Metaphor, Embodiment and Fiduciary Beliefs in Science

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This article explores the significance and impact of embodiment theories of metaphor on some traditional formulations of the relationship between science and religion. For this purpose a methodology of metaphorical hermeneutics is implemented which shows metaphor and its underlying analogical structure to be significant keys to the understanding of the "metaphorical" nature of reality and cognition. Metaphorical models based on analogies are crucial hermeneutical keys to the understanding of reality. It is argued that specific analogical elements in these models acquire a guiding and controlling function in the process of theoretical understanding of phenomena. The relationship between a "basic metaphor" which provides the categories in terms of which the "world" is seen and the specific type of metaphorical control beliefs that function in a "religious" fashion in concept formation and theorizing is of interest in this article. These control beliefs condition the metaphors and analogies regarded as acceptable for the articulation of the structure of the explanandum, provide a "way of speaking" about phenomena and structure the generation of hypotheses and formation of concepts in theorizing. Fiduciary beliefs penetrate theories via a set of such core beliefs and function in a "religious" fashion. This refers to the way these beliefs are held and not to their content. The perspective on any phenomenon changes when the set of guiding beliefs that acquire primacy and determine the focus of the metaphor, changes.

1. Introduction

Embodiment theories of metaphor and empirical research concerning metaphor has brought about changes in the understanding of the nature of

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knowledge, truth, meaning, reality and language. These developments provide incentives to rethink the differences and relationships between religious convictions and scientific theories as articulations of different contexts and domains of discourse. Lakoff and Johnson (1980; 1988;1999), Rohrer *et al.*'s (2001; 2005) introduction of "embodiment" and image schemata as basis of cognition provides a basis for the accommodation of so called "subjective" or non-epistemic factors in the act (interaction/ enactment) of cognition. This includes socio-cultural and ideological factors. Their recognition of diverse but related domains of experience present in the embodied cognitive act opens up new avenues of exploring the constitutive role of religious convictions within scientific cognition (theories).

Not only the grounding of metaphorical meaning in embodiment, but also the recognition of non-propositional and pre-conceptual structures and their role in cognition by authors such as Davidson, (1978: 47), Searle (1988: 141 -159), Ricoeur (1977: 159), Johnson (1981: 200), Lakoff and Johnson, (1999) have contributed to the possibility of such an exploration. Their arguments differ on fundamental points: their adherence to or rejection of the causal theory of reference, their position on the existence of natural kinds and their views on the standard logic-and-literal language view with its corollary "obj ectivist thesis" concerning the nature of knowledge. These authors emphasize a deeper or more fundamental analysis of the nature of analogical reasoning and meaning transformation across diverse contextual fields, the need to ground metaphorical meaning in embodied or concrete experiential *gestalts* and to accommodate the place and role of so called "non-epistemic" factors in theorising.

These developments coupled with the renewed interest in the sociology of knowledge and the cognitive-historical approach to scientific theorizing (Brown, 1984; Collins, 1985; Hesse, 1983; 1988; Nersessian, 1987; Tweney, 1989) open avenues to develop a better understanding of the relationship between so called "non-epistemic" factors such as religious convictions, and the "epistemic" enterprise of science, and provide possibilities to reformulate the nature and presence of "religious" influence intrinsic to the cognitive act. This reformulation requires a modified view of cognition which challenges the standard objectivist view and which is based on a revised understanding of the nature of "embodiment". It will also have to take issue with the basic assumption of the representational and objectivist view of knowledge which assumes a pre-given world populated with "natural kinds" endowed with fixed features that are somehow "represented" by the cognitive agent.

Obviously not all these matters can be addressed in this paper.[2] Before it is embarked on a reformulated understanding of the nature and presence of religious influence in theorising, a couple of points concerning metaphor and embodiment in recent discussions require attention.

2. Metaphor: between a positivist rock and a postmodern 'soft' place

Postmodern challenges to modernist assumptions about rationality, truth, realism and reference have led to a fundamental rethinking of the bases of knowledge. Reflection on the nature and cognitive claims of metaphor have been central to this process. It has called into question the traditional *Aristotelean view of metaphor* with its literal truth paradigm and objectivist view of knowledge. In the traditional Aristotelean view metaphor is seen as deviant and emotive and meaning and truth claims of metaphors are reduced to their literal paraphrase. Rooted both in the classical Aristotelean view and in the philosophical assumptions of modernity, the objectivist view of knowledge saw metaphors as improper use of words and therefore inevitably deceptive, seductive and misleading.

The positivist treatment of metaphor that prevailed during the first half of the twentieth century is actually a version of the traditional centuries-old empiricist critique of metaphor starting with the double language thesis with its distinction between literal and metaphorical language. The positivist's critique rests on two foundations (Johnson, 1981): The distinction between the alleged "cognitive" and "emotive" functions of language, and the attendant belief that scientific language could be reduced to a system of literal and verifiable sentences. These two tenets were conjoined with the earlier empiricist "literal-truth" paradigm which argued that metaphor deviates from literal or cognitive discourse and, if it had any cognitive import at all it would be expressible by literal statements. This tradition also fostered the so-called reductive theories of metaphor, i.e., the simile (substitution) and the comparison theories, which both attempt to reduce metaphorical expression to a substitution either of the one referent of the metaphor by the other or to a comparison of the two referents on the basis of literal similarities or analogies. Early challenges to the traditional view of metaphor view by IA Richards *(*1936) and the seminal essays on metaphor by Max Black (1962; 1977; 1980) questioned the basic double language thesis and the restriction of meaning to single

2 Some of these issues have already been discussed in Botha (1986).

words. They also introduced a new understanding of the "interactive" nature of metaphor which acknowledged the creative and innovative processes which it generated.

From a different angle views of representatives of the Historical Turn in philosophy, history and sociology of science like Polanyi, Toulmin, Kuhn and Nersessian, led to a changed understanding about the nature of scientific cognition. In the bourgeoning empirical research on metaphor in Cognitive Science, Cognitive Psychology, Developmental Psychology, Cognitive Linguistics, Cognitive Semantics, Cognitive Semiotics and categorization, there is a growing body of evidence which disproves most of the basic tenets of the traditional view of metaphor. The upshot of these developments has been that many scholars have come to understand that metaphor as a primary figure of speech characterizes both language and thought in a most fundamental way. Moreover it is now argued that there is no unbridgeable gap between literal and metaphorical language. The distinction is relative, rather than absolute and literal and metaphorical meaning is always contextually determined. Perhaps the strongest move in all these developments has been towards the understanding that the transfer of meaning, conceptual blending and imaginative creativity – so characteristic of human language and thought – points to bodily based experiential structures. This is the move to the recognition of "embodiment" as the basis for metaphorical meaning.

With the advent of pluralism and perspectivalism and the accompanying recognition of the multivocity of concepts other questions arose: What are the constraints to our knowledge of reality? What guarantees stability of meaning and communication? Since no "God's eye view" of reality is possible, how would we know when we have actually accessed "the truth?" These developments placed the tension between "objectivism" and "relativism" centre stage in the discussions on metaphor. This tension between positivism and post-modernism is perhaps best captured in the title of Richard Bernstein's book *Beyond Objectivism and Relativism. Science, Hermeneutics and Praxis* (1983:19) when he says: "... at the heart of the objectivists vision, and what makes sense of his or her passion, is the belief that there is or must be some fixed, permanent constraints to which we can appeal and which are secure and stable. At its most profound level the relativist's message is that there are no such basic constraints except those that we invent or temporally (and temporarily) accept. Related to the constraints is an understanding of objective rationality …" delineated by formal logic and held to be entirely value-neutral and free of emotional and imaginative dimensions. Rationality is "disembodied: in

the sense that it consists of pure abstract logical relations and operations which are independent of subjective processes and sensorimotor experiences in the bodily organism" (Johnson, 1989:110). Closely related to this objectivist project with its essentialist and foundationalist belief in a pre-given world is the "common sense Fr understanding" of the world and the *representational-computational view of mind* (Varela, Thompson & Rosch, 1992: 7,144, 218) inaugurated by Descartes and Locke (Varela, Thompson & Rosch, 1992:135, 138). Today the central tool and guiding mechanism of cognitivism is the digital computer with its connectionist approach to symbolic processing. One of the basic assumptions of representationalism is that there is a world with pre-given features mirrored by the internal representations of the mind. (Varela, Thompson & Rosch, 1992:136). In this approach there was very little scope for the recognition of the role of "religious factors" of any kind. For this role to be recognized a different understanding of cognition is required, one that takes the role of human embodiment into consideration.

Postmodernism on the other hand, gave rise to the loss of belief in an objective world (Steiner, 1995:19) and an appreciation for the decentralised and fragmented "… for heterogeneous language games an incommensurability of these language games". "A postmodern world is characterized by continual change of perspectives, with no underlying common frame of reference, but rather a manifold of changing horizons" (Steiner, 1995:21).

On the surface it seemed as if the widespread interest in metaphor with its ubiquitous and ambiguous meaning and rich sources of polysemy played directly into the hands of the postmodern world view. It made it possible to describe and explain reality from a vast diversity of possible metaphorical points of view, without necessarily addressing the issue of limits or constraints, truth or reality depiction. The continental drift towards relativism brought about by these developments was somehow curtailed by closer scrutiny of meaning change and meaning transfer via metaphor. Empirical research was being focussed on the actual experiential processes on which meaning was based. How did one know what was the "meaning" of a term? What were the mechanisms of meanings shift? It became clear that human beings possessed "image schematic structures" which somehow guided their "experiential *gestalts*" of reality and that these were closely related to what came to be called "conceptual metaphors" – basic human abilities to make sense of the world around them on the basis of recurring patterns of experience. It was argued that "image schemes" emerge from certain basic forms of sensori-

motor activities and interactions and prove a pre-conceptual structure to our experience (Johnson, 1987:28, 29; Johnson, 1989: 113, 115). To the question how metaphorical meanings were constrained by reality, theories of embodiment provided significant clues. It is to these proposals that we now turn.

3. The knowledge of our body and the body of our knowledge

In many respects the views in which knowledge was seen as "embodied" were not new. There were already numerous precursors to current views on "embodiment" especially amongst Continental philosophers and more specifically Phenomenology (Edmund Husserl, Maurice Merleau-Ponty, Michael Polanyi and others). These developments pointed in the direction of a far more "full bodied" understanding of the nature of knowledge. Continental philosophers have continued to produce detailed discussions that show that knowledge … " depends on being in a world that is inseparable from our bodies, our language, and our social history – in short from our *embodiment*" (Varela, Thompson & Rosch, 1992:149). This was a position much disputed by linguistic philosophy and logical positivism with its "received view of scientific theories" (Suppe, 1974:3 - 233).This non-objectivist stance "... is the view that knowledge is the result of an ongoing interpretation that emerges from our capacities of understanding". These capacities in turn are "... rooted in the structures of our biological embodiment, but are lived and experienced within the domain of consensual action and cultural history." They are the structures by which we exist in the manner of "having a world" (Varela, Thompson & Rosch, 1992: 150). Intrinsic to these capacities, I argue, is also the human ability to trust, believe, or to seek certitude – the fiduciary capacity.[3] Lakoff and Johnson are embodiment theorists who developed a notion of embodiment and conceptual metaphor which takes into account the multifaceted nature of the world which forms the basis of and condition for analogical and metaphorical meaning change and meaning transfer. They state that "... our corporeality is part of the corporeality of the world ..." (1999:565). These important emphases need to be "fleshed out" in a more encompassing ontological framework which articulates the "multi-ordinality" or multi-facetedness of reality, facts, things, human

3 The identification of such a dimension of human existence and reality forms part of the modal scale of the Philosophy of the Cosmonomic Idea, developed by Herman Dooyweerd (1953). This notion has extensively been developed by J.H. Olthuis, Roy Clouser *et al*.

relationships, human action and cognition in diverse domains of experience. This in turn should ground the notion of "conceptual metaphor" and meaning in the ineradicably relational nature of human beings, of reality and the relationship of human beings in and to[4] reality. It should be able to accommodate and explain the multi-ordinality of reality and our multi-faceted knowledge of reality. In the following argument I will show that one facet of this multi-ordinality of both reality and human knowledge is the *fiduciary aspect or moment.*

4. A certitudinal or fiduciary image schematic domain of experience

The "fiduciary moment" which expresses the human ability to believe (*fides*), to trust, to be certain, is an integral element of both a multi-faceted world and its' potential to form the basis of a multiplicity of ways of knowing this world. In all human activity there is also a fiduciary element present e.g. a tight rope walker trusts his abilities, or the safety net, the client trusts the banker, the marriage partner commits himself in troth to his partner, etc. This assumes that all domains of experience, domains of reality, interrelationships and cognition exhibit and share in the same stratification, of which the fiduciary (the ability to trust, to believe, to be certain) is one. Examples of such analogical relationships between the fiduciary aspect and other aspects are: social credit, legal trust, moral troth, psychological assurance, promise (a promissory note), confidence, etc. This state of affairs points to the fact that the multi-faceted and multi-dimensional world exhibits both irreducible aspects and an integral internal coherence of these aspects. These aspects, facets or dimensions of reality are irreducible to one another and yet contain implicit references to other domains of experience (they are multifocal; exhibit multivocity). This can also be demonstrated by the interrelationship of different dimensions, aspects or functions of reality. For example: all psychological (feeling/emotional/sensitive) functioning already assumes the presence of number (multiplicity of sense impressions), spatiality (sensory space/ personal space), physico-chemical and biological functioning. Implicit in

4 Alfred Korzybski in *Science and Sanity* [c1933] says: "All the most humanly important and interesting terms are multiordinal, and no one can evade the use of such terms. Multi-ordinality is inherent in the structure of 'human knowledge'". The Dutch Legal Philosopher Herman Dooyeweerd (*The Analogical Concepts*, 1954, translated by Robert Knudsen) refers to a related state of affairs when he claims that the basic concepts that all disciplines have to use are analogical in nature. This analogy, he says "... is the expression of an unbreakable coherence of meaning in an irreducible diversity of meaning" (Cf. Botha, 1999).

such functioning is also the *potential* presence of the logical moment (logical sense/feeling), the psycho-social moment, (social sensitivity), the psycho-juridical moment (sense of justice), the aesthetic moment (artistic feeling) and the religious moment (spiritual sense), etc. Such potential analogical moments are "opened up" in the interactive embodied relationship of actors and the world around them. When feeling (sensitivity) and motion (movement) are seen as two such irreducible modes of functioning, then a "moving experience" is one in which the psychic dimension of feeling and sensitivity relates analogically to movement i.e. the "movement" of feelings is analogous to (or resembles) actual physical movement. In music on the other hand an 'adagio' refers to slow musical movement. Although movement is original in the kinematic dimension of reality it acquires an analogical aesthetic qualification in such a notion. The concept *movement*, which is presumably an original conceptual "metaphor" acquires multi-ordinal meaning in its relationship to other irreducible dimensions of human functioning. So the original basic equivocal concept of feeling/sensitivity acquires a multiplicity of contextual meanings which in current metaphor theory will be regarded as "metaphorical".

5. The fiduciary, the spiritual and religion

In similar fashion the human fiduciary function is present in all human acts and interactive relationships between actors and the world and also expresses all other "radial" aspects of reality and of human experience in an analogical fashion. This specific understanding of the fiduciary aspect of reality, human existence and cognition is not addressed in the work of Lakoff and Johnson, but they do relate metaphor to embodied spirituality. When Lakoff and Johnson discusses the grounding of the phenomenon of embodiment they argue that second generation cognitive science locates "... meaning in the body and the unconscious conceptual system"(Lakoff & Johnson,1999:462). They say: "The body and brain are where meanings arise in and through our interactions with the environment and with other people" (Lakoff & Johnson, 1999:463). They state that cognitive semantics studies human conceptual systems, meaning and inference and claim that: "Metaphors are products of body, brain, mind, and experience. They are pervasive in our everyday thought and in philosophy itself". They could only get their meaning through the commonalities of the body and our bodily and social experience in the world (Lakoff & Johnson, 1999:462, 463). They tie this innate human propensity to the embodied spirituality of human beings (Lakoff & Johnson, 1999:561-565) which comes to expression in empathic imaginative projection – a form of

"transcendence" "... a form of being in the other ..." (Lakoff & Johnson, 1999:565) which also comes to expression in the relationship to the physical world, an ecological spirituality. They say: "Imaginative empathic projection is a major part of what has always been called spiritual experience" (Lakoff & Johnson, 1999: 565). "Embodied spirituality" entails that in all acts of empathic interaction with the world around us an element of what has traditionally been called "the spiritual", is present. This approximates one of the uses of the term "religion" – perhaps the most profound and deep one as proposed by Roy Clouser (1991) who reformulates the notion of religion as follows: Sets of beliefs and practices related to a belief in something which is regarded as divine. The characteristic of Divinity is that it is utterly non-dependent, i.e. exhibits metaphysical non-dependence. The significance of this reformulation of the notion of religion is that religion is now not necessarily related to the gods/God, worship, liturgy, moral and ethical practices, but *to that which is regarded as divine and therefore non-dependent*. Religion is a commitment to that which is regarded as ultimate, or metaphysically non-dependent or the final ground of all things; that which requires no further grounding. So one's ability to trust is instrumental in this religious commitment, but is not synonymous with it.

Distinguishing this notion of "religion" from the fiduciary moment characteristic of all human experience, knowledge and reality facilitates a clearer understanding of the presence and influence of "religious" convictions as ultimate convictions and the (certitudinal, fiduciary) convictions which mediate this ultimate conviction in scientific theories. In order to demonstrate this two assumptions are required. The first is the fact that all of reality *is* meaning (not *has* meaning) and the second is the acceptance of the fact that all human experience is rooted in a deep and profound quest for (religious) meaning. Metaphorical mappings and analogical meaning transfer are some of the pivotal mechanisms which mediate meaning disclosure in a great variety of areas. One could speak of the mediating and hermeneutical function of metaphor. This will be dealt with later. All acts, events, facts, relationships are involved in this quest and moreover exhibit a certitudinal or fiduciary aspect. Embodiment theories have provided important clues to attempt an answer to this question and have also opened avenues to recognize the role of fiduciary elements in cognition.

6. Categories, radial structures and conceptual metaphor

Johnson (1989: 1 - 3; 109 - 118; 1991: 3 - 18) states that embodiment is the locus of our experience and specifies embodiment closer as the

patterns that emerge through the sensori-motor activities of human beings. (1991: 8) This has to do with spatial and temporal orientation, bodily movement, perceptual focus and manipulation of objects to accomplish certain purposes. In the use of these sensori-motor skills image-schematic structures emerge and develop which provide the form, order and relative determinateness in human experience of the world (1991:10). These image-schematic structures are also at work in the more abstract realms of understanding and reasoning (1991:10). Johnson is arguing that "... human understanding is image-schematic through and through, from the most primitive and mundane unreflective acts of perception and motor activity all the way up to abstract reasoning and argument"(1991:12). All of this Johnson claims, is knowing. The image-schematic patterns are what Johnson calls "imaginative structures" which are the imaginative contours of our experiential interactions that are employed in order to have ordered, recognizable representations and experience.[5]

I argue that the universal human ability to believe, trust or seek certitude constitutes such an image-schematic structure and that in turn, it is the root of a fiduciary conceptual metaphor. Moreover this often tacit dimension, is present in all cognitive acts and characterises the commitment an intellectual community shares to viewing the similarities and dissimilarities (categorizations) of the world in a certain way. In the later development of Kuhn's thought, there is an indication that he too recognizes an element of this kind. His initial emphasis on "gestalt switches" and "conversion" as illustrations of the radical change that takes place in the commitment of a scientific community makes room for a far stronger emphasis on language, the lexicon and the shared acquisition of the similarity and dissimilarity relations which a "possible world" with its new lexicon provides (Kuhn, 1989; Paul, 1993; Kuhn, 2000). Elsewhere Kuhn states that his initial notion of the role of "dogma" in scientific research is one that he actually does not pursue any further. But it is exactly the presence of such a "fiduciary" (or "dogmatic"?) element which is present in all human acts that point to a domain of experience which is as universal as spatial, numerical, kinematic, physical, biotic, psychic, linguistic, social and cultural domains of experience.

"Believing"/ trusting/ having faith or the "fiduciary" dimension of cognition is such an image-schematic pattern characteristic of all human

5 N.B. Tim Rohrer's summary of the tenfold meanings of embodiment (Rohrer, T. 2001. Pragmatism, Ideology and Embodiment. In: Dirven, R. *et al*., *Language and Ideology.* Vol 1.49 - 82).

existence, interpersonal relationships and relationship of human beings to one another and to reality. In a different context Olthuis (1987: 24) argues that we are equipped with " our believing-entrusting-faith way of being in the world ..." He gives this way of being in the world the technical name ***"certitudinal"*** (Olthuis, 1987; 1985: 153 - 164.) When Olthuis discusses the term "certitudinal" he has belief/faith *in that which is ultimate or that which is regarded as ultimate,* in mind, i.e. what generally would be regarded as "religious" faith. But structurally this same human propensity forms an integral aspect of all human action and cognition. Reliance, acceptance, surrender (Hart, 1984: 183) to themselves, to one another and to the world around them, occur in all human relationships. *Some examples are: surrendering* to "the inevitable", *accepting* reports on face value, *believing* in human rights, *committing* to the terms of a contract, *committing* to a relationship, trusting a bridge – these are all instances of the human fiduciary or certitudinal image-schematic structure and domain of experience.

In the context of discussing personal knowledge Michael Polanyi refers to a related notion. He speaks of belief as the source of all knowledge and continues: "No intelligence, however critical or original, can operate outside such a fiduciary framework". (Polanyi, 1974). Polanyi speaks of the "fiduciary rootedness of all rationality" (1974: 297). Whether such a dimension is actually constitutive of human experience and as such a basic experiential domain, can also be demonstrated by showing the negative consequences of a lack or absence of trust, certitude, belief in human relationships. Polanyi (1974:297) states that even a "... programme of comprehensive doubt (when someone claims to doubt all) ...", collapses and reveals by its failure the *fiduciary rootedness of all reality.* Polanyi argues, any range of conscious awareness always still presupposes the uncritical acceptance of some beliefs. To show that there actually is such an image-schematic structure present in our experience of reality, the fiduciary element described above in the process of faith and cognition in general (appealing to "fides") needs to be recognized in notions such as "con-fidence", conviction, credit, etc. In all these acts an element of belief is present. Scientific beliefs, believing that the world is round; believing in the existence of atoms; believing in oneself: having self-confidence; credit-trusting that a debt will be repaid; creedal conviction: believing the creedal statements in a religious creed, etc. Not only is this a structural human ability, but when human beings interact with the world around them or have experiences in the world, these objects can become the "objects" of their certainty or they can "rely"/trust on them. Things in the world, other people and relationships have a dormant fiduciary dimension

that can be empathically opened up or disclosed. In the terminology of recent Cognitive Semantics one could state that these examples point to the fiduciary/trust/certitudinal dimension of reality as a *conceptual metaphor.* This still leaves an important issue unresolved: Are these "conceptual metaphors" merely bodily based phenomena or is there possibly a more fundamental ontological issue at stake in the uncovering of these apparently subjective states of affairs.

Lakoff and Johnson's anchoring of meaning in the bodily existence is a significant step away from the Cartesian and objectivist position, but falls short because of its location of meaning in the subjective and materialistic dimensions of reality. Although humans have no other access to meaning than through their own bodily and subjective experiences of reality, ultimate meaning transcends these limitations. Or, formulated differently: it is only because of the conditions and limitations which make human life and reality possible that human life *is* meaning, meaning which is opened up, discovered via human interactive experience. It is exactly the dynamic "... intrinsic restlessness and relational insufficiency of reality" (Hart, 1984:166) which human action and cognition participates in and which points to the "expressive and referential" character of all of reality approximated by metaphor. Van Hoozer points to a similar state of affairs when he says: "... in metaphor, meanings refuse to stand still" (1998: 127). The process of "... mutual interaction of meaning ..." (Hesse, 1983:33) is characteristic not only of the acquisition of knowledge but also of the nature of reality itself. In this process the certitudinal dimension plays a pivotal role. Human life-as-meaning, or human life as religion comes to expression in the vast multiplicity of dimensions of all facts, things, events, acts and relationships, one of them being the certitudinal or fiduciary dimension, which in turn displays, mirrors and reflects the radial structure of this dimension of reality. How does this relate to metaphorical models in scientific theorizing and in what way does this relate to the science religion debates? (Soskice, 1985, 1987). In the following section the suggestions above are coupled with a suggested reformulation of the notion of "religion" and the recognition of the role of the fiduciary component in theorising to provide an alternative to the traditional views of the relationship of religion and science.

7. Control beliefs in science and religion

Contrary to the views that see the nature of the "influence" of religious considerations, notions, ideas and concepts on science as the *source or origin* of creative and innovative ideas for theorizing or the *external and*

contextual conditioning of theories (cf. Brooke, 1991), this article focusses on the *pervasive or permeating* way that such beliefs penetrate theories internally via a set of basic or core beliefs. Any belief within the belief structure of scientific knowledge can be 'elevated' to the status of a control belief and amongst the control beliefs there are some which are held in such a way or function in such a way that they could be qualified as "religious". When a metaphorical model is utilised as explanatory tool it juxtaposes at least two semantic fields in a unique way to focus on or emphasize some specific new purported perspective. In order to accomplish this a framework of beliefs are held tacitly. Within the purview of these tacit beliefs, some are given the status of absolute or ultimate beliefs that direct, control, steer and regulate the process of knowing. Such an element can be called the *fiduciary dimension* or aspect – that which pertains to trust. It is this element that mediates the controlling or guiding analogical moment of a basic or root metaphor in the process of theorising. Religious "control beliefs" (Wolterstorff, 1984) or *fiduciary beliefs* (Polanyi, 1974) refer to the way these beliefs are held and not to their content. For example, the focus and perspective on any phenomenon through the metaphor of a "system", changes when the system is alternatively "seen as" organic, mechanical or cybernetic. It is the configuration of analogical elements present in such images which allows one such analogical element to acquire primacy and guide the focus and perspective of a theory. These analogical configurations are often deeply embedded in the dominant world view and root metaphor of an era. The image or picture of reality (scientific world "view"/ *Weltbild)* provides the basic categories in terms of which the (scientific discipline or theory's) "world" is seen. It provides an account of the purported structure of the domain of discourse and its relationships to other areas/domains of reality. It conditions the metaphors and analogies which are regarded as acceptable in order to approximate and articulate the structure of the entities, laws and processes under discussion in the domain. Such a basic view, provides a "way of speaking" about phenomena which structure the generation of hypotheses and the formation of concepts in theorizing. Theory constitutive scientific metaphors are metaphors which propose models and often reflect deeper basic metaphorical notions that function in an intrinsically religious way. These basic metaphorical notions determine which analogical moments of a theory constitutive metaphor regulate, control, steer and guide the process of theorizing. It is the relationship between such a "basic metaphor" and the specific type of control beliefs that function in a "religious" fashion in concept formation and theorizing that is of interest here. They also mediate the wider

contextual, social and religious ("external") influences in science and society.

8. The fiduciary element in theorizing

Scientific theorizing presupposes a commitment to a set of philosophical assumptions and presuppositions, some of which are held in much the same manner as religious convictions. These presuppositions, which constitute part of the scientific world view, are held in such a way that they guide and control all research which fall within their scope and are carefully protected against possible falsification. Metaphors are often used in a presuppositional sense as root metaphors on which scientific theories are built. In such a case they determine the ultimate presuppositions or frames of reference of scientific world views and are often the source of the control beliefs which function in a confessional, certitudinal and fiduciary fashion. Carl Rogers's conception of the formative directional tendency operative in reality constitutes an example of a presupposition which functions as a control belief in his theory of man and the universe. It is an instance of the more encompassing root metaphor of "holism". Both science and religion harbour a certitudinal or fiduciary dimension which plays a pivotal role in its universe of discourse. These are the level of ultimate or absolute presuppositions concerning the nature of reality (Collingwood, 1940; Brown, 1975, refers to "paradigmatic propositions"). Brown (1975: 86, 88) states that these paradigmatic propositions "... play a fundamental role in determining what science is in any era, how research is to proceed and how our observations are to be interpreted". He says: "They are fundamental presuppositions which organise and guide scientific research and without such presuppositions no coherent research is possible" (Brown, 1975: 87; Cf also 1977; 1979). Wolterstorff (1984: 69) says "control beliefs" fulfill a regulative function in scientific theorizing. These beliefs that function as absolute presuppositions are intrinsically "religious" (fiduciary) in nature, i.e. they show marked family resemblances to the manner in which religious beliefs are held. The contents of the various beliefs differ: They may be about religious matters (creation) or metaphysical in nature (only observables count in science) or some psychological statement (the existence of some tendency or force toward wholes and actualization present in reality or man), but the *function* they fulfil in science resembles the way in which religious convictions function in religious experience. These presuppositions which are protected from possible falsification function analogous to dogmatic faith statements in religion. Such presuppositions often provide the point of departure for ideological

commitments and views to develop. Obviously the term "religious" is now being used in a sense deviating from the standard usage and closer to the definition proposed by Clouser (1991). The fact that there are elements of this kind at work in theories has been dealt with quite extensively in recent literature (Cf. Collingwood, 1940; Toulmin, 1972). This allegiance or commitment to a set of "absolute presuppositions" or "paradigmatic propositions" Brown (1975; 1979) is a commitment held in very much the same way as fundamental religious beliefs. Perhaps this is what Lakatos (1974:139) would call the "hard core" of a research tradition. All problem statements, methodology and observations are done in terms of these presuppositions. These statements called "first order principles" by Miller (1969: 52) are used in the same way "logically" (I would say "functionally") as religious statements, since they are statements in accordance with which all evidence is interpreted. Miller (1969: 52) makes an even stronger claim: "... basically religion and science present alternative Weltanschauungen, neither of whose first-order principles are amenable to empirical testing in that they actually function as principles in accordance with which all reasoning within the Weltanschauung takes place". What is regarded as "facts" or evidence is determined by the Weltanschauung with its concepts, categories and first-order principles. Once this is understood, it is clear that science intrinsically harbours religious notions which are qualified by the characteristic context of science. Family resemblances of these notions are also found in other contexts: e.g. when a political party or policy holds a set of principles as non-negotiable.

Scientific concepts are embedded in a "lexicon" (Kuhn, 1989: 9 - 32). Such a lexicon describes a "possible world" based on a network of beliefs. Metaphysical beliefs are as constitutive of the network of beliefs undergirding the "possible world" as any other type of belief present in the network. These in turn are regulated, determined, conditioned by a dominant control belief or set of control beliefs which determine the choice of ontological strata and conceptual schemata utilized in a theory. These ontological and conceptual schemata are closely related to (not causally determined by) a *basic metaphor* – often, but not necessarily, of religious origin – which dictates the choice of analogical emphasis present in the scientific metaphor functioning as control belief in the cluster of beliefs that make up a theory. The rejection of the Copernican *heliocentric* view of the world by the Catholic Church is an example of an ecclesiastical religious belief fulfilling an epistemic function within the weighing of a theory. But the actual regulating or controlling function within the Church's theory as such is fulfilled by the status and sanction

awarded the *geocentric* Ptolemaic interpretation of the world. When the transition to the heliocentric view takes place, it is ostensibly due to new "scientific observations", but the controlling belief at work in this process of transition is the Neo-Platonic view of the centrality of the sun in the visible universe (Burtt, 1954).

Metaphors both reveal and conceal something of the nature of reality. The logic of the metaphor prescribes the research program – actually "the logic of the entailments" of the metaphor functions as such. In the set of entailments of the source domain of the metaphor there is a "controlling" element that governs the mapping process. It is elevated to a position guiding/directing/controlling the search and what is "seen" (perceived/observed). It sets up the proposed itinerary to explore the "itinerary of meaning" (Ricoeur, 1980) of the target domain ... not the full target domain, only the itinerary indicated by the control belief of the source domain ... a fact that also underscores the "underdetermination thesis". Two examples will have to suffice: In each one of the mechanistic, organicistic and cybernetic versions of systems theory, one qualifying dimension dictates the formation of the permissible lexicon. The clockwork image, growing plants and computers can all be regarded as "systems". In turn all three of these system images can function as source domain to be mapped on a target domain. For example: society as a mechanism (Hobbes), society as an organism (Durkheim) society as an information system. The meaning of the lexicon used in a theory is determined by the specific analogical element that constitutes the regulative (fiduciary) focus of the metaphor "system".

9. Metaphorical hermeneutics opens texts and contexts

The argument that metaphor provides a unique avenue to open up both the "seeing" and the understanding of different aspects of reality and diverse angles of texts has become an acknowledged dimension of what is being called "The Rhetorical Turn" in interpretation.[6] Metaphorical hermeneutics can be subsumed under the wider rubric of Rhetorical Hermeneutics and includes both the weaker version of hermeneutics which concentrates on the way rhetorical figures are produced and used in discourse as such, and the stronger sense of hermeneutics in which the

6 Cf. Gross, Alan G. & Keith, William M. (Eds), 1997. *Rhetorical Hermeneutics: Invention and Interpretation in the Age of Science, (*Albany: New York).

discourse actually refers to thought and action and also gives access to ontological states of affairs.[7] This approach is closely related to Ricoeur's[8] application of insights gained from his analysis of text and metaphor as discourse, to human action. Ricoeur's aim is to establish that action and written discourse exhibit a number of important similarities and that these similarities are sufficient to warrant the extension of the method of textual analysis to the analysis of human action. Ricoeur's contention is that actions, like words, have meanings that are constitutive of everyday understandings, and these meanings are fixed.[9] Because this is the case, the two phenomena can be analysed with a similar methodology. Formulated in the language of more recent metaphor theory, texts (in the inclusive sense of the word) are therefore multidimensional records of multidimensional experiential *gestalts*. This multi-dimensionality of meaning is characteristic of all forms of human and social action and allows for a multiplicity of theoretical explanations.

Common to both texts and actions is the fact that they exhibit recognizable structures or patterns which make it possible to identify and distinguish them from other structures or patterns. In everyday experience we have little difficulty in identifying these structures on the basis of the contexts within which they figure. We also discern that these contexts are not univocal, but that texts and actions have multiple possible dimensions by which they can be accessed. This holds for religious texts too. We approximate the meaning of a religious text by discerning a "pattern" or its "holistic grammar".[10] This structure or discernable "pattern" of the text qualifies and conditions the scope and parameters of literal and metaphorical meaning within the text.[11] ("The Lord is my Shepherd" is confessionally "literally" true even though it is a metaphor for God's care.)

7 Cf. Ginev, Dimitri. From a Strong Hermeneutics of Science to a Strong Rhetoric of Science. *Philosophy and Rhetoric*, 32(3) (1999).

8 The Model of the Text: Meaningful Action Considered as Text. In: Dallmayr, Fred R. & McCarthy, Thomas A. (Eds.). *Understanding Social Inquiry*. Notre Dame: University of Notre Dame, 1977.

9 Hekman, Susan. Action as a text: Gadamer's Hermeneutics and the Social Scientific Analysis of Action. *Journal for the Theory of Social Behaviour*, 14(3), October (1984): 342.

10 Garret Green *Fictional Narrative and Scriptural Truth*, 92, uses this argument to defend the literal reading of Scripture with respect to the fact that changes can be made from, one (incommensurable) paradigm to another. He says "A paradigm is refuted only by appeal to a more persuasive paradigm".

11 The Rorty - Hesse discussion about "texts without types and lumps without laws" is relevant here (Rorty, 1987; Rorty & Hesse, 1985-86).

When one chooses a specific metaphorical approach in terms of which the explanandum is to be described or explained, the metaphorical model selects some analogy assumed to be able to open up as yet unknown dimensions of the phenomenon under discussion. These analogies provide the basis for metaphorical models which claim to provide hermeneutical access to the event, action, text, etc. For example once the choice has been made for the metaphor of a "text" as model for social action, it prescribes which analogical elements of social action come into purview. It provides the semantic field which directs, regulates, organizes and supresses the interpretation of the action. The model is an abductive "construction" on the part of the theoretician who attempts to approximate the structure of the action in terms of the configuration of analogical elements incorporated in the model of the text (Ricoeur, 1977) To what extent such a *structure* as a conventional construction is able to access the actual "givens" in reality is a matter of dispute.

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