AUTONOMIC SYSTEM FOR COMPUTING DECISIONS IN SPACE SCIENCE

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Abstract

The harmony that exists between culture and nature has left no one in doubt about the complexity and difficulty associated with understanding them as partners in progress. It is widely believed also that nature is the closest visible initiator of cultural development and hence strategic in determining the quantum of cultural relics and/or prospects of life on earth or elsewhere. This paper presents an autonomic framework for the computation of decision typologies in space science. Based on the commonalities established amongst the selected cultures and the behavioral forms of some natural systems, the use of nature as a solution that can be reconstructed based on the combination of three intrinsic decision typologies along the time, possession/ weight and space continuum is presented. These typologies are expressed by computations linked with the robustness of most phenomena associated with nature as well as those resourcefully driven by and possessively agitated at the sight of key players in the marketing of the unexplored components of culture. The paper concludes that the link between time and the motivation of a belief system proves to be a self-evident unification of forces and, hence, a universal framework for the computation of the decision typologies in space science.

Keywords: Unification, reconstruction, space science, autonomy, visualization

1.0 Introduction

An autonomic system is one that is able to perform self-management in space by having a weighted basis for utility, and a timely application of resources, also known as budgeting. In this regard, the utility of an autonomic system translates into self-protection in possession, self-optimization in space, self-configuring in form and self-healing in time. There are indications that most of the science that man studied from the beginning was related to space with the objective of sustaining life on earth. Hence, ancient space science is deeply ingrained in the cultural relics and prospective lives of humanity. For instance, two concerns of computation, time and memory space, dominate the thinking or studies in a number of computing environments like the brain and the computer.

Space Science is shifting in emphasis from single exploratory investigations, to concentration on collaborative missions of large-scale system phenomena, producing unprecedented volumes of data, with unmatched temporal, spectral and spatial resolution (Szuszczewicz, 1996). Such collaborative missions need to have the properties of autonomic systems, which is to basically act in synchronism with time, for them to be useful. Scientists therefore require a scope-enhancing and interactive visualization technique to be effective in their work that may cross discipline boundaries from solar physics to atmospheric and ocean sciences. Subsequently, the visualization

process entails the intersection of intellectual pursuits with a rendering of the data or model results which leads to discovery. According to Szuszczewicz (1996), the largest fraction of the scientific community is not using the visualization capabilities available today because:

i) the tools are not extensible or are too inflexible, which requires self-configuration;
ii) it is too difficult to input data, which requires self-optimization;
iii) the tools do not adequately link visualization and analysis, which requires self-healing; and
iv) the tools do not meet scientific expectations, which requires self-protection.

Many of these criticisms are current issues within NASA's Advanced Information Research Program in the Office of Space Science. It is also agreed, throughout the scientific community, and effectively argued that the main general areas needing consideration include (noting that resources, trust and discretion are the hall marks of autonomy):

(i) Resources: Integration of visualization with data management and analysis
(ii) Trust: A framework of flexibility without complexity and
(iii) Discretion: The development of architecture focused on the scientist as the end user.

Right from time in memoriam, space science was seen as the study of system(s) of autonomy or belief, thought or motion, computation or computing environments typical of the contributions found in human civilization. Examples of systems in pursuit of an autonomic system include the political will of a nation, religious inclination of an individual, the ideology of an economic system, trading on the floor of the stock market, the policy of an organization, and a host of other naturally occurring phenomena including the development of a biological cells and genes, the weather, the environment, etc. Space science requires the use of an autonomic system in the computation of decisions in order to:

- Accurately assess the alignment of different relationships in order to transmit hereditary behavior;
- Precisely analyze and interprete the reconstruction of various types of data, devices, circuits and systems in order to attach responsibility to observed structural behavior; and
- Efficiently access and manage the detection of different types of information in order to obtain a synthetic template for policy formulation.

The objectives of this paper, therefore, are to:

i) Validate the components of an autonomic system based on the assessment of relationships between space, time and weight.
ii) Present an analytic framework for analyzing and interpreting the self-evident organization between devices, circuits and systems.
iii) Implement tools that enable the efficient assessment and management of different types of information about systems in space.

In order to achieve these objectives, an overview of some belief systems are presented with a view to presenting the major components, functions and structures that underscore the robust computations and universality of an autonomic system.

2.0 Review of Computation of Decisions in Belief Systems

A man's thinking eventually leads him to making a decision out of several typologies in a bid to have dominion over things on the earth, be fruitful, and multiply, and replenish the earth. This means that the reconstruction problem is an age-long one. Rather than discover the answer to this problem, man went about seeking for ways of predicting the outcome of events around him i.e. performing the magician's art by using observations to develop models of isolated theories. The most remarkable of this era was the invention of Newtonian mechanics based on the four isolated laws of mechanics. The thought of non-Newtonian mechanics was born following the experience of the magician's paradox (the more you look, the less you see) by eminent scientists like Poincaré. Thus, the formulation of chaos theory was a substitute for finding holistic solutions.

Chaos theory represented the fact that most scientists could hardly reproduce and/or transfer their results beyond the immediate

vicinity of the subject of their models. Based on this trend, Planck's important observations led to the formulation of the quantum theory of matter. This led to Shannon's Information theory for determining the information that brought about a definite change in the state of any matter as governed by the probability of choosing that observation from a universal set. The impossible definition of the required universal set led Shannon to say that information does not have to have any meaning. The good rhetorical question that follows this, as was asked by Einstein in his quest for a unified field theory (with applications in quantum computation/cryptography, entanglement and teleportation), is: Is this information adequate to reconstruct the observation through a model in another point in space and time? This is, nevertheless, a restatement of the ancient space science problem as science goes through a vicious cycle driven by the insatiable quest for solution(s) to the reconstruction problem through the era of six individual theories, models and observations (Fig. 1):

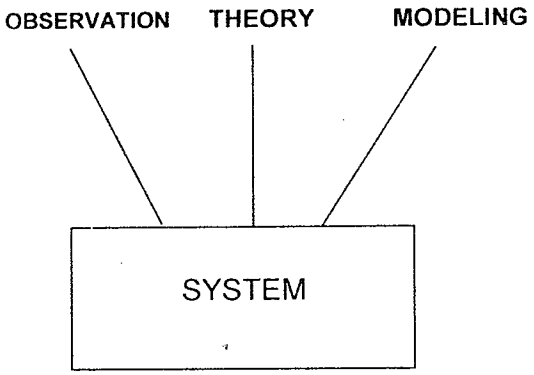


Fig. 1: Object of economic theory

For want of prediction theory, gravitation theory was born,
For want of gravitation theory, chaos theory was born,
For want of chaos theory, quantum theory was born,
For want of quantum theory, information theory was born,
For want of information theory, unified field theory was born,
For want of unified field theory, prediction theory is re-born!

The prediction problem therefore requests for the information that links every purpose to time and judgment in order to avert the miseries of man, which is great upon him (Ecclesiastes 8:6).

Every traditional society had within its ranks some people who were dedicated to the study of nature. For instance, modern weather prediction is based on the solution of a set of six (6) differential equations (Balogun, 1989). Three of these are called the momentum equations or simply equations of motion. One is the equation of continuity, which is the mathematical formulation of the principle of conservation of matter. The remaining two equations describe respectively the thermodynamics and the moisture content in the atmosphere. It is interesting to note that these equations may be restated as made up of three utility equations respectively on the thermodynamics (space/self-optimizing), content (form/self-configuring) and motion of moisture (time/self-healing), and a related budget constraint (possession/self-protecting) on the continuity of matter. These equations are difficult to solve analytically and, hence, the stunted development in understanding processes, circuits and systems of similar dynamics like the economy, religion and politics. The isles that are desirous of the change in this trend have a long history and left behind certain systems of belief, often regarded as ancient space science including applications to predictions made about environmental, financial, cultural, national, social and/or personal issues, as follows:

2.1 Mythological system

In common parlance, a myth is a fiction, that is, something which is untrue. The basic definition of history, as the record of important events, is certainly counter-instructive in this wise. In this regard, it is important to note that some events are likened to the path of a boat on a turbulent sea whilst others are yawning canyons on the subjects they are connected with. The discovery of catastrophe (chaos) theory in the midst of the years of celebrated determinism changed the face value of myth as just situated in the life and social sciences, and in the very distant pre-historic (and pre-scientific) past. This is because one of the basic tenets of science is that deterministic systems are always predictable. It therefore follows that societal history constitutes a burden to be lifted by the accumulated

cultural values in the new quanta of observations, theories and models that are related to myths on the real fabric upon which humanity is being built.

Scholars of mythology define myth differently (http://www.pibburns.com/myth.htm):

A myth is a special kind of story that tries to interpret some aspect of the world around us. Robert W. Brockway, in his book, "Myth From The Ice Age To Mickey Mouse", concisely summarizes a number of different scholarly ideas about the meaning of myth as follows:

> *A collective definition of myth composed of many theories might be framed by the following paraphrase: Myths are stories, usually, about gods and other supernatural beings (Frye). They are often stories of origins, how the world and everything in it came to be in illo tempore (Eliade). They are usually strongly structured and their meaning is only discerned by linguistic analysis (Levi – Strauss). Sometimes they are public dreams which, like private dreams, emerge from the unconscious mind (Freud). Indeed, they often reveal the archetypes of the collective unconscious (Jung). They are symbolic and metaphorical (Cassirer). They orient people to the metaphysical dimension, explain the origins and nature of the cosmos, validate social issues, and, on the psychological plane, address themselves to the innermost depths of the psyche (Campbell). Some of them are explanatory, being pre-scientific attempts to interpret the natural world (Frazer). As such, they are usually functional and are the science of primitive peoples (Malinowski). Often they are enacted in rituals (Hooke). Religious myths are sacred histories (Eliade), and distinguished from the profane (Durkheim). But, being semiotic expressions (Saussure), they are a "disease of language" (Muller). They are both individual and social in scope, but they are first and foremost stories (Kirk).*

The terms legend and folktale are sometimes used interchangeably with myth. Technically, however, these are not the same. Donna Rosenberg, in her book, "Folklore, Myth and Legends: A World Perspective", offers some useful guidelines:

> *A myth is a sacred story from the past. It may explain the origin of the universe and of life, or it may express its culture's moral values in human terms. Myths concern the powers that control the human world and the relationship between those powers and human beings. Although myths are religious in their origin and function, they may also be the earliest form of history, science, or philosophy.*
>
> *A folktale is a story that, in its plot, is pure fiction and that has no particular location in either time or space. However, despite its elements of fantasy, a folktale is actually a symbolic way of presenting the different means by which human beings cope with the world in which they live. Folktales concern people, either royalty or common folk, or animals who speak and act like people.*
>
> *A legend is a story from the past about a subject that was, or is believed to have been, historical. Legends concern people, places and events. Usually, the subject is a saint, a king, a hero, a famous person or a war. A legend is always associated with a particular time in history.*

The study of mythology intertwines with astronomy, archaeology, religion, and catastrophism (including foundation subjects like economics and electronics). This trend led to the constant interactions of these seemingly extreme subjects in relation to chaos. The most emphatic of the despair of researchers refer to this approach as based on the growing interest in finding alternative micro-foundations for aggregate behavior due to the fact that the standard use of the representative agent models as a basis has been increasingly criticized. This is despite the fact that it provides a vehicle for elegant technical analysis and uses a widely accepted model of individual behavior. Moreover, it is not theoretically justified nor does it stand up to tests on empirical data. It was subsequently the hope of researchers to see how statistical mechanics, thermodynamics, learning process, and the

theory of autonomic or self-organizing systems can be helpful in developing more satisfactory approaches to macro-econometric and macroeconomic theory (Ruffin and Gregory, 1983).

2.2 Chinese system

The cornerstone of the development of Chinese science, medicine and architecture is believed to be based on *feng shui* (pronounced *fang shway* and widely translated as wind and water – interestingly the elements that legendary Archimedes used to detect the quality of the King's crown). *Feng shui* is the world's oldest earth science and part of a wider scientific and philosophical system developed by the Taoists (devotees of an ancient Eastern religious movement) e.g. http://www.sn.apc.org/wmail/issues/970905/NEWS25.html

Feng shui is about the energy dynamics between a space, its occupants, the environment and how the energy changes with time. It is also synonymous with the early investigation of magnetism with evidence suggesting that *feng shui* practitioners used the magnetic compass (for detecting the magnetic north) invented in China. Based on logic, common sense and a view of the world as a holistic living system, it first developed the science of orientating buildings and cities, and everything within them. The Chinese practice of *feng shui* promises health, wealth and happiness but information on it borders on the ludicrous, is sometimes downright conflicting and, subsequently, accused of snake oil and superstition, and has made for many a scam.

One of the duties of ancient *feng shui* practitioners was to ascertain consistent, standardized measurements and hence of vital importance to the security of the Chinese empire. Early Chinese civilization and science derived substantial contributions from their hypotheses about nature using detailed and accurate observations. It takes years to master *feng shui* and what most practitioners bemoan is the lack of controls or standards in the field. In ancient times, *feng shui* comprised three disciplines – divination and invocation of spirits, pharmaceutical and hygienic medicine, and astrology and calendrics.

Feng shui has been less fortunate in gaining recognition as a science in modern times. During the Cultural Revolution, Chairman Mao – a descendant of a long line of practitioners – banned the discipline, and what remains of *feng shui* in China is under strict communist government control. It is worth noting that the pharmaceutical and medical studies of *feng shui* have evolved into what is now Chinese medicine. The totality of *feng shui* still enjoys wide support in Taiwan, Hong Kong, Singapore and Malaysia.

The Chinese have a long experience with the problem of prediction to the extent that their proverbs and myths reverberate with it. For instance, the Chinese say, 'Nade Hun-tun', i.e. it is sometimes good to be unpredictable! Moreover, a story once told by Chuang Tsu (369 - 286 B.C.) by Matsumoto (1987), reveals their hope to see the end of unpredictability even though they were not sure of the consequences:

> *The Emperor of the South Sea was called Shu (Brief), the Emperor of the North Sea was called Hu (Sudden), and the Emperor of the Central region was called Hun-tun (Chaos). Shu and Hu from time to time came together for a meeting in the territory of Hun-tun, and Hun-tun treated them very generously. Shu and Hu discussed how they could repay his kindness. "All men," they said, "have seven openings so they can see, hear, eat and breathe. But Hun-tun alone doesn't have any. Let's try boring him some!"*
>
> *Every day they bored another hole and on the seventh day Hun-tun died.*

It becomes imperative that enjoying chaos and subsequently penetrating it with facts from the lively and appreciative 'brief' and 'sudden' presentations will kill it.

2.3 Jewish system

The Jewish system is conceivably the most ancient of all space science and also involved in stating that God instructs people through revelation, prophecy, doctrine and knowledge. The following words express the strength in this belief system:

Prayer is the soul's sincere desire, uttered or unexpressed!

The motion of a hidden fire, that trembles in the breast.

There are three levels of interactions in this belief system:

a) ASK: turning to God in prayer for deciding on a complex problem.

b) SEEK: finding a leader amongst equals by consultations/casting of lots to choose one out of two or more equally good things, or using the ephod to seek for counsel on a difficult issue like finding lost item(s).

c) KNOCK: taking the step to observe and confront the emerging scenarios about the issue(s) at stake.

Moreover, the prayer pattern taught to the disciples of Jesus Christ reveals these interactions also by means of the reflexive (spiritual, theory, prayers, meditation-based), symmetric (scientific, modeling, revelations, ground-based) and transitive (philosophical, observation, watches, sky-based) aspects employed in this belief system, as separated respectively in the following stanzas:

Our Father, which art in heaven,
Hallowed be thy name.
Thy kingdom come.
Thy will be done in earth, as it is in heaven
Give us this day our daily bread.
And forgive us our debts as we forgive our debtors.
And lead us not into temptation, but deliver us from evil:
For thine is the kingdom, the power and the glory, forever. Amen.

-Matt. 6: 9 – 13

Hence, the heart is considered as the central component with the evident aspect of time, space and weight combined in its dynamic pumping force. It is also a matter of fact that the heartbeat is the much sought after evidence of a good life. Scientific knowledge has shown that a man's heart has four compartments that organize the flow of life (Jewish belief system says that the life is in the blood) – left and right auricles and ventricles. Moreover, the head, the forelimbs, the lungs, the liver, the heart, the gut, the kidney and the hind limbs constitute an eight-element network connected by the flow of body fluids and the skin. The uniqueness of this organization points to the body and the heart as a suitable system for carrying out computation.

2.4 Yoruba system

Ifa divination systems are very important to man's understanding of the world and are not confined to the Yoruba Kingdom(s) in Western Nigeria (Opeola, 2001; and Yoruba Kabbalah Centre, undated). The system exists among their descendants in the New World and their kinsmen like the Fon of Benin Republic, the Akan of Ghana, the Igala, Nupe, Igbo and Ebira peoples of West Africa. Many people consider the art of divination as so sacred that they find it difficult to understand.

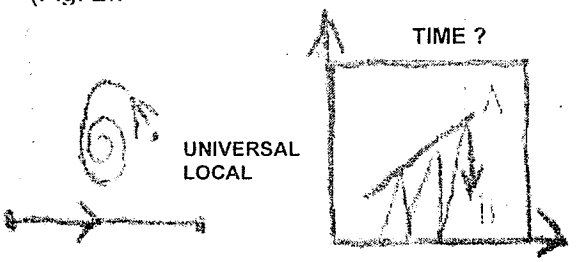
Ifa is a Kabbalah, the inner and mystical aspect of Judaism. It is a sacred teaching about the attributes of the Divine, the nature of the universe and the destiny of man in Judaic belief handed over the centuries by direct tradition and/or as cultural needs arise. The *Ifa* system is meant to promote orderliness in the world and an Oracle from which people try to obtain certainty from uncertainty in human problems, ranging from the choice of an *Oba* from a list of prospective candidates to the choice of a wife or site of a building. *Ifa* divination consists of consultation, prayer to *Olodumare* through the appropriate *Orisa* or ancestral spirits involved, and sacrifice to *Esu* or *awon Iyami*. Sacrifice is probably the most significant aspect of this system.

The divining instruments of *Ifa* are many and exist in various forms from one ethnic group to the other. The most popular and simplest to use is the Kolanut with four lobes, the eight-elementally constituted *Opele*, four or sixteen (16) cowry shells (the later is sometimes referred to as *Olokun*). Number systems involved show that the depth of thought associated with the *Ifa* system is probably a link to basic ideas in science, medicine and architecture.

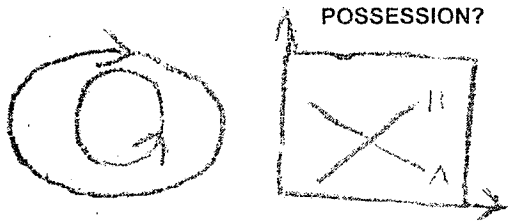
2.5 Astrological system

A system of twelve zodiac signs or astrological alphabet corresponds to 16 planets based on observations and mythological principles with interpretations that are quite experimental in nature (Bloch and George, 1987). The astrological system, often referred to as pseudoscience, is often incorporated in some belief systems as well as in modern space science. According to Yesufu and Yesufu (2003), observation about possession is confirmed with the computation of spatial indices whilst the observation about

time is confirmed through the computed transfer relations between the interacting forms like double transients in circuits, remotely connected universal economy of resources and a local agent, and a feedback control system in a Jewish belief system of praying by seeking, asking and knocking (Fig. 2).



(i) Reflexivity



(ii) Symmetry

POSSESSION + TIME = SPACE

(iii) Transitivity

Fig. 2: Unifying features of belief systems in space science.

3.0 Marketing as a belief system

This is the belief system that cuts across all cultures including those who have no religious inclinations. It is important to resent the elements of an economic theory before we consider marketing system as a universal belief system.

3.1 Elements of economic theory

Basically, an economic theory contains three sets of elements:

(i) Data which play the role of parameters and are assumed to be given from outside the analytical framework;

(ii) Variables, the magnitudes of which are determined within the theory; and

(iii) Behavior assumptions or postulates that define the set of operations by which the values of the variables are determined.

Empirical investigations allow comparisons of the assumptions and conclusions of theories with observed facts. However, the existing methodology does not capture the variety in economic behavior. This is because in most cases, there is no true convergence between the results of this scientific method and the real system in focus due to the defective logic(s) employed. Accordingly, three logical fallacies plague economic analysis: the false-cause or observational fallacy (assuming that Event A has caused Event B because A is associated with B); the fallacy of composition or conceptualization (assuming that what is true for each part taken separately is true for the whole or, conversely, assuming that what is true for the whole is also true for each part); the *ceteris paribus* or modeling fallacy (incorrectly attributing to one variable effects that are caused by another). The primary objective of finding the logic in a flow at maturity is the acquisition of the information for the universal differences (indicators) that gives a description of the system. This is because a chaotic system can only be controllable and/or predictable if we always have the operating information for its universal differences or its initial conditions. A standard method of economic analysis needed to address these fallacies, therefore, requires obtaining the information for universal differences in the economy. This is because marketing thrives on the information deeply ingrained in the development of man. It is found in daily parlance that exhibits its usual vagaries from operational standpoint. Marketing is, therefore, an experience where the people meet it. This experience between interacting agents can turn sour in an environment ridden with conflict with the

consequence of physical and economic insecurities and/or poverty.

Powerful results have been derived for market-mediated economic interactions or for strategic interactions in game theoretic settings with few agents. The mathematical theory of games is, subsequently, an approach that has been applied to small–numbers market situations with interdependent outcomes. A game may consist of a sequence of moves or it may consist of a single move on the part of each of its participants. In this context, a strategy is the specification of a particular move for one of the participants. A participant's strategy consists of selecting a particular value for each of the variables under his control. If price is his only variable, a strategy consists of selecting a particular price. If price and advertising expenditure are both variables, a strategy consists of selecting particular values for both price and advertising expenditure. Each participant is assumed to possess a finite number of strategies though the number may be very large. This assumption rules out the possibility of continuous variation of the action variables. The outcome of the game, that is, the profit earned by each of the participants, is determined from the relevant cost and demand relations once each of the participants has selected a strategy. The possibility of a combination of information and cooperation arises in non-zero sum games in which participants respectively have interest in individualistic and joint behavior.

The classical model where individual behavior arises as the optimal contingent plan of actions of a deductive rational, perfectly informed utility maximizer agent, is more and more frequently replaced by models where agents learn and adapt to their economic environment. The utility index plays the role of an agent that can learn and adapt to their economic environment by providing the framework for a model(s) to be effectively derived from a dynamic process, circuit or system. It is not far-fetched that in an economic environment the agents (including the budget constraint, L) are basically monotonic transformations of the original utility index, U. It can be demonstrated that maximizing the monotonic transformations of the original utility index subject to the budget constraint is in an equivalence relationship with maximizing U subject to L. This result has been adapted to address spatio-temporal, heterogeneous and boundedly rational interacting agent models captured by the space-time, form and possession utilities of the market. These attributes of the economy confer on its activity the concept of the circular flow that exists between an agent and the rest of the universe.

3.1.1 Universal belief system

The marketing system is an economy and a universal expression of a multiplicity of belief systems, which is more and more frequently regarded as a complex system of interacting agents leading to recent developments focused on three main issues (Fig. 1):

i) **Discretion**: The *heterogeneity of agents* in the economy portraying the representative agent ***model*** as being unrealistic despite its elegance, versatility and wide acceptance.

ii) **Trust**: The *ways in which agents interact* in many socio-economic issues calling for intermediate approaches where economic interactions are non-market, non-strategic and distributed in space-***time***.

iii) **Resources**: The *dynamic process that governs* the evolution of the individual raises the issue of understanding the ***weight*** or collective dynamical properties of systems of observed boundedly rational interacting agents.

Hence, in analyzing the economy, these attributes (characteristics) must be put into consideration for the realization of a pragmatic result that can be used for the autonomic reconstruction or explanation of certain behaviors and for policy formulation.

3.2 Decision typologies

The use of an autonomic system to compute decisions is based on the combined use of any two of weights/resources/data, space/discretion and time/trust to obtain the third unknown as follows:

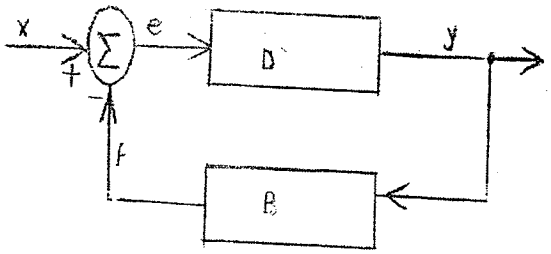


Fig. 4: A universal framework for computation of decision typologies.

Examples of four-parameter systems are the economy, marketing system, Chua's circuit, systems of antenna, language and weather, interactive processes of fire, air, water and earth, and that of life on earth, moon and the sun. This framework has been rigorously proved to be adequate for understanding and solving very difficult problems as well as basic derivations in time, space and weight concepts embraced comfortably by the market paradigm. It is worth noting that the most intriguing of the three parameters is time due to the absence of any principle in the open literature deriving its realistic basis.

3.2.3 Weight of the autonomic system

In Fig. 4, x and y may be expressed as the controlling factors for time, space or weight as represented in Fig. 3a. The three spatial models of an autonomic system can be used to reconstruct time if we know the weight (n) involved. This is because the reconstruction of attractors requires the knowledge of the dimension, and the value of time, t, due to the following practical limitations:

i) If the value of t is too small, the reconstructed attractor is restricted to the diagonal of the spatial model.

ii) If t is too large and the system is chaotic, the structure of the reconstructed attractor disappears.

iii) If t is close to some periodicity on the system the component of that period will be under-represented in the reconstruction.

These limitations are more challenging if the dimension of the system is not known (Parker and Chua, 1987). However, the weights (n) and dimensions of an autonomic system are known, having these three typologies:

i) the three unique components of the ignored regions between systems: B, D and the summer.

ii) the seven unique circuit parameters of the spliced out regions between systems.

iii) the seven unique system parameters of the translated systems.

It is worth noting that n is linked to a unit's dimension (N) of possible decisions or paths as N = n! (Minimum value of n is 2). For instance, the flip-flop, a basic delay element and an n = 2 series connection of two decision making components, has two possible dimensions of operations: either component could operate when triggered, barring trivial situations for which all or none operates. For n = 3, the result is simply 6 which is 3!.

3.2.4 Computed time in autonomic systems

The knowledge of N allows us to compute time, as far as space science is concerned. It is worth noting that the return difference, at each level of space, has units that relate to the loop gain and forward gain as progressively lower order units; this follows the usual observations when subtracting from or multiplying the contents of a full count. It may also be noted that:

i) If decrementing 1/N by one at the circuital level yields a positive value, it implies a lower unit for this computation.

ii) If decrementing 1/N by one at the circuital level yields a negative value, it implies a lower unit for this computation which must be made positive by adding the base value of the counter.

Based on the following principles, the three typologies of weights and three spaces are used to compute time for the autonomic system and presented in Table 1 as follows:

Return difference

In computing the return difference, we readily adopt the widely accepted units of time in hours, days and years to respectively mean a full cycle of vibration in ignored regions between systems, rotation in spliced out regions between systems, and translation of systems. Hence, the value of n represented by the devices in Figs. 2(i) is three and it

3.2.1 Space/discretion models

Games are classified on the basis of two criteria (Henderson and Quandt, 1980): the number of participants and the net income. The first criterion merely involves a counting of the number of participants with conflicting interests. The impasses or interferences presented by games can be resolved by allowing the participants to select their strategies on a probabilistic or randomized basis. This implies the need to analyze time series data that is graphically constituted on the basis of the Cobweb theorem as well as the (reflexive) interaction of economic agents (Fig. 2(i)). This is the first spatial model.

The second criterion allows a distinction or correct proportion of parts (symmetry) to exist between zero-sum and non-zero-sum games. A zero-sum or non-zero-sum game is one in which the algebraic sum of the outcomes e.g., profits associated with their indifferences, for all the participants respectively is constant or variable for the holistic outcome of every possible combination of strategies (Fig. 2(ii)). This implies the need to analyze a system that is made up of an evolutionary network of strategies that are optimized by regression towards the mean of their outcomes. This is the second spatial model.

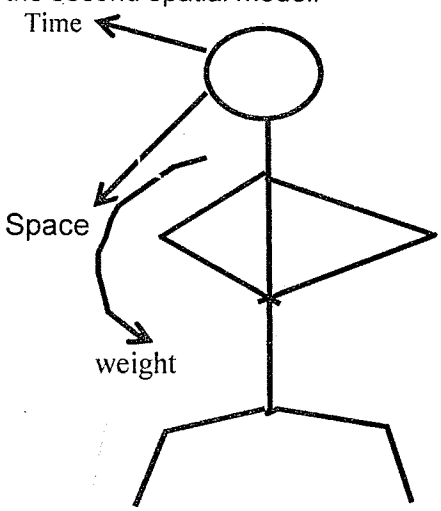


Fig. 3a: Autonomic system reconstructs time, space and weight

A combination of the two criteria gives the overall scenario that a particular game may or may not have a solution if the participants select their strategies or preferences in an inconsistent manner (Fig. 2(iii)). This implies the need to analyze a network that is made up of heterogeneous agents capable of exhibiting chaotic (transitive) behavior. The needs identified on the basis of these two criteria have respectively been met through new but related techniques of the market paradigm for time series, strategic system and network analyses. This is the third spatial model.

3.2.2 Autonomic System

A decision is the plot undertaken to ensure that a policy succeeds in providing the appropriate levels of perceived utilities in the presence of conflict. In other words, a decision involves an attempt to reconstruct and/or predict the outcome of a future event. Ancient space science entails the study, through observation and experimentation, of the motion of weights in the space-time continuum. The nature of an object in orbit undergoes adaptation in accordance with time and chance (Figs. 3a and 3b). Decision typologies in ancient space science, therefore, include the selection of a leader or outcome based on the state of the universe and the action(s) involved.

The reconstruction of attractors follows the need to use only one state to measure data in a physical system in order to cut instrumentation and data storage costs. Hence, for an n-order system where one or more of the states cannot be measured directly, reconstruction may be the only way to observe the attractor.

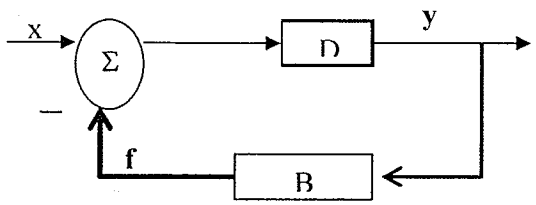


Fig. 3b: Adapting time and chance in natures 1, 2 and 3 of a triggering device and a responding device

The negative feedback system in Fig. 4 serves as an autonomic system if it is adjusted to be at peace, as an equilibrium system up to an infinite order system. Fig. 4 can then be readily considered as a universal framework for studying time, space and weight.

represents ignored regions between systems in space. The computed time is therefore one equivalent cycle (360°) per hour and hence

$$1+ BD = 1/N = 360°/3! \quad (1)$$

The value of n represented by the circuit in Figs. 2(ii) is seven and it represents spliced out regions in space between the double transients in the system. It is a double counted equivalent cycle per day and hence

$$1+ BD = 720°/7!. \quad (2)$$

The value of n represented by the integrated system in Figs. 2(iii) is 7, and represents a system that is translated over space and counted in one equivalent cycle per year or

$$1+ BD = 360°/7!. \quad (3)$$

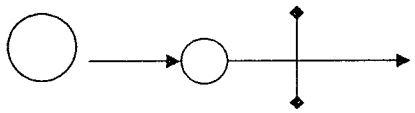
3.2.4.2 Loop gain

In Fig. 4, the identity or loop gain/return ratio is:

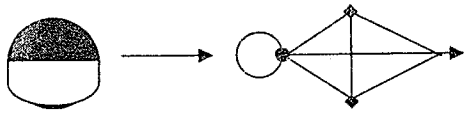
$$BD = \frac{1}{N} - 1 \quad (4)$$

From Fig. 5, the value of n represented by the universal framework are three for ignored regions between systems (i.e. three components: B, D and the summer), and seven for both spliced out regions between systems and translated systems respectively. We can then compute the values for time relationships from the spatial models, and weights as shown in Table 1.

Reflexivity of devices



Symmetry of circuits



Transitivity of System

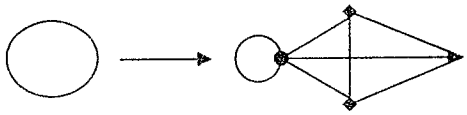


Fig. 5: Framework Derived for Computation of Universal Time

3.2.4.3 Forward gain

It is worth noting that this transfer relation is expressed to give a full view of how a whole process is transferred within the device through the number of distinct paths or the quantum of intranets available. In the case of time, there are four processes that a device operates to reflect an input after a cycle:

- Theoretically generalized energies with limits are transformed into particles of a specific time;
- Functionally observed particles with units are transformed into a mass of a specific density;
- Architecturally modeled masses with closures are transformed into weight of a specific gravity; and
- Classically implemented weights with systems are transformed into energy of a specific distance.

Hence, the forward gain of the system is four times the loop gain, BD, of the system that interacts with each of these transformation

Table 1: Computed decisions on time relationships based on the autonomic system.*

S/No.	Weight (n) and Type of Spatial Regions	Computed Time Relationships (including regular units)		
		Transitivity of System/Network 1+BD = 1/N=n!/360 (1: n!/360)	Symmetry of Circuit/Identity BD = 1/N-1 (1:BD)	Reflexivity of Devices D = 4(1/N-1) (1: D)
1	3 ignored spatial regions	1minute:(1/60) hrs	60 seconds: 1 minute	1 degree: 4 minutes
2	7 spliced out spatial regions	1 week: 7 days	6 watches: 1 day	24 hrs: 1 day
3	7 translated systems	1 'grand-year' :14 years	13 months: 1 year	52 weeks: 1 year

* Compiled autonomic computation of time in this paper

4.1 Discussion

From Table 1, it is observable that one degree is 4 minutes, one watch is 4 hours, and one month is four weeks from the computed relationships that follow as the sub-units associated with the hour, day and year system of time. This time pattern coincides with the balance associated with natural systems engaged in dividing a basic cycle by the paths possible. The Gregorian set of calendars has 14 typologies to show all the calendars possible, which seems to follow the 1 grand-year to 14 years relationship (http://www.wikipedia.org). It is also interesting to note that BD, a central tool for reconstructing systems, can also be computed from a time series of x and/or y based on the market paradigm (Yesufu and Yesufu, 2003). This makes space science to benefit more from the common notion that "physics is counting", and also number the days of systems correctly to avert catastrophes that may be timed to occur.

The central object of computation is reconstruction and fundamentally not the elusive prediction. Prediction is therefore not an end in itself but a means to an end. The presence of the summer in the universal framework for computation holds a lot in common with the fact that it is the smallest, robust and irreducible unit of computation that can be implemented based on logic components. Moreover, the results show that we can obtain alignment, reconstruction and detection of systems in space science by using a universal framework for computing decisions. It is therefore important to note that a loss of synchronization normally results in errors in computation and hence the central plan to employ time as the foundation for tracking errors in computation carried out by artificial systems.

Evolutionary computation was also observed in the results of Table 1, which emphasizes the realistic and universal nature of the double-helix structure, three non-coding sequences, and four nucleotide bases of the deoxyribonucleic acid (DNA) in determining the quality of life forms on earth; the non-coding sequences of the DNA are known to be intergenic and transgenic regions, and pseudo-genes, which are respectively identified in http://www.wikipedia.org as the reflexive or ignored regions between genes, the symmetric or spliced out regions between genes, and the transitive or translated genes. Weights are also used to infer the role of personalities in charting the course of events. For instance, it is only what a personality gives in worship that he can receive at the appropriate time with the transformation attributes of the receiver, which may include power, wealth and life.

It is also evident that an essential balance is needed in ensuring that our framework for computation equally stimulates weight, space and time for sustainability of every spacecraft. For instance, biblical records show that the wise men from the East came with gifts to worship Jesus when he was born in spite of their wealth of astrological knowledge and direction from the spatial marks on their path by Jewish leaders at the time. In modern terms, a completed computation carries along with it a delay element and memory space. This concept gives the unifying and standard attribute lacking in some of the decision typologies available in ancient space science and modern computation but will strip off the difficulties and secrecy associated with it when the computations are error free, realistic and time bound.

5.0 Conclusion

Space science/travel requires the need for an autonomic system, which has a budget constraint, and time, space and weight utilities, for providing information, promoting collaboration and strengthening the linkage between visualization and data analysis. This paper has shown that the negative feedback control system has the capacity to become an autonomic system and the central object of belief systems by maintaining a sustainable climate of utilities and constraints, and thereby aligning with the nature of time. The disarmingly frustrating evidence in nature is that it is certainly not the cause of the solution the ancients desired so much but more of the symptomatic part of the true solution. Following this, the prediction problem is basically too bitter to swallow without the knowledge of time as patterned after the nature of things on earth. The existence of many transfer forms, and bio-mimetic and astrologic forms of solutions is a direct result of the basic necessity of finding realistic solutions from the word of instruction in the heart of systems – it reveals their state and issues of life. The market paradigm has subsequently been

demonstrated to live to its usefulness, in this regard, by providing the veritable unification of time with weight and space, being the center for the computation of decision typologies in space science. This universal framework presented therefore addresses the reconstruction problem in that it finds the cause of the solution so as to obtain the lasting solution.

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