THE ABSURDITIES OR MEANINGLESSNESS OF MATHEMATICS AND SCIENCE:

PARADOXES AND CONTRADICTION IN MATHEMATICS AND SCIENCE WHICH MAKES THEM MEANINGLESS

MATHEMATICS AND SCIENCE ARE EXAMPLES OF MYTHICAL THOUGHT

CASE STUDY IN THE MEANINGLESSNESS OF ALL VIEWS

BY

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INTENT

The purpose of this work is to destroy the category and classificatory structures of ones reality such that "... the student's world begins to collapse and dissolve and static consciousness begins to be dislodged ... [With] the collapse of predictive structure, the world becomes an unintelligible flux: without categorical structure or form ... rationality and judgment becomes silenced and paralyzed. This is the level of unintelligibility and meaninglessness."[1]

A. K. Gangadean, 'Formal Ontology and the Dialectical Transformation of Consciousness', Philosophy East and West, Vol. 29, no. 1, 1979, pp. 22-23.
[1], p. 39.

This case study is to demonstrate, the Prasangika Madhyamika Buddhist demonstrations, that all our concepts, all our categories, all our ideas, all theses, all antitheses, all philosophies, all epistemologies, all ethics, all ontologies, and all metaphysics, in other words all our views are meaningless. The purpose of this work is to show that the views of mathematics and science are meaningless as they collapse into absurdities Hopefully with this demonstration will help "... the student's world [to] begins to collapse and dissolve and static consciousness begins to be dislodged ... [With] the collapse of predictive structure, the world becomes an unintelligible flux: without categorical structure or form ... rationality and judgment becomes silenced and paralyzed This is the level of unintelligibility and meaninglessness."[2] This is another case study to substantiate the claim that all views collapse into absurdity or meaninglessness. This case study goes along side such works as:

The Absurdities Of The Metapsychology Of The Psychoanalysis Of Freud Paradoxes In Regard To The Unconscious, The Apparatus Of The Mind And The Ego. By C Dean

The Absurdity Of Understanding Metaphor: A Case Study In The Prasangika Madhyamika Buddhist Thesis Of The Meaninglessness Of All Views by C Dean

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[2] ibid., p 39

Case Study In The Madhyamika Demonstrations Of The Meaninglessness Of All Views: Contentless Thought by C Dean

The Absurdities In Psychoanalysis And Science That Make Psychoanalysis A Science: Reasons Sociology, Epistemology, Ontology And Metaphysics Why Psychoanalysis Is A Science Meaninglessness by C Dean.

Levi-Strauss notes that ," the purpose of myth is to provide a logical model capable of over-coming a contradiction (an impossible achievement if, as it happen, the contradiction is real) a theoretically infinite number of slates [interpretations] will be generated, each one slightly different from the others. Thus myth grows spiral-wise until the intellectual impulse which produced it is exhausted "[3] "mythical thought for its part is imprisoned in events and experiences which it never tires of ordering and re-ordering in its search to find a meaning"[4]

We will see that mathematics and science are and do the same thing as myth. With a slight modification to the above quote we get

" the purpose of myth [mathematics and science] is to provide a logical model capable of over-coming a contradiction (an impossible achievement

[3] C. Levi-Strauss, "The Structural Study of Myth", in *Structural Anthropology*, Penguin, 1963, p.229
[4] C. Levi-Strauss, *The Savage Mind*, The University of Chicago Press, 1966, p.22

if, as it happen, the contradiction is real) a theoretically infinite number of slates [interpretations] will be generated, each one slightly different from the others. Thus myth [mathematics and science] grows spiral-wise until the intellectual impulse which produced it is exhausted "[5] "mythical [mathematical and scientific] thought for its part is imprisoned in events and experiences which it never tires of ordering and re-ordering in its search to find a meaning"[6]

This spiral-wise addition of slates is in fact a spiral-wise addition of further meaninglessness, absurdities, or contradictions and paradoxes which the next mathematical, or scientific interpretation will create. Mathematical, and scientific thinking and all thinking are imprisoned in a cognitive, or thinking process that will always end in absurdities, or meaninglessness. This continual ending in absurdities generates a spiral-wise accumulation of interpretations that try and eradicate the preceding absurdities but all that It does is generate another slate or interpretation full of absurdities . This process create infinite material for Ph.D. students who finds the absurdities in the preceding slates or interpretations to do their theses on By changing assumption, or axioms , or definitions etc the next Ph.D. student

[5] C. Levi-Straus, "The Structural Study of Myth", in *Structural Anthropology*, Penguin, 1963, p.229.
[6] C. LeviSrauss, *The Savage Mind*, The University of Chicago Press, 1966, p.22.

finds his thesis. But in doing so he lays the ground for the next Ph.D. student to find the preceding absurdities ad on infinitum spiral-wise – all because the human thinking process ends in meaninglessness. All products of human thinking end in meaninglessness or absurdity.

SCIENCE.

I will not deal with the paradoxes of relativity theory [slate] i.e. the Langevin or twin paradox, or the Olbers' paradox in astronomy, or with particular paradoxes of quantum theory i.e. Shrodinger's cat, the EPR paradox, or the violation of parity. Instead I will deal with quantum theory [slate] in general. Quantum theory [slate] was developed to explain experimental results that could not be explained by classical Newtonian models [slates]. But quantum theory ended up generating paradoxes and contradictions in its explanations [slates]

Heisenberg develops the first mathematical model of quantum theory. "Heisenberg begins by remarking on the strange dichotomies which seem the essence of quantum mechanics: continuous vs discontinuous, wave vs the particle"[7]

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[7] A. Wick, *The Infamous Boundary*, Birkhauser, Berlin, 1995, p.33

"Dual pictures, dual language: linguistic analysis is the key to the understand quantum mechanics Bohr told his protegee Heisenberg, shattering his hard-won vision of the microworld. The very words physicists use to describe reality constrain their knowledge of it and scientists in every field will one day encounter this barrier to human understanding."[8]

"in the complete analysis of this experiment, Bohr pointed out, exploits two inconsistent pictures of the nature of light."[9]

The wave collapse "the Copenhagen view is that the wave represents the complete physical description of the photon state. If so, the collapse instantaneously changes the state a meter from the exposed grain – hence "spooky action at a distance."[10] Nonlocal faster than light

Einstein states " if one works only with Shrodinger waves, the interpretation .... Contradicts the principle of relativity."[11]

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[8] ibid., p.39.
[9] ibid., p 39.
[10] ibid., p 133.
[11] ibid., p 48.

" The strangest aspect of quantum theory, Shrodinger remarks next, is the way it carries over the Newtonian list of determining parts – position, momentum, time energy - unchanged, yet denies the reality of the Newtonian state "The classical model plays a Protean role in quantum mechanics", Shrodinger observes. Equally strange, one can know at most half the classically required parts, while the other half fades into "indeterminacy."[12]

In regard to the double-slit experiment Feynman states " we thus see that any physical agency designed to determine through which hole the electron passes must produce , least there be paradox, enough disturbance to alter the distribution from [the two-slit to the one-slit pattern]."[13]

Feynman then reveals how physicists treat these logical difficulties

"We are still left the question "Do the electrons have to go through hole 1 or hole 2 or don't they? To avoid the logical inconsistencies into which it easy to stumble the physicist takes the following steps ... When you watch you find that it goes either through one or the other hole, but if you are not looking you cannot say that it goes one way or the other! Such is the logical

[12] ibid, p 134
[13] ibid, p 140

tightrope on which Nature demands that we walk if we which to describe her."[14]

Wick notes " Here, said the brash young physicist, is a predicament that you with all your powers of mathematical analysis, cannot understand. But we physicists are not troubled; we simply refuse to speak about the situation [as we shall see mathematicians are no some semi-divine being who always confront the logical problems, unlike scientists, but do as scientists do and refuse to speak about some phenomena i.e. mathematical paradoxes].."[15]

"the results of the double-sit experiment cut away at the very basis of our understanding of the way the universe is. Richard Feynmann used to say that the two-slit experiment was the problem of quantum mechanics ... there is something very basis about the stuff of the universe that either is waiting to be revealed, as Einstein firmly believed, or it is simply outside the capabilities of our brains to grasp [which is my thesis i.e. all human thinking will inevitably collapse into absurdities or meaninglessness.]"[16]

[14] Ibid., p 140
[15] ibid, p 140.
[16] B, Silver, *The Ascent of Science*, A Solomon Press Book, 1998, p 395

Einstein advocated a naïve realism [slate] i.e. "represents a desire to describe a world of properties existing in space and time, independently of any observer."[17] Because he did not believe God played dice and as such quantum theory must be incomplete because the data must be explainable in a deterministic way not non-casuayl or statistically as quantum theory believes.

Nevertheless " quantum mechanics [slate] provided continued support for a positivist or instrumentalist view [slate] that was taken to imply that physical properties do not have an objective reality independent of their observation."[18]

Bohr expressed this sentiment in his writing "" the role of theory is to predict what we see on the dials of our apparatus" they say " if the predictions are accurate, the theory is good. Answering these other questions about what is 'really going on' – is a meaningless exercise.""[19]

As Bohr states " such argumentation, however, hardly seems suited to affect the soundness of quantum-mechanical description [slate], which is

[17] A. Wick, *The Infamous Boundary*, Birkhauser, Berlin, 1995, pp.153-154.
[18] V. Stenger, *The Unconscious Quantum*, Prometheus Books,, 1995, p.10.

based on a coherent mathematical [but as we shall see mathematics is not coherent] formulation covering automatically any procedure of measurement …"[20]

Feynman " I think I can safely say that no one understands quantum mechanics … Do not keep saying to yourself, if you can possibly avoid it 'But how can it be like that? Because you will get 'down the drain' into a blind alley from which nobody has yet escaped. Nobody knows how it can be like that."[21]

In regard to the paradoxes and contradictions of quantum theory Wick state the orthodox view when he says "here my opinion of the orthodox quantum mechanics, like Bohr, comes down to the meaning of words. "Classical" and "complementarity", insult and commendation, are euphemisms; the belief concealed is that Nature has been found in a contradiction. But quantum physicists are not simpletons. In their hearts they know such a claim is philosophically unacceptable and would be rejected in other sciences."[22]

[19] A. Wick, *The Infamous Boundary*, Birkhauser, Berlin, 1995, p.155.
[20] ibid. p.155.
[21] ibid, p.133,
[22] Ibid., p.184

Wick notes " I believe orthodox quantum theorists [slates] reason, consciously or unconsciously, something like this. The microscopic world exhibits paradoxes or contradictions and this fact is reflected in the best theory describing it."[23]

It is interesting to note that the anthropologist Levy-Bruhl argued that primitive peoples where pre-logical i.e. had a mentality that "... does not bind itself down ... to avoiding contradictions."[24] The dominant philosophical paradigm is that there is only one proper way to reason and that is rational i.e. Aristotelian[25]. Davidson and Dennett argue that rationality is a prerequisite for thinking.[26] And Freud said that neurotics avoided mutual contradiction.[27]

Von Neumann and Dirac wrote seminal books on quantum theory [slates] where "together these two books reassured physicists that there was no mathematical contradiction [as we shall see mathematics is full of

[23] A. Wick, *The Infamous Boundary*, Birkhauser, Berlin, 1995, p.183
[24] Levy-Bruhl, How Natives Think, George Allen and Unwin, 1926 p.78.
[25] S. Stich, 'The Fragmentation of Reason' MIT Press Cambridge, Mass, 1993, p.14.
[26] ibid, p.15
[27] S. Freud, The Ego and the Id, *On Metapsychology*, Penguin, 1984, p.191.

contradiction and paradox] in their new fundamental theory [quantum mechanics]."[28]

"Von Neumann's proof was quoted by physicists and philosophers for thirty years. Part of the difficulty in discovering the error was that the theorem was correct ... The problem lay not in the proof but in von Neumann's interpretation of the theorem. An ex-student of the mathematician Emily Noether who had switched from mathematics to philosophy first noticed the circular form of von Neumann's reasoning. Grete Herman's analysis might have exploded Von Neumann's claim to have abolished determinism in 1935 but unfortunately she published in an obscure journal. When David Bohm constructed [another slate] in 1952 exactly the kind of explanation of atoms – classical and deterministic - that von Neumann thought he had ruled out, the game was should have been over. But somehow it was not. The end came, or should have come, in 1965, when John Bell found a classical model [slate] of the electron's spin so simple it brought the error into plain view."[29]

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[28] A. Wick, *The Infamous Boundary*, Birkhauser, Berlin, 1995., p 57
[29] ibid, p.60.

Bohm created another slate which explains quantum experimental results by a hidden variable deterministic interpretation [naive realism]. If Bohm model [slate] is true "... then the only remaining possibility for realistic hidden variables is that they are be nonlocal. But as we shall see, nonlocallity is a heavy price to pay for a return to deterministic physics."[30]

"Bohm has claimed he was doing nothing more than demonstrating, by a counter example, the falsity of von Neumann's theorem on the impossibility of hidden variables. Here, the same results as standard indeterministic quantum mechanics are obtained in a deterministic - looking theory akin to classical Newtonian mechanics. But if the results are the same, how can any meaningful difference between the two approaches exist."[31] In other words two contradictory models or slates explain the data exactly.

"...It has come to be recognized very slowly that the success [of quantum theory - slate] was not to be regarded as a demonstration of the validity of the attempts that have been made to put words [models - slates] behind the mathematics, to provide what is called an ontological interpretation. Several interpretations [slates] are equally capable of yielding the same empirical

[30] V. Stenger, *The Unconscious Quantum*, Prometheus Books., 1995, p.110.
[31] V. Stenger, *The Unconscious Quantum*, Prometheus Books, 1995, p.109.

results. Since none provides its own unique predictions, this can only mean that all the interpretations [slates] of quantum mechanics are equivalent at least until someone shows us how to improve on, or falsify the others."[32]

Some of these models, interpretation slates to explain the experimental results are:[33] the Copenhagen, the world is created in the act of observation, the world is an undivided wholeness, the many world interpretation, quantum logic, neo-realism, consciousness creates reality, the duplex universe. I have shown that the Copenhagen interpretation collapses into paradox and contradiction; it is argued all these slates will collapse into paradox and contradiction – a nice thesis for a Ph.D. bright spark to make a name for him/her self.

To start the ball rolling there is a paradox embedded in the "consciousness creates realty slate" Von Neumann is an early exponent of the "consciousness creates realty slate" but his friend Wigner pointed out a paradox with it. "Suppose a friend read the dials on the apparatus, then ask him about the result. Since your friend is another material system, the hegemony of quantum mechanics over everything requires that his brain

[32] V. Stenger, *The Unconscious Quantum*, Prometheus Books,, 1995, p.10
[33] N. Herbert, *Quantum Reality*, Rider, 1985, pp 240-246.

state, now correlated with the apparatus, which is correlated with the particle's state, also be represented in the gigantic Hilbert space of the total system. Therefore your friend's brain state is a superposition of possibilities like Schrodinger's cat before we open the box. Since one cannot believe that one's own mental state can be so unsettled, it follows that the friend cannot be really conscious. There for there is no one truly conscious other than you, or me, or perhaps E. Wigner."[34]

Bohm notes that the roots of classical theory is built on "the hypothesis that reality is built upon a mathematical plan.[35]

Now mathematics [slates] and quantum mechanics [slates] are some degree incompatible. The postulates of calculus [slate] i.e. the continuum which quantum mechanics [slate]uses is contradictory to the postulates of quantum mechanics i.e., discontinuous quantum As bunch notes: since the mathematical way of looking at the world generates contradictory results from that of science,[36] such as the mathematical notion of the continuum, and quantum mechanical concept of quanta. Since the mathematical way of

[34] A. Wick, *The Infamous Boundary*, Birkhauser, Berlin, 1995, pp.145-146.
[35] V. Stenger, *The Unconscious Quantum*, Prometheus Books, 1995, p.85

looking at the world generates contradictory results from that of science,[37] such as the mathematical notion of the continuum, and quantum mechanical concept of quanta. As Bunch notes " ... the discoveries of quantum theory or the special theory of relativity were all made through extensive use of mathematics that was built on the concept of the continuum... that mathematical way of looking at the world and the scientific way of looking at the world produced contradictory results."[38]

MATHEMATICS

Bohm notes that the roots of classical theory is built on "the hypothesis that reality is built upon a mathematical plan.[39] But we will see that because mathematics is paradoxical then if realty is built upon a mathematical plan then it must be paradoxical as well.

The first crises in mathematics came with the Pythagoreans discovering irrational numbers particularly root 2. The Pythagoreans regarded a number to be what we call a natural number measurements that where not natural numbers they believed could be found as the ratio of two natural numbers.

[37] B. Bunch , *Mathematical Fallacies and Paradoxes* Dover, 1982., p.210.
[38] ibid., p.210.
[39] ibid., pp 209-10.
[40] V. Stenger, *The Unconscious Quantum*, Prometheus Books, 1995, p.85.

be the ratio of. With the discovery of root two their whole beliefs fall into crisis. To avoid the problem what they did was claim that irrational numbers are not in fact numbers i.e. the formed another slate . In other words they defined the problem away- a procedure we shall see happens with some paradoxes in mathematics.[40] Now mathematicians have again defined such irrational numbers are again numbers but this creates all kinds of problems[41] i.e. does an irrational number exist [particularly on a line seeing the irrational number t never terminates]. Similarly if we divide a number by zero we can end up in paradoxes if we do not define the problem away by saying it is not possible to divide by zero.[42]

The second crisis in mathematics came with the discovery/invention of calculus. Newton worked with small increments going of to a zero limit. Berkeley showed that this lead to logical inconsistency.[43] The main problem Bunch notes was "that a quantity was very close to zero, but not zero, during the first part of the operation then it became zero at the end."[44] These paradoxes where resolved by the time old expediency of mathematics by

[40] B, Bunch , *Mathematical Fallacies and Paradoxes* Dover, 1982, pp.82-85.
[41] Ibid., p.85.
[42] ibid , p.74.
[43] I. Gratten-Guinness. *From the Calculus to set theory 1630-1910*, Duckworth, 1980, pp.88-89.
[44] B, Bunch , *Mathematical Fallacies and Paradoxes* Dover, 1982, p.192.

defining them away in the nineteenth century by Cauchy and Weierstrass.[45]

Up until then calculus was used pragmatically such that "instead of having

demonstrations justify results, results were used to justify

demonstrations."[46] Now it must be pointed out that a paradoxical theory of

calculus gave the same results as the reformulated non-paradoxical model of

Cauchy and Weierstrass; sort of similar to the two contradictory models in

quantum mechanics mentioned above where each gives the correct

prediction. Thus Newtonian or classical mechanics [slate], up until the

redefinition of calculus in the nineteenth century, was built upon a

paradoxical model [slate] which generated contradictions in the

mathematical model.

The third crisis in mathematics came with the discovery of paradoxes like

the Burali-Forti paradox in set theory. This particular paradox was so bad

that the whole theory was thought to have to be abandoned.[47] Now how did

axiomatic set theory resolve the paradoxes? What it did was in fact define

them away and "reconstruct set theory on an axiomatic basis sufficiently

[45] ibid., p.192
[46] I. Gratten-Guinness, *From the Calculus to set theory 1630-1910*, Duckworth, 1980, p.296
[47] B. Bunch , *Mathematical Fallacies and Paradoxes* Dover, 1982., p.130

restrictive to exclude the known antinomies."[48] But as Eves and Newsom note "such a procedure has been criticized as merely avoiding the paradoxes ... Moreover this procedure carries no guarantee that other kinds of paradoxes will not crop up in the future."[49] But the axiom system of axiomatic set theory contains an axiom such that a paradox called the Skolem paradox occurs . "It appears to be such a direct contradiction that Skolem once even suggested that it led him to conclude that axiomatic set theory ought to be abandoned."[50]

Another procedure [slate]was advocated by Poincare where by impredicative definitions where outlawed – thus once again they where defined away. But the problem of outlawing impredicative definitions was that a lot of useful mathematics would have to be abandoned " ruling out impredicative definitions would eliminate the contradictions from mathematics, but the cost was too great."[51] Also as Russell pointed out the notion of impredicative definitions was paradoxical as the property applies to itself " is the property of being impredicative itself impredicative or not?

[48] H. Eves, C. Newsom. *The Introduction to the Foundations and Fundamental Concepts of Mathematics*, Holt, Rinehart and Wilson. 1965, p.298.
[49] ibid., p. 298.
[50] B. Bunch , *Mathematical Fallacies and Paradoxes* Dover, 1982 p.167.
[51] B. Bunch , *Mathematical Fallacies and Paradoxes* Dover, 1982, p.134.

(this is another analog of Grelling's paradox.)"[52] Russell tried to solve the

paradoxes by his theory of types [slate] Russell and Whitehead explained

the logical antinomies as being due to a vicious circle their theory of types

was meant to irradiate these vicious circles by making them by definition not

allowed[53]. [but Godel says he disagrees with Russell and uses them in his

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INCOMPLETENESS proof][54] But the theory of types cannot over come the

syntactical paradoxes i.e. liar paradox.[55] Also this procedure created

unending problems such that Russell had to introduce his axiom of

reducibility [slate].[56] But even though the axiom with the theory of types

created results that don't fall into any of the know paradoxes it leaves doubt

that other paradoxes want crop up. But this axiom is so artificial and create a

whole nest of other problems for mathematics that Russell eventually

abandoned it.[57] Godel uses this axiom in his INCOMPLETENESS proof.[58] "Thus

these attempts to solve the paradoxes all turned out to involve either

paradoxical notions them selves or to artificial that most mathematicians

[52] ibid., p. 134.

[53] E. Carruccio, *Mathematics and Logic in History and in Contemporary Thought*, Faber & Faber, 1964, pp. 344-355

[54] K. Godel, "On Formally Undecidable Propositions of Pincipia Mathematica and Related Systems", in *The Undecidable* ed M. Davis, Raven Press, 1965, p.63

[55] E. Carruccio, *Mathematics and Logic in History and in Contemporary Thought*, Faber & Faber, 1964, p. 345.

[56] B. Bunch, *Mathematical Fallacies and Paradoxes* Dover, 1982, p. 135

[57] ibid., p. 135

[58] K. Godel, "On Formally Undecidable Propositions of Pincipia Mathematica and Related Systems", in *The Undecidable* ed M. Davis, Raven Press, 1965, p. 5.

rejected them."[59] Also attempts in intuitonist mathematics had the effect ¨ the antinomies are eliminated, since they originate in non-constructive concepts; and at a high price, for many fundamental theorems of classical mathematics are no longer valid for intuitionist mathematicians."[60] We can say paradoxically that it is by having a paradoxical [meaninglessness] mathematics that mathematics is meaningful; if we get rid of the paradoxes mathematics then becomes meaningfulless

Wick noted that other disciplines would not accept paradox and contradiction and he believes that mathematics is a sure path to truth as he states "von Neumann submitted to the discipline of the axiomatic method, and it is the surest route to truth the human race has yet devised."[61] But it turns out that this paragon of rationality and surety of truth is it self full of paradoxes and contradictions. Thus it could be said that mathematics is built on sand. In which case science-which uses mathematics - is itself built on sand - a science full of inevitable paradoxes built on a discipline full of inevitable paradoxes

[59] B. Bunch , *Mathematical Fallacies and Paradoxes* Dover, 1982, pp 135-136.

[60] E. Carruccio, *Mathematics and Logic in History and in Contemporary Thought*, Faber & Faber, 1964, p.350.

[61] A. Wick, *The Infamous Boundary*, Birkhauser, Berlin, 1995, p.60

In regard to the axiom method von Neumann used as a sure path to truth Nagel & Newmann notes " we repeat that the sole question confronting the pure mathematician (as distinct from the scientist who employs mathematics in investigating a special subject) is not whether the postulates he assumes or the conclusions he deduces from them are true, but whether the alleged conclusions are in fact the necessary logical consequences of the initial assumptions."[62]

Russell said " pure mathematics is the subject in which we do not know what we are talking about, or whether what we are talking about is true."[63]

The abstractness of mathematics raised the question " whether a given set of postulates serving as the foundation of a system is internally consistent, so that no mutually contradictory theorems can be deduced."[64]

Or could contradictory theorems be deduced from the axioms.

Some attempts to prove the axioms of Reimann geometry where based upon the premises that Euclidean geometry was consistent.[65]

[62] E. Nagel & J. Newman, *Godel*, Routledge & Kgan Paul, 1978, p. 12.
[63] ibid. p. 13.

Hilbert tried to show the consistency of Euclidean axioms by using algebraic truths[66] " Hilbert's arguments for the consistency of his geometric postulates shows that if algebra is consistent, so is his geometric system. The proof is clearly relative to the assumed consistency of another system and is not an "absolute" proof."[67]

Hilbert " sought to construct "absolute" proofs, by which the consistency of systems could be established without assuming the consistency of some other system."[68]

"what Russell (and before him the German mathematician Gottlob Frege) sought to show was that all arithmetical notions can be defined in purely logical ideas and that all that the axioms of arithmetic can be deduced from a small number of basic propositions certifiable as purely logical truths."[69]

This thus reduces the consistency of axioms to the consistency of formal logic itself. " The question whether the axioms are consistent is equivalent to

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[64] ibid. p.14
[65] ibid., p.18
[66] ibid., p.20.
[67] ibid., .p. 21.

the question whether the fundamental axioms of logic are consistent."[70] [SEE appendix for an argument that the axioms of logic are not consistent as logic undermines its own validity such that logic cannot be an epistemic condition of truth because it collapse into paradox)

" the Frege-Russell thesis that mathematics is only a chapter of logic has for various reasons of detail not won universal acceptance from mathematicians. More over as we have noted the antinomies of the Cantorian theory of transfinite numbers can be duplicated within logic itself, unless special precautions are taken to prevent this out come. But are the measures developed in the *Principia Mathematica* to outflank the antinomies adequate to exclude all forms of self-contradictory constructions? This cannot be asserted as a matter of course. Therefore the Frege-Russell reduction of arithmetic to logic does not provide a final answer to the consistency problem."[71]

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[68] ibid., p.26.
[69] ibid., p.42.
[70] ibid., p.43.
[71] ibid., pp 43-44.

Using Russell and Whithead's system in the *Principia Mathematica* ~~and the Zermelo-Fraenkel axiom system~~[72] Godel showed that " it is impossible to give a meta-mathematcal proof of the consistency of a system comprehensive enough to contain the whole of arithmetic – unless the proof itself employs rules of inference in certain essential respects different from the Transformation Rules used in deriving theorems within the system ... Godel's arguments makes it unlikely that a finitistic proof of the consistency arithmetic can be given."[73] Godel's proof does not eliminate the possibility of strictly finitistic proofs that cannot be represented within arithmetic. But no one today appears to have a clear idea what a finitistic proof would be like that is not capable of formulation within arithmetic."[74] But here is a contradiction. Godel must prove that a system cannot be proven to be consistent based upon the premise that the logic he uses must be consistent. If the logic he uses is not consistent then he cannot make a proof that is consistent. So he must assume that his logic is consistent so he can make a proof of the impossibility of proving a system to be consistent. But if his proof is true then he has proved that the logic he uses

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[72] K, Godel, "On Formally Undecidable Propositions of Pincipia Mathematica and Related Systems", in *The Undecidable* ed M. Davis, Raven Press, 1965, p.5.
[73] E. Nagel & J. Newman, *Godel*, Routledge & Kgan Paul, 1978, p 58.
[74] ibid., p 98.

to make the proof must be consistent, but his proof proves that this cannot be done.

Also the proof of . the impossibility to give a meta-mathematcal proof of the consistency of a system is only an interpretation of what Godel proved in order to avoid the real thing Godel proved and that was that based upon the axioms and principles he used then these axioms and principle end up in paradox. What Godel really proved-which philosophers and mathematician have tried to avoid by creating the impossibility proof - was the lair paradox, which meant the system he used was self contradictory. As Bunch points out what Godel really proved was IN HIS FIRST INCOMPLETENESS PROOF

$$\sim P(x,y) \ \& \ Q(g,y)$$

" in other words $\sim P(x,y) \ \& \ Q(g,y)$ is a mathematical version of the Liar. It is a statement X that says "X is not provable" ... Therefore, if X is provable, it is not provable, a contradiction. If on the other hand X is not provable, then its situation is more complicated. If X says it is not provable and it really is not provable then X is true but not provable. **RATHER THAN ACCEPT A SELF-CONTRADICTORY STATEMENT** (my emphasize), mathematicians settle for the second choice . That is, there are

true statements e.g. ~P(x,y) & Q(g, y) in this axiomatic system that cannot be proved."[75]

Simmilarly Nagel and Newman note " Godel also showed that G is demonstrable if, and only if its formal negation ~ G is demonstrable ... However if a formula and its own negation are both formally demonstrable, the mathematical calculus is not consistent [here is the cop out] accordingly, if the calculus is consistent, neither G nor ~G is formally derivable from the axioms of mathematics [~~we saw that Godel chose out of all the axiom of~~ ~~mathematics Zermelo-Fraenkel axiom system –we wonder what Godel's~~ ~~proof would look like in a non-Zermeloian mathematics~~]. There for [cop out] if arithmetic is consistent, G is a formally undecidable formula. Godel then proved (111) that, though G is not formally demonstrable, it nevertheless is a true mathematical formula."[76]

Note G is impredicative thus illegitemate according to Russell and banned by axiom of reducibility-which Godel uses

Also the strength of Godels arguments are only as good as the axioms and principles he uses or assumes in his proof i.e. those of *the Principia Mathematica*. Since it is well known there are a number of axiomatic systems and principles here is Ph.D. [slate]for some bright spark to

[75] B. Bunch , *Mathematical Fallacies and Paradoxes* Dover, 1982, p.151.
[76] E. Nagel & J. Newman, *Godel*, Routledge & Kgan Paul, 1978, pp.85-86.

investigate the validity, or invalidity of Godel's axioms and principles –
similarly to Emily Noether's and Grete Herman's analysis of von Neumanns
proofs. Perhaps this Ph.D. student might achieve fame by doing what these
scholars did namely break the orthodox hero worship or authority of a
mathematical idol which has influenced mathematics, like Neumann's ideas
influenced science, unchallenged for 73 years.

Godel used the axiom of choice in his incompleteness proof.[77] But ever since
its use by Zermelo there have been problems with this axiom. " Cohen
proved that he axiom of choice is independent of the other axioms of set
theory. As a result you can have Zermeloian mathematics that accept the
axiom of choice or various non-Zermeloian mathematics that reject it in one
way or another ... Cohen also proved that there is a Cantorian mathematics
in which the continuum hypothesis is true and a non-Cantorian mathematics
in which it is denied.[78] If the axiom of choice is kept then we get the Branch-
Tarski and Hausdorff paradoxes. Now "mathematicians who have thought
about it have decided that the Branch-Traski is one of the paradoxes that
"you just live with it""[79] As Bunch notes "rejection of the axiom of choice

[77] K, Godel, "On Formally Undecidable Propositions of Principia Mathematica and Related Systems", in
The Undeciable ed M. Davis, Raven Press, 1965, p.5
[78] B, Bunch , Mathematical Fallacies and Paradoxes Dover, 1982, p 169.
[79] ibid, p 180

means rejection of important parts of "classical" mathematics and set theory. Acceptance of the axiom of choice however has some peculiar implications of its own [i.e. Branch-Tarski and Hausdorff paradoxes]."[80]

Bunch summaries the findings when he states:

> "None of them [paradoxes] has been resolved by thinking the way mathematicians thought until the end of the nineteenth century. To get around them requires some reformulation of mathematics. Most reformulation except for axiomatic set theory, results in the loss of mathematical ideas and results that have proven to be extremely useful. Axiomatic set theory explicitly eliminates the known paradoxes, but cannot be shown to be consistent. Therefore, other paradoxes can occur at any time. [the Skolem paradox]. "[81]

Now how did axiomatic set theory resolve the paradoxes? What it did was in fact define them away and "reconstruct set theory on an axiomatic basis sufficiently restrictive to exclude the known antinomies."[82] But as Eves and

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[80] ibid., pp 169-170.

[81] B. Bunch , *Mathematical Fallacies and Paradoxes* Dover, 1982, ., p.139.

[82] H. Eves, C. Newsom, *The Introduction to the Foundations and Fundamental Concepts of Mathematics*, Holt, Rinehart and Wilson, 1965, p.298.

Newson note " such a procedure has been criticized as merely avoiding the paradoxes ... Moreover this procedure carries no guarantee that other kinds of paradoxes will not crop up in the future."[83] But the axiom system of axiomatic set theory contains an axiom such that a paradox call the Skolem paradox occurs . "It appears to be such a direct contradiction that Skolem once even suggested that it led him to conclude that axiomatic set theory ought to be abandoned."[84]

One further example of paradox in mathematics undermining the a whole area and of direct relevance to quantum mechanics . Quantum theory is a theory of probability i.e. the probability of solutions to Schrodinger's equation. But the whole foundation of probability is undermined by the The Petersburg paradox, discovered by Nicolaus Bernoulli, d'Alembert said of it that it " felt that something had to be wrong with probability theory for such a paradox to have occurred."[85] The result being even though it undermines probability theory " probabilists accept the Petersburg paradox as an unexpected, perhaps unpleasant, real outcome of probability theory."[86]

[] ibid., p. 298.
[] B. Bunch , *Mathematical Fallacies and Paradoxes* Dover, 1982 p.167
[] B. Bunch , *Mathematical Fallacies and Paradoxes* Dover, 1982, p 69
[] ibid., p.161.

With all these paradoxes and inconsistencies Bunch notes that "disagreements about how to eliminate contradictions where replaced by discussions of how to live with the contradictions in mathematics."[87] It is interesting to note that the anthropologist Levy-Bruhl argued that primitive peoples where pre-logical i.e. had a mentality that "... does not bind itself down ... to avoiding contradictions."[88] The dominant philosophical paradigm is that there is only one proper way to reason and that is rational i.e. Aristotelian[89]. Davidson and Dennett argue that rationality is a

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prerequisite for thinking.[90] And Freud said that neurotics avoided mutual contradiction.[91] In summary we that each new model, interpretation slate ends up with paradox and contradiction which then induces someone else to solve them, but in doing so create another slate with absurdities then along comes some else ad infinitum adding to the spiral-wise accumulation of slates with the inevitable absurdities. We saw how mathematics tries to get rid of a contradiction or paradox by defining it away as in the Pythagorean s defining the irrational numbers as not being number. The subsequent reintroducing irrational numbers back to their number status by modern mathematicians with a nest of subsequent problems. Also we saw how the

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[87] B, Bunch , *Mathematical Fallacies and Paradoxes* Dover, 1982, p.140.
[88] Levy-Bruhl, *How Natives Think*, George Allen and Unwin, 1926 p.78.
[89] S. Stich, 'The Fragmentation of Reason' MIT Press Cambridge, Mass, 1993, p.14.
[90] ibid, p.15

contradictions generated by the early calculus was solved by defining it

away in the nineteen century. In mathematics we saw Russell abandon the

axiom of reducibility because it led to problems only to see Godel use it.

We saw that the axiom of choice generates such paradoxes as the Branch-

Tarski and Hausdorff paradoxes only again to see Godel REFEREWe see

Russell disallowing circular self referential statements only to see Godel use

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them. We saw that axiomatic un-reformulated end up with paradoxes we

also saw that axiomatic set theory as reformulated [another slate]n irradiated

the known paradoxes only to end up with a paradox i.e. the Skolem paradox

which its discover felt meant that axiomatic set theory had to be abandoned

We saw that getting rid of impredicative definitions irradiated the known

paradoxes but only to see that it end up with Grellings paradox. We saw

Russell introduce his theory of types [Slate] but because this created

problems he had to introduce his axiom of reduciblity [state] but as this was

proof

no good he abandoned it. We saw Godel prove his INCOMPLETENESS only

and

to see that he used Russell's abandoned axiom of reducibility REFER axiom

of choice - that leads to the Branch-Tarski and Hausdorff paradoxes - we

are left wonder what Godel's proof would look like in a non-Zermeloian

mathematics. We also saw that what Godel really proved was that the

** S. Freud, The Ego and the Id, On Metapsychology, Penguin, 1984, p.191.

systems he deals with are self-contradictory; but because mathematician don't like contradiction they opted for the watered down impossibility proof. Also we saw that if the impossibility proof is true then it ends in contradiction or paradox as well. We saw that even though probability theory is undermined by the Petersburg paradox mathematician accepts its truth but just ignore it. Now as quantum theory is probabilistic this paradox would seem to place it with a major problem. Since probability theory is paradoxical it would seem to say that any discipline that used it would end up with paradoxes, or at least have it mathematical credentials made invalid and any following so called truth claim based on probability. We saw with quantum mechanics that it depicts nature as being contradictory i.e. the dual particle-wave nature of the electron . We saw that its postulated wave collapse means that it must collapse faster than the speed of light thus contradicting relativity. Its explanation of the double-slit experiment leads to contradictions in the explanation. We saw that another model slate that can explain the experimental data i.e. consciousness creates reality also collapses into paradox. We saw that a deterministic casual theory by Bohm, though in contradiction to the non-casual Copenhagen school, can explain the data. But this model also has non-local faster than light action – contradicting

relativity. We also saw that though both models are in contradiction to each other they both explain the data.

Thus over all we can see that mathematics and science collapse into paradox or absurdities - meaninglessness. This makes these paradigms in effect meaningless. Every attempt to destroy the paradoxes ends in more paradoxes. Models used to explain experimental data are embedded with paradox. With the fact of mathematics and science collapsing into the inevitable absurdities and meaninglessness then mathematicians and scientists don't know what they are talking about or whether what they talk about is true - thus a lot of men and women have spent a lot of wasted effort and time thinking; and will continue to do so, blind to fact that their efforts can only generate more absurdities, or meaninglessness which they cannot escape from. Just because mathematicians and scientists can send men to the moon or predict the number on a dial, don't let this fool you that they know why or how because they don't. All their models explanations interpretations i.e. slates collapse into meaninglessness and as such they don't know what they are talking about. Due to humans' inevitable generation of, and imprisonment in, absurdities reality will always remain; a mystery completely unknowable conceptually by the human mind. If the paragons of rationality mathematics and science collapse into absurdities how absurd then are the soft sciences and humanities. Here is a project for a bright spark to discover the inevitable absurdities in the soft sciences and humanities which make them meaningless like mathematics and science. This essay is thus one more case study to substantiate the thesis that all products of human thought collapse into absurdity or meaninglessness

There is no way the human mind can escape from this prison of paradox generation so long as logic and language are used . As Bohr said above "the very words physicists use to describe reality constrain their knowledge of it and scientists in every field will one day encounter this barrier to human understanding."[92]"Over all we can say in conclusion that mathematics and science are examples of humans inevitable curse to always produce myth via its mythical thought

" the purpose of myth [mathematics and science etc] is to provide a logical model capable of over-coming a contradiction (an impossible achievement if, as it happen, the contradiction is real) a theoretically infinite number of slates [interpretations] will be generated, each one slightly different from the others,. Thus myth [mathematics and science] grows spiral-wise until the intellectual impulse which produced it is exhausted "[93] "mythical [mathematical and scientific etc] thought for its part is imprisoned in events and experiences which it never tires of ordering and re-ordering in its search to find a meaning." [94]

The paradox of reason is that reason invalidates reason
All views collapse into meaninglessness but for those who meaninglessness is a view there is no hope
Believing in meaninglessness is turning away from meaninglessness
To seek reality all that is needed is the ending of views
With meaninglessness views disappear with views meaninglessness appears

[92] A. Wick, *The Infamous Boundary*, Birkhauser, Berlin, 1995 p.39.
[93] C. Levi-Straus, "The Structural Study of Myth", in *Structural Anthropology*, Penguin, 1963, p.229.

APPENDIX

Aristotle in *The Metaphysics*, makes a distinction between 'Being' and 'being'. 'Being' is existence and according to Aristotle, metaphysics studies all the species of 'Being'.[95] On the other hand 'being' is a specific species of 'Being'.[96] According to Aristotle 'being' are substances (essences) and are what are studied by the particular sciences.[97] Philosophy and science have as many divisions as there are 'being' i.e. substances (essences).[98] The principle of the law of non-contradiction is, according to Aristotle the principle of 'being' and is the most certain of principles.[99] The principle of identity is a principle of 'being' by which the law of contradiction is proved.[100]

Dean, in The Nature of philosophy, sought to undermine the validity of any inference by arguing that logic by its own standards is not and cannot be an epistemic condition for truth. Dean argued that when logic becomes self-

[94] C. LeviSrauss, *The Savage Mind*, The University of Chicago Press, 1966, p.22

[95] Aristotle, *Aristotle: The Metaphysics Books I-IX*, Tran, H. Tredennick. Harvard University Press, 1947, IV 1, 2

[96] ibid., IV, 11, 6

[97] ibid., IV, 1, 3

[98] ibid., IV, 1, 10

reflexive i.e. when it analyses itself in terms of its own standards ends up in self contradiction. Logic ends in paradox as it negates the very thing it requires to make the negation and that it requires for its existence, namely an essence belonging to an object. Dean maintained that logic requires an object which must have fixed immutable properties, namely an essence. It is argued that if an essence cannot be found then the object cannot be identified and thus does not exist. Dean argues logic infact denies this essence and thus denies the object that logic needs for its existence. Consequently Dean argues that "Logic's negation of the object of logic in fact undermines logic's own value as an epistemic condition... This undermining is due to logic violating it's own law of non-contradiction. By the law of non-contradiction something cannot be A and not A simultaneously if it is then by the law of contradiction it cannot be a truth claim. Logic... requires an essence, say A, for its applications but logic negates this essence i.e. not A, the very thing it requires to make the negation; thus a paradox... Thus logic makes itself untenable as an epistemic condition of truth."[101]

[99] ibid., IV. Iv. 21.
[100] ibid., IV. Iv. 26
[101] C.Dean & D.S.Ovenden *The Nature of Philosophy*, Gamahacher Press, 1998

Adorno in his **'Negative Dialectic'** arrives at the critique of the identity of the object. Negative Dialectics seeks to undermine the ontology of the object by pointing out its lack of an identity. Habermas in his overview of Adorno writes "identify thinking turned against itself becomes pressed into continual self-denial and allows the wounds it inflicts on itself and its objects to be seen...Adorno practices determinate negation unremittingly in the categorical network of Hegelian logic - as a fetishism of demystification" (Habermas, 1995, p.186). But Adorno is locked within the inevitable paradoxes generated by conceptual thinking and logic itself. As Habermas points out "the totalising self-critique of reason gets caught within a performative contradiction..." (ibid, p.183) Adorno uses the metaphysics of presence [ontological identity] contained within language and the principle of logic to negate this metaphysical presence by demonstrating that its is a myth. Thus Adorno turns logic upon itself in demonstrating the myth of identity he demonstrates the myth of the very tools he uses to deconstruct the myth of identity.

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