

BIOHACKERS

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BIOHACKING WITH HYDROGEN

EXCLUSIVE INTERVIEW
**TYLER W.
LEBARON, PH.D**

FOUNDER, EXECUTIVE DIRECTOR OF
MOLECULAR HYDROGEN INSTITUTE
A SCIENCE-BASED, NONPROFIT
PROMOTING HYDROGEN RESEARCH
AND EFFECTS

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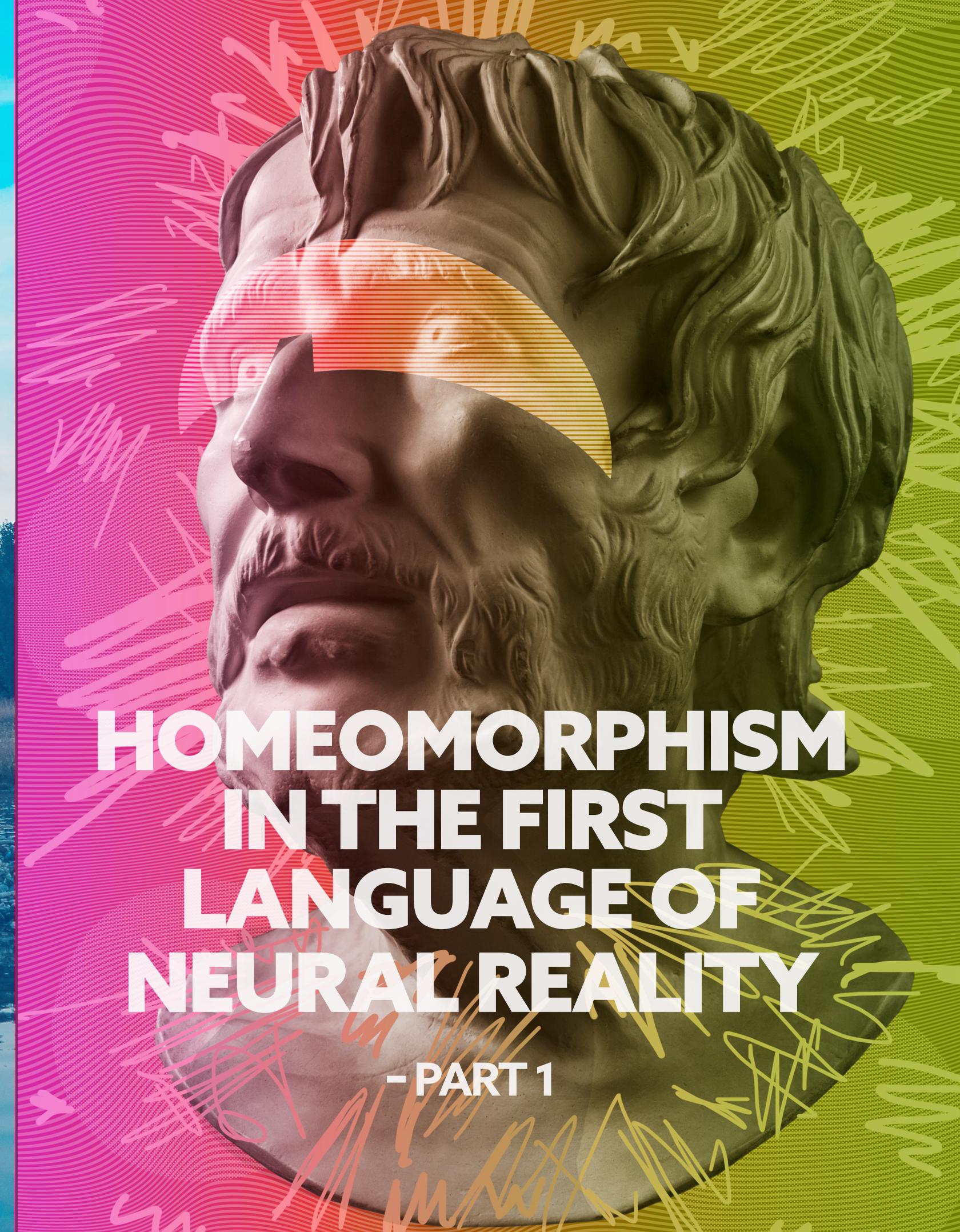
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HOMEOMORPHISM IN THE FIRST LANGUAGE OF NEURAL REALITY

- PART 1

Introduction:

The following paper will explore the underlying principles of the innate communication system of the human being that is involved in self-organization and adaptation processes consistent with the dynamics found in neuroplastic change.

Homeomorphism - Definition:

The term "homeomorphism" is a combination of two elements - 1) homeo which means the "same" or "similar" and 2) morphism which means "shape", "form" and "structure-preserving map". The term homeomorphism in contemporary usage is found frequently in mathematics and topology and is also termed isomorphism and refers to a continuous function or continuous transformation between certain spaces.

In this paper, the term homeomorphism is used in a more general sense as to when two (or more) shapes/forms bear a same or similar structural design such as seen in this example:

XY XY

In this example, note that the basic shapes or forms are retained while also changing in stylistic structural design.

Interestingly, the first to use the concept of homeomorphism as related to the development of the human being was William James at Harvard in an 1890 publication. (1) Williams is considered the Father of Western Psychology and author of groundbreaking texts such as *The Principles of Psychology* (1890), *The Varieties of Religious Experience* (1902) and *A Pluralistic Universe* (1908).

The view of James, which agrees with the premise proposed in this paper, is basically that the human

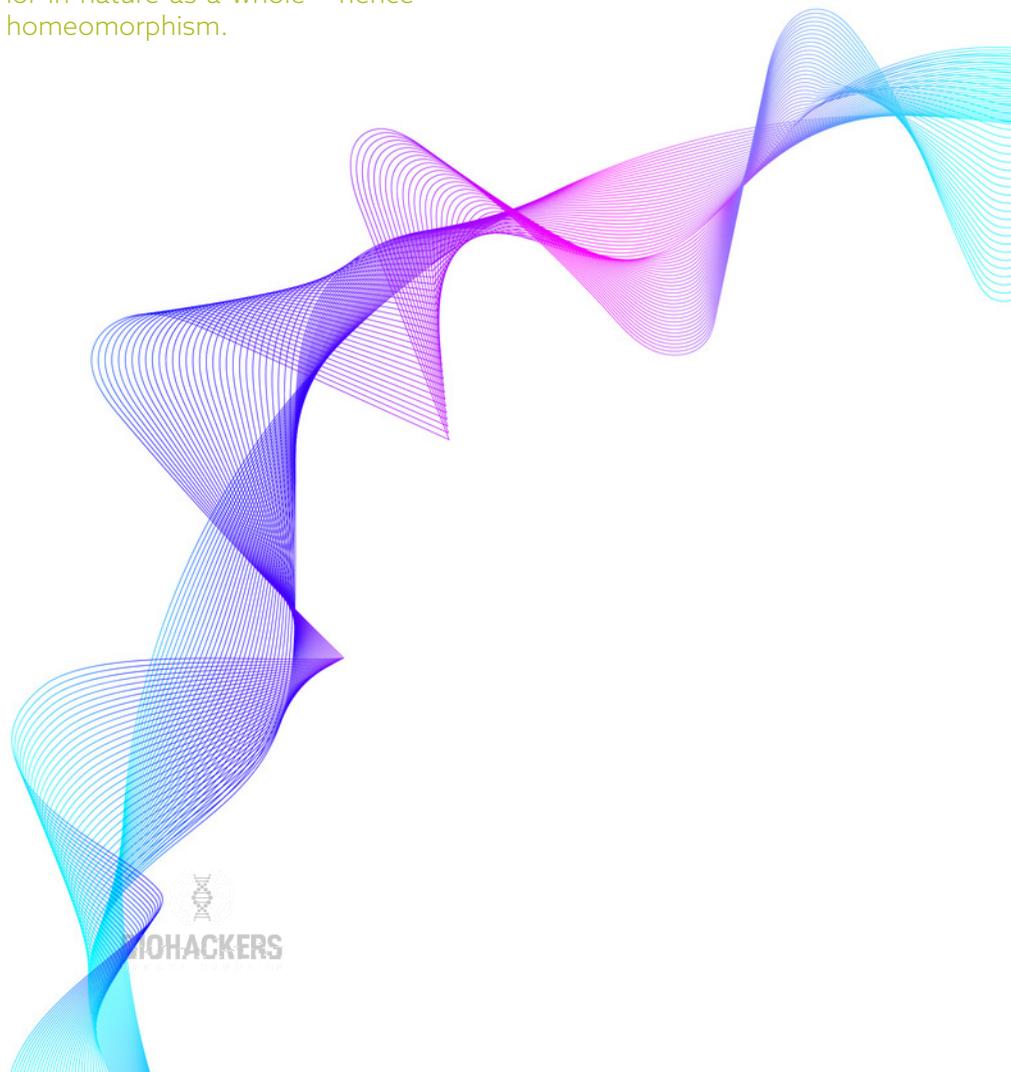
being evolved into existence and our current state as an indivisible entity in the larger planetary experience. Consequently, all of the laws, constructs and behaviors that are found in planetary life as a whole will also be found in the human being. As James puts it, "the faculties of our brain are adapted in advance to the features of the world in which we dwell". (1)

In this sense, one could possibly conceive of a "macro" planet and "micro" human being. Furthermore, it would be false to consider "nature" as something separate or "outside" from the human being. Accordingly, the human being is not "IN nature" but rather "IS nature".

Consequently, one can expect to discover critical aspects of human organization and behavior as replications of the same principles of organization and behavior in nature as a whole - hence homeomorphism.

Applying the principle of homeomorphism to evolutionary dynamics, one may consider the medium of universal morphogenetic information patterns (UMIP) acting as principled guidance systems in the processes of adaptive evolution. At a micro-molecular level, these UMIP may serve as epigenetic universals or causal mechanisms in origination patterns.

The principle of UMIP has a direct impact on the commonly accepted Neo-Darwinian concepts of: 1) the common descent of all living organisms and 2) natural selection via random mutation. Homeomorphism/UMIP stands in easy accord with the first concept of "common descent" as a fundamental aspect of shared information processes. UMIP offers a parallel complementary expansion of the second concept of "natural selection".



Dynamics of Adaptation in UMIP:

Neo-Darwinian thought forms the basis of the common prevalent scientific philosophy of our times. It has itself evolved through various augmentations and interpretations since the first days of Darwin and his predecessors and today is promoted in various schools of thought including "Modern Synthesis" and "Evo Devo" (Evolutionary Development). The concept of "natural selection via random mutation" stands firm in the minds of most even though other decisive challenges of come forth over time. Yet, as the concept of evolutionary forces itself continues to evolve, one must remain open to new insights that are able to advance our understandings. Surprisingly, one landmark challenge was that made at the turn of the 20th century (early 1900's) by D'Arcy Thompson, in his book *On Growth and Form*, which remains a classic amongst deep thinkers still exploring evolutionary dynamics.

The perspective of adaptation dynamics found in UMIP includes significant influences from the new fields of Information Theory, Cybernetics, Chaos Theory and Complex Adaptive Systems (CAS), among others. The following is a limited attempt to express the fundamental ideas that run within these progressive domains and illustrate how they impact the premise of homeomorphism and First Language as well as offer an expanded modification of the second central concept of Neo-Darwinism (i.e. natural selection via random mutation).



Linear/Non-Linear:

The first underlying element of the exploration is to clarify the concepts of "linear" and "non-linear" functions in light of the fact that the dynamics of UMIP rely on non-linear dynamics.

A "linear" function has the basic characteristic in which effects are proportional to their causes. For example, if you hit a baseball twice as hard as before, the effect will be that the ball will go twice as far as the first time you hit it. Linear functions are found throughout mechanistic processes. For a period of time, early in the scientific revolution, living organisms as well as the entire known universe, were defined in purely mechanistic concepts. Certainly, it was the mechanical clock that epitomized this view and hence became the veritable symbol of the age and its progress. Many "non-linear" activities were actually able to slip into linear formulations by permitting a range of approximations that concealed the lack of true specificity. In a sense, the dynamics of non-linear complexity were hidden by "fudging" the findings whenever the results were not proven to affect the applications.

The essence of non-linearity is that effects are no longer proportional to causes. Small causes may have large effects

In a way, "sensitive dependence" is nothing more than the rediscovery by scientists of the old wisdom which is captured by the phrase "for want of a horseshoe the kingdom was lost". Another well-known adage derived from non-linearity is "the whole is greater than the sum of its parts".

Chaos & Randomness:

Processes which are very sensitive to small fluctuations are

called chaotic. This is because their trajectories are in general very irregular, so that they may give the impression of being random however they are not random because they are driven by deterministic forces even though these determining forces may not be evident.

It is common to find the terms "chaos" and "random" used interchangeably but this is a mistake. Simply put, "random" completely lacks order and information. "Chaos" is highly complex and difficult to ascertain however it maintains sets of "hidden" drivers and determined behaviors. Physicist David Bohm expanded this principle to cosmic dimensions when he developed his Implicate Order theory to include quantum levels of behavior.

Jumping back in this essay, one will recall the second premise of Darwinian/Neo-Darwinian theory - "natural selection via random mutation". The issue begins to surface as to whether all evolving organisms rely solely on "random" selections/choices" or whether there may be sets of "hidden determinants" acting within seemingly "chaotic" conditions.

New Order from Chaos:

Complex Adaptive Systems (CAS), such as our human body and brain, function in a non-linear fashion and, consequently, are able to sustain the paradoxical condition known as a "far-from-equilibrium state". The CAS uses an intriguing integration of Order and Chaos, of stable and unstable dynamics as the cardinal approach to the constant change of adaptation. It is how the CAS continues to "learn" because in its fluid environment, there exists a singular law..... adapt or die. The reflexive rule of unconstrained energy is the reduction



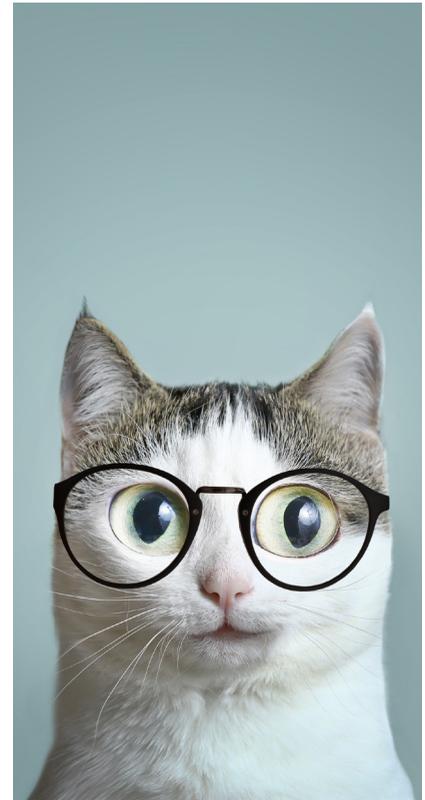


of all order and information with the final and absolute goal of entropy – the still and silent balance we call death.

A CAS, in an effort to adapt to change, cannot go directly from old Order to new Order. Order of whatever type or purpose always seeks to persist and exist. It will not “go quietly into the night” without a fight. Think of persistent order as a functional and self-serving habit. It has its “groove”. The CAS, and to be clear, this is also true of the human organism in general and the brain in specifics, is always “dancing on the edge of chaos”. A CAS entertains imponderable numbers of actions at speeds that seem improbable if not impossible. The human brain, for example, executes trillions of actions that are exhibited, somehow, as unified behaviors and outcomes. Researchers studying CAS behaviors are puzzled, charmed and sometimes alarmed at the tendency of a CAS to unexpectedly abandon degrees of order and manifest seemingly unprovoked chaotic manifestations before returning to more typical ordered actions. Is the CAS “losing its mind”, “exercising”, “researching” or just “playing”? No one knows.

When a complex system needs to shift into an adaption and modify its ordered behaviors, it will first soften the order by allowing a degree of disorder or chaos. The degree of disorder permits a new range of possible problem-solving adaptations to occur. Chaos should not be mistaken for randomness. Chaos will maintain degrees of order but often at obscure or hidden levels.

Randomness is a complete lack of order. Remember that order corresponds to information, hence degrees of chaos maintain degrees of information.



The only way to get the system out of a local ordered state is to add a degree of indeterminism to the dynamics, that is, to give the system the possibility to make transitions to states other than the locally most established ones. This can be seen as the injection of “noise” or chaotic perturbations into the system, which makes it deviate from its preferred trajectory. Physically, this is usually the effect of outside perturbations (e.g. vibrations, or shaking of the system) or of intrinsic indeterminacy (e.g. thermal or quantum fluctuations, or simply unknown factors that have not been incorporated into the state description). Such perturbations can “push” the system upwards, towards a higher potential of choices which may be sufficient to let the system escape from a local and inefficient ordered state.

In the period of destabilization, bifurcation vectors will occur. They are strongly related to the "strange attractors" that persist within complex systems when in destabilized chaotic phases. These are the potentials for new higher order adaptations to express within the complex system. In Neo-Darwinian terms, these bifurcations represent the possibility of adaptive mutations in the systems ordered processes. However, in the Neo-Darwinian view, the "choice" of which bifurcated vector is selected is completely "random" (remember the second aspect of Darwinian evolution as described above).

In the view of First Language

Homeomorphism and Universal Morphogenetic Information Patterns (UMIP), the bifurcating vectors that emerge as a consequence of chaotic destabilizations within the CAS may also present adaptive choices that have a deeply rooted adaptive advantage proven over countless millennia of shared communicated information.

These are not "blinded random mutations" but rather intelligent choices made related to decisions built upon the collective past.

The bifurcation is a "change" that presents a "chance" to make a "choice".

Change > Chance > Choice.

The resulting change now enters into the realm of probability in terms of adaptation. The new "learning" is not "certain", only "probable". The integrated factors within the system and its environment will act to either reinforce or resist the attempt at adaptive change, hence the probability will have degrees. In the end, the final expression is actualized as "certainty".

Change > Chance > Choice.
Possible > Probable > Certain.

Bi-Directionality - Definition:

All complex systems require flowing information to enable adaptation and self-organiza-



tion. In living organisms, this process is commonly called "feedback" which is a naturally occurring dynamic for self-preservation. Some feedback processes say "yes, more please" while others say "no, less please".

"Bi-directionality" is a core aspect of a feedback system. It essentially means that the information can flow in both directions (in and out, back and forth). Hence the "bi" which means "two". Homeomorphic expressions are utilized in feedback systems as highly efficient information packets carrying complex signaling in an easily identifiable code.

First Language - Definition:

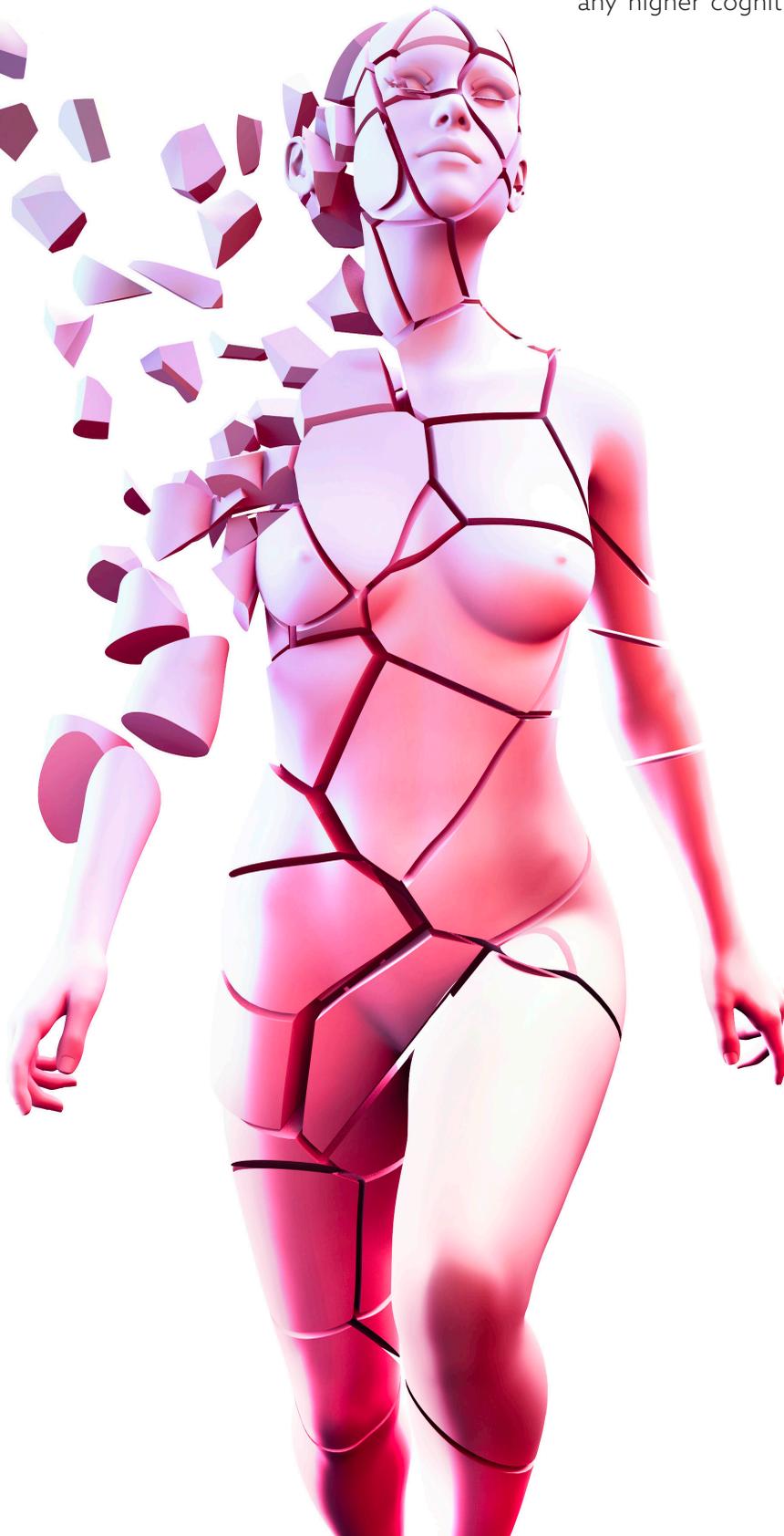
The "First Language" is new and novel term describing the primal capacity of human beings to directly experience and gain knowledge at a pre-intellectual level when awareness is turned towards the subtle states of consciousness and their internal sensory expressions.

Every organism relies on self-organization for its ongoing adaptation responses. This self-organization requires communication based on shared information in some manner of signaling. To put it more simply, if you are going to talk, you need a "language". It is the premise of this paper that, based on homeomorphism, all living organisms have always shared the same or very similar fundamental "language" and that, as organisms further develop and diversify, this foundational "language" is not lost and abandoned. Actually, this "First Language" is embedded in the increasing complexity of organisms and serves as an effi-

cient grounding for newer levels of communication. To further expand the novel terminology, First

Language can be considered as the core "biologue" (biological + dialogue = biologue) common to all Terra-Earth communication.

The premise of The First Language in the human proposes that the Central Nervous System (CNS) of the human being has an innate or intrinsic archaic language that evolved into usage at a very early phylogenetic stage of evolution. (2) This dynamic communication pre-dates any higher cognition,



intellectual stage of thinking or secondary symbolism and is still functional now in the human being. One could describe this First Language as a "Pre-Cog" form of communication (to adapt a term from the movie, *Minority Report*).

Regardless of the type of organism, successful adaptation to its changing circumstance and environment is key to its survival. Regardless of whether one believes in the primacy of "natural selection" or "teleological purpose", every organism of high or low development relies on fundamental levels of organization.

Organization requires communication and communication requires language.

A key tenet of Neural Reality is that there exists a "First Language" shared ubiquitously by all organisms found in Nature. Necessarily, this First Language must pre-date any more advanced cognitive process and advancing intellect in order to serve even the most primitive organism.

Viewed from the perspective of phylogenesis, organisms advance in complexity by integrating lower, older successful dynamics into the newer evolving problem-solving experiences. As such, the successful organizing effects of communication via the First Language remain efficiently intact in all organisms regardless of the degree of complex evolution - this includes the human being and our brain.

In general terms, the First Language can be easily recognized as Light and Sound. Light requires no medium for the transfer of information while Sound requires one medium. Light is electromagnetic radiation in category and Sound is mechanical vibration. The expression of First Language may be extended to other factors such as pure electricity, magnetism and even gravity. These extended factors cross-over into the atomic and subatomic domains that underlie molecular charge based chemical reactions. However, in terms of simplicity and functional elegance, for our Neural Reality purposes, designating Light and Sound as the principle means of communication within Neural Reality works well.



About Garnet Dupuis



Garnet was born and raised in Canada and is a naturalized USA citizen. He is an Integrative Health and Wellness expert, teacher & inventor with specialties in inter-disciplinary methodologies. With a wide experience in advanced technologies, Garnet has taught neuromodulation applications in major USA universities, professional sports teams, the Marine Corp and Naval Hospitals and lectured in European and Asian countries.

Garnet has a broad education including college, university and graduate trainings in Classical and Clinical Homeopathy, Oriental Medicine, Massage Therapy/Bodywork, Hydrotherapy, Remedial Exercise, Biofeedback, Psychology and English Literature.

Garnet is co-founder of Lucid Studios/neuroVIZR, Thailand. He currently resides in the tropical mountain rainforest in Northern Thailand. He is a life-long meditator and practitioner of Tibetan Dzogchen. Garnet is active in wild animal rescue and conservation and has built, manages and funds a sanctuary for SE Asian apes.

Website: <https://neurovizr.com/>