The Equation of Health

Out Body Math/Map of Health and Knowledge

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Abstract
In mathematics it is customary to regard an equation as 'a formula written on paper'. Our living body however also is an equation: it equates the balance between its inner coherence and its context. Its form reflects this equation. This can be understood in a fundamental formal manner. This paper explores the significance of *the body diffractal* – the series of cellular divisions from the Zygote in forming the integral body. The process spells *the Equation of Health*: the internal coherence of any cell at any time can always be traced back to its placed in the branched chain reaction of the unfolding Zygote. It also shows how we assimilate and integrate our knowledge of/from our context, and how our options in creation are determined by the interpolation of health and understanding. Although the maths of the map of the integrity is, in principle, simple, some fundamental questions emerge about the mathematical formulations that are needed to be able to describe this.
Key Words: Health, Equation, Mathematics, Maps, Understanding

1 Introduction

Our body expresses an *equation* of balance, of a system as part of its context. Every body cell is a variable operator, computing coherence of the system in/and its context. The *deterministic* system state is dependent on *relativistic* processes defining the boundary of the process, by *probabilistic* interactions between the system and the context, on basis of the (*open system*) existence of the system as part of the context. Classical, Relativistic, Probabilistic and Creationistic formulations are thereby combined into one equation. Also, all parts in the description are always part of a whole. Mathematics at present lacks the capacities to describe this. Our body itself is therefore the only existing expression of the Equation of Health. This paper addresses the principles and concepts involved. In our body, the system state, the system boundary definition, the system boundary stability, and the open system properties of the system can be understood in one integral unit (as demonstrated by our body's existence).

This paper is based on the recognition of the importance of the fractal in our living being. It addresses the process of embryological unfolding. This represents a step by step formulation of what is in effect an *equation*: the way the first cell multiplies by dividing, while *maintaining inner and outer balance*, always. When the balance is lost, the system decays (falls ill) and dies (collapses). This poses a series of question which need to be answered with regards to the emergence, and potential loss of, organisational integrity. Some of these question involve *physics* (what is the difference in internal

structure in health, illness, disease and death?), some are *chemical* (is there something like a Valence State of living cells?), some are *electromagnetic* (can we compute the systemic electro-hydrodynamics of the bio-electric system?) and some involve *informatics* (as each cell is a computational unit, what determines their composite network computing?).

We come to conclude that the answers are to be sought not in *physics*, but in *phasics*: the organisation of information phase space, as witnessed in our body. We need to describe this, not in terms of physical objects, but in terms of the *emergence* of those 'objects'. Science rarely addresses this issue. The zero-point is not considered to be part of the equation. Most of the questions on Life therefore involve riddles of mathematics: how can the first cell, that has just divided, be *dual and unity* at the same time? What is the topology of the point of contact of the cell that has just divided? If the hormonal system is, in effect, a quantum tunnel, and the neural system a quantum leap, what decides the topology of the phase rotation that discerns them? How can we combine Peano algebra (unit as the smallest number) with numerology (unity as largest 'number')? Every cell in our body (as every organ, as is the case for our body) is simultaneously a unity and a unit.

The questions that are posed pertain to the relationship between the open and closed system, quantity and quality, materialisation and information, but predominantly to the difference between dead and alive. This pertains to *degrees of freedom* in matter. This is the complement of the description in terms of *degrees of determination* (hyper-/re-/in-cursion.) They equate consciousness to matter: it is by the structure and organisation of our physical/chemical/electromagnetic/informatics body that we *experience* our contact with our context. Our *experience* of our environment changes the *balance* of the regulatory system, which shifts the *dynamics* of body physiology, due to which the *anatomical* state of our body is affirmed or dissolved. What, however, forms the integrative concept between these modalities of manifestation, and their associated strata of consciousness and awareness? Our body provides us with the answer. This answer is not found in the *structural* organisation of our body, but in the *dynamics* from which this manifest organisation of structures arises.

The Equation of Health thereby is an integral descriptor, of our body as an operator (in time-space and energy-consciousness) in a context. It is based on the universal coherence of phase space, as witnessed and expressed in the dynamic structure and functional integrity of our body. This can be described in terms of *Diffractals*: this a vectorial matrix notation of a transformation operation in which organisation integration is maintained. The diffractal addresses the consecutive states of change of system development, across boundary transitions in space-time, to define the energy-integrity of the system with/in its context. This defines the relationship between and open and closed system. Therein the preservation of balance of the system in its context (equation) is part of an operation of integration of the system as part of its context (identity operator) (O#o: 2003a).

The Equation of Health offers a straightforward understanding of health: *Health is the functional integrity of all cells in our body in integration with its context.* This

integrity is based on the dynamic relationships between cells; as witnessed i.a. in their intercellular communications. It is that relational boundary-dynamics which forms an integral pattern, a dynamic which must be compatible ('computable') within the setting of our local context. The underlying logic however is not based on 1) the cells, 2) cell interactions, and 3) interaction with the context, but 4) on the emergence of our body out of, as part of, that context. We are part of the universe (and origination of the universe) as a whole.

The Equation of Health thereby has a *structural* component, a formulation of the relational *dynamics*, an array of potentials of the contextual *conditions*, and their underlying logic of information *integration.*

This can be described in terms of System Theory (von Bertalanffy, 1968), albeit that *this requires an integration of the classical, relativistic, probabilistic and unified field formulations of science.* (These descriptions represent *different modalities of involvement/participation.*) In living beings they all play a role. It amounts to the understanding that any body can be regarded as an anatomical object, as a physiological process (in interaction with its context), as a regulatory system (capable of redefining the interfacing in that context), and at the same time also an integral unity/unit (with/in that embedding context). This means that we need to describe the Equation of Health with conscious, subconscious, unconscious and out-of-consciousness components. In other words: *part of the equation can only be experienced; not described.* Health is a state of being with full dynamic integration in the context; thus active part in/of creation.

2 Basic Principles

Our body itself is a manifestation, expression, formulation, 'description' of the Equation of Health. The Equation of Health thereby describes the *state* of the body, its dynamics of internal participation in the *processes* of its context, the characteristics of its *critical boundary definition* (and reorganisation) in relationship with its context, and its manifestation of the universal principles of manifestation (*creation*) of which it forms an expression.

Figures 1 - 4 show the different levels of manifestation that are addressed in the Equation of Health.

The development of the living being is based on four modalities: 1) *Cosmogenesis* (the origination of the physical uniVerse), 2) *Vitagenesis* (the emergence of life forms), 3) *Phylogenesis* (the differentiation of specific context related life forms, i.a. humans) and 4) *Embryogenesis* (the specific cell division cascade per unique life form).

These all need to be defined, described, approximated and specified.

The integrity of our living body is based on four interrelated process dynamics:

1) **From cosmology to anthropology**. This is necessary for understanding that the first cell of our body is, in fact, the universe outside-in. This deals with the manifestation of matter.

2) **From cell to body**. This is necessary demonstrate that the nature of cell division is phasical (phase organisation) and not physical (material). This deals with the emergence of life forms, by reorganisation of energy into structures of larger coherence.

3) **From manifestation to realisation**. This is the phase in which the cell division is not only quantitative but also qualitative, not only in space but also in time. This deals with the emergence of more defined modes of consciousness in life forms.

4) **From disease to health**: this is phase integration of the dynamics in the body in relationship to our experience of our context. This deals with the emergence of complexifications in the internal reflections of the context in the content.

Four drawings symbolise the different modes of system origination:

Figure 1: *Cosmogenesis*: The origination of matter.
Transitions between Plasma, Gas, Liquid and Solid.
The degrees of freedom differ in the various phases of matter.

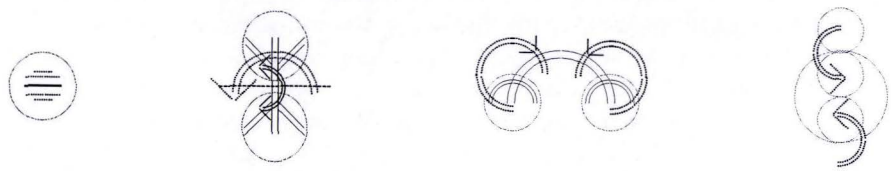

Figure 2. *Vitagenesis*: The origination of life-forms, i.a. humans.
Transition from Mineral to Plant to Animal to Human.
The topology permutates, in transition between life forms.

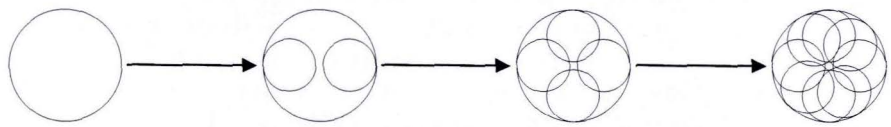

Figure 3. *Embryogenesis*: The origination of our body.
Transitions in the branched fractal of cell division
Unity is maintains while more units are formed.

Figure 4. *Realisation*: The origination of the experience of consciousness.
Inverse branched fractal of information integration
Life involves the potential for reversing flow: creation.

Each of these four dynamic relationships can be described by a fractal. These fractals pertain to relationships in Space, Time, Energy and Information. They are interrelated (O#o, 1999). The description of these fractals demands more insight and understanding than usually provided in the scientific formulation of the dynamics of matter. For the dynamics of life, the role of *information integration* needs to be added to the description. Specifically, thus requires the addition of the role of *freedom of choice.* This calls for the inclusion of *our involvement* in the equation. The nature, structure, properties and logic of the equation of Health is thereby not (yet) found in the formulations of science. It is our body itself that is the manifestation of this equation. By understanding the relationships and dynamics of the unfolding of the body, in balance with its context, we see the form and the logic of the Equation of Health.

The first stage addresses the manifestation of *matter.* The description addresses the relationship between phasics and physics. This involves the characteristic aspect of life in living beings: the potential use of freedom of choice in the interaction between information and matter in the living body.

The second stage addresses the emergence of different *life forms.* The Body Diffractal describes the unifying logic specifying the place and role of each cell in the living body.

The third stage defines the emergence of *our unique living body.* The description spells out the relationship between manifestation and information: the form of the body is a process of logic, and thereby a logic of processing information into integration. It details the nature and function of consciousness in living/being.

The fourth stage defines our involvement in *creating/maintaining the balance (equation) of health.* The description validates the formal closure: the integrity of the organism expresses its integration with/in its context. Health is the result when the two information fields are compatible/computable; disease is the term for any interference between the two patterns.

The ease of the Equation of Health is that it allows the detailed specification of *any* type of disease. It brings out the specific *choices* to be made to restore the innate pattern of coherence. However, the situation is not just as simple as that: *adaptation* is a normal aberration with respect to the innate organic dynamics (Verveen, 1983). This is also the basis for the *learning/immunity* in the development of the organism, and the species. The Equation of Health therefore cannot be applied without regarding the ancestral patterns, and the way the same patterns are explored (in different variations) in the organic organisation of the body-coherence of different people. Health and disease always have a personal, social, species and fundamental component. The identification of the healthy pattern therefore requires the integration of the finding in the *individual being* with that of the *species*, all *life* forms, and the functional integrity of our *planet.*

It is necessary to understand that this always involves the whole of the body. It is not possible to regard a part without realising which part it plays in the whole: in *Space* (anatomy), *Time* (physiology and memory), *Energy* (regulation, realisation, and desires)

and *Consciousness* (integration, information, awareness and creation) (O#o, 1999c). This means also that exchanges in the body can*not* be regarded in present-time only. They are part of a process, in which the coherence of the process development is crucial to the understanding of the functions and possibilities of the living body/cells at any moment in interaction with its specific context. The full developmental history of the body/cell needs to be taken into account for understanding the integrity of the living being.

The formulation of the living body can *not* be done in terms of the body manifestation. In its formation, morphing is the essence: all forms transform, and transmorph. I.e. the patterns that we see in *physics* are directly related to unseen patterns of *phasics* (information phase organisation). The phases *between* cell divisions are morphs: phase state aggregations without manifest form, with a strong underlying logic. This is seen most clearly in early embryology, where the body morphs most intensely (v. d. Wal, url). This property is not lost in later development. Then, it is unseen-seen as the plasticity in the use of body materials for *structural, chemical, electromagnetic and informational* body functions; all at the same time. Apart from the description of the cell divisions as countable cells, we need to address the *concept and principle* of cell division. This is the underlying morphing process that assures the integrity of the body diffractal (the coherence of all cell divisions in forming the whole body). What matters (literally) is the *amorphic phase* with*in* the cells in/between the moment of cell division.

The following figures make the importance of this transitional phase state explicit:

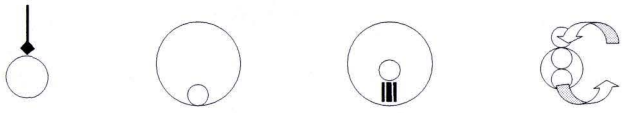

Figure 5: Conception, Nidation; umbilical cord, food flow.

Cells interact with context: before birth by creating a potential plane with the body of the mother and (post partum) with Earth. inner-phasing determines interfacing.

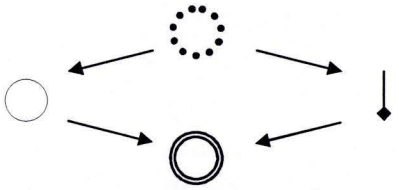

Figure 6: the meta-physical (phasical) aspect of cell division

Underlying the egg and sperm, and the *Zygote* they form, we need to take into account a trans-dimensional form of the same (here called the Bindu) from which all emerge. Top: *bindu*, left: egg, right: sperm, bottom: *zygote*.

The core of the description of the Equation of Health is The Body Diffractal. It is a fractal process of differentiation and diffraction maintaining integrity and coherence. The *unfolding* of the body from the Zygote represents a systematic trace-out, which must be matched by the trace-back from the experience of the body in its context. (Compare this to the *Wilson Cloud Chamber* in physics.) This trace-out is *a* mental mapping in time of the concatenation cascade of all the feed-forward loops in the *manifestation* of the body. The trace-in is likewise the integral structure of the feed-back loops from our *experience* in contact with our context, back to the core of our body. Our body is therein not an object in time; it is a space-time organisation (based on energy-consciousness of the body). The trace-out and trace-in refer to the body as a whole: from conception (the Zygote) to the present time moment. The Body Diffractal is in part a Time Fractal (Vrobel, 1998).

Whatever is seen in the body, pre-exists in the zygote. All that exists in the zygote, pre-exists in evolutionary earlier forms. All that is found in the *Ur*-form, exists in the uniVerse prior (Dimensional Analysis). It means that the zygote, thus the body, is a reflection of the uniVerse as a whole (Singularity mathematics). Each developmental phase is marked by a change of the boundary by which the system is distinct from its context (Spencer Brown, 1973).

If we regard the body as an *equation* - which by definition it must be - then its organisation is a manifestation of *logic*. This logic must by definition be simple: always the part is part of the whole. It also means that each part is by definition complex: it is 1) apart, 2) a part of a relationship, 3) a part of a complex, and 4) part of the whole. This means that each boundary of the system must be discerned at each of these levels: 1) identity, 2) relationship, 3) interaction, 4) integration. This again means that each boundary performs four simultaneous functions: 1) separate, 2) modulate, 3) moderate and 4) integrate. This requires a different kind of mathematics than is commonly used: it is necessary to describe 1) the object, 2) process, 3) transform, and 4) function, *all at the same time* (Von Bertalanffy, 1968). In mathematical terms: 1) the constants, 2) variables, 3) operators and 4) equations are *interchangeable* always.

This is explicitly seen in the material that our body is composed from (not by). For example, the calcium in the bone, in the cell, in the blood and in the mountain is always the same; yet it performs different functions. What we need is a calculus in which differentiation is always balanced by integration. It needs to be a calculus that accounts for changes of involvement: a calculus of logic. It is a calculus in which every boundary is simultaneously a *Distinction* (Spencer Brown, 1973) and an *Undistinguishable* (Parker-Rhodes, 1981). Most important - as addressed by quantum theory: the result depends on our own involvement. In this form of field theory (which it is) it means that *we need to account for our own (change in) involvement*. The boundaries which we use to make our distinctions, are related to our specific mode of observation. In changing our mode of observation - as artists are wont - we will end up with different realisations. This is the essence of this paper: *reality is a realisation*. The Equation of Health is at the same time a description of the way our body functions, and our mind works.

3 Cosmogenesis

Science formulates the emergence of the uniVerse as follows: from a non-distinct *phase field*, via a pivotal inversion (O#o, 2003a), a cloud of *Cosmic Gas* was formed (essentially ionic plasma). By gauged charge discharge, pivotal equipotential balancing nodes were formed (the *Stars*) where stability conditions sufficed for charge build up to greater potential: the creation of atoms. Consecutive cooling of flares of star matter results in the formation of *Planets*, and molecular/aggregate states of matter.

The four phases of manifestation of matter involve potential/pressure gradient producing gradients of phase change dynamic (temperature gradient) and static phase state convergence (gravitation). This produces regions of material phase states: manifestation of more dense forms of matter. The *classical* descriptions of material phase states, the *relativistic* description of chemical stellar dynamics, the *quantum* description of ionic transformation states, and the *field* formulation for the integrity of the phase information field need all be combined to relate the states of manifestation of Earth, to those of the Stars, the Cosmic Gas and underlying unified Phase Field. The integrations of these perspectives is relevant for i.a. the understanding of the properties of living matter, in which the possibilities of *phase change* in matter need to be accounted for at the deepest level (O#o, 1989). Our involvement with *freedom of choice*, interrelates and integrates the different phase states of matter/mind.

4 The Equation of Health

The following is a severely summarised interpretation of the equation of health. It lacks the developmental phase stratification (the 'horizontal' interactions, circuits and networks at each development level). It likewise lacks the description of the phase transitions that underlie the actual divisions. This also means that the relationships between the phase states in the body (solid, liquid, gas and plasma, and their phase transmutations) are not described. Also, the time traces of the previous temporal strata are not shown, although they determine the structure and organisation. The result is that *only the Trace-Out and Trace-In are depicted.* Between them, by superposition, they define our capacity for leaning and growth; and the origination of all diseases (Fig. 7-8).

The Equation of Health has four aspects:

1) The definitions of manifestation of matter
2) The approximations of degrees of freedom in life forms
3) The presentation of degrees of system complexification in life forms
4) The specification of boundary diffractallisation in the unique life form.

The specific formulation of the part of the Equation that can – within constraints – be defined and described has thereby four aspects also:

1) The differentiation of the Zygote into the integral body: a branched chain fractal.
2) The identification of the diffractal-traces of the sensory cells back to the Zygote
3) The correlation of the trace-back of information to the trace-out of manifestation
4) The identification of the (dis)agreement of the trace-back with the trace out.

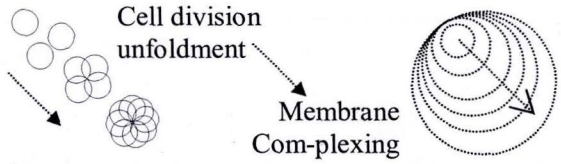

Figure 7: cell division: increase in nested and embedded membranes (schematic)
The number and organisation of the system boundaries is com-plicated by unfoldment

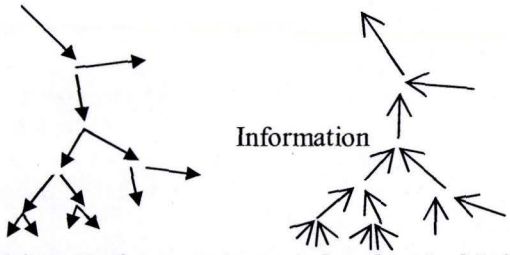

Figure 8: cell division, the increase in nested and embedded membranes
The number and organisation of the system boundaries is com-plicated by unfoldment

The consequence is the specific understanding of the nature of disease in the body

1) the identification of nodes, branches, loops and networks where the trace-in *does not match* the trace-out
2) The *discernment* of the degree of coherence of each of these two patterns with respect to the coherence of the local and general context
3) This specification of the *need* to choose which of the two patterns (trace-in or trace out) reflects the integral pattern of the local and general context
4) The creation of a *choice* in specifying the realisation of either the trace-in or the trace out.

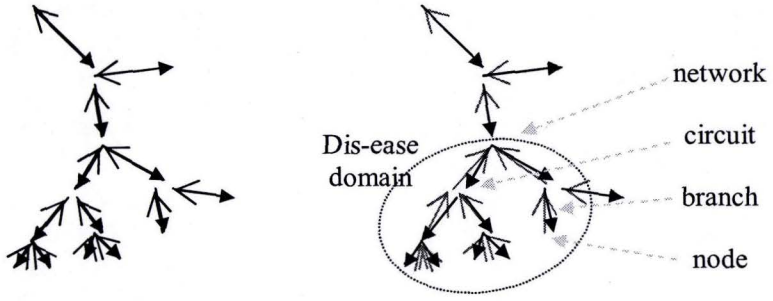

Figure 9. Schematic superposition of the Trace-out and Trace-In
Cf. Moiré Imaging to show which part of the system has been warped and stressed. This helps identify the affected nodes, branches, loops and networks; in energy intensity, time depth, and spatial array. It relates *dis*-ease to choice potential ((self)healing).

This means that the making of decisions requires the discernment of the Options, Choices, Doubts and Decisions (O#o, 2000b). This is the level of *conscious involvement.*

It also means that the healing process is not inherently physical but phasical: it is the information trace on which body integrity is based, not the consequential physical cell organisation. This operates at the level of *system regulation.*

The art of healing lies in the re-clarification of the innate pattern of coherence of origination of the whole system, including its earlier manifestations. This is the level of *system (patho-/psycho-) physiology* (Verveen, 1983).

The healing act lies in the re-cognition of the overall pattern of coherence, of the origination and embedding of the being in the general context; in a modality suiting the local context. This forms the level *anatomy:* of integral system coherence. The physics of our body is based on phasics. The closed system is integral part *of* the open system. Right use of *freedom of choice* is the essence.

5 Realisation

The equation of health is a fractal. It is a 'cartoon' of the consecutive 'photo's' of the creation of matter, the manifestation of life forms, the incarnation of our specific body, and our state of health; as representation of our integration with/in our context. These consecutive developmental stages can be described in the same terms: as a fractal. The first fractal addresses the manifestation of matter. It is customarily called "*The World Tree*". The second fractal deals with the emergence of life forms, each in balance with their specific contexts. This is customarily called the "*Tree of Life*". The third fractal addresses the balance of each individual being with/in its specific context. This is commonly known as the "*Tree of Knowledge*". The fourth fractal is the superimposition of all these fractal to validate systemic closure (i.e. integrity in integration with/in the open system). This fractal is often called the "*Tree of Good and Evil*" (Live, and Live-backwards). It is in fact a *decision tree*, as all others, and it is therefore more convenient to call this the "*Tree of Choice*".

The World Tree

Nordic Tradition describes a concept: the World Tree. In this context the term is interpreted as the diffractal process in which the moment of creation of the uniVerse, led to the formation of the Cosmic Gas Cloud, its condensation into Star systems, and their congealing into Planets. This involved the transition of phase from Phase/plasma, through ionic gas and fluid chemistry into the manifestation of physical objects. This involves a systematic transmorphation with corresponding dimensional transitions in which the unified field transits through quantum probability states, ensuing relativistic processes, and the resulting classical deterministic forms.

The Tree of Life

The same proves of consecutive phase transitions from information to matter is seen in inverse in the creation of life forms. Therein the internal dynamic of minerals, is seen

also in plants, then in animals, and thereafter in sapient sapiens beings. Again each transition corresponds with a change in dimensional organisation, the associated transition between system singularity sets, and the incorporation of information in the organisation of matter.

The Tree of Life is the general formulation, of which each life form has its own Fractal. The division of the human zygote is a particular instance; of the same concept. In this case the Tree of Life is the trace of the unfolding of the Zygote into the precise manifestation and location of each individual cell. Relevant is the realisation that this trail can be recursed backwards: any disarray in the organisation of the body can be traced back to a moment when the internal systematic division was deranged.

The Tree of Knowledge

From the unfoldment of the Zygote, the system membrane is expanded to form the skin of the body. In mathematical terms this can be regarded as the wave envelope for a wave group. The sensory capacities of the body are expressions of the initial sensitivity of the membrane of the Zygote. In the same way that the Zygote unfolds, the contact with the context feeds back to the point of origination, which can be considered to be the assembly point of the system. The integration of the information of the context, feeds back into the information of integrity of the system. This we can thus call "the Tree of Knowledge".

The Tree of Choice

In the system, these two patterns are simultaneously active. On the one hand there is the fractal of unfoldment from the zygote, to form the whole body. On the other hand there is the feedback from the contact with the context, informing the body of its embedding in its context. The feed-forward and feedback take place through essentially the same system. The result is an interference pattern in which the feed-forward and feedback cancel out, if the system is optimally embedded in the context. This is the case for health. Health is experienced as a transparent state of the system. If the feedback interferes with the feed-forward, local nodes of instability may occur: the decision tree is no longer explicit and the probabilities and potential of system organisation may be affected. This may lead to local loops of feed-forward-feedback, and ensuing isolations of local branches of the system. The consequence is that the system boundary, operationally, no longer coincides with the interface to the context. It can be either folded *into* the system, or folded *out away from* the system. In either case the 'wave envelope' of the system no longer coincides with the system itself. This is known as disease; and the localisation of the relocalised system membrane determines the symptoms. ("The Tree of Choice" is traditionally called "the Tree of Good and Evil".)

It means that there is only one cause of disease (destructive interference) and only one process of healing (reintegration). This concept is particularly relevant because of the interplay – in our body – of information and matter. It is the flow of information that determines the aggregation – and coherence – of the living body cells. It is, so to say, the software that determines the hardware.

5.1 Implications for physics

Classical physics regards reality as if dead matter; it assumes its validity is unbounded and applies universally. It ignores the role of observer involvement and has no means to get to know the unknown (O#o, 2005b).

Relativistic theory limits the range of application to a set fixed limit, and has no means to transcend that. Although it reflects on process interaction, it does not regard their actual break down or emergence.

Quantum Theory was designed to take the step into the unknown, but was later limited to a mechanical perspective with again excluding observer involvement. It opened the door to the unknown but did not step through it.

Field Theory offers the solution, but is limited by again not realising that if the description is to be universally valid, it must apply to the scientist also, and needs to describe our own existence, origination, involvement and effect in creation.

The Equation of Health brings these four approaches together by unifying the emergence of the universe, the life forms, the human body and our involvement in our context into one integral perspective.

5.2 Implications for mathematics

In the division of the Zygote, cells divide yet unity is maintained. The processes of embryology call for a formulation in which quality and quantity are one, past and present are one, consciousness and energy are one, and subject and object are one. It calls for a unification of all the approaches of mathematics, as mathematics is not a description of the world around us, but a formulation of our own modes of thinking (O#o, 2001).

There are many different types of mathematics. Each type was designed to fulfil a specific purpose. The language and dialects of mathematics are facets of languaging. It is the social structure and cultural organisation that defines the use and abuse of mathematics. As expression of our way of thinking (Fidelman, 2004) it expresses our states of mind and realisations (Forsythe, 1989), individually and collectively. Mathematics as a whole is the trace of a development in our collective way of thinking. The scope and structure of mathematics shows that our culture looks at the details of physics, but not at the foundations of life: they are not found in the formulation of mathematics. Likewise, consciousness is not researched, even though mathematics is a direct expression of it.

Mathematics is used to describe the structure of objects, relationship of processes, the transformation in interfaces, but rarely to describe the emergence of newness. Yet that is where all mathematics stems from (the tree of Choice): the integration of new sensation into our integral being (the tree of Knowledge), which is defined by our internal functioning and organisation (the tree of Life) as part of the universe (the World tree).

In order to be able to do this, mathematics will need to be used and applied in this integral form: as a common language for addressing our individual thinking; including the fundamental mathematical expression for the emergence of new ideas.

5.3 Implications for health care

The Equation of Health makes clear that our body unifies information and matter. It integrates the subjective with the objective. It operates as a part of a whole. Its pivot is our *freedom of choice in creation.*

The unfoldment of the Zygote is based on the application *to* the laws of physics *of* the principles of metaphysics. These need to be made explicit, as shown by the Equation of Health.

The coherence of the living body is based on living cells; the laws of dead matter are invalid. The integration of our body in our context is based on information integration: this needs to be the basis of health care. It calls for a holographic mode of mathematics, which explicitly allows for emergence of newness (dimensional logic), critical conditions (singularity set topo-logics), dynamic connectedness (differential integration) and state specificity (geometric algebra). This needs to be a description unifying a constant with a variable, a function and an operation. The Equation of health needs to be understood in this sense. This can be regarded as an interpretation of the concept of System Theory (Von Bertalanffy, 1968) applied to the function (not the structure) of mathematics: state, process, transformation and integration. However, as is the case in our body, and the Equation of Health, it needs to unify object and subject, state and creation, boundary and field, differentiation and integration.

5.4 Implications for science

The Equation of Health calls for a different understanding of the role of mathematics and science. Instead of a description of the world around us, it is a formulation of our functioning within us; in interaction with/in our context.

Classical science, the theory of relativity, quantum theory and field theory do not address our use of freedom of choice, involvement, participation in creation, and the *phasical* basis of physics.

We need a science of life, encompassing more than our existence and involvement in creation, also to formulate our response-ability in creation. Classical science has created an *irresponsible* model for dealing with our environment, by choosing the role of an outsider: *unable to respond.*

Especially in healing and health care, the personal freedom of choice (dimensional transitions), the resetting of the critical contacts with our context (singularities), the change of processing balance in and of the interface (function operations) and the resulting changes of state (definition formulations) are all integrated in and by the living cells of our body. We need to bring science to life (O#o, 2007). The Equation of Health makes that explicit.

The Equation of Health is a conceptual definition of the basis of health, and disease. The formulation is complex: it refers to all the stages of cell division from the first cell after conception to the formation of the whole body. In this process material forms are dissolved and resolved. The principles of stress (pro-inflammatory and anti-inflammatory hormones) and the principles of immunology (assimilation or dissembly) are examples of the fundamental principles involved: the redefinition of the system

boundary. From a medical perspective they are often regarded as unrelated. From a logical and topological perspective they are but aspects of the same.

By creating the explicit formulation of the diffractal of the Zygote, every stage in body formation can be explicitly described in terms of phase aggregation, and phase transitions. The material phases therein are subordinate to the coherence in the phase transitions throughout the process of cellular divisions. The dynamics involved give literal meaning to the concept of hierarchy. (From Greek: *hieros archy*; unified origin) All cells in the body can be traced back to their common origin, the zygote. Aside from the 'vertical' time line of developmental history there are also the 'horizontal' time processes that determine the coherence of the system state at any time. The same processes that are observed within the zygote during cellular division are observed for the organism as a while also. At all times the phase states of the system transform onto one another. Calcium in the food becomes calcium in the blood to become calcium in the bone to be used as calcium on the nerve cell de-/repolarisation. All cells communicate via the molecules they exchange; hormones for a specific instance of the issue. The communication takes place in '*metabolomes*'; specific dynamic circuits based on base molecules forming specified circuits in the system. The consecutive patterns of systemic coherence in the diffractal specify the system organisation. The image of a fractal is apt. The consecutive stages of development can be portrayed in this manner; and the similarities between developmental stages specified and discerned. These temporary stable system patterns are 'rungs' of the development of patterns of health in the system. Each of these stages is relevant, as the next stages are defined by the unfolding of this pattern. The individual schema of health and growth are contained in their sequence.

At every stage of development, the 'vertical' and 'horizontal' evolutional patterns of organisation (Tree of life) are in dynamic interference with the experience in the context (Tree of Knowledge) and their resulting interaction (Tree of Good and Evil), the interference pattern that specifies the internalisation of the dynamics of the context. The development of cancer is an example of the way local cell groups can 'shut off' as a consequence of (often chronic) irritation from the context. Especially when the immune system is weakened by e.g. chronic stress, the cells locally 'fall back' on their previous stage of development and 'blindly persevere', continuing to grow without feedback from their context (Rowlatt, 1993). When the feedback is restored, the normal growth too can be restored (Bayes, 1999, Nordenström, 1986).

The principle of feedback-closure-in-context can be illustrated by the traditional description of the Tree of Choice: the Tree of "Good and Evil". This can be interpreted as "Live and Live-Backwards" (eviL) demonstrating the closure in superposition of the (Trace-in) *information* with the (Trace Out) process *in formation* (Figure 8).

6 Conclusion

The essence of the Equation of Health is the focus on the interface. It addresses the balance, between deployment *from within* and impressions *from the context.* The interaction between the two can *restabilise* the system (the stress pro/anti inflammatory mechanism for redefining internal membranes of the system, and the psycho-immunology of information integration), or *destabilise* the system (O#o, 1998).

The equation of Health addresses four *simultaneous* properties of the system: the structured state of the system, the relative dynamics of the system elements with respect to each other, the probabilistic balance of the system and its context, and the open system properties of the system: the part, is part of the whole.

The Equation of Health is a precise and defined mathematical formula, of which the parameters and operators are formulates in terms of body cells and their interactions. Our physical body is at the same time the operator, the operation of equation, a function and the outcome. This can be compared to a computer of which the software determines the hardware. It requires a broadening of the traditional understanding of mathematics. This however offers a much needed extension of our understanding of mathematics. As quantum theory described, we need to account for the role of the subjective observer. (O#o, 2007) This means that in each mathematical formulation we need to describe the subjective observer involvement. In the Equation of Health we see the other side of this equation: the way our mental mind set affects the functioning of our physical being. In it, physics, chemistry, electromagnetism and informatics are all immediately interwoven. *Our body is the expression of the equation.*

This paper addressed the principles and concepts of the Equation of Health. It described that, at present, the mathematics we know is *not* able to describe this as a mathematical equation. It therefore points out that there are more forms of mathematics: *our body itself is a form of a mathematical equation, equating the part in the whole: the Equation of Health.*

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