -- to be crushed into a region of infinite density from which nothing escapes and where none of the known laws of causality apply. In that vicinity of a black hole, there is no way to predict either the position or the speed of matter emitted by a black hole. Toward the 'singularity,' one can only predict the probabilities that certain matter will emerge in another time or place in this universe. If matter is spilled out to the other side, or the white hole, the matter will enter another universe.



Stephen Hawking developed (above) the two important, though apparently contradictory ways of looking at black holes.

As illustrated, in the regime (or 'other world') of Quantum theory, matter entering the black hole of the Old Universe will shrink -- to re-emerge in another time or place. In the regime of relativity or gravity theory, when matter is perceived in the black hole,

matter appears to expand toward a New Universe -- termed a 'white hole'.

According to Hawking, contradictory results only reflect two different points of view -- which depend on particular value systems of the observer -- yet, both views are correct. ²

Hawking's important physical discovery adds similar scientific evidence that reinforces Niels Bohr's Unitive Principle of Complementarity: that contradictory or mutually exclusive domains or points of view can provide an empirically adequate account.

Specifically, Bohr found that electrons sometimes behaved as though they were particles and other times behaved as though they were waves. The two possibilities, wave or particle, appeared mutually exclusive; yet both were needed to provide a comprehensive account at the subatomic level.

In analogy, on a macrocosmic level, Hawking's Black Hole/White Hole's mutually exclusive domains demonstrate a similar epistemological approach: that complexed events from different points of view can be found correlational and complementary -- hence both domains, 'worlds' or points of view can be correct.

SCIENTIFIC INNOVATION #3: Biological Doubling

THE EXPONENTIAL VON NEUMANN MACHINE
-- First it doubles sequentially, but then like the parallel processing in the brain, it occurs simultaneously.

The most advanced theory of exponential growth, and by far the most bizarre, is biological doubling by the Von

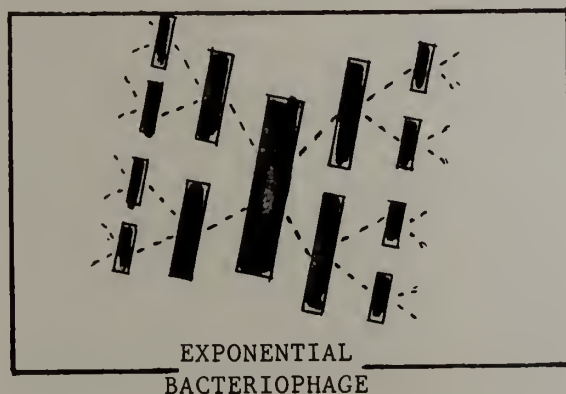
Neumann Machine. The biological doubling of the amoeba doubles itself by splitting naturally. The Von Neumann Machine hopes to accomplish the same biological doubling artificially by an actual machine reproducing itself (doubling) from the raw materials around it.

Arthur C. Clark, considered the 'Dean' of science fiction writers, 'brought to light' the actual attempt of achieving this effect by the U.S. Space Agency. In his latest novel, 2010, the monolith (used in his previous novel 2001) goes through exponential growth. The monolith is found alongside the planet, Jupiter. Within a very short time, by absorbing the materials of Jupiter, the monolith doubled itself to cover the size of Jupiter and simultaneously vanished -- along with Jupiter.

In Clark's final statement, in his novel 2010, he remarks that:

the Space Agency's been toying with the idea for years -- exponentiating machines ... a bacteriophage. The monolith reproduces every 2 hours, but after eighty hours, a million-million. 3

Shades of bacteria warfare to an almost simultaneous event -- (simultaneous for all practical purposes).

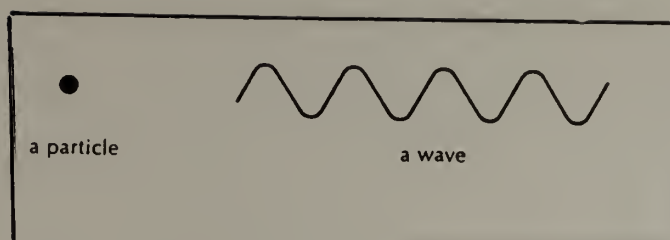


A NEW NOTION OF CAUSALITY

The fundamental role of nonlocal connections and of probability in atomic physics requires a new notion of causality. Classical science was constructed by the Cartesian method of analyzing the world into parts and arranging those parts according to causal laws. The resulting deterministic picture of the universe was closely related to the image of nature as a clockwork. In atomic physics, such a mechanical and deterministic picture is no longer possible. ⁴

In Quantum Theory, individual events do not always have a well-defined cause. For example, the jump of an electron from one atomic orbit to another, or the disintegration of a subatomic particle, may occur spontaneously without any single event causing it. We can only predict its probability. This does not mean that atomic events occur in completely arbitrary fashion; it means only that they are not brought about by local causes. The behavior of any part is definitely affected by its nonlocal connections to the whole. ⁵

The concepts of nonlocality and statistical causality imply quite clearly that the structure of matter and the structure of mind show that human consciousness plays a crucial role in the process of observation. From demonstrations, the observer is not only necessary to observe the properties of an atomic phenomenon, but he or she is necessary to bring about these properties. My conscious decision how to observe an electron will determine the electron's properties to some extent, as exemplified by Bell's Theorem on page 24, and the Quantum Theory Copenhagen Interpretation on page 36.



POINT OF VIEW AND CONSCIOUSNESS

When Niels Bohr investigated electrons, if he looked for particles, the electrons behaved like particles. When he looked for waves, the electrons behaved like waves. What Bohr discovered was that electrons have objective properties that are not necessarily independent of the observer's mind. Consequently, in atomic physics, the sharp Cartesian division between mind and matter, between the observer and the observed, can no longer be maintained. We, therefore, can never speak about nature without simultaneously speaking about ourselves. Thus, the scientific results obtained will be conditioned by our point of view.

SYNCHRONICITY: ACAUSAL ORDEREDNESS

-- A distinction between causal (local) and acausal (nonlocal)

Carl Jung postulated that psychological patterns were connected not only causally but also acausally. In particular, he introduced the terms "synchronicity" for acausal connections between symbolic images in the inner psychic 'world' and events in the external 'world.' Jung saw these synchronistic connections as specific examples of a more general "acausal orderedness" in mind and matter. Today, this view seems supported by several developments in physics. The notion of order, or more

precisely, of ordered connectedness, are now also making a distinction between causal (or local) and acausal (or nonlocal) connections.

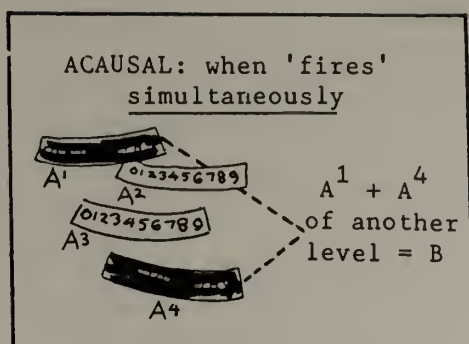
Consequently, observations of physical matter and observations of mind demonstrate a correlation, as exemplified by Niels Bohr's observations of the electron.

Following, in the explanations of brain/mind systems and the merger of mechanical & consciousness systems into acausal behavior, a notion of order, specifically of ordered connectedness will be demonstrated more fully. ⁷

NONLINEAR 'WORLDS' OF CAUSALITY

Within the brain/mind system, sequential events at one level cause sequential events at other levels to fire simultaneously, which result in acausal events.

To deal with the complexities of the brain/mind system, we have to be able to slip between levels of nonlinearity. Moreover, we will have to admit various types of 'causality': ways in which an event at one linear level of description can 'cause' events at other levels to happen.



Sometimes a sequential event A^1 will be said to 'cause' event B simply for the reason that the one is a translation of another level A^4 . Sometimes three or more will 'fire' simultaneously -- which is nonsequential for all practical purposes. ⁸

Both types: sequential causality and acausality -- and perhaps some more -- will have to be admitted in any explanation of mind, for we will have to admit 'causes' that propagate both upwards and downwards (nonlinear) in the 'Tangled Hierarchy Of Mentality.' ⁹

VARIOUS CAUSAL AND ACAUSAL POTENCIES

Like Hofstadter, the neuroscientist, Roger Sperry, in his article, "Mind, Brain and Humanist Values" states that there exists within the brain many worlds of diverse causal and acausal forces. Within each world are forces within forces "as in no other cubic half-foot of universe that we know." In the nonlinear brain model proposed here, the causal potency of an idea or an ideal becomes just as real as that of a cell or a nerve impulse. Ideas cause ideas and help evolve new ideas. They interact with each other and with other mental forces in the same brain, in neighboring brains, and thanks to

global communication, in far distant foreign brains. Hence, they also can interact with external consciousness acausally, to affect 'other worlds' as well. ¹⁰

PROBABILITY AND 'CONSCIOUSNESS'

In more formal terms, a complex system can only be described by using a probability distribution that relates the possible outcomes of an experiment. In order to decide among the various alternatives, a measurement is required. This measurement describes the event, as distinguished from the probability, which is a mathematical abstraction. However, the only simple and consistent description physicists were able to assign to a measurement involved an observer's becoming aware of the result. Thus the physical event and the content of the human mind were inseparable. This nonsequential linkage forced many researchers to seriously consider consciousness as an integral part of the structure of physics. This led to the nonlinear content of consciousness as an ultimate reality. We have thus, in linear steps, gone around an epistemological circle -- from the mind back to the mind. ¹¹

DISCONTINUITY AND 'CAUSA SUI' IN EVOLUTION

In the next few pages, Stephen Gould's article about

'Punctuated Equilibrium' demonstrates dramatic instances of discontinuity in evolution, and a causa sui origin of the universe itself. The "big bang," is a cosmic example of a discontinuity. The beginning of life, while less cataclysmic, is certainly another example. The origin of life does not deny the underlying laws of physics, but it adds a new feature: large scale nonlinear molecular events. This rule change makes evolutionary history indeterminate and thereby constitutes a clear-cut discontinuity of 'other worlds.'

CONCLUSION OF CHAPTER II: THE 'OTHER WORLDS' OF THE PHYSICAL SCIENCES

The fundamental role of nonlocal connections, or of relations and extensions to 'other worlds,' and of the probabilities in the physical and social sciences, now require a new notion of causality. The concepts of non-locality (nonlinearity) and acausation imply quite clearly that the structure of matter is not mechanical -- in the Cartesian sense. The apparent similarities between the structure of matter and the structure of mind show that human consciousness plays a crucial role in the process of observation -- even in the physical 'world.'

Hopefully, Section I demonstrated at least these three innovations:

1. Innovation of Simultaneity. The human brain solves problems simultaneously even though each pattern

is arranged sequentially. A physical potential for simultaneity exists by biological doubling, and within the 'other worlds' of acausal orderedness.

2. Innovation of Finding Physical 'Other Worlds.'

Hawking's Black Hole/White Hole discovery of 'other worlds' in the same universe adds physical evidence of nonlinearity.

3. Opposite Points Of View can be equally correct, as demonstrated by Stephen Hawking and Niels Bohr.

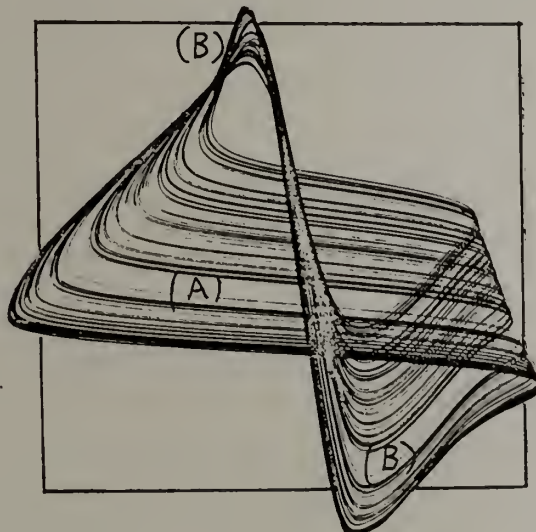
C H A P T E R I I I

THE MERGER OF MECHANICAL & CONSCIOUSNESS SYSTEMS INTO ACAUSAL BEHAVIOR

Paul E. Rapp of the Medical College of Pennsylvania observes that computer-based electronic control systems are becoming "more biological." Rapp's concern is that complex electronic networks "may display a failure mode analogous to a convulsion." Already there is evidence that computer systems have acted with an apparent consciousness and have suffered mysterious breakdowns during military exercises and even in aircraft control systems.¹²

This combining of computer networks and physiological systems is an emerging field of mathematics called 'topological dynamics,' which describes the way in which systems change with time. This mathematical approach suggests that systems governed by physical laws can undergo transitions to a highly irregular form of consciousness.

David Ruelle of the Institut des Hautes Etudes Scientifiques in France suggest that systems showing "chaotic" behavior are frequently encountered in physics, chemistry and biology.



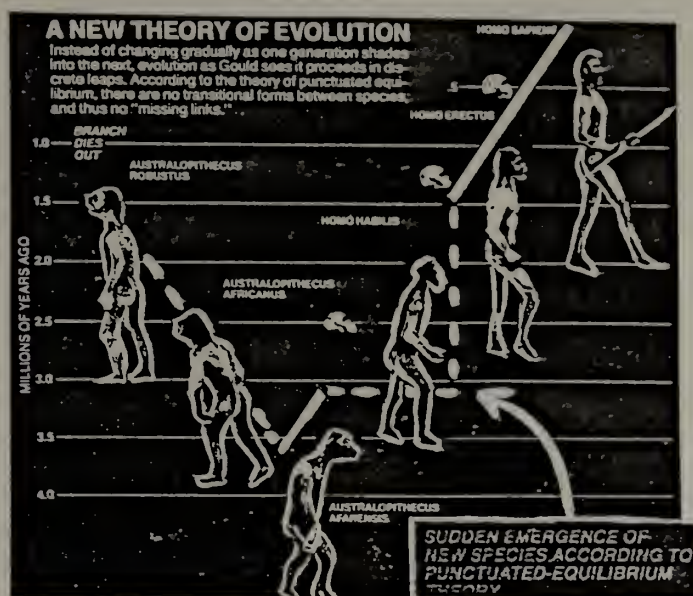
One example, shown on the previous page, is the illustrated, three-dimensional "Phase portrait" of a chaotic state for an oscillating chemical reaction, in which the concentrations of components can fluctuate wildly over time. Analysis of the geometrical form reveals whether the system is still governed by deterministic equations like in (A), or behaving randomly (noisy) like in (B). The graph's trajectories demonstrate an indeterminate, conscious behavior termed "chaotic" in a mathematical sense. ¹³

Often, the relationship expressed in the equations is nonlinear; that is, input and output are not proportional. Mathematicians have learned that under the right conditions, even simple sets of nonlinear differential equations can yield numbers that appear as a non-sequential pattern. ¹⁴

EVOLUTION'S 'PUNCTUATED EQUILIBRIUM'

contain the attributes: Points of View,
Causa Sui, Indeterminancy, Noncontinual,
Simultaneity, and Nonsequential.

To Stephen Jay Gould, the 'origin of species' in their life-and-death struggle takes on less significance, because it produces very little evolutionary change. Instead, by mechanisms not yet understood, new species appear to split off at random from existing ones. This 'splitting off' was not by gradual growth from one generation to the next but discontinuously called



survived and continued to evolve, while others disappeared. The large-brained Homo appeared quite suddenly. ¹⁶

PLURALISTIC POINTS OF VIEW

- (1) Communal Consciousness
- (2) Collective Need

We need pluralistic philosophers that free us to see evidence from many points of view. Colin Wilson suggested that there is not only Communal Consciousness among a genus but that its very existence is due to a telepathic genetic connection. The genus-community is, in a sense, a single individual or a single mind whose genes were influenced by the collective mind. ¹⁷

CONSCIOUSNESS: MIND THINKING ITSELF

(CAUSA SUI)

Aristotle was the first to analyze consciousness as a form of acausation -- in that of 'mind thinking itself,' where subject and object are non-sequential but identical. Even though categorized into form and matter or into potentiality and actuality, they are inseparable, and for all practical purposes operate simultaneously and acausally.

To Aristotle, this 'divine-like' attribute of mind was termed Nous, which denoted the faculty of apprehending the first principle of science, the forms and eternal

intelligible substances, and is thus distinguished from discursive thought. Aristotle distinguished between the nous pathetikos, or passive reason, and a higher active reason, called by the commentators nous poietikos, which alone is 'truly divine and eternal,' and which is related to the nous pathetikos as form to matter. 18

This relationship between potentiality and actuality, in relation to form and matter, Aristotle applied to his theory of mind thinking itself. Here, like form to matter, the subject of thought is likewise not separated from its object.

De Anima 430^a3-5:

Mind is itself thinkable in exactly the same way as its objects are. For (a) in the case of objects which involve no matter, what thinks and what is thought are identical; for speculative knowledge and its object are identical.

De Anima 300^a15-25:

Actual knowledge is identical with its object: in the individual, potential knowledge is in time prior to actual knowledge, but in the universe as a whole it is not prior even in time.

'MIND THINKING ITSELF' IS ANALAGOUS TO THE 'CONSCIOUSNESS' OF BELL'S THEOREM

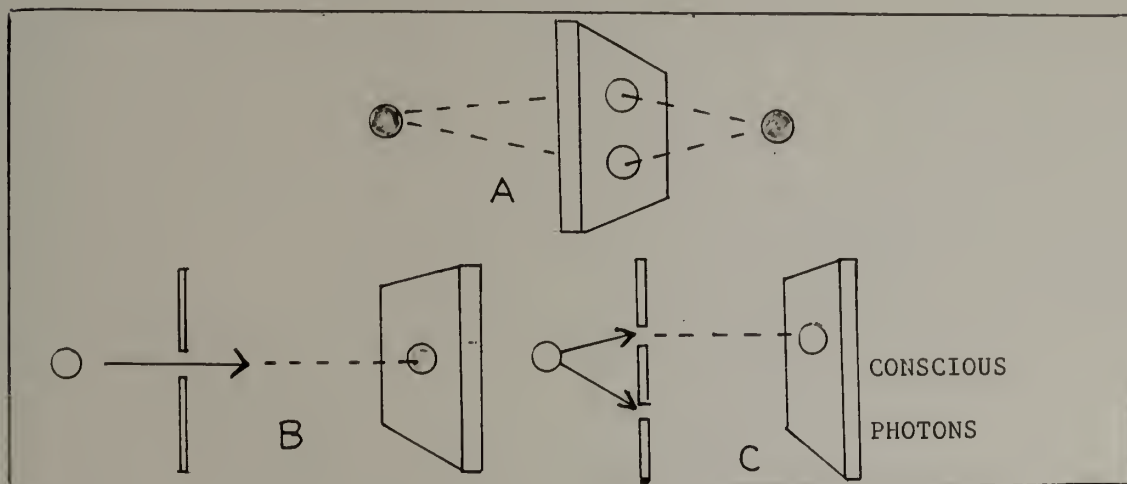
Bell's Theorem, first proposed in 1964 by the physicist John S. Bell, was first confirmed by experiment in 1972 by Professor John Clauser at Berkley:

If the statistical predictions of quantum theory are true, an objective universe is incompatible with the law of local causes. 19

The above statement simply states that an 'objective

universe' does not exist apart from our consciousness, and that instantaneous change in widely separated systems did occur. In 1972, Clauser confirmed the statistical predictions working with an elaborate system involving photons, calcite crystals, and photo multiplier tubes. ²⁰

In consequence, two particles, once in contact, separated even to the ends of the universe, changed instantaneously when a change in one of them occurs. In some unexplainable way, the separated particles are still in contact although separated in space. The only possible explanation is that particles also have some form of 'consciousness' or information.



When we fire a photon through a single open slit, as in (B), the photon is registered straight on the photographic plate. But, when we fire a photon as in (C) in the same straight manner against a double opening, the particle will change its course, find the opening and register straight through the opening as seen on (C)-- or, the photon will sometimes split into two particles, sometimes register as two particles, or sometimes register

as one photon as seen on (A).

The question raised was, "How did the photon 'know' to change its natural course?" Some physicists, like E.H. Walker, speculate that photons, which are energy, do appear to process information and act accordingly. ²¹

MATHEMATICAL NONLINEARTY

Douglas Hofstadter's 1980 Pulitzer Prize-winning book, Gödel, Escher, Bach, radicalized logic. From certainty, consistency and linear levels of computation, logic is now, and should be observed from, a hermeneutical point of view which encompasses undefined multilevels, inconsistencies and many infinities.

Hofstadter begins with Kurt Gödel's Incompleteness Theorem: "All consistent axiomatic formulations of number theory include undecidable propositions." ²²

Then, Hofstadter stressed a need for interpretations to regain any logical consistency, by clarifying the necessity of different points of view for computation.

By changing interpretations we regained a consistency! It now becomes clear that consistency is not a property of a formal system per se, but depends on the interpretation proposed for it. By the same token, inconsistency is not an intrinsic property of any formal system. ²³

The certainty of predictability is replaced from traditional particularities to relations of multi-levels, or non-linearity, which Hofstadter terms recursion -- which is a domain where 'sameness-in-differentness' plays a central role. Recursion is based on the same thing happening on several different levels at once. But the events on

different levels are not exactly the same. ²⁴

Hofstadter correlates language-usage with computer systems, and demonstrates why traditional language usage is archaic for comprehending recursion. What is confusing (to Hofstadter) is when a single system admits of two or more descriptions on different levels which resemble each other in some way.

Apparently, our confusion about who we are is certainly related to the fact that we consist of a large set of levels -- yet a computer program can be viewed on a number of levels, which makes all the descriptions similar in some ways to each other -- yet there are extremely important differences on different levels. ²⁵

Hofstadter also blames our traditional logic for its 'either-or' linear approach based on singular entities, where entities are categorized and separated into holistic or reductionist opposites. The author-mathematician interestingly answers the problem by a combination quantum and Zen Buddhist analogy -- by "unasking the question" -- similar to Hans Gadamer's 'unasking deception.'

To "unask" singular entities, is to reject singular certainties toward a notion of complementarity. Analogically, the Zen answer rejects the premisses of the question which are that one or the other must be chosen. By unasking the question, it reveals a wider truth that there is a larger context into which both holistic and reductionist explanations fit. ²⁶

ANALOGICAL NONLINEARITY

Hofstadter correlates mathematical infinities with

the physical nonlinearity of brain functions. He first compares the nonlinear functions of the brain to the linear functions of the computer.

SYMBOLS --SOFTWARE OR HARDWARE?

With the enormous ever-growing repertoire of symbols that exist in each brain, you might wonder whether there eventually comes a point when the brain is saturated ... in fact, overlapping and completely tangled symbols are probably the rule, so that each neuron is probably a functioning part of hundreds of symbols. 27

CONCLUSION OF CHAPTER III: THE MERGER OF MECHANICAL AND CONSCIOUSNESS SYSTEMS INTO ACAUSAL BEHAVIOR

This section included the attributes of Consciousness, Nonlinearity, Nonsequentiality, Collective Need and Indeterminacy. In summation, the chapter states the following highlights:

1. Computer-based electronic control systems are becoming more biological and evidence an apparent consciousness.
2. This merger of computer networks and physiological systems are analyzed by a mathematics called 'topological dynamics.'
3. Mechanical systems showing "chaotic" behavior are encountered in physics, chemistry and biology.

4. Evolutionary biology, by mechanisms not yet understood, are 'splitting off' -- away from gradual growth toward a 'punctuated equilibrium' -- from severe stress.
5. There is found among genera a communal consciousness or collective mind.
6. The mind is capable of thinking itself (causa sui).
7. An objective universe does not exist apart from our consciousness -- allowing for instantaneous change in widely separated systems.
8. Particles show some form of consciousness.
9. Computations now also require different points of view.

CHAPTER IV

SOCIAL SCIENCES

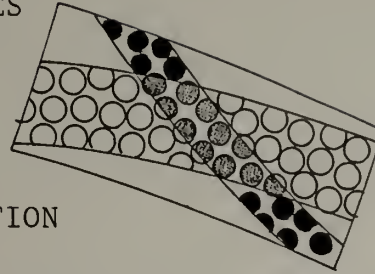


FIG. A

A SINGLE LEVEL OF BRAIN FUNCTION

In the diagram (Fig.A), neurons are laid out as dots (solid or outline), in one plane, or level. Two overlapping neural pathways are shown. It may happen that two independent neural flashes simultaneously race down these two pathways, passing through one another like two ripples on a pond's surface. The overlapping and resulting new symbols are shown as shaded dots.

Potentially, there are not only an infinite number of pathways in a brain, but also an infinite number of symbols. New concepts can be formed from old ones. Demonstrated in Fig. A is a single level of brain function in the conscious part of the brain -- traditionally considered linear, finite entities of brain patterns. These linear brain patterns, considered formed from childhood and continually stored in memory banks, have usually been considered limited according to aptitude. Hofstadter shows, that analogical credibility, even in the smallest level of consciousness, can be realized by the overlapping of logical patterns to form incredible unlimited new symbols.

NONLINEAR BRAIN FUNCTIONS

Computer art has demonstrated infinite variations from a

single, linear drawing. Human variations in games and music are situated in the linear levels of consciousness (like onion skins). What if nonlinear combinations are utilized between the levels of consciousness and multilevels of the unconscious?

NONLINEAR
BRAIN
FUNCTIONS



Another nonlinear dimension of infinite variations are surfaced and demonstrated by the illustration shown (Fig.B), where nonlinear, infinite overlapping is obtained on many Jungian levels as well.

PSYCHOANALYTICAL NONLINEARITY

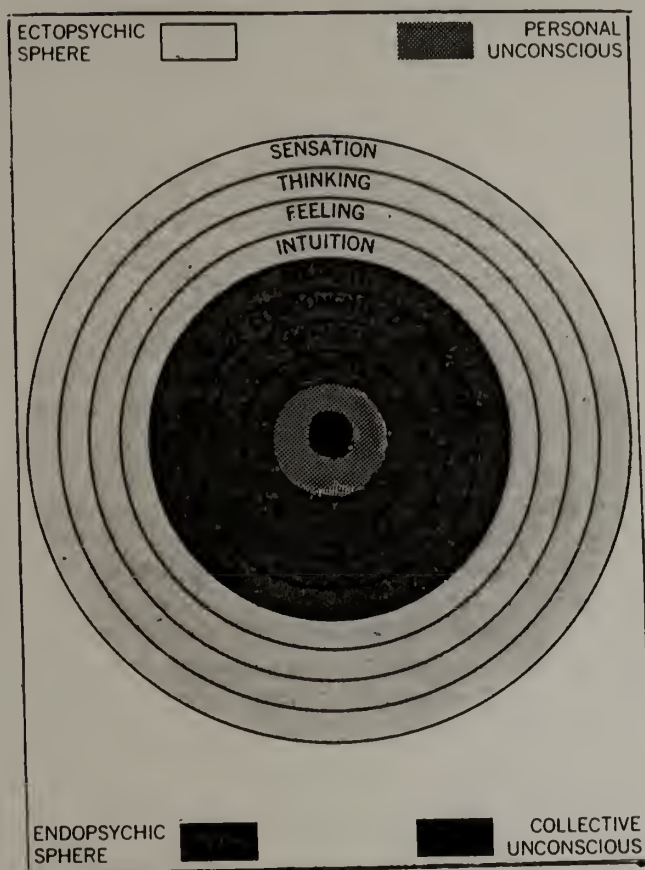
(1) The psychoanalytical views of Carl Jung demonstrate a closer affinity to Hans Gadamer's ideas rather than to Freud's; specifically, Jung agrees about the nonlinearity of the unconscious which correlates to Gadamer's historicism and infinite consciousness.

(2) Reverse historicism is evidenced by Random

Experimentation where the observer reverses the causality of the observed.

Carl C. Jung separates the unconscious levels from the conscious by showing the unconscious levels as nonlinear and infinite in scope, whereas the conscious levels are linear and limited.

The area of the unconscious is enormous and always continuous <infinite>, while the area of consciousness is a restricted field of momentary vision. 28



CARL JUNG'S UNCONSCIOUS PROCESS

Jung's major contribution is considered within his

analysis of the two classes of the unconscious process:
 -- the subconscious or Personal Unconscious, and the
 Collective Unconscious.

The Subconscious or Personal Unconscious contains recognizable material of personal origin, instinct and personality. Included are the forgotten or repressed contents as well as creative contents.

The Collective Unconscious is of unknown origin and mythological in character as if it belongs not to any particular mind or person, but rather to humanity in general. The collective patterns are termed archetypes which mean a typos <imprint>, a grouping of archaic mythological motifs, e.g. the figures of the messianic hero, the redeemer, the dragon (who the hero has to overcome) and the whale or monster who swallows the hero. Jung hints of nonlinearity, indeterminacy and infinity when he mentions that:

our personal unconscious, as well as the collective unconscious, consists of an indefinite number of complexes or fragmentary personalities. 29

JUNG'S PARALLEL TO HERMENEUTICAL HISTORICISM

-- Events of Causi Sui and Simultaneity

The Archetypal contents, in the form of images, can be understood by comparing them to historical parallels. If not recognized as historical, they are not integrated into consciousness and they remain projected. The archetypes are not subject to any arbitrary intention or are controllable by the will (indeterminate). They actually behave 'non-local' as if they did not exist in yourself. 30

Perhaps one of the first accounts of German

hermeneutical historicism is recorded by Jung in 1930 during one of his many visits to colleagues in Germany.

Would you believe that a whole nation of highly intelligent and cultivated people could be seized by the fascinating power of an archetype? ... one cannot resist it ... it is a power that fascinates people from within ... because it is an archetype ... an incomprehensible fate has seized them ... it has nothing to do with rational judgment, it is just history ... whether you assume that the Nazi storm in Germany has a religious value or not does not matter. It has. Fascism is the Latin form of religion, and its religious character explains why the whole thing has such a tremendous fascination.. 31

A contemporary example of American historicism at work (to show that it could and did happen here) are the gang rapes in the U.S., where hypnotic peer pressure and 'an ancient reflex' incited a simultaneous event causa sui.

The psychologist, Roger Rosenblatt, explains an analogy to Jung's collective unconscious:

It is that moment of seemingly hypnotized attention that most men know and dread. It is a moment in which they are out of control as individuals -- not merely outside the law, but out of biological order. Something stirs, an ancient reflex, as if they are dragged back through history to a starting point in evolution. 32

THE 'OTHER WORLD' OF HISTORICITY

In fact, history does not belong to us, but we belong to it.

-- Hans Gadamer

Cicero called historicity the vita memoriae which

meant a totally different source of truth from theoretical reason. "It exists in its own right because human passions cannot be governed by the universal prescriptions of reason." Bacon added the level-concept by describing historicity as "another way of philosophising." 33

All are attributes of historicity. Theoretical reasoning, ideal and universal, is a level of nonlinear infinity. A "different source of truth," means only that it is another universal. "It exists in its own right" and qualifies it to its own nonlinear level, or universal being. Basically, Historicity is the nonlinear, deterministic role that history plays for the simple linear actions of humanity.

SENSUS COMMUNIS

Sensus Communis is one universal level within other levels of historicity. It's the communal sense that determines the quality of living. It's the concrete generality that can represent a people, a nation or the whole human race. It's the external ethical sense through living in the community which is determined by its universal aims through its linear circumstances. 34

ERLEBNIS

Erlebnis synthesizes the concept of life (leben), a connection with totality, with infinity -- where every act as an element of life remains connected with the infinity of life that manifests itself in it. Everything finite is

an expression, a representation of the infinite. ³⁵

Hans Gadamer, however, clarifies the infinite level or role that Erlebnis plays through the persona of Bergson. Bergson's duree emphasized the relations of continuity, rather than parts of a whole; i.e. duree synthesized these relations, like "listening to the melody where all the notes intermingle." ³⁶

Consequently, "history does not belong to us, but we belong to it." Hans Gadamer explicitly writes of the overwhelming influence that history plays on every individual. Free will and determination appear conveniently absent, but when analyzed sequentially, the miniscule, finite individual will appear "imprisoned in the infinite layers of the closed circuits of historical life." That is why the prejudices of the individual, far more than his judgments, constitute the historical reality of his being. ³⁷

The story of Carl Jung's 1930 visit to Germany supports the overwhelming determination that historicity plays on an entire nation. Evidently influenced by Marx, Gadamer resolves this determined domination -- not by economics or politics, however, but by understanding -- cryptically fragmented by Gadamer into a final fragment:

understanding ultimately finds its fulfillment only in
<another 'world' of> an infinite consciousness, which
is also the ground of the idea of individuality. ³⁸

CONSCIOUSNESS: THE 'OTHER WORLD' OF POTENTIAL REVERSE HISTORICISM

This is the crux of the Quantum Theory Copenhagen Interpretation: that the observer affects the observed.

Historicism has shown by its ontological independent existence to possess the quality of affecting particular observers. Traditional cognition has ill-defined this process as an ability of an observer to extract information from its environment. But may the reverse also be possible? May 'consciousness' have the ability to insert information into its environment? i.e. may the particular observer affect the observed or universal historicism?

The following experiment with random number generators demonstrates that reverse historicism has been accomplished under rigorous scientific control. The experiential methodology consisted of participants observing and ultimately influencing sequences of random numbers solely by mental means. The experiment involved three basic elements:

1. A source of "true" random numbers, typically based on radioactive decay.
2. A statistical analysis technique.
3. An individual who attempts to cause, by means alone, a change in the random source's output, to differ from chance expectation during designated periods. ³⁹

The reason for this experimental methodology is to eliminate any possible outside means of influence other than mental influence. The only form of direct physical interaction is shown when a participant presses a start button. All the rest is controlled by computer. Specifically, the subject's task is to cause mentally either an excess number of ones or an excess number of zeroes in a random binary sequence. (This is another related example within the binary infinities already shown in math and physics).

Results of such experiments show that selected subjects can statistically influence random sequence according to predefined instructions. The odds of the observed distortions

from pure chance have been calculated at greater than one in a 100 million. Under controlled conditions where subjects do not attempt to influence the random number sequence, no deviation from chance is seen.

CONCLUSION OF CHAPTER IV:
THE SOCIAL SCIENCES

Demonstrated were recent evidence to show that similar to subatomic physics and astronomy, the human brain is also found to be nonlinear, and contains the potentiality of an infinite number of symbols.

Within Contemporary German philosophy, Gadamer's Historicism also demonstrates 'another world' of non-linear, deterministic capability that history plays on the mind.

However, an individual by 'consciousness' can reverse the deterministic historicism by a new experimental process with random number generators. Such experiments demonstrate that selected subjects can statistically influence random sequence according to predefined instructions.

CHAPTER V

THE 'OTHER WORLDS'

OF PHILOSOPHY

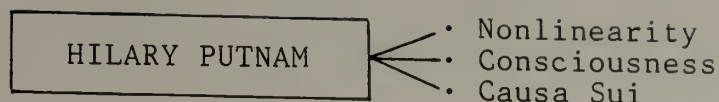
A 'sampling' of contemporary philosophers are selected to demonstrate the critical need for a new epistemology -- to 'bridge' the admitted gap between the notion of truth and the theory of meaning. I selected as representatives:

Hilary Putnam

Bas C. Van Fraassen

Michael Dummett

Bruce Aune



Putnam excellently describes how the brain translates its nonlinear images. Similar to the computer, he writes that the brain has digital aspects "but it may well process a considerable amount of non-digital information" <nonlinearity>. In particular, translation need not be 'mechanical' in all its aspects, that sometimes we match pictures to the situations we are in, in order to find the 'frame' to use in translation. <causa sui consciousness>.

To Putnam, translation is a form of Verstehen, in that some of our ability to picture how people are likely to respond may well be innate <like the collective unconscious>. Physics may also rest on Verstehen as much as the social sciences. The contention is that Verstehen belongs to the 'context of discovery' <within a causa sui context> and not to the 'context' of justification.' Consequently, Putnam feels that Verstehen is a source of prior probability which is ultimately intuitive. ⁴⁰

PUTNAM'S PLURALISM

Consisting of: Nonlinearity & Probability

Putnam feels that the social sciences do not have a standard of objectivity like the physical sciences. He is not saying that scientific method has no place in the social sciences, it is just that it is a 'pluralistic problem':

that all these have their place and we should use them when and where we can. Should we regret the fact that the social sciences cannot realistically hope to resemble physical sciences? ⁴¹

But we have seen (in the previous essays) that in the spectrums of subatomic physics and astronomy that there are 'similar' consciousness, causation and points-of-view, and perhaps by probability statistics we can describe social complexed systems as 'empirically adequate' --especially, as shown above, Putnam admits that Verstehen is a source of prior probability. Putnam explicitly mentions that 'other worlds' and different points of view require alternate epistemologies -- that what our 'methods are in any domain <world> will depend on what our beliefs <points of view> are concerning the subject matter of that domain <world> and on beliefs in other domains <other worlds>. From such a point of view, the problem of explaining the reliability of learning is not a priori <or nonlinear, non-sequential> but to show that we can understand that reality is a fact of nature <which is also acausal and nonlinear>. ⁴²

Unfortunately, on the subject of meaning, Putnam loses his concept of 'other domains' <other worlds>, denying the inner world of consciousness. -- that meaning is not just a function of what goes on 'in our heads,' but also of reference, and reference is determined by social practices and by actual physical paradigms, and not just by which goes on inside any individual speaker. ⁴³

Putnam is most likely denying any reality to 'the brain in the vat'. My previous essays on consciousness do exhibit the existence of many inner worlds of 'consciousness' and would therefore also accept 'the brain in the vat' as another world -- though limited in scope.

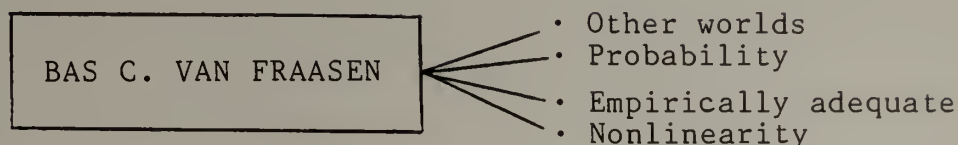
In his later work (1982), Putnam weakly implies the existence of an inner world, (that particular 'consciousness' which has attributes of causa sui and nonlinearity) by "attempting to break the strangle hold of the dichotomy between objective and subjective views of truth." But he never reaches the point of combining subject/object. Instead, he almost denies the external objective world by favoring the "ideological label." He states that once such a dichotomy between 'objective' and 'subjective' has been accepted as a characterization of types of views and styles of thought, thinkers begin to view the terms of the dichotomy almost as ideological labels. ⁴⁴

Putnam's serious 'flaw', after regogizing the 'many worlds,' disclaims the objective worlds in favor of the subjective world -- yet, he previously denied that the subjective world had many inner worlds of its own. Agreeing with Kuhn, Feyerabend and Foucault, they agree that the alternative to a naive copy conception of truth is to see systems of thought, ideologies, scientific theories, as subjective. ⁴⁵

Consequently, it seems that Putnam's subjective world also remains in a linear domain. He strongly proclaims that formal logic of a concept is not all there is to the notion of truth, and therefore a correspondence account is needed to understand how language and science works. But, by denying the inner world of consciousness (though admitting 'verstehn'), such a 'correspondence account' cannot have sufficient probability statistics to validate any simplistic correspondence.

However, through his vacillations, Hilary Putnam does demonstrate the existence of 'inner worlds,' such as a 'consciousness' which has attributes of causa sui and nonlinearity,

and thereby comes close to combining the subject/object 'many worlds' after all.



Fraasen's constructive empiricism creditably attempts to update philosophy with scientific method:

Science aims to give us theories which are empirically adequate; and acceptance of a theory involves as belief only that it is empirically adequate. 46

And to Fraasen's further credit, he demonstrates that even the observable can be a vague predicate, such as when the sun rising and setting is "guided by a picture now explicitly disavowed." Hence, he agrees with Reichenbach's principle of the common cause, that there are the existence of unobservable events <such as 'other worlds'; the correct way to view science is by seeking for 'common causes' of a probabilistic or statistical sort. 47

His excellent discussion of causation by Norwood Russell Hanson involves an agreement of 'other worlds', many points of view, and nonlinear complexed events; that there are many causes <nonlinear> of x as there are explanations <points of view> of x. Consider how the cause of death might have been set out by a physician as 'multiple haemorrhage,' by the barrister as 'negligence on the part of the driver,' by a carriage-builder as 'a defect in the brake block construction,' by a civic planner as 'the presence of tall shrubbery at that turning.' 48

Even a 'simple-simple' linear event, where 'A is the cause of B', Van Fraasen rightfully attaches the contextual

factor "in which the sentence is uttered;" consequently, and properly, that linearity is also interrelated with 'outer worlds.' He mentions that the nature of A and B will in most cases also play a role, indirectly, but it is in the first place the orientation or the chosen point of view of the speaker that determines what the word 'cause' is used to signify. ⁴⁹

Fraasen marvelously recognizes most of the limitations of 'linear-logic,' and refers to the necessary 'omniscient' ability to totally understand given facts, such as when the description of some account as an explanation of a given fact or event is incomplete. It can only be an explanation with respect to a certain relevance relation and and a certain contrast-class <of another 'world'> . An omniscient Being would have a complete explanation, whereas these contextual factors only bespeak our limitations. ⁵⁰

But Fraasen, most correctly, does not believe in certainties or 'complete explanations,' and adequately is updated to the epistemic commitment toward the weaker belief that "it is empirically adequate."

FRAASEN'S 'PROBABILITY'

--Empirical Adequacy

Fraasen competently examines 'many worlds' of probability solutions for empirical adequacy, based on David Lewis' advanced view of laws of nature as factual statements about "the real possible worlds (as opposed to the logical conceivable but unreal worlds) of which ours, the actual

one, is but an equal among equals" <other worlds>.

Up until recently, even the 'advanced' theoretical physicists could only hope for approximations. Fraasen is most up-to-date in presenting the potentiality of quantity concepts. Fraasen correctly states that we do not have exact knowledge. We only know the values of the initial quantities approximately, but 'approximate' is misleadingly vague, and can only be replaced by a quantitative concept.⁵¹ Within Van Fraasen's 'Epistemic Probability,' quantitative concepts is the relation that it bears to a body of information (that person's information) or of what would happen if. Probability is not a property of an actual course of events, but of the conditions in which these events occur such as the experimental arrangement or chance set-up.

Karl Popper, in 1957, explicitly presented this as a more sophisticated version of the frequency interpretation, the difference lying in an appeal to what would happen, if the conditions were realized sufficiently often.⁵²

Consequently, a probability space is a model of a repeatable experiment or chance set-up. This significance has immeasurably advanced the social sciences. How? Fraasen has laid to rest the pessimistic viewpoint that "now that certainty is dead (like Nietzsche's 'God') all that we could hope for are vague approximations." Quantitative concepts within Fraasen's constructive empiricism fully demonstrate pragmatic models for empirical adequacy.

MICHAEL DUMMETT

Dummett outlines most proficiently the 'many faces' of realism, and summates with Wittgenstein (correctly), that

'all the same there does not yet exist proof' (of certainty). Of course, as shown, if we combine the various points of view, we'll at least get an 'empirically adequate' result. (i.e., certainty and Clark Gable is "Gone with the Wind.")

However, each face of Realism, like any linear event, does contain linear substance that contains simple 'realities.' I thoroughly believe in each reality, but prefer to keep them in their simplistic linearity. In combination, we can 'move the many worlds.'

From Dummett, I extrapolate that Realism is the belief that statements of a linear class possess an objective truth-value, independently of our means of knowing it. They are true or false in virtue of a reality existing independently of us.⁵³ I believe it, and E.E. Moore's Common Sense states it most aptly that when you see a moving car passing by, you had better not step in front of it. That is external reality!

Antirealism takes the form of a species of reductionism. Thus phenomenalism holds that material-object statements are reducible to ones about sense-data, and scientific positivism holds that statements about electrons relate ultimately only to pointer-readings; -- statements about character are really about behavior.⁵⁴

To Radin, each is like a politician serving self-interest instead of collectively gathering linear points of view for a more 'adequate' representation of complex events.

For the platonist, the meaning of a mathematical statement is to be explained in terms of its truth conditions; for each statement there is something in mathematical reality in virtue of which it is either true or false. For the constructivist, the general form of an explanation of meaning must be in terms of the conditions under which we regard ourselves as justified in asserting

a statement, that is, the circumstances in which we are in a possession of a proof. ⁵⁵

Yet, in our innovative logician's way of summing up their adequacies in toto, Wittgenstein states that "all the same there does not yet exist a proof, since when we discover the document it is still up to us to decide whether or not we wish to count it as a proof. ⁵⁶

Even with the usage that Wittgenstein recommended, I agree with Dummett that when pragmatically applied, the terms lack certainty, and only refer to or is extended to others as 'blind faith.' ⁵⁷

DUMMETT'S ARTICLE: "CAN AN EFFECT PRECEDE ITS CAUSE? (1955)"

To myself, one of Dummett's most creative contributions is his article, "Can An Effect Precede Its Cause?" To Dummett, the thought that an effect might precede its cause appears at first nonsensical. He hints of potential 'other worlds' by leading with "perhaps if the world were different..."

Of prime concern to any simple event is that there always exists the possibility of an intermediary agent within the simple event. Hence, even though that

whenever A happens, B follows

we can observe that an event is a sufficient condition for an event of another kind to have taken place previously; and why should we not then call the later event 'cause' of the earlier?

One of Dummett's strongest arguments for this case is

that (1) there can never be any certainty about the simplest linear event, since during the interval something might always intervene to hinder the fulfillment of the cause. The second strong point:

(2) is a 'necessary temporal' direction of causation, from earlier to later. ⁵⁹

To Radin, point (1) correctly states that even a simple linear event has the potential of 'other worlds' within the event and thereby contains no certainty. Point (2) totally decimates his article as nonsense as long as there exists a temporal direction; it would be 'naturally' impossible to reverse time -- for all practical purposes. However, though Dummett apparently did not intend the following illustration (about the alarm clock) to show acausation or causa sui) to me, the possible implication exists for an action of causa sui. During such a nonlinear, non-sequential occasion, an effect can precede its cause -- as demonstrated in previous essays. Dummett's own 'certainty' refutes his previous conclusion of uncertainty, to the effect that any causal change involves quasi-causal explanation; and therefore uncertain to attempt to do this would plainly be nonsensical that the past is fixed, and the future is fluid. ⁶⁰

At least he should conclude with a 'potential' for complex events. In any case, Dummett intuitively feels that there are the other worlds (which successively demonstrate timeless acausation) -- otherwise he would not have raised the question, even in jest. In his next article, "The Reality Of The Past," you could just feel, though intuitively, Dummett's pain in trying to solve the time problem. He comments that we are immersed in time, and being so immersed, we cannot frame any description of the world. The past exists only in the traces it has left upon the present; and

that the past exists as past as it is present. 61

In his later work, Realism, Michael Dummett 'throws in the towel' about the difficult temporal element of causation. He admits of 'other worlds' but from a Neutralist' (linear) viewpoint, can only cope with one world at a time, such as he relates a semantic theory to a world at a particular time. He gives up his previous (correct) uncertainties and finds certainty within one world, when he sides with the neutralist:

the central notion for a semantic theory is not that of a statement's being true absolutely, but of its being true in a 'world.' 62

And then, erroneously, Dummett attempts to 'continually' eliminate the other worlds -- to correspond one world as 'common' to many worlds, when he states that the set of possible 'worlds' continually diminishes with the passage of time; that is to say, the various 'worlds' may be regarded as forming paths in a mathematical tree, in the nodes of the tree -- the points at which the paths diverge, corresponding to a state of a 'world' at a particular time, each state being common to many 'worlds.' 63

Most contradictory! A mathematical tree is one particular 'world' of abstraction. The 'inner worlds' of the mind are 'other worlds.' The empirical 'outer worlds' are still infinite 'other worlds.' Under no 'empirically adequate' domain can we correspond to a state being common to 'many worlds.' That statement reverts to Newtonian and Cartesian linearity.

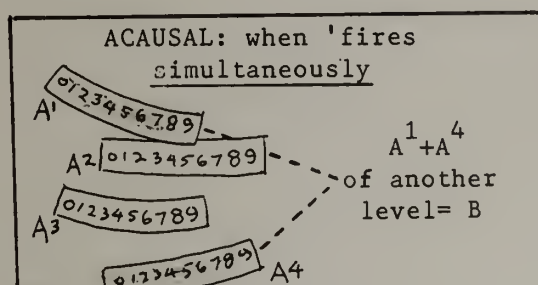
However, as Van Fraassen demonstrated, by definite nonlinear quantitative concepts, pragmatic modals for empirical adequacy can be successfully accomplished.

BRUCE AUNE

Though published in 1977, Bruce Aune's book, Reason And Action, best demonstrates causa sui and 'other worlds' of the mind. Through "Prichard's Theory Of Voluntary Activity," Aune clearly views the mental process as non-linear complex events 'individuated' -- or separate from cause and effect (which places 'action' as a causa sui event).⁶⁴

Terming the action as the process or activity of willing itself, Prichard argued that the activity cannot be considered causing that result. Willing is one thing and the result another. Both occur when an action is performed -- similar to the nonlinear action of several levels of consciousness as demonstrated in Figure 1.

FIGURE 1



As shown, though patterns A¹ and A² involve sequential action, the simultaneous action of 2 or more patterns are acausal for all practical purposes.

Consequently, to Prichard, an action is an activity; there is no activity of causing or originating something. What activity then will cause his foot to move? Prichard says this is a kind of activity of whose nature we are dimly aware (though it is explained above as acausal) but he calls this activity "willing."

THE ACCORDIAN EFFECT

-- of a complex activity

Austin also goes along with activity as the causa sui and not as any "smaller or a larger stretch of events." When Brutus stabbed Caesar, the death of Caesar was the causa sui of his activity and not part of it.

TRADITIONALLY, ACTIVITY INDIVIDUATED
(OR CAUSA SUI) WAS CONSIDERED 'AGENT CAUSATION'

To Aune, philosophers traditionally would reject Prichard's basic premiss about causation; particularly that statements affirming that a thing or person caused or brought about a result are reducible to statements of the form

'(3A) (A is an activity by S and A caused E)'

Thus, they would want to reject Prichard's view that so-called agent causation is reducible to what we might call 'event causation.' I agree with Aune that Prichard's view is preferable when he states that if we say that John moved his hand at time t, we may indeed add -- that caused his hand to move at that time. But that is not to say that he was the irreducible cause of his hand's motion; if he were then, since he existed yesterday, his hand should have moved the same way yesterday too. ⁶⁵

Nothing further is said, but to clarify the fallacy of any 'agent causation,' the action is a nonlinear or complex event which 'fires' causa sui, and not 'accordian effect' which is sequential.

PRICHARD'S INDIVIDUATED ACTION

-- a causa sui simultaneous action

A. COMPLEX SIMULTANEOUS ACTION

A. To Prichard, A is supposedly the irreducible cause of B, then whenever we have A, we should have B as well. Clearly if John did move his hand at a certain time, then there must have been something about him. (perhaps a complex simultaneous 'action' or firing of neurons) at that time which accounts for occurrence, then, of his hand's movement.

B. MENTAL ACTIVITY (LIKE 'CONSCIOUSNESS')

B. When we think of a person's action, we do not think of a mere response to some physiological change. We do think of a person as a conscious agent, but we regard his voluntary movements as somehow due to his mental activity (which is 'consciousness' or simultaneous activity).

C. WILLING

C. This kind of (causa sui) mental activity Prichard calls 'willing.' 66

Chisholm called this activity of moving one's arm as a very complexed one, involving beliefs and pro-attitudes -- a special activity of 'endeavoring' (which explains the nonlinear attributes of complex activity).

Unfortunately, Prichard insisted that willing is 'a mental activity of whose nature we are dimly aware.' On one hand he says in doing an action we become clearly aware by reflecting on it, but finally decides that the nature of 'willing' is sui generis and so incapable of being defined. 67

To 'define' with certainty would be an incapability, but as explained several times, with the new probability methods, pragmatic modals for empirical adequacy would give satisfactory or significant results. Davidson adds further attributes to demonstrate the complexities of an action, which consisted of

(a) a pro attitude towards actions with a certain property.

(b) a belief that the action in question under a certain description has that property.

QUINE'S INDETERMINANCY

I agree with Quine, that all translation is relative, or as he sometimes states, 'indeterminate.' In his view, no one system of analytical hypothesis can be 'absolutely' correct. When we translate words of some language, we imply the acceptance of a system of analytical hypotheses -- but we really 'segment' the language into words of our own language -- strongly implying a narrow, individuated viewpoint.

Such individual viewpoints infer countless systems of hypotheses, at least in principle. Though we have adopted one system as a result of some accepted tradition, its individual viewpoint can be seen as not any truer than its alternative accepted traditions. Therefore, once we have adopted a system of analytical hypotheses, we like to consider it objectively correct to translate Jacques 'Il peut' by our 'It is raining' -- but the correctness of this translation is fundamentally relative: it is correct, not

absolutely, but relatively to one particular or individuated viewpoint. However, there are others (if not infinite 'other worlds') at least in principle. ⁶⁸

Aune differentiates Quine's relative indeterminacy with referential indeterminacy -- which further demonstrates the futility of any 'absolute' correctness of any one system of analytical hypothesis. For example, when we regard certain 'inner states' as thoughts that such and such, we are giving them a semantic interpretation that, if Quine is right, must be considered 'relative' rather than 'absolute.' e.g., to say that willing to do A is an act of thought having the form 'I will (here and now) do A' is merely to say that it is a mental semantic counterpart to some expression of intention (some verbal expression) having that form. If Quine is right, a verbal expression, or statement, can be said to have a certain logical form only in a relative sense. ⁶⁹

In a referential sense, any reasonable conception of volition that a person will to do something A here and now must have some idea of what he aims to do -- the idea, specifically, of doing A here and now. This idea has for him the same reference as the words 'my doing A here and now.' e.g., when a chess player is said to think 'if he attacks with his queen, I will castle,' we find that his thought has a conditional intention.

One does not even have to be able to visualize the opponent's queen or have the word 'queen' in one's active vocabulary. All that is necessary if one has the thought in question, is that something going on in one's head should be describable as having a certain semantic character -- a certain reference. ⁷⁰

Quine further expresses how translation is 'indeterminate'

by reference to his 'the transivity of conditioning.' When someone has the premiss 'I will do A in circumstances C' and 'I am now in C' firmly in mind will tend to conclude 'So I will do A now' -- and this conclusion will naturally result in appropriate behavior. But there are conditions involved. As often happens, a person trained to reason will tend to skip elements in the thought process. This explains why so much of our reasoning in everyday life is enthymematic, or understood but not stated. Our movements, because of conditions involved, may become altered between the available premisses to the conclusion; which is another example of how translation is indeterminate through Quine's 'the transivity of conditioning' -- or as Aune states, "how individual thoughts and statements become elliptical." ⁷¹

Of most significance about 'Quine's indeterminacy,' is Aune's reference to its necessity for learning more than is known at present about the way our brains work and how linguistic behavior is related to neural functioning. ⁷²

THE IMPLIED NONLINEAR 'CONSCIOUSNESS'

To Aune, a person's operative reasons for doing something A were derived or formed. Aune says 'operative reasons' here of a person may have premisses (beliefs or intentions) that would have been a good basis for his intention to act but that they may not have entered the reasoning process of that intention. Consequently, a rationalization is not a genuine explanation of behavior.

It provides a rationale for the behavior but not the correct rationale. Too many conditional factors keep reason from being simple or linear. ⁷³

HENCE, ALMOST EVERY BEHAVIOR IS SUI GENERIS
WITHOUT CAUSAL EXPLANATION

I agree that 'purposive behavior' is apt to be novel; a given instance of it may never have been observed before and may never be observed again. 'Purposive behavior' cannot have causal explanations (as previously demonstrated, it is nonlinear and causa sui.) ⁷⁴

Even a 'simple action' is actually Sui Generis, and thereby considered acausal, e.g. the breaking of windows by a thrown rock is a familiar occasion, and we have sufficient reasons of how such effects happen, but its related laws or hidden conscious and unconscious motivations (other worlds) are not understood -- hence almost every supposed 'cause' is so novel as to contain no definite sequence; consequently, for all practical purposes it is also acausal.

CONCLUSION TO CHAPTER V: THE 'OTHER WORLDS' OF PHILOSOPHY

All the previously mentioned contemporary philosophers agree that epistemology suffers from a critical need to 'bridge the gap between the notion of truth and

the theory of meaning. A reluctant admission, however, and of greater dimension, is the epistemic gap between the physical and social sciences. The physical sciences, through opposing 'fields' of quantum and relativity have resolved their 'differences' and have continued to progress by accepting and combining their 'many worlds' into a physical epistemology -- and utilizing probable, pragmatic models for empirical adequacy.

However, philosophical epistemology still clings to archaic 'either-or' linear conceptions -- in a Cartesian sense. The contemporary philosophers mentioned are (as usual) the 'annointed few' with the courage to think in more than one dimension, and to agree that (finally) philosophy should allie with the other disciplines for a more 'empirically adequate' overview of truth/meaning.

Where our 'avante-garde' philosophers fell short (as demonstrated in this thesis) is their lack of complexity -- of not combining all major contemporary contributions into a workable overview -- like the physical scientists have exemplified.

Hilary Putnam does make several contributions such as his simple (but unworkable) 'correspondence theory;' which states that 'snow is white' is true if and only if snow is white is just a tautology. This tautology tells us nothing about how 'snow is white' is used (in this world) or understood, and nothing about its assertability, etc. The formal logic of the concept is not all there is to the notion of truth, that a correspondence account is needed to understand how language works and how science works. ⁷⁵

But like shown in the previous essays of the physical and social sciences, there are 'other worlds' of too

complexed a nature, i.e. nonlinear and acausal, to invalidate any simplistic correspondence.

Putnam practically lists most of the nonlinear attributes necessary to match the advanced physical sciences on an equal epistemology -- but then reverts to an accustomed linear viewpoint. He describes the nonlinear similarities between the brain and the computer, and admits of an inner source of prior probability by verstehn, but then he later denies an inner world of consciousness. Putnam's pluralism strongly admits of nonlinear complexities with 'other worlds,' but refuses to coordinate them and instead, he points to linear, 'alternate epistemologies' as a solution.

Bas C. Van Fraassen strongly includes the 'other worlds' with their attributes, but presents its problems within a linear, traditional epistemology. Fraassen submits important epistemic advances, such as a constructive empiricism to update scientific method, and an empirical adequacy for pragmatic quantitative concepts.

Michael Dummett presents most of the attributes of the various 'realisms' and admirably presents their pros and cons. His most creative 'artistic showpiece' is his article, "Can An Effect Precede Its Cause?" where Dummett presents a valid case (as in physics and astronomy) that time is a flexible 'illusion' within relations -- but most unfortunately, the 'critic' within him overtakes his creative judgment and he regresses to where he started.

Bruce Aune maintains the necessary creative impetus toward a new epistemology. Through "Prichard's Theory of Voluntary Activity," Aune maintains the viewpoint that the mental process involves nonlinear complex events, which places 'action' as a causa sui event.

Along with Quine's 'Indeterminacy,' the learning process is presented with a necessity for relating its translations and references to other nonlinear events, such as neural functioning and the 'other worlds' of different individual viewpoints -- hinting at a similar solution as Niels Bohr's 'complementarity.'

Hence, by combining the contributions of Fraasen, Putnam, Dummett and Aune -- a credible new epistemology can restore philosophy to its original "philosopher-king" status -- over all the arts and sciences. An 'empirically adequate' epistemology by the probabilities of pragmatic modals should be our first goal. Hopefully, this thesis at least presents the urgency of disarding our Cartesian-like linear thinking for a more unified (though complexed) nonlinear overview.

RESOLUTION

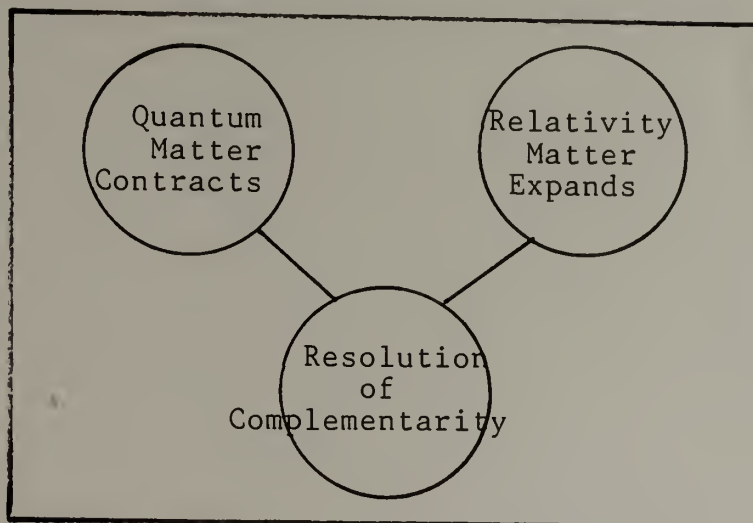
def. the act of analyzing a complex notion into simpler ones.

Now that sufficient epistemological problems have been presented, a critical question arises as to what scientific method can we present for a consistent theory of meaning?

Van Fraasen, Putnam, Dummett and Aune have strongly stated, if not implied, that some form of a unified, nonlinear overview is needed -- as in the physical sciences. Then why not 'adapt' a similar physical epistemology to bridge this 'gap' between the notion of truth

and the theory of meaning?

I suggest a method similar to Niels Bohr's 'Complementarity' -- a resolution derived from contradictory or exclusive viewpoints.



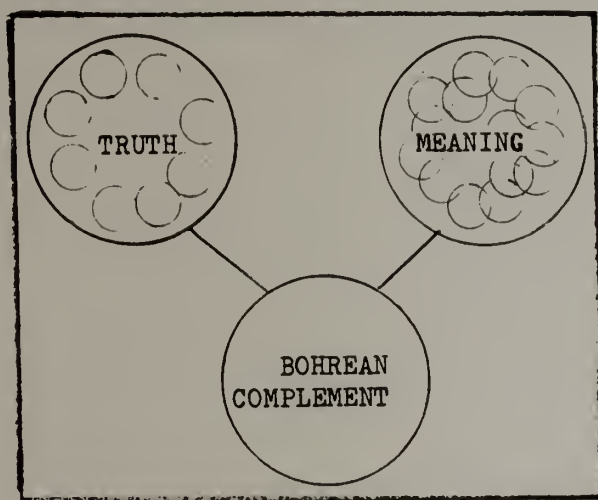
But first, a point of clarification: Stephen Hawking had developed two very important and apparently contradictory ways of looking at black holes/white holes. In the 'world' of relativity or gravity theory, matter expands; in the 'world' of quantum theory, matter contracts. According to Hawking, "they were the same thing, in fact, in different regimes." His public statement did not supply his 'resolution of complementarity' as to how they are "the same thing" -- but some epistemic complementarity is evident, if not suggested -- by the quotation: that both were needed to provide a comprehensive account.

CHAPTER VI

INTRODUCING THE 'BOHREAN COMPLEMENT'

-- or Resolution Of Complementarity

In honor of Niels Bohr's Unitive Principle Of Complementarity, I would like to introduce the term, "Bohrean Complement" -- to mean: "The Resolution of Complementarity."



This Bohrean Complement gives us the 'missing link' for combining our Truth/Meaning Complexes into a non-linear resolution.

However, there are two major difficulties:

1. Truths are constants, but meanings are semantic variables, i.e. they are nonlinear and changeable.

2. Any 'solution' or Bohrean Complement cannot be thought of in the usual terminology of 'solution', i.e. in terms of overall 'conclusions' -- in a linear 'constant' sense.

Then, what is a nonlinear resolution?
 (which is a Bohrean Complement)

ANSWER: Changeable points of view.

Similar to Niels Bohr measuring electrons as particles or as waves, and Hawking measuring Black Holes from a Quantum viewpoint or a Relativity viewpoint -- in both cases we are dealing with changeable points of view of complex entities -- that are not necessarily sequential!

Logicians can formulate abstract complementary relations between abstract constants and abstract variables within set theory or Quantum Logic -- which are derived from a necessary sequential order or system. But, logic has yet to confirm conclusions, not only from set abstract constants, but from concrete complementary semantic variables -- which have been (to date) too changeable to convert to abstract instances for measurement.

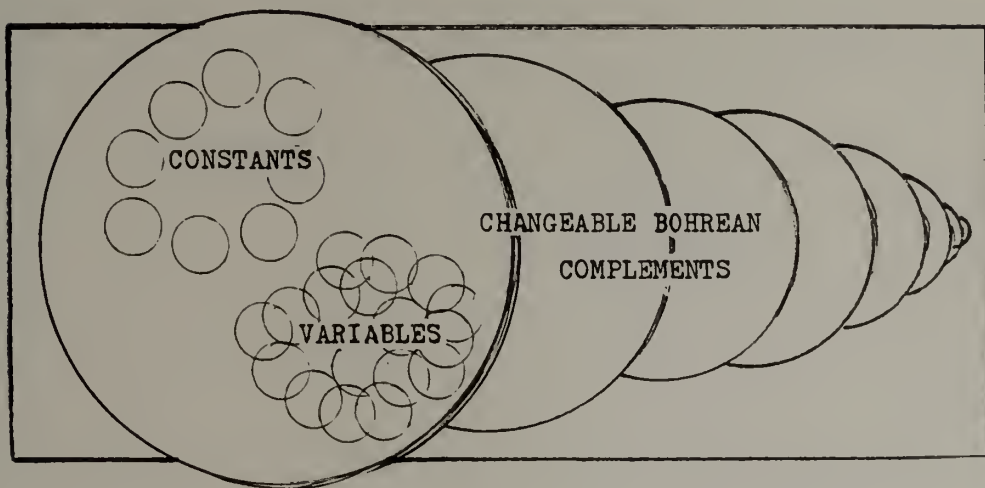
The nearest that epistemology has compensated for any form of changeable, semantic variables, is with the Bayesian schema: where a piece of new evidence confirms a hypothesis when the posterior probability of the hypothesis is greater than its prior probability; that is, if the conditional probability of the hypothesis on the evidence is greater than the probability of the hypothesis. 76

But the conditions (of the prior probabilities mentioned) are sequential. Semantic variables can be (and usually are) derived from nonsequential complements, i.e., derived from conscious 'constant variables' and

irrational 'changeable variables' -- usually in opposition to each other.

Hence, how do you measure such nonsequential, changeable variables that are not constant?

Changeable Bohrean Complements offer a potential resolution but would require the unthinkable (?) cooperation between epistemologists and logicians for solution.



FOOTNOTES

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- 38 Ibid, p.306
- 39 "Electronic Systems Perturbation Techniques." SRI Int'l. by: Edwin C. May, Beverly S. Humphrey, G. Scott Hubbard; Menlo Park, Calif. Sept. 30, 1980. p.2
- 40 Hilary Putnam, Meaning And The Moral Sciences (Boston: Routledge & Kegan Paul, 1981) p.3
- 41 Ibid, p.76 42 Ibid, p103
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