ARISTOTELIAN LOGIC AS AN EPISTEMIC CONDITION OF TRUTH THE GRAND NARRATIVE OF WESTERN PHILOSOPHY:

LOGIC–CENTRISM

THE LIMITATIONS OF ARISTOTELIAN LOGIC

THE END OF ARISTOTELIAN LOGIC

LOGIC/ESSENCE AND LANGUAGE LEAD TO THE MEANINGLESSNESS OF ALL VIEWS

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COLIN LESLIE DEAN

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CONCLUSION

The phenomena of Aristotelian logic is the phenomena of perhaps the longest continuous toeing the line in the Western tradition. The prestige of Aristotle's name has given credibility and legitimacy to his arguments for his logic since the middle ages. When we ask the question "why do we obey the laws of Aristotelian logic in such things as writing, science, economics, thinking correctly, political argument, rhetoric, legal argument etc?" we can say plainly that we do because the Western world is logic-centric i.e. it believes that Aristotelian logic is an epistemic condition of truth.. And why do we believe this? Perhaps because Aristotle says so and no one has really questioned him for over two thousand years. When we question this taken for granted claim we begin to see that there is not much truth in it. We begin to see the limitations of Aristotelian logic. We see that it is not the laws of thought or the laws of reality. We see that the essence that grounds Aristotelian logic does not exist even though Aristotle tell us we must believe in its existence. We see Aristotelian logic has come to an end. We see that the notion of an essence leads to the absurdity or meaninglessness of all views. With the end of Aristotelian logic and its untenablity as an epistemic condition of truth the success of science and mathematics remain a mystery. Even though science and mathematics can send rockets to the moon, turn on a light bulb, or make a computer these results become much more of a mystery once we realise that the epistemic tools used to create them i.e. Aristotelian logic are not epistemic conditions of truth after all.

BOOK 1

LOGIC- CENTRISM

"... Boole and Frege, like Leibniz before them, presented logic as a system of principles which allow for valid inference in all kinds of subject-matter ... also the greatest logicians of modern times have taken ... as the central theme ... the classifying and articulating the principles of formally valid inference."[1]

Thus we see that at least since Aristotle the laws of logic have been regarded as being an epistemic principle in regard to what is a valid argument and in regard to how reality is to be investigated. In other words the west has been logic-centric in regard to its preoccupation with the laws of logic. It is in terms of these laws of logic those principles of inference, as well as other logics, or rationalities are accessed.

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[1] W. Kneale & M. Kneale, 1978, p.739.

PREAMBLE –THE GROUNDING OF TRUTH

How do you know what you know? What makes, or grounds, your truth claim true? In other words what is your epistemology that validates your knowledge claim as true. Socrates used the dialectic to point out faults with a person truth claims. But what made the dialectic a method to elicit truth, or knowledge. In other words what made the answers to the question true. In this regard for Plato the question was "what makes an answer an answer?" Consequently the aim of the dialectic for Plato was to provide the criteria of answerhood. According to Plato this criteria was some property of the logos. Now for Plato the criteria of answerhood is subjective thus problematical. Thus a problem for Plato becomes the laying out the foundation of truth .For Plato logos which prevails is based upon the objective validity of the answer. Now Plato thought that truth and reality are fused together through recollection via the dialectic. The psychological roots of knowledge has its roots in recollection whereas the logical roots of knowledge are found in the hypothetical method. Now synthesis and analysis are problematical because both assume some known assumption. Thus to avoid this Plato moves to ontology to ground truth. To judge is to provide grounds for the truth of an assertion thus the need for a first cause and this first cause for Plato was the "forms". The "forms" are what grounds the answer as an objective truth. From this point on in Western philosophy the "in-itself" will be used to ground truth. In the "Metaphysics" Aristotle follows Plato's lead in ontologically grounding truth via the "beings" "essence". To judge now means to provide the grounds of truth. For Plato this ground was the "forms" for Aristotle it was the "beings" "essence" for modern philosophy it is the rules of inference.

LOGIC-CENTRISM

Why must a philosophical tract obey the laws of Aristotelian logic? Why can't a philosophical tract violate the law of the excluded middle or the law of non-contradiction? Why can't a philosophical tract be written such that it obeys the laws of some other logic such as intuitionist logic . The answer is because Western philosophy is logic-centric. At least since the formulations of Aristotle, the history of Western

philosophy has been the worship of logic. Logic and conclusive argumentation have since Plato been considered the means to discover true knowledge.[2] Since Aristotle's formulations of the syllogism, the West has been obsessed with laying down the principles of valid argument.   Western philosophers have been concerned with being consistent and coherent in their arguments because they have felt that if their arguments were logical they were then by default 'true'. By logical I do not mean the abiding by some law of inference but instead the non violating of the laws of Aristotelian logic. In regard to the law of identity Perelman claims that "… if P, then P" far from being an error in reasoning, is a logical law that no formal system can fail to recognize."[3] These laws have been the baseline for any valid inference, or characterisation of reality– freedom from contradiction is accepted in the West as a necessary condition of truth. In this regard the West is logic-centric. The laws of Aristotelian logic steers Western cognition and what is to be considered valid objective knowledge as well as determining the aspect by which valid argument is to be accessed.

What representation is for Rorty, logic is for me. Where Rorty sought to show the bankruptcy of the notion of representation I seek to show the bankruptcy of logic. Where Rorty sought to show the West's pre-occupation with representation and the mirroring of nature I seek to show the West's pre-occupation with logic and the logic-centrism of Western thought. If representation is at the heart of Western philosophy logic-centrism is at the heart of this heart; it is the leitmotif, the quintessential foundation of Western thought. Where Rorty sought to undermine by logical argument, and thus demonstrate his own foundation and commitment to logic-centrism, (attempts at foundations); I seek to undermine Rorty's foundation itself, to collapse the whole of Western logic–centrism and with it Western philosophy into absurdity, or meaninglessness.

Rorty, in the *Philosophy and Mirror of Nature*, has shown how Western philosophy has been pre-occupied with providing timeless foundations for its truth claims. At the core of these foundations has been logic. Logic has been the final arbitrator of truth. The grand

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[2] M. Meyer, 1986, p.100.
[3] C. Perelman, 1989, p.11.

narrative of Western philosophy, its essential baseline, has been and is the belief that logic is an epistemic condition of truth. The grand narrative of Western philosophy has been, as Rorty points out, a search for secure foundations to its 'truth' claims. But the axioms upon which this narrative have been based are the laws of Aristotelian logic (i.e. the law of identity, law of non-contradiction, law of the excluded middle). These laws are the grand narrative of Western philosophy [the overriding theme of philosophy in relation to the subjects its studies] and what make it logic-centric. From its beginnings Western philosophy has used these laws of logic as its baseline from which it starts it investigations, even into its search for foundations to its knowledge. For the West these laws of logic have been what determined what form of acceptable argument is to be considered valid, and the only way in which reality was to be investigated-until recently with the advent of quantum mechanics. Even philosophers' who questioned this viewpoint about the laws of logic nevertheless constructed their arguments in terms of the laws Aristotelian logic. Philosophers' may argue that the law of non-contradiction is not valid but they can't–if they want to be taken seriously-contradict themselves in saying this. Philosophers' may argue for non-Aristotelian logic but if they want to be taken seriously, they will couch their arguments for non-Aristotelian logic in terms of the Aristotelian laws of logic. Similarly philosophers' may argue for irrationality but they will try and avoid contradicting themselves. Thus Western philosophy is logic-centric in that the only valid argument it will accept is one that obeys the laws of Aristotelian logic. Meyer notes that since Aristotle "… progress in knowledge has been considered as a matter of logic and conclusive argumentation."[4] Similarly Kneale notes, that the successors to Aristotle "… often connected logic with the theory of knowledge and the psychology of reasoning."[5] These laws of logic have up until modern times been the authority upon which arguments were accessed for validity. If a philosopher's arguments did not obey these laws then his peers would call his arguments invalid.[6] At least since the time of Aristotle, and even now, the Western tradition has crystallised rationality into the 'argument'. To argue is to provide grounds for the argument and these grounds have been and still are the laws of Aristotelian logic. Aristotelian logic for the West renders

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[4] M. Meyer, op. cit., p.100.
[5] W. Kneale & M. Kneale, op.cit., p.738.
[6] Again look at any introductory book on logic to see these this.

arguments valid; it provides both the proof and justification of the arguments. Perelman claims that "… one must appeal to informal logic … which allows a controversy to be settled and a reasonable decision to be made … while formal logic is the logic of demonstration … it is either correct or incorrect and binding …"[7] In both these cases the laws of Aristotelian logic are the criteria for the argumentation.

In order to prove my claim in regard to Western logic-centrism I will give three examples. 1) A philosophy thesis will, in an ideal world where ego, bias and prejudice don't exist, be assessed on whether it is consistent and coherent. In other words on whether it does not violate the laws of logic. 2) There are non-Aristotelian logics. J. Lukasiewicz invented a three-valued logic. Now Lukasiewicz has left us an account of his reasoning which arrived at this system. This reasoning totally obeys the laws of logic and indicates that even in the formulation of non-Aristotelian logic the method of reasoning and criteria for validity is that they obey the laws of logic. As Lukasiewicz states:

> "I can assume without contradiction that my presence in Warsaw at a certain moment of time next year … is not settled at the present moment either positively or negatively. It is therefore possible but not necessary that I shall be present in Warsaw at the settled time. On this presupposition the statement "I shall be present in Warsaw at noon … " is neither true nor false at the present moment. For if it were true at the present moment my future presence in Warsaw would have to be necessary which contradicts the presupposition, and if it were false at the present moment, my future presence in Warsaw would have to be impossible which again contradicts the presupposition … this is the train of thought which gave rise to the three-valued system of propositional logic." [8]

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[7] C. Perelman op. cit, p.11.
[8] W. Kneale & M. Kneale, op. cit., p.570.

3) David Hume argued for scepticism and the bankruptcy of reason (i.e. its fallibility). But the assessment of Hume's arguments against reason are based upon reason itself (i.e. the laws of logic). Mossner in his edition of Hume's *A Treatise of Human Nature* claims that in the eighteenth century there was no "… attempt at reasoned rebuttal ..."[9]. A French attack upon Hume criticises him for his illogicality as it maintained that he "… advances the most unheard of paradoxes."[10] Similarly MacNab claims that Hume's arguments for the self-destructiveness of reason are fallacious.[11] Hume himself criticises his work on the grounds of inadequate reasoning. As he states, " [m]ost of the principles and reasonings contained in this volume [Essays and Treaties] were published in a work in three volumes, called *A Treatise of Human Nature* … in the following piece (Essays and Treaties), where some negligences in the former reasonings and more in expression are … corrected".[12]   So even though Hume attacks reason, he uses the principles of reason to do so; and bases the validity, or invalidity upon the very principles of reason he attempt to prove are inefficient.

Thus we see that the laws of logic are the baseline upon which scepticism and even non-Aristotelian logics are argued for and accessed for validity. It is this assessment of argument which is logic-centric and characterises Western philosophy.

Though there is evidence of pre-Aristotelian philosophers investigating logic, we can take Aristotle as a starting point.[13] There are two trends stemming from Aristotle which flowed into Western philosophy 1) An interest in logic as a means to ascertain valid argument–*The Topics*[14] and 2) as a means to investigate 'being' –the *Organon*.[15] With Aristotle we get a systematic elucidation of the rules of logical argument in order to undercut the arguments of the Sophists[16]. Aristotle in his *The Topics* lays out rules for

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[9] E. Mossner, 1987, p.16.
[10] ibid., p.16.
[11] D. G. C. MacNabb, 1991, p. 141.
[12] E. Mossner, op. cit., p.19.
[13] W. Kneale & M. Kneale, op. cit., p.12.
[14] ibid., p.33-44.
[15] Ibid., p.23-32.
[16] ibid., p.13.

conducting disputes by means of valid arguments[17]. In regard to 'being' Aristotle in *The Metaphysics* laid out the logical principles by which 'being' could be investigated (i.e. the law of identity, the law of non-contradiction, the law of the excluded middle). The consequence of the work of Aristotle has been, as Kneale notes, that the successors to Aristotle "often connected logic with the theory of knowledge and the psychology of reasoning."[18] These laws of logic have up until modern times been the authority upon which arguments were accessed for validity. If a philosopher's arguments did not obey these laws then his peers would call his arguments invalid.[19]

In modern times, as Kneale points out, philosophers such as "… Boole and Frege, like Leibniz before them, presented logic as a system of principles which allow for valid inference in all kinds of subject-matter … also the greatest logicians of modern times have taken … as the central theme … the classifying and articulating the principles of formally valid inference."[20] According to Frege the laws of logic were not the laws of nature, but the laws of the laws of nature.[21] In this regard logic is regarded as the science of sciences–a view Kneale claims Frege advocated. Now though there have been advances in principles of inference, in syllogistic logic, symbolic logic, and predicative logic, all the arguments used to support these logics cannot violate the laws of Aristotelian logic. There are non-Aristotelian logics but the arguments which support these logics are framed in terms of the laws of Aristotelian logic.

Thus from Aristotle to the Stoics to Medieval philosophy through the Renaissance to Frege and modern times, philosophers have been logico-centric in their endeavors to formulate principles of valid argument.[22] Again from Aristotle to the Stoics to Medieval philosophy through the Renaissance to modern times the laws of logic have been the

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[17] Again look at any introductory book on logic to see this.
[18] W. Kneale & M. Kneale, op. cit., p.738.
[19] Again look at any introductory book on logic to see this.
[20] W. Kneale & M. Kneale, op. cit., p.739.
[21] ibid., p.739.
[22] See W. Kneale & M. Kneale, 1978 .

tools by which 'science' has investigated reality.[23] Beginning with Bacon, philosophers have tried to lay out the method of science, the principles by which scientific arguments were framed and the principles upon which reality was investigated. Prior to quantum mechanics, those laws were comprised of Aristotelian logic. Thus we see that at least since Aristotle the laws of logic have been regarded as being epistemic principles in regard to what is a valid argument and in regard to how reality is to be investigated. It is in terms of these laws of logic that principles of inference, as well as other logics or rationalities are accessed.

Beginning with Aristotle there has been a tendency to argue that there are different types of rationality.[24] Kant argued that there were the rationalities of pure reason, practical reason and judgment.[25] Apel argues, in his *Types of Rationality Today,* that different rationalities exist. Some of these are ethical rationality, hermeneutical rationality, transcendental-pragmatic self-reflection as the philosophical type of rationality and scientific-technological rationality. Heidegger argues, according to Lovitt that "[w]e are trapped and blinded by a mode of thought that insists on grasping reality through imposed categories".[26] Gadamer likewise argues that there are forms of rationality that are "... subordinated to an instrumental ideal of knowledge."[27] Foucault similarly claims that there are different types of rationalities. But for Foucault the problem with thinking is, as he notes "... not to investigate whether or not they conform to principles of rationality, but to discover which kind of rationality they are using."[28] The question raised by Foucault's statement is, why is it that when a philosopher adopts a particular rationality this rationality has to conform to the laws of Aristotelian logic? Why must a philosophy thesis, or argument have to conform to the laws of Aristotelian logic? The answer is because, as we saw above, Western philosophy is logic-centric.

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[23] In modern times the investigation of reality has involved the use of other logics because Aristotelian logic was found not to be adequate. Such logics are quantum logic in quantum mechanics and inutitionist logic in mathematics.
[24] D. Horster, 1992, pp.43-45.
[25] Ibid., p.46.
[26] M. Heidegger, 1977, p. XVL.
[27] H. Gadamer, 1993, p.165.
[28] M. Foucault "1981, p.226.

When it comes to characterising just what logic is Western philosophers adopt an Aristotelian perspective. This Aristotelian perspective implies an ontology behind logic. Hookway points out three ways in which Western philosophers see logic. Some philosophers see logic in term of deduction.[29] Others see logic as contributing to an understanding of why valid arguments are valid (here we have the continuing influence of Aristotle), as well as an understanding of how meaning is generated in sentences.[30] Others see logic as saying something about the structure of reality. This view of logic sees logic mirroring reality. Building upon this view some philosophers believe that, as Hookway notes, "... if we know what sorts of logical structures must be used to describe reality, we know something about the abstract structure of reality."[31] These principles of inference, or characterisation of reality by logic cannot violate the laws of logic. In this regards the laws of logic are seen as being some objective epistemic condition giving access to objective truth and reality. McTaggart takes this position when he claims that a time with which had "… logically inconsistent properties could not possibly exist"[32] Swartz goes so far as to claim that "what is currently regarded as being needed, both for metaphysics and for science, is a theory of time which is free of internal inconsistency…"[33]

This logic-centric view has manifested itself through out Western philosophy in regard to epistemology, ontology and the philosophy of mind. Western philosophy as Rorty notes, has been pre-occupied with finding foundations to knowledge. Where the laws of logic are the baseline upon which these foundations have been accessed, philosophers have attempted not so much to give a grounding or a foundation to these laws, but a kind of self-serving justification for them. Philosophers have in order to maintain the epistemic validity of the laws of logic argued that they are 1) the laws of thought (Descartes, Kant or Boole for example), or 2) that they are the laws of reality (Aristotle, Descartes, Kant, Wittgenstein etc). In other words it is taken for granted that the laws of logic are

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[29] C. Hookway, 1988, p.77.
[30] ibid., p.79.
[31] ibid., p.80.
[32] N. Swartz, 1991, p.178

epistemic conditions of truth and philosophers then attempt to explain and justify why they are so. In this way it could be argued that in trying to justify the laws of logic they in fact create logic-centric ontologies, epistemologies and philosophies of mind. Philosophers' logic-centered acceptance of the laws of logic in fact pre-determine them to particular epistemologies, ontologies and philosophies of the mind, since contained within the laws of logic are particular epistemologies, ontologies and philosophies of mind. It is clearly seen that these attempts to justify the laws of logic are circular in that they beg the question (i.e. they use the laws of logic to argue that these laws are an epistemic condition of truth). They use these laws to argue for psychologism, or the mirroring of reality by logic, and base the validity of such arguments on the very laws of inference that are in need of justification. This logic-centrism can be seen in the philosophies of Descartes, Hume, Kant and Wittgenstein.

Dean points out, in his *The Nature of Philosophy*, that for Descartes, Hume and Kant the principles of logic are *a priori* and that they are necessarily true is a psychological fact due to the nature of the human mind.[34]   Hume and Descartes argue that the world is structured by the laws of logic independent of the mind. The world is logically independent of the perceiving mind, because in the case of Descartes God made it so.[35] Kant disagrees because he argues that logic is not a description of the world independent of the perceiving mind because the logical ontology of the world is only due to the mind.[36]   Descartes argues that God could have made the world to violate the laws of logic[37], even though the human mind operates logically. Kant regarded this as absurd, as Putnam points out for " Kant's logical laws hold not only in 'the actual world' but in all other 'possible worlds' as well."[38]   Kant's idea is reminiscent of Leibniz's argument that "... the truths of reason [are] true in all possible worlds."[39]   Thus that logic holds in 'all possible worlds' for Kant is because the forms of logical coherent thought make it so. We

[33] ibid, p.180.
[34] C. Dean , 1998, pp.X11-X11X
[35] ibid., pp.X11- XLV11.
[36] Ibid., pp.X11-X111
[37] ibid., p.X11V.
[38] Putnam, 1995, p.247.
[39] W. Quine, 1971, p.20.

cannot think other than logically and thus because we structure the world of appearances, the world of appearances must obey our logical principles.

In the *Philosophical Investigations* Wittgenstein argues that the aim of philosophy is "... to shew the fly the way out of the bottle."[40]   In the *Tractatus Logico-Philosophicus* Wittgenstein argues that "the limits of my language means the limits of my world."[41] Now the Wittgenstein of the *Tractatus Logico-Philosophicus* is the fly in the bottle where the limits of Wittgenstein's world is logic. Wittgenstein in fact says this when he states "logic pervades the world: the limits of the world are also its limits."[42] Now in this world pervaded by logic, Wittgenstein argues that "... the only necessity is logical necessity."[43] And "just as the only necessity that exists is logical necessity, so too the only impossibility that exists is logical impossibility."[44] Now the cause of this logical necessity is, as for Kant, Hume and Descartes, the psychological nature of man (i.e. the inner necessity of us being only able to think logically). That logic is an inner or psychological necessity Wittgenstein states clearly when he argues in regard to causality "... we could know them only if causality were an inner necessity like that of logical inference ..."[45] This psychological necessity to think logically has the consequence that, as Wittgenstein argues, "... the truth is that we could not say what an 'illogical' world would look like."[46] And again thought can never be of anything illogical, since if it were, we should have to think illogically."[47] These thoughts of Wittgenstein are very much like the views of Kant. Now it is this inability to think illogically that makes logic for Wittgenstein an *a priori*, as for Descartes, Hume and Kant. As Wittgenstein argues "... what makes logic *a priori* is the impossibility of illogical thought."[48]

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[40] L. Wittgenstein, 1953, 309, p.103.
[41] L. Wittgenstein, 1976, 5.6, p.56.
[42] ibid., 5.61, p.56.
[43] ibid., 6.37, p.70.
[44] ibid., 6.375, p.71.
[45] ibid., 5.1362, p.39.
[46] ibid.,3.031, p.11.
[47] ibid., 3.03, p.11.
[48] ibid., p.47.

Finch notes that all regard the *Tractatus Logico-Philosophicus* as being about "… what is the essential nature of the world presupposed by a purely logical language."[49] What the world and language have in common that makes language able to mirror the world is logical form. Wittgenstein states this when he argues "propositions show the logical form of reality"[50] and again " … propositions can represent the whole of reality, but they cannot represent what they must have in common with reality in order to represent it- logical form."[51] Thus the world is logically independent of language, but is nevertheless the logical equivalent of language.

Wittgenstein in the *Philosophical Investigations* succinctly captures all of the above, when he states "… thought is surrounded by a halo-Its essence, logic, presents an order in fact the *apriori* order of the world: that is, the order of possibilities, which must be common to both the world and thought."[52]

Thus we see in the above views a continuation of the Aristotelian influence with regard to the idea that Aristotelian logic is the valid tool to investigate 'being' Similarly the above philosophers all attempt to be logical in their arguments. In other words they try and apply valid principles of argument in their arguments. In order to ground the laws of logic by claiming they are the laws of thought they use these very laws to justify the grounding; where in effect both the claim that they are the laws of thought and the laws of logic to justify this grounding are all in need of justification. Similarly the claims that the laws of logic are epistemic conditions of truth because they are in fact the laws of reality, or simply that what grounds the laws of logic is that they are the laws of reality, again these claims are each in need of justification. In each case whether the laws of logic are the laws of thought, or the laws of logic are the laws of reality there is a circularity of argument. Namely the laws of logic are justified because they are the laws of thought/reality because the laws of thought/reality obey the laws of logic.

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[49] H. L. Finch, 1995, p.18
[50] Wittgenstein op. cit., 4.121, p.26.
[51] ibid., 4.12, p.26.
[52] L. Wittgenstein, op. cit., p.44.

That each of these claims is in need of justification is clearly seen when we put them under investigation both by logic itself and empirical investigation. What comes out of this investigation is the claim that Aristotelian logic may only have limited epistemic value to a small realm of reality - just like Newtownian mechanic is more applicable to Euclidean space with the advent of Einsteinian relativity and Riemann space.

BOOK 2
THE LIMITATIONS OF ARISTOTELIAN LOGIC

Thus we have the result that the laws of classical logic in some cases does not account for the appearance of certain phenomena; thus they are to be revised or rejected.

PREAMBLE –THE GROUNDING OF TRUTH

How do you know what you know? What makes, or grounds, your truth claim true? In other words what is your epistemology that validates your knowledge claim as true. … From this point on in Western philosophy the "in-itself" will be used to ground truth. In the "Metaphysics" Aristotle follows Plato's lead in ontologically grounding truth via the "beings" "essence". To judge now means to provide the grounds of truth. For Plato this ground was the "forms" for Aristotle it was the "beings" "essence" for modern philosophy it is the rules of inference.

These claims for the rules of inference are in need of justification. This is clearly seen when we put them under investigation both by logic itself and empirical investigation. What comes out of this investigation is the claim that Aristotelian logic may only have limited epistemic value to a small realm of reality - just like Newtownian mechanic is more applicable to Euclidean space and Einsteinian relativity to Riemann space. We will see that the laws of Aristotelian logic are lead to the irrationality or absurdity of mathematics. We will see that the laws of Aristotelian logic are not the laws of the quantum reality. We will see that the laws of Aristotelian logic are not the laws religion or the spiritual . We will see that the laws of Aristotelian logic are not the laws of thought or of the unconscious.

Philosophers have in order to maintain the epistemic validity of the laws of logic have argued that they are 1) the laws of thought (Descartes, Kant or Boole for example), or 2) that they are the laws of reality (Aristotle, Descartes, Kant, Wittgenstein etc). Dean points out, in his *The Nature of Philosophy*, that for Descartes, Hume and Kant the principles of logic are *a priori* and that they are necessarily true is a psychological fact due to the

nature of the human mind.[53] Hume and Descartes argue that the world is structured by the laws of logic independent of the mind. The world is logically independent of the perceiving mind, because in the case of Descartes God made it so.[54] Kant disagrees because he argues that logic is not a description of the world independent of the perceiving mind because the logical ontology of the world is only due to the mind.[55] Descartes argues that God could have made the world to violate the laws of logic[56], even though the human mind operates logically. Kant regarded this as absurd, as Putnam points out for " Kant's logical laws hold not only in 'the actual world' but in all other 'possible worlds' as well."[57] Thus that logic holds in 'all possible worlds' for Kant is because the forms of logical coherent thought make it so. We cannot think other than logically and thus because we structure the world of appearances, the world of appearances must obey our logical principles

ARISTOTELIAN LOGICS LIMITATION

According to Heidegger "thinking" since Plato has been treated under the title of logic i.e. rules governing the use of propositions.[58] This has occurred because truth was seen to be a property of propositions and propositions (language) were seen to be connected to "thought". According to Heidegger, Aristotelian logic becoming the criteria of the correct use of propositions and Aristotelian logic become the criteria for the correct way of "thinking". Heidegger rejects this logico-mathamatical model of "thinking" and thought" and argues that "thinking and "thought" is initially an intuitive pre-conceptual process whereby Dasein first comes into "Being" and thus into "being" himself.[59] The logico-mathematical "thinking" and "thought" is for Heidegger a "non-thinking" and "non-thought".[60]

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[53] C. Dean , 1998, pp.X11-X11X
[54] ibid., pp.X11- XLV11.
[55] Ibid., pp.X11-X111
[56] ibid., p.X11V.
[57] Putnam, 1995, p.247.
[58] T. Fay 1977., p.49.
[59] ibid., pp.60-65.

MATHEMATICS

In regard to that paragon of rationality namely mathematics logic demonstrates its irrationalty. In 1930 the mathematician Hilbert began a program to prove that mathematics was consistent. With the discovery of such mathematical paradoxes as the Burli-Forti paradox, Russell's paradox, Cantor's paradox and Skolem's paradox by early 1930's as Bunch notes, Hilbert's program did not succeed such that "disagreement about how to eliminate contradictions were replaced by discussions of how to live with contradictions in mathematics."[61] Attempts to avoid the paradoxes led to other paradoxical notions that most mathematicians rejected them.[62] Thus the present situation is that mathematics cannot be formulated, except in axiomatic theory, without contradictions with out the loss of useful results. With regard to axiomatic theory, this cannot be proven to be consistent with the result that paradoxes can occur at any time. As Bunch 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 reformulations 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."[63]

With all these paradoxes and inconsistencies Bunch notes that it is "… amazing that mathematics works so well."[64] Since the mathematical way of looking at the world generates contradictory results from that of science,[65] such as the mathematical notion of the continuum, and quantum mechanical concept of quanta. A mystery arises here,

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[60] Ibid.,. p. 66.
[61] B. Bunch, 1982, p.140.
[62] ibid., p.136.
[63] ibid., p.139.
[64] ibid., p.209.
[65] ibid., p.210.

which I mention later in regard to instrumental results from logic and language, in that mathematics with a different ontology to science is used by science to generate "truths" for that science. 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…[the mystery is] … that mathematical way of looking at the world and the scientific way of looking at the world produced contradictory results."[66] In this regard a measure of faith is required for us to accept the truths of mathematics and science; the same faith I argue later is the basis of our trust in logic and language. This can easily be seen in regard to the inventors of calculus Newton and Leibniz who knew their methods gave results but as Bunch notes the "mathematicians did not have a rigorous explanation of why their methods worked until the middle of the nineteenth century."[67] Without an explanation of how their methods work the mathematical truths must as such be based upon faith rather than logic. Without a proof of the consistency of mathematics, the 'truths' and the logical, or rational basis of mathematics must be based upon a faith in the logical basis of mathematics (i.e. on irrationality rather than rationality). Thus what is held up to be the most rational of the sciences is itself in terms of its own logic inconsistent, paradoxical and irrational.

REALITY

 Quine claimed that quantum mechanics shows that the laws of classical logic could be revised[68]. So what is quantum logic? Gibbins notes that quantum logic "...is nothing more than the closed subspaces of Hilbert space."[69] Now classical logic is Boolean. In Boolean notation the constant '.' , or Boolean product and '+' or Boolean sum are used. What these mean can be understood from the following examples. According to O'Connor "...if "x" stands for the class of red things and "y" for the class of square things, then "xy" [ie "x.y"] stands for the product of the two classes, the things that are both red and square.

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[66] ibid., pp.209-10.
[67] Ibid., p.110.
[68] W. Quine, 1951.
[69] P.Gibbins, 1987, p.92.

And "x+y" stands for the class of things that are either red or square but not both."[70] With this notation in mind classical logic is Boolean because it obeys the Boolean rules: the commutative rule i.e. x.y = y.x, x + y = y + x ; the distributive rule ie x.(y + z) = (x.y) + (x.z), x + (y.z) = (x + y).(x + z); the complement rule ie x.x' = 0, x + x' = 1; the duality principle ie if an expression is valid then the expression obtained by exchanging . and + and 0 is also valid; the idempotent laws i.e. x +x = x, x.x = x; the associative laws x.(y.z) =(x.y).z, x + (y +z) = (x + y) + z; the absorption laws; ie x.(x + y) = x, x + (x.y) = x and the null laws x + 1 = 1, x.0 = 0 On the other hand Quantum logic is non-Boolean.[71] Gibbins notes that the most important fact about quantum logic is that it rejects the axiom of the distributive law.[72] In other words it rejects p(q v r) = pq v pr. Gibbins on this point out that in quantum logic the right-hand side of the expression a ^ (b v c) = (a ^ b) v (a ^ c) [where ^ stands for conjunction] "... is logically stronger and always implies the left-hand side though not conversely. When this converse fails so does distributivity."[73]

There are two ways in which philosophers and scientists interpret quantum logic. The realists regard quantum logic as saying something about the structure of reality. The anti-realists consider that quantum logic says nothing about the structure of reality but only refers to the logic of our measurements. In this regard quantum logic enables these anti-realist interpreters to give meaning to the sentences in which the results of measurements are couched. In this regard classical logic is still required to be revised in order to make sense of experiments.

There are a number of important issues around the notion of quantum logic. Gibbins points out some of these question are; Is quantum logic really logic? Is quantum logic a rival to classical logic? Can we speak of a logic of the world? If we can, is this logic to be decided empirically? Can quantum logic be used to resolve the paradoxes of quantum

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[70] D.J.O'Conner, 1992, p.52.
[71] P.Gibbins 1987, p.87.
[72] ibid, p.93.
[73] ibid, p.95.

mechanics?[74] Gibbins notes that there are two main interpretations of quantum logic: the activist, and the quietist. The activist interpretation of quantum logic argues that we resolve the paradoxes of quantum mechanics by doing away with classical logic and replace it with quantum logic.[75] The quietists argue against the activists that quantum logic cannot resolve the paradoxes of quantum mechanics because the paradoxes cannot even be formulated in quantum logic.[76] Gibbins also notes that there are differing views regarding the scope of quantum logic. The revisionist argues that quantum logic is the logic of the real world and as such we should replace classical logic everywhere.[77] Finally there are the preservationists who argue that quantum logic is only applicable to the micro-world and not to the macro.[78]

Gibbins notes that some philosophers of physics interpret quantum mechanics, thus quantum logic, realistically, ie that it describes the world as it is[79] and others interpret it anti-realistically, ie it does not describe the world as it is.[80] Others again see quantum logic instrumentally.[81] Some argue that quantum logic mirrors the logical structure of the world. Now it is extremely important for the claims of Quine and the notion of scepticism as to whether the realists or anti-realists are right. If the anti-realists are right then quantum logic says nothing about the structure of reality. Consequently the laws of classical logic dealing with the structure of reality or 'matters of fact' will not be called upon to be revised, because under an anti-realistic interpretation of quantum logic the revisions required in quantum logic have nothing to do with reality and therefore classical logic. In this regard Quine's claims for the revision of classical logic at the macro level break down and scepticism becomes untenable. Now if the realist interpretation of quantum logic is correct we still have the revisionist and preservationist interpretations of quantum logic. If the preservationist interpretation is correct then

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[74] P.Gibbins, 1987, p.x
[75] ibid, p.142.
[76] ibid, p.142.
[77] ibid, p.143.
[78] ibid, p.143.
[79] ibid, p.1x
[80] ibid,1x
[81] H.Putnam, 1985 p.93.

quantum logic only applies to the micro-world. Consequently revisions in classical logic are only required when we deal with the micro-world but not when we deal with the macro-world. Thus once again Quine's claims have no bearing upon the classical logic of the macro-world. Now the only alternative which gives support for Quine's claims at the macro level is the revisionist interpretation. If this is the correct interpretation then quantum logic does require us to revise the laws of classical logic at the macro level and as a consequence inferences based upon the laws of classical logic will be uncertain in regard to their validity.

Now on the topic of quantum logic Putnam notes that the issues raised by the use of quantum logic in the interpretation of quantum mechanics are complex.[82] Putnam points out that the adoption of quantum logic has been proposed by both 'realist' and 'verificationist' construals.[83] According to Putnam the idea of adopting quantum logic plus a 'realist' semantics cannot take place until the notion of 'realism' itself is properly worked out.[84] Nevertheless Putnam himself argues that the laws of logic are revisable and that quantum mechanics is the right interpretation of the physical world.[85] On the validity of quantum logic Putnam states that the quantum logic of quantum mechanics "is the only realistic interpretation of the *present* theory. If the present theory is true, or, subjunctively, if it *were* true, or if the true theory retains certain key features of the present theory, however much it may differ from the present quantum mechanics in other respects, then the interpretation I defend *is* an interpretation of the true theory, and no other realist interpretation *has ever been proposed*: only *wishes* for a different physical universe."[86] With Putnam's point of view I agree and argue, with Putnam, that if he is right "...then anyone who concedes that the present theory [quantum logic] *could* be true should concede that there is a strong 'case' for the possibility of a quantum logical universe."[87] If this quantum logical universe is true then Quine's claims that the laws of

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[82] ibid, p.135.
[83] ibid, p.135.
[84] ibid, p.135.
[85] ibid, p.100.
[86] ibid, p.93.
[87] ibid, p.93.

classical logic could be revised is substantiated. And the consequence of   scepticism itself becomes tenable.

The source from which Quine derived his assertion in his 1951 article 'Two Dogmas of Empiricism,' that the law of the excluded middle could be denied by quantum mechanics was from Reichenbach's use of three-valued logic in interpreting quantum mechanics.[88] Putnam points out that this interpretation of Reichenbach is technically inferior to one put forward by von Neumann.[89] In 1936 J.Von Neumann and D.Birkhoff suggested that the logic of the physical world is non-classical. [90] Putnam notes that since 1960 a great deal of work has been and is being done on this notion.[91] According to Putnam the question arises from this notion that if logic turns out to be empirical then the notion of 'necessity' may have to be scrapped.[92] The consequence of finding a quantum mechanical explanation to some phenomena leads to the result that, as Putnam notes, "...some of the laws of classical logic have been given up."[93]

In his 'Two Dogmas Revisited' Putnam points out some of the laws of classical logic which are rejected by quantum logic. According to Putnam the distributives laws of standard propositional calculus such as p(q v r)= pq v pr are logically true. But in quantum mechanics this law is not regarded as being logically true.[94] Gibbins points out that, in quantum logic, for many P neither P nor -P is true.[95] On the point of the logical connectives being the same for classical logic and quantum logic Gibbins expresses doubts. Gibbins argues that though "...quantum logic and classical logic share many features... unlike classical logic quantum logic cannot be truth functional. As a corollary, the quantum logical connectives cannot be defined by means of truth tables thus there arises the philosophical problem about the meaning of the quantum logical connectives."

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[88] ibid, p.51.
[89] ibid, p.51.
[90] ibid, p.46.
[91] ibid, p.47.
[92] ibid, p.47.
[93] ibid, p.48.
[94] H.Putnam, op.cit, p.96.
[95] P.Giibbins, op.cit, p.167.

[96] Putnam argues that the meaning of logical connectives does not change. Putnam points out that the classical logical principles of:

" p implies p v q,

 q implies p v q,

'if p implies r and q implies r, then p v q implies r'

p, q together imply p. q

p.q implies p

p.q implies q

all hold in quantum logic. And that

p and ~p never both hold

(p v ~p) holds and ~ ~p is equivalent to p"[97]

Consequently Putnam argues that "...adopting quantum logic is *not* changing the meaning of the logical connectives but merely changing our minds about the laws."[98]

Now some of the phenomena which seem to indicate that the laws of classical logic have to be revised are: the problems of interference; the uncertainty in the position of a particle with momentum; and the dual wave-particle nature of an object. If a single photon is directed at a plane containing two slits an interference pattern is detected if a photographic plate is in place behind the plate. If one of the slits is covered up no interference pattern is the detected. This leads to the consequence that as Dirac noted "...each photon interferes only with itself. Interference between different photons never occurs."[99] Now as Putnam points out because of the uncertainty principle the photon can interact with both slits with the consequence that what "...one gets on the photographic plate is not a simple sum of the patterns that one would obtain by just performing the experiment with the left slit open and just performing the experiment with the right slit open. Rather it is as if half the photon went through the left hand slit and half the photon went through the right hand slit and the two halves then intermingled and interfered..."[100] Now, according to Putnam, in von Neumann's quantum logic the photon going through

[96] ibid,., p.93.
[97] H.Putnam, 1975, p.189-190..
[98] ibid, p.190
[99] H. Zajac, 1979, p.452.

the left slit or the photon going through the right slit is symbolised in classical form thus (p v r), but the classical forms (p & q), or pq and (p & r) or pr ie the statements 'the photon went through right slit and hit R" and 'the photon went through the left slit and hit R' respectively are impermissible.[101] The denying the permissibility of these classical logical forms is due to the fact that in von Neumann's quantum logic he is not concerned with which slit the photon went through because quantum logic does not allow certain propositions ie the 'incompatible' propositions of quantum mechanics to be conjoined.[102] This has the consequence that the propositions p, r have no conjunction and the propositions q, q have no conjunction.[103] On this point Putnam notes that this is what "...certain philosophers of quantum mechanic think is going on."[104] Similarly as Putnam notes, " in fact the law of *conjunction introduction* (from any two propositions p, q infer their conjunction (p & q) has to be restricted to pairs of *compatible* propositions p, q and the distributive law has to be restricted to the case in which all three propositions p, q, r are totally compatible."[105] Thus we see that in interpreting the phenomena of interference quantum mechanically, through quantum logic, some of the laws of classical logic are revised or given up.

As a second illustration that quantum logic leads to revisions in the classical laws of logic Putnam makes note of a computational experiment performed by Kochen and Speker which contradicts a theorem by Gleason based upon classical logic. Without going into detail the result indicated that the formule which are tautologically false in classical logic become possible in quantum logic.[106] The consequence of this result according to Putnam "...is that things which are *literally impossible according to classical propositional calculus* can happen and do happen..."[107] Thus we have the result that the laws of classical logic in some cases does not account for the appearance of certain

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[100] H.Putnam, op.cit, p.47-48.
[101] ibid, p.48.
[102] ibid, p.48.
[103] ibid, p.48.
[104] ibid, p.48.
[105] ibid, p.48.
[106] ibid, p.50.
[107] ibid, p.50.

phenomena; thus they are to be revised or rejected. This result is seen in regard to the violation of the law of the excluded middle by a particle with momentum.

Ayer points out that "in microscopic physics [quantum mechanics] the proposition that a particle with an ascertained momentum either is or is not at a particular position at a particular time is not taken to be true..." [108]As a consequence of this particle violating the law of the excluded middle, due to the uncertainty principle Ayer argued that "...a new system of logic ...would be better suited to quantum mechanics."[109] A.J.Ayer noted that the world has to be such that we can apply our system of logic.[110] Ayer claimed that it is possible that our system of classical logic may not be applicable to the world. As he states, " ...it is conceivable that the world should not be accommodated, or at least not be so well accommodated to the system of logic that we have developed."[111] In this regard because the world does not accommodate the law of the excluded middle this law is thus rejected.

In 1881 Louis Victor, Prince de Broglie proposed that every particle should have an associated wave nature.[112] In subsequent years this proposal of de Broglie has been validated by numerous experiments. The wave nature of a particle is demonstrated in interference and diffraction experiments.[113] Similarly light exhibits a dual nature of being a wave and being a particle. The particle nature of light is demonstrated in the photo-electric effect due to Einstein.[114] The wave aspect is demonstrated again in interference and diffraction experiments.[115] Thus we have a situation in which an object is simultaneously a particle and a wave. This result Putnam argues suggests that the principle of non-contradiction ie $\sim (p \ \& \sim p)$ might be revised.[116] As Putnam argues "...it might be suggested that the principle holds only for ordinary statements about ordinary

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[108] A.J.Ayer, 1991, p.202.
[109] ibid, 202.
[110] ibid, p.202..
[111] ibid, p.202.
[112] H.Zajac, op.cit, p.448.
[113] ibid, p.449.
[114] ibid, p.444-445.
[115] ibid, pp448-457.

macro-observable properties of ordinary macro-observable objects, such as 'the cat is on the mat', and it might be suggested that there is a class of recherche statements about waves and particles or whatever for which the principle fails. Perhaps 'the electron is a particle' is both true and false or 'the electron is a wave' is both true and false."[117]

Now on the point of an object being both a particle and a wave Zajak notes that "we are limited by our language to lists of words much as our worldly experiences limit the concepts those words bring to mind."[118] With this in mind Zajak points out that we naively apply to the micro world concepts which only have applicability in the macro world. Electrons don't behave like mini billiard balls and light does not behave like scaled down sea waves. As Zajak notes *"particles and waves are macroscopic concepts which gradually lose their relevance as we approach the submicroscopic domain."*[119] Thus with regard to the ontological nature of the world the situation seems to be as O'Hear notes "ontology here would be seen as determined by the demands of an area of discourse, rather than by any feeling that human recognitional powers and abilities should determine the limits of our language."[120] In this regard the logic which is generated by the use of the logical constants of a natural language such as 'or', 'if', 'not', 'and' , etc may not be adequate enough for the natural language to interpret or understand the ontological nature of the physical world. Thus concepts which are contradictions in terms such as an object being a 'wave-particle' or such mathematical ideas as 'completed infinities' reach the limits of our logic because they start violating our logical laws. In other words the nature of the world may transcend the limits and ability of language thus logic to characterise. In this regard the nature of the world seems to force us to adopt quantum logic and as a consequence to cause us to revise the laws of classical logic.

Thus we see that the revision of the laws of classical logic in quantum logic does not involve just changing the meaning of the logical connectives. Changing the laws of

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[116] H.Putnam op.cit, p.100.
[117] ibid, p.100
[118] H.Zajak, op.cit, p.449.
[119] ibid, p.450.

classical logic may mean not changing the meanings of the connectives at all. In some cases the laws are revised even though the meaning of the logical connectives stays the same in both classical logic and quantum logic. As we saw in some cases what is a logical truth or logical necessity in classical logic turns out to be not so when the logical expression is taken over in to quantum logic. This to my mind says that the idea that the whole idea of necessity should be scrapped is perhaps a bit extreme. What the examples from quantum logic indicate is that there is always some doubt in regard to whether a logical law is, or will remain 'necessary'. Also the fact that some laws of classical logic remain logically true when brought over into quantum logic indicates that though some laws of logic are empirical not all of them are. Some at least appear to be *apriori.* In summation then we see that though there are some who would disagree there are arguments from quantum mechanics which support the view that science brings about revisions in the laws of classical logic. In this regard these findings lend some support to Quine's claims. In regard to quantum mechanics there are differing interpretations over the scope and interpretation of quantum logic. We saw that the anti-realists argue that quantum logic does not refer to the logical structure of reality but only gives meaning to the results of measurements. In this regard anti-realist interpretations of quantum mechanics do not give support for Quine's arguments in regard to the revision of classical logic for the macro-world and thus make scepticism untenable. Conversely we saw that the realists do argue that quantum logic does mirror the structure of reality. Now it is this interpretation which gives support for Quine's views. Nevertheless it is only the revisionist interpretation of the scope of quantum logic which gives this support. If the preservationist interpretation of the scope of quantum logic is correct, and quantum logic only applies to the micro world then Quine's views only then apply to the micro- world and not the macro. Thus if the realist- revisionist interpretation is correct then any classical inference to do with 'matters of fact' will be open to revision and thus not certain in regard to its truth claim. If we accept that we live in a macro-world which is explained by a minimal classical logic and quantum logic, or in other words logic which has a common part of Boolean logic and a part which is non-Boolean, namely quantum logic, then we must accept Quine's claims for the revision of classical logic.

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[120] A.O'Hear, 1991, p.51.

RELIGION/SPIRITUAL

Aquinus and the scholastics who tried to justify the truths of revelation by using philosophy or in other words logic may have been misplaced in their endeavors. Philosophy or logic being the handmaid of religion may in fact have used logic in realms in which it has no validity or legitimacy. The logical Positivists argued that logically religion was meaningless as only the propositions of natural science had meaning and all metaphysical propositions had no meaning, or are meaningless. Scores of scholars have tried to defend religion logically even though the logical Positivists own position in regard to the meaninglessness of metaphysical propositions places science as meaningless since the electron and matter are nothing but metaphysical objects themselves like God and the Trinity. Just as in the case with the quantum world logic may be over reaching the bounds of its legitimacy when it comes to religion and the spiritual. And like with the quantum world where Aristotelian logic is unable to explain the facts Aristotelian logic may not be able to explain the facts of religion or the spiritual. As with the quantum world logic may have to be revised to make sense of religion and the spiritual. This is seen to be so when we examine the experiences of the mystics. Who can argue that the spiritual transcends logic. Nicholas of Cusa for instance tried to grasp the incomprehensible by transcending the perennial truths of reason to claim that to enter into the darkness was to admit of the coincidence of opposites God was girt round with the coincidence of contradictories.[121]

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[121] F.C. Happold, 1984, p.336

THINKING

Levy-Bruhl argued that primitive peoples where pre-logical i.e. had a mentality that "… does not bind itself down … to avoiding contradictions."[122] He went on to claim that "… the rational unity of the thinking being, which is taken for granted by most philosophers, is a desideratum, not a fact."[123] In regard to the pre-logical mentality many anthropologists, such as Evans-Pritchard have denied it- Levy-Bruhl, under a lot of criticism, himself finally denied it. In regard to Levy-Bruhl second claim there is a body of thought that would deny it also i.e. would say that the unity of thought is a fact. In both instances there is a growing body of data to show that Levy-Bruhl was right on both cases.

Stich notes there are a number of paradigms in regard to the issue " are humans rational i.e. are the laws of thought the laws of Aristotelian logic?" Cognitive pluralism argues that different peoples can think differently. Cognitive monism argues that all people think the same.[124] The dominant philosophical paradigm is that there is only one proper way to reason and that is rational i.e. Aristotelian[125]. Davidson and Dennett argue that rationality is a prerequisite for thinking.[126] They claim that evolution has ordained it that only the rational will survive[127] Under this argument it is claimed that departures from logical thinking are impossible[128]- thus undermining Bruhl's claims. Thus this paradigm is prescriptive as it argues there is a correct way of thinking and this is Aristotelian because we have evolved to think in terms of these laws i.e. laws of thought. But there was a problem. Outside the reified world of philosophy, psychologists in the real world where finding that people did not reason rationally to well at all.

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[122] Levy-Bruhl, 1926, p.78.
[123] ibid, p. 386.
[124] S.Stich, 1993, p.13
[125] ibid, p.14.
[126] ibid, p.15
[127] ibid, p.16
[128] ibid, p.17.

Cohen found that many of his subjects who would go on to be scientists, jurists, civil servant did not reason well. [129] To solution that Cohen came up with was that they do know how to reason rationally but they had poor performance competence. In this way he thought he could save the Davidson/Dennett thesis.[130] Nisbett and others who explored the way people reason found evidence that in fact they reason very poorly.[131] There is research to show that people are not rational when they assess the probability of logically compound events. They in fact violate the basis tenets of probability reasoning and fall into the "conjunction fallacy".[132] In this regard a number of psychologist argued for the widespread phenomena of human irrationality.[133] Thus we see empirical evidence for both of Bruhl's claims and the undermining of the idea that the laws Aristotelian logic are the laws of thought. In this regard the laws of Aristotelian logic rather than being the laws of thought in fact are antagonistic to our thinking processes as they are alien laws superimposed over our conscious cognitive process.

In regard to the unconscious Freud argued that there where two processes a primary and a secondary. In the secondary process our conscious thinking conformed to the Aristotelian laws- on this as we saw above he was wrong. The primary process was unconscious and was non-discursive, condensive, iconic and ignorant of the categories of space and time. Dreams collapse the logical relations in this regard dreams are non rational, or in other words violate the laws of Aristotelian logic. Matte-Blanco thus argues that the unconscious has its own laws of logic and these laws are not those of Aristotelian logic.[134]

Thus we see the limitations of Aristotelian logic. The laws of Aristotelian logic make the paragon of rationality i.e. mathematics irrational, illogical, paradoxical. The laws of Aristotelian logic are not the laws of quantum reality. The laws of Aristotelian logic are not the laws the religious or spiritual. The laws of Aristotelian logic are not the laws of

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[129] ibid, p.17
[130] ibid, p.17.
[131] ibid, p.4.
[132] ibid, p.6
[133] ibid, p.11
[134] Matte-Blanco, I, 1975, 1988**.**

thought. The laws of Aristotelian logic are not the laws of the unconscious. So why do we obey these laws in our writings and thinkings? Because the West is logic-centric. Why do we let these laws structure reality? Why do we force our thinking or reasoning to be Aristotelian? Why must we all have to think rationally i.e. logically? Why must economics, sociology, science, mathematics, politics, etc etc be rational? Why must all these areas of hum thought have to obey the laws of Aristotelian logic when the evidence is that they are not laws of reality or thought? The answer is because the West is logic-centric – it believes the laws are an epistemic condition of truth- when in many areas of human thought and reality they are not.

BOOK 3

THE END OF ARISTOTELIAN LOGIC

Aristotle claims that the law of self-contradiction requires an object with an essence (identity) for it to work.

For if there is change then there is no substance or essence and thus nothing is of necessity [135]i.e. the laws of logic are invalid as they postulate necessity.

"...physical objects are … comparable, epistemologically, to the gods of Homer." [136]

"particles and waves are macroscopic concepts which gradually lose their relevance as we approach the submicroscopic domain."[137]

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[135]Aristotle, 1998, p.103.

[136] W.V. O,Quine, 1953, p.44.

[137] Zajic, 1979, p.450.

PREAMBLE –THE GROUNDING OF TRUTH

How do you know what you know? What makes, or grounds, your truth claim true? In other words what is your epistemology that validates your knowledge claim as true… From this point on in Western philosophy the "in-itself" will be used to ground truth. In the "Metaphysics" Aristotle follows Plato's lead in ontologically grounding truth via the "beings" "essence". To judge now means to provide the grounds of truth. For Plato this ground was the "forms" for Aristotle it was the "beings" "essence" for modern philosophy it is the rules of inference.

This notion of essence which grounds truth is according to Aristotle what also grounds logic. Essence is the foundation upon which Aristotle grounds and legitimizes logic without an essence there can be no logic at all. I am going to argue that logic is at an end because the essence that logic requires for its existence does not exist

THE ONTOLOGY OF LOGIC

Western knowledge is based upon certain metaphysical assumptions such that its epistemology is related to its metaphysics. Aristotle sought to investigate 'Being' by investigating the species of 'being' via the tool of logic. But embedded in this tool is the very thing this tool seeks to investigate (i.e. 'being' itself). In this regard there is circularity and it needs justification. Namely the logic Aristotle uses to investigate 'being' must assume an ontological object a 'being' in order to investigate 'being'; but this ontological object 'being' is itself in need of investigation or justification itself. The most certain of all principles is the law of non-contradiction with its corollary the law of identity. As he states "… the principle which the student of any form of Being must grasp is … it is impossible for the same attribute at once to belong and not belong to the same thing …"[138] Thus we see at the very heart of Aristotelian logic is the notion of an ontological object with an essence which itself is in need of investigation or justification.

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[138] Aristotle, 1947, 1V.111. 8-9.

In this regard Aristotelian logic does not so much as reveal reality as constitute it by its reliance upon an ontological object with an essence. Thus logic affirms what it needs for its existence, what it affirms is in fact in need of justification. Philosophy consists in rediscovering the very thing upon which logic was made to depend. Logic in affirming an essence, which in fact needs to be justified, continually rediscovers what it initially affirmed without justification and this rediscovery is then used to justify the initial unjustified assumption-a circularity of logic The consequence of this circularity and ontological assumption is that logic in its resolution of problems and discoveries transforms the answers into a pre-ordained form due to its underlying ontological commitment and circularity. As we saw with Perelman's claims (that ' if P, then P' far from being and error in reasoning, is a logical law that no formal system can fail to recognize"[139]) at the heart of any formal system of logic is a metaphysical or ontological entity This P is an ontological entity and as such pre-ordains the form of any answer at the beginning of any question. This is because Aristotelian logic creates ontology, an ontology that the logic uses but which is itself in need of justification.

 There are three laws that are essential to Aristotelian logic: the law of identity 'A = A'; the law of self-contradiction 'not p and not-p'; the law of the excluded middle 'p or not-p'. Putnam notes that amongst philosophers there is disagreement and controversy about the "correct interpretation of these principles i.e. what does '=' mean, what does 'p' stand for."[140]   Putnam says that what all logicians agree upon is that if there is a thing as the "Eiffel Tower, then the Eiffel Tower is identical with the Eiffel Tower and if there is such a thing as the earth then the earth is round or the earth is not round."[141] Putnam notes that the 'S' and 'M' and 'P' in the inference 'All S are M All M are P therefore All S are P' refer to classes. According to Putnam although "classes" are non-physical they nevertheless exist and are indispensable to the science of logic.[142] The nominalist logician on the other hand believes classes are make believe and don't exist.[143] Now even if

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[139] C. Perelman, 1989, p.11.
[140] H, Putnam, 1972, pp.4-6.
[141] Ibid., p.6.
[142] Ibid., p.23.
[143] ibid.,. p.9, 23.

classes don't exist they still need to have an identity to distinguish them from other classes

Gibson claims that of the three laws the law of identity is the more fundamental as it is implied in any proposition and presupposed by the law of non-contradiction. As Gibson notes "… the principle of identity is logically the more fundamental. It is implied in the stating of a proposition and is therefore presupposed in the very enunciation of the principle of non-contradiction." [144] In this regard the law of identity is the ultimate foundation upon which logic rests, without an 'identity' (for the symbols of logic) logic is overthrown and collapses-as Dean argues.[145] The law of identity makes no ontological claim about the existence of 'A' only that 'A = A' – 'A' could be an existent or just a definition. The law of identity is 'A is A' or 'A is not non-A'. What this means is that A has some defining characteristic (i.e. essence (identity)) which distinguishes it from other non-A's a characteristic (essence identity) without which it would not be A. The law of non-contradiction to quote Aristotle states " the same attribute (characteristic essence) cannot at the same time belong and not belong to the same subject and in the same respect."[146] In terms of propositional calculus ' it is not the case both p and not p'. In this regard we see that if there is no essence to characterise a subject in distinction from other subjects there can be no law of non-contradiction and thus no logic at all. In other words if there is nothing to distinguish a 'horse' from a 'non-horse', either ontological or nominal, in the proposition P 'there is a horse' then we can not apply the law of non-contradiction because we have no distinguishable subject for the subject of the proposition.

The laws of logic enable us to make inferences from one statement to another, (i.e. to be able to see that some statements are incompatible with other statements). They allow us to conclude that some statements imply other statements and to see that other statements are ruled out. In the logical equation 'P . Q' the Ps and Qs obviously refer to something.

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[144] W. R. B, Gibson, 1908, p,95.
[145] C, Dean, op. cit. p. XXV-XXXV.
[146] A, Flew, 1979, p.75.

In modern philosophy they are said to refer to propositions (i.e. 'the horse is running'). But also these propositions refer to things as well (i.e. the 'horse'). O' Hear notes that the terms in a proposition or sentence must have a unique reference or else the meaning of the proposition or sentence is lost. As he notes "[b]oth generality of the predicate and the uniqueness of reference are essential for the meaning of the sentence."[147] Without fixed determinate properties the properties of an object or reference (i.e. 'horse') thus float and as such the meaning of a sentence or proposition is uncertain. Thus there is always a measure of uncertainty in regard to any inference about the object (i.e. 'horse'). Take any concept such as that of a horse. If a horse has no fixed determinate properties which fix it and identify it across time then there will be a measure of uncertainty about just what I am talking about whenever the word 'horse' appears in a statement. Thus the sentence or proposition loses meaning without a unique reference. This uniqueness of the reference is in fact an ontological object (i.e. it has some sort of property that makes it what it is and nothing else (i.e. a 'horse') not a 'cow'). In this regard without determinate fixed properties we can never be certain of just what an object's property may be. Consequently we cannot fix and identify an object as the same across time because its identity itself is not fixed. Hookway notes that in regard to identity "... it is often claimed that we understand the nature of objects of a particular kind, and we can talk about them intelligibly, only when we can understand identity statements involving terms referring to the object."[148] Thus without a reference–be this ontological or nominal-for our Ps and Qs we are left with the problem that we are uncertain as to the meaning of our sentences and propositions. This thus generates an incoherence in our concept of the object of reference and our sentences and propositions. Consequently, any inference drawn from our system of sentences and propositions will lack any precise meaning without fixed determinate essences for our objects of reference (i.e. our Ps and Qs). Meyer captures the essence of these arguments when he states:

"… whatever the circumstances of writing and speaking, being understood is what counts. Intelligibility depends on the unequivocality of the terms

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[147] A. O'Hear, 1991, p.155.
[148] C. Hookway, 1988, p.14.

used. Syllogism would be impossible if the sense of the predicate e.g. "being a human being", should change during deduction … the unequivocality the preservation of one meaning, authorizes formalization; thus, one can symbolize the concept "human being" by one letter, for instance a. A symbol represents a thing, a type of entity, a category of individuals and it is on condition of referring to the same thing, the same type of entity, the same category of individuals that the symbol is operational in logical description."[149]

Thus as O' Hear notes, logic is not ontologically neutral it implies an ontology. Again as he notes "[l]ogic, indeed is not metaphysically neutral but may well reveal the types of things various forms of thought and argument commit us to."[150] Putnam similarly claims that logic derives from metaphysics the belief in substances. As he notes, "[w]e get at the very beginning of logic, a metaphysics accompanying it and conditioning it."[151] Heidegger argued that "logic [is to] be investigated on the ontological level. Symbolic logic also requires such a "founding" or ontological interpretation."[152] Now this idea of an ontological substance had the consequence that the substance had to have properties. As Putnam points out "… the picture of substances and their predicates became the standard metaphysical picture of a world with fully determinate particulars characterised by their fully determinate properties. Dummett argues "… that an object either determinately has or determinately lacks any property P which may be significantly predicated of that object."[153] It could be argued that the notion of an object with an essence or determinate property is central for human thinking; it is an epistemological foundation for all 'thought' itself. Without the notion of an object with an essence thinking would have nothing to think with. As Adorno notes "identity is inherent in thought itself ... to think is to identify.[154] This can be seen with the laws of classical logic

[149] M. Meyer, 1986, p.4.
[150] ibid., p.154.
[151] C. Hookway, op. cit., p.272
[152] T. Flay 1977., p.8.
[153] H. Putnam, 1985, p272.
[154] T. Adorno, 1973, p.5.

such as the law of identity and non-contradiction, which requires an object with an essence to work with. Thus the metaphysical presupposition upon which logic is built is the notion that the object has an essence or identity. Aristotle claims that the law of self-contradiction requires an object with an essence (identity) for it to work. This object with an essence can be either an ontological existent or a word (i.e. its nominal definition being its meaning or essence). As Aristotle states "… for if he does not [signify some*thing*], a person of his sort has no argument, either with himself or with any one else … when words do not signify, our dialogue with each other is destroyed, and, really, so with oneself: for it is not possible to think without thinking one thing …"[155] The distinction between ontological existent and words each with an essence is made by Locke also. As Locke states:

> "… it may not be amiss to consider the several significations of the word essence. First, Essence may be taken for the very being of anything, whereby it is what it is And thus the real internal, but generally (in substance) unknown constitution of things, where on their discoverable qualities depend, may be called their essence … Secondly,… it being evident that things are ranked under names into sorts of species, only as they agree with certain abstract ideas, to which we have those names, the essence of each genus, or sort, comes to be nothing but that abstract idea which the general, or sortal … name stands for … These two sorts of essences, I suppose, may not unfitly be termed the real, the other nominal essence"[156]

Putnam claims that if "the metaphysical picture that grew up with and conditioned classical logic is wrong, then some of the tautologies of classical logic may have to be

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[155] R, M, Dancy, 1975.
[156] Ibid., p.135.

given up."[157]   It is going to be shown that the metaphysical picture is wrong. It is wrong from a the macro side of reality as well as from the micro or quantum side of reality. As a consequence it is going to be shown that macro and micro wise an essence dose not exist and as such logic is at an end because logic loses its ground from which it is legitimated and gains it existence.

At the very beginning of the formulations of logic by Aristotle there was a problem that Aristotle could not solve. A problem which Western philosophy has ignored and which makes Aristotelian logic untenable and thus the whole of Western philosophy. This problem is if there is change then the notion of essence is untenable and thus also Aristotelian logic. As we saw Aristotle grounded logic on the notion of essence but if there is change then essence becomes untenable – a problem Aristotle saw but could not solve. Aristotle notes that in his time people argued that nothing could be said to be true about anything that changes.[158] He goes on to say an infinite regress is set up when there is change for when something comes into being there must be of necessity from which it is produced and something by which it is produced.[159] Now even if we refrain from this regress Aristotle claims that though "nothing … persists quantitatively it is by their persistent form that each thing is known"[160] Aristotle claims that though our corner of the universe has change it is entirely negligible component of the whole universe.[161] Nevertheless he says that it must be demonstrated that there is an unchanging nature and this is the belief that people must acquire.[162] If "… nothing has a substance[or essence]there is nothing that is of necessity [163]i.e. the laws of logic are invalid as they postulate necessity. Aristotle notes that if every thing is a property of every thing else then instead of change we would have the Parmenidesian notion of every thing at rest or no change instead of the Heraclitusian every thing in motion or change. Thus Aristotle admits that there is change and that nothing persists quantitatively Nevertheless he is forced to argue that what does not change is a things qualitative form. Thus we have

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[157] ibid., p.273.
[158] Aristotle, 1998, p.101
[159] ibid, p.101
[160] ibid, p.102.
[161] ibid, p.102
[162] ibid, p.102

consequences that Aristotelian logic i.e. laws of necessity then cannot apply to the quantitative side of an object but only to its qualitative aspects. Thus at the quantitative side due to change then following Aristotle the object cannot have an essence but at the qualitative aspect it can This thus places Aristotle's characterizing of the object in a contradiction it has an essence but it does not have an essence . Either essence is one sort of thing or many depending on what Aristotle wants from it. Thus we with the notion of change a thing cannot have an essence. Now as science would say causality or change is a law of nature then both at a macro level and a micro level where there is change Aristotelian logic is of no use. With change logic comes to an end it is untenable and not suitable to deal with the reality where there is change. For thousands of years philosophers have chosen to ignore the contradictory characterization of Aristotle's notion of the object and the fact that change invalidate Aristotelian logic. Aristotle's object with an essence does not exist in a world of change and thus his logic is useless and at an end.. We can see this when we examine the macro and micro worlds.

MACRO REALITY

Quine argued that science had rejected the notion of the object and regarded it as a myth. Physical objects are as mythical as the gods of Homer. As Quine notes "...physical objects are conceptually imported into the situation as convenient intermediaries-not by definition of terms of experience, but simply as irreducible posits comparable, epistemologically, to the gods of Homer." [164] This claim of Quine is as we shall see supported by physics. Nevertheless there is some debate in philosophy in regard to the nature of the object. These debates center around essentialists and ant-essentialists arguments. The essentialist argue that an object possess an essence i.e. characteristic properties. Conversely the anti-essentialists deny this. The essentialist Kripke argues that proper names are 'rigid designators' i.e. apply in all possible worlds.[165] These 'rigid designators' or proper names refer to essential properties of the object. These properties

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[163] ibid, p.103.
[164] W.V. O,Quine, 1953, p.44.
[165] S..Kripke, 1980, p.48.

are based upon the composition and causal continuity of the objects.[166] In the case of a person the rigid designator refers to the person born of a particular sperm and egg.[167] In the case of a material object Kripke refers to gold as being defined by its scientific properties.[168] Putnam notes that Kripke suggested that "...the old idea that science discovers necessary truths, that science discovers the essence of things was, in an important sense, right not wrong..."[169] Against this essentialist view are the anti-essentialist arguments of Ayer. Ayer argues that assigning necessary properties to objects is an arbitrary exercise.[170] Ayer argues that the "...ways of identifying individuals by descriptions of their appearances, or their functions, or their behaviour, or their spatio-temporal positions...[don't] pick out necessary propertie[s]."[171] Now it would appear from the findings in relativity physics that science, in opposition to Kripke's suggestion and in support of Ayer's claim, argues that the notion of determinate properties, or essences are incorrect. This argument from physics has profound consequences for the nature of classical logic. Since if Quine is right about the rejection of the notion of an object having an essence this rejecting of the essence of the object has profound consequences for the whole nature of logic; since as Putnam argues with this negation the whole of classical logic will have to be given up.[172] In this regard the rejection of the essence of an object by Putnam's argument would mean that classical logic would have to be revised. This would mean that with the revision of the laws of logic, at the macro level, any inference about the macro world based upon the classical laws of logic would then become uncertain in regard to its validity.

According to Putnam logic derives from metaphysics the belief in substances. As he notes, "We get at the very beginning of logic, a metaphysics accompanying it and conditioning it."[173] Now this idea of a substance had the consequence that the substance had to have properties. As Putnam points out "the picture of substances and their

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[166] ibid, pp.112-115.
[167] ibid, p.113.
[168] ibid, p.p. 117-118.
[169] H.Putnam, 1985, p.55.
[170] A.J.Ayer op.cit, p.197.
[171] ibid, p.197.
[172] H.Putnam op.cit, p.273.
[173] ibid, p.272

predicates became the standard metaphysical picture of a world with fully determinate particulars characterised by their fully determinate properties."[174] Now relativity physics through the assigning of properties to matter i.e. objects sees these properties as being due to the object's relation with other objects not so much as intrinsic to the object or constituting its essence.   In this regard science denies that objects have sui-generis determinate, necessary, and immutable properties or essence. An example is that the weight of an object is determined by its relationship to other bodies i.e. bodies with larger gravity changes the weight of smaller bodies. Similarly the colour of an object is dependent upon its relation to different light sources. In these cases the weight and colour of an object is dependent upon its relation to other objects. And thus an object's weight and colour are not immutable necessary properties or essence of an object. On this point M. Born argues "the theory of relativity...has never abandoned all attempts to assign properties to matter...But often a measurable quantity is not a property of a thing, but a property of its relation to other things...Most measurements in physics are not directly concerned with the things which interest us but with some kind of projection, the word taken in the widest possible sense"[175]. Commenting on these findings Marcuse states that "objects continue to persist only as 'convenient intermediaries' as obsolescent 'cultural posits.'"[176] Quine notes that objects are a myth they don't exist. As he   states "… in point of epistemologically footing the physical objects and the gods of Homer differ only in degree not kind"[177] It could be argued that the notion of an object with an essence or determinate property is central for human thinking; it is an epistemological foundation for all thought itself. Without the notion of an object with an essence thinking would have nothing to think with. As Adorno notes "identity is inherent in thought itself... to think is to identify .[178] This can be seen with the laws of classical logic such as the law of identity and non-contradiction which require an object with an essence to work with. Thus the metaphysical presupposition upon which logic is built is the notion that the object has an essence or identity. Nevertheless the above arguments of physics thus reject the metaphysical realist view of the object, who as Dummett argues believes "...that an object

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[174] ibid, p.272.
[175] H. Marcuse, 1991, p.149
[176] ibid, p.149.
[177] W. Quine, 1953, p. 44

either determinately has or determinately lacks any property P which may be significantly be predicated of that object."[179] In other words realism argues that an object has a determinate or essential property which characterises it and makes it what it is. On this point Putnam thus argues that if "the metaphysical picture that grew up with and conditioned classical logic is wrong, then some of the tautologies of classical logic may have to be given up."[180] Now just as we get support from relativity physic for the view that the object/essence does not exist there is similar support from quantum mechanics.

MICRO REALITY

Zajak notes that "we are limited by our language to lists of words much as our worldly experiences limit the concepts those words bring to mind."[181] With this in mind Zajak points out that we naively apply to the micro world concepts which only have applicability in the macro world. Electrons don't behave like mini billiard balls and light does not behave like scaled down sea waves. As Zajak notes *"particles and waves are macroscopic concepts which gradually lose their relevance as we approach the submicroscopic domain."*[182] Thus with regard to the ontological nature of the world the situation seems to be as O'Hear notes "ontology here would be seen as determined by the demands of an area of discourse, rather than by any feeling that human recognitional powers and abilities should determine the limits of our language."[183]

Thus we see that at the quantum level the object/essence dissolves away such that the limitations of language to characterize quantum reality are reached. With the disappearance of the quantum object essence we reach the end of Aristotelian logic. Aristotelian logic loses its validity as a tool to investigate quantum reality. Quantum reality demonstrates the untenability of the metaphysical assumptions that ground Aristotelian logic. Just as with the dissapearence of the macro object/essence reality both

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[178] T.Adorno, 1973, p5
[179] H.Putnam, 1985, p272.
[180] ibid, p.273.
[181] H.Zajak, op.cit, p.449.
[182] ibid, p.450.

macro and micro demonstrates that Aristotelian logic is untenable since the object it needs for its existence i.e. an essence does not exist- logic has come to an end.

Now if the essence logic needs for its existence did exist then we have the problem that Aristotelian logic then demonstrates that all essentialst thinking or ontologies collapse into absurdity, stultification or meaninglessness. The essence language and logic require for their application leads to the fact that all language and logic use reduce language and logic to meaninglessness. Language is a closed self-referential system and thus at the least is circular and at the most contradictory and paradoxical. Logic is circular as it is used to give justification to ground of its own existence i.e. an essence which itself is in need of justification

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[183] A.O'Hear, 1991, p.51.

BOOK 4

LOGIC/ESSENCE AND LANGUAGE LEAD TO THE MEANINGLESSNESS OF ALL VIEWS

The Prasangika Madhyamika Buddhists demonstrate that the if we maintain things have an essence then this notion of an essence reduces 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 to absurdity. They all collapse into absurdity, or meaninglessness via a dialectical *reductio ad absurdum* form of argumentation .

PREAMBLE –THE GROUNDING OF TRUTH

How do you know what you know? What makes, or grounds, your truth claim true? In other words what is your epistemology that validates your knowledge claim as true … From this point on in Western philosophy the "in-itself" will be used to ground truth. In the "Metaphysics" Aristotle follows Plato's lead in ontologically grounding truth via the "beings" "essence". To judge now means to provide the grounds of truth. For Plato this ground was the "forms" for Aristotle it was the "beings" "essence" …

If the essence logic needs for its existence does exist then we have the problem that Aristotelian logic then demonstrates that all essentialst thinking or ontologies collapse into absurdity, stultification or meaninglessness

THE ONTOLOGY OF LOGIC

Western knowledge is based upon certain metaphysical assumptions such that its epistemology is related to its metaphysics. Aristotle sought to investigate 'Being' by investigating the species of 'being' via the tool of logic. But embedded in this tool is the very thing this tool seeks to investigate (i.e. 'being' itself). In this regard there is circularity and it needs justification. Namely the logic Aristotle uses to investigate 'being' must assume an ontological object a 'being' in order to investigate 'being'; but this ontological object 'being' is itself in need of investigation or justification itself. The most certain of all principles is the law of non-contradiction with its corollary the law of identity. As he states "… the principle which the student of any form of Being must grasp is … it is impossible for the same attribute at once to belong and not belong to the same thing …"[184] Thus we see at the very heart of Aristotelian logic is the notion of an ontological object with an essence which itself is in need of investigation or justification. In this regard Aristotelian logic does not so much as reveal reality as constitute it by its reliance upon an ontological object with an essence. Thus logic affirms what it needs for its existence, what it affirms is in fact in need of justification. Philosophy consists in

rediscovering the very thing upon which logic was made to depend. Logic in affirming an essence, which in fact needs to be justified, continually rediscovers what it initially affirmed without justification and this rediscovery is then used to justify the initial unjustified assumption-a circularity of logic The consequence of this circularity and ontological assumption is that logic in its resolution of problems and discoveries transforms the answers into a pre-ordained form due to its underlying ontological commitment and circularity. As we saw with Perelman's claims (that ' if P, then P' far from being and error in reasoning, is a logical law that no formal system can fail to recognize"[185]) at the heart of any formal system of logic is a metaphysical or ontological entity This P is an ontological entity and as such pre-ordains the form of any answer at the beginning of any question. This is because Aristotelian logic creates ontology, an ontology that the logic uses but which is itself in need of justification.

There are three laws that are essential to Aristotelian logic: the law of identity 'A = A'; the law of self-contradiction 'not p and not-p'; the law of the excluded middle 'p or not-p'. Putnam notes that amongst philosophers there is disagreement and controversy about the "correct interpretation of these principles i.e. what does '=' mean, what does 'p' stand for."[186]   Putnam says that what all logicians agree upon is that if there is a thing as the "Eiffel Tower, then the Eiffel Tower is identical with the Eiffel Tower and if there is such a thing as the earth then the earth is round or the earth is not round."[187] Putnam notes that the 'S' and 'M' and 'P' in the inference 'All S are M All M are P therefore All S are P' refer to classes. According to Putnam although "classes" are non-physical they nevertheless exist and are indispensable to the science of logic.[188] The nominalist logician on the other hand believes classes are make believe and don't exist.[189] Now even if classes don't exist they still need to have an identity to distinguish them from other classes

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[184] Aristotle, 1947, 1V.111. 8-9.
[185] C. Perelman, 1989, p.11.
[186] H, Putnam, 1972, pp.4-6.
[187] Ibid., p.6.
[188] Ibid., p.23.
[189] ibid.,. p.9, 23.

Gibson claims that of the three laws the law of identity is the more fundamental as it is implied in any proposition and presupposed by the law of non-contradiction. As Gibson notes "… the principle of identity is logically the more fundamental. It is implied in the stating of a proposition and is therefore presupposed in the very enunciation of the principle of non-contradiction." [190] In this regard the law of identity is the ultimate foundation upon which logic rests, without an 'identity' (for the symbols of logic) logic is overthrown and collapses-as Dean argues.[191] The law of identity makes no ontological claim about the existence of 'A' only that 'A = A' –'A' could be an existent or just a definition. The law of identity is 'A is A' or 'A is not non-A'. What this means is that A has some defining characteristic (i.e. essence (identity)) which distinguishes it from other non-A's a characteristic (essence identity) without which it would not be A. The law of non-contradiction to quote Aristotle states " the same attribute (characteristic essence) cannot at the same time belong and not belong to the same subject and in the same respect."[192] In terms of propositional calculus ' it is not the case both p and not p'. In this regard we see that if there is no essence to characterise a subject in distinction from other subjects there can be no law of non-contradiction and thus no logic at all. In other words if there is nothing to distinguish a 'horse' from a 'non-horse', either ontological or nominal, in the proposition P 'there is a horse' then we can not apply the law of non-contradiction because we have no distinguishable subject for the subject of the proposition.

The laws of logic enable us to make inferences from one statement to another, (i.e. to be able to see that some statements are incompatible with other statements). They allow us to conclude that some statements imply other statements and to see that other statements are ruled out. In the logical equation 'P . Q' the Ps and Qs obviously refer to something. In modern philosophy they are said to refer to propositions (i.e. 'the horse is running'). But also these propositions refer to things as well (i.e. the 'horse'). O' Hear notes that the terms in a proposition or sentence must have a unique reference or else the meaning of

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[191] C, Dean, op. cit. p. XXV-XXXV.
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the proposition or sentence is lost. As he notes "[b]oth generality of the predicate and the uniqueness of reference are essential for the meaning of the sentence."[193] Without fixed determinate properties the properties of an object or reference (i.e. 'horse') thus float and as such the meaning of a sentence or proposition is uncertain. Thus there is always a measure of uncertainty in regard to any inference about the object (i.e. 'horse'). Take any concept such as that of a horse. If a horse has no fixed determinate properties which fix it and identify it across time then there will be a measure of uncertainty about just what I am talking about whenever the word 'horse' appears in a statement. Thus the sentence or proposition loses meaning without a unique reference. This uniqueness of the reference is in fact an ontological object (i.e. it has some sort of property that makes it what it is and nothing else (i.e. a 'horse') not a 'cow'). In this regard without determinate fixed properties we can never be certain of just what an object's property may be. Consequently we cannot fix and identify an object as the same across time because its identity itself is not fixed. Hookway notes that in regard to identity "... it is often claimed that we understand the nature of objects of a particular kind, and we can talk about them intelligibly, only when we can understand identity statements involving terms referring to the object."[194] Thus without a reference–be this ontological or nominal-for our Ps and Qs we are left with the problem that we are uncertain as to the meaning of our sentences and propositions. This thus generates an incoherence in our concept of the object of reference and our sentences and propositions. Consequently, any inference drawn from our system of sentences and propositions will lack any precise meaning without fixed determinate essences for our objects of reference (i.e. our Ps and Qs). Meyer captures the essence of these arguments when he states:

"… whatever the circumstances of writing and speaking, being understood is what counts. Intelligibility depends on the unequivocality of the terms used. Syllogism would be impossible if the sense of the predicate e.g. "being a human being", should change during deduction … the unequivocality the preservation of one meaning, authorizes formalization;

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[193] A. O'Hear, 1991, p.155.
[194] C. Hookway, 1988, p.14.

thus, one can symbolize the concept "human being" by one letter, for instance a. A symbol represents a thing, a type of entity, a category of individuals and it is on condition of referring to the same thing, the same type of entity, the same category of individuals that the symbol is operational in logical description."[195]

Thus as O' Hear notes, logic is not ontologically neutral it implies an ontology. Again as he notes "[l]ogic, indeed is not metaphysically neutral but may well reveal the types of things various forms of thought and argument commit us to."[196] Putnam similarly claims that logic derives from metaphysics the belief in substances. As he notes, "[w]e get at the very beginning of logic, a metaphysics accompanying it and conditioning it."[197] Heidegger argued that "logic [is to] be investigated on the ontological level. Symbolic logic also requires such a "founding" or ontological interpretation."[198] Now this idea of an ontological substance had the consequence that the substance had to have properties. As Putnam points out "… the picture of substances and their predicates became the standard metaphysical picture of a world with fully determinate particulars characterised by their fully determinate properties. Dummett argues "… that an object either determinately has or determinately lacks any property P which may be significantly predicated of that object."[199] It could be argued that the notion of an object with an essence or determinate property is central for human thinking; it is an epistemological foundation for all 'thought' itself. Without the notion of an object with an essence thinking would have nothing to think with. As Adorno notes "identity is inherent in thought itself ... to think is to identify.[200] This can be seen with the laws of classical logic such as the law of identity and non-contradiction, which requires an object with an essence to work with. Thus the metaphysical presupposition upon which logic is built is the notion that the object has an essence or identity. Aristotle claims that the law of self-

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[195] M. Meyer, 1986, p.4.
[196] ibid., p.154.
[197] C. Hookway, op. cit., p.272
[198] T. Flay op. cit., p.8.
[199] H. Putnam, 1985, p272.
[200] T. Adorno, 1973, p5.

contradiction requires an object with an essence (identity) for it to work. This object with an essence can be either an ontological existent or a word (i.e. its nominal definition being its meaning or essence). As Aristotle states "… for if he does not [signify some*thing*], a person of his sort has no argument, either with himself or with any one else … when words do not signify, our dialogue with each other is destroyed, and, really, so with oneself: for it is not possible to think without thinking one thing …"[201] The distinction between ontological existent and words each with an essence is made by Locke also. As Locke states:

> "… it may not be amiss to consider the several significations of the word essence. First, Essence may be taken for the very being of anything, whereby it is what it is And thus the real internal, but generally (in substance) unknown constitution of things, where on their discoverable qualities depend, may be called their essence … Secondly,… it being evident that things are ranked under names into sorts of species, only as they agree with certain abstract ideas, to which we have those names, the essence of each genus, or sort, comes to be nothing but that abstract idea which the general, or sortal … name stands for … These two sorts of essences, I suppose, may not unfitly be termed the real, the other nominal essence"[202]

Putnam claims that if "the metaphysical picture that grew up with and conditioned classical logic is wrong, then some of the tautologies of classical logic may have to be given up."[203] The consequence for logic, in terms of this thesis, is that if there are fixed determinate essences (i.e. 'thought', 'thinking', 'mind') then logic and language will reduce to absurdity our entire system of sentences and proposition.

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[201] R, M, Dancy, 1975.
[202] Ibid., p.135.
[203] ibid., p.273.

In philosophy there are two opposing perspectives in regard to the notion of an object and its essence. They are essentialists and anti-essentialists arguments. The essentialists argue that an object possess an essence (i.e. characteristic properties). Conversely the anti-essentialists deny this. The essentialist Kripke argues that proper names are 'rigid designators' (i.e. apply in all possible worlds).[204] These 'rigid designators' or proper names refer to essential properties of the object. These properties are based upon the composition and causal continuity of the objects.[205] In the case of a person the rigid designator refers to the person born of a particular sperm and egg.[206] In the case of a material object Kripke refers to gold as being defined by its scientific properties.[207] Putnam notes that Kripke suggested that "... the old idea that science discovers necessary truths, that science discovers the essence of things was, in an important sense, right not wrong ..."[208] Against this essentialist view are the anti-essentialist arguments of Ayer. Ayer argues that assigning necessary properties to objects is an arbitrary exercise.[209] Ayer argues that the "... ways of identifying individuals by descriptions of their appearances, or their functions, or their behavior, or their spatio-temporal positions ...[don't] pick out necessary propertie[s]"[210]. This anti-essentialist argument is a fallacy when it comes to the nature of language and the object themselves. For if there are no essential properties that fix objects and words our logic and language become useless as a tool for uncovering regularities. On this point O'Hear, in *What Philosophy Is*, states "…without our terms and our logic being firm and clear at the outset, it will be unclear just what is meant by any statement at all [consequently without fixed terms our system of language will] collapse into an incoherent and featureless pile of statements, the sense of any one of which is indeterminate and perpetually shifting because of changes he may decide to make in other beliefs."[211]

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[204] S .Kripke, 1980, p.48.
[205] ibid., pp.112-115.
[206] Ibid., p.113.
[207] ibid., p.p. 117-118.
[208] H. Putnam, 1985, p.55.
[209] A. J. Ayer, 1991, p.197.
[210] ibid., p.197.
[211] A, O'Hear, op.cit., pp.109-110.

As Aristotle noted without an essence, or 'identity' ontological, or nominal i.e. definitional, the law of self-contradiction is useless.[212] If the law of self-contradiction is useless then our logic breaks down and becomes useless as an epistemic condition of truth. Thus if the anti-essentialists are right then logic become useless since there is no essence for the law of self-contradiction to work. The only way that logic could be an epistemic condition of truth is that it does not break down, and for this to be, there must be an ontological or a nominal definitional one. The problem with this consequence is that the notion of essence reduces to absurdity.

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'.[213] On the other hand 'being' is a specific species of 'Being'.[214] According to Aristotle 'being' are substances (essences) and are what are studied by the particular sciences.[215] Philosophy and science have as many divisions as there are 'being' i.e. substances (essences).[216] The principle of the law of non-contradiction is, according to Aristotle the principle of 'being' and is the most certain of principles.[217] The principle of identity is a principle of 'being' by which the law of contradiction is proved.[218]

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-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

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[212] Aristotle, 1947, 1V, 13-32.
[213] Aristotle, 1947, 1V 1, 2.
[214] ibid., 1V, 11, 6.
[215] ibid., 1V, 1, 3.
[216] ibid., 1V, 1, 10.
[217] ibid.,1V. 1v. 21.

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."[219]

The Prasangika Madhyamika Buddhistss demonstrate that the if we maintain things have an essence then this notion of an essence reduces 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 viewsto absurdity. They all collapse into absurdity, or meaninglessness via a dialectical *reductio ad absurdum* form of argumentation .

PRASANGIKA MADHYAMIKA BUDDHISM

Nagarjuna the founder of Madhyamika examined the categories through which we understand the world via a *reductio ad absurdum* argumentation. His *reductios* showed that the all beliefs, or views about essences, individual identities, or essential natures reduce to absurdity. These *reductios* where to point to the sunyata [emptiness] of both the world and the absolute. The rejection of all views by the Prasangika Madhyamika Buddhists includes both the thesis and its antithesis. The crux of a Prasangika Madhyamika Buddhist analysis (prasanga)–a *reductio ad absurdum* argument -is that their demonstrations are non-affirming negations. They negate but don't put forward any conclusion to such negation. This is because their negations are what they call non-affirming negations, they don't affirm anything. What this means is that they exhaust all

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[218] ibid., 1V. 1v. 26.
[219] C.Dean in C.Dean & D.S.Ovenden 1998, pp.xx1x-xxx.

possibilities of the tetralemma without any affirming conclusion. Now even though they don't put forward a counter position to their negations they do believe nevertheless that all views reduce to absurdity, or meaninglessness via a *reductio ad absurdum* argument [Murti, Fenner, Gangadean Bugault]. According to the Prasangika Madhyamika Buddhists there are four logical possibilities (the tetralemma) as to the nature of a subject. Namely something: 1) it is, 2) it is not, 3) it is and is not, 4) neither is nor is not. The Prasangika Madhyamika Buddhists would demonstrate that each of these alternatives is self-contradictory. In other words the Prasangika Madhyamika Buddhists would reject all these claims without making any affirming conclusion.

The method which the Prasangika Madhyamika Buddhists use in these self-contradictory demonstrations is what they call the prasanga, or as some call it in the West, consequential analysis. The prasanga is no more than a *reductio ad absurdum*. Murti, Bugault, Gangadean and Fenner argue that, in consequential analysis (prasanga), the logical axioms of the laws of thought (i.e. the Aristotelian law of contradiction, excluded middle and the law of identity) are used to discover logical inconsistencies within all philosophical arguments. As Murti succinctly notes "... the Madhyamika rejects all views ... by drawing out the implications of any thesis he shows its self-contradictory character ... in a series of *reductio ad absurdum* arguments ..."[220] While demonstrating these absurdities the Prasangika Madhyamika do not put forward a thesis. As Hsueh-Li Cheng notes:

> " Madhyamika (Prasangika) dialectic is not intended to establish a thesis
> but merely to expose the absurdity or contradiction implied in an
> opponent's argument. It is purely analytic in nature there is no position to
> be proved. The Madhyamika [Prasangika] is said not to have his own
> logic. The contradictory or absurd consequences revealed by the dialectic
> are unintelligible in light of the opponent logic only." [221]

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[220] T. R. V, Murti, 1955, p.131.

It should be pointed out that some Prasangika Madhyamika Buddhist scholars argue that the Prasangika Madhyamika Buddhists do not accept the law of the excluded middle, notably Bugault.[222] The self-contradictions in an argument arise according to the Prasangika Madhyamika Buddhists, because of reified thinking. That is thinking that assumes that 'things' exist intrinsically, or in other words have an essence.

The contradictions are generated in order to negate their adversaries' ontic, epistemo-logical, or metaphysical claims, stemming from the belief in essentially existing 'things', by demonstrating the insubstantiality or emptiness (<u>sunyata</u>) of the reified entities making up the arguments.[223] This method of generating internal contradictions to a thesis is also called consequential (<u>prasanga</u>) analysis. Fenner argues that consequential analysis (<u>prasanga</u>) is meant not to perpetuate, or proliferate itself but rather to dissolve itself by reversing the conceptual process and thus bringing about the complete attrition of conceptuality itself.[224]

There can be no final deductive demonstration that proves the thesis that all view reduce to absurdity only an on going series of case studies pointing inductively to the fact that all views end in self-contradiction. This is so because any deductive argument that attempts to prove that logic and language end in self–contradiction, must itself be self-contradictory because it is using and assuming the very things it is denying–a paradox from the start. Similarly any deductive argument that seeks to prove logic and language are epistemic conditions of truth is incoherent; since any proof that logic and language are epistemic conditions of truth would be circular and thus, in terms of logic, not a proof since any proof would have to assume, and use, the very thing it was seeking to prove (i.e. logic and language). In this regard rationalism is self-referential and thus incoherent. In other words no direct proof can be offered, as this would mean that at least one view did not collapse into absurdity, but only an indirect proof based upon the totality of *reductio ad absurdum* case studies.

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[221] Hsueh-Li. Cheng, 1991 , p.37.
[222] G. Bugault, 1983, pp. 26-38.
[223] P. Fenner, 1990, p. 103.
[224] ibid., p . 103.

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My belief is that all philosophical premises-essentialist or anti-essentialist-can be reduced to absurdity because their linguistic expressions hide essentialist habits whether, ontological or grammatical. This can be no more clearly seen than in the anti-essentialist writings of the Wittgenstein of the *Philosophical Investigations.*

Wittgenstein states "… that because a word may be used, we should not get carried away with philosophies about essences and the like."[225] According to Wittgenstein "…When philosophy uses a word–'knowledge', being' 'object', 'proposition', 'name'–and try to grasp the essence of the thing, one must always ask oneself: is the word ever actually used in this way in the language game which is its original home. What we do is bring words back from their metaphysical to their everyday use."[226] For Wittgenstein "… the meaning of a word is its use in the language."[227] And "… this language like any other is founded on convention."[228] In Wittgenstein's view, like that of Nietzsche, "… essence is expressed by grammar …"[229] "Grammar tells what kind of object something is (Theology as grammar)."[230]

In this system words derive their meaning from their use in the language game. There are no semantic correlates (essences) outside of the words. Wittgenstein denies that there are any ontological essences ("representations") that ground meaning. Wittgenstein rejects accounts of meaning based upon referring essential objects (semantic correlates). A words meaning for Wittgenstein is its use in a language game. For Wittgenstein language makes no metaphysical assertion about the world and what metaphysical assertions are made, are due to wrongly projecting, and conceiving, word meaning as ontological. In other words ontology is nothing but objectified meanings. Wittgenstein's philosophy rejects the projection of these objectified meanings upon the world.

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[225] N, Katz, 1981, p.311.
[226] L. Wittgenstein, 1953, p 116.
[227] ibid., 43.
[228] Ibid., 355.
[229] Ibid., 371.
[230] PI, 373.

Now if meaning were in a state of flux then we could not express any meaning at all. Thus 'meaning must be static with a determinate sense. The determinate meaning of a word for Wittgenstein is generated by its use in the context of the language game. In other words a language game fixes the meaning of words. Consequently the fixing of a word's meaning by the language gives the word a fixed characteristic which distinguishes it from other words. This distinguishing characteristic is an essence. Thus a word's essence is not some representation in reality of some ontological essence, but rather the words essence is its meaning and its meaning is derived from its context of utterance. Pragmatism claims that under some situations and conditions words are pragmatically useful. In other words it may be pragmatically useful to claim that 'language', 'image, or 'concept' is the medium, or basis, or essence of 'thought'. Nevertheless the pragmatic use of words only works if words have meaning and, as we saw above the meaning of words is their essence i.e. that thing, which if the word lacked it would not be the same word. Consequently it is argued that pragmatism will collapse into absurdity, or meaninglessness even though the pragmatic use of words does not entail any ontological claim to the existence of the thing the word signifies. Nevertheless the word does entail a grammatical essence and this, like ontological essence, it is postulated reduces to absurdity via a *reductio ad absurdum* argumentation. If pragmatism argues that the meaning of words, though not fixed, nevertheless have locally and temporally determined meanings, then it is postulated these locally temporally fixed meanings [essence] will collapse via a *reductio ad absurdum* argumentation into absurdity, or meaninglessness like any other fixed determinate essence thus making language absurd, or meaningless. Also if the pragmatic meaning of words is in flux, thus they lack fixed meaning over time and thus over time are meaningless i.e. the word 'horse' could signify horse today but tomorrow the same word could signify what we call a 'cat' today – this thus indicates that the pragmatic use of words over time makes language incoherent, inconsistent and thus meaningless.

Thus Wittgenstein has only shifted the problem of essence from ontology to use. Wittgenstein has in fact shifted essence as 'representation' to essence as meaning. In this way Wittgenstein, and the player in a language game, are still "identity" thinking (i.e.

finding fixed meaning (essence)) and as such proves Adorno's claim that "identity is inherent in thought itself ... to think is to identify."[231]

Now as the notion of ontological essence collapses into self-contradiction so does the notion of meaning (essence) as use. Even though a word may not have a fixed meaning through time, and across language games, it nevertheless has a fixed meaning for the time of a particular language game. Consequently a *reductio* argument can then be applied to any word in this particular language game and reduce it to absurdity. To give two examples, Kripke and Priest point out that Wittgenstein's argument entails a skepticism about meaning, namely that all language is meaningless.[232] This places Wittgenstein in a self-contradiction. Wittgenstein writes a book, in a language game, in order to convey some meaning. If the meaning is that all language is meaningless, then the meaning has been conveyed. Thus all language is not meaningless in this particular language game. Priest, in his book *Beyond the Limits of Thought,* has pointed out these self-contradictions in Wittgenstein's views. As he states "… none the less the point remains, the conclusion that results from the skeptical argument and that Wittgenstein wishes us to grasp, is beyond expression (Transcendence). Yet it is possible to express it; I have just done so and so does Kripke (Closure). Hence we have a contradiction at the limit of expression."[233] Wittgenstein is still inside the bottle the only way out for the fly is not via logic and language but by their complete demolition.

The Chinese scholar Hsueh-li Cheng, in his book on Madhyamika called *Empty Logic,* notes the self-contradiction in the notion of meaning as use. As he states:

> "From Nagarjuna's standpoint, the view that " the meaning of a word is its
> use in language" really involves a contradiction or absurdity.
> Wittgenstein's thesis indicates that the meaning of a word is "fixed" or

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[231] T. Adorno, 1973, p5.
[232] A, Kripke, 1998, p.71, G, Priest, op. cit., pp.232-233.
[233] G, Priest op. cit., p.235.

"determined" by its particular use in the particular situation. This implies that each word has its own or particular use in the language and that that particular use is its meaning. But language, Nagarjuna might point out, is an organised system of signs where words are inter-related and hence are devoid of their own use. So, the thesis that the meaning of a word is its use in language would be to say that a word has its own use in an organised system of signs where every word is devoid of its own use. That is contradictory."[234]

Thus we see essences are central for logic to work. Also we see that even though anti-essentialists argue that there are no fixed determinate properties in words they need these fixed determinate properties to exist such that the words they use in their arguments are themselves fixed with determinate meanings and definitions across time or for a particular language game.

Logic and language are thus not metaphysically neutral. They both commit us to the implicit belief in the essential entities they both need for their applications. O'Hear makes this point, implied by Putnam above, about logic when he states, "logic, indeed, is not metaphysically neutral but may well reveal the types of thing various forms of 'thought' and argument commit us."[235] Similarly in regard to language O'Hear notes "both the generality of the predicate and the uniqueness (essence) of reference are essential for the meaning of the sentence."[236] It is in this way that Nietzsche can say, with the Prasangika Madhyamika, that the I (soul) is no more than a product of grammar.[237] With the dissolving of the reified entities (i.e. 'thought', 'thinking' etc) which language and logic require as necessary and sufficient conditions for their existence into absurdity or self-contradiction our conceptual schemes break down from the inside. The success of

[234] Hsuech-Li Cheng, 1991, pp.118-119.
[235] A. O'Hear., op. cit., p.154.
[236] ibid., p.155.

our scientific or philosophical theories thus remains, for the realist, totally mysterious. Rather than order they are left with chaos and anarchy. The Madhyamika puts all this negation to a soteriological use, but to the logic-centered Westerner all that is left is some sort of Camusian existential angst where people are"… spinning in vast darkness. It's inside me. My conscious self shatters under this dilating darkness." [238]

[237] F, Nietzsche, 1990. P.55.
[238] G Flaubert, 1980, p.212.

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