Dimensional (de)Compression
The Art of Black Hole Navigation

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Abstract
Total System Inversion requires a dynamic compression, of the Complete System, into and through one node: the pivot point of Inversion. This requires more than a simple system function compaction: it requires a co-ordinates series of steps of dimensional reductions, by which the number of system singularities is made to consense, condense and compress. As a result - functionally – fewer system singularities are perceived, yet their functionality is retained. This is a requirement for a *physical* system to recurse back into a *chemical* process, to revert into an *electromagnetic* transformation to remerge into the *phase* state out of which it was formed. Cosmogenesis (Genesis and Cosmology) describes this same pathway in the opposite sense. Dimensional Compression is an information intensification procedure: phase information is redistributed in such a way that local processes, and their more general manifestations, can align; the information can than be store in the one form rather than the other. This is based on the inclusion of the information of embedding of the system in its context. This kind of realisation is possible only when the relationship between the part and the whole is seen. A suitable metaphor for this is the relationship between a wave and a group wave. What we needs is a formulation that describes the equivalence between the two; (cf. the particle-wave duality). Only then is it possible to know the relationship between the part and the whole, but also between Physics and Phasics (or matter and information). Their relationship is evident in all living beings; their being is based on the principle of dynamic dimensional/data (de)compression, addressed in this paper.
Keywords: Dynamic, Daath, Dimension, Data, (De)Compression.

Introduction

Defined determinate systems are always bounded, within an environment. The boundary that separates the system from the environment, also connects it within it. The nature of a boundary lies in its connecting its different, opposite, sides: this represents a *phase transition*. This can be formulated in mathematics: the System's Transformation Function has its Determinant, which again has its Kernel: The boundary as a whole can be defined as the pivotal singularity, through which the system is connected to its context. In this singularity node, the system and its context are each other's inverse. The Pivotal Singularity Point is the point of Systemic Inversion (O#o, 2003a). The Inside and Outside are thereby directly related: in this inversion node, the external state is reflected in the internal state, most specifically so at the sites where the inner dynamics

and outer system dynamics link up. (Hanappi, 1989) The general principle of Systemic Inversion can be understood in terms of a phase transitional process dynamic, in which the System can be understood to change into its inverse. This can be compared to the concept of the transition through a Black Hole (a system singularity). The Geodesic of the transformation involves a sequenced step of transitions of phase, in which the System State Singularity Set is reorganised. This defines a logical Phase Cascade, a processing sequence in which the dimensional state of the system can be seen to become reduced (or, in the inverse sense, expanded). This offers the basis for the understanding of a general concept presented in this paper: Dimensional (De)Compression.

Dimensional (De)Compression requires a change of reference system, for each of the stages of the phase state transitions (O#o, 2001c). In this phase transition cascade, the system singularities change: the system is therefore no longer defined with respect to itself, nor to those who refer to it (the users). (Langhaar, 1951; Thom, 1993; Zeeman, 1977; Cunnyngham, 2003) These are the sites of the anomalies in physics, the taboos in society or science, and the singularities in mathematics. Although they cannot be addressed from within the system, they are yet essential for the systems functioning, and emergence. These are pivotal sites where a system actually and actively interconnects with the environment, in fact: turns inside out. This requires a total phase inversion (O#o, 2003a). It is a very common concept in nature (Edwards, 1993). In Mathematics this issue is addressed in the operation of Loop Integrals, and singularity reduction by e.g. Dedekind Cuts. In physics this same notion is addressed in the ´Light Cone´ and the ´Black Hole`. In turning in on itself the system becomes invisible also to itself (and any observer); yet the principles of the underlying dynamics are undisturbed. For this reason this notion is here called "Black Hole Navigation". By understanding the principles of Dimensional (De)Compression, the transition of a Black Hole (or any other singularity) is no different than any other Boundary Transition. The main difference is that it involves the transition of a singularity of the *integral* system. It deals with the complete process of Total System Inversion (O#o, 2003a). As a result it applies also to the (r)emergence of a system, such as a Big Bang. This is a fundamental concept, not an abstraction: it is operative in our body in many forms.

Living beings are characterised by a set of dynamically organised degrees of freedom. The operant organisation of this system singularity set (O#o, 1997b, 1996d) determines vitality and health (O#o, 1997c). Adaptation in and of the context is operated by the coherent reorganisation of the System Singularity Set; which involves different Phase States, and therefore different modes of Dimensional (De)Compression. The core concept in both is the (dis)solution of singularities, and the reorganisation of their (dynamic) pattern(s) of organisation. Living organisms and evolution offer better examples for this than does the mathematics of physics. A translation of concept is needed, to bridge the understanding op physics and metaphysics (material science and life science) whereby the importance can be seen of the concept of Dimensional (De)Compressions as it is seen in *living* beings in their internal dynamic reorganisation of their System Singularity Set.

This requires a transcendence of the description used in (physical) science to include the description of the complete System Singularity Set of the system itself. This includes the full range of dimensional modulations as seen in Total System Inversion. An example for this is the enfoldment of the complete human body from a single Zygote. (Edwards, 1993; Zeeman, 1977)) This aim is called "bringing science to life".

1 Knowing the Unknown

One of the major problems of Classical Science is its inability to deal with newness; emergence and creation. Its initial mind-set and formulation was based on the notions of Inertia, Invariance, Homogeneity and Uniformity. These were (linearised) simplifying notions, which were introduced in the past to be able to deal with the immense complexity of the universe, and its description. This approach was – in part – effective: it became possible to understand and predict the behaviour of inert systems; in part. However, this also means that these predictions applied only to *dead* matter. This makes this form of science utterly useless for the understanding of e.g. living systems. Living Systems have the ability for internal reorganisation by changing the inner degrees of freedom; which is done by changing the dimensional relationship between the internal degrees of freedom, by changing the (phase) relationships in the System Singularity Set. The dynamic logic linking these degrees of freedom determines the difference between 'dead matter' and 'living beings'. This paper addresses this difference by looking at the fundamental dynamic by which a living system can maintain its own 'invariance' in different contexts. It needs to be realised that this requires a transcendence of the formulations, and mind-set, of classical science, and linearised models. A parallel paper describes the concept of Total System Inversion: the principle which is the essence of health, and underlies living beings. One of the fundamental principles involved is that of system self reorganisation, combined with system transcendence: external factors play a role in determining the internal state, and dynamics of the system. This again determines its functionality, and the forms it can take. This is of fundamental importance for understanding the principles of health and healing. Crucial in this understanding is that *no* system stands on its own. *Every* system is part of and one with its context. This requires a systems description in which the environment as a whole needs to be accounted for and integrated within the definition of the system. This means that *all system descriptions must be dual*: one component addresses the local specific closed system state; another component deals with the general universal open system potentials. In contemporary science it is not possible – by limitations of the mind-set – to deal with these co-junct dual descriptions. (This offers the basis of the formal description of life and love; as will be described elsewhere.)

In order to deal with the general concept without being hindered by the limitations in the formulations of science, the link between the Closed and Open system are addressed here by describing the Dimensional (De)Compression. (This is a complement of the notion of Total System Inversion, described in the parallel paper.) Due to the specific intricacies and the role of phase information integrity in the phase transitions of the Black Hole, it is described here as "Black Hole Navigation". It is a

property that is built into our body, as we too are living beings, integrated with/in our context, and thereby (cap)able to determine our internal degrees of freedom; and able to deal with newness, and innovation.

1.1 Transcending knowledge

It is essential to understand that this formulation *transcends* the notion of a Black Hole: it goes *beyond* the known. This means that it also transcends the habitual interpretation of the Black Hole as an astronomical physical concept. What is dealt with is the dynamic logic at the level of phase information, also as pure phase information, of the singularity itself. This is possible by understanding some of the properties of phase space, rediscovered in modern physics and meta-physics, yet already known to the alchemists: the relationships of phase. The following starts with a brief *cosmological* sketch to illustrate the relationship between consciousness, energy, time and space. (O#o, 1999c) It then shows how this represents a logic relationship between transitions of *degrees of freedom*; phase changes. This has traditionally been shown as the *alchemical* 4 elements (Fire, Air, Water, Earth) as transmutable patterns of *phase* information (Plasma, Gas, Liquid, Solid). The concept can be recognised in the structure of information organisation, as seen e.g. in our body, in the *nervous system.* (This is found in e.g. the conglomerate of nerve sensor, nerve, plexus and brain). It then concludes by looking at the formulation of Systems in terms of the Singularities that define them (The System Singularity Set). The relationship between predictable states, critical states, super-criticality and meta-criticality then offer the basis for understanding the relationship between the dynamic reorganisation of the System Singularity Set by the notion of Dimensional (De)Compression, and systemic transmutation (and Total System Inversion). This can be illustrated in a simpler example, that of a Black Hole Transition. The dynamic logic (the intrinsic interconnectedness of the singularity set and the dimensional states) offers the basic understanding for Black Hole Navigation. It links physics and metaphysics; matter and information. This can be seen in the relationship between the known and the unknown (as in the transition through a Black Hole from a Closed System to an Open System). It is also seen in the functional organisation of our own brain (in the integral relationship between forebrain and hindbrain, via left brain and right brain). This can be used to understand how the unknown is always implied in the known; and life a dual aspect of death. This has many implications in the field of life science and science. Most of all for our own understanding of the universal nature of our own being.

Although to some the following considerations may appear to be abstract, they are but simple concrete application of 4D dynamic phase logic (O#o, 1982).

In the following it may also help to realise that the universe that we know is part of a meta-system which transcends our knowledge; we are part of it. Likewise; the 'point-shape' universal system singularities called 'Black Holes' are 0D only from a solid state perspective; in a process oriented view they will perceive as 1D (line), in a transitional mode of reference they will be 2D (interface) and in reality they are 3D

(volume). (O#o, 1995) It means that each point in this system is *a Gabor Point*: an inversion node of the surrounding universe as a whole. (It needs to be borne in mind that this involves a 4D realm in which space, time, energy and consciousness are the same: different modulations of phase, perceived differently as result of our own modulations of inner degrees of freedom.)

1.2 Transcending Physicality

The reality that we perceive is a construct of our own perception. The mental consensus of objective reality is based on the subjective sensations of our individual realisations. How they relate is most easily seen by regarding the same element from different perspectives: "Big Bang" is a concept denoting a Singularity; it can be realised to be based on different forms of perspective, related to different modes of perceiving, which are all related by the notion of the integrity between a boundary and a field.

Cosmology: phases of materialisation

The most integrative view on the universe is that of its cosmologic creation from a point source, commonly known as the "Big Bang". In this conceptualisation there is a systematic development in complexification from plasma to ionic gas clouds that precipitate to stars and congeal to form planets. This involves the transition from creation of pure (phase) information, to the interactive electromagnetic exchanges, the dynamics of chemistry, and the structures of physics.

Alchemy: phases of manifestation

The decisive element in this is coherence of phase: all phases of matter can be seen to be unified by the relationships of phase. Plasma, Gas, Liquid and Solid are merely different modes of phase organisation, that are all logically related. Science initially reduced its perceptions to solid state physics; by e.g. the use of linearised, homogenised, and invariant models. To understand the emergence (and conditions) of solid phase states, their emergence too needs to be known. This requires insight in phase state transitions, known as transmutations and traditionally studied by alchemy. It addresses the realisation that at the level of phase relationships, information and matter are ultimately the same. It also specifies – as does quantum theory – that our involvement specifies our realisation.

Neurology: phases of sensation

The distinctions that are used to discern the material phases are relative always, and depend on our mode of perception and degree of involvement. The terms Solid, Liquid, Gas and Plasma refer to difference in experience, in reflection to differences in type of involvement (phase recursion). The notion of Outsider (observer) and Insider (creator) reflect complementary aspects of involvement. The concept of phase transitions that is used above also determines the perceived 'boundary transition' between subjective realisation and objective reality. Neurology shows them from an experiential perspective.

Black Hole Navigation: phases of realisation

Phase inversion is the principle by which any boundary is perceived. It provides the fundamental (dynamic) logic of integration, by which a Boundary is discerned from

a Field. The Boundary is an interface where separates are connected. This requires a notation in which both can be seen to be the same – and described in the same terms. This requires a fundamental formulation of realisation: change in relations of phase. This needs to be used also for our own involvement in the description of universal singularities (such as Big Bangs or Black Holes) in which not the change in perception is addressed, but the change of our own involvement in their realisation.

1.3 Transcending Science

Science has no concept to deal with integrity, or entirety. The symbol for Infinity puts wholeness out of reach, at the bounding edge of the integral system. (O#o, 1997c) The symbol 0, zero, makes it intangible, by disappearing it from realisation. The Symbol 1, which represents Unity, is interpreted in Science as *a* Unit. The only practical notion that can be used in science is that of the Open System. This makes it possible to come to terms with the same integral universality that religions call god.

There is a practical reason for being able to address this; living beings are directly related to the universe's creation. We are part of the same dynamic unfoldment. This is a consequence of a direct participation in the environment, in which the environment is incorporated - literally - within the system. This means that the local, *closed*, system and the environment, *open*, system are one and the same; functionally and operationally. The only logical way to account for this is by realising that **a closed system is also an open system**. This again means that the description of the part also relates to the whole.

This is addressed here as the principle of phase inversion in its most general form: not as the phase change across a boundary, or the extreme case, the phase change of a point, but the transcendental case of the phase inversion of a point itself (Daath Node Transition). To make the point more understandable, it is described as the inversion of an integral system (thereby also offering a means to see the direct connection between this concept, and the principles of life and health as operating in our living being. By this choice of perception, the findings can be applied to *any* system. This makes it possible to look at the physical, chemical, electromagnetic and informational aspects all in the same model. This means that there is no need to discern between open systems and closed systems, physics and Phasics, nor between part and the whole, or boundary and field. The same concept (total system inversion) simultaneously shows how all systems relate, and can be set apart. Because it relates the (perceived) objective changes (in 'reality') around us to the (experienced) subjective changes (in realisation) within us. The part is not seen as apart from the whole, but as part in the whole. The dynamics of total system inversion make explicit by what dynamics (of dimensional phase state transitions) they relate; and that **all can be described and understood as transformation of relations of information of phase**. The simplicity or complexity of the connections in the cascade of dimensional (de)compression determines the perceived/experienced degree of involvement; thus the degree of 'aliveness' of what is perceiving/perceived.

1.4 Transcending Reality

It will be clear that this complex composite image is based on a (0D) trans-dimensional logic of integration. The relationships between the consecutive elements determine the significance of that part of the function with respect to the whole. This requires a form of description in which the part is always seen as part of the whole. (And a form as a consequence of an interference pattern of phase information beyond form.) This is also the essence of the process of perception, as related/relayed by our nervous system. The 1) point of contact/perspective, relating via 2) lines of contact to 3) a plane of discrimination into 4) the integral, but inverted, image. It will be clear also that this bridges the outside and the inside. The logic to describe this must be able to do the same. Also, it will be clear that any and every of these relays and junctions can go wrong, thus at times will go wrong. (This is the basis of the emergence of disease.)

This simple system requires a redundancy, thus indeterminate structure, in order to be able to maintain dynamic integrity with/in a dynamic context. (O#o, 1996d. O#o, 2003b).

This being the case, the question emerges how this integrity can be – dynamically – maintained. Also how the system can invert itself, while yet maintaining its full integration. The answer to this question lies in the same transition as seen in our nervous system, and the form it takes in our models of cosmology: the transition of pure *phase* to *gas* to *liquid* to *solids*. This is the sequence of phase changes studied by Alchemy; the relationship between pure information, identifiable components, flexible joints, and fixed structural frames. These are changes in relationship, thus transitions in connectedness. (One of the forms in which this is studied in Mathematics is Diferentiability; particularly the process of orthogonalisation. Young, 1976; Baszo, 1996.) A more fundamental approach is found in singularity theory (Thom, 1993), and dimensional analysis (Langhaar, 1951). This approach can be taken a step further by regarding the dimensional transitions of s system singularity itself. This is the way a system connects to its context via the singularity, a point of system inversion. This is where the inside of the system and the outside of the system become one. (And a Closed system is one with the Open system.)

The only way this can be achieved is by Total System Inversion, which requires the logical series of reorganisation of the System Singularity Set, by the method of **Dimensional (De)Compression**. The dimensionality of the system is changed, while the phase information of the system itself is preserved, detached from its context.
The closed system must be able to dimensionally change, from a 3D unity to a 2D unit. The volume must be able to contract, thus abstract or condense, into its own connecting surface. And then *through* it, into its own inverted (phase) state. This means that the connective 2D surface must be able to then abstract itself and condense into itself into a 1D source point. Which then must be able to go into full dimensional transition; a 0D point. Which, for physical systems is no longer physical but metaphysical, yet still determined by the same organisational logic.

A standard transformation in which dimensional reduction is seen is in the form of a Vortex: a volume of water has a flat surface which is connected by a flow line to a point of inversion. This is seen in the bath tub when the plug is pulled and the water flows into the drain. (O#o, 1995) 3D therein relates to 2D, to 1D and 0D in a consistent manner.

Classical Physics, designed for dead material objects, does not 'allow' for description of these transitions (and scorns Alchemy, which does deal with these more basic matters). The best known relevant Mathematics formulations are those of Topological Expansions and Contractions, such as the Catastrophes described by Thom (1993) and Zeeman (1977). However, a description is certainly needed because these principles are seen within all living beings. In our own body they can be discerned in the way it unfolds from the Zygote, our first cell, to the topological construct of the whole body. During this process all 'alchemical' states are discerned: It is seen to start with 1) the kindling seed point (the Zygote) which initiates 2) a series of (Embryonic) amorphous gaseous interactive dynamics, culminating in 3) the (Foetal) flowing dynamics of growth, resulting 4) in the (Anatomic) structure of the physical body. These are the alchemical transmutations from 'Fire', to 'Air', to 'Water', to 'Earth'. Nowadays the preferred terms are Plasma, Gas, Fluid and Solid. They refer to changes in relationship in the dimensional degrees of freedom of the singularity system set. By the physics of phase transformations these are known as the relationships between the topologies of 0D, 1D, 2D, and 3D structures. In our personal development they are called Conception, Embryo, Foetus and our Anatomical body. In our cognitive development they relate to the phase of babyhood, childhood, adolescence and adulthood; which discern changes in perspective on personal involvement. In the structure and organisation of our body this is seen in the 4D integral logic connecting Consciousness with Energy and Time as Space. The underlying principle is the same: dimensional decompression. It is seen in our nervous system input: a point leads to a line, to a plane, to a volume. Which holds the same essence (as the full body) as was already contained in its starting point (the Zygote i.e. seed). The underlying principle is that of dimensional transitions: (0D) information forms the basis of (1D) emergence, which leads to (2D) distinction in (3D) existence.

The relationship in the formation of our body did not start with the Zygote. The zygote itself is the result of a long sequence of transformations, in which living animals, such as the *humans*, emerged out of a development of *animals*, which emerged from *plants*, which were formed out of *minerals*. Again, this involves a sequence of logical transmutations, in which dimensional (de)complexification relate the (3D)structures of physics to the (2D) chemical process dynamics to the (1D) electromagnetic energy interactions, with the (0D) total system phase information integration. It will be understood that this is also the link between *matter, molecules, atoms* and *pure phase* information.

These are the substances of which also our body is composed. The relationship between the body and its context this takes place via this 4D logical cascade of the Total System Inversion; what happens within our body, is also directly related to what happens 'around' us. In fact, the notion of regarding ourselves as apart from our context,

instead of as a part of this same context, implies an immense loss of integral system information. Also, it means that it is not possible to fully realise that there is a system interface which separates-and-connects us with/from our context. This means that - if this is ignored - the reflections of the system in its context, and the context in the system, can be missed or confused. It is thus imperative to regard this system interface, by which the closed system and open system interconnect.

2. Black Hole Navigation

This gives a reason to focus on the System Singularities, particularly Black Holes, the singularities of the Universe (the integral System of which we form part). Black Holes form systemic Sinks in the universe; and have their complements in the systemic White Sources, such as star systems. Between the two the universal system dynamics is defined. It is this system of relationships between sources and sinks which will be addressed, further down, as the basis for the freedom of choice in our living body.

Our being is based on a logical systemic cascade in which topological sources and sinks are interrelated; and by their sequencing determine the structure and dynamics, interfacing potential and possibilities for creation, of our own being. This can be represented as a sequence of topological nested/embedded/concatenated cells, each of which has a topological pole of convergence and a topological pole of divergence. Because of their *holodynamic* integration this can not be modelled in 3D systems; the image of Dan Winter (www.soulinvitation.com) help understand their interconnection.

In their most basic form these interconnections can be portrayed as the dynamic of a systemic transition; such as the journey from this universe into and through a black/white hole. It is evident that this description will be incomplete, because part of it transcends analysis, science, our capacity for description, and our realisation. It is also evident that, due to the sequence of Dimensional (de)compressions, the model that is used in this description itself will break down. In the 0D configuration, the description becomes redundant beyond understanding. At that point all representations are *holognotic*; each part describes also the whole.

A brief description on the journey into a black hole may help to understand this: At the moment of approaching a black hole, by a defined orientation in **Space**, a speeding up will be noted. Rather, it is necessary to change from a static state oriented view to a dynamic process oriented perspective. This is the emergence of a pre-dominance of the dimension of **Time**, as the system dimensional compression starts to take place. (This is a dimensional transition, thus involves a change of relationship in the internal organisation of systemic degrees of freedom.) This is the outside of the interface of the system.

As some moment the point of no return will be reached. Beyond that point the **Energy** in the travelling system will not be able to balance the change on momentum density as a result of the next level of dimensional reduction; the inside border of the interface. The system will be determined by its context.

There is yet another critical border, that where the integrity of identity of the system can no longer be preserved, **Consciousness** is no longer preserved. This is where the system totally collapses, in its context, and disintegrates into information.

This sequence is well known. In science it is described respectively by the total system boundary, the event horizon, the quantum leap orbits, and the superstring 'defibrillation'. In our living being it is known as the transition from health through adaptation and compensation into decompensation (system collapse).

The classical delimiters of the system structure boundary, the temporal event horizon, the energy quantum leap, and the field (non) vibrations are equivalent terms for describing the dimensional transitions at the moment of total system inversion. The preferred system of reference is, respectively, Space, Time, Energy and Consciousness, for addressing the dimensional transitions in system inversion. (O#o, 2001c)

The essence in this description lies in the dimensional systemic convergence; the compression of the System Singularity Set. As the system contracts (referred to as the condensation in the black hole) the notion of interaction is changed. From a unit perspective, a unity realisation is reached; the black hole of physics and the divine god of mysticism are in essence the same. It is the relationship between the part and the whole, the closed system and the open system. The journey into the Black Hole simply helps to make clear that the relationship between physics and metaphysics, matter and mind, is based on a change in description (preference of reference). From the perspective of the universe both are the same.

This is less appreciated in physics (the science of dead matter) than in medicine (the understanding of living beings). The essence of living beings is that they, we, are always connected to the whole. The dynamics of the Black hole transition are built into our body, as it involves on itself - in a form of Vortical/Toroidal dynamics - due to which its integrity can be maintained in a variety of contexts. Therein system phase state coherence can be achieved throughout the whole spectrum of Plasma, Gas, Fluid and Solid forms of manifestation. This again relates to the integral coherence between dimensional forms of systemic recursion, as was describe above in the model of nervous system integration (point, line, plane and volume, of the sensor, nerve, plexus and brain.)

Black hole navigation is thus no abstract academic exercise in understanding; it is a description of the way that we function. The shedding of cells from the gut lining, the release of oocytes and sperm from the gonads, and the unfolding of our body from the first cell, are all based on this same concept.

The essence is the structural relationship between the dimensional states and their transitions; as the alchemists already described. It is this understanding that is vital to discern living bodies from dead objects, and imperative or healing

There is a difference between the system border transition, as described for a Black Hole, and a dynamic system border redefinition, as seen in Living Beings. In the Black Hole transition, the process is unidirectional and seemingly linear; a one way street. This interpretation is however incomplete, because it does not take into account what happens once the black hole transition is achieved. (This couples a change in space

with a change in time base with a change in energy state, with a change in phase coherence.)

In living beings the complement is experienced: the open system, is integral part of the system, its condition, and its definition. The state of integrity is immediately related to the energy state of the system, its operant time base, and thus its structural organisation dynamics. *The object is in fact a process of a transformation of integration.* In the case of the Black Hole, the considerations need to be made complete by including the multidimensional multi-variant state, which can not be described by single valued logics. The criticality of the system (already implied in the theory of relativity) and the multiple state alternatives (addressed in probability theory), together with the existential state potentials (implied in field theory) are integral part of the system self-definition of living beings. This transcends the systemic autopoiesis, as it also pertains to a system informational state, in which the phase organisation of the system with/in its context needs to be taken into account.

Technically this relates to the system topological dynamics, which can be easiest imagined as a vortex system with a toroidal system envelope. It can be compared to a co-ordinate cardanic set of vortices, which in conjunction allow the system to turn itself inside out. By its vortical topology it can displace itself as well as rearrange itself, and maintain its own dynamic coherence. System Adaptation is external as well as internal.

3. Dimensional (de)Compression

The transition from a closed system to an open system involves a Dimensional (De)Compression. On the one hand there is a *bounded* system, on the other hand there is an *unbounded* system. This general principle is common in nature; it is the essence of any living being and the concept of creation. The correlations between the dimensional states transcend current capacities for description in common speech. It is more easily described in mathematical and geometric notation. This is easier done when combined with the notion of a System, as defined in Systems Theory (Von Bertalannfy, 1968).

The most complete form of a Dimensional Decompression is when Some*thing* 'disappears' into no*thing*. The most encompassing form of this is the inverse of the Big Bang: when the universe collapses back onto itself. This is a principles known as Death; experienced by all living beings. The concept of dying can be described objectively rather than subjectively in regarding the transition *through* a Black Hole. It needs to be realised that a Black Hole is simply a singularity of the system; and not a termination point of that form of existence but a transformation point for that form of information. The transition of a Black Hole is therefore not a transition beyond the system; it evolved beyond the existence of that whole system. "When you pass through one Black Hole, you pass through them all". At yonder side of the black hole the logic is inverted, and what was perceived as one singularity of the whole system, is realised to be the whole singularity of one system. This spells the significance of the concept of Total System Inversion, which is separately described.

The crux of the Black Hole Transition is the change on dimensional organisation (which involves a System Singularity Set; a specified and defined relationship between all the singularities of the system).

This dimensional differentiation and de-differentiation is observed by the changes in degrees of freedom, for the system singularity sets.

Because of the choice of formulations of science this can not be easily described (and the realisations of science are limited by this). Yet it is possible to infer how this takes place by a metaphor: an example of dimensional (de)compression, in which the dimensionality of the system is expanded or collapsed. The most well-known example is the Vortex: it connects a *plane* surface of water by a flow-*line* to a *point* of transition. This geometric geodesic is so defined that water in a vortex needs to follow the shape of the curve, as a result of which the water can be ordered and organised at the material, molecular and atomic level. By inference this takes place also at the level of organisation of phase; which transcends the limitations of the capacities of material description. The following addresses the transition of a system *through* a singularity, thereby relating the closed system to the open system. It leads to the need for a reinterpretation of *the function of* **the boundary as a field**; and the need for a new set of symbols for its description.

4. The Dimensional Grid Functor (#)

The closed system can be represented by a point; the open system by a surface without limit.

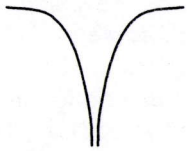


Figure 1: The Vortex as metaphor for dimensional (de)compression.

In the Vortex the 2D surface plane is linked by a 1D streamline to a 0D point-singularity of system inversion. The 2D surface and 0D pivot are linked: this means that there has been a dimensional reduction (or Compression) in the one direction, and a dimensional expansion (Decompression) in the other.

In terms of an Event Horizon, the curvature of the system is unlimited at both ends: infinitely small at the Zero Point Transition, and infinitely large at the perimeter of the surface. Each radius of the curvature of the closure of the transitional points in the dimensional transition can be related to a ring of different curvature; this can also be described as a corresponding frequency of that orbit (in which the frequency is determined in terms of the Eigen-velocity of the speed of propagation of the medium).

This means that the Vortex is also an ordered Frequency Cascade. In other words: it is a Gear (O#o, 1995), with a consecutive set of related velocities of rotation (and Probable States). This again means that the Vortex is also a form of compressibility of rates of information.

The Event Horizon is the discriminant edge of the system; it is the meeting point between that what is Outside and what is Inside the local system. The edge of this system, including all the singularities which define it, is invisible for the System. (Parker Rhodes, 1981). The edge of the system is thus double-sided, an interface, and can best be addressed as such. This means that a system definition can not be defined from within the system, by reference to the system, but that it also needs to be defined as part of the meta-system that it is part of.

The organisation of the singularity can be described by a sequence of arrows, specifying dimensional (non)concatenation. Complete concatenation defines a total system inversion, with complete dimensional (de)compression. Partial concatenation defines the system's dimensional state.

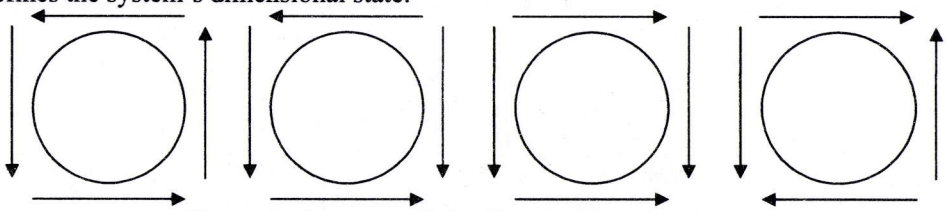
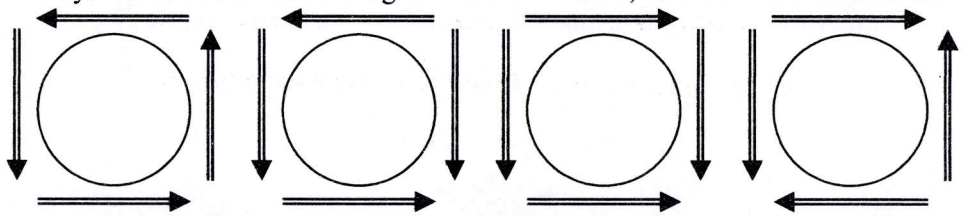


Figure 2: Stages in dimensional (de)compression

The 4 axes of interfacing (left-right, front-back, top-bottom, and inside-outside) are always relative; they can be schematically depicted as 4 arrows surrounding the system (This is thus not a planar depiction, but a schematic representation of phase relationships.)

Each of these relationships van be inverted; if all are inverted the same system is seen in inverse; i.e. 'inside-out'. These 4 forms are depicted above; again, they are relational schematics of 4D coherence, not planar representations.

If a system is to be considered together with its context, the arrows will be doubled.



Each of those double-arrows can be co-oriented (→), or contra-oriented (↔); these are relevant for the (un)coupling from/to the environment.

Figure 3: Stages of dimensional (de)compression in context

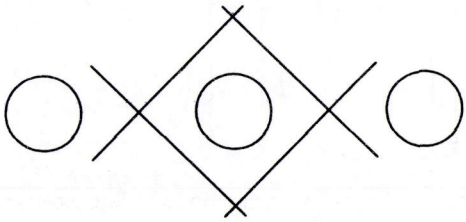
An example of this coupled-uncoupled dynamics is found in **the Cleavage Divisions of the Zygote**: the system seems to divide, yet remains an integral whole. The Loop integral of the whole system remains unaltered; yet the system singularity set is doubled. Also, the orientation of the Loop Integral is inverted: the two sub sets (the

resulting cells) were first united (∞) but later perceived as distinct (00). In fact, they went through a dimensional transition, in which the System Singularity Set was altered yet the System Integrity maintained. Each boundary simultaneously separates and connects.

This leads again to the forms of connection represented above: = & ||, and X & x:

The Boundary can be expanded into a Field:

This is the same as:



Which is the same as:

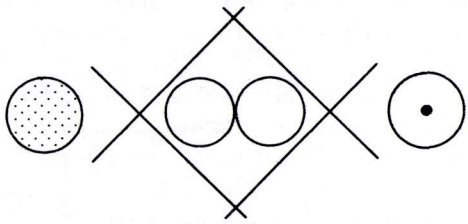
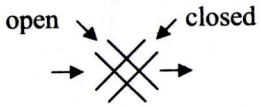


Figure 4: System Embedding, Coincidence, Concatenation, Nesting

This can be related to **the Dimensional Grid operator (#)**:



The Dimensional Grid Operator is a more fundamental form of an equation sign; there are 4 aspects to it: =, ||, X and x (shown as //, and \\).

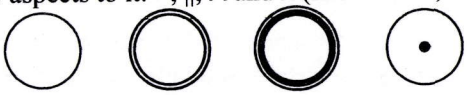


Figure 5: Boundary Embedding, Coincidence, Concatenation, Nesting

The Dimensional Grid operator, #, then can be used to unfold the description of dimensional (de)compression at the boundary of the system, where the Open System (○) connects to the Closed System (●).

The general notation therefore is ○#●, as indicator for the dimensional transition between Open and Closed System.

By entering into the complexities of the system as it can be defined and described (which requires notation in STEC (O#o, 1999c)), the specific relationships between the System Stability Singularity Set can be identified, and the implied complexity of the Dimensional (De)Compression unfolded.

This is essential for describing the relationship between living beings in their context.

Conclusions

The description on Black Hole Navigation serves as a method for showing the interconnectedness between the known and the unknown. Science, in its aim to understand, needs to know hoe it comes to its own understanding. This means that it needs to formulate the relationship between the known and the unknown. In practical terms this requires that it must also account for the relationship between life and death. In searching for simplicity classical science has killed life in the universe, as it sees it. The linearised homogenised unified inert models that it made (and which it requires, in asking for 'predictability, and repeatability') are all based on an underlying notion of inertia, or invariance: Death. This makes this form of science useless for dealing with life. In order to understand life, love, health and consciousness, a different approach is needed: it is necessary to look beyond the system singularities, to understand how the universe came to exist, and how it is composed as part of a larger whole. This requires mathematical concepts of supercritical states, and dimensional transitions. This again requires and understanding of the relationships between systems with different degrees of freedom. These are stages of Dimensional (De)Compression. Known as the Alchemical Elements, the dimensional changes in the material substrates of Plasma, Gas, Liquid and Solid can be related to the emergence of our cosmos, and the link between information and matter. The same principles can be seen in the functioning of our nervous system. By describing their relationship as an imaginary journey 'through a black hole' two aims are achieved: 1) it is possible to understand how the closed system is part of the open system (and the known is based on the unknown). Also, it is possible to understand how the cascade of dimensional state (de)compression plays a role in our own being. This is essential for the formulation of a science of life, and explanatory for the principle of love, the dynamic known as health, and the dynamic known as consciousness.

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