

**A Philosophical Assessment of the Role of  
Personal and Impersonal Paradigms  
in Explanations according to the views of Robin Horton**

by

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submitted in fulfilment of the requirements for  
the degree of

**Master of Arts**

in the subject

**Philosophy**

at the

UNIVERSITY OF SOUTH AFRICA

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**November 1998**

## Acknowledgments

*Na hi ninda nindayitum pravartate api tu vidheyam stotum*

“The purpose of a critique is not to find fault with others; it is to establish the proper conclusion about the subject” (Sriia Jiva Gosvami, Tatta Sandarbha:345).

With special thanks to my supervisor, the *sine qua non* of this thesis, Professor E.D. Prinsloo, for his suggestions and corrections in the course of this study. He is of course not responsible for the defects that remain.

I would also like to thank Professor J.G. Malherbe for her interest and encouragement, as well as my friends Crystal Cambanis and Lesley Caplan for their help and support.

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## Introduction

My view is that an inauthentic life is a crime against wisdom and it is particularly inauthentic to dismiss the contribution of other cultures to our understanding of the world on the grounds of their perceived inferiority. As Westerners we believe we are in possession of truth and rationality.

The notion of Western superiority has been driven by the ideas of objectivity, truth, rationality and Western scientific methods. It is based on misguided beliefs that ascendancy is determined by issues like sex, creed or colour. However, our perceptions are as distorted and limited as those of our traditional neighbours.

According to Robin Horton (1974) there is no difference in status between the explanations of reality, offered in Western science and those offered in African thinking. There is only a difference in the paradigms or idioms used. He substantiates his view by analysing what is involved when explanations are given and complements his analysis with examples taken from Western science and African thinking. He makes general claims about the nature of explanation and compares Western science with African thinking in order to show that both types of thinking can be accounted for by the structure of explanation.

I perceive Horton's attempt to assimilate Western science and African traditional thought as a device that is well-intentioned, but it does not appreciate African

traditional thought in its own right. He implicitly holds that the standard and methodology of Western science are the benchmark against which to measure the thinking of another culture. If he succeeds in convincing us that the type of explanation presented in African traditional thought is like that of Western science, African traditional thought is 'elevated' to the status of Western science. It is no longer considered primitive, backward and irrational and has achieved credibility.

My contention is that both paradigms have problems but little is gained by reducing the one to the other. They both bring a distinct but essential element to our thinking and by consideration of both paradigms we can transcend differences and enrich our appreciation of the diversity of the world.

In comparing Western science and African traditional thought, Horton claims that the intention of both is to explain the events in the world and to come to some kind of knowledge of it. It does not necessarily follow that the means are similar. Even within Western thinking there are different types of explanation that provide different kinds of knowledge. There is knowledge of *what* which provides information or descriptions of the world. It is important to distinguish between concepts like classification, clarification, elucidation and explanation. There is also knowledge of *why*, which is considered in most quarters to provide understanding - a distinctive feature of scientific explanation (Salmon 1984:9-11). For example let's attempt to explain the event of someone committing

suicide:

- i) A doctor may say the person died because he shot himself. This provides a physiological explanation about death as due to the damage caused by a bullet that penetrates the brain. One could argue however, that death is not the result in all instances of a bullet in the brain, even though a bullet in the head generally results in death.
- ii) A psychologist may say the person died because he was depressed. This is a psychological explanation of the effects and consequences of depression as the cause of suicide, but as before, not all instances of depression culminate in suicide.
- iii) A lawyer may say that the person died because he was in dire financial straits and under pressure from his creditors. This explanation is in terms of a moral or legal justification where the object is not necessarily to 'explain' but to attribute responsibility.

Certainly in i) and ii) above there is no explanation as to why death resulted in this instance. For scientific explanation it is necessary to use a form 'x occurred because of y', which means that the explanation contains a universal generalisation - x must entail y. This is the basis of the Covering Law Model of Explanation and its core, the Deductive-Nomological Argument as propounded by Carl Hempel (1966:49-56). None of our explanations about the suicide meets this criterion, and this raises questions about the nature of causality, a perennial philosophical problem (Salmon 1984:ix).

Science purports to explain why things are as they are or how they came to be that way. Such explanations involve principles of change, since they illuminate something about how one state of the world changes to another. The events have some relationship in terms of time, and the question is how are they connected and how the occurrence of certain events is necessary in the light of certain facts. They are questions that ask for cause and essential in scientific thought is the issue of causality (Taylor 1970:4).

A comparison between Western science and African traditional thought is possible but is not necessarily satisfactory as it is simplistic to assume uniformity of explanation within each system. The reality of the intrinsic layers of explanation and the value of each layer need careful consideration. There may well be a similarity in kind but the degree of difference may be such as to render the comparison unsatisfactory.

The focus of my work is explanation and the premise is to explore Horton's approach in which he draws attention to the continuities and contrasts in Western scientific and African traditional thought. I do this with the inherent reservation that he fails at some level to establish the similarities and differences on the grounds which he proposes. Horton suggests that the arena of discourse in Western science that provides the instruments of translation for African traditional thought, is associated with theoretical entity concepts. These concepts allow both modes of thought to go beyond the narrow causal vision of

everyday common sense thinking. He draws a parallel between theoretical entities in science, for example the kinetic theory of gases and spiritual beings in African traditional thought stating that they both fulfill the same explanatory function. He treats traditional African religious systems as theoretical models much like science and seems to be trying to break down the contrast that considers African traditional thought as non-empirical and scientific thought as empirical. He argues that the difference between the explanations of African traditional thought and Western science, constitute a difference in idiom, rather than substance.

The hypothesis that the difference in idiom relates to the notion of paradigm and that Western science operates in terms of an impersonal paradigm while African traditional thought is personalist, is one of the central concerns of this thesis. It is my contention that this paradigm difference is substantial and that the notion of explanation introduces many traditional philosophical problems. The issues of definition and description, conceptions of causality, induction, scientific laws, inference, reason and rationality will all receive consideration.

Inherent in Horton's quest, is the issue of contrast across different societies and their 'modes of thought' and perhaps the most important property in relation to modes of thought is rationality (Finnegan & Horton 1973:13,17). The existence of a variegated spectrum of beliefs across cultures, poses the complex question of whether there are alternative standards of rationality. Belief systems vary

from culture to culture and in African culture in particular we are concerned with a predominantly oral tradition. Here the spoken word takes on the full weight of explanation. As documented by anthropologists the access to belief systems in African traditional life is verbal folk-lore.

What is meant by traditional thought and does it stand in contra-distinction to scientific thought or is it like Horton suggests part of a continuum, a process of apprehending the world? Problems in relation to translation from one mode of thinking to another and interpretation accompany such an undertaking. In the process of making sense of another perspective of the world can the translators accurately depict the other's belief system? It is Steven Lukes' (1973:230) contention that it is to some extent possible to access and assess another belief system by virtue of the fact that the criteria of rationality are both general or universal *and* context-dependent. It is not possible without this assumption to ask the critical questions about difference in beliefs between modern, scientific and traditional thought. This is in opposition to the relativist point of view that states that the criteria of rationality (in their extreme form) are defined solely and purely in relation to the particular culture in which they occur. Truth and values are therefore variable from culture to culture according to the relativist point of view (Barnes & Bloor 1982:35).

Lukes (1973, 1982) considers that there are varieties in theory and concomitantly diversity in truth and values across cultures. He argues that

although context-dependent criteria are necessary for rationality they are not sufficient. What would constitute sufficiency is the admission of general or universal criteria of rationality. The crucial issue is whether such invariable criteria exist. If Lukes succeeds in establishing general criteria of rationality he has to establish a nexus between context-dependent rationality and general rationality. He achieves this by considering traditional beliefs against general criteria. He concludes that traditional beliefs in a fundamental sense have no existence entirely separate from universal criteria. They derive from and owe their existence to universal beliefs. If they are at odds with universal criteria they can be rendered meaningful against the background of such criteria. For example the social reality of truth has a logical connection with verification, and therefore verification constitutes the foundation paradigm against which other criteria of truth gain their meaning (Lukes 1973:240-1).

The notion that beliefs are socially determined does not constitute sufficient evidence that their truth or validity are relative. Lukes holds that diversity in itself does not preclude invariable criteria of truth or validity. I believe that allegiance to either universalism or relativism in their extreme forms, limits understanding of the world.

I intend to build my argument in the following way:

Chapter One sets out Horton's perspective on African traditional thought and

Western science with particular emphasis on the similarities in their quest for explanatory theory. With reference to the rigorous critique of Horton's work by E.D. Prinsloo, terminological and conceptual confusions, differences between description, elucidation clarification and classification and their relationship to explanation, inductive inference, the use of theoretical models, abstraction and integration as well as the use of analogy receive consideration. Some attention is given to the differences between African traditional thought and Western science. The open and closed paradigms are considered. The power of words as an example of fallacious causal links merits attention.

Chapter Two focuses on the structure of scientific explanation as advanced by C.G Hempel who is an important figure in the philosophy of science. This will serve as the standard against which Horton's views will be considered. Causality, *what* questions, fundamental issues in scientific methodology such as the development of an hypothesis, its logic, testability, confirmation and acceptability, the foundations of theory, are all part of this section. It will become clear that Horton is comparing concepts of scientific explanation which are rigid and methodologically-determined to those that are far more flexible and humanistic.

Chapter Three considers explanation further with particular emphasis on its logical structure, and issues of coherence and consistency. Attention is given to verification. Consideration of beliefs and justification leads to a discussion of

evidence, truth and knowledge. African traditional thought provides reasoning explanations, which in the absence of clear causal connections fail to meet the criteria of scientific explanations as defined in Chapter Two.

Chapter Four contemplates explanation in relation to personal and impersonal paradigms which are underpinned by notions like webs of belief/world views and conceptual schemes. The writings of Quine, Kuhn and Davidson are considered.

Chapter Five centres on rationality which is the final and arguably the most important test of any paradigm. Aspects such as relativism, universalism, the laws of thought, consistency, coherence and truth as well as subjectivity and objectivity, are all fundamental issues in determining whether thinking is rational.

## **Chapter One**

An exposition of Robin Horton's view on African traditional thought and Western science with particular emphasis on the similarities in their quest for explanatory theory, and a critique of these claims.

### **1. Robin Horton's Perspective on African Traditional Thought and Western Science.**

Robin Horton (1974) in his article 'African Traditional Thought and Western Science' considers traditional African religious systems as theoretical models analogous to those of the sciences with the intention of casting doubt on the well-worn dichotomies usually used to conceptualise such differences:

"Intellectual versus emotional; rational versus mystical; reality-orientated versus fantasy-orientated; causally orientated versus supernaturally orientated; empirical versus non-empirical; abstract versus concrete; analytical versus non-analytical: All of these are shown to be more or less inappropriate" (Horton 1974:152).

For Horton the importance is to uncover basic structures for understanding the world according to African traditional cultures in terms of categories of scientific explanation. The acquisition of scientific knowledge involves scientific inquiry and central to this is the structure of scientific explanation and the insight into the physical world it affords (Hempel 1966:47). For Horton there is no difference in status between explanations offered by Western science and those put forward in African traditional thinking regarding various aspects of reality. The difference lies in the paradigms or

idioms used. He proposes the notion of impersonal and personal idioms to show how the dichotomies mentioned are inappropriate. It is my view however, that these dichotomies reflect genuine conceptual differences.

Horton (1974) substantiates his view by analysing the process that takes place when explanations are given, illustrating his analysis with examples from so-called Western science and African traditional thinking.

He analyses the structure of explanations in the following manner:

i. The quest for explanatory theory is basically the quest for unity underlying diversity; for simplicity underlying apparent complexity; for order underlying apparent disorder; for regularity underlying apparent anomaly.

ii. Theory places things in a causal context wider than that provided by common sense.

iii. Common sense and theory have complementary roles in everyday life.

iv. Level of theory varies with context.

v. All theory breaks up the unitary objects of common sense into aspects, then places the resulting elements in a wider causal context. That is, theory first abstracts and analyses, then reintegrates.

vi. In evolving a theoretical scheme, the human mind seems constrained to draw inspiration from the analogy between the puzzling observations to be explained and certain already familiar phenomena.

vii. Where theory is founded on analogy between puzzling observations and familiar phenomena, it is generally only a limited

aspect of such phenomena that is incorporated into the resulting model.

viii. A theoretical model, once built, is developed in ways which sometimes obscures the analogy on which it was founded (Horton 1970:132-148).

### *1.1 Personal and Impersonal Paradigms.*

According to Horton, African traditional thought and Western science offer the same kind of explanation but differ with regard to idiom. In Western science the concern is with the world of things, an impersonal idiom; and in African traditional thought, it is with the world of person, a personal idiom. If this is Horton's basic premise the problem can be formulated as follows:

In his argument regarding indistinguishability between kind and degree Horton claims that both Western science and African traditional thought share this view of explanatory theory. The difference is that African traditional thought uses personal idioms while Western science uses impersonal idioms. This continuity of structure and intent in both African traditional thought and Western science forms the basis of likeness in kind, whereas the idiom employed, of personal and impersonal paradigms, constitutes differences between them. Horton does not explicitly state the precise kind of explanation that might be appropriate for African traditional thought but seems to cast his favour on a Western scientific one. The problem with Horton's claim is that he does not clarify the nature of the explanation.

Different kinds of explanation exist, from psychological to mystical or scientific. It is important to distinguish between these different kinds as they differ with regard to function and status or level (Cohen 1995:263). Horton's view is that the function of explanation, in both African traditional thought and Western scientific thought is to seek unity, simplicity, order and regularity, but that they employ different analogies in this quest.

### *1.2 Schemes of Entities*

The essence of explanation on a theoretical level is the formulation of schemes of entities that underlie the world of everyday experience. These schemes fulfill a number of roles in the process of the construction of theory.

To understand the significance of these schemes of entities one needs to examine the ontology of African traditional thought. In other words it is essential to know the nature of the things or objects that are relevant in the world for that particular culture. There is a close relationship between the ontology of a culture and its epistemology, or what that culture claims to know about the world (Kinoshita 1990:305). In Western scientific thinking the ontology is considered to be dualistic in character. There are objects that belong to the material/physical world, known to us by our senses, *and* there are objects that belong to the world of the supernatural/spiritual or 'other world' that are intangible and immaterial and perhaps only known through intuition.

The ontology of African traditional thought is seen as monistic in that all things whether physical objects of the material world or objects of the supernatural world, are essentially the same. Gilbert Ryle (Malherbe 1993:24-5) introduced the term 'ontologising' in reference to the process of taking something that doesn't exist in its own right and talking about it as if it did. He used the example of 'the mind' to illustrate this process. Western scientific thought has focused on the things of the material physical world, which are more satisfactorily demonstrated and where knowledge claims are more easily justifiable.

According to Malherbe (1993:25) the scepticism with which Western culture considers spiritual entities and its banishment of such to the arena of religion is a result of the hegemony in Western thinking of scientific discourse. The works of Robin Horton (1967, 1974, 1993) have opened the possibility of revising this position, and considering the spiritual entities of traditional religious thought, as the same order of things as the theoretical entities of science. Central to Horton's argument is the concept of explanation, whereby both science and African traditional thought use unobserved but postulated entities grounded in relations of cause and effect to provide an explanatory framework for events and phenomena that occur in the world of experience.

"As explanatory principles or theories... witches and devils have the same status as atoms and light waves" (Malherbe 1993: 26).

Whether this view is tenable has to be established by considering

explanatory principles or theories. Horton himself holds this view. He says that the gods and spirits of African traditional thought, despite an apparent unruly complexity and elaborateness, reflect the development of schemes which allow a diversity of experience to be reduced to more limited, hence simplified kinds of processes that underlie the diversity. He suggests the same process exists in Western science where common sense objects are seen as a proliferation of molecules. He points out in his work on the Kalabari that everything that happens can be interpreted in terms of a theoretical scheme comprising three basic forces: ancestors, heroes and water spirits. He goes on to show that for each of these constellations of beings there are capacities of jurisdiction in the world of observable events, and the assumption made by the spiritual diviner is that there is regularity in their behaviour. These gods in African traditional thought, just like molecules and waves in Western science, introduce unity in diversity, simplicity in complexity, order in disorder, regularity in anomaly.

### *1.3 The Quest for Explanatory Theory*

In a critique of Horton's work, E.D. Prinsloo (1993:105) analyses the premises underlying the quest for explanatory theory to see whether they conform to standards of consistency and sound reasoning. Particular reference is made to the principle of non-contradiction. Briefly this principle states that 'nothing both is and is not' (Kirwan 1995:476).

### 1.3.1 *Unity-Diversity*

In this first pair, Prinsloo (1993:105) says that Horton classifies events or entities in such a way that critical differences are omitted. The classification permits a reduction of a multitude of entities to schemes of entities, but fails to really explain anything. Horton's word 'unity' in this sense is not unlike 'unify', used in scientific parlance to indicate some kind of numerical decrease. The point however, is that unification must explain the event or entity under consideration. Friedman (1974) says:

"We don't simply replace one phenomenon with another. We replace one phenomenon with a more comprehensive phenomenon...We thus genuinely increase our understanding of the world" (Kinoshita 1990: 297).

Kitcher (1981) also concludes:

"By using a few patterns of argument in the division of many beliefs we minimize the number of types of premises we must take as underived. That is we reduce, in so far as possible, the number of facts we must accept as brute" (Kinoshita 1990: 297-8).

Hempel (1966:44) does not specifically follow Friedman's and Kitcher's equation of unity and numerical decrease but takes a different angle. If there are logical (derivational) relations among 'types of facts' then explained (derived) facts are logically unified among one another. An example of unification in the scientific sense is found in the kinetic theory of gases wherein the theoretical application serves to *unify* the mechanics with the theory of heat phenomena. This unification has birthed an independent

science known as thermodynamics.<sup>1</sup> The result of Horton's search for unity is a system of classification, not a logical derivation of facts.

### 1.3.2 *Simplicity-Complexity*

For Horton the idea of schemes also serves the purpose of simplifying complexity. Simplicity is significant as it is a process that is perfectly natural both in ordinary life and in science. The simplest theory is the one that fits all the available facts (Hempel 1966:41). African traditional thought introduces additional, complex, unobservable entities to account for phenomena. This, Horton says is not unlike the Western scientific idea of the hypothetical construct. However, used in the way Horton does, it has the effect of complicating and obscuring the facts that originally inspired it, while failing at the same time to explain these facts scientifically. In reducing the *number* of entities in the interests of unity and simplicity, Horton does not reduce the *kinds* of entities and it is the nature of these entities which is problematic. Hence this reduction to a common denominator cannot serve as an adequate explanation.

Simplicity is one of the criteria for the confirmation and acceptability of a scientific hypothesis. If there is an alternative hypothesis that accords with the same data and does not differ in other respects relevant to its confirmation, the simpler hypothesis will count as more acceptable.

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<sup>1</sup> The application of this kinetic theory of heat has resulted amongst other things in artificial refrigeration.

"Any criteria of simplicity would have to be objective. Of course they could not just refer to intuitive appeal or to the ease with which the hypothesis is understood or remembered" (Hempel 1966:41).

In the case of theories, the number of independent basic assumptions is sometimes suggested as an indicator of complexity. Assumptions can be combined or split up in many ways, therefore there is no unambiguous way of counting them. The same applies to the proposition that the number of basic concepts in a theory serves as an index of complexity. The question of criteria of simplicity has in recent years received a good deal of attention from philosophy, however, a satisfactory general characterisation of simplicity has not been identified (Hempel 1966:42, Hendry 1995:826-7). Certainly there are cases in which even in the absence of explicit criteria, investigators would be in substantial agreement about which of two competing hypotheses or theories is simplest.

An interesting problem concerning simplicity is the notion of *justification*. One of the reasons for adhering to the principle of simplicity is that scientists have expressed the conviction that the basic laws of nature are simple. However, this assumption is as untenable as the principle of simplicity is sound and thus cannot provide a justification for it. Some, such as Mach, Avenarius, Ostwald and Pearson (Hempel 1966:42-3), believe that science offers an:

"economic and parsimonious description of the world, and that general hypotheses

purporting to express laws of nature are economic expedients for thought, serving to compress an indefinite number of particular cases...into one simple formula".

Simplicity in this sense is not a sufficient justification. Popper's view (Hempel 1966:44), elucidates the kind of simplicity that is of concern to science.

"Simple statements, if knowledge is our object, are to be prized more highly than less simple ones because they tell us more: because their empirical content is greater and because they are better testable".<sup>2</sup>

### 1.3.3 Order-Diversity

The next notion presented by Horton is that of order-disorder. You can order or arrange furniture in a room according to determining factors such as whether the room is residential or for business, or whether the furniture is for removal or for sale. Prinsloo (1993:106) points out that order does not have the same logical status in the different examples. In the context of the room, ordering is a matter of spatial relationships and consequently the notion of ordering without clarification does not explain anything. Ordering in the scientific method means ordering of variety by comparison and taxonomy. Prinsloo demonstrates that there are types of ordering, logical constructions of order or means of classifying and contrasting order and disorder but these do not explain the contrast between order and disorder. Horton (1974:133) gives an example from the Kalabari to demonstrate the notion of

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<sup>2</sup> Ockham's razor or the principle of parsimony - "a methodological principle dictating a bias toward simplicity in theory construction, where the parameters of simplicity vary from kinds of entity to the number of presupposed axioms to characteristics of curves drawn between data points. Although found in Aristotle, it became associated with William Ockham because it captures the spirit of his philosophical conclusions" (Adams 1995:633).

order-diversity. The Kalabari heroes are responsible for all aspects of the life and strength of the community, and for its institutions. The heroes underpin human skill. This, says Horton, allows an ordering of human behaviour. It provides a system of categorisation and Prinsloo concludes, as there is no causality, the explanatory function of ordering remains doubtful.

#### *1.3.4 Regularity-Anomaly*

As regards the final pair, regularity-anomaly, Horton makes a single reference to regularity. The work of the religious expert in African traditional thought depends on his determining regularities in the behaviour of spiritual agencies in relation to happenings or events in the everyday world. This, according to Horton, is not unlike the scientist who expresses the uniformities that reveal themselves in the observation of a class of events, as empirical laws. The aim of theory then is to explain these regularities to deepen understanding, and also to account for, and even predict 'new' regularities of a similar kind (Hempel 1966:70). There is little evidence in Horton's examples that chains of causes between events exist to make them better understood, deepen understanding or to account for or predict events. Neither does Horton indicate what is meant by anomaly (Prinsloo 1993:106). Anomalies seem to be ignored or accounted for by ad hoc hypotheses. The ideal of Western science is that when an anomaly is discovered, it is investigated and in that process it may be accommodated in the theory or discarded (Hempel 1966:70).

#### *1.4 Terminological and Conceptual Confusions*

Prinsloo (1993:104) begins his analysis of Horton's work, by asking for clarification of the terms used in the quest for explanation. Some definition of terminology is required. Further Prinsloo questions how Horton chose the particular pairs he delineates in the quest: unity-diversity; simplicity-complexity; order-disorder; regularity-anomaly.

Terms or concepts can either be used in very specific ways or rather loosely so that part of the meaning rather than the complete meaning, comes to imply the whole. Where definitions are vague or incomplete such use results in abstractions that are illegitimate and comparisons that are inaccurate. For Prinsloo there is lack of clarity in Horton's definition of terms. In some senses he seems to use them all synonymously, making very little distinction between them. Prinsloo makes recourse to the use of these terms in everyday language to determine whether they can be regarded as synonymous.

In this rigorous examination, Prinsloo demonstrates that Horton fails to distinguish between kinds of explanations, and to separate them from other categories such as identification, classification, clarification and elucidation. With regard to unity and diversity, it appears that unity allows phenomena to be identified and classified but not elucidated and clarified. It is also not clear how different causes or reasons have the effect of unification. Similarly the contrast between simplicity and complexity is unclear with simplification

resembling classification, clarification and at times, explanation. Similar ambiguities exist for ordering and for regularity and anomaly.

According to Prinsloo (1993:107) Horton mystifies by coming up with general and vague meanings of the quests for explanatory theory and assimilating them without due regard for the different contexts of application.

"In this sense two logical errors have been committed by Horton simultaneously: one is illegitimate abstraction, the other misapplication".

Horton therefore makes his first logical error in his failure to clarify terminology. If terminology is not defined in such a way that its meaning is specifiable by providing criteria for its application, then however, 'intuitively clear and familiar [it is, it] leads to meaningless statements and questions' (Hempel 1966: 90). Words such as order, unity, anomaly as used here are ambiguous and polymorphous and applicable to many situations. Horton has taken the lacuna to make these comparisons. He is accused of taking general and diffuse meanings of the quests for explanation and assimilating them in Western scientific thinking and African traditional thought, without taking into account the different contexts to which the different quests are applicable (Prinsloo 1993:107).

Still in relation to Horton's first precept, Prinsloo maintains that underlying the concept of 'quest for', is the arena of types or kinds of questions that can be posed. He examines *what*, *why*, and *how* questions to see whether their answers constitute explanations. For example, *what* questions might call for

the identification or classification of information or for elucidation or clarification. The question arises whether these constitute explanations. It might be argued that these notions have some properties of explanation that can be fused, and that by ignoring the differences the idea of explanation becomes ambiguous. The vague terminology and failure to distinguish the logic of identification from that of clarification or causal explanation, allows a particular property of explanation to be identified with certain other properties so that it appears as if they belong together. However, in a broader context the identification would not be acceptable. An example might be that a 'cow' is a 'table' because they have the same brown colour (Prinsloo 1994b).

*Why* questions and *how* questions call for reasons and causes. An adequate scientific explanation would entail reasoning and causality. The form in logic is *modus ponens* - if p then q. The question then arises though as to whether the reason is sufficient to explain, and further whether the purported explanation is real. It is important to distinguish between the structure of an explanation and its truth. The form in argument is called *modus tollens* - if H is true then so is I. If the evidence shows I is true then so is H. This suggests that if the premises are true then so is the conclusion (Hempel 1966:7). These issues are dealt with in greater detail in chapter two.

The second logical error of which Horton stands accused is that of confusing the scope of classes so that he makes illegitimate abstractions. The scope of

the class elucidation is wider than the scope of the class explanation. There are some connections he makes but according to Prinsloo (1993:107) he confuses and conflates ideas, causing confusion with vague use of terms and the juggling of concepts. In legitimate abstraction a part of a property is taken for the whole but it can result in mystification. When there is overlapping between meanings of 'kind' and 'degree' problems of this kind arise. For example if we speak of a general category called transport we may well include both bicycles and motor cars as means of transport. That they are both means of transport is undeniable. The problem arises when we are looking at different modes of transport, and conclude that a bicycle is a car. This kind of reductionism impairs our quest for explanatory theory. It would imply that any kind of explanation is equal to or the same as any other. This will be further examined in relation to the concept of explanatory relevance later on. Horton's mystifications are a consequence of his ontologising. He postulates all kinds of entities to explain events without evidence that they really exist.

### *1.5 Inductive Inference*

The next arena of critique of Horton concerns the wider context of causality. Horton maintains that people use common sense as a way of placing ideas in a causal context. This manner of 'putting two and two together' (Horton 1974:135) is inductive and achieved by a process of inference. It does however, have limitations since it is only possible to perceive adjacent, or proximal antecedent conditions amongst events, and not what happens at a

distance. Theory, however, permits the transcendence of these limitations of mind by revealing a range of causal connections that common sense cannot offer. Horton (1974:135) uses the example of the disease Bilharziasis, where he explains wider context to mean that the explanation for the disease must have a pattern of components related to each other in a systematic and causal way, so that all future cases of the disease can be accommodated. In this example, the observables are related to each other and there is no introduction of forces that transcend experience. Transcendence of experience only happens when a law is postulated for future cases of the disease.

Prinsloo (1993:107) comments on Horton's view that the African traditional thinker transcends experience by introducing gods and spirits. These are not observable and cannot be inferred either directly or indirectly from other experiences. The question is whether this 'transcendence' is the same as that used in Western science. In the case of disease, transcendence refers to the explication of a law that is linked to experience and permits identification of future cases. In the instance of African traditional thought, transcendence refers to going beyond experience in that the gods are neither observable in reality nor in principle. It is a postulation, and has no connection with, and cannot be inferred from, preceding experience. Horton (1974:136) argues however, that the traditional healer has to explain cause in the form of observable, concrete events, as to why the particular spiritual agency intervened. He says this would invariably relate to issues like

disturbed family relations, such as family jealousy, hatred or transgressions that evoke ancestral displeasure. He can see no difference between a physicist explaining the mushroom cloud of the hydrogen bomb as a 'massive fusion of hydrogen nuclei' and disease as 'spirit anger because of a breach of kinship morality.' For Horton (1970:136) 'in both cases reference to theoretical entities is used to link events in the visible tangible world (natural effects) to their antecedents in the same world ( natural causes)'. Theory is used to transcend the restrictions of what is perceived by common sense. Horton claims that the difference between Western scientific and African traditional thought lies in the particular theoretical idiom that a culture adopts. The specific idiom consequently emerges out of the experience of members of that culture and the attention given to juxtapositioning certain life events. In traditional African life, where the strength and unity of the social group is critical, it would make sense that the idiom is personal and that the adversity suffered by an individual should be linked to social disturbance. Horton maintains that modern medical science would benefit from this type of association of events. In more recent years, he adds, there has been a move towards considering the contribution that social factors make to both psychological and physical illnesses .

### *1.6 Common Sense and Theory*

For Horton, theories originate from the world of things and people and should lead us back to that world. The premises of a theory through the process of deduction should reunite us with statements that encompass the

completeness of the common-sense world. If this does not occur the theory has failed. In addition Horton considers common-sense thinking more functional and economic than theoretical thinking in that it is only when the need arises to go beyond the limited causal vision of common sense that theory comes into play. According to Prinsloo (1993:108) Horton's illustration of the use of common salt in a domestic versus industrial context adds nothing to the relation between theory and common sense and only has relevance to the requirement of the wider causal context. Similarly Horton's 'jump' from common sense to mystical thinking, in his example of sickness in the Kalabari, is a recourse to theory in the face of the limited causal vision of common sense, but contributes little to explaining the link between common sense and theory. Prinsloo is concerned with the manner in which the process of deduction and inference occur in the two modes of thinking.

### *1.7 Levels of Theory*

Just as the choice between common sense and theory permits the placement of events in a wider causal context, so too does the choice of levels of theory. A low-level theory is one that 'covers a relatively limited area of experience' (Horton 1974:143) while a higher-level theory is more ambitious about context. Horton describes the concept of 'the many and the one' in African traditional religious systems. This relates to ideas concerning numerous spirits on the one hand and one supreme being on the other. There has been much debate about how both poly- and monotheism might

be accommodated in a single system of thought. This has led to a proliferation of theories. Horton explains firstly that the many and the one can be understood in terms of causal context where the spirits permit the settling of events in a more restricted causal context, that is, closer to the thinker's community and immediate environment. On the other hand, the one supreme being offers the widest possible context, for it is the basis of the theory of ultimate concern, the origin of the world. Secondly, since the idea of the one and the many represents different levels of thought within the same system, it can be understood in the same way as the different levels of theoretical thinking, of Western science. The relationship between one god and many spirits is no different from the relationship between atoms and planetary systems. Both reflect the way in which theories are used in explanation.

Prinsloo (1993:108) again accuses Horton of drawing fallacious parallels. In Western scientific thinking, the relationships between homogeneous atoms and planetary systems of fundamental particles are structural and logical, whereas in African traditional thought the different elements bear no structural relationship to each other, but exist separately and are additional postulated entities.

### *1.8 Abstraction and Reintegration*

According to Horton, the scientific method takes the objects of the common sense world, breaks them up in order to get to an underlying causal

meaning, then organises them in theoretical schemes. This process of theorising involves abstraction, analysis and then reintegration. The West African belief that the individual is made up of three levels presided over by different spiritual agencies, demonstrates for Horton the parallel in African traditional belief of the processes of abstraction, analysis and reintegration. It is possible that the identification of a biological entity (*segr*), a personality component (*Nuor yin*) and the overseers of personal fortune (*yin* ancestors) presiding over an individual, provides a scheme which permits a deeper understanding of individuals and their relation to society by abstraction and analysis. However, there is no evidence of reintegration (Prinsloo 1993:109).

Again Prinsloo asks whether the procedure wherein which abstraction of waves in the theory of light is deduced, is not the same procedure whereby African traditional thought arrives at the notion of water spirits and ancestors. The comparison of the abstraction of spiritual entities with abstraction in the Cambridge or Parsonian traditions, is for Prinsloo, vague and therefore unacceptable in rigorous critique. Furthermore, for Prinsloo 'the relation in Western science is still structural and that of African thought still additional in the sense of separately postulated entities' (Prinsloo 1993: 109).

### 1.9 *The Use of Models*

According to Horton, in formulating theories there is recourse to the drawing of analogy between the unfamiliar and the familiar. Hence atoms, electrons or molecules, or gods spirits and entelechies, are theoretical constructs that

have their roots in the experiences of every day life, or in other words in analogies with the familiar. Horton defines 'familiar phenomena' as those associated in the mind of the observer with order and regularity, and as he has demonstrated earlier, therefore satisfy the search for explanation. He suggests that this quest of the mind for familiar explanatory analogies lends weight to his claim that Western culture tends to couch explanation in impersonal idiom, while African traditional thought uses a personal idiom. In Western industrial societies the inanimate allows order, simplicity, regularity and predictability. Things are more comfortable than relationships with fellow human beings and so the mind turns most easily to the inanimate in its quest for explanatory analogy. In traditional societies it is in the human world that the qualities of order, regularity and predictability are evident, and so people and their relationships are the explanatory analogies that are sought.

While it is sometimes true that scientific explanation attempts to reduce bewildering and unfamiliar phenomena to familiar facts and principles, its purpose is not to create familiarity. The feeling of familiarity may well be evoked by metaphorical accounts that have no explanatory value. Scientific theoretical explanation does not aim at a subjective kind of understanding which is intuitive but an objective insight:

"achieved by a systematic kind of unification, by exhibiting the phenomena as manifestations of common underlying structures and processes that conform to specific, testable basic principles. If such an account can be given in terms that show certain analogies with familiar phenomena, then very well" (Hempel 1966:83).

Horton describes how philosophers of science use the molecular (kinetic) theory of gases to demonstrate that only some aspects of certain phenomena are incorporated into theory. He describes how in the kinetic theory of gases, molecules are seen to be analogous with fast moving spherical balls in different kinds of space. Although the important properties of these balls have been considered, equally important properties like colour and temperature have been excluded. They are excluded, Horton postulates, because they do not serve an explanatory function, relative to the original observations that inspired the theory. He suggests that in the sense that some features are included and others omitted, a process of abstraction has taken place and that this sort of abstraction is critical to scientific thinking. Horton points out that a similar process takes place in African traditional thought. In so far as traditional thought uses people and their social relationships as the raw data for its theories, it incorporates some aspects of human life and neglects others in its theoretical entities. The definition of a god may not make reference to his appearance or his abode, just as the kinetic theory of gases does not make reference to the colour of a gas or the temperature of an electron. The process of abstraction is the same in both Western science and African tradition, where features that have explanatory relevance are included and those which are irrelevant are omitted.

Prinsloo (1993:109) points out that in an analogy there is usually a one-to-one correlation between the components of the analogy and the features of

the lived-in world. Central to the quest for explanation is the linking of theoretical schemes or analogies with the observed world, by statements identifying these links. These identification statements are known in Philosophy of Science as Correspondence-Rule statements. Horton (1993:132) shows how explanation, in this way, raises a philosophical perennial and that is, how we can say 'that a thing is at once itself and something quite different'. There is good reason to consider both the things of common sense and the things of theory as real. The 'is' of correspondence rule statements is both the 'is' of identity and the 'is' of class membership, giving rise to the idea of 'unity-in-duality'. Correspondence-rule statements can be attributed to Carnap (Urmson 1960) and his verifiability theory of meaning. According to the criteria he developed for cognitively meaningful discourse, metaphysical utterances were nonsensical. In due course he came to say most if not all scientific statements were hence meaningless. He later developed a less extreme version of the theory proposing the criterion that 'a statement is meaningful if, and only if, the statement itself or some of its logical consequences can be tested by sensory observation' (Urmson 1960:59). If this view is accepted then Horton's idea that correspondence-rule statements are applicable to both Western science and African traditional thought, is not accurate, as the schemes of entities are not testable in terms of logical consequences or sensory observation. It seems that Horton's recourse to analogy and to theoretical entities does not 'safeguard him against structural criticism' since neither find their one-to-one correlation between their components and the

features of the lived world (Prinsloo 1993:110).

Hempel (1966:83) quotes the work of the physicist N.R. Campbell who maintains that for a scientific theory to have any value at all:

“ it must ‘display an analogy: the basic laws that its internal principles specify for the theoretical entities and processes must be analogous to some known laws, as the laws for the propagation of light waves are analogous to (have the same mathematical form as) the propagation of water waves”.

At this point it is interesting to consider the contribution of Tambiah (1973:199) who writes on the Form and Meaning of Magical Acts. For him both ‘magic’ as in African traditional thought and ‘science’ use analogy but they use it in different ways so that ‘it would be inappropriate to measure and verify them by the same standards’. He quotes the work of Lloyd who explores argumentation in early Greek thought, and claims that analogy fulfills two roles in science, to explain and to control reality. It attempts to achieve the latter:

*“by using links which it believes may be formed between things by their similarities....The relationship of similarity may sometimes constitute a magical bond between two things so that what happens to one of them may influence what happens to another”* (Tambiah 1973:207).

In his compelling style Tambiah analyses the analogic mode of thought in modern science and prescientific traditions and shows that their intention is different. He refers directly to the work of Horton and accuses him of abusing

analogy. Tambiah maintains that Horton's fundamental error is the belief that both Western science and African traditional thought are concerned with the same intellectual task. He goes on to say that in Western science, use of analogy is linked to prediction and verification, and its value is determined in terms of inductive support, or of meeting standards of probability criteria, or tests of falsifiability. In magic or ritual the intention is more likely to be 'persuasion', 'conceptualisation', 'expansion of meaning' and its adequacy is conveyed by notions such as 'validity', 'correctness', 'legitimacy', and 'felicity' of the ceremony performed.

Horton's last word on analogy is that it may be obscure, but that both Western science and African traditional thought have obscured analogies. He claims this occurs when a theory is in its first draft and comes across data for which it cannot account. Rather than discard the model it may choose to undergo successive changes to enlarge its capacity to account for the data. In the process the model may develop some bizarre hybrid, removed from the phenomena that originally provided its inspiration. For example the atomic theory of matter has undergone a number of changes to accommodate data and expand explanatory coverage to the extent that the founding analogy has been obscured. In African traditional thought Horton (1974:133) takes examples from the life of the Kalabari and he makes reference to the work of Middleton and the Lugbara. Both tribes have categories of spiritual agency - for the Kalabari, ancestors, heroes and water spirits and for the Lugbara, ancestors and the *adro* spirits, some of which

are considered decidedly odd. The contrast and opposition between the different categories permit understanding of conflicts in the world of everyday experience. He points out that the need for models is the result of developmental processes, not unlike those of Western science, that the 'oddities' that develop are essential to explanation and have theoretical significance.

Prinsloo (1993:110) retorts that analogy used in this way postulates additional entities. He describes this as ontologising, which does not constitute a functional explanation as is the case of the atomic theory of matter. He adds there is a counter argument to this in the sense that analogy in this way is a logical construction.

Some concluding remarks in Prinsloo's critique of Horton regard the concept of coherence. For Horton it seems that 'understanding' is so broad that almost anything that is coherent is acceptable. Prinsloo uses the *modus ponens* argument to show that if there is coherence, which is correspondence in the formal structure, it does not necessarily follow that the premises are acceptable, which is correspondence in the informal structure. Horton uses this manner of argumentation and Prinsloo maintains he could only defend this view through recourse to the use of metaphorical language. Metaphor however, stands for attributes, and not for entities like the spirits of traditional thought .

## 2. Critical Considerations

Horton (1974:131) starts his article with an explanation of why he chooses to seek out the commonalities in Western and African traditional thought before detailing the differences. His aim is to play down the differences between personal and impersonal theories to reopen the bridge (blocked by many anthropologists by their own thought patterns) to the idea that traditional thought is not 'wholly other'. Horton (1974:152) adds that the differences are a surface difference beneath which lies an 'underlying similarity of intellectual process'. The difference is nothing more than a difference in idiom. The explanatory quest is the same.

### 2.1 *The Closed and Open Predicaments*

Horton (1974:153) sees the open and closed predicaments as the key difference between African traditional thought and Western science, and all other differences in human reasoning emerge from this. Here Horton turns from questions regarding the content and logic of traditional and scientific explanation to social contexts in which these theories are constructed and mobilised.

“ It is that in traditional cultures there is no awareness of alternatives to the established body of theoretical tenets. Whereas in scientifically orientated cultures such an awareness is highly developed. It is this difference we refer to when we say that traditional cultures are 'closed' and scientifically orientated societies are 'open'”.

To support this view he quotes Evans-Pritchard (Horton 1974:154):

" In this web of belief every strand depends upon every other strand, and a Zande cannot get out of its meshes because it is the only world he knows. The web is not an external structure in which he is enclosed. It is the texture of his thought and he cannot think that his thought is wrong".

This lack of awareness of alternatives removes any possibility of questioning as the tenets are sacred. A further consequence of this closed system, or lack of alternatives, is the threat of impending chaos should the established tenets of the belief system be contested. There are limits set by patterns of ritual and mystical belief and they, the Zande, cannot operate beyond these limits.

Horton borrowed the contrast between open and closed societies from Sir Karl Popper's (1979:160) use of the notion but has restricted his application of the term exclusively to a sense of theoretical knowledge. This view (both Popper's and Horton's adaptation of it) has been widely criticized. Thomas Kuhn to whom Horton refers, claims that science is in fact not open to alternatives but constrained by socially imposed paradigms. Horton's view of scientific conduct is that when a scientific theory fails, it is discarded forthwith. One of the principle differences between science and African traditional thought is that in science there is a progression or perhaps an accumulation of knowledge. It is to this view that Kuhn objects most strongly. Kuhn is concerned with scientific discovery in a sociological sense and denies the neutral objective

implications of science, willingly relinquishing one theory for another and thus progressing.

In Kuhn's (1970) scheme there is no objective or paradigm-free reality and hence no direct unmediated access to reality. In Horton's scheme there is an assumption of the existence of an external reality, other than a mere social perception of it, and that social styles of thought can be classified, in terms of that independent existing observable reality. He assumes this reality to be such that, the awareness of alternatives, is more cognitively effective than the closed version. The difficulty with this, Kuhn would say, is that some Western scientists have difficulty in conceiving alternatives and therefore cannot discard a theory as readily as they perhaps should. However, Kuhn while adding to Popper's analysis of scientific discovery has devalued the scientific method which is rigorously applied in causing changes in science and by implication fostering progress (Dennis 1972:58). However, this does not mean that African traditional thinkers are incapable of conceiving alternative theories or world views.

Wars and diplomacy in much of pre-colonial Africa are not consistent with a view of Africa as unaware of the rest of the world. Hence the cognitive world of traditional cultures cannot be regarded as closed in the face of the complex history of cultural exchange and cross fertilization. In the face of this criticism, Horton (1993: 121) has altered his notion of African society as a closed system to that of an accommodative system. He contrasts this

system with the adversarial style of scientific theory, which is characterised by the way in which the impulse to change a belief does not result in a novel experience but a rival theory.

Appiah (1992:211) in his paper 'Old Gods, New Worlds', suggests that Horton has captured something significant regarding these different modes of thought, in that he sees them relating not to individual cognitive strategies but to intersubjective social ones. On the other hand, Horton's position may be interpreted as applying to individuals. In this case questions would arise regarding the individual observer's own sense of coherence, a problem aggravated by the absence of documentation on African belief systems. The problem of arbitrariness or bias would be inherent even if there were written sources, but that it would more likely be so in the case of an individual. If we return to the former idea, regarding cognitive social strategies, then Horton's theory is seen as a system of thought and therefore an abstraction, which can be isolated on the basis of the behaviour of groups.

The significance of social organisation in differentiating traditional religion and natural science is important when we consider the extent to which they result from different kinds of social processes. Differences between these two modes of thought lie in the social organisation of inquiry. As experimentation, systematic development of alternative theories which are synonymous with the Western scientific method are intelligible as an

organised social enterprise of knowledge.

The accommodative system of African traditional thought as suggested by Horton is possible in an oral society. Apparently unchanging folk lore is handed from one generation to another with no systematic research or consistent interpretations. Knowledge is seen as an unchanging lore of truth derived from the ancestors. Yet a highly developed sense of the criteria of alternatives does not necessarily lead one from a traditional to a scientific scheme. It is quite possible for a traditional thinker to become aware of alternatives and choose to adopt another scheme or not. This is far from the notion that if one theory is judged better than another, the better will be adopted. Furthermore the grounds on which a theory will be seen to be better than another, prejudices the question of the relative merits of one system over another.

Horton (1974:155) says that having understood that all the critical differences between scientific and traditional world views are in terms of the closed and open predicaments, he chooses to divide the differences into two groups - those that are concerned with the presence or absence of a vision of alternatives, and those concerned with the presence or absence of anxiety about threats to established beliefs.

## *2.2 Power of Words*

Only the Power of Words which is the first notion in Horton's group of

differences connected with the presence or absence of a vision of alternatives will receive consideration in this section. It is interesting and the researcher believes it may have rather broad implications for the study as a whole. Horton calls this 'magical versus non-magical attitude' to words.

In all traditional African world views, there is an assumption about the power of words. To know the name of a being or thing is to exercise some degree of control over it. In traditional societies there is a 'unique and intimate link between words and things' (Horton 1974:156). In science, however, while there is power in words, the control is indirect, arising through the functions of explanation and prediction.

Central to this is the relationship between words and reality. The philosophy of language explores the relationship between ourselves and our language: at the semantic level, how we invest words and sentences with meaning, and the relationship between our language and the world: at a pragmatic level, how words refer to things or to the facts they describe. These levels can be blurred. A common endeavour in the philosophy of language is to try and reveal the deep structure whereby one thing may be inferred by another and may be hidden by the surface structure. Some of these concepts can be attributed to the work of the linguist Noam Chomsky. What is significant for this dissertation is the premise that the relationship between meaning and language is interwoven with the relationships on other levels of inquiry, particularly the relationship between thought and language.

"We don't know what to think until we know what to say. And if we cannot mean something, then we cannot understand it either. This suggests that if an investigation into language delivers results about the limits of meaning, then our science and our conception of the world must also conform to these limits" (Blackburn 1995: 459).

Wittgenstein in his concept of language-game says that language is:

"a form of human rule-governed activity, integrated into human transactions and social behaviour, context-dependent and purpose-relative" (Haker 1995: 461).

Philosophers have been traditionally inclined to look for simplicity and uniformity where none exists. Consequently they ignore significant differences in function between sentences that are often only superficially similar. The attempt to blend one function of language with another or to treat one as a paradigm to which others conform is, for Wittgenstein, the source of perennial problems in philosophy (Flew 1979:376). It appears that this is precisely the trap into which Horton falls, with his failure to define his terms and his imprecise use of the concept of analogy.

## Chapter Two

The structure of scientific explanation according to C.G. Hempel with particular emphasis in *what* explanations.

### **The Structure of Explanation**

The concept of explanation is fundamental to many arenas of philosophical inquiry (Taylor 1970: ix, Salmon 1984: ix). There are a multiplicity of ways of studying explanation. Explanation can be studied as it arises in different disciplines like biology, maths or the social sciences, or in the disciplines of the explanation study itself (Kinoshita 1990:297). The critical issue however, is to separate scientific explanation from other forms. This comes about through the kinds of questions asked (Taylor 1970:32, Salmon 1984:4, Salmon 1993a:131). This chapter will discuss the structure of scientific explanation and its relation to *what*, *how* and *why* questions.

The idea of explanation according to C G Hempel (1966) will make up the main body of this section and will serve as the standard against which Robin Horton's (1974) views will be assessed. Hempel was chosen for the purposes of this dissertation because he is considered one of the leaders of the logical empiricist movement in the philosophy of science (Haak 1995:351) and a distinguished scholar with a particular interest in the contemporary methodology and philosophy of natural science. Since Horton (1974) claims his own training was in both the natural sciences and in the philosophy of science, Hempel's work was thought to provide a bench-mark against which

Horton's pursuit could be measured.<sup>1</sup>

Hempel (1966:1) points out that there are two major groups of scientific inquiry, the empirical and the non-empirical sciences, differentiated by the nature of their interest in the facts of our experience in the world, and the empirical evidence for these facts. The empirical sciences comprise the natural and the social sciences, and there is some debate on the features distinguishing these two divisions. In general, the natural sciences include physics, chemistry and biology, while the social sciences include disciplines like sociology, political science, anthropology and economics. It is of course widely held that there are basic differences between these fields, but whether these differences are of systematic significance, requires a very careful and thorough analysis of these divisions. Questions in terms of subject matter, objectives, methods or presuppositions have been raised in this regard. To do justice to this question a more thorough exploration of these claims would be required. In addition a close analysis of the social sciences as well as of the natural sciences would have to be undertaken which is beyond the scope of this thesis. For the purpose of this study, Hempel's choice to consider 'sciences' and 'scientific' as referring to the whole area of empirical science, will be adhered to.

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<sup>1</sup> Issues such as 'what is the logical structure of explanation?', 'are all explanations patterned in a similar way?' 'what conditions are necessary for an adequate explanation?' led me to the work of John Stuart Mill and his *System of Logic* where he elaborated a model of explanation that came to be known as the 'deductive model'. There have been refinements of this model by philosophers like Richard Braithwaite (*Scientific Explanation* 1953), Carl Hempel (*Philosophy of Natural Science* 1966), Ernest Nagel (*The Structures of Science* 1961) and Karl Popper (*The Logic of Scientific Discovery* 1959). The dominant tradition in the philosophy of science and more particularly, the epistemology of science, that provides the most detailed delineation and defence of the model is the logical empiricism of Carl Hempel (Papineau 1996:1-2).

Horton's view of explanation was to some extent considered in chapter one. As already mentioned, for Horton (1974) both African traditional thought and Western scientific thinking are similar in structure. He does not specify to which particular view of Western science he is referring. A comprehensive representation of scientific explanation in the Western world has challenged philosophers since Greek antiquity and continues today. Since Aristotle through to Laplace and then Braithwaite, Nagel, Popper and Hempel, a number of approaches and basic conceptions have enjoyed prominence (Salmon 1984:21). Horton's domain is sociological and therefore a social science. As previously mentioned, Hempel asserts that in general the methods and rationale of scientific inquiry apply both to the social sciences and the natural sciences. This is the approach that will be followed. There are of course, inherent problems in applying explanations of natural phenomena to those of human society. The phenomena of human behaviour have 'meaningfulness' as an essential aspect, which is irrelevant in relation to inert matter. Nevertheless the social sciences remain empirical and factual and recourse to "some mysterious and non-empirical faculty of 'intuition' in order to determine the meaning of a situation to an agent is not necessary" (Ryan 1970:17). In explaining the work of Robin Horton it is inevitable that these qualities inherent in the natural and social sciences will emerge for consideration.

One way of approaching the subject of explanation, is to identify differences in explanations and then to determine the importance of these differences for the consequences that flow from them. Taylor (1970:2-3) describes three main

kinds of explanation:

1. Scientific explanations
2. What-explanations
3. Reason-giving explanations.

The first two will be considered in this chapter and the third in chapter three.

### **1. Scientific Explanations**

Scientific explanation is at the core of scientific knowledge, and this knowledge according to Salmon (1984:4), is of two kinds, knowledge of *what* and knowledge of *why*. Two types of answers arise from these questions. The first are answers that serve as explanations of purpose. An example is to explain disease in terms of its meaning, and not in terms of its mechanism or cause. The second is an explanation of cause and an example would be to explain disease in terms of its root or origins. Using Taylor's distinction of three kinds of explanation as the point of departure for this chapter, causation will be considered in this section and purpose will be dealt with later.

Hempel's clear and elegant exposition of scientific explanation is called the Covering Law Model of Explanation. According to Taylor (1970:8), supporters of this model deem this a satisfactory account of an explanation in the field of science. Explanations of this kind answer questions about how things have developed or changed in the world. These appear to be questions regarding cause.

### *1.1 Causation*

Scientific explanations are essentially causal. However, the causal conception suffers from difficulties and there is some perplexity concerning the nature of causality (Salmon 1984:ix). Yet the simple idea of causation, is that a cause is an event or state which:

- i. is prior to an event whose occurrence it is presumed to explain (efficient causation), and
- ii. is necessary for this event to happen .

#### *i. Causation - efficient*

The event, process or phenomenon that brings about an event defines the notion of efficient causation. Aristotle (Urmson 1960) introduced the idea that a full explanation had four 'causes': what the event was made of - material cause, what it is essentially - formal cause, what brought it into being - efficient cause and what function or purpose it serves - final cause. It should be born in mind that 'cause' as used originally in the translation from Greek had a much wider meaning than would be acceptable in science today.

Science attributes a particular meaning to the term 'cause'. The notion of cause within science is efficient causation. This means that for the notion of causation to be specified the following criteria must be fulfilled:

- cause and effect have to be an intertwining chain
- there can be no action at a distance
- they have to be contiguous.

ii. *Causation - necessary and sufficient*

Sometimes causation is necessary but not sufficient. For example in the event of fire, a match, a certain chemical, and oxygen all produce the flame. There is also the hand that strikes the match. Therefore it is the entire chain of events or the whole set of conditions that brings about the flame and that constitutes the efficient cause. It is known that oxygen is critical for combustion so it would not be possible to have the flame without oxygen. At the same time however, oxygen alone will not result in combustion. Oxygen therefore is necessary but not sufficient in the set of conditions that would bring about a flame. In other words a necessary condition is one without which the event cannot occur, and a sufficient condition is one which must be present for the event to occur. The word 'cause' may then be used sometimes to reflect the necessary condition and sometimes to refer to the sufficient condition. In the germ theory of disease, germs are the cause of the disease in a necessary sense, because in their absence the disease will not occur (Copi 1978: 400).

1.1.1 *Horton's view of Causality*

Horton (1974 :140) says:

" I am not claiming traditional thought as a variety of scientific thought...but both aim at grasping causal connections and to some extent succeed in this aim".

It seems to me that Horton often talks of causal notions when they appear to be correlations or particular conjunctions of events in the minds of the thinker. Horton claims the intellectual function of theory is to extend people's vision of natural causes and that the idea of empirical versus non-empirical is

misleading. He is not interested in empirical verifiability which is fundamental to the Western scientific method - he is interested in science in so far as it extends people's vision and in so far as it grasps 'reality' (Horton 1974:140). Consequently he introduces the notion of causality embedded in the context of his ideas of the purpose of theory as it relates to meaning. These ideas will be further elaborated.

Karl Jaspers (Erwin 1993: 403-4) in his critique of Freud says that 'the falseness of the Freudian claim lies in the mistaking of meaningful connections for causal connections'. While some hermeneutic thinkers would agree with Jaspers, there are those who reject this point of view 'and argue that meanings in so far as they are explanatory, are causes'. It would seem that Horton in arguing his case for Western scientific thinking resembling African traditional thought, takes a similar position to those that reject Jaspers. The work of Carl Hempel (1966) which aligns itself with Jaspers' view will now receive consideration.

Taylor (1970:7-8) says that for the purposes of science, the critical issue is not in finding causes that both precede and are necessary for their effects, but explaining the effects, by finding general laws or universal propositions that take the form:

"Whenever an event of type *a* occurs, an event of type *b* occurs. These universal propositions express the connections between events which figure in scientific explanation. But these laws or universal generalisations, do not express a necessary connection, they express a contingent, or factual, connection...To give an explanation of why an event occurs is to show how it is related to other events by such universal

generalisations”.

### *1.2 The Covering Law Model of Explanation*

According to this model, attributed to Hempel (1966), three elements are necessary to explain an event *a*:

- i. “a universal generalisation or law statement - of the form described above: whenever an event of type *b* happens, an event of type *a* happens;
- ii. a statement of initial conditions: *b* happened;
- iii. a statement of the consequent conditions: *a* happened “ (Taylor 1970:48).

These three elements form a valid argument; the definition of a valid argument is if the premises are true then the conclusion must be true. Consequently in this model, statements in the explanation logically ‘entail’ the statement that the event being explained occurred. ‘Entail’ as used in logic encapsulates the idea that by a process of valid deductive inference, the relationship between propositions holds, so that in ‘a valid argument the premises taken together entail the conclusion...entailment also holds between certain pairs of statements’ (Taylor 1970:10). The explanation must contain a universal generalisation, and without universal generalisations there is no entailment.

Hempel (1966:51) has applied his method to history, human actions and functional explanations in biology and the social sciences. In summary his conception of explanation is derived from what he terms ‘covering laws’. This means that the occurrence of an event is explained by subsuming that event under a general law. When the covering or subsumed laws are deterministic,

the explanation takes the form of a deductive argument with laws and statements of antecedent conditions as premises and an appropriate statement describing the event to be explained as its conclusion. These explanations are called deductive-nomological (D-N) explanations.

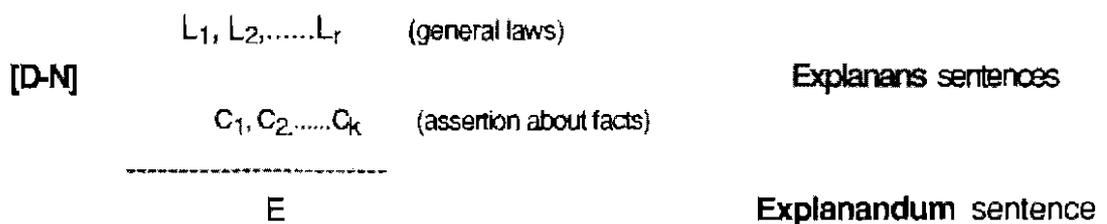
### 1.2.1 *The Deductive-Nomological Explanation ( the D-N explanation )*

This kind of explanation comprises a number of explanatory sentences or facts, from which the phenomenon to be explained follows deductively. The explanatory statements can describe certain facts and/or may have the attributes of general laws demonstrating empirical connections that are uniform.

In other words:

“the explanation fits the phenomena to be explained into a pattern of uniformities and shows that its occurrence was to be expected, given the specified laws and the pertinent particular circumstances” (Hempel 1966:50).

The form of this type of scientific explanation can therefore be depicted in the following way:



The explanation resulting from such a process can be formulated as a deductive argument where the conclusion is the explanandum sentence, and where the premises are the basic or general laws and assertions about facts,

collectively known as the explanans.

Hempel (1966:51) describes explanatory accounts of this kind:

“as explanations by deductive subsumption under general laws or *deductive nomological explanations*.... The laws invoked in a scientific explanation will also be called the covering laws for the explanandum phenomenon, and the explanatory argument will be said to subsume the explanandum under those laws”.

The explanandum phenomenon in a D-N explanation may be i) an event occurring at a specific place or time or ii) some regularity found in the natural world or iii) a uniformity expressed by an empirical law such as Galileo's. Deductive explanations of such regularities and uniformities then bring into being laws of broader scope. These empirical laws are then explained by means of theoretical principles that pertain to structures and processes underlying the uniformities and regularities under discussion. This will be elaborated later in this chapter.

### *1.2.2 Universal Laws and Accidental Generalisation*

Laws play an essential role in D-N explanations. They can link the particular circumstances that operate to explain the occurrence of a given event. When the explanandum is not an event but a uniformity such as angles of reflection of paraboloidal and spherical mirrors, the explanatory laws reveal a complex of more comprehensive uniformities of which the given one is but a special case (Hempel 1966:51).

There is an implication of causality in the link between the circumstances and the occurrence of the event. When a law is stated then causes are assumed. A causal relationship leads to general laws or more accurately efficient causation leads to general laws. This is basically what Hempel is saying although his account is stated in terms of laws rather than causes. However, on reading Hempel it becomes clear that a causal relationship is essentially a law (Sapire 1994). In the basic tenets of Hume's theory of knowledge, it is stated that an idea emerges from the repeated experience of one kind of thing followed by the experience of a thing of another kind, setting up a connection in thought between things of two kinds. He says that one thing as the cause of another can not result from thought alone but must emerge from the experience of contiguity between the two things (Stroud 1993:183).

Hempel (1966:52) points out that some scientific explanations follow the D-N pattern very closely, while others are expressed in an elliptical form that leaves out assumptions that are presupposed by the explanation because they are implied by the given context. Explanations of this type are sometimes stated in the form " 'E because C' where E is the event to be explained and C is some antecedent or concomitant event or state of affairs". The details of how slush on a sidewalk remains liquid despite the frost is given to illustrate this example. There is no explicit statement of the law regarding the fact that salt dissolved in water lowers its freezing point. It is however, assumed.

The example demonstrates that corresponding general laws, presuppose that

there is always an explanatory statement, to the effect that a particular event of a certain kind *G* was caused by an event of another kind *F*. This raises thorny complexities regarding the notion of cause. However, the general maxim 'same cause same effect' can be applied to such explanatory statements and it yields the claim that whenever an event of kind *F* occurs it is accompanied by an event of kind *G*.

In this sense then, an explanation that is grounded in general laws does not ask that its discovery requires the discovery of the laws. Rather, it may be in the discovery of some specific fact "which by virtue of antecedently general laws accounts for the explanandum phenomenon" (Hempel 1966:53), that some critical insight might be gained.

In D-N explanations, the laws must have the same basic characteristic. They must be statements of universal form. Statements of this kind claim a uniform link between different empirical phenomena or between different features of an empirical phenomenon. They take the form that whenever and wherever conditions of a certain kind *F* take place, then specific conditions of a kind *G* will occur regularly and without exception. There are many examples in the natural sciences to demonstrate this, such as whenever a magnetic rod is broken, the pieces retain their magnetic qualities, or whenever a solid is dissolved in a liquid, the boiling point of the liquid is raised. In the natural sciences many of the laws are quantitative. There are explicit mathematical connections between different quantitative features of physical systems (pressure of gas, temperature)

or processes ( time and distance in free fall).

Hempel (1966:55) makes the point, that strictly speaking, there should be reasons to assume that a statement of universal form is true, for it to be considered a law. However, if this requirement were to be upheld, there would be laws such as Galileo's which would not retain their status as laws. In contemporary physical knowledge laws only hold to an approximate extent and within certain parameters. Hence the word 'law' is used here rather liberally.

A scientific law then cannot be satisfactorily defined as a true statement of universal form. It therefore constitutes a necessary but not sufficient condition for the distinguishing of universal laws. The question then arises as to how to discriminate between genuine laws and accidental generalisations?

One difference is that a law can support counterfactual conditionals whereas an accidental generalisation cannot, and Hempel (1966:56) uses this to make the distinction. A counterfactual conditional takes the form - if *A* were (or had been) the case, then *B* would be (or would have been) the case, when in fact *A* is not (or has not been) the case . An example would be to assume that if ice had been placed in boiling water it would have melted. *A* may not have been the case but it is supported by the law that ice is liquid above a certain temperature.

In addition a law in contrast to an accidental generalisation can support a subjunctive conditional. This is a way of stating a connection between event *A*

and *B* so that there is a dependency of *B* upon *A*. Take the following two possibilities as an example: In the first, event *A* - the strike of a clock; event *B* - father comes home from work. Every time the clock strikes father comes home from work. In contrast take the second : event *A* - Every time I drop a glass, event *B* - it breaks.

In the first there is no causal connection, while in the second there is very obviously, a causal connection. The subjunctive conditional can be used to express the second but not the first pair. The form is 'if - then'. There is also the possibility of a subjunctive negative - if *A* had not occurred then *B* would not have occurred either. In a counterfactual conditional or a subjunctive conditional there will always be a causal connection. A similar notion can be discerned in the work of Hume (1975). Pondering the issue of cause in his theory of knowledge, he points out that there are three types of elements: a present *impression* connected with an item, some *idea* of an event related in time and finally the *connection or inference*. The connection concerns the constant conjunction of events and Hume calls the one cause and the other effect.

Of particular interest to this discussion is that a universal law can serve as a basis for an explanation, whereas an accidental generalisation cannot. This is in accordance with the form of the D-N explanation, and with the Covering Law Model that has as its first element a universal generalisation or law statement.

As already described, a statement of universal form can hold as a law if it can

support counterfactual and subjunctive statements about instances that may occur and might have in the past. However, there are instances where a statement of universal form may qualify as a law when there are no instances at all of occurrence. Under such circumstances recourse is made to theory:

“A statement of universal form, whether empirically confirmed or as yet untested, will qualify as a law if it is implied by an accepted theory” (Hempel 1966:58).

Statements of this kind are known as theoretical laws and will be considered later in this chapter.

### *1.2.3 Horton and the D-N Explanation*

In many of Horton's (1974) examples he attempts to show how an event *a* is explained by an event *b*. He often cites cases of illness - someone becomes sick, the illness is intractable and a diviner is consulted. The diviner attributes the sickness to an ancestor angered by the patient's lack of adequate concern for his kinsmen. The diviner prescribes appeasement of the ancestor by offerings and changes in behaviour of the patient in relation to his kinsmen. The patient is finally cured.

As described above the laws necessary for the D-N explanation, that is, universal laws require a uniform connection between either different empirical phenomena or aspects of empirical phenomena. Such a statement takes the form that whenever or wherever conditions of a specific kind *F* occur, then so will and without exception, specific conditions of another kind *G* occur (Hempel 1966:53). Could one deduce from Horton's example that whenever someone is

ill (an empirical phenomenon), then without exception there will always be an angry ancestor needing placation? The angry ancestor could be considered an intervening variable or for Horton a theoretical entity - something that intervenes between the empirical phenomena of illness on the one hand and the recovery from illness, on the other. We have in this instance some association between events, not a uniform connection, or the logical regularities required by Hempel (Kinoshita 1990:299). Equally if one were to attempt to paraphrase the argument it would not support either counterfactual or subjunctive conditionals and we would be left to the conclusion that what we have is an accidental generalisation and not a universal law. ( Personal entities exhibit the features of accidental generalisations and therefore cannot be considered to be laws).

### *1.3 Probabilistic Explanations*

Hempel's first type of scientific explanation is deductive (D-N) as discussed above. He does however, recognise a second type of scientific explanation and that is the probabilistic explanation.

In the D-N explanation the deductive inferences from the premise-set or explanans statements yield a conclusion that is true since it is logically implied from the premises. The laws are, in this instance, laws of universal form.

In the probabilistic form, the explanans implies the explanandum, not with 'deductive certainty' but with near certainty or with high probability (Hempel 1966: 58). The law of probabilistic form provides an inductive explanation. It

demonstrates that on the basis of the information contained in the explanans, the explanandum will be expected with high probability or 'practical certainty'.

The distinction between laws of universal form and laws of probabilistic form is not:

"the strength of the evidential support...but the form which reflects the logical character of the claim they make" (Hempel 1966:66) .

A law of universal form states that in all cases where conditions of kind *F* are present, conditions of kind *G* are present as well, while a law of probabilistic form contends that under certain conditions, a certain kind of outcome will occur in a defined percentage of cases. Therefore, irrespective of whether outcomes are true or false, well or poorly supported, laws of universal form and laws of probabilistic form are of a logically different character.

Central to any conception of probability is the notion of relative frequency and the probabilities referred to in probabilistic laws denote relative frequencies (Hempel 1966:62). There is a lot more that could be said about scientific hypotheses in the form of statistical probability statements and observed frequencies, but this has little relevance for the work at hand because Horton does not refer to the notion of relative frequency or make use of statistical methodology.

However, it could be said that the probability that the explanans accords the explanandum, in certain instances characterises a "relation between sentences

not between (kinds of) events” (Hempel 1966: 67). For example in the case of exposure to a virus there is a high probability of contracting the virus, but not all people exposed to it succumb. Here probability could be expressed in statistical terms but in this instance it could be said to refer to the rational credibility of the explanandum, in relation to the content of the explanans. Since it is construed as a probability it reflects a logical or inductive probability and attributes more or less strong backing for the event under scrutiny.

Therefore it is possible to distinguish deductive-nomological explanations from probabilistic ones in so far as the former result in a deductive subsumption under laws of universal form, while the latter effect an inductive subsumption under the laws of probabilistic form (Hempel 1966:68).

It is important to note that a probabilistic account, because it is inductive, ‘does not explain the occurrence of an event, since the explanans does not logically preclude its non-occurrence’ (Hempel 1966:68). Despite this, probabilistic laws and theories are increasingly found in science, and Hempel says that accounts based on these principles do in fact yield explanations even though they are not as tight as those realised by the D-N form. They are accounts expressed as explanations ‘only’ with high associated probability but they do constitute explanations of an acceptable kind for science.

### *1.3.1 Horton and the Probabilistic Explanation*

Horton (1974) does not provide examples of explanation of the probabilistic

type in African traditional thought. In fact in his section on differences he indicates why probability explanations do not occur in traditional thought. He introduces the notion of 'open' and 'closed' predicaments, and says that the key difference between traditional and Western cultures is the capacity for an awareness of alternative ways of seeing the world, and an absence of questioning of established theoretical tenets. If an ill person does not get better despite the intervention of a diviner, Horton (1974 :163) says that:

" the client never takes his repeated failures as evidence against the existence of the various spiritual beings named as responsible for his plight, or as evidence against the possibility of making contact with such beings..nor do the members of the wider community...try to keep track of the proportion of success or failures in the remedial actions based on the beliefs, with the aim of questioning the beliefs".

The concept of 'closed' and 'open' predicaments will receive further consideration in chapter four. At this point in the absence of considering outcomes in terms of numbers of successes as opposed to numbers of failures, and the absolute validity of accepted beliefs any possibility of probabilistic explanations in African traditional thought is precluded.

When an explanation is tendered, two types of questions about the explanation can be asked and according to Taylor (1970:19) they must be kept separate:

- is it an explanation? The Covering Law Model proffers an answer to this and what it explains constitutes a valid argument. Another way of putting this is to say that if  $e$  is an explanation of something  $h$ , then only  $h$  may be deduced by valid argument from  $e$ ; it does not say that the statements that make up  $e$  are

true.

- is it the *correct* explanation? A valid argument may contain false propositions so that it becomes important to establish the truth of the statements making up the explanation. It is this that determines whether, or not, the explanation is correct.

#### *1.4 The Confirmation of Scientific Explanation*

In order to determine the correctness of an explanation the truth of the universal generalisation must be established, or the truth of statements about specific situations is required. While there may be some difficulty in establishing facts about the happening of a specific event and the circumstances in which it happens, it is not theoretically impossible to do so. In the case of universal generalisations however, it is logically impossible to do this, because of the infinitely large classes of events or things that are involved. It is not possible to assert a proposition that "all leopards are spotted" is true, because it is always possible that in some place at some time a striped leopard may be discovered. Despite the impossibility of establishing the truth of a universal generalisation, it is possible to test it, not by proving it true, but by attempting to falsify it. If a universal generalisation survives repeated attempts at falsification, a certain confidence in the generalisation begins to emerge (Taylor 1970:24).

" Underlying Hempel's work on explanation are the following two central ideas: first, explanation or scientific understanding is not merely a matter of intellectual satisfaction but must have an objective, testable basis: second, this testability condition is to be implemented by the requirement that an acceptable explanation must show that the

occurrence of the phenomena to be explained can be rationally expected on the basis of the information contained in explanatory premises" (Kim 1993:172) .

As is clear from the quotation above, for Hempel (1966:46-7) scientific explanations must satisfy two systematic requirements:

- i. the requirement of explanatory relevance and
- ii. the requirement of testability.

The requirement of explanatory relevance is met when the phenomenon in question is to be expected under the circumstances specified in the physical description. Hempel (1966:48) uses the phenomenon of a rainbow to demonstrate this principle. The explanatory information contained in the optical laws of reflection and refraction, suggest that whenever a spray of water is caught in a strong white light in a particular relation to an observer, a rainbow will appear. Even if you had never seen a rainbow, the explanatory information given in the physical account would provide good grounds for anticipating or believing that a rainbow would appear if those conditions occurred. This explanation would then meet the requirement of explanatory relevance. The notion of explanatory relevance is however, only a necessary condition for an acceptable explanation and is not sufficient.

This brings us to the second requirement for scientific explanation, namely the requirement of testability, which demands that the statements constituting a scientific explanation must be capable of empirical test. To illustrate Hempel

(1966:49) proposes that gravitational attraction is a natural tendency much like love. For Hempel there is no empirical substance in this statement and therefore there is no basis for expecting the characteristic phenomena of gravitational attraction. The account lacks objective explanatory power, and in fact abandons any attempt at explanation at all. The statements accounting for the rainbow explanation, on the other hand, have various implications for testing, such as the conditions under which a rainbow will be seen in the sky, the appearance and order of the colours, as well as similarities and differences in rainbow phenomena in the spray of a breaking wave or the mist of a lawn sprinkler.

D-N explanations very powerfully satisfy the requirement of explanatory relevance: the premise-set of information implies the explanandum deductively, and the explanandum phenomenon is to be expected because logically conclusive grounds are provided. They also meet the testability requirement since the explanans demonstrates among other things, that under the particular conditions, the explanandum phenomenon occurs.

As mentioned previously, probabilistic explanations, being inductive in character, afford less stringent explanations than the D-N explanation but they do meet the requirements of explanatory relevance and they lend themselves to testability (Hempel 1966:68).

Before taking a closer look at the process of scientific inquiry, with its notions of

hypothesis building, testing, confirmation and establishment of theory, as propounded by Hempel and then compared with Horton, *what* explanations will be considered.

## **2. *What* Explanations**

There are *what* explanations that merely say what something is, like this is an item used in a religious ceremony. However, these *what* explanations are not necessarily identifiable by the verbal form of the question that they answer. It is not the specific syntax of *what* questions that is the focus - words like *why*, *who* or *how* may also introduce the question (Kinoshita 1990:300). The focus is rather on what they do and whether they qualify as scientific explanations (Taylor 1970:33).

As mentioned previously a good deal of scientific inquiry devotes itself to developing general theories and then applying them to specific events, and as will be elaborated later, many formulations of scientific theory are characterised in terms of the behaviour of theoretical entities. If a *what* explanation is applied to a particular event, it is necessary to redescribe what was observed when the event took place using the terms of the theory. For example to explain 'the behaviour of gases in terms of the kinetic theory, it is necessary first to redescribe the gases as collections of molecules' (Taylor 1970:33). Explanation in this manner serves as a preliminary to a scientific explanation.

In explaining what is actually going on in relation to an event, an even closer

approximation to a scientific explanation is achieved. You'll recall that a scientific explanation arises out of a deduction from premises that consist of universal generalisations and statements of antecedent conditions. It is possible to give an explanation of what is going on, which may refer to such generalisations and statement of circumstances. An example would be 'the electrical current is breaking the water down into hydrogen and oxygen'. This is considered to be a scientific explanation that is simply an elliptical explanation of events.

The extent to which a *what* explanation is related to a scientific explanation is a matter of whether or not and how far the redescription makes use of terms acceptable to a scientific theory. When the *what* explanation attempts to explain what is going on, the extent to which it is related to a scientific explanation is a matter of relationships which are expressed in the universal generalisations of that theory. This does not necessarily mean that no *what* explanation can be related to a scientific explanation unless there is already a well-formulated theory in the field. If some hundred years ago a man asked what was going on in a chemical reaction and was told that a large number of small particles were being reorganised, he would have been given something close to a scientific *what* explanation.

"However, to be *equivalent* to a scientific explanation an explanation of what is going on must either contain an elliptical reference to some known universal generalisation or imply the truth of some such generalisation, so as to allow its reformulation according to the covering law model. To say that a particular *what*-explanation is *related* to a scientific explanation is to say that it redescribes something or some event in terms which can be

employed in an explanation conforming to the covering law model" (Taylor 1970:3 4).

Decisions as to whether or not a *what explanation* is equivalent to a scientific explanation, or related to a scientific explanation, are difficult to make. Certainly there are a great many *what* explanations whose explanatory character precludes the possibility of either reformulating them as, or of relating them to scientific explanations.

Taylor (1970:35) says there are instances where an object or event appears to be an x but also has properties that are not compatible with being an x; there are instances in which something could be one of a number of things but it can not be identified specifically from the available evidence. From this it becomes clear that *what* explanations can be used to serve different functions:

- i) *what* explanations for the purpose of satisfying theoretical or scientific interest. Such explanations involve rediscussions in terms which link the object or event to scientific laws from which the behaviour of the object or the event might be deduced, and future behaviour or events predicted. Such explanations may or may not have consequences for those who receive the explanation.
- ii) *what* explanations which provide information to satisfy our curiosity and which may affect practical decisions in ordinary life.

In Horton's thinking, in African traditional thought the explanation for the question for what is going on when a tribe suffers a drought could take the form of attributing the cause of the drought to some form of retribution on the part of

annoyed ancestors for the anti-social behaviour of the tribe. This would be an acceptable example from his field work with the Kalabari where the ancestors are presumed to represent the forces underlying the life and strength of the descendants, bringing misfortune to those who betray the values of the line and favour to those who align with them. Horton appears to take descriptions of what is happening and gives them the status of scientific explanation. In the redescription and explication of links, he attempts to satisfy the requirements for a scientific explanation. At best he may produce something related to a scientific explanation, but it is possible that the explanatory character has nothing to do with scientific explanation at all, but simply provides information that satisfies people's curiosity about the world and makes the world meaningful.

It is possible that saying what something is can be explanatory, whether it is feasible or not to theorise or give scientific explanations. In the field of human behaviour explanations of this sort may be acceptable. But the question remains open as to whether these explanations are of a scientific kind with all that this implies about the possibility of testing the explanations by deduction and prediction. The evidence at present seems to suggest that they are not scientific. Horton (1974) implies that all 'what' questions are scientific and by implication African traditional thought in answering a 'what' question such as: 'what is wrong with my body' with 'your ancestors are angry' provides a valid scientific explanation because of the very fact that it takes the form of a *what* explanation. As the above discussion indicates, this is not the case.

In conclusion, there are different types of explanations but the criteria as to what constitutes scientific explanation are rigorous and stringent. At the same time one has to bear in mind that explanations can be formally successful yet dated. One might have asked a third century Alexandrian alchemist "what is this event?" and be told quite legitimately that it was a case of a certain substance being brought from a manifest state to an occult state. If the explanation was formally successful, then it still is formally successful in its context of the past, even if one rejects the ontology of substances (Kinoshita 1990:305).

### **3. The Process of Scientific Inquiry**

While the structure of explanation is the central theme of this chapter, the whole process of scientific inquiry from which scientific knowledge is established, needs to be discussed. How hypotheses are developed, tested, and confirmed (the observational terms) will be considered in this chapter. The expansion of these terms into theory will receive attention in chapter three. All these aspects are relevant for a comprehensive evaluation of Horton's thesis.

#### *3.1 The Hypothesis*

Scientific inquiry requires the gathering of data or information, and a way of making links and sense of the information. If an explanation is to be found for a body of empirical findings then there must be an hypothesis about how the findings are connected. The hypothesis can be arrived at by inductive inference from the previously gathered information, but the question arises as to how to get from data to theory. Hempel (1966:14-5) points out that there are no

mechanical procedures of inference, nor general 'rules of induction'. Furthermore, that the terms in which scientific hypotheses and theories are formulated are not necessarily present in the description of the experimental findings on which they are based and which they attempt to explain. What is needed to make the transition from information to theory is what he calls 'creative imagination'.

"Scientific hypotheses and theories are not *derived* from observed facts, but *invented* in order to account for them. They constitute guesses at the connections that might obtain between the phenomena under study, at uniformities and patterns that might underlie their occurrence" (Hempel 1966:15).

An echo of the methodology of Western science can be discerned in Horton's (1974) paper. He draws attention to uniformities that underlie events and by the process of induction he too arrives at a conception regarding the phenomena at hand. Horton claims that inductive inference is common sense:

"Thus the principle tool of common sense is induction or putting two and two together, the process of inference so beloved of the positivist philosophers" (Horton 1974: 135).

Horton therefore accepts the view that hypotheses are invented to account for observed facts but if an analysis of uniformities is to lead to an explanation of the phenomena under study, it has to be based on an hypothesis about how the phenomena are connected with empirical findings. Without this connection the endeavour does not serve the purposes of science. For Hempel (1966:18) this would leave us with what he refers to as a pseudo hypothesis because it has no bearing on empirical phenomena.

While creativity and imagination are encouraged in science, in particular in the generation of scientific hypotheses (and there is no doubt about Horton's capacities at this level), scientific objectivity must be assured. This is achieved by the principle that hypotheses can only be accepted into the body of scientific knowledge if they pass a process of critical scrutiny that involves, amongst other procedures, careful observation followed by empirical testing (Hempel 1966:16). In other words, scientific objectivity is ensured by the demand for an objective validation of the inventive speculations.

“Scientific knowledge...is arrived at not by applying some inductive inference procedure to antecedently collected data, but rather by what is often called ‘the method of hypothesis’, i.e. by inventing hypotheses as tentative answers to a problem under study and then subjecting these to empirical test” (Hempel 1966: 17).

Horton shows how ordinary experiences of life in traditional African cultures can be attributed to spiritual agencies that operate behind these observed events. In developing his hypothesis about such spiritual agencies he shows how gods can operate just like the atoms, molecules and waves of Western science. There is again no doubt that these observations have been collected over time through careful inquiry and observation, but this is not the scrutiny of scientific empiricism in the Hempelian tradition. The regularities in the patterns of events that Horton describes do not constitute the logical explanatory hierarchy demanded by Hempel (Kinoshita 1990:301).

### *3.2 The test of a hypothesis, its logic and its force*

The word ‘hypothesis’ in Hempel’s (1966:19) sense refers to any statement

that is under test, no matter whether its purport is to describe some particular fact or event, or to articulate a general law or some more complex proposition. It seems fair to say then that since every scientific explanation is regarded as a hypothesis, it is regarded as acceptable only to the extent that there is evidence for it. It is this continual search for more evidence to decide the question that leaves the question of truth or falsehood open. The term 'evidence' refers to experience. 'Empirical' in science contends that the test of truth of its propositions is sense experience, and in this sense a scientific proposition must be amenable to testing by observation. It is this *sensible* evidence that is "the ultimate court of appeal in verifying scientific propositions" (Copi 1978: 461).

An hypothesis in the normal course of events has test implications that are conditional in that they state that an outcome of a particular kind will occur under specified test conditions. The test implications are twofold. The implications are derived from the hypothesis, and they have the form of *if-then* sentences, which are called conditionals or material implications in logic (*Modens ponens*). The test conditionals must be technically operationalisable, through bringing under control some factor that affects the particular phenomenon under scrutiny, according to the given hypothesis. There must be a basis for *experimental test* (Hempel 1966:20). In Western science hypotheses are mainly expressed in quantitative terms. In African traditional thought the attributes of personal theoretical entities are qualitative, not quantitative.

According to Hempel (1966:21) experimentation in science is not only

employed as a method of test but also as part of a process of discovery. It is in relation to the second point that the requirement that certain factors be kept constant is critical. In the natural sciences many, though not all, hypotheses lend themselves to experimental testing.

### *3.4 Auxiliary Hypotheses*

As already indicated an hypothesis is stated and from this, test implications are 'derived' or 'inferred'. This statement though is only an approximation of the relationship between an hypothesis and the setting out of its test implications. There are instances when the derivation of test implications is clear and conclusive, but there are situations of greater complexity. The example Hempel (1966:22) gives is of childbed fever and contamination by infectious matter. The test implication is that if people making contact with the patients were to wash their hands in chlorinated lime, then there would be a reduction in mortality from childbed fever. It is clear that there is an additional idea here and this statement does not follow deductively from the hypothesis alone. There is a further premise in its derivation and that is that a chlorinated lime solution will destroy infectious matter to a greater extent than will be achieved by soap and water alone. This constitutes an auxiliary assumption or hypothesis and is a silent premise that is taken for granted.

The above can be stated in this way:

"that if hypothesis H is true then so must be the test implication I, but only ... if both H and the auxiliary hypothesis are true, then so will be I" (Hempel 1966:23).

In the testing of scientific hypotheses there is a reliance on auxiliary hypotheses more often than not, and in the event of unfavourable test results this reliance has an important consequence. If the test implications  $I$  are found to be false so is the hypothesis under investigation. There are no test implications in the construct of personal theoretical entities.

"If  $H$  alone implies  $I$ , and if empirical findings show  $I$  to be false then  $H$  must also be qualified as false" (Hempel 1966:23).

This follows by the Modus tollens argument

"If both  $H$  and  $A$  (Aux  $H$ ) are true, then so is  $I$   
but (as the evidence shows)  $I$  is not true

---

$H$  and  $A$  are both not true" (Hempel 1966:23).

The auxiliary hypotheses are significant at many levels in testing. Take the example of  $H$  tested through a test implication, 'if  $C$  then  $E$ ' which is arrived at through  $H$  and a number of  $A$  auxiliary hypotheses. The test then involves determining whether or not  $E$  does occur in the test situation where to the best of ability the experimenter has realised conditions  $C$ . This may not in fact be the case if, for example, there is a failure in the adequacy of test equipment both in terms of its reliability and sensitivity. Then  $E$  may not happen even if both  $H$  and  $A$  are true. For this reason it is presupposed that all the auxiliary assumptions should include the supposition that the test arrangement satisfies the specified conditions  $C$ .

This is of particular significance when the given hypothesis has stood up well in previous tests and is central to a larger system of interconnected hypotheses

that are also supported by other diverse evidence. In an instance like this it would be important to account for the non-occurrence of *E* by showing that some of the conditions *C* were not satisfied in the test.

In understanding the test of an hypothesis, it is important to remember that there can be no incontrovertible proof of any body of empirical findings no matter how accurate or comprehensive. This holds particularly in those instances where recourse has to be made to general laws that imply some process that is not directly observable, as well as for phenomena that are more easily accessible to observation and measurement (Hempel 1966:29).

### *3.5 Compatibility with previously well-established hypotheses*

Science seeks to achieve a system of explanatory hypotheses. They must be self consistent with no contradictory set of propositions. In fact, inconsistencies automatically prove the hypothesis wrong. In a conflict between two hypotheses, recourse is made to the observable to decide between them. The ultimate deciding factor would be our experience in the world, generally leading to the modification of the hypothesis. It can be seen from the above that African traditional thought would experience problems in terms of mediating a conflict between two different hypotheses and this would result in the adoption of *ad hoc* hypotheses in order to bolster tradition.

### *3.6 Ad hoc hypotheses*

Auxiliary assumptions are often additional premises that can be used in

deriving test implications I from an hypothesis H. If the test result is negative, showing I to be false, then H or one of the auxiliary hypotheses must be false. A change must be made somewhere in the set of sentences if the test result is to be accommodated. In fact, states Hempel, (1966:28) it is almost always possible to hold on to H even if test results are negative if there is a willingness to revise the auxiliary hypotheses. But, he says, it is not in the interests of science to hold on to its hypothesis or theories at all costs. Again the mode of traditional thought would value the continuity of tradition above the quest for understanding.

### *3.7 Testability principle and empirical import*

To propose a statement or set of statements as a scientific hypothesis or theory necessitates an objective empirical test which is attainable at least in principle. In such a case, where no test implications can be formulated, an hypothesis would be considered to lack empirical import. Hempel (1966:30-1) gives the example of mutual gravitational attraction to explain love. The idea is that there are natural affinities underlying gravitational attraction that are related to love. However, it is not possible to derive any test implication from so insubstantial a claim.

“No specific empirical findings of any kind are called for by this interpretation. No conceivable observations or experimental data can confirm or disconfirm it. In particular therefore it has no implications concerning gravitational phenomena. Consequently it cannot possibly explain those phenomena or render them intelligible...”

(Hempel 1966:31).

Therefore, Hempel (1966:31) continues that the question of whether such a claim is true or false makes no sense and that is why scientific inquiry cannot possibly decide this. Hempel calls this a *psuedo-hypothesis*, because it is an hypothesis in appearance only. In Kalabari religious thought there are three categories of spirits: ancestors, heroes and water-people, that underpin the life of the community. A conception that the water spirits are "the 'owners' of the creeks and swamps... the forces of nature.. the patrons of human individualism..." (Horton 1974:150) has all the features of a psuedo-hypothesis, yielding little possibility of deriving test implications, or any conceivable observational or experimental data to confirm or disconfirm either their existence, or their function.

For a proposed hypothesis to have empirical import, we have to question what auxiliary hypotheses are explicitly or tacitly presupposed in the given context and whether in conjunction with the latter, the given hypothesis yields test implications. The auxiliary hypotheses implicit in African thought are, according to Horton, in the form of their intention, that is, prediction, control and explanation. But of course there are no test implications so it is doubtful whether they would even qualify as auxiliary hypotheses in scientific terms.

A scientific idea will often be introduced in an initial form that offers only limited and tenuous possibilities for test and on the basis of such initial tests it will gradually be given a more definite precise and diversely testable form. Testability is one of the features to which an acceptable hypothesis is expected

to conform. The primary distinguishing feature of a scientific hypothesis is that it is testable. This means that there must be the possibility of making observations that can confirm or disprove it. Some hypotheses are formulated in terms of unobservable entities, for example electrons and electromagnetic waves, of which Horton is well aware. It is here that he locates the similarity between African traditional thought and Western scientific thinking. Although both are unobservable, scientific entities are observable if even only indirectly. There must be some way of getting from unobservable entities to statements about directly observable entities. There has to be some connection between a scientific hypothesis and empirical data or facts of experience as in pointer readings or lines on a photographic plate. The connection between unobservable and observable entities cannot be in terms of belief or social connections as according to Horton, in order to qualify as scientific hypotheses.

### *3.8 Criteria of confirmation and acceptability*

A favourable outcome of even very extensive and exacting tests cannot provide conclusive proof for an hypothesis, but only more or less strong evidential support or confirmation. In appraising what might be called scientific acceptability or credibility of an hypothesis, one of the most important factors to consider is the extent and the character of the relevant evidence available and the resulting strength of the support it gives the hypothesis. Relevant evidence might be construed as the familiarity of the context from which the model is derived. Yet again testing eliminates African traditional thought.

According to Hempel (1966:45) the definition of the aim of science is to produce:

"A comprehensive body of sound empirical knowledge, represented by a well confirmed system of empirical statements and it is accordingly prepared to give up or modify whatever hypotheses it may previously have accepted".

In terms of Horton's view it is difficult to see how an hypothesis might be modified in fact, as there is no method or precedent to effect this.

### *3.9 The probability of hypotheses*

The credibility of an hypothesis at a given time depends strictly speaking, on the relevant parts of the total scientific knowledge at the time. This would include all the evidence (relevant to the hypothesis) and all the hypotheses and theories then accepted that have any bearing upon it. The credibility of an hypothesis is relative to a given body of knowledge. The given body of knowledge in Horton's view would be context-dependent in that it is derived from a world of limited experience and limited exposure to scientific method. This in Horton's view validates African traditional thought as an explanation comparable with that of Western science.

## **4. The Development of Theory**

### *4.1 The Characterisation of Theory*

This section will start with the characterisation of theory, and be followed by the principles whereby theory is formulated.

The nature of a good scientific theory is difficult to define in precise terms. According to Salmon (1993b: 506) there are two primary views:

“the received view [that] theories are partially interpreted axiomatic systems...{and} ...the semantic view, a theory is a collection of models”.

In the axiomatic method all propositions stem from a clearly specified set of initial assumptions. The theory contains symbols, rules of formation, definitions, axioms, rules of inference. Furthermore the theoretical systems developed are consistent and complete in the sense that they enable all the true propositions to be proved (Flanagan 1995:572). The semantic view involves models all of which involve some form of analogy between the model and either reality or some scientific claim. Theoretical models try to chart some aspect of reality and involve simplifying assumptions which are adapted or aborted depending on the model's predictive success. The semantic view holds that theories are families of models having relevance for particular empirical circumstances and not general systems applicable to an aspect of reality (Ruse 1995:583).

Hempel's approach falls within the received or axiomatic view. The theory regarding this view states that when some degree of understanding has been achieved by the acceptance of empirical laws in an inquiry, the systematisation afforded by theory will extend that understanding. It permits, in its process of organisation, a unified account of events or happenings that are apparently disparate. If these phenomena can be linked to the same underlying processes, the diverse empirical uniformities they exhibit can be seen to represent one common set of basic laws. Hempel (1966:75) shows how

Newton's theory of gravitation and motion can account for such different empirical regularities such as free fall, the simple pendulum, the motions of the moon, the planets, comets, double stars and artificial satellites as well as tides. Similarly in the kinetic theory of gases, explanations for a diversity of empirically established regularities are presented, and considered as macroscopic indicators of statistical regularities in the underlying molecular and atomic structure.

In Hempel the echo of Horton's proposition of the quest for unity underlying apparent diversity, for simplicity, order and regularity, and the search for forces operating 'behind' the world of common sense, is evident. For Western science, these structures if not observable are at least potentially observable and grounded in systems of other observations. While there are aspects of Horton's view that are covered by both axiomatic and semantic views of theory in Western science, it is difficult to see how the theoretical entities of African traditional thought are linked to observables in the world.

Suggesting that common sense and theory have complementary roles in everyday life, Horton (1974:142-3) describes the Kalabari view of disease. At some point the traditional doctor introduces the influence of spiritual agencies in the process of the disease. Horton says:

"What we are describing here is generally referred to as a jump from common sense to mystical thinking...it is also, more significantly, a jump from common sense to theory. And here, as in Europe, the jump occurs at the point where the limited causal vision of common sense curtails its usefulness in dealing with the situation in hand" (Horton

1974:142-3).

Consider how Horton uses the word 'jump'. Horton *uses* the language of the natural sciences. It appears at first as if there is common ground with scientific thinking, but on closer inspection, Horton's use is confusing. Horton seems to jump between different levels of theory and fails to show the link between levels. Hempel uses the word 'jump' to mean the movement of an electron in relation to the measurable phenomenon of light - linking internal and bridge principles. The whole notion of induction and the method of generation of an hypothesis described earlier is condensed in Hempel's word 'jump'.

In his most recent work, Hempel (Kim 1993:171) arrives at this important holistic view:

"whole scientific theories must be taken as the ultimate units of cognitive significance, and it is only when a theory is taken together with its 'interpretive statements' (i.e. a set of statements in which both the 'theoretical' and 'observational' terms occur) that one can meaningfully speak of its empirical content".

In the process of extending understanding, a theory often demonstrates that the previously established empirical laws that it organises, hold approximately and only within certain boundaries of applicability.

A good theory can also extend knowledge and understanding by predicting and explaining phenomena that were unknown when the theory was formulated. Horton does concede that African traditional thought cannot

compete with the predictive success of Western science.

Predictive success will strengthen confidence in a theory and give insight beyond the empirical laws. Therefore a scientifically adequate explanation of a class of empirical phenomena can only be understood by way of an appropriate theory. The directly observable world is explained by way of laws stated in terms of observables and is limited. These laws can, therefore, only hold approximately:

“...whereas by theoretical recourse to entities and events under the familiar surface, a much more comprehensive and exact account can be achieved” (Hempel 1966: 77).

From the above it is clear that central to the formulation of theory in Western science is the concept of theoretical entities and their relation to the world. This will be the focus of the next section.

#### *4.2 The formulation of theory*

Hempel (1966:72) says that there are two types of principles required for the formulation of theory:

- i. internal principles which represent the basic entities and processes organised by the theory and the laws to which they are presumed to correspond. In the kinetic theory of gases then, the internal principles distinguish the ‘microphenomena’ at the molecular level and attempt to state the laws that govern them.
- ii. bridge principles which show the relationship between the processes

incorporated by the theory and the known empirical phenomena and how the theory may then explain, predict or 'retrodict' these relationships. In the kinetic theory of gases, the bridge principles link specific features of the microphenomena with the corresponding 'macroscopic' characteristics of gas.

For Hempel, bridge principles connect certain theoretically assumed entities not directly observable or measurable. Examples are molecules, their masses, momenta and energies, with aspects that are more or less directly observable or measurable. Of course bridge principles are not always involved with theoretical entities that are unobservable and empirical phenomena that are observable. They can link entities that are characterized in terms of previously established theories and their observation or measurement may be based on presuppositions from the principles of those theories.

Without bridge principles, theory would have no explanatory power nor would it be subject to test. The internal principles of a theory focus on the specific entities and processes assumed by the theory. They will be expressed in terms of theoretical concepts which refer to those entities and processes. However, the implications that allow those theoretical principles to be tested must be expressed in terms of objects or happenings which are antecedently known, and for which there are methods of observation, measurement and description.

Therefore, while the internal principles of a theory are framed in its characteristic 'theoretical terms', the test implications must be defined in terms

which are antecedently understood in that they have been introduced prior to the theory and are independent of it. They are sometimes known as 'antecedently available' or 'pretheoretical terms'. In order to derive such test implications from the internal principles of the theory, other premises that establish links between the two sets of concepts are necessary. This is achieved by way of relevant bridge principles ('connecting for example the energy released in an electron jump with the wavelength of the light that is emitted as a result') (Hempel 1966:75). Without bridge principles, the internal principles of a theory alone could not generate test implications and would violate the requirements of testability.

A good scientific theory must yield to considerations such as confirmation and acceptability as discussed earlier, in relation to scientific hypotheses. Complex criteria determine whether explanations hold. The next chapter will deal further with the status of explanation and the justification and verification of theories.

#### *4.3 The identity of the theoretical entity*

As already discussed according to Horton (1974) the major difference between Western science and African traditional thought is that traditional thought is described in terms of personal entities while scientific theory is couched in impersonal terms.

These personal or impersonal worlds of common-sense things, are organised into theoretical schemes for the purposes of achieving causal understanding

that surpasses common sense. The theoretical schemes comprise theoretical entities that are unobservable and have properties that are invisible.

"In a theoretical identity, one term *apparently* refers to an observable entity or property, whilst the other term *apparently* refers to a theoretical entity or property - ie. one which is either unobservable in principle or observable only indirectly and which stands in an explanatory relation to what is observable" (Horton 1993: 261).

In African traditional thought such entities would comprise ancestors, spirits and their various human-like and superhuman potencies, while in science they would consist of atoms, electrons, energy and such like. In the section entitled paradox and explanation in African religion, Horton (1993:248) claims that spirit and divinity stand in an explanatory relationship to the phenomena and entities which are asymmetrically defined with them. This to Horton is an inescapable by-product of the explanatory quest. Spirit has attributes like personality which the rain lacks, yet they claim that rain is spirit. Like science, he goes on to say, there seems to be an irreducible element of obscurity that is central to the explanatory quest.

"For the explanation to be a satisfying one, the explanans must be seen as something other than the explanandum. Yet on the other hand, application of what is known about the behaviour of the explanans to the explanation and prediction of observable phenomena would seem to require identification of the latter with the former. In other words, the puzzles associated with 'rain is Spirit' are particular examples of the puzzles associated with explanatory statements generally" (Horton 1993:284).

In Hempel's view (1966:79), as already discussed, the only two possible

accounts of the relationship between the explanans and the explanandum is characterised either by a probabilistic inductive argument or a deductive-nomological one.

Horton (1966:53) says "it is the right attitude that we call science". He is concerned with purpose and function, with making sense of the world and creating meaning. While Horton does make reference to the notion of cause, it is not cause as used in the scientific sense which aims to extend understanding of the world and to make predictions.

#### *4.4 The status of theoretical entities.*

The natural sciences have achieved some of their most profound insights through the conceptualisation of structures, forces and processes underlying the known empirical objects of the world. Hempel (1966:77-8) points out that there are thinkers who consequently consider that these underpinning entities are the real elements of the world, but he finds their argument unsustainable. It is not the purpose of explanation to explain away events or happenings, as if the phenomena of ordinary experience are not 'really there'. This raises the whole question of reality and existence and debates concerning realism, which will be discussed in chapter three.

The antithetical view is one that maintains that theoretical entities or theoretical assumptions about such entities, cannot exist. The three different forms of this argument are as follows:

i. The first form contends that all components of theory, including the new concepts used in its development, must be subject to clear and objective definition. An examination of the links between new theoretical entities and their precursors often indicates that such definition may not be possible. In this form:

“its principles which purport to speak about certain theoretical entities.. are neither true or false; at best...form a convenient and effective symbolic apparatus for inferring certain empirical phenomena...from others” (Hempel 1966:79).

The demand for full definition here, is the demand for operationalisation of definitions and Hempel thinks that this is an ‘overly stringent’ demand. Clear and rigorous use of a concept is possible where only partial precision of meaning, rather than a full definition, has been achieved. For Hempel, bridge principles of a theory stated in terms of antecedently understood ideas provide the partial criteria for theoretical entities. This notion, he says, puts paid to the contention that theoretical concepts are ‘mere symbolic computation devices’ (Hempel 1966:80) which was the idea put forward by the Logical Positivists in a stringent test of verification.

ii. In principle many different laws and theories can account for a body of empirical findings however, heterogeneous. At the level of laws, there are any number of experimentally established pairs of values for ‘independent’ and ‘dependent’ variables that can be described by tentative laws about their relationships. The same holds when it comes to alternative theories. If ‘real existence’ is attributed to the hypothetical entities that characterise theory, then it must be granted to the rather different entities characterising the other theory. The conclusion then can only be that the entities cannot be held to exist in

actuality. Hempel (1966:75) points out, however, that in science there are ways of determining verifiability of assumptions, through the testing of implications. He concurs that by a process of gradual elimination, it is possible to narrow down the alternative views, but it is unlikely that certainty, that a particular theory is true can be achieved. This, he says, regards all empirical knowledge and is not a failure of the concept of theoretical entities.

iii. The 'facts' of the events that are encountered in everyday life are what scientific theory attempts to organise systematically and coherently. The explanatory assumptions should therefore only make reference to entities or processes that are potential facts, because they are potentially knowable by the senses. That which is outside the phenomena of everyday experience, cannot possibly refer to aspects of the physical world and cannot be more than 'useful formal devices' (Hempel 1966:81). In terms of this rigorous account, African traditional personal entities are not potential facts and do not refer to the physical world and can therefore be no more than a formal device.

Hempel's argument is that science would be unable to generate explanatory laws if it were to confine itself only to the exploration of observables. There is evidence that science can formulate quantitatively specific and encompassing explanatory principles in terms of underlying entities such as molecules and atoms. If it can be done at this level, which Hempel says is hypothetical, then there is no reason to reject the idea of underlying entities at a theoretical level. Both levels have entities framed in terms of more or less observable events (and observable may be possible only through instrumentation, such as

electron microscopes) and are subject to the same tests of confirmation. The level encompassing underlying entities is hypothetical which means that it is tentative and provisional, more or less probable on the basis of available fact and relevant evidence. In African traditional thought, it would seem that theoretical entities used as they are to link observable events in the world of common sense (natural effects) with their antecedents, which Horton considers 'natural causes', constitute an explanation that seems to appeal 'to tradition or popularity rather than evidence' (Copi 1978: 464). For Hempel (1966:82) in Western science, there is a:

'gradual transition from the macroscopic objects of our everyday experience to bacteria, viruses, molecules, atoms and subatomic particles; and any line drawn to divide them into actual physical object and fictitious entities would be quite arbitrary'.

#### *4.5 Horton's view of theory*

This was discussed in chapter one. What is significant at this point is Horton's argument about personal theoretical entities, which unlike the impersonal theoretical entity of Western science cannot be located in bridge principles nor orientated within the scheme of the same class membership. The most current idea is that there are good reasons for conceding the reality of both common sense things and theoretical entities. Scientific realism claims that theoretical posits like electrons, force fields and quarks are as real as observable entities. The realist in any such area insists on the reality of the entities in question in the discourse and holds that these exist independent of our thinking about them (Petit 1993:420). Elements of idealism are refuted by Hempel (1966: 78) who

says:

"It is neither the aim nor the effect of theoretical explanations to show that the familiar things and events of our everyday experience are not 'really there'".

Horton's aim is not to prove or disprove the existence of theoretical entities but rather to find the arena of discourse in English that can provide adequate instruments of translation - not just dictionary equivalents but an allocation of concepts and conceptual processes to their appropriate intellectual categories. The arena that provides this instrument of translation, Horton then suggests is associated with concepts of theoretical entities which evolve from primary theory.

An important element of continuity between African traditional and Western thought is the presence of two distinct yet intimately complementary levels of thought and discourse. Originally Horton (1974:141) referred to them as 'common sense, everyday' and the other as 'theoretical'. He has concluded that this formulation of the relationship between the two levels implies an antithesis which is false. The antithesis that Horton realised was that the concept of everyday material language i.e. common sense, was neither more nor less theoretical than his use of the term theoretical. In view of the need to differentiate between the two levels of discourse, he has substituted the terms *Primary theory* and *Secondary theory*.

"Thus like other theoretical concepts, they were embedded in a usually implicit though intermittently explicit scheme of causal regularities, which in turn were shaped by a

particular pattern of human activities and interests. It follows therefore, that I shall use the later terminology" (Horton 1993: 11).

It is unclear whether by this Horton means that everything is purely a theoretical construct. There are certainly those thinkers for whom the only real elements of the world are the 'hidden' structures, forces or processes of theory (Hempel 1966:77). If everything that exists is mind-dependent, then nothing can exist outside the mind. It is interesting in this context to note Horton's (1974:132) use of the word 'apparent' in articulating his quest for explanatory theory - apparent diversity, apparent complexity, apparent disorder, apparent anomaly. Although Horton claims to be a realist this seems to be an apparent contradiction.

More recently Horton (1993 ) has agreed that the events and the familiar things of everyday experience are really there, but he has not yet specified how they are to be explained.

For both Hempel (1966: 70) and Horton (1974:132) theories play an important role in scientific explanation, but according to Hempel theories are introduced when a system of uniformities can be expressed as empirical laws. Then theories explain the uniformities to give a more exact understanding of the phenomena observed.

"Theory construes phenomena as manifestations of entities and processes that lie behind or beneath them. These are governed by characteristic theoretical laws or principles by means of which the theory then explains the empirical uniformities that have been previously discovered and usually predicts 'new' regularities of similar kinds"

(Hempel 1966:70).

According to Horton (1974:132):

“theory is constructed to demonstrate a limited number of kinds of entities or processes underlying the diversity of experience. These entities operating behind or within the world of common sense observation, must be of a limited number of kinds and their behaviour must be governed by a limited number of general principles”.

Horton seems to take the diversity of experience and to subject that to a process of categorisation that results in a reduced number of conglomerates, whose behaviour he then says is governed by certain principles. He does not spell out what the principles are, whereas Hempel insists on an accurate and empirical uniformity of theoretical laws and principles. In addition the principles are expected to yield the prediction of 'new' uniformities of a similar kind.

An example of this is given by Hempel (1966: 71) as follows:

“The kinetic theory of gases offers explanations for a wide variety of empirically established regularities by construing them as macroscopic manifestations of statistical regularities in underlying molecular and atomic phenomena “.

According to Hempel's view of scientific explanation, the basic entities and processes posited by the theory, in addition to the laws assumed to govern them, must be specified with appropriate clarity and precision in order to count as scientific. African traditional thought, contrary to Horton's view, does not lead to prediction as the uniformity of the scientific laws does. Without clarity and precision insight may be conveyed in an intuitive sense, but this alone, does not qualify it as a scientific theory. To qualify the underlying processes

must be sufficiently definite to permit specific postulates concerning the phenomena that the theory is attempting to explain. According to Horton, African traditional thought displays the same features or structure of a scheme of entities or forces operating 'behind or 'within' the world of common sense observation.

Both accounts invoke nonmaterial agencies. In Horton's case they are personal entities, and in Hempel's, impersonal entities. But in Hempel's case a theory includes specific assumptions expressed as laws which in turn determine previously observed uniformities as in the example he gives of Newtonian theory (Hempel 1966:72). Newton's theory includes specific assumptions, expressed in the law of gravitation and laws of motion, which determine (a) what gravitational forces each of a set of physical bodies of given masses and positions will exert upon others (b) what changes in their velocities and locations will be brought about by those forces. Horton's personal entities demonstrate no laws or uniformities "even though each category of beings has its appointed functions in relation to the world of observable happenings" (Horton 1974:133-134 ). He claims that the spiritual agencies at work behind observed events are regular in their behaviour. The problem is that personal entities by their very nature are conceived of as erratic. In so far as they are described in human or animal-like ways, they never constitute regularities as in science.

It seems that for Horton, (1993) primary and secondary theories are

comparable with what Hempel interprets as hypothetical and theoretical constructs. Horton is ambiguous in his use of these two levels. He concedes that there is a problem in how the-world-as-described-in-primary-theoretical-terms relates to the-world-as-described-in-secondary-theoretical-terms and he suggests that Western science too has failed to adequately link these levels. It is also apparent that in terms of the tenets of Western science, Horton fails to ground his theoretical constructs in either observables or assumptions antecedently established, and there are no implications for empirical testing.

I shall discuss Horton's use of the neovitalistic doctrine and Hempel's basic objections to further illustrate the ideas above.

The neovitalistic doctrine has at its centre the notion of entelechy - a vital principle presumed to direct processes in an organism towards completion, or the realisation of a certain end (Goldman & Bender 1995:434). The neovitalistic doctrine does not meet the requirements of an adequate scientific theory. This is not, as Hempel points out, because entelechies or vital forces are nonmaterial agencies. Gravitational force in Newtonian thought is also nonmaterial, but it yields implications from specific assumptions expressed in laws of gravitation and motion. Vital force does not.

Horton's view of African traditional thought in its postulation of spiritual agencies, seems to encounter problems similar to the neovitalistic doctrine, in its bid to achieve scientific status. It seems that Horton fails to link the basic

entities and processes and the statements about them, to the phenomena of the empirical world. In Hempel's terms, Horton's examples are not compatible with internal and bridge principles necessary for theory construction. If Horton's notion of spiritual agencies as theoretical entities is analysed critically in terms of the principles of Western science, it becomes difficult to derive specific implications from the assumptions about the underlying processes, that permit empirical testability. This is also the case with entelechies in the neovitalistic doctrine.

African traditional thought is a system of meaningful connections within a particular society whereas science is causal. The method of science is verifiable if only in principle whereas African traditional thought, though a valid form of argument, encounters insurmountable difficulties in this arena. Certainly according to Hempel's view of scientific explanation a valid account may be given in terms of occult forces accounting for the visible in terms of the invisible. However, on closer inspection of bridge principles which are the requirements that have to be met, the traditional argument is dated and this may be why Horton introduces the idea of the evolution of scientific thinking, starting with magic and evolving into science.<sup>2</sup>

The stringent requirements for scientific method set traditional African thought and Western science apart. Perhaps this can be attributed to the level of modern scientific achievement. Science still lacks a general theory of

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<sup>2</sup> Problems of this idea of evolution are dealt with by Jarvie and Agassi (1987) in an article entitled 'The Problem of the Rationality of Magic'

acceptability. Horton answers the question of how African traditional thought accounts for the way things are in the world through schemes of personal entities in the form of gods and spirits. Horton postulates what lies behind existence but does not answer the question why.

### **Chapter Three**

The status of explanation in terms of formal and informal logic, the justification and or verification of theories and predictability.

This chapter is concerned with the status of explanation in terms of formal and informal logic, the justification and/or verification of theories and the notion of predictability. It analyses the question whether all explanations may be considered logically equivalent.

#### **The Status of Explanation**

If difference for Horton (1974) is merely a difference in the idiom of the explanatory quest, then it might be understood that the two explanations, that of African traditional thought and that of Western science are essentially the same, differing only with regard to expression in terms of either personal or impersonal entities.

The main difference between what constitutes an explanation of an event and of the psychological questions of the mind of the inquirer, is the logical and conceptual question of what constitutes an adequate explanation of the event.

In general explanations are concerned with answering questions about the world and there are different ways these answers can be given. For example a narrative understanding, which is the most primitive form of explanation, allows one to make sense of the world by fitting events or phenomena into stories

(Morton 1995:853). The patterns that are revealed allow us to think that we have some grasp of why the events occurred. This is the genetic approach to the process through which knowledge is constituted and distinguished from the analytic approach which is concerned with definition. The purpose of theoretical definition is to:

“ Formulate a theoretically adequate or scientifically useful description of the object to which a term applies” (Copi 1978:140).

There is a widespread claim that explanation operates within a context or background or web of belief or theory. This means that there is an ambiguity in explanation when it is decontextualised.

By using vague terminology Horton attempts to blend properties of scientific explanation with those of African thought. He decontextualises African traditional thought and does not specify or define the terminology he employs. This results in a certain property of one object being confused with all the properties of another. For example the table is square and the swimming pool is square therefore the table is a swimming pool.

Explanations help us to understand the world and make sense of it. The status of explanation is incumbent upon the underpinnings of the theory to which it belongs. There is a difference between the theory of African traditional thought and the theory of Western science regarding the nature of the particular knowledge claims which are empirically and scientifically construed [as Quine

& Ullian (1970) suggest] as opposed to the non-empirical view of metaphysics.

However, Horton holds that:

“ between the logic of religious thought and the logic of scientific thought there is no abyss” (Durkheim cited by Horton 1993:71-2).

Whether there is in fact an abyss between the logic of these two types of thought and whether this abyss can be formulated in terms of empirical versus non-empirical views lends insight to the meaning of explanation.

In determining the status of explanation, it is the task of philosophy to ask two different kinds of questions: the first concerns the logical structure of the explanation and its internal validity; the second concerns the factual truth of the explanation at both the level of its premises and conclusions, and its relation to external reality (Ryan 1970:25). Central to the first of these concerns is logic, while the second raises the notion of belief and ideas of justification and verification.

## **1. The Logical Structure of an Explanation.**

The evaluation of any explanation considers factors such as consistency or coherence, truth or correspondence with facts, relevance or appropriateness, meaningfulness and various forms of verification and falsifiability which form part of an evaluation in terms of truth and meaningfulness (Prinsloo 1994a).

### *1.1 Consistency*

Formal logic whether modern or traditional, is concerned with sound reasoning

and the rules that govern it. These rules provide principles for what constitutes proper inference (Hodges 1995:500, Taylor 1970:53). The notion of necessary and sufficient conditions provides formulations of conditional statements in addition.

Masolo (1994:7) discusses Levy-Bruhl's theory of the pre-logical in which he says there are two systems of inference: Western inferential practice, reliant on 'the naturalist view of material causality and...supported by observation' is the conditional argument or modus ponens of logic in a formal sense. Non-Western inferential practice referred to as the 'primitive mind' (Masolo 1994:8) does not have sufficient observational support and introduces other factors considered unrelated into the explanation of phenomena of the world. Horton (1993:261-4) contends that these other phenomena are not unrelated but have the status of unobservable or theoretical entities as described in Western science.<sup>1</sup>

Arguments which are in fact 'chains of reasoning' (Ryan 1970:24) are valid because of their form. A valid argument establishes its conclusion only conditionally; on the condition that its premises are correct (Copi 1978:3-5).

It is clear that logical brilliance cannot compensate for errors of fact, and accuracy of fact cannot repair incoherent logic (Ryan 1970:26). What is

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<sup>1</sup> Levy-Bruhl (Masolo 1994:8) recognised later in his work that he had made some errors of over-generalisation in his views about societal ways of reasoning, and concluded that there was not a dichotomy of different logics in different cultures, but that two ways of thinking, or two forms of experience, both naturalistic and mystical could co-exist in the same culture. However, this does not imply that they are logically equivalent.

important is to distinguish between what is logically valid and what is factually true. Consistency is what makes an argument valid, validity is not concerned with truth. The issue really is how the parts of the argument relate to each other, how they cohere, and not how they relate to the world.

Ryan (1970:33-4) concludes:

“ the rule for a valid syllogism [something posited, something else necessarily follows] is that: the contradictory of the conclusion is contradictory of the premises taken together. Whatever is inconsistent with the conclusion is inconsistent with the premises; and what this means is that the conclusion asserted is the only one which is consistent with the truth of the premises, so that it is logically improper to accept the premises and deny the conclusion”.

In order to apply this kind of argument it is crucial to have a set of statements where the logical structure conforms to that of a valid deductive argument, characterised by stringent constraints on relationships of consistency and inconsistency. Without these there would be no way to determine where mistakes occur (Ryan 1970:34-5). In the Covering Law Model of Explanation a conclusion follows logically from premises in a valid argument that the event which is to be explained occurred (Taylor 1970:19). This model provides a way of deciding whether or not something is an explanation but leaves open the question whether or not it is a correct or true explanation (an argument though valid may contain false propositions). Science seeks to achieve a system of explanatory hypotheses. They must be self-consistent with no contradictory set of propositions. In fact, inconsistencies automatically prove the hypothesis

wrong. This was discussed in chapter two.

Horton (1993:56) lists five arguments concerning oral cultures posited by Neo-Tylorian British social anthropologists. One of these is that oral cultures 'seldom form logically consistent systems. Hence...'a search for logical consistency is inappropriate'. Modern Western world views, Horton claims, also fail to cohere in a logically consistent way, especially in the arena of human behaviour. He concedes that striving for consistency is important but difficult to achieve. In his view it is the pervasive sense of the supreme being as the sustainer of everything material and spiritual that is the index of the search for consistency in African traditional thought (Horton 1993:57). Prinsloo (1994b) suggests that a statement like 'all men are mortal' may be said to transcend experience, in the sense that 'all men' expresses an infinite set. We are familiar with the mortality of numerous men. But the Kalabari claim that 'all men are underpinned by spiritual entities' (Horton 1974:142-144) has no links with common experience so there is no possibility of a general statement that can be inferred.

In this context, Horton uses words like logical structure and consistency but he is not using the language of formal logic or exercising the precision necessary for such an endeavour. At best Horton could be said to be alluding to some of the assertions that would hold for informal logic. The natural quality of the language of African traditional thought, opens the possibility of access to the richness of the culture, to the personal attitudes and feelings that infiltrate and direct the chains of reasoning. If the concept of the supreme being is the ultimate

consistency integrating the apparent multiformity in African traditional life then is not disciplined formal logic but a religious theory.

### *1.2 Truth*

We require a theory of truth to assess the plausibility of our thesis and to explain why we hold it. The explanatory demands on a theory of truth are that it must adhere to the requirement that 'when a proposition satisfies its conditions of proof (or verification) then it is regarded as true' (Horwich 1993:511). We take verification to indicate truth but a proposition may be true even if we are unable to prove it or conversely false even though we may have reason to believe it. So verification and truth may be correlated but are not necessarily the same thing.

A rather simpler view of truth would be that the proposition that snow is white is true if and only if snow is white without further principles in the form:

"X is true if and only if X has property P" [such as verifiability correspondence with reality and as a basis for action] ( Horwich 1993:511).

The problem is that the property 'P' specifies the truth . The simpler claim, namely the proposition that x is true if and only if x depends on whether it will explain central facts about truth. This equivalence schema means when two statements are linked by "if and only if" that each is the necessary and the sufficient condition for the other. This means that the two statements are equivalent and that they have exactly the same truth values.

"If two statements are always true and always false together they have the same empirical meaning and when two things are necessarily co-occurrent, (that is, the one cannot

possibly occur without the other being present as well ), then they are the same thing” (Malherbe 1994:22).

This approach deprives truth of metaphysical implications. If truth is inexplicable then the fact that X is true would be completely independent of us. We should have no reason to assume that the propositions we believe actually have this property so scepticism would be unavoidable. Moreover we cannot assume that X and X is true are equivalent, as equivalence holds by definition, given the account of true that is being employed .

“ If truth is defined by reference to a metaphysical or epistemological characteristic then the equivalence schema is thrown into doubt pending some demonstration that the truth predicate, in the sense assumed, will satisfy it “ (Horwich 1993:514).

If truth is defined in a way that it is independent of human practices, then in terms of this theory of truth, that is, in terms of equivalence, it will fail. Horton (1993) introduces the correspondence theory of truth with a view to showing that truth conditions are problematic both in science and in traditional thought. The correspondence theory of truth defines truth as a relationship of similarity holding between some representation of the world and the relevant part of the world itself (Malherbe 1994). However, we cannot get beyond our experience to a truly objective world, so whether a belief is true or not is beyond discovery. What is relevant though, is that the belief seeks correspondence in the *world*. African traditional thought is a belief system and Horton on the basis of equivalence would have to say that science too is a belief system of a similar type.

### *1.3 Relevance or appropriateness*

There are many different kinds of explanation applicable to different issues. Explanations differ in terms of the things they wish to explain, whether they are processes or action and so on. It is in these terms that one can ascertain which kind of explanation is appropriate.

Horton has fixed on scientific explanation for both African traditional thought and science as he claims they both intend to predict, explain and control the world and therefore scientific explanation is appropriate to both theories. The question is however, whether that is really the intention of African traditional thought. It is also highly improbable that spiritual entities are offered in the African context as empirical explanations (Prinsloo 1994a).

African traditional thought could be more appropriately clarified through teleological explanation as it contains a final cause and an encompassing concealed purpose for all occurrences which are considered appropriate for a religious explanation (Prinsloo1994a). Horton claims similarity between African traditional thought and science, but the introduction of personalised entities can only be examined in terms of certain beliefs, faith or spiritual experience. This raises the question whether faith in personalised entities and Western science can be bracketed together as Horton seems to imply. However, according to Hick (1983:65) 'a scientist's faith is merely preliminary: a phase en route to experimental verification when it may become tested knowledge'. The scientist's faith has value only in relation to subsequent verification. It is in the

generation of hypotheses that faith or creativity or imagination as mentioned in chapter two, play their part. Thereafter scientific objectivity must be assured. Faith in personalised entities entails a condition of permanence, one that precludes the possibility of verification in the scientific sense.

African traditional thought has it that forces or entities underlie everyday appearances and are mystical. This is unlike an attempt to find a basic substance in materialism to account for phenomena in terms of a single substance because this substance is still material. This leads one to consider whether a more appropriate explanation might not be in terms of a religious type of argument which can be considered as faith.

Traditional thought has often been interpreted as symbolic. If the explanations offered by this type of thought are considered symbolic, it would necessitate that the spirits function as symbols. For example the metaphor of ancestors could then be interpreted as good fortune. This is equivalent to Western usage of metaphor. However, the problem of accounting for the enactment of a magical rite for rain, which is an action undertaken to achieve this goal as a symbolic one, is that it is not considered symbolic by the person performing it. This leaves one with the problem of how to account for the magical rite. Symbolic explanation is therefore not an appropriate one however tempting it may be.

#### *1.4 Verification*

Traditional thought makes statements about schemes of entities comprising

ancestors and various spirits. Given that these kinds of statements provide one with no certainty as to an external reality, one might ask whether their propositions are nevertheless meaningful. On the grounds of the verifiability criterion of meaning, a proposition like "God exists in heaven" must first pass the test of being empirically verifiable. There seem to be no conditions which would reveal this proposition as true as there is no relevant observation which would show the proposition to be false. Since there is no conceivable way of verifying the proposition even in principle, it cannot in this view be considered a cognitively significant utterance. A proposition must at least be probable by reference to human experience.

"If its truth or falsity makes no difference that could possibly be observed, the proposition is cognitively meaningless it does not embody a factual assertion" (Hick 1983:95).

In line with this view, failing to make an experiential difference would result in the proposition being classified as cognitively meaningless. Horton's (1974, 1993) view about both science and African thought reacting in different ways to the same set of facts is underpinned by his view that they are not contradictory assertions but rather an expression of differing idiom. However, the problem still remains, that the postulation of personalised entities unlike Western science, does not constitute assertions or even possible assertions about the world. We would rather speak of meaning as satisfying in an emotional sense, in this context. In contrast to this, in science verification consists in:

"Finding that the postulate or theory is borne out by appeal to external facts and tallies with them" (Hick 1983:65).

Religious faith cannot be objectively verified. It cannot provide us with any certainty as to its external reality. Horton (1974:142-144) with reference to the Kalabari tries to show that the identification of patterns (illness, absence of heroes) are logically the same as in science and that there is no difference between the empirical and the non-empirical. Prinsloo (1993:108) demonstrates that this is not true as the entities of African traditional thought become additional ideas that cannot be verified. In his view they may well be coherent ideas but the truth conditions are not satisfied. It is a peculiarity of Robin Horton that he does not regard the cognitive processes of African traditional thought as equivalent to the structure of explanation in Western religious thought rather than science.

In clarifying their meaning, logical positivism divides statements into those of formal logic or science and others as motivational, emotive or poetical. The first are considered significant, while the latter, if they have any meaning at all, are not considered significant.

“A sentence will be factually (i.e. not analytically) significant to a given person if and only if he knows how to verify the proposition which it purports to express: that is, if he knows what observations would lead him under certain conditions to accept the proposition as being true, or reject it as being false” (Ayer 1946:95).

Accordingly it does not mean that the statements are false but rather they are literally 'without sense' The verification principle is based on two basic tenets: the analytic and synthetic propositions, and the criteria for determining when a proposition is cognitively meaningful. With regard to the distinction between

analytic and synthetic propositions we can consider two propositions:

- a) All husbands have heads (synthetic + empirical). This is like science and derives truth from empirical investigation.
- b) All husbands are married (analytic + meaning). This is like formal logic and derives truth from its formal structure.

Both of these are true yet they are true in different ways. It is possible to imagine a husband without a head but it is impossible to conceive of a husband that is not married. To prove a) true would require an empirical investigation but to prove b) true we only have to understand the meaning of the word 'husband'. Propositions that require empirical investigation are termed synthetic while those whose truth follows from meaning, are called analytic.

In line with this, every significant proposition must be either analytic or synthetic, but none can be both. Broadly, all analytic propositions belong to formal logic and they are true by virtue of their formal structure. Synthetic propositions are like the propositions of science in that they require empirical investigation before their truth can be established. Analytic propositions assert something of the subject that is obtained by analysis of the subject term. We therefore verify such propositions by examining the words they contain. Synthetic propositions result from a synthesis of two logically unrelated things. For example, my thesis is good. This can only be verified by empirical investigation to determine whether in fact this relationship is true (Ayer 1946:95, Carnap 1967).

A further distinction was drawn by the logical positivists namely that of the 'trivial' and 'informative'. This distinction is important because analytic propositions do not refer to the world in the way in which synthetic propositions do. Analytic propositions are considered trivial whereas synthetic propositions are seen as informative. Although an analytic proposition appears to be addressing items in the world, those items make no claim on the world. The truth of an analytic proposition does not allow us to infer that the items mentioned by the terms in the proposition, exist. They are true merely by virtue of their logical form or by definition. From the analytic truth, for example 'all unicorns are unicorns', we cannot infer that there are in fact unicorns at all. However, a synthetic proposition 'this thesis is good', in some sense makes a claim about reality, and when true makes a definite claim.

To establish whether a synthetic proposition which purports to be about the world is significant, a test known as the 'verifiability criterion of meaning', is introduced. A proposition which fails this test must be either analytic and hence not about the world, or without sense. This would apply to metaphysical statements. A proposition which passes the test would be deemed significant in a factual sense (Ayer 1946:95).

All propositions which aim to express genuine knowledge about the world must pass the test of being empirically verifiable in terms of this view. The criteria for verifiability were formulated by Schlick and Ayer (Hanfling 1981:40-42). Basically the notion is that it must be possible to describe what sorts of

observations have to be made, in order to determine whether a proposition is true or false. If some observation could be described which would be relevant in determining the truth or falsity of a proposition, then the proposition would be significant, if not it would be meaningless. There is a distinction between propositions which are verified and those which are verifiable, or between practical verifiability and verifiability in principle. The example "there is life on other planets" is in principle verifiable (we could go to other planets and check) whereas the statement "God lives in heaven" is not verifiable in principle.

It is clear from the above that African traditional thought, as well as any other traditional thought would fall short of being considered authentic by the logical positivists in so far as the traditional thought relies on metaphysical propositions. The propositions of African traditional thought are not subject to confirmation because it is impossible to formulate an observation proposition by which the African traditional thought proposition can be tested. The propositions of African traditional thought are not verifiable in principle either. The argument that explanation is religious in the case of African traditional thought means that it cannot be verified but is rather accepted as an article of faith. This does not necessarily mean that the argument is not rational as it may well be coherent or consistent. It would only mean that its truth is questionable (if we distinguish truth from faith).

For Horton (1974:131-132), the same kind of explanation applies to both types of thinking, and the implication is, that they have the same status and that they

are logically equivalent. This means that the theory underpinning African traditional thought and Western science has to be considered to be the same. However, to the extent that our knowledge is coextensive with science, and the conditions of science are such that its propositions are at least verifiable in principle, then there is no comparison on the grounds suggested by Horton.

Quine and Ullian (1970:4-5) reject the distinction between analytic and synthetic statements and thus the very enterprise of conceptual analysis, because it implies that knowledge is reliably produced and truth is arrived at independent of, and prior to scientific investigation, and that knowledge is a product of conceptual analysis (Kornblith 1993:299). Quine claims that the distinction can only be upheld if radical reduction is true.

Quine and Ullian (1970:21-31) apply the rules of formal logic to explore beliefs and their validity and truth. They use the idea of logical truths and suggest that all truths do in some part depend on the meaning of the words, but it would be inaccurate to attribute logical truth to a statement merely on the grounds of its language. Logical truth can be deduced from self-evident truths by a process of demonstrability which can either be absolute or relative. A sentence is considered to be logically true when it is an instance of a valid logical form.

Masolo (1994:7-8) urges an approach to African thinking that breaks with Western categories. In his paper 'Excavating Africa in Western Discourse' he presents the views of a new school of thinkers in the study of African systems of

thought. They are difficult to classify but united at least, in their critique of ethnophilosophy which they consider a philosophy of Western imperialism emerging out of Western power and knowledge. As regards logic, he moves away from analytic approaches to understanding thought, and proposes the examination of thought as people employ it, in relation to their everyday lives. In a sense he emphasises connections of meaning rather than causal connections (Ryan 1970:129). This view raises problems as everyday and scientific knowledge is arrived at in the same way. In both cases some property of a material thing is being predicated and the discovery made through heuristic investigation. The claim is testable, capable of being confirmed or disproved and based on empirical evidence (Malherbe 1994:6). There is no abyss between an analytic approach to thought and the examination of thought people employ in their daily lives.

When statements are used to explain phenomena, the implication is that they are true. The question here is how to assess the adequacy of reasons for truth and the link between statements and the facts or evidence from which they have been inferred. This brings us to the issues of belief and justification.

## **2. Belief and Ideas of Justification**

For something to qualify for credibility there must be something about it which makes the truth of its conclusion objectively likely (Malherbe 1994:101). We cannot prove a belief by comparing it with naked reality as this is logically impossible. We can only select criteria which support the likelihood of truth in a

belief, and these criteria are the justification of the belief (Malherbe 1994:103). Although justification is truth-seeking, truth is not necessary nor sufficient to ensure justification.

Explanation operates within a context, or background, or web of belief or theory. The background in African traditional thought is the various schemes of personal entities. If we take our criteria to be the realm of actual experience, Horton is reasoning beyond all possible experience as well as beyond the limits for which we have a guarantee that our rational faculties are reliable (Kant). He does this by illegitimately extending principles to questions that transcend all possible experience and he comes to conclusions about the necessary existence of personal theoretical entities. He constructs various arguments around the similarity of the two systems. However, he has ignored the limits of the application of reason (reason being defined in terms of possible experience) so dilemmas arise. Arguments that transcend possible experience present the problem of how one should establish standards for valid argumentation. If these standards cannot be established we have no way of determining whether we have successfully established truth.

Even if there is no ultimate standard of agreement as to the ultimate basis for evaluating a fundamental truth as regards scientific knowledge, there does seem to be consensus as to probable evidence. This is so because the appeal is to public experience, experimental data and records (Malherbe 1994:123-4). The type of information contained in African thought can be established as

being personalised theoretical entities, but their truth value cannot be established. However, one thing is certain, personal theoretical entities are different from empirical knowledge and we cannot evaluate them in the same manner. One might argue that this is also true of the impersonal theoretical entities. There are a number of views on the existence or fictions of theoretical entities of Western science as discussed in chapter two. The entities in both African traditional thought and science share the common feature of being invisible, however the entities of science are at least potentially visible and may belong to a category of things that can be seen, for example the sequences and bases of a DNA- strand.

For something to be considered an item of knowledge, stringent definition is needed. Knowledge in the analytic sense consists in justified true belief. In order to ascertain whether African traditional thought is an instance of justified true belief we would have to consider contextualism. Contextualism is described by Malherbe (1994:147) as fitting a cluster model 'in which the loci of justification are contexts definable in terms of a shared public language'.

The theory of contextualism is the view that justification is the acceptability of a belief among people, and, that this acceptability is determined on the basis of conventionally agreed norms and practices and relative to some epistemic concept (Malherbe 1994:123). Contextualism denies the possibility of individual knowledge as a consequence. Contextualism ties belief to its consistency with a coherent whole - the belief system of the entire community, and it bestows on

this theory the power of explaining the objective reference of beliefs as a public reference. Justification of a belief will always be relative to some context where context is 'at least a complex of agent time and the values determined by the community for the issues being dealt with' (Malherbe 1994:123). Because it identifies the justification of a belief state with its social acceptability, it partially fails as justification is separate from the social properties or relations the believer or his belief may have. Furthermore it has no proof against the 'regress of justification' unless terminal beliefs are set in place by convention. This socially agreed-upon basic belief however, cannot be self-justifying and so by the regress argument will stand in need of justification. The only way around this impasse would be to specify a level of justification which is not intersubjectively agreed to as basic, but is independent of social conventions. (Malherbe 1994:124). The idea of a belief's justification being conceived of as 'in its place' within the whole set of a person's beliefs, means that the function of justification is to determine the consistency of a belief's relationship, to the person's other beliefs.

Horton (1974, 1993) may also be interpreted as implicitly arguing that theistic belief is very much like a scientific hypothesis. Theories devised to explain phenomena derive warrant from their success in explaining phenomena generating hypotheses and testing them, as described in chapter two. However, theistic beliefs are not hypotheses. Theistic beliefs, it may be argued, are not accepted because of their explanatory powers but rather upon the evidential relation of the theistic belief to the other things one believes

(Plantinga 1993:439). The nature of beliefs associated with theism may relate to some other kind of thinking or cognitive process, but is not aimed at truth. On these grounds it seems the explanation Horton is offering regarding the nature of African traditional thought as an explanation is not an explanation at all.

Belief can be defined as a mental state and is determined both by its content and a variety of other conditions. Those views that focus exclusively on content see belief as an attitude paired with a proposition, and the objects of such beliefs can be anything from empirical beliefs concerning things in the material world, to religious beliefs about the existence of God. They could be moral, concerning right and wrong, or a priori and a posteriori, or a number of other kinds. Mental life involves other conditions such as desires, wishes, intentions, fears, doubts and hopes. Beliefs, however, are different in that they have, at some level, an implication of truth (Heil 1993:48, Malherbe 1994:123-4). By implication of truth, I mean that one would only say one believed something if one believed it to be true, even though it may later turn out to be false.

Believing may also be defined as a latent disposition that can linger unobserved, a disposition to act in particular ways in response to certain conditions, according to Quine and Ullian (1970:4). They emphasise the importance of language in comprehending and expressing ideas. Their argument will be discussed more thoroughly later in this chapter.

In the light of the above, the term 'belief' as used here, will embrace certain essential features. All beliefs will be considered 'truth-directed, evidence-sensitive, holistically-interrelated and action-related' (Leyden 1993:2). While all these characteristics are important, at this point, the issue of evidence and its implication for truth and ultimately knowledge, will be the focus.

### *2.1 Evidence, Truth and Knowledge*

The logical positivists make some attempts to describe the exact conditions for scientific knowledge. They initially suggested verifiability as an essential condition. One is justified in claiming to know x if x was verified. This created problems and verification gave way to a weaker condition, confirmation. This too is far from an ideal condition for scientific knowledge. The essential issue here, however, involves the construction of a strong enough link between hypothesis and the evidence, for it to allow the assertion that the hypothesis holds - in other words, to claim the hypothesis is knowledge. Basically the problem is how to decide that there is sufficient evidence. With Hume's problem of induction in mind, it appears that any amount of back-up, short of insisting on total evidence (all evidence, past, present and future) is arbitrary. To escape this problem recourse is made to truth conditions. In the absence of certainty, knowledge was considered to be justified true belief. Justified true beliefs are not necessarily knowledge (Lehrer 1993: 69, Luper-Foy 1993:235, Salmon 1993b:292).

This does however, raise other epistemological problems, most centrally that

there is a difference between knowledge and belief. If knowledge is conceptualised as certainty, and is abandoned for something less robust in a cognitive sense, the issue of whether we ever really have knowledge is permanently with us. As regards the philosophy of science in particular, in so far as the less cognitively demanding approach is accepted, the nature of scientific knowledge remains obscure and accretion of knowledge as the signal for the success of science, no longer holds.

Despite this difficulty, science does produce explanations and what is important is the nature of these explanations - the central concern of this study. As already discussed, there are two reasons why philosophers pay attention to scientific explanations: they tell us about the workings of the world and this information permits the manipulation or control of the environment; *and* science is considered the best mechanism for generating the explanations required. The status of explanation is what can guarantee knowledge. Explanation is crucial and it becomes the bench-mark for the adequacy of scientific advancement.

The significance of the concept of explanation in the philosophy of science has been evolutionary, and it is now considered the foundation of a theory of justification. The justification of a cognitive claim is no longer determined by whether the claim qualifies as knowledge or whether there is enough evidence to support it. What is important is the role it plays in explanation. In this sense a cognitive claim is justified if it produces an inference to the best explanation. (Sanford 1995 :408).

There is support for 'inference to the best explanation' to constitute a valid form of non-deductive reasoning (Fumerton 1993:207). It involves making inferences from evidence as inferences are non-demonstrative, in that the conclusions do not necessarily follow from the evidence. Because of the non-demonstrative element, induction includes inferences that are predictive and what have been termed, by Ginsberg 'default assumptions' (Harman 1993:200-2, 204). At the simplest level, default assumptions refer to assumptions that are based on generalisations, but could be incorrect. It is likely that the evidence in non-demonstrative induction complies with a number of hypotheses or ideas, and a decision needs to be made as to the inference that constitutes the best explanation. Given the problems that inductive reasoning raises, this may be a way to minimise some of the inherent difficulties. If a cognitive claim produced an inference to the best explanation then this lends credibility to Horton's view of African traditional thought. An inference to the best explanation may be read in Horton's terms as an explanation that by historical accident evolved along the lines of schemes of personalised entities. If an explanation is given in cognitive terms, only with no recourse to empiricism, then any explanation could be considered an explanation as we would have no grounds for asking whether this constitutes an explanation, nor would it be possible to determine whether this was the correct explanation. Inference to the best explanation is also subjective as no objective criteria exist to determine what would constitute the 'best' explanation.

This decision-making process highlights the problem of scepticism, a chronic

issue in philosophic debate. For the purposes of this work, what is relevant is how a particular conclusion is justified and justification lies in the domain of non-scepticism, on the scepticism/non-scepticism axis.

To return to the idea of inference to the best explanation, it seems necessary to spell out criteria for choosing between explanations in such a way that the outcome is not simply a disguised inductive inference. Simplicity is a virtue of explanation, and could stand as a criterion for determining the acceptability of the explanation. The explanatory power of an explanation is another criterion and familiarity is a further one. Horton considers all of these essential features of explanation. Of course the crucial ambiguity in the idea of inference to the best explanation concerns the fact that the explanation has the best chance of being correct, without it being probable that it is correct. To determine that an explanation is likely to be correct:

“one must hold that it is more likely that it is true than that the disjunction of all other possible explanations is correct” (Fumerton 1993:208).

To return to the concepts of belief and evidence and justification, it is clear that formalising the notion of evidential support is inordinately complex. It is less of a problem with relatively simple perceptual beliefs but becomes an issue with more complex and theoretical beliefs. However, theoretical systems are the concern of this study. In philosophy an internal state such as a belief, or the believed propositions themselves can constitute evidence, and the evidence for a belief confers justification. Only something that is itself justified can grant

justification to anything else (Feldman 1993:120). However, if a justified belief can only be inferred from another justified belief, there would have to be an infinite regress of justifications. Since this is not acceptable, there must be beliefs that are not reached by inference or essentially justified. Such beliefs would be considered basic or foundational in that they are the bedrock from which all other justified beliefs emerge (Post 1993:209).

## *2.2 Foundationalism*

This brings us to the issue of foundationalism which is a theory that asserts that there are basic beliefs, that there must be basic, non-demonstrable knowledge, which is the ground for all further knowledge, and has been the concern of philosophy from the time of Aristotle (Post 1993:209). Justification insists on a link between the belief and the reasons or evidence for holding the belief. Foundational theories claim that there are a chain of reasons, one supporting another in a linear way, until an end point is reached which qualifies as a self-justifying belief. This is a belief that the radical foundationalists hold to be absolutely certain, indubitable, infallible, and self-evident, so that they can function as the ground for knowledge (Malherbe 1994:145). Obviously this is an almost impossible task and theories of coherentism and contextualism have been suggested as alternatives.

Put simply, coherentism refutes the notion of basic beliefs and says that justification is a matter of the extent to which a belief 'coheres' with, or binds with other beliefs in the same arena. Coherence can be defined by consistency,

explanation, probability or 'comparative reasonableness' (Goldman & Bender 1995: 434). While there are those who would consider coherentism as referring to a complex web of interrelationships among beliefs, there are those who see the reasoning as simply circular, and that it is difficult to demonstrate an objective link to the world (Malherbe 1994:146). Some may say that this is the problem with African traditional thought where happenings are phenomena construed in terms of the web of belief.

To return to the notion of a basic belief, the question arises as to whether experience can be construed to be evidence for a basic belief. Traditional debates about knowledge of the external world, or knowledge about other minds, or knowledge as a function of induction, are all questions about the adequacy of evidential support (Feldman 1993:121). Recourse can be made to some of the tenets of the natural sciences, in particular to what is observable.

Leyden (1993:104) makes reference to a distinction between simple observational beliefs and theoretical beliefs, and considers this crucial to making what are considered irrational beliefs intelligible. Since this work is concerned with African traditional thinking, long considered to be irrational, and more particularly with the status of theoretical entities, this distinction is essential.

According to Leyden (1993:104) observational beliefs are:

"generally true beliefs issuing out of our shared and universal, minimal, perceptual,

cognitive and linguistic capacities; they are not infallible, untheoretical, incorrigible or epistemologically-privileged, but they are nevertheless relatively simple, and invariant across cultures and throughout history”

Theoretical beliefs are:

“more complex...and represent inference from or interpretations of, observational beliefs. While they approximate or aim at, truth, they can nevertheless have a fairly low, general truth-content. Theoretical beliefs can vary from individual to individual, culture to culture or epoch to epoch, but they are all related to universal, human goals of explaining, predicting and controlling the environment” (Leyden 1993:104).

The work of Quine and Ullian (1970:17) contributes to this distinction through the development of their notion of ‘observational sentences’. Central to their approach is how a belief may be articulated by enlisting a sentence as a subordinate clause. In other words, the belief can be expressed by a sentence form using the prefix *that* to introduce the name of the ‘thing’ believed - for example, the belief *that* Van Riebeeck discovered the Cape. This however, leads to the implicit problem that the things believed are not the sentences themselves. The point is to discern, given a set of sentences about beliefs, what a speaker of the language believes to be true. Instead of trying to understand the verb ‘believes’ and relating that to sorts of believed things, Quine & Ullian (1970:4-5) suggest that one moves to the word pair ‘believes true’ as a way of relating people directly to sentences with the intention of finding out if what someone believes is true.

The criterion for determining that a belief is true, is that the speaker on questioning asserts that the belief is true. The criterion can of course fail if the speaker does not understand the language of the inquirer. In this way Quine and Ullian (1970:5) avoid the problem raised by philosophy as to what constitutes 'objects of belief'.

In addition, they point out that causes of belief are not evidence of belief, and that the quest for evidence is different from the origins of the belief, the complexities of which lie in the domain of psychology. The concern of this study is:

"with grounds, with reasons, with the evidential relations that hold among beliefs whether the believer recognizes them or not" (Quine & Ullian 1970:7).

This approach applies mainly to the conception of beliefs as propositional attitudes, and views belief and meaning as 'indeterminate' and dependent on the particular linguistic context in which it is articulated (Heil 1993:46). The relationships between beliefs constitute a system that Quine and Ullian (1970) refer to as the web of belief which they consider a theory of meaning rather than empirical fact, as already mentioned.

For Quine and Ullian (1970:13) the assessment of the system or web of beliefs is not unlike the explorations and predictions that characterise science and everyday thinking. It is possible that when predicted outcomes or events do not occur, a review of the system may reveal incompatibilities. Steps can then be taken to restore consistency by rejecting some of the beliefs. This is not

necessarily a simple procedure. As Quine and Ullian (1970:13,16) put it, 'observations are the boundary conditions of a system of beliefs' and central to their approach is what they call 'observation sentences'. They demonstrate how through the acquisition of language in childhood, observation sentences are distinguished from other utterances. It is through a social convention that native speakers would agree to the meaning of a sentence in a similar situation. In other words, observation sentences are those sentences for which there is evidence, and their fallibility is limited because the words of an observation sentence are learned by association with 'the observable circumstances of their utterance' (Quine & Ullian 1970:17). However, the notion of observation sentences is more complex than described here. There are some philosophers who reserve the term for introspective reports such as 'I am in pain', an observation that is not open to public scrutiny and whose truth is not one to which a variety of witnesses attest.

Quine and Ullian (1970:19) suggest that when there is dissonance between theorists, recourse to observation sentences could yield agreement. If all the members of a community are inclined to agree to the meaning of a particular sentence 'under the same stimulations of their sensory surfaces', that sentence qualifies as an observation sentence and the belief that concurs with that sentence can be considered true. In this sense observation in relation to the specific community of speakers 'takes its proverbial place as the arbiter of science' (Quine & Ullian 1970:19). Horton would agree wholeheartedly with this. Indeed Horton (1974,1982) develops some of these ideas, albeit with less

philosophical rigour than Quine.

Horton's distinction of primary and secondary theory is directed mainly at determining what is universal in human experience and what is culturally or historically diverse. As discussed in chapter two, primary theory reflects a shared universal dimension and incorporates our everyday experience, while secondary theory reflects a cultural and historical diversity, extending the limited causal vision of primary theory, and permitting greater control and prediction. It will be recalled that secondary theory postulates a 'hidden' realm of entities and processes that underpin everyday experience. For Horton (1985:229-30) the link between the 'given' of primary theory and the 'hidden' of secondary theory make sense of events which seem inexplicable, unpredictable and uncontrollable. One could consider that Horton's distinction and the epistemological distinction between observational and theoretical beliefs is not a distinction of kind but rather one of degree (Leyden 1993 123,125).

There is one further issue to be considered in this chapter: the concept of predictability.

### *2.3 Predictive or explanatory power*

In every day life the term 'prediction' refers to any proposition about future events, irrespective of who makes it or on what grounds. In science, prediction is a central objective and predictions are based on arguments that follow definite forms. Interestingly in these deductive-nomological and inductive-

probabilistic schemes there is no reference to time. The logical connections between premises and conclusions exist separately from time and an explanans can therefore predict events in the future. This is known as the 'symmetry thesis' (Kistner 1985:28) which deals with the range of observable facts that can be deduced from the predictive or explanatory power of an hypothesis. Horton (1974) does concede that the power of science in this regard is unrivaled by African traditional thought. The greater the predictive power of an hypothesis the more it explains and the better it contributes to our understanding of the phenomena with which it is concerned. However, if an hypothesis is false, that is, inconsistent with any fact of observation, it is false and must be rejected. If there are two different sets of hypotheses entailing incompatible consequences, then a crucial experiment must be set up between them. This may demand the development of new equipment or waiting for circumstances to observe and measure the predicted phenomena. The ultimate criterion for evaluating an hypothesis is its predictive power, because the consequences are involved here and the hypothesis can stand or fall by it. The performance of a ritual neither explains the facts nor permits practical application. It is incapable of being tested and has been accused of using secondary elaborations to explain away contradictions. The question arises as to what the force and effect of an explanation that does not have predictive power might be. This disanalogy in African traditional thought is important as Western science has been very successful at prediction. Prediction in traditional thought not only does not display the requisite regularity but displays coincidental regularity.

In conclusion, reliability refers to the fact that in science events can be predicted, and in so far as this is possible explanations can be tested. Testability is one of the central criteria differentiating explanation in the natural sciences from any other. Horton (1993:148) claims that the Xanadu put the predicted experimental consequences of their mystical beliefs to the test. He claims that:

“If such predictions are confirmed by experience, they point to this fact with satisfaction as evidence for the correctness of the original oracular revelation and for the efficacy of the oracle poison. If the predictions are refuted, they would look for reasons: e.g. sorcerers interfering with the revelation or spoiled oracle poison. Here again, we are still in a world not notably different from that of the scientist”.

African traditional thought does not render itself amenable to testing. In the above quote by Horton the idea of prediction is underpinned by spiritual causes which are vastly different notions from those of science.

Prinsloo (1993) suggests that the belief systems of the Kalabari are such that they are occupied making sense of past experiences and do not postulate future ones. A prediction is stated as an hypothetical statement. For example if a certain set of circumstances arise it will rain tomorrow. The circumstances are stated in terms of facts like moist air, low pressure systems etc. Prediction in African traditional thought introduces the notion of spirits, so prediction is ruled out as the spirit's involvement can only be determined in retrospect.

In understanding another culture, one needs to consider their own reasons for their actions and beliefs. However, when we explain the behaviour of others by

postulating hypotheses about their beliefs based on observed regularities and patterns of behaviour, they are not reason-giving explanations (Taylor 1970:70).

African traditional thinkers have their own reasons for their action and beliefs which, however, strange they may appear to an outsider, may in fact be rational, given other beliefs and attitudes. Making their beliefs accessible to us, they are giving an explanation in terms of reasons. Horton (1974) however, seems to be explaining the behaviour of other people based on an hypothesis about their beliefs and patterns of behaviour (Taylor 1970:70). As indicated above this is not an explanation in terms of reasons. This type of hypothesis would have to be about an inclination to a particular kind of behaviour and would have to be testable. Taylor (1970:70) suggests that behavioral and reason-giving explanations are different, since the expression of attitude in a reason-giving explanation does not constitute an empirical hypothesis about human behaviour. The problem with reason-giving explanations is that while they may say something about a person's thinking an action to be good, they do not imply a person acted in a particular way or indicate if he acted at all (Taylor 1970:71). For example the man thought that sacrificing a chicken would be the best thing to avoid his wife leaving him. However, he may also believe that a new dress will do the same. An examination of his reason though, shows that a reason-giving explanation is appropriate on both counts and no such explanation implies he acted in one way and not another.

Attributing reasons for human behaviour by hypothesising about attitudes and beliefs is an inordinately complex process. It seems impossible to calculate human desires and attitudes from observing behaviour. An hypothesis advanced on the grounds that all people desire pleasure will have no way of predicting how people will act. According to Taylor (1970:69):

“If a statement represents a hypothesis about a man’s reasons or beliefs it constitutes a what explanation” .

We may of course hypothesise that a person’s behaviour conforms to a model and use this model to explain his/her actions. However, patterns of behaviour will not offer scientific evidence but rather guide us in understanding a description of the behaviour based on these patterns of behaviour. A scientific explanation attempts to relate two things in such a way that the one can be predicted from the other. Explanations that stop at reason are expressions of evaluative views. However, it is the evidence for the belief that supports it. As regards mental concept explanations, also considered a *what* explanation, these tell us what sort of pattern a particular event is part of. They too do not relate two things in a way that one can be predicted from the other. Traditional thought is also not necessarily a precursor of science, as Horton tries to show. There is however, evidence to support the idea that both types of thinking coexist.

## Chapter Four

Explanation and webs of belief, world views, conceptual schemes and paradigms.

This chapter elaborates on some of the issues raised in chapter three and considers how webs of belief and/or world views, conceptual schemes and paradigms underpin the issues discussed. This chapter stresses the notion of fitting into a system like Quine and Ullian's (1970) metaphor of the web of belief.

### 1. Personal and Impersonal paradigms

In dealing with personal and impersonal paradigms formulated as Western scientific thought and African traditional thought by Robin Horton (1974), I have taken that these are two disparate paradigms. As indicated Horton claims not that they are disparate but that some of the differences between the two paradigms are merely a surface matter, a difference in idiom. It is the differences in idiom which he claims obscure the underlying similarities. In order to analyse these paradigms I have taken recourse to a working definition of paradigm as follows:

"It is sufficient to regard a paradigm as a framework that determines which facts and problems and hence which questions and tests, are pertinent to a particular piece of research" (Kistner 1985: 59 ).

The paradigm of African traditional thought generally characterised as opposed to science, has been formulated as:

"The claim made by Meinrad Hebga that spirits, magic, oracles and witchcraft are real is a claim which suggests that those who believe in spirits, magic oracles, and witchcraft

operate in a thought pattern or use basic epistemological principles which are quite distinct from the pattern or principles which form the basis of claims which deny the reality of spirits, oracles and witchcraft. In other words, the former claim is based on a specific "mode of thought", on patterns of proof and judging, of making inference, and of defining the real which are opposed to the characteristics and "modus operandi" of the models which deny them. This is an example of what Kuhn meant when he argued that any defense of a particular paradigm must possess a certain circularity in that whoever rejects the paradigm is also committed to a rejection of the standards by which it is defended" (Masolo 1994:18).

The above comparison of science and African traditional thought expresses the view that there are different paradigms informed by distinct patterns and principles which form the basis of our reality.

African traditional thought is marked by a magical or religious account about how things are in the world. Therefore contrary to Horton's view it would not qualify as scientific. Horton (1974) is of the view that social science has to proceed with the same 'modus operandi' as natural science. Having dealt with Hempel's (1966) view on natural science in chapter two, I would like to briefly consider the residue of *what* questions which would allow us to describe and to classify the contents of the two frameworks.

In applying explanations in terms of the question *what* it transpires that African traditional thought answers a type of *what* question that does not permit it to be classified as scientific, but does qualify it to be classified as a social theory.

“This is the case with explanations in terms of models or theories of social systems, for such models and systems are defined or characterised by interrelated generalisations or rules concerning the character of events and behaviour” (Taylor 1970:37).

Generalisations are solely employed to define a particular model or to characterise a particular system. Consequently the correctness of such an explanation depends only on whether that system or model obtained at the time of the event to be explained does not depend on the generalisations holding it universally. When an event is explained in terms of a social system, no universal generalisation can be accurately asserted. For example, crop failure in African traditional thought would be explained in terms of spirits, ancestors etc. This would be in terms of that particular model which is prevalent in traditional societies of this kind. The system of personal theoretical entities would include generalisations about consequences of breaching the social order but those would not hold universally.

A system in which events take place according to certain generalisations is asserted to have obtained at a particular place and time. In other words such a system is considered situationally specific. Those that adhere to naturalism that is ‘the doctrine that the methods of natural science can be used in the study of society’ (D’ Agostino 1993:479) may add that this particular fact like any other requires scientific explanation.

An objection to the requirement of scientific explanation being applied to a

social system is explained in the following example by Taylor (1970:37). He compares a social system to an electronic device, in this instance, a radio. The problem would arise that the proper or faulty operation of the radio is explained within the context of the science of electronics. In the case of a social system, no general theory exists that would enable us to predict that the social system will break down nor explain why it doesn't. African traditional thought is entangled in a social system and there is no general theory (in the sense that a theory is universalised) either within or outside of its bounds, that allows us to generalise in the sense that we can on those grounds make a prediction about the future.

Explanations in terms of models or systems consist only of particular statements of fact. They are explanatory because they describe patterns into which a particular event can be fitted. Descriptions may aid a scientific explanation, but do not necessarily qualify as scientific because they do not answer the scientific question, *why* the event occurred. In other words they do not explain why this system operated as it did. A description places items in a general context and implies selection and interpretation but not necessarily explanation.

To convert a *what* explanation of this kind into a scientific explanation would require that the system in question, and the generalisations or principles defining it, be asserted to hold universally. It appears that as yet no system, or model exists in the social sciences which is capable of such universal

application. The complexity of social phenomena makes it impossible to experimentally manipulate and observe, both of which involve abstraction, idealisation and the identification of underlying mechanisms. The complexity is located in the interplay between the social scientist and the subjects of their research and in the contestability of some of their theoretical concepts. The application of these concepts have an ineradicably evaluative dimension, while the theoretical concepts of the natural sciences appear not to be evaluative. Attempts to 'operationalise the concepts in terms of which the theories of social science are formulated has been pointless' (D'Agostino 1993:480).

*What* explanations are a device to explain to people what something is or what is going on. They may indicate theoretical or practical interest. These types of explanations may provide precise information to someone who does not know how to classify or describe something. But as we saw in chapter one, theoretical or practical interest or classification as such does not constitute a scientific explanation. What then does constitute a scientific explanation as opposed to a question posed by the social sciences? Some *what* questions can give rise to causal explanations as was explained in chapter two. However, it is *why* questions that involve both reason and cause and are therefore considered scientific. Issues of identity may be merely classificatory, or may provide elucidation neither of which necessarily constitute a scientific explanation. This implies that there is a difference in techniques appropriate to the social sciences and those appropriate to the natural sciences. The natural sciences aim at prediction and the control of natural phenomena, while the social sciences aim

at understanding or interpretation of social phenomena. The word explanation also has peripheral uses and not merely formal ones, for example explaining the meaning of a word (a speech act). Peripheral cases of explanation may also be considered under the notion of fitting something into a web of belief, but successful explanation requires 'having hypotheses that are acceptable because they fit into one's whole system' (Smart 1990:3).

## **2. Problems within and across paradigms - Relativism in conceptual schemes**

### *2.1 Kuhn - the idea of incommensurability*

Kuhn's (1970) view of 'no common measure' can be understood both in terms of schemes and translation. According to him theories operate as world views or paradigms which do not so much present the facts, as tell us what we should see in the facts. In terms of this view science leaves us with logical and historical difficulties in accounting for the acceptance or rejection of theories.

Theories on Kuhn's (1970) account can be applied to all events and this leaves us with the existence of theories which do not seem explicable as generalisations from evidence that can be described in everyday observational terms. Theories may introduce all types of non-observable forces and entities, and require us to understand one form of behaviour in terms of some other form of behaviour.

"Relations between theories and facts cannot be simply explained: the images which dominate the literature are those of 'maps', 'models', 'analogies', 'hidden mechanisms'

and none of these things looks remotely like a generalisation from the events they are explaining" (Ryan 1970:73).

It could be that theories are merely catering to our need to render causal sequences intelligible. The use of analogy in theory may allow us to fill causal gaps in a sequence, but this casts doubt both on the adequacy of Western scientific and African traditional thought. A successful theory is what Kuhn would call a paradigm (Kistner 1985:62). If all successful theories are paradigms, then how would we distinguish between those that are true and those that are false ?

At the very least, a paradigm provides a focus of research and experiment, as is evidenced by Horton's use of personal and impersonal paradigms. Kuhn holds the view that a paradigm functions as a set of puzzles and also a set of standards for their solution (Ryan 1970:80). The point about scientific paradigms, is that they have gained universal acceptance, such as Newton's mechanics, whereas the paradigm that fails to generate consistent experimental consequences, would mean the end of that particular theory.

African traditional thought does not provide us with experimental consequences, and cannot therefore be seen as a scientific paradigm. For example a traditional diviner may offer the explanation of a drought as retribution from the ancestors visited on the disobedient people. The scientist would look at solar phenomena like the El Nino by way of explanation. The

facts considered by the traditional healer are disobedience and the facts considered by the scientist are weather patterns. In other words the facts considered by one paradigm are different from the facts considered by the other. Hence the two paradigms are incommensurable as they belong to different contexts and are constituted by different sets of facts (Kistner 1985:62).

Kuhn is referring to a revolution within science itself wherein, he claims an entirely new paradigm replaces the previous one. What is relevant about this to African traditional thought is that Kuhn claims that it is impossible to say which interpretation is 'true' or 'correct', since each paradigm has its own laws, facts and concepts.

"In terms of Kuhn's theory this implies that one cannot mix propositions, laws or hypotheses (or concepts) from different paradigms" (Kistner 1985:62).

According to Kistner, Kuhn's theory therefore has two important implications, the first is that one cannot choose between different paradigms on *logical* or *rational* grounds, and secondly, that science cannot be seen to be evolving towards the specific goal of describing the world realistically. This is so because the paradigm itself determines how we see the world and which facts exist. These implications reminiscent of Evans-Pritchard's (Winch 1974b:90) call to mind that the Zande, cannot get out of their 'web of belief' as it is their thought and they cannot think their thought is wrong. This is an example of the view of a paradigm itself determining how the world is seen.

It is Kuhn's contention that even within science, different paradigms not only do not share the same concepts but also correlate them in different ways. The implication of this is that there are no facts which may be used independently of a paradigm. If this is the case how are we to decide which paradigm is best? Criteria such as simplicity and relevance may be adopted but these criteria are subjective and not necessarily logical. Thus one is left with Winch's (1974a:4-5) relativism which holds that the meaning of actions in a particular culture can only be judged from within the context of that particular culture. This means that there is no external or as Kistner (1985:63) puts it 'extracultural vantage point', from which one can judge a culture.

### *2.2 Horton and relativism of paradigms*

Horton (1993) is aware of the work of Kuhn. He anticipates the objection that scientists too, in defending their paradigms, develop elaborate subsidiary hypotheses, some of which may appear with hindsight to have a sort of secondary elaboration. He is not committed to a Popperian vision of science consisting of unremitting attempts to falsify existing theories. For he says, though a scientist often holds on to existing theory in the light of anomalies, he does so, not because of a feeling that if his theory fails him, chaos is at hand, but because since he knows that the theory is not something timeless and absolute, he is reluctant to throw it away before giving it the benefit of the doubt. When it starts failing, defense of the theory switches inexorably to attack. It seems here that Horton's analysis of Kuhn, is in terms of an emotive view, as he is dealing with the world of emotion and informal logic, not with reason as such. Kuhn

(1970) rejects the idea that science is the accretion of knowledge. In his view it is an entirely new system of knowledge that develops as a revolution rather than an evolution.

If invariable criteria exist within the paradigm, then no good reason can be argued in terms of 'own worlds', and the schism between others and ourselves is narrowed (Lukes 1982:262-263). In terms of a universalist view of rationality, it has been argued that it is nonsensical to make any comment whatsoever about another culture and belief system, without recognising that the statement itself is predicated on the very existence of general criteria of rationality. This is the standard attack on relativism by those who hold the view that there are non-contextual criteria by which to evaluate another culture.

Relativism is the view that different cultures order their experiences according to different concepts. Schemes of classification differ across cultures and epochs. These include witches and ancestors, electrons and magnetic fields. These schemes link the particular to more general concepts, for example disease to witches. Each scheme itself may be relative to a context or culture. In short whether we live in different worlds where the:

"rules of argument and criteria of truth are internal to a social system, that truth and rationality are to be redefined as internal to given societies and that where *explanation* is to stop is simply the point where questioning by the relevant local consensus ceases"  
(Hollis & Lukes 1982 :13 ).

The issue with African traditional thought is that because it posits personal

theoretical entities in order to account for phenomena, it is more likely to involve the issue of faith as a justification, rather than that of evidence as a justification. A difficulty in inductive thinking is that we cannot, for example, prove that the sun will rise again tomorrow, but in the interests of coherent living we have to believe that it will. So one may argue that an element of faith is required in any paradigm, be it personal or impersonal. However, particular problems arise when the entire paradigm is predicated on personal theoretical entities, to the exclusion of explicit knowledge of the general laws of material nature. It is here, that I believe one of the problems envisaged by Kuhn comes into play. We are left with two disparate ways of perceiving the world which is problematic in cross cultural communication.

### *2.3 Problem of indeterminacy - Quine*

Quine's (Hookway 1993a:409) conceptual scheme seems most appropriate to this analysis as it deals with language and truth - some of the fundamental difficulties that need be resolved in cross cultural understanding.

Quine's (Hookway 1993a:409) view of a conceptual scheme concerns a set of sentences held to be true. He uses the ideas of 'core' and 'periphery' with the core sentences having a kind of permanence, while those on the periphery are empirical and more likely to be given up in the light of new experience. His conceptual scheme is characterised by assignment of truth values. Two schemes differ, in his view, when some substantial number of core sentences of one scheme are not held to be true in another scheme. Thus the central point

of Quine's theory is the indeterminacy of translation, as there are too many incompatible translations between two groups speaking disparate languages.

In Ian Hacking's view (1982:58)

“This is not a matter of settling on nuances: Quine means that you could take a sentence *s* of *L* and translate it by one system of translation into *p* of *M* and translate it by another system into *q* of *M*, and *p* and *q* would, in *M* be held to be incompatible”.

For Quine there are no translation independent facts of the matter, about what sentence *L* or any given sentence means. There are no non-contextual facts of the matter, as to what a given agent believes. ‘Belief like meaning is indeterminate’ (Heil 1993:45). Therefore, there is no fact of the matter in relation to what any expression in an alien language means. According to Quine, we are obliged to pick out the true core sentences of *M*, and show how many we are able to translate into sentences *L* holds false, then how are we to be assured that it would be the right translation. This leaves us with the pursuit as to what would constitute truth?

If there is no fact of the matter as to the kinds of objects to which the terms of a language refer, then Quine is committed to ontological relativity. He has tried to eliminate the traditional conceptual scheme that treats every proposition as either analytic or synthetic (Ayer 1946, Hookway 1993a:409). As discussed in chapter three, traditional empiricism depends on what Quine considered ‘two dogmas’. The first concerns analytic and synthetic statements. Analytic statements like ‘all bachelors are male’ are true by virtue of meaning. Synthetic

statements, are grounded in 'fact'. The second concerns radical reductionism. 'Every meaningful statement is held to be translatable into a statement true or false about immediate experience' (Hookway 1993a:409). Quine held that the analytic/synthetic distinction could be sustained only if radical reductionism was true. This gains support from the verificationist theory of meaning. The verificationist theory of meaning involves translating each statement into a statement about immediate experience. It's meaning is true by virtue of showing what experiences would be required to verify it. The analytic statements are seen as 'vacuously' confirmed (Hookway 1993a:409).

Quine rejects reductionism and the epistemology that goes with it, by showing how our beliefs relate to experience and likening the whole of our knowledge to 'a man-made fabric which impinges on experience only along the edges' (Hookway 1993a:409). Experience may require us to revise our beliefs, but we can choose what statements to re-evaluate. Furthermore any statement can be held true if we make adjustments in the system as 'no statement is immune from revision' (Hookway 1993a:409). This results in a holistic picture revising things to restore harmony between our beliefs and experience. We do, according to Quine, have a natural tendency to disturb the total system as little as possible, and this explains why we treat some beliefs as answerable to experience and others as not. The underdetermination of theory by evidence, holds that logically incompatible theories may fit all the possible evidence. Alternatively, there may be empirically equivalent theories which while not contradicting each other, use radically different theoretical notions. Examples of such

underdetermination constitute problems for empiricist philosophers because it leaves them in the position of either denying that such theories are in competition, or finding an empirical basis for preferring one of the pair (Hookway 1993b:517).

#### *2.4 Operationalism as a paradigm - black box*

Operationalism which is sometimes referred to as the black box theory of theories, (Ryan 1970:92) is a view which considers the relationship between theories and observational results as analytic. It is analytic in the sense that the only terms that have implications for what the contents of the world are, are those referring to experimental observables. This is so, because they suggest new experiments and make us aware of connections between observable states of affairs that we could not otherwise have noticed. For example the idea of unconscious projection may serve a useful purpose in suggesting to us how we should link a woman's anger to how she was treated as a child. It may also suggest therapeutic moves by a therapist to relieve or cure distress by possibly providing an environment in which emotional habits can be relearnt. This is an important point as:

"we do not have to claim that there really is an unconscious mind at work but that the network of successful analogy is its own justification" (Ryan 1970:93).

The problem with Horton's (1974) theory is that although we don't have to know the contents of the box for example ancestors, we still have to transform true statements into true predictions. Horton has made an attempt to borrow

plausible models of explanation from natural sciences, using an analogical argument of causal connections between postulated personal entities and phenomena, which are also a means of ordering and classifying African traditional thought. Horton's analogy between Western science and African traditional thought is an *as if* or *apparent* relationship, the similarities are there, but they are coincidental, not real. They are not the visible outcome of underlying mechanisms. To say that phenomena possess a particular structure, is different from saying that by virtue of analogic claim they behave as if they did.

"The deficiency of operationalism is that it blurs the distinction between theories and models between analogies which state that the phenomena behave *as if* they were the visible outcome of some underlying mechanism or quasi mechanism, and theories which maintain that the phenomena behave as they do because they *are* the visible outcome of such and such a mechanism" (Ryan 1970:94).

This distinction holds for Robin Horton's view of African traditional thought as a theory which postulates that the phenomena possess a structure of Western scientific explanation as contrasted with the merely analogical claim that they behave *as if* they did. African traditional thinkers are said to behave in matters as if their mode of thought were scientific. On these grounds, to provide a genuine theory it would have to be seen that Horton's view allows one to predict or test his claim to show that it is a valuable and genuine theory.

The theories that scientists construct, constitute claims about the contents of the world. Realism is therefore a more plausible account, as we don't merely

accept a theory because things happen *as if* the account were true but because *it is* a true account. A theory may abstract from objects within its own culture, but the theory fails to be accurate at least on the grounds of abstracting from different cultures and assimilating the two disparate theoretical objects.

"Scientists are not content to merely say that things can happen as if a certain mechanism is at work: they claim that there is a mechanism at work, and this claim is a claim about the contents of the world" (Ryan 1970:95).

A theory on the grounds of the above can fail, because its claims can be measured against what is really there and found to be mistaken. There is some way in which the account is true and not merely a situation in which it appears *as if* the account were true. The concern with personalised theoretical entities is that there are no grounds for grading the theory as either true or mistaken. When a claim is made by science that gas is composed of particles, that is what is meant. Science is clear in its meaning of theoretical statements. It allows us to follow causal sequences by showing us precisely, and in what sequence things really do take place. We can ask a causal question about what results are to be expected. In Horton's case when a claim is made we have an 'analogical formula' where causal questions may be postulated, but can't be answered with any degree of certainty. Operationalism within science is an attempt to define the relationship between theoretical terms and actions or observations. The idea is that all scientific terms be specified by a procedure which provides both qualitative and quantitative criteria for applying the terms. The point here for our purposes is that a theoretical term that is totally

unassociated with observational terms can have no meaning. While this may only apply to actual scientific practice, it does indicate that one should exercise some caution in postulating theoretical entities (Kistner 1985:88-93).

### *2.5 Problem of incommensurability - Donald Davidson*

A definition of incommensurability is that there is no way of translating from one scheme to another. While indeterminacy finds too many translations between schemes, (Hacking 1982:59) incommensurability according to Feyerabend (Laudan 1996) is the inability of one body of thought to understand another. Donald Davidson (1984,1986) is against a conceptual scheme that lends credibility to either incommensurability or indeterminacy. He dismisses the idea of total untranslatability and is against even the notion of partial untranslatability between groups of people. In Davidson's view, psychology includes an irreducibility normative component. Agents are obliged to exercise charity, and this to him means assigning beliefs and desires in such a manner that it optimises the rationality of the other. It is in Davidson's view a 'synthetic a priori' truth about agents that, on the whole, they satisfy the canons of decision theory (Heil 1993:47).

A conceptual scheme is defined as a classificatory scheme and classifications necessarily employ generalisations. Because it employs generalisations the classification may be mistaken for a scientific explanation. Davidson (1984:185, 189) seems to be saying something like this: The criteria of identity and individuation of  $x$  is an essential part of a person's having the concept of  $x$ . If a

person cannot determine whether what is before him/her is the cup or two different cups, he/she has no criteria for individuation for cups. If he/she has no criteria for individuation for cups, he/she does not know what a cup is. This means that he/she does not have the concept of a cup. Similarly, if no criteria of individuation for conceptual schemes are available or usable, then the concept of a conceptual scheme itself is empty and unusable. Taking a neutral stance and divesting oneself of all conceptual schemes and then comparing them is impossible, because conceptual schemes are embedded in language and to divest oneself of all conceptual schemes would require giving up the use of language. Language is necessary for thought, therefore if one gives up language, then one could not engage in the kind of thinking required for comparison and differentiation of conceptual schemes. I think Davidson's (1984:197) concern is primarily with the issue of no 'neutral ground' from which to classify conceptual schemes. From this he derives the Principle of Charity by which he means that unless we legitimately make assumptions about the objects of our study we will be entirely unable to access them. All assumptions should be considered correct. The Principle of Humanity suggests unintelligibility be kept to a minimum in our attempts to make trans-cultural and trans-theoretical understanding.

Both Quine and Davidson show that it is not easy to avoid relativism particularly in the realm of interpretation. Horton refers to the bridgehead which allows us to access other cultures. This bridgehead is composed of 'primary theory' the everyday observational and practical beliefs that people hold and which Horton

regards as common to all societies. These beliefs are neither relative nor incommensurable (Hollis & Lukes 1982:20). This will be considered in chapter five.

## Chapter Five

Rationality and the issues of relativism, objectivity and subjectivity and their application to the views of Robin Horton.

### 1. Rationality

This chapter considers the issues of relativism, objectivity and subjectivity in relation to approaches to rationality and the manner in which they may be applied to Horton's views.

#### *1.1 Horton's view of rationality*

Horton (1979) claims that traditional thought is not really irrational, given its technical, social, cultural and psychological context and that it thereby merits rational appraisal. In terms of his intellectualist approach, traditional thought is part of attempted explanations about the world, developed in a rational way but on the basis of poor evidence, lack of awareness of alternatives, unreflective thinking and mixed motives. Horton may be said to have overextended this type of interpretation, in the sense that rather than explaining the world, and showing how beliefs are considered rational, intellectualists offer the meagre comfort of a *petitio principii* (begging the question). This occurs when the proposition to be established occurs both as a premise and as the conclusion. While it is a perfectly valid argument, it is irrelevant to the proving or establishing of the conclusion (Copi 1978:98). It is unclear how by adding personalised theoretical entities the world becomes easier to describe.

Horton's (1979:83) arguments rely on there being a level of thought and discourse shared by all cultures. As already indicated he takes the "intellectualist" view that traditional African beliefs can be seen as attempts at theoretical explanations of the world. This therefore implies that they are subject to trans-cultural and trans-theoretical standards of rational appraisal. Thus he introduces the idea of a super-standard against which an alien culture's thought may be measured (Hollis & Lukes 1982:17).

The allegation against African traditional thought is that it is superstitious in the sense that it is rationally unsupported. The dimension of superstition in African traditional beliefs is a vice which leads to the stagnation of knowledge according to Kwasi Wiredu (Masolo 1994:224). This presupposes a particular view of rationality namely that of rationalism. Hollis (1982:81-2) infers from apparently irrational beliefs, not relativism but the necessity for rationalism in order to identify the irrational beliefs. Horton (1993) admits varieties in theory and the concomitant diversity of truth and value, but argues that although context-dependent criteria are necessary, they are not sufficient. What would constitute sufficiency is the admission of general or universal criteria of rationality. Formal rational procedures are the defining features of science and are considered universal. These criteria are basically defined in terms of a realist notion of science, humanity and rationality. In these terms, rationality would be identified with logical consistency, based on the universally valid rules of inference, logic and coherence in an explanation of reality. The implication of

this is that there is a single reality, a common core of universal criteria, to which all people subscribe. If there is in fact, such a common core then it serves as a rational bridgehead which makes translation between cultures possible (Hollis 1982:16).

Ian Hacking's (1982:52) view is that of an 'anarcho- rationalist':

"The arch rationalist wants to know how the world is. There are good and bad reasons for propositions about nature. they are not relative to anything. They do not depend on context".

This notion of rationality as decontextualised thought and the ideal of objective cognition, places thinking outside morality (Overing 1982:13-4).

The rationalists further view this reality as:

"...one whose relations are objectively discernible by science..... In this view, a rational explanation is defined in the analytic fashion as a body of verifiable propositions relating cause to effects. This position consequently views the notions of consistency and reason as functions of scientific evidence" ( Masolo 1994:126).

To access another culture a universalist would limit the bridgehead argument to laws of thought, the language of material objects and the perception of the world as physical.

### 1.2 Laws of thought

In terms of the above view, Western rationality is based on rules which are known as the laws of thought. These laws of thought (formulated by Aristotle) are considered by the rationalist to be the basic principles which enable successful communication and translation and which are implicit in all systems of knowledge which can then be held as rational. These laws of thought are a key part of Western rationalism since Levy-Bruhl's writing on the "pre-logical" mentality (Horton 1973b:253) and it is the purported failure of other cultures to implement the laws of thought that has resulted in a judgment of them as irrational. The laws are as follows:

1. The law of identity - (A is A) - if something is A, then it is A. Every subject has its own set of predicates.
2. The law of non-contradiction - (It is not true that both A and not A) - two judgments cannot both be true when the falsity of one follows from the truth of the other.
3. Modus ponens (If P, then Q P therefore Q).

Modens ponens is a simple form of inference and an alleged form of universal reason. When searching for the causes of phenomena we seek causes and/or reasons for the phenomena. A rationalist shows that a deductive form of inference 'can be shown to be rationally justified in an absolute and context-free sense' (Barnes & Bloor 1982:40, Masolo 1994:126).

The status of these laws is not descriptive in the sense of showing how people think. Instead they are prescriptive or formal, indicating how people should think or more directly how they should reason. When they are prescriptive they are considered to state either absolute or conventional standards of reasoning. They may be seen to be true by virtue of their form and possibly independent of content (Kirwan 1995:476).

Since Aristotle's laws of thought are prescriptive or formal they are acceptable from a Western scientific view. As regards African traditional thought, Horton would view these laws as prescriptive as he adheres to the cognitive common core idea. For Horton (1982:228) it is the primary theory of everyday observation and 'push-pull' causation, which provides 'the cross-cultural voyager with his intellectual bridgehead'. If the laws of thought are descriptive, their form can only be ascertained after investigation.

The idea of the Western notion of reason as providing a background against which to measure other cultures, can be considered as suspect both by the people of the culture, and by anthropologists. This raises the question of whether it would follow that contradictions, inconsistencies, affirmation and denial of the same proposition at the same time are acceptable or rational. The limits set on these are clear according to the rationalist, but the view of the relativist would be that the limits are fixed internal to the particular culture under consideration (Wilson 1974:viii-ix, Masolo 1994:125-6).

In order to defend his view Horton (1974) has to show that African traditional thought does conform to these basic criteria of rationality according to the laws of thought. The crux of the issue according to relativism is the question of whether such invariable criteria do in fact exist.

An example of the problem of identity are claims like -'Twins are birds'. This is common in African traditional thought and violates the law of identity. The question to be raised is: In what sense can a man be like a bird? One answer to this is given by Evans-Pritchard (Masolo 1994:137) who regards a comparison between African traditional thought and Western science as leading to imaginary problems. Evans-Pritchard suggests that we should not take this statement more literally than the African traditionalists take it and understand themselves.

"They are not saying that a twin has a beak, feathers, and so forth" (Masolo 1994:144).

The problem of identity may be merely a misinterpretation of the linguistic identity predicate "is". Evans-Pritchard's (Masolo 1994:144) accusation is that we interpret beliefs in terms of our own linguistic structure which is not necessarily correct in the context of another tradition. The word "is" may not have the same meaning for the indigenous person as it has for the native speaker of English. Similarly literal translations of African statements about reality can lead to false arguments and conclusions. Logical principles of the meaning of identity as defined in the Western scientific tradition can lead to an

incorrect evaluation of African traditional thought (Masolo 1994:144). The implication here is that Horton, in using a model of Western science, as the means of comparison with African traditional thought, 'has committed an error of translation' (Masolo 1994:138 ). Another way of possibly dealing with the problem of the apparently irrational beliefs of another culture is found in relativism where the idea of a single world is challenged by Kuhn (1970). He has argued against the belief of Western science in a unified objective world, unaffected by the activities of scientists.

## **2. Relativism**

There are many relativist doctrines and the problem of relativism is a complex one. Relativism may be variously contrasted with realism, objectivism foundationalism, rationalism or universalism (Jiang Tianji 1994:161). To define relativism therefore (and for the purposes of this study, specifically cognitive relativism) would be to say that relativism has no universal standards of rationality. Rationality according to this view then, may be defined as:

“... the relationship of an action or belief and the reasons for its choice in distinction to the causes for determining it” (Jiang Tianji 1994:161).

Having or giving reasons for action and belief is distinctively human. Different people may have different reasons for the same belief or action which they choose from among alternatives. As a result rationality is relative to the agent. Agents belong to different communities, rely on different beliefs or background

assumptions and have different resources. They will automatically have different reasons for their beliefs and actions when dealing with either the same or similar problems (Jiang Tianji 1994:161).

### *2.1 Evolutionism and relativism*

Two opposing paradigms in anthropology are unilinear evolutionism and cultural relativism (Jiang Tianji 1994:162). Horton (1993:71,78) believes that the study of primitive thought throws light on the nature of scientific or modern thinking. In support of this view he refers extensively to the work of both Levy-Bruhl and Durkheim. Horton aligns himself with the continuity/evolutionary schema of Durkheim (Horton 1993:171-2).

"So it is far from true that this mentality has no connection with ours. Our logic was born of this logic....Every time we unite heterogeneous terms by an internal bond we forcibly identify contraries...the terms we unite..we choose according to different criteria and for different reasons; but the processes by which the mind puts them in connection do not differ essentially..." .

Another contribution at this level is the work of Sir James George Frazer (Jarvie & Agassi 1987:365) who in his theory of magic not only speculated that there may be evolutionary stages in human thinking, from a magical stage, through religion to a scientific stage, but also that the three modes are competing systems. Frazer suggests that religion has explanatory power but is logically defective in relation to science, while magic, he says, is factually defective.

Frazer's article is mainly concerned with the problem of rationality in magic.

The evolutionists associate rationality with science and assume because there is an absence of science, primitive people lack rationality. Further along the line primitive societies are granted a type of rationality but it is seen as deficient because of their prescientific cognition. Tylor and Frazer perceive the scientific method as a progressive force that should eclipse superstition and unreason. Their view is based on the idea that Western science is the highest achievement of rationality. The basic idea in the evolutionists' approach is the developmental pattern of thought and its forms and, mapping the growth of rationality (Jarvie & Agassi 1974:177-8, Jiang Tianji 1994:162).

### *2.2 Translation*

The problem of translation from one culture into another, according to Horton (1993) is twofold. Firstly there is the imposition of one's own conceptual categories on the alien material to be interpreted and secondly there is the issue of being acquainted with one's own conceptual categories. Horton attributes inadequately informed interpretations of traditional magical religious thought to inadequate notions of science. It is difficult to see how he intends on these grounds to avoid the charge of cultural hegemony.

### *2.3 Relativism of Reason*

The relativist claims that knowledge can only be assessed and guaranteed

internal to a particular culture. According to this view there are many alternative conceptual frameworks and possible criteria are only available within each particular knowledge system itself. The result of this, some argue, is that cross-cultural comparisons are either misleading or impossible. On the other hand the universalist holds that there are fundamental principles common to all claims of knowledge as well as to rational behaviour, and that these rules are implicit in all human reasoning. Conceptual frameworks are therefore universal and their criteria consist in general rules applicable to all conceptual frameworks. The result is that a failure to reason or to act in accordance with these rules, would result in being judged irrational. Cross-cultural comparisons in terms of this view are possible.

To return to relativism according to Barnes and Bloor (1982:27):

“...there is no sense attached to the idea that some standards or beliefs are really rational as distinct from merely locally accepted as such”.

This extreme form of relativism answers the question about whether apparently irrational beliefs in the history of science and among alien peoples require us to accept strong relativism in the affirmative. For Hacking (1998:48) such a view is

“An inane subjectivism (which) may say that whether  $p$  is a reason for  $q$  depends on whether people have got around to reasoning that way or not”

His view of relativism is that the proposition  $p$  in the sense of the way it points to truth and falsehood has a style of reasoning appropriate to  $p$ . On these

grounds we could not criticize the style of reasoning as a way of getting from  $p$  or not  $p$  because  $p$  simply is that proposition whose truth value is determined that way. He puts this in a more extreme form as:

“nothing, which is true, is true, and nothing which is false, is false, but thinking makes it so” (Hacking 1982:50).

#### *2.4 Objection to evolutionism*

Cultural relativism takes exception to the simplistic unilinear evolutionism which imposes one's own standards and values on other cultures. It advocates a thesis of incommensurability between different cultures. This means that each culture and society has to be understood in terms of its own values, ideas and beliefs rather than adopting a trans-culturally neutral standpoint which advocates measuring them all by one standard. Franz Boas is one who sees no hierarchy among people of different cultures, nor an evolutionary scheme connecting different phases of culture, as Tylor and Frazer have argued (Hollis & Lukes 1982:2, Jiang Tianji 1994:162). In line with cultural relativism, Herskovits (Jiang Tianji 1994:162) would have us see:

“the validity of each set of norms for the people whose lives are guided by them and the values they represent”.

The important issue is how to go about the interpretation and understanding of alien culture. This problem according to Jiang Tianji (1994:163) has been focused on by hermeneutics and neo-Wittgensteinians who consider that our

ability to make sense of social phenomena refers to our participation in the practices of our own community. In studying alien cultures one's own societal practices would form the core of one's view of an alien culture. In other words we are bound to employ our own conceptual framework in interpreting another culture. This however, would constitute an imposition of our own standards when evaluating that of an other. Rationality within a society can only be measured by the standards of that particular society. Effectively then, the beliefs and actions of different cultural groups are seen as more or less equally rational in terms of their own standards. But what of the question of the rational standards themselves furnished by their view? Relativism does allow comparison but does not include evaluation, as evaluations are always in terms of a standard and standards are derived internally from a culture. The result is that an evaluation cannot escape 'the web of culture' as all evaluations are culture-bound (Jiang Tianji 1994:163).

The crucial difference between the evolutionary paradigm and the relativist one is that of evaluation. What is in question is whether it is possible to differentiate societies as better or worse or cultures as more or less successful (Jiang Tianji 1994:163).

The rationality debate in science has a parallel paradigm shift.

#### *2.4.1 Thomas Kuhn*

In his book 'The Structure of Scientific Revolutions' (Kuhn 1970) does a

historical analysis of science in which he refutes the view of science as a gradual accumulation of knowledge moving coherently towards a greater system of knowledge. In reality he claims that a particular set of theories or paradigms become prominent for a period of time during which the experiments or data that support the paradigm are classed as scientific and anything which doesn't is disparaged as unscientific. Over time, more and more data accumulate that are not consistent with the reigning paradigm, until someone comes along and proposes a whole new paradigm that replaces the old one to become the new 'standard' version of science. The point is that one paradigm or set of theories does not flow logically to another. A paradigm is more a dogma than science and more subjective than objective, more faith than fact. Nevertheless, in the case of African traditional thought we might agree that the theory has flown flagrantly in the face of adverse evidence that we knew to be abundantly available to the users themselves.

Kuhn points out that there are 'rationality gaps' during scientific revolutions with rationality predominating in normal science. The parallel paradigm shifts briefly referred to above have shown that trans-cultural and trans-theoretical relativism support each other. Unilinear evolutionism and inductivism are its opposition and they too support each other. These variants of universalism consider science and its methodology as the pinnacle of rationality and the benchmark against which other cultures can be ranked in terms of the level of their intellectual development, or as a line, dividing modern scientific thought from

traditional world views. However, the thesis of incommensurability has introduced some level of distrust to science and its methodology, and so undermined any evolutionary scheme of the Tylor and Frazer type. Conceptual incommensurability seems to be explanatory in relation to the more obvious facts of cultural differences and cultural incommensurability (Bernstein 1994:85, Jiang Tianji 1994:164).

The universalists' definition of commensurability is in terms of rationality that is universal and depends on their own paradigm of science. So if this rationality does not follow, then incommensurability does: but incommensurability is impossible since their form of rationality is a human universal (Jiang Tianji 1994:164).

### *2.5 The Strong Form of Relativism - Barnes and Bloor*

Rationality as it appears in natural science, which is considered the most objective aspect of human knowledge, is least expected to be susceptible to relativism. But it seems that Kuhn (Jiang Tianji 1994:163) has shown that 'no algorithm can be constructed for a choice among competing scientific theories'. Kuhn introduced the idea of scientific communities to replace logical calculi bringing sociology, psychology and anthropology into the domain of science. This has inspired a strong trend of radical relativism in the sociology of knowledge (Jiang Tianji 1994:163). Barnes and Bloor (1982:22) are advocates of this theory which states that relativism is to be accepted in the place of the

principle of universal rationality in modern science. They argue that local acceptability goes with local modes of cultural transmission of social control of power and authority. It is therefore, the task of science to trace these links, seeking the 'specific local' causes of beliefs being held. So an explanation of theory acceptance is sought rather than the reasons for the theory (Jiang Tianji 1994:164). According to Barnes & Bloor (1982:26-8), rules of arguments and criteria of truth are internal to the social system. Truth and rationality have to be redefined showing that what is acceptable is internal to the particular society and determined by 'the relevant local consensus' (Hesse 1980:76). They say there is no way to distinguish with validity between what is true, reasonable and explanatory and so constitutes knowledge, on the one hand and what is locally accepted as knowledge, on the other (Jiang Tianji 1994:164). For the relativist, Barnes and Bloor (1982:27) hold:

"there is no sense attached to the idea that some standards or beliefs are really rational as distinct from merely locally accepted as such".

### *2.6 Strong form of Relativism - Winch*

The existence of a variegated spectrum of beliefs poses the question whether there are alternative standards of rationality. Given the extensive evidence of apparently irrational beliefs held by other cultures, are we required to accept relativism in a strong form? A case is made by Peter Winch (1974) in this regard namely that what counts as warranted belief depends on canons of reasoning, either inductive or deductive that are relative to era and culture. The

very criteria of logic according to Winch are 'only intelligible in the context of ways of living and modes of social life' (Hollis & Lukes 1982:10). The rationalist refuses to separate reasons from objective truth, since a reason, if true, is a good reason. It has to be objectively true that one thing is good reason for another. In other words the rationalist is committed to prioritising the standards, while the relativist perceives differences in these standards for rating reasons as good (Hollis & Lukes 1982:11). Thus the evidence for relativism is twofold: some alien categories are culture-specific and interpretations of apparently irrational beliefs show them to 'make sense' in the context of culture-specific world-views. As particular beliefs can only be assessed within the world view to which they belong, a vital part of relativism is the warranted assumption that the evidence given on an alien culture's beliefs, is that the beliefs are integrated into coherent, all-embracing, culturally-transmitted world views. The position of a relativist is that whatever resemblance there is between African traditional thought and Western science, such a resemblance is only apparent.

Is it the attribution of apparently irrational beliefs that is used to substantiate relativism? This means that the fundamental concepts and meanings used in human cognition are culturally determined. All conceptualised information is cultural and each culture has its own criteria of rational explanation and its own possible metaphors. There are no universal constraints on either. Relativism displaces intellectualism and symbolism as a solution to apparently irrational beliefs. Horton (1993) attempts a detailed refutation of symbolism as the only

other contender set against relativism.<sup>1</sup>

### *2.7 Plausible arguments for relativism*

Cultural diversity in terms of religion, custom, social institutions, beliefs is so overwhelming that it can only be explained by different criteria for validity and rationality. Universalism and unilinear evolutionism have to be abandoned as they imply 'a cross-cultural super-standard to adjudicate between diverse standards' (Jiang Tianji 1994:165).

There has been a fundamental change in the bedrock notions of philosophy, meaning, truth and rationality with the recent sociological tendency in philosophy. A socialised external epistemology, which has at its centre community practice, has taken precedence over an internal individualised epistemology of empiricism and rationalism. Different practices of different people bring forth norms that govern individual behaviour and beliefs and these differences attest to a diversity of rationality standards. These norms may initially be descriptive but they become prescriptive if most members of a

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<sup>1</sup> According to the symbolists there are two ways in which Western scholars portray non-Western systems of thought. The first is by attributing to them a degree of shared irrationality. The second is by attributing to them a scientific preoccupation with the explanation prediction and control of their space-time world. Horton's refutation of the symbolists' approach is to separate the notions of meaning and function. He criticises the use of the dichotomy rational-irrational where both refer to a style of thought that is instrumental, in that it has a practical ulterior end, but the rational is adequate to the purpose and the irrational is not. The symbolists are convinced that patterns of thought and action are ultimately classifiable in terms of their guiding intentions and the evidence of the character of these intentions can only come from the context in which these patterns are deployed (Horton 1993).

community follow them and judge the actions of others by them (Jiang Tianji 1994:165).

Traditional philosophers advance the objection that even in the face of overwhelming diversity in cultures, radical incommensurability and therefore relativism does not follow. Diversity can be explicable in terms of differing environments and social organisations in which people live and perform their social activities. Even if their differences in behaviour cannot be assessed according to a universal standard and ranked along an evolutionary scale, they can still be evaluated in terms of their comparative degrees of function-fulfilling efficiency or success in the world. This objection, however, presumes a trans-cultural standard, which gains its credibility from the idea that people everywhere are the same kind of animal, with the same pattern of psychological traits and the same sort of biological functions. The counter argument from the relativists is:

“that the inference from a common biological and psychological base to a civilizational and cultural universal is incorrect. The gap between them has not been bridged and the inferential ‘leap’ is therefore unjustified” (Jiang Tianji 1994:165).

The last argument concerns the strength of relativism which is based on the fact that a unique characterisation of the methodology of science has not yet been articulated, and, a fortiori there can be no possibility of drawing on the theory of

scientific method for a unique model of rationality.<sup>2</sup> If there are divergent and incompatible theories of science, there are bound to be divergent and incompatible models of rationality. That no universal paradigm-independent and culture-independent standards of scientific rationality appraisal are ever hoped for, as the relativists claim, is implausible (Jiang Tianji 1994:165-6).

### *2.8 Objections to relativism.*

*The Bridgehead Argument* - Hollis & Lukes (1982, Hollis 1970a, 1982, Lukes 1970,1973, 1982). This is an argument against relativism, which is based on the claim that identification of beliefs, 'seeing the actor's world from within' (Jiang Tianji 1994:166) requires a bridgehead or common core of true and rational beliefs (Barnes & Bloor 1982:35). A successful translation and radical interpretation of alien beliefs must presume that the core comprises a set of statements that rational men 'cannot fail to believe in simple perceptual situations' organised by 'rules of coherent judgment, which rational men cannot fail to subscribe to' (Hollis 1982 :74). This common core implies universal criteria that are context-independent for truth and rationality and makes translation between cultures possible (Barnes & Bloor 1982:35-6). This claim develops from Davidson's (1984, 1986) logical argument about how to distinguish between meaningful disagreement and disagreement that is meaningless. For Davidson this 'depends entirely on a foundation - some foundation - in agreement' (Jiang Tianji 1994:167). As already mentioned the

<sup>2</sup> Feyerabend (1975:1) a philosopher of science attributes vagueness and a lack of clarity to major analytic concepts. He talks of the 'fictions of scientific methodology and conceptual totalitarianism'

statements that comprise the foundation or bridgehead, are ordinary perceptual judgments (Hollis 1982:68) or what Horton (1974) calls "primary theory" or the everyday experiences common to all cultures. The question however, remains whether all these beliefs are shared by cultures. Relativists object on the grounds that the demarcation between different cultures depends entirely on the classification scheme it uses. It is not possible to merely presume that these schemes are all the same. The only way to identify an alien belief is by observation of a person's overt behaviour (Jiang Tianji 1994:167). This leads us to the issue of behavioural explanations.

### *2.8.1 Behavioural explanations*

If we as outsiders attempt an explanation of the behaviour of an alien group we do so by putting forward an hypothesis about their behaviour based on observed regularities and patterns in their behaviour (Taylor 1970:70). Horton (1974) speculates about the behaviour of African traditional thinkers and consequently puts forward an hypothesis as to their behaviour. The explanation provided in this sense is not strictly a reason-giving explanation, but an hypothesis about attitudes and beliefs that must be testable. The hypothesis has to be sufficiently specific about the behaviour of someone holding these beliefs so as to predict what someone with such beliefs would do in a given situation. An explanation employing such an hypothesis would have the following form:

i) A has attitude x (where to have x is by definition to behave in a certain way

e.g. to do things of type x in situations of type y). Let us say that x is the belief in personal theoretical entities.

ii) A is in a situation of type y - y is a misfortune suffered by A.

3) A does x - A goes to a diviner to placate the said theoretical personal entity.

This type of explanation shows why A does x by demonstrating his action as part of a larger pattern of behaviour. This constitutes a *what* - explanation or as Taylor puts (1970:70) it a 'behavioural explanation'.

Horton (1974:163,1993) offers two accounts of behaviour to explain the anxiety which pervades in a closed system. If people are not aware of alternatives they can't possibly have anxiety about them and if they are aware of alternatives they are not necessarily anxious about them. Taboo reactions, for example, incest is explained as a response to events and actions which seriously deny the established line of classification of the culture (Appiah 1992:213-4). Horton (1993) argues that taboo reactions are to the classificatory system as secondary elaborations are to the system of theory; they defend the classificatory system from threats to its adequacy. These views are hypotheses and so should be open to test implications.

In order to understand the meaning of overt behaviour we have to take cognisance of the role it plays in the context of other activities in the foreign culture (Jiang Tianji 1994:167). This means that there needs to be an independent understanding of the alien life.

"Therefore there are no conceptual grounds for supposing that the so called bridgehead actions (not to speak of perceptual *judgments* and primary *theory*) enjoy a privileged status in the interpretation of understanding of an alien life- form. *A fortiori* we have no reason to suppose that they are necessarily common to and shared by all cultures. That the evidence about all these divergent belief systems and behaviour in alien culture and divergent theories in different paradigms 'show up' at all, and moreover, are to be understood, is mainly due to the use of hermeneutic techniques by anthropologists and historians of science (Jiang Tianji 1994:167).

As mentioned earlier, modern science and technology are regarded as the dividing line between Western culture and all primitive and traditional cultures (evolutionism). This argument therefore suggests that judgments of cognitive superiority of later phases of science over earlier phases, and of scientific over prescientific modes of thought are not, and cannot be relative to a specific scheme. That there is, therefore, 'a super paradigmatic standard of rationality after all', is the implication of this argument (Jiang Tianji 1994:167). Adherents to this argument are Gellner(1982) and Charles Taylor (1982). There are a number of important points that Taylor (1982:92) makes about rationality:

i) In accordance with the relativist point of view, Taylor accepts a plurality of standards of rationality because different cultures and activities are incommensurable.

ii) In disaccord with relativism, Taylor suggests that a plurality of standards does not preclude judgments of superiority and it is precisely

incommensurability that paves the way for such judgments.

iii) Again in accordance with relativist thought, there are no super cultural standards of judgment of comparative superiority available or acceptable to both sides.

iv) In disagreement with relativism, different standards can be considered superior or inferior hence the rationalities can also be rated as higher, lower fuller or poorer.

In order to actualise ranking or rating, there must be some explicit or implicit standard. This would constitute a 'superstandard' for ranking different forms of rationality and may not be accepted by all sides. Usually it is a third party - in the instance of this study, an anthropologist who develops the criterion for the assessment of different belief systems and cultures. This raises the crucial issue as to whether this standard is 'internal' to the culture of the assessor (Jiang Tianji 1994:168). For Lukes (1982:298) there can be no culture-dependence to the judgments of superiority because he sees the super-standard that will permit comparison as derived from the 'Cartesian absolute conception of knowledge' (Jiang Tianji 1994:168). For Taylor, rationalities can be ordered in terms of the super-standard - a standard that measures by achievement of greater or lesser understanding of the world. Whether or not this standard is 'internal' to Western theoretical culture in contrast to other a-theoretical cultures

is not clear. Without this clarity, it is difficult to determine whether or not comparative appraisal is possible (Jiang Tianji 1994:168).

### *2.9 Local rationality and Universal rationality.*

To distinguish moderate from radical relativism we have to look at the recognition of universal rationality standards in relation to local ones. Rationality in radical relativism is local, and internal to the specific culture or community. This is Winch's (1974a,b) point of view. Rationality in universalism endorses a unique standard of rationality instead of a plurality of standards and any violation of the unique standard would constitute irrationality (Jiang Tianji 1994:168).

Since moderate relativism also admits the universal standard of rationality, it has to explain the derivation of the standard. Is it nothing but an imposition of our own local rationality on other communities and cultures as science-based 19th century evolutionism is? Alternatively, is it abstract and absolute without any explanation of the growth of rationality (even within the scientific paradigm there is substantial evidence of revolutions across epochs) and the occurrence of a plurality of rationalities across different cultures? Then it comes *a priori*, in the sense of 'presuppositions or ultimate conditions of linguistic communication or human thinking', that facilitate in the first instance rational justification of beliefs or behaviour. This is why universalism has now been generally abandoned according to Jiang Tianji (1994:68).

Radical relativism is also at risk. It is not possible to have any regenerating process in a culture through outside influence, in a world where there are a plurality of closed cultures which do not interact with others. Close adherence to traditional practices or even rigid formalities in dealing with all situations would characterise such cultures. This reflects something of Horton's (1974:153-5) conception of the closed predicament. The culture will become exhausted and people living in it would experience a stagnation of knowledge as Wiredu (1995) claims. From this could emerge the 'idea of separate and isolated isles of culture spread diachronically or synchronically all over the world' (Jiang Tianji 1994:169). This is the *reductio ad absurdum* of both radical relativism and universalism in their failure to explain that rationality develops and grows. A denial of a universal rationality is just as preposterous as a denial of a plurality of local rationalities. What the standards of universal rationality are, and how they are to be distinguished from those of local rationality, however, remain questions to be answered (Jiang Tianji 1994:169).

### **3. Subjectivity and Objectivity**

The issue of subjectivity and objectivity is a complex one. A relativist may classify as subjective any comment emanating from outside a particular society while considering the views of those internal to the society as being more or less objective. A universalist on the other hand, would only attribute objectivity to the super standard of rationality. The evolutionist view can be articulated as one moving from the objective to the subjective. Western

science has the implication of objectivity, while African traditional thought implies subjectivity.

### *3.1 Subjective and objective views on rationality - Horton*

It is Robin Horton's (1974) contention that it is to some extent possible to access and assess another belief system by virtue of the fact that the criteria of rationality are universal and scientific and thus objective. This is in opposition to the relativist point of view namely that the criteria of rationality are to be defined solely and purely in terms of the particular cultural norms in which they occur and would thereby be considered subjective. However, Winch (Lukes 1974:203)

“objects to this position on the ground that it relies upon a notion of objective reality provided by science”.

and as Kuhn (1970) has pointed out, science is not necessarily as objective as it claims.

Horton (1974) is opposed to the views held by Winch (1974a,b), regarding the laws of consistency and coherence, which are themselves dependent on modes of social life. Each mode of social life has criteria of rationality peculiar to itself.

Truth and values are variable from culture to culture according to the relativist point of view. A definition of truth in this regard is given by Jiang Tianji

(1994:161) who distinguishes semantic concepts from epistemic concepts.

“The concept ‘truth’ on the standard two-value logic is a semantic concept denoting the relationship between a belief or a sentence and an extra-linguistic fact, however, you construe this latter term. As a semantic concept ‘truth’ is thus absolute. One has to redefine the concept as an epistemic one, by introducing the cognitive subject or speaker for whom the sentence is accepted or acceptable, to obtain the doctrine of relative truth” .

Truth I believe in terms of this view, is not on one side or the other but depends on one’s perspective. The idea of truth is ideally linked with what is objective and therefore uncontroversial. It tells us how things really are.

As regards the world of unobservables there are two basic views:

i) Levy-Bruhl’s ideas about unobservables are essentially verbalisations of the emotion provoked by the impact of social activity on the individual. Since these ideas are subjective rather than objective in origin, they impede the emergence of rational thought . They obscure how the world really is (Horton 1973:269).

ii) For Durkheim however, ‘ideas about unobservables are an objective response to the impact of society on the individual. Since they are objective rather than subjective in origin, they are the *sine qua non* of higher forms of reasoning ‘ (Horton 1976:269).

The views of Levy-Bruhl and Durkheim that observables are on the one account subjective and on the other objective lends credibility to Jiang Tianji's formulation of truth.

### *3.1.1 Subjective and Objective accounts of Knowledge*

If an account of knowledge is that which is approved of by most members of a particular community in terms of their relevant standards, then that account of knowledge is subjective and has a social dimension to it (Foley 1993:496). In the light of this, African traditional thought can be seen to be subjective (but then it must also be subjective for all communities) It has the attribute of practical rationality (which applies to actions designed to achieve the agent's ends). It is a context-bound rationality and its subjectivity is a function of its dependence on the goals and convictions of the agents.

This may be contrasted with knowledge of natural phenomena which is objective. The question of an agent's belief is epistemic rather than practical in the sense of whether the belief in question is acceptable or not. The criteria would be whether the person holding the belief has sufficient reason to hold it. The quest for certainty has been largely abandoned (Salmon 1993b:292).

### *3.1.2 Subjective rationality*

One consideration that aligns itself with subjectivism is that many of our judgments of rationality cannot be understood convincingly in an objective

manner. For example, when examining the beliefs of individuals from a different culture, it often seems appropriate to do so in terms of standards of their own, or at least in terms of some standard that is relative to that particular community (Foley 1993:496).

The classification of subjective entities would include sensations, dreams, memories, some moral values, tastes and secondary qualities as they are variable depending on observation and conditions. Dreams do not qualify as objective because they are considered private experiences, although at some level dreams can be considered a shared experience in so far as we all dream.

In the realm of rationality there are subjective accounts. There is a notion of practical rationality that applies to action as a means to an end and so is concerned with practice rather than cognition. It is subjective or context-bound, in the sense that it depends on the goals and conviction of the individual performing the action. It is centered on what would promote the agents purposes or interests or what would maximise them.

A further form of rationality that has relevance here is a moral one in which rationality would be concerned with the means rather than the agent's ends (Cohen 1993:416). A subjective account of epistemic rationality can take an individualistic or intersubjective form as it makes reference to the individual

believer or the individual's community who either approve the belief or take it as given. Subjective beliefs must meet standards that are those accepted by the majority of the population of that specific community. There is no guarantee of a reliable acquisition of true beliefs in terms of these standards. It is true that any account of rational beliefs involves some degree of subjectivity, as many of our judgments cannot be understood in a purely objective manner and this is particularly true of African traditional thought. It may be more appropriate and justifiable to assess them in terms of their own standards or at least minimally held standards relative to that particular community. There is no commitment to an extreme, and therefore, unacceptable form of relativism, through a subjective view but it does introduce some theoretical disputes. An objective view on the other hand, could give rise to evaluations of the other through assimilation into your own paradigm and or through the conclusion that the other culture is irrational.

### *3.1.3 Objective rationality*

This group include plants, galaxies, atoms and other features of the material world. In addition there are things like numbers, time and space, propositions and primary qualities (Bell 1993:310). The aim in construing rational belief on objective grounds is that such a view will always turn true belief into a good candidate for knowledge. The realist claims that theoretical commitment to the existence of abstract objects like numbers and propositions arises only if we allow that they exist in their own right. It is on these grounds then, that we can

claim objectivity for logic and science. However, it is improbable to claim objectivity for personal theoretical entities as they have been attributed subjective human qualities. Further, objectivity can be as we have thus far seen, considered an ontological concept but there is a notion of objectivity that is epistemic and here the distinction between objective and subjective is not intended to demarcate a reality split between:

“.... autonomous and dependent entities, but serves rather to distinguish two grades of cognitive achievement. In this sense only such things as judgments, beliefs, theories concepts and perceptions can significantly be said to be objective or subjective . Here objectivity can be construed as a property of the contents of mental acts and states. (Bell 1993:310).

To acquire a minimal concept of objectivity which will be considered neutral by all contending parties attempting to specify what objectivity is, is the aim of both the realist and anti-realist.

Yet an anti-realist would hold that it is not possible to ascertain whether our beliefs are objectively true and intelligible. Invoking the nature and existence of reality that is autonomous is insufficient for them. What does constitute sufficiency for them is objectivity. Genuine knowledge that consists in beliefs must be rational, justifiable, coherent, communicable and intelligible. The properties according to this view are explicable only on the basis of notions such as “the way reality appears to us” and “what criteria we are able to apply” etc. On the other hand for a belief to be epistemologically objective it has to

stand in some specified relation to independently existing and determinate reality, which is of course in line with the realist's view (Bell 1993:311).

### *3.2 Words and magic*

Within the realm of subjectivity/objectivity, it seems interesting to consider words and magic again. Horton (1974:155) it will be recalled, considered the magical versus non-magical attitude to words as one of the features differentiating Western science and African traditional cultures. Here the issue concerns subjective and objective knowledge and the realist-anti-realist debate.

There is an objective world that operates independently of human will. Magic does not. The idea is that there is a connection between words and the objects / situations they stand for. This connection between the word and the thing referred to is a common magical belief. According to the realists' account, a belief is epistemically subjective if one can show that for a given class of judgments, no independent reality exists that those judgments characterise or to which they refer. The anti-realist view on this point, is one in which the objectivity of a judgment has been construed in terms of its function and coherence with other judgments, or the kinds of grounds that warrant it and of its acceptance within a given community. For example, a question would be considered objective if it is answerable by a procedure that yields adequate justification for the answer (Masolo 1994:131).

In conclusion, the issue of evaluating competing strategies for interpretation is complex. Of course how the world is, doesn't alter how it is construed or described by the people, whose beliefs are to be explained. In terms of my argument though, however, bizarre or strange a belief may seem to us it must be compatible with "ordinary human reasoning propensities that is, 'natural rationality'" (Bloor 1993:484). Furthermore there are social contingencies that operate in the development of knowledge, for example ideology or other particular interests operate regardless of evaluative distinctions between true or false theories and correct or incorrect conclusions. Whether this can be attributed to the underdetermination of theory, as we are dealing with social phenomena, is another issue. It is the relative world that presents us with these problems of objectivity versus subjectivity. In the case of Western science, objectivity may be reformulated as 'fact' as the dominant feature, whereas in the case of African traditional thought subjectivity could be seen as 'value' according to the classification given herein. It can therefore be seen that the objectivity/subjectivity debate is a matter of degree as nothing can ever be entirely objective and is bound at the very least to be tinged with some degree of subjectivity.

## Conclusion

" In fact the idea of philosophy like that of any discipline, is variable, and there is never a single overriding paradigm sufficiently protean to fit every stage of its history. Indeed, much of what we admire today as ancient Greek philosophy does not satisfy some contemporary notions of philosophy, and some did not satisfy even Aristotle's. It would be pointless to try to bring the diversity of even contemporary philosophical practices under one paradigm" (Abraham 1995:95).

This quote expresses the idea that 'collective' philosophy is a fiction both when comparing African with Western philosophy, or within the Western tradition itself.

Scientific methods have proved an efficient and a viable means of explaining the world and of controlling and predicting events. The method is applicable to the phenomena of the material world and, in question is, how it applies to understanding human behaviour (Ryan 1970:101). It is not necessarily the only way in which human behaviour and beliefs can be understood. However, when something is explicable according to the laws of nature which have been established as 'fact' through rigorous observation and verified by using the prescribed methods, then it is to be considered 'scientific knowledge' until contradictory data becomes available (Hempel 1966:17). The rules of science are applicable to theory building and hypothesis-testing in the material universe. They do not apply to personal theoretical entities and as I have argued, I do not believe that they should.

As an example, a requirement of a scientific theory is that it is disprovable. This does not mean that it has to be proven wrong. However, it does mean that testable hypotheses have to be set up, derived from theory. It also means that what can be said at the outset of an experiment is that 'if you get x results, the theory is supported'. However, it also means that you have to be able to say 'if the experiment yields y results', something is most likely wrong with your theory (Hempel 1966:35).

In chapter two science has been shown to have established the autonomy of the natural order cumulatively. Subatomic entities and vast galaxies however, complex can be studied without any reference to personalised entities (Hick 1983:113). In contrast the complexities in fathoming beliefs in African traditional thought demand reference to personalised entities. An example of this comes from the belief of the Azande that their capacity to thrive and their common state of well-being is dependent on the performance of certain rites. This fact cannot be discredited. If the rites do not have the desired effect then they believe that it is due to the evil thoughts of someone present at the performance of these rites. This belief of the Azande cannot be falsified nor verified in principle. For example, a conjunction of the rite with no evil thought and the occurrence of some catastrophe could falsify it, but in fact it cannot be falsified (McIntyre 1970:67).

It is therefore highly unlikely that beliefs in personalised theoretical entities are

scientific. However, it is not necessary for something to be science in order to be appreciated. Freud's theory has a similar flaw *vis a vis* science and that is that whatever is found in the unconscious can be explained. It is not possible to prove Freud's theory wrong. His theory is like a 'rubberband' which can be stretched to incorporate many things, even completely contradictory findings. The similarity of Freud's theory to African traditional thought should be obvious by now and by way of an analogy I think that it is a better 'fit' than Horton's analogy to personal and impersonal entities.

In mitigation however, Robin Horton's approach to African traditional thought does not equate idiom with myth. This allows one to penetrate the peculiarities of the idiom of the mode of thought. In this sense he avoids superficiality.

Nevertheless, Horton's assimilation of African traditional thought and Western science is fraught with difficulties. The Hempelian age of Western science attempts to objectify the world, reducing or even neutralising subjectivity as far as possible. Implicit in Horton's desire to find similarities between African traditional thought and Western science, is the view that modern Western thought is cognitively superior (Lukes 1982:300). His comparison advocates the scientific method as appropriate and is therefore questionable. Horton might stand accused of having a logocentric hierarchy of values (Overing 1982:7).

Nietzsche's point of view has relevance here. He concedes the truth of specific

scientific theories. He does however, deny that a scientific interpretation can be 'the only justifiable interpretation of the world' (Nehamas 1993:305). For Nietzsche there is no special place for either the facts science addresses nor the means it employs. Scientific theories do serve a purpose as has been discussed, but they are no more important than the many other purposes of human life. A mechanistic view may be appropriate to parts of human life but not to the whole of it (Nehamas 1993:305).

Horton treats everything as one and does not distinguish between different areas of social organization. He specifically attempts to equate African philosophy with rationalism. This is fallacious because he equates ancestor worship which falls in the realm of religion with science. He refers across disciplines and so confuses different arenas (Hollis & Lukes 1982:19). Sogolo (1993:103) agrees with Horton that both African traditional thought and science, share a common goal of attempting to understand nature, but science stresses control and prediction, while African traditional thought emphasises the 'predicament of life'. It seeks to place events in a context that makes their occurrence and their impact on the lives of individuals, meaningful.

There seem to be basically two kinds of motives for African traditional thought. The first is ideological or political, expressly exempting this way of thinking from European standards (Masolo 1994:30). The same is true for European philosophy exempting itself from African traditional thought. The second is

hermeneutic. African culture is of a different order. To access or explain it we have to use principles that come from within the culture itself. This advocates some form of relativism as appropriate to the understanding of another culture.

This does not mean African traditional thought and Western science are mutually exclusive systems which rival each other. To speak of African traditional thought as true or false is inappropriate as systems apply to a culture or community and one cannot refer to them as true or false (Hick 1983: 113). It seems pointless to measure the qualities of the two approaches against each other. It is not enough to have only knowledge brought by the scientific method, nor is it enough to have the descriptions of the poetic and magical world of African traditional societies. They co-exist as Masolo (1994:125) suggests and an appreciation of what our own and other cultures demonstrate about the world brings both humility (Overing 1982:7) and a capacity to think about and ultimately to 'know' more about the world in which we live.

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