

WORLDVIEWS AND METAPHORS IN THE HUMAN-NATURE RELATIONSHIP:
An Ecolinguistic Exploration Through the Ages.

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This article shows how language has construed and communicated humankind's relationship to Nature from the early beginnings of civilization to the very present. It categorizes the major metaphors used to describe the human-Nature relationship into those that mainly represent either an anthropocentric worldview or a biocentric worldview. Predominant in the linguistic corpus for the former worldview are the metaphors *Nature as scala naturae*, *Nature as machine*, while for the latter worldview the metaphors of *Nature as mother*, *Nature as web*, *Nature as measure* are predominant. The linguistic corpus of this article in historical ecology consists of nine historical texts by evolutionary biologists, cosmologists, and cultural historians in Europe and North America.

“Every age has its own unique view of nature, its own interpretation of what the world is all about. Knowing a civilization's concept of Nature is tantamount to knowing how a civilization thinks and acts.”¹

INTRODUCTION

The sorrowful plight of planet Earth at the beginning of this new millennium is the result of human activities that have reduced the quality of life of both humankind and other members of the Earth community. Varied attempts on all levels of government, business, and civil society have been and are being made to redress the situation. However, no real or lasting progress in improving the quality of life of planet and people can be made without a critical assessment of a person's or society's value system and its often implicit worldview. States American biologist Botkin:

“The potential for us to make progress with environmental issues is limited by the basic assumptions that we make about nature, the unspoken, often unrecognized perspective from which we view our environment. This perspective, ironically in the scientific age, depends on myth and deeply buried beliefs. In order to gain a new view, one necessary to deal with global environmental problems, we must break free of old assumptions and old myths about nature and ourselves, while building on the scientific and technical advances of the past.”²

In any such assessment of worldviews and its relationship to Nature the role of language is of paramount importance. Language carries, communicates and construes the meaning of Nature, humankind's place in Nature, and the relationship between social and ecological peace. Thus, one of the major functions of the new science of ecolinguistics³ is to contribute to the unmasking of myths, assumptions, and ideologies that underlie the public's and scientists' notions of Nature and related issues. It is particularly in the linguistic device of the metaphor that these assumptions are communicated.

Metaphors are important linguistic devices. They are one of our primary means of

conceptualizing the world. Their power is derived from their ability to assimilate new experiences to familiar patterns of perception; to project one knowledge domain onto another so as to allow the newer or abstract domain of experience to be understood in terms of the other and more concrete one.⁴ However, metaphors are often used unquestionably as common sense expressions with which one has grown up. One tends to forget that they are partial conceptualizations of reality, because, as Goatly has pointed out, highlighting and suppression of experience necessarily involves “ignoring of differences and highlighting of selected similarities.”⁵ Therefore, it is necessary to critically analyze metaphors in order to unmask what they hide and to discover the interests that are at stake in the use of particular metaphors. According to Chalton and Lakoff metaphors need to be discussed out in the open both by academics and the public, because what metaphors entail is a crucial topic for theoretical discussion. Alternative metaphors need to be formulated and thoroughly aired.⁶

Therefore, the purpose of this article is to investigate how metaphors have construed and communicated the human-Nature relationship in various cultures and different time periods. The corpus for this ecolinguistic exploration consists primarily of the prefaces, the introductory and concluding chapters of nine book-length texts (Table 1) and secondarily of selected keywords as they appear in the indices of these texts (Table 2). The authors of these texts were selected on the basis of historical reach and diversity in disciplinary background. As regards geographic distribution, however, they were selected primarily because of their connection with Western culture.

TABLE 1

Selected texts with the disciplinary background of their authors

Daniel B. Botkin, *Discordant Harmonies: A New Ecology for the 21st Century*. (New York: Oxford University Press, 1990)--Biology and environmental sciences

Peter J. Bowler, *The Environmental Sciences*. (New York: Norton, 1992)--History of science, Modern history of civilizations.

Timothy Ferris, *Coming of Age in the Milky Way*. (New York: Morrow, 1988)--Science writing.

Peter Marshall, *Nature's Web. Rethinking Our Place On Earth*. (New York: Paragon House, 1994)--History of ideas.

Elisabeth Sahtouris, *Gaia: The Human Journey From Chaos to Cosmos*. (New York: Pocket Books. 1989)--Evolutionary biology.

Brian Swimme and Thomas Berry, *The Universe Story From the Primordial Flaring Forth to the Ecozoic Era. A Celebration of the Unfolding of the Cosmos*. (San Francisco: Harper, 1992)--Cosmology and cultural history.

Arnold Toynbee, *A Study of History*. The First Abridged One-Volume Edition; Illustrated. (New York: Weathervane, 1972)--Traditional history of civilizations.

Donald Worster, *Nature's Economy. A History of Ecological Ideas*. Second Edition. (New York:

Cambridge University Press. 1994)--History of ideas.

TABLE 2

Keywords

anthropic principle, anthropocentrism, Aristotle, Francis Bacon, balance of nature, biocentrism, catastrophism, chain of being, creation, culture, diversity, dominion, dominance, Earth Goddess, economy of Nature, environment, environmentalism, evolution, Gaia, man(kind), machine, mechanical philosophy, Nature, order/disorder, natural philosophy, natural theology, partnership, philosophy of Nature, religion, symbiosis, unity, uniformitarianism, universe.

The Thorndike-Barnhardt dictionary lists about a dozen meanings for the term nature. One of these is the “sum total of all things in the physical universe” or, using the words of Pliny the Elder, Nature as “everything not made by humans”. In line with several of the texts that form the corpus of this study, Nature is used in this broad sense here. It is not limited to planet Earth or the Earth’s biosphere⁷ but to the whole universe in which all things are bound together in the intimacy of “friendship” because of their unity of origin.⁸

The article is organized into three sections. The first two sections deal with one of the two main worldviews into which the metaphors about the human-Nature relationship that have emerged from the above corpus are categorized, i.e. the anthropocentric worldview (section 1) and the biocentric one (section 2). The third section discusses the social manifestations of each set of metaphors.

Though the anthropocentric and biocentric metaphors are discussed separately for analytical purposes, it is to be noted that these metaphors and their associated worldviews existed and exist in dominant or subdominant positions in different cultures and, sometimes in the same culture during different time periods.

THE ANTHROPOCENTRIC WORLDVIEW

The anthropocentric worldview consists of a more or less consistent set of explicit and implicit concepts, assumptions, biases and ideologies that place the human being at the center of the Earth and even the Universe. This worldview is often associated with a utilitarian attitude towards Nature. That is, it considers Nature to be an instrument for human ends without taking into reasonable account the needs and rights of other life forms and Earth systems themselves. An essential component of the anthropocentric worldview, therefore, is the dominator model of the human-Nature relationship where, according to Francis Bacon, man - particularly the male - is not only the lord of creation, but also its principle of order.

“Man, if we look to final causes, may be regarded as the centre of the world...For the whole world works together in the service of man; and there is nothing from which he does not derive use and fruit...insomuch that all things seem to going about man’s business and not their own.”⁹

The anthropic principle can also be considered part of the anthropocentric worldview. According to Ferris this principle refers to “the doctrine that the value of certain fundamental constants in nature can be explained by demonstrating that, were they otherwise, the universe could not

support life and therefore would contain nobody capable of worrying about why they are as they are.” In other words, Nature exists to support life, human life. Ferris gives the example of the strong nuclear force: if it were slightly different in strength, the stars could not shine and life as we know it would be impossible.¹⁰

Two anthropocentrically oriented metaphors for the human -Nature relationship figured predominantly in the selected texts: Nature as *scala naturae*, Nature as machine.

Nature as scala naturae

Generally translated as the Chain of Being, *scala naturae*, which literally means the Ladder or Stairway of Nature, goes back to classical Greek culture. It also figured prominently in the Renaissance of the late Middle Ages when Aristotle was introduced into the West via Muslim scholarship.¹¹ Aristotle believed (as did Plato) that Nature was ordered and beautiful with all creatures given their place in a proper hierarchy. In this hierarchical order there was not only ‘a fixity of species’, but also a continuity of species that did not allow for gaps or lost species. The place of humans and all observable life in this particular scheme of things was based upon degree of ‘perfection’ which, according to Aristotle, was determined by the ‘powers of the soul’. Thus, plants existed for the sake of animals, and animals for the sake of humans. According to Bowler, this metaphor clearly indicates that humans are the standard against which all other animals were to be measured.¹²

It was also believed that the *scala naturae* was divinely ordered. According to Aristotle, only a divine creator could explain this ordered chain of being. For Cicero this divinely ordered creation was for the safety and protection of all.¹³ Neo-platonists, such as Plotinus and Macrobius, who were essentially philosophers and theologians, interpreted the Chain of Being to mean that God must have necessarily created all conceivable forms of life from the lowest to the highest creatures, adhering to a notion of a single, linear scale of organization that Aristotle did not support. Viewing the world mainly as a symbol of divine perfection,¹⁴ they incorporated the principle of plenitude in their hierarchical view of Nature. That is, Nature had to be complete so that it could be a reflection of divine perfection. In this hierarchical and divinely inspired view of Nature, where everything was ordered and in balance, imbalance and disorder were considered a failure of the divine order caused by the acts of commission or omission on the part of humans.¹⁵

A major difficulty with the view of Nature suggested by the *scala naturae* metaphor was raised at the beginning of the scientific revolution in the 17th century when fossils pointed to extinction of species. If God had created every living form, how could gaps be explained in a chain of being that indicated continuity and plenitude? While some naturalists such as John Ray, could not abandon the notion of a static hierarchy in Nature and society that defined the *scala naturae*, others did. Charles Bonnet was prepared to admit that there might be ‘branches’ in the chain, thus nullifying the continuity principle. Other naturalists who wanted to maintain the continuity principle and come to grips with the fact of extinct species came up with the notion of ‘bridges’. Thus, flying fish were considered intermediaries between birds and fish or corals between plants and animals. Bowler notes that the ideas of fixity and continuity of species grew ever more implausible as naturalists became more sophisticated and that the vast number of species being discovered in foreign parts made it seem increasingly less likely that the plan of creation was quite as simple as the chain concept supposed.¹⁶

Over time the view of the human-Nature relationship represented by the *scala naturae* changed

drastically. After the Scientific Revolution the notion of its divine origin was gradually abandoned as different sciences began to attempt to answer questions about Nature without relying upon a religious interpretation. The same happened with the notion of the fixity of species after Charles Darwin's theory of evolution through natural selection became widely accepted.

Nature as machine

This metaphor, which also represents human dominion over Nature, separates pre-modern and modern views of the human-Nature relationship. It may be considered to construe and communicate the major content of the present day worldview in the Western world.

The metaphor's origins clearly date back to the 17th century when the '*mechanick philosophy*' was developed to interpret planetary movement. Swimme and Berry point out that Newton, Copernicus, Kepler and Galileo made enormous strides in understanding the Cosmos by applying mathematics and calculus to the study of astronomy and by introducing scientific instruments to extend their observations of the Universe. On the other hand, these scientists remained part of the 17th century pathos which saw the world as a *huge mechanical system* designed and sustained by a Father God who expected obedience.¹⁷ Swimme and Berry also note that during the period of the Scientific Revolution the earlier anthropomorphic language was replaced by a *Mechano-morphical language*, which used linguistic expressions derived from the machine world. They explain that such mechano-morphical language construes a view of Nature that considers the "inner spontaneities guiding the destinies of the natural world" as irrelevant, thus misrepresenting the "biological functioning of the living world" by this "*overlay of mechanistic patterns*."¹⁸ The exemplar of such a language view is Isaac Newton. In his universal theory of gravitation he makes abstraction of the Earth's composition, shape, life, etc and only uses the Earth's mass to develop his "mechanick" philosophy.

The view of *Nature as machine* continued into the 18th century, when the notion of its divine origins was gradually replaced by scientific explanations. While Carolus Linnaeus in his *Oeconomie of Nature* of 1749 still believed "that the Creator had designed an integrated order in nature which functioned like a '*single, universal, well-oiled machine*'" and that the Universe as "*a vast celestial contrivance* was set in operation by an *omniscient mechanic mathematician*", beliefs shared by contemporary George Cheyne who referred to the Universe as the "*whole great and complicated Machine of the Universe*", Sir Matthew Hale believed that "The Qualities of Natural things are so ordered to keep always the Great Wheel in Circulation". He compared the universe with a Great Wheel. In his view the "influxes of the heat" of the sun and the physics of heat and cold keep the "rotation and circle of generations and corruptions" going. In other words, Newton's Cosmic Machine with its Great Engineer was being replaced by Hale's Great Wheel where the qualities of natural things, not a divine Engineer, make the wheel move. Thus, a scientific interpretation of natural processes was substituted for the notion that the Cosmic Machine was of divine origin.¹⁹

The *clock or clockwork* seems to have been a favorite type of machine used by the brave new philosophers of the Scientific Revolution when referring to Nature. Descartes, who believed that *animals are nothing more than machines*, who are incapable of pain and pleasure and who exist to perform some function in *the great apparatus*, compared them to clocks and wrote: "They do not have a mind, and...it is nature which acts in them according to the disposition of their organs, as one sees that a clock, which is made up of only wheels and springs, can count the

hours and measure time more exactly than we can with all our art.”²⁰ Johann Kepler, who continued Copernicus’ search for universal laws to explain the movements of the planets, also likened Nature to a clock. His aim was “to show that the celestial machine is to be likened not to a divine organism but rather to a clockwork...insofar as nearly all the manifold movements are carried out by means of a single, quite simple magnetic force, as in the case of a clockwork all motions [are caused] by a simple weight.”²¹

Another variant of the *Nature as machine* metaphor is *Nature as a factory*. In “*The World as a Workshop*” (1855), US Commissioner of Patents, Thomas Ewbank, states that the “general economy of the world” was “designed for a factory, furnished by the Great Engineer with all the equipment of a complete machine shop”. In his opinion, God must be actively emulated in his role of “mechanician” rather than worshipped in spiritual passivity, which tends to retard progress and allow the “earth to grow up as a jungle.”²² Similar metaphoric language was used by Renheimer in 1910, when he wrote “Bio-economically speaking, it is the duty of the plant world to manufacture the food stuffs for its complement, the animal world...every day, from sunrise to sunset, myriads of plant laboratories, factories, workshops and industries all the world over...[make their]...contribution to the general fund of organic wealth”. In 1967 Robert Usinger, a University of California entomologist, used similar language in portraying a river as an *assembly line* that conveys energy and matter to organisms to be used in manufacture. He explains: “Like any factory, the river’s productivity is limited by its supply of raw materials and its efficiency in converting these materials into finished products. If biotic capital becomes scarce, the output of living things will be low.” Worster rightly concludes that the use of these mechanistic metaphors is more than casual or incidental. Rather they express a common tendency among scientific ecologists of our time to transform nature into a “reflection of the modern corporate, industrial system” that is based upon machines and assembly lines. This is not surprising in Worster’s opinion because, to a great extent, ecology today has become “bio-economics: a cognate, or perhaps even subordinate, division of economics”.²³

Nature as a storehouse, another variant of the machine metaphor, emerged during the industrial age. Adam Smith, founder of modern economics and learned disciple of Linnaean natural history, considered Nature “a storehouse of raw materials for man’s ingenuity,” where with the help of technology ever greater control over the Earth’s resources could be exercised.²⁴ For the ecologists, influenced by energetics, energy could also be taken from Nature’s storehouse. Thus, in the famous 1942 scientific paper entitled “*The Trophic-Dynamic Aspect of Ecology*” American ecologist Raymond Lindeman refers to terms such as “energy budget”, “yield”, “efficiency of energy capture”, “trophic levels of producers and consumers, and decomposers”. For Lindeman and other similarly thinking ecologists Earth as a storehouse of materials, and especially its energy flow, had to be exploited as efficiently as possible. Given that the owner of a storehouse has complete control over its contents, this metaphor provides another perspective on the dominator model of the human-Nature relationship.

With the advancement of science, particularly thermodynamics, the Earth was loosely described as a *heat engine*, another variant of the machine metaphor. According to this view, life on planet Earth is only a “momentary stay of entropy” because the end result of being a heat engine is an Earth death on account of increasing entropy. In fact, nowadays, in the eyes of thermodynamicists, Nature as a heat engine is no longer a metaphor. It is literally true.²⁵

In sum, the *Nature as machine* metaphor views the Earth not as an animate creature, but as a vast machine which, initially, was believed to be created and maintained by the Great Engineer,

but which was later explained to be maintained by scientific processes.²⁶ With the advancement of the industrial age and its factory system, the machine metaphor and its several variants became ever more entrenched in the predominantly mechanistic mode of thinking of Western societies.

THE BIOCENTRIC WORLDVIEW

The biocentric worldview is a more or less consistent set of beliefs, assumptions, biases or ideologies that place the biosphere at the center of a person's way of life, thought and feeling. It represents a partnership model between humans and Nature, one of its main tenets being the belief that the human is a member of the web of life rather than its master or even its steward. There are, obviously, various gradations of biocentric worldviews as will become apparent in the differences between deep, social and libertarian types of ecology referred to below. Three biocentrically oriented metaphors were predominant in the nine selected texts: *Nature as mother*, *Nature as web*, *Nature as measure*.

Nature as mother

One often hears the expression Mother Earth and phrases such as 'You cannot fool Mother Earth' or 'Mother Earth knows best'. Indeed, *Nature as mother* is a metaphor that has been used throughout the ages to characterize the human-Nature relationship.

Since prehistoric times humans have made creation stories to make sense of reality, of their origins and future, and as Toynbee and others have pointed out, religion became the vehicle for creating those stories. Thus, myths of creation became fundamental parts of the explanatory process of the world²⁷ and in these stories the Earth as Goddess figured prominently. It was believed that the same source from which human life springs is also the source of all vegetable and animal life.

The Olympian creation myth, one of many such creation stories, reads as follows.

"At the beginning of all things Mother Earth emerged from Chaos and bore her son Uranus as she slept. Gazing down fondly at her from the mountains, he showered fertile rain up her secret clefts, and she bore grass, flowers, and trees, with the beasts and birds proper to each. This same rain made the rivers flow and filled the hollow places with water, so that lakes and seas came into being."²⁸

Homer's *Odyssey* and Hesiod's works are replete with linguistic remnants of earlier matrilineal societies with a mythology based on an Earth goddess. For example, it is the "*wide-bosomed Earth*" who, like the Goddess of old, gives birth to Heaven and the "lofty hills, the happy haunts of goddess nymphs." It is a female power which, "without sweet union of love--in other words, alone-- bears the sea." In prehistoric and historic Anatolia, Cybele and later on Artemis were worshipped as fertility goddesses.²⁹ Similar references are found in pre-Socratic philosophers like Xenophanes, Thales, Diogenes, and Pythagoras, who are part of a Hellenistic culture outside Greece and, thus, subject to form and contents of Earth goddesses of local cultures.

While the metaphor of *Nature as mother* had mostly disappeared by the 17th century, today it has re-emerged in the Gaia theory, named after the Greek Earth goddess, Gaia. The Gaia theory considers the Earth to be a self-organizing or autopoietic organism, not an object, but a subject. It assumes that life is characterized by a striving against the pressures of entropy and, therefore, that it organizes itself to overcome entropy and disorder. Moreover, living systems are not merely self-

organizing but also self-renewing, finding solutions in both cooperative and competitive interaction with their physical environment.³⁰

Swimme and Berry extend the Gaia theory to the cosmos as a whole. They introduce the notion of *an ever-transforming cosmogenesis rather than an abiding cosmos*. They point out that this sense of the universe as a self-organizing process was presented in its earlier forms by Henri Bergson, Alfred North Whitehead, Pierre Teilhard de Chardin, and Ilya Prigogine. These process thinkers, however, had seldom fully appreciated that the *universe in its unfolding* is not a simple process but a *sequence of meaningful irreversible events* best understood as narrative as do Swimme and Berry.³¹

While Marshall believes that the Gaia theory is no more than an untestable, though intriguing hypothesis, he considers it to have great value as a metaphor for three reasons. By *reanimating nature*, it supports the view of modern physicists that the *universe is more like an organism than a machine*. By *personifying the earth*, it implies that it has intrinsic value and that its interests as a whole are worthy of human consideration. By thus encouraging *a sense of reverence for life*, it is to be welcomed.³² According to Worster, Gaia has become the most widely discussed scientific metaphor of the Age of Ecology, overshadowing Eugene Odum's Spaceship Earth, Howard Odum's electrical circuit board, and, at least, for some scientists and many lay people, Robert MacArthur's reductive search for the "machinery".³³ For a considerable number of people and organizations the Gaia theory has become a movement, a religion or a mixture of both.³⁴

Nature as web

Nature as web refers to the interdependence of all Earth beings or, considering Nature in its cosmic dimension, the interdependence of all Being.

In *Nature's Web. Rethinking Our Place on Earth* Marshall concludes that life on Earth is an *interconnected web*, not a hierarchy.³⁵ Donald Worster calls this interconnected human-Nature relationship the *human-umbilical* and makes the point that the environment is not merely a set of things to be used up but has to be looked at as a *set of interdependencies* rather than as a storehouse of commodities.³⁶ *Closeness to Nature, Unity of all Beings*, or even *Unity of All Being* (the cosmic perspective), *Earth community*, i.e. all living beings on planet Earth, are some of the terms in our texts that reaffirm the interdependence and continuity between human beings and other animals and the rest of nature in *our common dwelling in the Earth House Hold* where we do not stand separate from or above Nature, but form just another strand of her living web.³⁷

Perhaps one of the foremost proponents of *Nature as web* was Henri David Thoreau, for whom Nature was a *universal, consanguineous family, a vast community of equals, a vast alliance* of all creatures, with whom we must "re-allay ourselves everyday." He kept out of doors "for the sake of the mineral, vegetable and animal in me" and considered himself to be "Nature looking into Nature." As a professional naturalist he did this "with such easy sympathy as the blue-eyed grass looks in the face of the sky." Being viscerally convinced of a living Earth or animated whole where all natural entities were joined together, he strongly objected to the Linnaean phrase 'arbor vitae' or 'Tree of Life' because it did not convey "the life that is in nature", thus anticipating Sahtouris' statement that Gaia is a live planet rather than a planet with life on it. He considered the role of humankind to be one of *cosmic commingling*, again anticipating Sahtouris' term of *cosmic continuation*.³⁸

Implicit in the metaphor, *Nature as web*, is the notion of *biocentric equality*. Similar to

Thoreau's *vast community of equals*, it holds all organisms and entities in the biosphere to be parts of an interrelated whole and, therefore, equal in intrinsic worth. Thus, every form of life should have the 'equal right to live and blossom'; humans have no right to reduce this richness and diversity except to satisfy *vital* needs.³⁹ According to Marshall this deep ecology principle of 'equal right to life' is similar to the Buddhist *compassion for life*, the Taoist readiness *to let things be*, and the Jain attempt to *cause minimum injury*. It extends Schweitzer's principle of *reverence for life* and applies it to the whole of Nature. Together with the rights that all Earth beings enjoy, biocentric equality includes the obligations they must meet.

Another notion implicit in *Nature as web* is that of *symbiosis and mutual aid*. Using this notion as both fact and ideal, Marshall develops his *libertarian ecology* which would recognize not only the claims of the individual but also those of the social and biotic community.⁴⁰ Thus, he opposes the myth of transcendence which holds that humanity transcends the realm of Nature by entering the realm of culture. Such a view, in his opinion, clearly shows a lack of ecological sensibility which recognizes that all subjects, men and women, are interconnected with each other and other life forms within the web of nature.⁴¹ His theory of libertarian ecology further holds that the human domination of Nature begins in society and that Nature's freedom will necessarily involve the freedom of humanity as a whole. The theory wants to liberate both humans and non-humans, society and Nature, allowing all to find their place in the odyssey of evolution.

Nature as measure

Nature as measure is a metaphor that has been used throughout the ages to characterize Nature as a guide for human endeavor or as a standard against which to measure human endeavor.

In classical Greece and Rome the phrase *to live according to Nature* had different interpretations depending on whether one was a Hedonist or a Stoic. The Hedonists believed the "mood of abandon" to be the natural way and that natural impulses had to be followed. On the other hand, the Stoics/Cynics believed that the "ascetic life of self-denial" was the right interpretation. It was the duty of the sage to mortify human desires that were accepted by the hedonist as the promptings of Nature. This Stoic self-control and its emphasis on living in tune with Nature and being firm and steadfast like Nature was reflected by philosopher-emperor Marcus Aurelius when he wrote: "Be like the headland against which the waves continually break; but the headland stands firm while the tormented waters sink to rest around it.....This infinitesimally short span of time is something to be passed through in tune with Nature and passed out of with a good grace...."⁴²

During the Enlightenment and particularly the Romantic period in the 18th and 19th Century, when following Nature or returning to Nature became major philosophical and practical preoccupations, a new understanding of Nature emerged. Nature was seen as a *constitutional monarch, governed by laws* with the scientist acting like a constitutional lawyer interpreting and codifying universal laws.⁴³ It was based upon the belief that Nature is *the foundation upon which man was to build*. The 'state of nature' as a state of innocence, goodness and health was increasingly contrasted with the existing corrupt, mechanical society of the time. "Only by following or returning to nature could humanity be cured or regenerated."⁴⁴ Many of the writers of this period who took Nature and particularly *unspoiled Nature as measure* adhered to the cult

of primitivism, which believed in a golden age or paradise in a beautiful far away country such as in the South Seas. They wanted society to return to primitive times where they considered their inhabitants to be “Noble Savages.” Rousseau, at the end of his *Discourse of the Origin of Inequality* (1754) develops the contrast between vigorous and healthy ‘savages’ in the state of nature and modern man in the ‘civilized’ world.

Another variant of *Nature as measure* was the view of Nature as a *source of delight and imagination*. Anthony, Earl of Shaftesbury, was one of the first to ‘celebrate Nature in the raw’ and found her *wildness more inspiring* than the “artificial labyrinths” of the palace. He inverted centuries of Christian teaching by arguing that ‘if Nature herself be not for man, but man for Nature, then must man, by his good leave, submit to the elements of Nature and not the elements to him’. For William Blake *Nature as imagination* and for the scientist who has the ‘Eyes of a Man of Imagination’ it becomes a ‘sweet Science’ because Nature with all its diversity is a source of inspiration. Often walking in the woods in his youth Wordsworth declared that “one impulse of the vernal wood will tell you more of man, of moral evil and of good, than all the sages can.” He experienced, much like Thoreau, a ‘visionary power’ when looking at a flower, a tree or other natural object. His motto was “Let Nature be your teacher”. He found in Nature “The anchor of my purist thoughts, the nurse, the guide, the guardian of my heart, and soul of all my moral being.”⁴⁵ Similar thoughts are expressed by Alexander Pope in a poem where Nature becomes the “source, and End, Test of Art”.

First follow NATURE, and your Judgment frame
By her just Standard, which is still the same:
Unerring Nature, still divinely bright,
One clear, unchanged, and Universal Light,
Life, Force, and Beauty, must to all impart,
At one the source, and End, and Test of Art.”

Holbach, one of the philosophes of the Enlightenment, took the metaphor of *Nature as measure* into a radical direction: Nature became a “touchstone against which the accretions of Church and state could be measured.” For him Nature as “sovereign of all beings!... forever be our only Divinities.” These appeals to Nature and the repudiation of religion and state were subversive and revolutionary and contributed to the revolution in France and reform in Britain. There, Edmund Burke used the “state of Nature” argument as the basis for the emerging middle classes to assert their ‘natural rights’ against the divine rights of kings and the remnants of the feudal and ecclesiastical order. Writing in 1756 he declared, “If left to itself, [nature] were the best and surest Guide” and in 1780, “Nature has placed mankind under the governance of two masters, pain and pleasure. It is for them alone to point out what we ought to do, as well as to determine what we shall do.” In Britain Adam Smith also used the *Nature as measure* argument for his economic theories of laissez faire. His ‘hidden hand’ was an economic law of Nature which up to this day influences the theories of those in power and with wealth.

In the 20th century *Nature as measure* is reflected in models that have to be discovered and then mimicked according to Buckminster Fuller in 1966. “Nature has...some sort of arithmetic-geometrical coordinate system, because nature has all kinds of models. What we experience of Nature as in models, and all of nature’s models are so beautiful.” Thus, mimicking nature in making ever more sophisticated computer simulations has become a modern application of the metaphor.⁴⁶ It also underlies the emerging profession of bio-engineering with its emphasis on biomimicry.⁴⁷

Today deep ecologists consider 'Nature knows best' as a 'law of ecology', while social ecologists derive from the 'what is' in Nature the basis of what 'ought to be' in human society. This environmental ethics is not considered a form of spiritual escapism but a 'return to earthy naturalism',⁴⁸ in which the Earth is considered the primary context and measure for a new ethics. For social ecologist Bookchin this new ethics implies that 'human stewardship of the earth' requires a radical integration of 'second nature' (human consciousness) with 'first nature' (from which we have evolved and which is our guide)⁴⁹

While recognizing the danger of the "naturalistic fallacy" whereby too much is inferred from Nature as a guide for society,⁵⁰ Marshall believes that in the inevitable tension between intervention in and preservation of Nature the better course is to let Nature determine a course of action. "It may be necessary to intervene sensitively in an informed attempt to repair the damage executed by earlier generations. But the ideal is to adopt the Taoist position of letting alone, of letting be: 'If nothing is done, then all will be well.'"⁵¹

SOCIAL MANIFESTATIONS

The dominator and partnership models of the human-Nature relationship respectively represented by the anthropocentric and biocentric metaphors are evident in the economic, cultural and political theories and practices that define our social life. As Lakoff and Chilton state,

"They are concepts that can be and often are acted upon. As such they define in significant part what one takes as 'reality' and thus form the basis and justification for the formulation of policy and its potential execution."⁵²

Economic manifestations

The anthropocentric metaphors. *Nature as machine* and its variant *Nature as storehouse* justifies the *exploitative and managerial character* of Western civilization, making it seem natural, obvious and normal. They undergird the Victorian myth of economic growth, which assumes the possibility and feasibility of a limitless exploitation of the Earth's resources and they equate the statistical measure of a rising gross national product with progress notwithstanding its exclusion of the degradation of the very life-support systems upon which all human and non-human life depend. On the other hand, the metaphorical view of *Nature as machine* is evident in the mind-set of technological optimism, the belief that technology can fix all social and ecological problems, if only properly funded and not culturally constrained.⁵³ More recent versions of this mind-set, which refer primarily to environmental problems, hold that Nature can be "re-engineered by us." As Botkin concludes, the present customary approaches to environmental problems are civil-engineering approaches.⁵⁴ The 'ecotechnocrat', Howard Odum, is a clear example of this version of technological optimism. As stated in Worster, he believes that "the management of nature is ecological engineering....". It is "manipulating natural systems into entirely new designs for the good of man and Nature." An electrical engineer, turned ecologist, he would rewire the planet, change the circuits. To control the flow of energy he would manage the forests and the oceans. He concludes: "Should the auxiliary fossil-fuel and nuclear energy sources fail, this control is one of the bright prospects of man."⁵⁵

Biocentric metaphors The metaphoric view of *Nature as measure* was used by Adam

Smith to propose his Hidden Hand theory and its associated laissez faire economic policies. Though the metaphor had validity during the economy of his time where there was a certain equality among the economic actors, this is not the case in present economic systems where large multinational corporations are able to dominate both local and global economies. A proper economic application of this metaphor in these modern times is found in those theories that propose a Pegovian or cyclical economy, i.e. an economy where the waste of one process is used as input for another. Thus, these theories take Nature as measure and purport to imitate Nature where there is no waste.⁵⁶ Taken Nature as measure also means that such economy is one where humans manage with Nature rather than manage Nature.

Cultural manifestations

Anthropocentric metaphors The major civilizational shift in the *self-understanding of the human* as being part of the whole of Nature, predominant among Renaissance and Alchemist scholars, to the view of the unique status of the human and its ascendancy over the rest of creation is further evidence of how the anthropocentric metaphors *Nature as machine, storehouse, ...* shape the human-Nature relationship. This shift to a human-centered consciousness where “man is the measure of all things” paradoxically happened at a time when the geocentric model of the Earth was refuted in favor of the heliocentric model, first proposed by Copernicus in 1543.⁵⁷ By making themselves the measure of all things and attempting to humanize Nature rather than to manage with Nature, human beings, according to Marshall, have denaturalized themselves.⁵⁸

Another cultural manifestation of anthropocentric metaphors becomes evident in the *treatment of women*. These metaphors reinforce the patriarchal nature of Western societies and by extension the legitimization of (male) elites to govern. Eco-feminists argue that the domination of Nature as a characteristic of Western civilization interacts dialectically with and reinforces the subjugation of women because women are believed to be closer to Nature.⁵⁹ Similarly, social ecologists argue that the domination of humans by humans leads to the domination of Nature by humans. In the past, they both argue, it was thought necessary to dominate and conquer Nature in order to transcend scarcity. But the very concept of dominating Nature first emerged from man’s domination of woman in patriarchal society and of man’s domination of man in hierarchical society. Human beings and Nature have thus become the common victims of oppression and exploitation.⁶⁰

Biocentric metaphors Unlike the cultural manifestations of anthropocentric metaphors, the cultural manifestations of metaphors such as Nature as web, Nature as measure, Nature as mother are subdominant and emerging, given the mechanistic nature of the dominant, yet terminal mode of consciousness in Western societies.

One of these emerging cultural manifestations of the biocentric metaphors is the *sense of community of all life*. Humans are beginning to understand themselves as being part of the web of Nature. They begin to understand themselves, according to Sahtouris, “as a new and still highly experimental organ evolving within a larger organism.”⁶¹ This sense of community is also evident in an *attitude of ‘ecological sensibility’*. Derived from this characteristic and the earlier mentioned deep ecology principle of biocentric equality deep ecologists use the term of *ecocentric impartiality*. We, humans, have to overcome our ‘*species partiality*’ and apply the

principle of 'ecocentric impartiality' where the criterion for value is the contribution to the well-being of the whole. Such contribution is to take into account such ecological principles as diversity, richness, stability and scarcity. This sense of community with its species impartiality can also be seen in Aldo Leopold's concept of '*land ethic*', which contains the assertion that the land has a right to maintain its integrity. Also his statements that humans are called to develop an 'Ecological Conscience', that they are to consider themselves 'plain citizens' in the biotic community or that 'men are fellow-voyagers with other creatures in the odyssey of evolution' or Thomas Berry's term 'Earth community' contain similar meanings expressing this sense of community of all life.

The biocentric metaphors are further reflected in the *emergence of an Earth ethical system*. One of its main tenets is that all living beings and Earth systems have an intrinsic right to exist and blossom. The moral community must be extended beyond the human family to include the Earth community as a whole or even the Universe. Thus, we do not pollute air or water or wipe out a species, because they have intrinsic worth, separate from the use we, humans, can make of them.⁶² Besides this moral justification, the aesthetic and the ecological justifications also play a part in such Earth ethical systems. The former motivates people to act ecologically in the correct way because despoiling the beauty of the Earth is bad; the latter grounds the same action on the fact that disturbing ecological balance is bad.⁶³

According to this emerging Earth ethical system humans are reevaluating their relationship with animals. In fact, the attitude of the various pre-modern cultures towards these fellow-creatures was mostly one of respect and reverence, given that humans had to depend on them, in many cases for survival. Humans and animals often shared quarters. In Medieval times animals held legal rights, which were practically on a par with humans. Rats who despoiled barns, grasshoppers who ravaged crops, swallows who defecated in shrines, and dogs who bit people were tried in court for their "crimes". They were represented by counsel, and sometimes acquitted. In Wales and France, pilgrims visited the shrines of canonized dogs, implicitly acknowledging the moral equivalence of humans and beasts.⁶⁴ Present-day animal rights activists are regaining some of this earlier moral equivalence. Marshall states that the denial of moral consideration of animals by not extending to them the rights of fellow-creatures is *speciesism* and is on par with sexism and racism.⁶⁵ He and others propose a "Declaration of Independence on Behalf of Other Animals."

A final cultural manifestation that is emerging from the biocentric metaphors is a *type of Earth spirituality* that posits the well-being of all life as a central point of thinking and behavior. In contrast to a spirituality of a powerful male deity in the three monotheistic religions of the Western world⁶⁶ a spirituality that is associated with the biocentric metaphors emphasizes ecological sensibility, an integrated social and Earth ethical system, and an Earth friendly life style. It is a spirituality that enhances and enlivens all aspects of life, as it strives to develop a sensitive awareness of interconnectedness of all beings or being. Evolutionary biologist Ursula Goodenough calls such spirituality "religious naturalism" and opines: "Once we have our feelings about Nature in place, then I believe that we can also find important ways to call ourselves Jews, or Muslims, or Taoists, or Hopi, or Hindus, or Christians, or Buddhists. Or some of each."⁶⁷ It is a spirituality that is manifested in the Earth Charter Initiative which is supported by millions of people and hundreds of non-governmental organizations on all continents. It is this Earth Charter's integrated ethical system that can function as a (or the) major guiding principle of a reordered post September 11 world.⁶⁸

Political manifestations

Anthropocentric metaphors The political theories that organized Western societies since the birth of the nation-state in the 17th century are the main political manifestations of these metaphors. Thus, for example, liberalism and socialism in the 19th century, progressivism and neo-conservatism in the 20th century are centered on the well-being of the human species with the well-nigh exclusion of the well-being of other life forms and of the Earth's life-support systems.

Biocentric metaphors I have already referred to the fact that the French revolution and the British reform movement were in part motivated by Holbach's interpretation of the metaphor of Nature as measure. Presently, particularly after the 1970s when the environmental movement came into its own, these biocentric metaphors and their associated biocentric worldview have led to the emergence of various forms of political theories of environmentalism. According to Canadian political scientist Paehlke environmentalism will be the organizing theory of societies in the 21st century in a similar way that progressivism and neo-conservatism were organizing theories in the 20th century and liberalism and socialism in the 19th century.⁶⁹ Marshall's view of environmentalism which he calls *Ecotopia* considers the well-being of the Earth community to be its central organizing principle and its purpose is to decentralize power by replacing the nation state and to create a loose federation of organic communities, i.e. communities based upon the opportunities and limits of their physical and biological environs, a main tenet of the bioregional movement. Adherents to this view are to 'encourage agencies, legislators, property owners and managers to consider *flowing with rather than forcing natural processes*.'⁷⁰

Thomas Berry's new term '*biocracy*' refers to a political system in which not only humans, but also all the other living beings or Earth systems vote. Evidence of an emerging biocracy in the modern Western world is legislation about endangered species and the representation of other life forms during political assemblies when persons or organizations become spokespersons and keepers of rivers, forests etc.⁷¹

CONCLUSION

Clearly, the analysis has attempted to show how metaphors can elucidate the complex reality of the human-Earth relationship. At the same time, it is well to remember that each metaphor is only a partial construction of reality and secondly that each one construes and communicates, often implicitly, modes of thought and worldviews about the relationship, which affect both personal behavior and societal arrangements. Thus, what is needed is (1) an awareness of metaphors as linguistic devices that construe and communicate the complex reality of the relationship in a partial and biased way; (2) a critical approach to comprehending discourse that uses such metaphors as linguistic devices; (3) a mindfulness of how/when we use them in discourse.

The analysis of the texts also points to the need of language change in bringing about sustainable, just and participatory societies. There is a need for an ergative language where language expresses Earth as an active subject rather than a passive object that is acted upon.⁷² Capitalizing the term Nature and using the personal pronoun of "she" or possessive noun "her" for Earth are other examples of such language change. Particularly, Swimme and Berry present some of the most innovative and profound suggestions for an Earth-centered language. They,

first of all, suggest the new metaphor *Nature as celebration*, based upon modern experience of Nature in which the universe is considered “as a single, multiform, sequential, celebratory event”. The human role in this celebratory event is “to enable this entire community to reflect on and to celebrate itself and its deepest mystery in a special mode of conscious self-awareness.”⁷³ They also point to the need for an Ecozoic dictionary. They argue that since substantive words, such as society, freedom, justice, literacy, progress, etc. are undergoing transformation, their meanings need to be extended to include the various members of the Earth community. They think that the greatest linguistic change that has to take place is the change “from present efforts at an exclusively univocal, literal, scientific, objective language to a multivalent language much richer in its symbolic and poetic qualities.”⁷⁴ Such shift would re-enchant the impoverished Western languages. They point to the languages of primal cultures as a source of such new symbolism using their myths and metaphors to embroider the basic Universe story that science has been able to tell. Finally, they emphasize the importance of story as a linguistic device. It is their opinion that the main challenge is to compose an integral and complete story of the *great liturgy of the universe* that would function as “the comprehensive context of our human understanding of ourselves.” That task, they argue, not only requires imaginative power and intellectual understanding, but also a return to the mythic origins of the scientific venture.⁷⁵ It is this author’s hope that this latter very challenging view of a biocentric language may become the backbone for the development of an ecologically sensitive lexicon and grammar in education, be it primary, secondary, or tertiary.⁷⁶

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¹ Jeremy Rifkin, *Algeny: A New Word--A New World*, (New York: Penguin Books, 1983)

² Daniel B. Botkin, *Discordant Harmonies: A New Ecology for the 21st Century*. (New York: Oxford University Press, 1990).

³ For the new concentration of ecolinguistics in the field of applied linguistics, consult its web site, www.ecolinguistics.org

⁴ Anita Wenden, "Critical Language Education" *Language and Peace*, eds Christina Schaeffner and Anita L. Wenden, (Amsterdam: Harwood Academic Publishing, 1999. First printing by Aldershot: Dartmouth Press, 1995), p. 223

⁵ Andrew Goatly, *The Language of Metaphors*. (London: Routledge, 1997).

⁶ Paul Chilton and George Lakoff, "Foreign Policy by Metaphor" in Schaeffner and Wenden, op. cit., pp. 37ff.

⁷ Botkin, op.cit., pp. 121-3). Being a biologist, Botkin limits Nature to the biosphere. He points to the three main meanings of Nature: 1. Undisturbed Nature or wilderness in the strict sense where chance and uncertainty prevail; 2. Nature preserve of which national parks are an example; 3. Non-built urban environment. There is very little Nature of the first type.

⁸ Brian Swimme and Thomas Berry, *The Universe Story From the Primordial Flaring Forth to the Ecozoic Era. A Celebration of the Unfolding of the Cosmos*.(San Francisco: Harper, 1992), p.266

⁹ Peter Marshall, *Nature's Web. Rethinking Our Place On Earth*. (New York: Paragon House, 1994), p. 184

¹⁰ Timothy Ferris, *Coming of Age in the Milky Way*. (New York: Morrow, 1988), p.392

¹¹ Most of the information about this metaphor is derived from Peter J. Bowler, *The Environmental Sciences*. (New York: Norton, 1992). The most important pages are 53-57, 157-9 and passim

¹² Bowler, see endnote 11

¹³ Botkin, op.cit., pp. 80-9

¹⁴ Ibid., op.cit., p.56

¹⁵ See endnote 11.

¹⁶ Bowler, op.cit. pp.157-9

¹⁷ Passim.

¹⁸ Swimme and Berry, op.cit., p. 40 and p. 241

¹⁹ Botkin, op.cit., p. 106 and p. 29

²⁰ Marshall, op.cit. p. 187-8

²¹ Ibid, p. 181-2

²² Ibid, p. 53-4

²³ Ibid, p. 292

- ²⁴ Donald Worster, *Nature's Economy. A History of Ecological Ideas*. Second Edition. (New York: Cambridge University Press, 1994) p.53
- ²⁵ Botkin, op.cit., p.104
- ²⁶ Botkin, op.cit., p.103 with Majorie Nicolson's statement and his opinion.
- ²⁷ Arnold Toynbee, *A Study of History*. The First Abridged One-Volume Edition; Illustrated. (New York: Weathervane, 1972),, p.344
- ²⁸ Marshall, op.cit., p. 391
- ²⁹ Staff of the Ankara Museum, *The Museum of Anatolian Civilizations*. Ankara, Association for the Ankara Museum.
- ³⁰ The Gaia hypothesis is most elaborately presented in Sahtouris, op.cit., passim.
- ³¹ Swimme and Berry, op.cit., p. 227
- ³² Marshall, op.cit., p.399
- ³³ Worster, op.cit., p. 379
- ³⁴ Evidence for this statement can be found in the analysis of the Gaia listserv on the Internet.
- ³⁵ Marshall, op.cit., p.408. His book clearly sets out his plan by listing under its subtitle on the front cover its three main parts, i.e. "Where Our Ideas About Nature Come From, Why They are Wrong; How We Can Change."
- ³⁶ Worster, op.cit. p. 35 and p. 354
- ³⁷ Marshall, op.cit. p. 6
- ³⁸ Worster, op.cit., pp. 57-111
- ³⁹ Marshall, op.cit., p. 415-6; the reference to ecocentric equality is on pp. 438, the one of plain citizens and other Leopold terms are on p. 355, equal right on p. 441.
- ⁴⁰ Ibid., reference to libertarian ecology on p. 408, hymn on ecological sensibility on p. 460
- ⁴¹ Marshall, op.cit., p. 410
- ⁴² Toynbee, op.cit., pp. 241
- ⁴³ Marshall, op.cit. p. 223
- ⁴⁴ Ibid., op.cit. p. 223. The examples in this section are from Marshall's Chapter 17 and 18, entitled "To Follow Nature" and "Primitivism and the Noble Savage"
- ⁴⁵ Ibid., op.cit. pp. 274-7
- ⁴⁶ Botkin, op.cit. pp. 113ff.
- ⁴⁷ Janine M. Benyus, *Biomimicry: Innovation Inspired by Nature*. (New York: William Morrow, 1997) and Ken Ausubel, *Restoring the Earth: Visionary Solutions of the Bioneers*. (Tiburon, CA94920, PO Box 1082: HJ Kramer Inc., 1997)

- ⁴⁸ Marshall, op.cit. pp. 422-6
- ⁴⁹ Marshall, op.cit., p. 422, 426, 446
- ⁵⁰ Ibid., op.cit, p. 334-5
- ⁵¹ Marshall, op.cit. p. 428 and.446
- ⁵² in Schaeffner and Wenden, op.cit., p. 56
- ⁵³ In earlier days many societies had rites before they engaged in mining and smelting, thus protecting Nature against overexploitation. Marshall, o.c. p.154-5, 161
- ⁵⁴ Botkin, o.c., p.105
- ⁵⁵ Worster, o.c. p.370-1
- ⁵⁶ Paul Hawken, *The Ecology of Commerce: A Declaration of Sustainability*. (New York: Harper Collins, 1993).
- ⁵⁷ Marshall, o.c. p. 163 and p. 180
- ⁵⁸ Marshall, op.cit., p.xii
- ⁵⁹ Ibidem, op.cit., p. 409
- ⁶⁰ Ibidem, op.cit., p. 426
- ⁶¹ Sahtouris, op.cit., p. 244
- ⁶² For an outstanding treatise on environmental or Earth ethics see Larry Rasmussen, *Earth Community, Earth Ethics*. (Maryknoll, NY: Maryknoll, 1996).
- ⁶³ See Botkin, op.cit., passim
- ⁶⁴ Fernandez, op.cit., p. 455. He facetiously remarks that “Today’s animal-rights activists are ultraconservative revolutionaries who want to put the clock back hundreds of years.”
- ⁶⁵ Marshall, op.cit., p. 433
- ⁶⁶ [Fox, 2000 #184; Armstrong, 1993 #239]
- ⁶⁷ Ursula Goodenough, *The Sacred Depths of Nature*. (New York: Oxford University Press, 1998).
- ⁶⁸ See the web sites www.earthcharter.org and www.earthcharterusa.org.
- ⁶⁹ Robert Paehlke, *Environmentalism and the Future of Progressive Politics*, (New Haven: Yale University Press, 1989).
- ⁷⁰ Marshall, op.cit., p. 416-9
- ⁷¹ Thomas Berry, *Dream of the Earth* (San Francisco: Sierra Club, 1990)
- ⁷² Andrew Goatly, *Critical Reading and Writing: An Introductory Coursebook*. (London: New York, Routledge, 2000) applies in Chapter 10 other linguistic devices such as marking to the

environmental issues. See also Halliday's key note address at the 9th AILA conference in Greece in the summer of 1990, entitled "Ways of Meaning: The Challenge to Applied Linguistics"

⁷³ Ibid., op.cit., pp. 263-4

⁷⁴ Swimme and Berry, op.cit., p. 258

⁷⁵ Ibid., op.cit., p. 279 and p. 237 Sahtouris also uses this narrative method and introduces names such as the blubbers, breathers in her story of the dance of life which she develops from protists, polyps, possum to people. The point of her story is that Earth is a live planet rather than a planet with life on it.

⁷⁶ See Frans C. Verhagen , "The Earth Community School: A Back-to-Basics Model of Secondary Education" in *Green Teacher*, Fall 1999, pp. 28-33, where one of the components of the Earth Community School model of secondary education is a robust ecolinguistic training. Another component is the Earth and Peace Literacy Perspective which is based on the integrated ethical system of the earlier discussed Earth Charter. Taking the Earth Charter as the philosophical basis of a curriculum is not only a responsible choice given that the Earth Charter is supported by millions of people and hundreds of non-governmental organizations and that it will very probably be adopted by the UN General Assembly in 2002, it seems to be a necessary choice in a post September 11 world to overcome the barriers of belief and culture in a pluralistic and ever more interdependent world.