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Being a Waveform of Potential as an Experiential Choice

Emergent dynamic qualities of identity and integrity

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Introduction

Exploring physical waves by playing analogy leapfrog

Metaphorical waves with psychosocial implications

Social implications of waves

Eliciting psychosocial creativity through analogy

Psychosocial potential of analogy detection

Beyond explanations of whatever sophistication

Waves and consciousness

Being a waveform

Attraction to curved forms as a vital clue

Identification with waves of embodied movement

Social initiatives as unrecognized waveforms

Animations variously suggestive of "being a waveform"

References

The argument here is developed further in a second part (*Encountering Otherness as a Waveform: in the light of a wave theory of being*, 2013) and in an uncompleted third part (*Clues to Comprehension through Wave Language: evoking Homo undulans*, 2013)

Introduction

The variety of disciplines and beliefs suggest a multiplicity of ways through which an individual may choose to be framed and identified - or have experience of life defined. Many take the form of assertions by authorities which deprecate and scorn ways calling their particular belief into question. This dynamic context does little for those born into it and faced with the confusion of how to live a meaningful life. The challenge can itself be variously discussed, as explored separately (*Self-reflexive Challenges of Integrative Futures*, 2008; *Living as an Imaginal Bridge between Worlds*, 2011; *Paradoxes of Engaging with the Ultimate in any Guise*, 2012).

With the explosion of variously available knowledge to which it is only minimally possible to attend, incomprehension and uncertainty become ever more significant experientially (*Living with Incomprehension and Uncertainty*, 2012; *Towards the Dynamic Art of Partial Comprehension*, 2012). As suggested there, a degree of "meta-perspective" is offered through metaphor (*Towards the Systematic Reframing of Incomprehension through Metaphor*, 2012). Of course "metaphor" is deprecated from some perspectives as being significantly inferior to "models" of reality, however alien their articulation may be to experiential reality. As presented, the highly complex insights of the multidimensional theories of fundamental physics are the epitome of disassociation from experientially reality.

This deprecation and disassociation can be fruitfully reframed through two insights:

- **Kenneth Boulding**: Our consciousness of the unity of the self in the middle of a vast complexity of images or material structures is at least a suitable metaphor for the unity of a group, organization, department, discipline, or science. If personification is only a metaphor, let us not despise metaphors -- we might be one ourselves. (*Ecodynamics; a new theory of societal evolution*, 1978, p. 345)
- **Gregory Bateson**: We are our own metaphor. (as cited by Mary Catherine Bateson, *Our Own Metaphor: a personal account of a conference on the effects of conscious purpose on human adaptation*, 1972. p. 304)

If mathematics and physics are together upheld as offering the most adequate insight that humanity has produced for "explaining" reality, it is then fruitful to recognize the origins of such explanations, as in the work of cognitive psychologists **George Lakoff** and **Rafael Nuñez** (*Where Mathematics Comes From: how the embodied mind brings mathematics into being*, 2001).

The implications for the experience of creativity are also clearly central, as clarified by **Douglas Hofstadter** and **Emmanuel Sander**

(*Surfaces and Essences: analogy as the fuel and fire of thinking*, 2013), as a further development of Hofstadter's earlier work (*Fluid Concepts and Creative Analogies*, 1995). Through the manner in which unquestionable belief is thereby engendered, the argument can be extended to encompass the concerns and consequences of mutually antagonistic faiths, as separately discussed (*Mathematical Theology: Future Science of Confidence in Belief*, 2011).

The possibility explored here is that of "being a waveform" -- as a radical "experiential choice", consistent with the above arguments and with what might be recognized as the dynamics through which reality is already experienced. This contrasts with the oversimplistic manner in which the natural sciences frame the world through categories, as separately argued (*Dynamic Insensitivity of the Natural Sciences*, 2013; *Dynamic Transformation of Static Reporting of Global Processes*, 2013). Aspects of the argument have been presented in speculation on the existence of "extraterrestrials" as waveforms (*Sensing Epiterrestrial Intelligence (SETI): Embedding of "extraterrestrials" in episystemic dynamics?* 2013).

Given the current "waves" of social unrest, a "wave focus" can be usefully explored as superseding the "network focus" by which such waves are now engendered through (social) networks. These had superseded the focus on conventional organization, whose hierarchical limitations had previously made apparent the need for a new modality.

Exploring physical waves by playing analogy leapfrog

Preoccupation with waves starts naturally with experience of them in the environment, notably:

- **Wind waves:** In fluid dynamics, wind-generated waves are surface waves that occur on the free surface of oceans, seas, lakes, rivers, and canals or even on small puddles and ponds. There is considerable experience of engaging with them at the beach, in boats, and in a variety of water sports. These experiences are a traditional focus of song, poetry and meditation. They have also been an inspiration to physics and other disciplines (*Susan G. Sterrett, Wittgenstein Flies a Kite: a story of models of wings and models of the world*, 2005). Surfers in particular value a form of existential engagement with waves.
- **Sound waves:** There is clearly very extensive experience of sound through bird song and music -- widely appreciated for the manner in which they entrain awareness and engage movement in dance. Sound waves are often simplified to a description in terms of **sinusoidal plane waves**, characterized by a set of generic properties.

An admirable account of the manner in which such experiences have enabled ever more complex and subtle insights in physics is provided by **Douglas Hofstadter** and **Emmanuel Sander** in a section *On Waves* (in: *Surfaces and Essences: analogy as the fuel and fire of thinking*, 2013, pp. 209-214), as a further development of Hofstadter's earlier work (*Fluid Concepts and Creative Analogies*, 1995):

- These are the kinds of phenomena that go into the everyday conception of what waves are, and they are also the kinds of concrete imagery upon which early thinkers built as they started to put together a picture of the undulatory nature of certain fundamental and universal phenomena (p. 209)
- However, despite their frequent presence in our lives, water waves were not the best source of inspiration -- not by a long shot... Not surprisingly, there were some significant discrepancies between **sound waves in air** and **waves on water**.... unlike water waves, sound waves are longitudinal, meaning that they involve motions of air molecules along the direction of propagation of the noise (pp. 209-210)
- In a sense, the leap from visibly undulating water to invisibly undulating air... was also the greatest leap in the story of the development of the wave concept, because it opened up people's minds to the idea of making other daring leaps along similar lines (p. 211).
- The next big leap -- from sound to light... was facilitated by a *meta-analogy*... namely, the idea that one analogical leap (from water to sound) had already worked, and so why shouldn't the *analogous* analogical leap (from sound to light) also work? Such meta-analogies have permeated the thinking of physicists in the last few centuries... This highly cerebral game might be called "playing analogy leapfrog" (pp. 211-212)
- It was only in about 1860 that James Clerk Maxwell came to the astonishing revelation that **light waves** did not involve the motion of any material substrate at all, but instead were periodic fluctuations, at each point of the three-dimensional space in which we live, of the magnitude and direction of certain abstract entities called *electric fields and magnetic fields*... This was certainly very different from the visible tangible, motion on a lake's surface or of waving wheat in a field... The concept of wave was growing inexorably more and more abstract... (pp. 212-213)
- It didn't take physicists too long before they started realizing how immensely fertile the concept of wave truly was, in the explanation of natural phenomena, ranging from the most ubiquitous, such as sound and light, to all sorts of exotic cases. Any time space was filled with any kind of substance (or with an abstraction that could be likened to a substance), it seemed that local disturbances in that "substance" would naturally propagate to neighboring spots... and thus waves would radiate outwards from a source (p. 213)
- The disturbance, however, could be very different from ordinary vibration -- it could be highly abstract... Nonetheless, all the standard old concepts associated with earlier waves could be investigated -- *wavelength, period, speed, transverse or longitudinal, interference, reflection, refraction, diffraction*, and so on, and many of the same equations carried over beautifully from one medium to another. (p. 213)
- In the early twentieth century, **radio waves** (really just long-wavelength lightwaves) were used as a medium for carrying *sound waves*... the brilliant though tricky idea of waves riding on waves gradually grew into an ever more common *leitmotiv* in physics. (p. 213)

The authors note the discovery of *temperature waves*, *spin waves*, and *gravitational waves* and conclude with the comments:

- Last but not least, among the very most important kinds of waves in all of physics are *quantum mechanical waves*, sometimes called *matter waves* or *probability waves*. Roughly speaking, at every point in space such a wave has a value that changes over

time, and when that is squared, it tells how likely one is to find a particle in that given spot at a given instant. (p. 214)

- **We could list dozens of other types of abstract waves... the notion of wave in physics has reached an enormous degree of abstraction and sophistication...** and yet all of the latest and most abstract forms of waves are tied by analogy... to the earliest kinds of extremely concrete, tangible, palpable waves in bodies of water and fields of amber grain -- waves that we can see with our eyes and feel with our bodies. (p. 214) [*emphasis added*]

Information waves: Various theories suggest generalizations of the understanding of matter and energy in terms of information, hence the reference in that context to "information waves" (A. Yu. Plakhov and S. A. Semenov, *A Circular Neural Network Supporting Information Waves*, *Europhys. Lett.*, 1992; A. G. Chirkov and A. N. Ageev, *Information (No-Energy) Waves Described by Global Potentials*, *Physics of the Solid State*, 49, 2007). As famously expressed by **John Archibald Wheeler**, most fundamentally atoms are made up of **qubits of information**:

Its are from bits... Every it -- every particle, every field of force, even the space-time itself -- draws its function, its meaning, its very existence from binary choices, bits or more fittingly qubits (*Information, physics, quantum: the search for links*, 1990)

A number of authors have developed that earlier insight (Giacomo Mauro D'Ariano, *The Quantum Field as a Quantum Computer*, 2010; Philip Gibbs, *A Universe Programmed with Strings of Qubits*).

As articulated by Hemant Gupta (*Road to Digital Divine: computational nature of mind and matter*, 2010):

What we call reality arises from posing yes/no questions. In a world made up of bits and qubits, the universe itself is the supreme computer and calculations seem like a divine act. It takes the choice between yes and no, the state of 1 or 0 or the most fundamental state of existence: I am/or not.

All creation evolves from the irreducible or wholesome foundation. every galaxy, every star, the smallest ant, each thought in our mind, each flight of a ball are but a web of elemental yes/no woven together", writes Ross Rhodes, a quantum physicist

Qubit is widely seen as the tiniest constituent of existence. This new quantum informational element is seen to be the basis not only of matter but of energy, motion, mind, and life. If information theory hold, all movements, energy, gravity, dark matter, and antimatter can all be explained by elaborate programs of binary and quantum bits (p. 159)

Metaphorical waves with psychosocial implications

Since it is through use of "wave" as a metaphor that many engage with reality, it is appropriate to note how "wave language" -- irrespective of physics -- has been variously appropriated to articulate the nature of that experience. There is of course a close relationship between "waves" and the "cycles" which feature so extensively in **social cycle theory**, as most notably developed by **Pitirim A. Sorokin** (*Social and Cultural Dynamics* (1937, 1943). Many cycles are recognized (see *List of cycles*).

It could be argued that every cycle experienced by humans is typically experienced as a wave. However every wave so experienced implies a cycle, whether recognized or not. The resources on cycles may then be used to enrich a checklist of waves most relevant to this experiential argument.

Aesthetic waves in design: Most evident in pottery, clothing, stitching, and weaving

Information waves (online): The original inspiration for surfing the web (Chris Snijders, *Surfing the information waves: finding, revealing and evaluating information online*, Eindhoven Centre for Innovation Studies; Lynn F. Little, *Web surf with care to ride best information waves*, *Herald.Mail.com*, 1 November 2002). The "thread" metaphor, employed with respect to "**conversation threading**" on the internet, may be variously developed (*Interweaving Thematic Threads and Learning Pathways: noonautics, magic carpets and wizdomes*, 2010).

A contrasting use is in recognition that security risks of the pace of change threatens to overwhelm information technology with converging "waves of pain" (*The Security Landscape: converging waves of pain*)

Socio-economic waves: **Economic or business cycles** refer to economy-wide fluctuations in production, trade and economic activity in general over several months or years in an economy organized on free-enterprise principles. The business cycle is the upward and downward movements of levels of GDP. Such cycles include: the **Kitchin inventory cycle** (3-5 years), the **Juglar fixed investment cycle** (7-11) years; the **Kuznets infrastructural investment cycle** (15-25 years); the **Kondratiev wave** or long technological cycle (45-60 years).

Waves distinguished include:

- *Waves of economic development:* Economic development research has currently identified five phases, or **waves of economic development practice**.
- *Waves of growth:* as articulated by **Accenture Institute for High Performance** (*New Waves of Growth: unlocking opportunity in the multi-polar world*, 2011)
- *Waves of commerce:* as articulated by **Geert Hofstede** (*Riding the waves of commerce: a test of Trompenaars' "model" of national culture differences*, *International Journal of Intercultural Relations*, 20, 1996)
- *Waves of globalisation:* as articulated by Richard E. Baldwin and Philippe Martin (*Two Waves of Globalisation: superficial*

similarities, fundamental differences, 1999)

- *Waves of innovation*
- *Waves of traffic*

Socio-cultural waves: These could be understood as including the cycles distinguished by macrohistorians and according to religious, mythological and spiritual traditions. As "waves", these include the following:

- *Cultural waves:* as articulated by Fons Trompenaars and Charles Hampden-Turner (*Riding the Waves of Culture: understanding diversity in global business*, 2011)
- *Waves of modernity:* as articulated by Leo Strauss (*Three Waves of Modernity*, 1959)
- *Waves of public opinion*
- *Waves of change:* as variously articulated (Marshall Vian Summers, *The Great Waves of Change*)
- *Wave of the future:* as variously articulated (*Crowdfunding is Rapidly Becoming the Wave of the Future*, HITEC, 19 December 2012; *For Nonprofits, Owning Is Becoming the Wave of the Past*, *The New York Times*, 30 March 2005)
- *Waves of social unrest*
- *Waves of resistance*
- *Waves of disaster*
- *Waves of terrorism:* as articulated by David C. Rapoport (*The Four Waves of Modern Terrorism*, UCLA Burke Center, 2006)
- *Waves of war:* as articulated by Andreas Wimmer (*Waves of War: nationalism, state formation, and ethnic exclusion in the Modern World*, 2012)
- *Waves of feminism:* as articulated by Charlotte Krollokke (*Three Waves of Feminism*, in: *Gender Communication Theories and Analyses*, 2005)
- *Waves of migration*

Proprietary uses: Examples include:

- *Waves of Democracy:* an international platform for providing dialogue, exchange and networking between young people
- *Waves of Legality / Waves of Citizenship:* a project co-funded by Europe for Citizens Program (EACEA) aiming to reinforce the role of organized civil society combating, preventing crime and foster co-operation between law enforcement system and civil society in Europe
- *Waves of Change:* a consultancy providing customized services in the areas of change management, leadership development, strategic planning and team effectiveness
- *Waves of Power:* an online gospel broadcast
- *Waves of Hope:* a nonprofit community development programme
- *Waves of Impact:* an initiative to spread the destressing experience of getting in the ocean on the occasion of surf camps
- *Waves of Kindness:* a global initiative promoting synchronized global waves of unified thoughts and acts of kindness for all life -- with respect to environment, human rights, livelihood, agriculture, health, education, business and economics, energy
- *Waves of Devotion:* as understood in the *The Writings and Realizations of Srila Dhanurdhara Swami*
- *Waves of Mercy:* project to introduce the fallen and brokenhearted to the incredible love of God
- *Waves of Service:* project recognizing public service initiatives

Experiential waves: There are many web references to the following, notably in discussion fora and as titles of song lyrics:

- *Waves of emotion:*
 - *Waves of joy / Waves of happiness*
 - *Waves of love / Waves of passion / Waves of lust*
 - *Waves of hate / Waves of fear*
 - *Waves of envy*
 - *Waves of sorrow*
- *Waves of compassion:* as articulated by Rex Weyler (*Waves of Compassion: the founding of Greenpeace. Where Are They Now? Utne Reader*)
- *Waves of creativity / Waves of inspiration / Waves of insight*
- *Waves of enthusiasm / Waves of hope*
- *Waves of deception / Waves of disillusionment / Waves of despair*
- *Waves of doubt / Waves of uncertainty / Waves of anxiety*
- *Waves of conscience / Waves of guilt*
- *Waves of depression,* most notably including [bipolar disorder](#) (or manic depressive disorder)
- *Waves of suffering / Waves of pain:* including [uterine contraction](#) pains during [childbirth](#) (*Labor: What it feels like*, BabyCenter), [cluster headaches](#) experienced in waves, and abdominal pain waves (of which anecdotal accounts of those experienced prior to some form illumination are noteworthy, as in the case of [Jiddu Krishnamurti](#))

It is experiential waves that are of most relevance to this argument, rather than the use of "wave" as a category to describe phenomena framed as external. Of particular interest is the possibility of fundamental values being experienced through waveforms -- as suggested below by Fons Trompenaars and Charles Hampden-Turner (*Riding the Waves of Culture: understanding diversity in global business*, 2011). This could be consistent with the manner in which values function experientially as "strange attractors", as discussed separately (*Human Values as Strange Attractors*, 1993). The experiencing that "matters" may be best experienced as "waves". Adapting to experiential waves, in any attempt to "manage" them -- especially in the case of pain -- may induce a shift in identity -- effectively to one of "becoming the wave".

Social implications of waves

The above-cited text of David Rapoport (part of his study on *Terrorism: Critical Concepts in Political Science*, 2006) offers a valuable commentary on "wave phenomena" as a means of understanding the evolution of terrorism -- but having wider implications:

The wave concept -- an unfamiliar notion -- is worth more attention. Academics focus on organizations, and there are good reasons for this orientation. Organizations launch terror campaigns, and governments are always primarily concerned to disable those organizations. Students of terrorism also focus unduly on contemporary events, which makes us less sensitive to waves because the life cycle of a wave lasts at least a generation.

What is a wave? It is a cycle of activity in a given time period -- a cycle characterized by expansion and contraction phases. A crucial feature is its international character; similar activities occur in several countries, driven by a common predominant energy that shapes the participating groups' characteristics and mutual relationships. As their names -- "Anarchist," "anticolonial," "New Left," and "Religious" -- suggest, a different energy drives each.

Each wave's name reflects its dominant but not its only feature. Nationalist organizations in various numbers appear in all waves, for example, and each wave shaped its national elements differently.... A wave is composed of organizations, but waves and organizations have very different rhythms. Normally, organizations disappear before the initial wave associated with them does. (pp. 47-48)

Economic and business cycles (as noted above) are necessarily of particular interest as a challenge to business strategy. With respect to "wave", the study by Fons Trompenaars and Charles Hampden-Turner (*Riding the Waves of Culture: understanding diversity in global business*, 2011) also offers valuable insights relevant to the argument here:

- Hence organisations do not simply react to their environment as a ship might to waves. They actively select, interpret, choose and create their environments. (p. 19)
- Like a surf-rider you respond to the waves and keep your balance where others lose theirs. (p. 146)
- The leader of the family-style culture weaves the pattern, sets the tone, models the appropriate posture for the corporation and expects subordinates to be "on the same wavelength", knowing intuitively what is required; conversely, the leader may empathise with the subordinates. (p. 160)
- Roger Harrison has likened the process to an improvising jazz band, in which a self-elected leader tries something new and the band follows if it likes the theme and ignores the theme if it does not. All participants are on the same wavelength, empathically searching together for a solution to the shared problem. But because a customer has not defined any target, the problem itself is open to redefinition and the solution being searched for is typically generic, aimed at a universe of applications. (p. 176)
- Waving/cycling: Have you every stopped to wonder what happens to our values if, instead of assuming they are things (i.e. colliding billiard balls), we assume that they are wave-forms? Common sense assumes values to be like coins, jewels or rocks. We could take the view that they are like water waves, electromagnetic waves, sound waves, light waves etc. This makes a great deal of difference. (p. 208)
- ***If values are like sound waves, no wonder their harmony (what south-east Asians call wa) can be more beautiful still. If the wave-form is a legitimate expression of values and if the values alternate like sleeping and waking, relaxing and exciting, erring and correcting...*** (pp. 208-209) [*emphasis added*]
- The notion of learning by error correction is so important that we include this idea in all our dilemmas, especially the seven dimensions. Suppose that we were to create a wave-form between universalising and particularising.... We have retained the idea of error correction by rendering our waveform as a cycle. This assumes that we will periodically get things wrong and have to make a second "try" or circuit before improving (p. 209)

In the light of developing understanding of complex systems, the pattern of interlinked "changes" effectively constitutes a hypercycle, as discussed separately (*System Dynamics, Hypercycles and Psychosocial Self-organization: exploration of Chinese correlative understanding*, 2010). Enabling comprehension of such a "hypercycle" could prove fundamental to comprehending the essence of sustainability in the face of emerging turbulent psychosocial conditions.

This challenge is intimately related to that of the need to navigate the **adaptive cycle** with which they are associated (*Adaptive Hypercycle of Sustainable Psychosocial Self-organization*, 2010). The case for recognizing that adaptive cycle has been made by the **Resilience Alliance** and by **Thomas Homer-Dixon** (*The Upside of Down: Catastrophe, Creativity, and the Renewal of Civilization*, 2008). There is however the possibility that it might be more appropriately "re-cognized" as a waveform.

Beyond explanations of whatever sophistication

It is not the purpose here to offer further "explanations". That modality would seem to replicate that in which any "model" or "theory" of "reality" emerges and is promoted -- attracting attention or deprecation. Arguments in support of such a view have been variously made by **Paul Feyerabend** (*Against Method: outline of an anarchistic theory of knowledge*, 1975; *Farewell to Reason*, 1987; *Three Dialogues on Knowledge and Beyond Reason*, 1991) and more generally by **Charles Handy** (*The Age of Unreason*, 1991; *Beyond Certainty*, 1995). As noted in the introduction, the process would seem to be unquestioningly designed by competing intellectual elites to offer others something to believe in -- rather than enabling people to engage creatively with the experiential process through which they are obliged to live their daily lives.

Self-reflexivity vs. Explanation: It is in this sense that the framing offered by the (above-mentioned) valuable study by Hofstadter and Sanders can be considered questionable. Their focus is necessarily on the relevance of wave analogies within physics -- culminating (in a

section on *Analogies that Shook the World*) in a remarkable review of insights into the creative processes of Einstein (under the heading *Albert Einstein, Analogizer Extraordinaire*, pp. 452-502).

Curiously their emphasis remains on "explanation", with little insight into the psychosocial or experiential implications, other than through the implications for "creativity" and "thinking". This is even more curious given Hofstadter's earlier work on self-reflexivity (*Gödel, Escher, Bach: an Eternal Golden Braid: a metaphorical fugue on minds and machines in the spirit of Lewis Carroll*, 1979; *I Am a Strange Loop*, 2007).

Some possible implications of the latter are discussed separately (*Sustaining a Community of Strange Loops: comprehension and engagement through aesthetic ring transformation*, 2010). Especially intriguing is the lack of embarrassment at the generation of ever more explanations of ever greater sophistication -- comprehensible to ever decreasing proportions of humanity (*Dynamics of Symmetry Group Theorizing: comprehension of psycho-social implication*, 2008).

Most regrettable is the indifference of Hofstadter and Sander to the creative implications of their understanding of analogies for problematic psycho-social crises, whether at the global or local levels -- perhaps most ironically suggested by the analogies which may have influenced Einstein in his creative approach to distinctly shifting frames of reference (*Einstein's Implicit Theory of Relativity - of Cognitive Property? Unexamined influence of patenting procedures*, 2003).

Knowledge "debris"? It could even be argued, by analogy, that the "disposal" of unwanted explanations and factoids in global knowledge society is reminiscent of the [Great Pacific Garbage Patch](#), also described as the Pacific Trash Vortex, namely the massive "gyre" of [marine debris](#) in the central North Pacific Ocean. Will future analysis of the internet reveal the extent to which "trash" accumulates and circulates in an analogous manner -- the [midden](#) of global civilization?

The metaphor is useful in that it holds the sense in which the deprecated preoccupations of "others" are discarded and trashed as knowledge waste -- irrespective of any value some may attach to them. Reference to it as a "gyre" appropriately recalls the first stanza of *The Second Coming* (1919) of [William Butler Yeats](#)

Turning and turning in the widening gyre
The falcon cannot hear the falconer;
Things fall apart; the centre cannot hold;
Mere anarchy is loosed upon the world,
The blood-dimmed tide is loosed, and everywhere
The ceremony of innocence is drowned;
The best lack all conviction, while the worst
Are full of passionate intensity.

The [global thermohaline circulation of ocean currents](#) by which the trash gyre is engendered also offers a challenging association to the so-called [circulation of the light](#), as separately discussed (*Circulation of the Light: essential metaphor of global sustainability?* 2010).

"Bloodless categories": Especially offensive is the presumptuous implication that any theory is necessarily so congruent with understanding of reality that it will exist for all eternity -- effectively "enstoned" (*Enstoning in Memorials and Monuments*, 2012). Little consideration is given to the possibility that "cognitive unrest" may be a characteristic of the emerging degree of "social unrest" and that other understandings may be required -- whatever the respect for insights formulated "in the past" by those who have regrettably "passed on".

It could be argued that it is not a matter of "explaining reality" for others, through "bloodless categories" constraining their experience, but of "being real" for oneself in some way which defies "explanation". The concern has long been a feature of philosophy, as fruitfully summarized by [Gustavus Watts Cunningham](#) (*Thought and Reality In Hegel's System*, 1910):

If it be true that thought actually does exhaust reality, then it must be that thought, or knowing experience, and reality coincide. But can such a view possibly be seriously entertained? Is it not nonsense to say that thought is co-extensive with the real, when so much of our everyday experience, our hopes, our fears, our loves, our hates, fall outside the thinking process? Can one be so mad as to attempt to reduce existential reality to terms of ideas? [Hermann] [Lotze](#) has put the objection very forcibly thus:

Nothing is simpler than to convince ourselves that every apprehending intelligence can only see things as they look to it when it perceives them, not as they look when no one perceives them; he who demands a knowledge which should be more than a perfectly connected and consistent system of ideas about the thing, a knowledge which should actually exhaust the thing itself, is no longer asking for knowledge at all, but for something entirely unintelligible. [*Logic*, Bk. III, chap. i, ?§ 308].

Mr. [Francis] [Bradley](#), in a classic passage, has voiced the same feeling:

Unless thought stands for something that falls beyond mere intelligence, if 'thinking' is not used with some strange implication that never was part of the meaning of the word, a lingering scruple still forbids us to believe that reality can ever be purely rational.... The notion that existence could be the same as understanding strikes as cold and ghost-like as the dreariest materialism. *That the glory of this world in the end is appearance leaves the world more glorious, if we feel it is a show of some fuller splendour; but the sensuous curtain is a deception and a cheat, if it hides some colourless movement of atoms, some spectral wof of impalpable abstractions, or unearthly ballet of bloodless categories.* [*Principles of Logic*, 1883, p. 533; emphasis added]

Now Hegel's answer to this objection is, I think, found in the second characteristic of thought as he has defined it for us in absolute knowledge... . Thought, Hegel argues, is not mere abstract cognition, but, on the contrary, is truly universal. In answer to Mr. Bradley he would say that thought does stand for something which falls beyond mere intelligence.

Engaging the explainer: At a fundamental level this calls into question the propensity for "couch explanation" -- including that of Hegel.

This brings to the fore the paradoxical nature of the engagement of the explainer with the explanation, as can be variously explored (*¿ Defining the objective ∞ Refining the subjective ?! : Explaining reality ∞ Embodying realization*, 2011; *Implication of Indwelling Intelligence in Global Confidence-building: sustaining the construction and dynamic of psychosocial reality through questioning*, 2012; *University of Ignorance: engaging with nothing, the unknown, the incomprehensible, and the unsaid*, 2013).

Competitive dynamics between explainers: For those otherwise called upon to live in anticipation of the ultimate explanation, or to "buy into" one of the belief systems on offer, it is a question of whether it is wise to sit around waiting for a comprehensible resolution of the competitive dynamics between those authorities claiming competence. As argued by [Nicholas Rescher](#) (*The Strife of Systems: an essay on the grounds and implications of philosophical diversity*, 1985):

For centuries, most philosophers who have reflected on the matter have been intimidated by the strife of systems. But the time has come to put this behind us -- not the strife, that is, which is ineliminable, but the felt need to somehow end it rather than simply accept it and take it in stride.

Framing such competition in a manner little different to that between the marketing of consumer products, or to that between football teams, seems unworthy of the existential challenge with which many are faced -- and of the global civilization within which they dwell (cf. [Nicholas Rescher](#), *Ignorance: on the wider implications of deficient knowledge*, 2009).

Engaging with abundance: The possibility is framed otherwise by such as [David Abram](#) (*The Spell of the Sensuous: perception and language in a more-than-human world*, 1997), [Paul Feyerabend](#) (*Conquest of Abundance: a tale of abstraction versus the richness of being*, 1999), and [Sallie McFague](#) (*Life Abundant: rethinking theology and economy for a planet in peril*, 2000).

Eliciting psychosocial creativity through analogy

Analogizing: The above-mentioned study by [Douglas Hofstadter](#) and [Emmanuel Sander](#) (*Surfaces and Essences: analogy as the fuel and fire of thinking*, 2013) has as its central thesis "a simple yet nonstandard idea" that:

... the spotting of analogies pervades every moment of our thought, this constituting thought's core. To put it more explicitly, analogies do not happen in our minds just once a week or once a day or once an hour or even once a minute; no, analogies spring up inside our minds numerous times every second. We swim nonstop in an ocean of small, medium-sized, and large analogies, ranging from mundane trivialities to brilliant insights. (p. 18)

We claim that cognition takes place thanks to a constant flow of categorizations, and that at the base of it all is found, in contrast to *classification* (which aims to put all things into fixed and rigid mental boxes), the phenomenon of *categorization through analogy-making*, which endows human thinking with its remarkable fluidity. (p. 19)

... analogy-making defines each instant of thought, and is in fact the driving force behind all thought. Each mental category we have is the outcome of a long series of analogies that build bridges between entities (objects, actions, situations) distant from each other in both time and space. These analogies imbue the category with a halo lending it suppleness that is crucial for the survival and well-being of the living being to whom it belongs. Making analogies allows us to think and act in situations never before encountered... and enables us to make unpredictable and powerful mental leaps. (p. 135)

The authors argue that in contrast to what might be expected of artificial intelligence:

... our advantage is intimately linked to categorization through analogy, a mental mechanism that lies at the very center of human thought but at the furthest fringes of most attempts to realize artificial cognition. It is only thanks to this mental mechanism, despite their slowness and vagueness, are generally reliable, relevant, and insight-giving, whereas computer "thoughts"... are extremely fragile, brittle, and limited despite their enormous rapidity and precision. (p. 25)

The authors argue:

One might say that the human mind is characterized by a constant, intense drive to go beyond all conventional metaphors, which are often labelled "dead metaphors", since when a metaphor is used enough, one no longer hears the original imagery behind it and it loses all its sparkle... Each time a metaphor loses its punch, we push the boundaries further out with new metaphors, always with the goal of understanding more directly and intensely what surrounds us, of adjusting to change, and of adding piquancy and novelty to the way we see familiar things. (p. 64)

Combinatory play: After arguing that mathematics involves the making of analogies of every kind the authors shift their focus to

physics, focusing at length on Albert Einstein as "Analogizer Extraordinaire". They offer a sampling of the analogies detected by Einstein:

... in order to show that major advances in physics are not the result of virtuoso acts of stand-alone mathematical deduction and formal manipulation of equations, but that, quite to the contrary, they emerge as the fruit of analogies intuited by individuals who have a keenly honed instinct for spotting the deep identity of phenomena that look extremely different from each other on the surface, individuals who trust their inchoate faith in such analogical links even more than they trust the imposing mathematical fortresses erected by prior generations, even if it means that extremely well-established, once rigorously worked-out ideas may possibly have to be uprooted and completely thought through anew. (p. 499)

The authors define the quality of intelligence enabled by analogy-making as follows:

Intelligence, to our mind, is the art of rapid and reliable gist-finding, crux-spotting, bull's-eye-hitting, nub-striking, essence-pinpointing. It is the art of, when one is facing a new situation, swiftly and surely honing in on an insightful precedent (or family of precedents) stored in the recesses of one's memory... and this is nothing but the ability to come up with strong and useful analogies. (pp. 125-126)

Within the same context, reviewing a work of Einstein (*Ideas and Opinions*, 1995), [Maria Popova](#) also offers insights relevant to this argument (*How Einstein Thought: fostering combinatorial creativity and unconscious connections*, *Brain Pickings*, 14 August 2012). In stressing, in response to a question, that "*Combinatory play seems to be the essential feature in productive thought*", Einstein notably comments:

The words or the language, as they are written or spoken, do not seem to play any role in my mechanism of thought. The psychological entities which seem to serve as elements in thought are certain signs and more or less clear images which can be "voluntarily" reproduced and combined.

There is, of course, a certain connection between those elements and relevant logical concepts. It is also clear that the desire to arrive finally at logically connected concepts is the emotional basis of this rather vague play with the above-mentioned elements. But taken from a psychological viewpoint, this combinatory play seems to be the essential feature in productive thought -- before there is any connection with logical construction in words or other kinds of signs which can be communicated to others.

Psychosocial potential of analogy detection

Given the questionable contribution of science to the present-day challenges of society, it is then appropriate to ask how such facility with analogy is to be cultivated at a time when there are many calls for a "paradigm shift" and "new thinking".

If, as an outcome of analogy detection, $E=mc^2$ is to be understood as a vital and fundamental breakthrough in understanding the integrity of the physical world, what corresponding form might be sought with respect to the psychosocial world?

What resistance is to be expected to the recognition of the analogies on which it depends -- in the light of the decades of resistance to those of Einstein? In the case of a psychosocial system, does such "resistance" need to be encompassed by the new paradigm? Could a similar case be made for the [Euler identity](#) -- $e^{\pi i} + 1 = 0$ -- as separately argued (*Correspondences: "epi", Euler identity, and sexual dynamics?*, 2013).

Isomorphisms and correspondences: Prior to its reframing as the [International Society for the Systems Sciences](#), the Society for General Systems Research provided a significant focus for consideration of "isomorphism" between "systems" of a variety of forms -- as articulated in *General Systems: Yearbook of the Society for General Systems Research* (1956-1997) . This could be understood as one formal approach to recognition of analogy. Another is provided by the contrasting approach to "correspondences" of the sciences and humanities, as separately discussed (*Theories of Correspondences -- and potential equivalences between them in correlative thinking*, 2007).

Implications for governance: It is unfortunate that Hofstadter and Sander fail to indicate any implications of their insights for the problematic conditions of society -- in a period when the US [Intelligence Advanced Research Projects Activity](#) (IARPA) has initiated a [Metaphor Program](#) to build a world repository of metaphors enabling a computer system capable of understanding metaphors used in a variety of languages (see [MetaNet: A Multilingual Metaphor Repository](#)).

The authors' failure to recognize implications of their arguments regarding analogies, contrasts with the strong position taken at various stages by George Lakoff (*Obama Reframes Syria: metaphor and war revisited*, *The Huffington Post*, 6 September 2013; *Metaphor and War: the metaphor system used to justify war in the Gulf*, 1 January 1991). The potentially problematic implications of the "psychological" perspective of the authors is also tragically highlighted by the tragic complicity of the [American Psychological Association](#) in US government torture and abuse of national security detainees, as described by Roy Eidelson and Stephen Soldz (*Hawaiian Mind Games: APA fiddles while psychology burns*, *Psychology Today*, 5 August 2013).

Constraints on pattern recognition: Given the fundamental role of analogy highlighted by Hofstadter and Sander, it is also unfortunate that they make no reference to constraints on its recognition by those on the autism spectrum, known to be a characteristic of many with exceptional mathematical skills (Gabriella Rundblad, *The atypical development of metaphor and metonymy comprehension in children with autism*, *Autism*, 14, 2010, 1, pp. 29-46). There is the delightful possibility that the analysts of the security-obsessed "intelligence community" might be inherently constrained in their capacity to "connect the dots" and "see the pattern" -- however enabled

by a metaphor suppository. Missing is any investment in capacity to explore creative possibilities, as separately discussed (*From ECHELON to NOLEHCE: enabling a strategic conversion to a faith-based global brain*, 2007).

The "global intelligence failure" regarding detection of weapons of mass destruction in Iraq has been formally recognized (*Report on the U.S. Intelligence Community's Pre-War Assessments on Iraq*, 9 July 2004). A related challenge merits consideration in the light of *groupthink*, through which people collectively "buy into" an inappropriate analogy, as highlighted by Lakoff (2013) with respect to Syria, and prior to that (*Groupthink: the Search for Archaeoraptor as a Metaphoric Tale -- missing the link between "freedom fighters" and "terrorists"*, 2002).

The problematic use of analogy between highly disparate domains also merits consideration in the light of the *Sokal Affair* -- a highly publicised hoax instigated by physicist *Alan Sokal* to highlight the lack of rigour in postmodern cultural studies (Alan D. Sokal and Jean Bricmont, *Fashionable Nonsense: postmodern intellectuals' abuse of science*, 1998; Alan Sokal, *Beyond the Hoax: science, philosophy and culture*, 2010; *Lingua Franca*, *The Sokal Hoax: the sham that shook the academy*, 2000). Of particular interest would be the analogical skills of Sokal himself -- as a physicist.

Waves and consciousness

Recognition is variously accorded to "*brain waves*" through which cognition occurs, experience is articulated, and a sense of identity is sustained. Such "waves" are rhythmic or repetitive neural activity in the central nervous system, as represented through *electroencephalography*. They are clearly fundamental to conscious experience in all its forms, however this relationship is clarified through continuing research and modelling. Such rhythms are distinct from those explored as *biorhythms* -- however these are appreciated or deprecated.

Within the above context, use is made of "wave" in discussion of consciousness from a physical perspective. For example, in a discussion of *Consciousness and Quantum Information* and *Quantum Information Waves*, Werner R. Loewenstein (*Physics in Mind: a quantum view of the brain*, 2013) argues:

Quantum bits, not macroscopic bits, are nature's universal information currency. On nature's ground floor -- and that includes the atomic level of molecules -- a wide variety of interactions proves a virtually inexhaustible source of bits of this sort, ready-made for high-speed information processing.

Evolution has not overlooked those opportunities in her great information enterprise. At the brain's sensory periphery... she exploited them to the hilt, including coherency of quantum waves.... These ghostly waves are really not as unruly as they may seem. Schrodinger tamed them quite a bit, and they obligingly follow his mathematics as probability waves. If we put those waves under the information loupe, they shed their mantle of mystery, or at least one of the mantles. Then they show themselves for what they are: information waves. They tell us where in space the particle is likely to turn up. The amplitude of the wave imparts that information: in paces where the amplitude is high, the likelihood is high, and where the amplitude is low, the likelihood is low.

In introducing his discussion of the *Nature of local mind* and the *Nature of Nonlocal mind*, Hemant Gupta (*Road to Digital Divine: computational nature of mind and matter*, 2010):

Humans appear to be large particles, but the structures and processes that drive them to be alive have roots in quantum reality. Therefore, humans behave in a manner that resembles both large and small particles First let us examine the nature of the waves that these particles emerge from.

It turns out that these waves are information waves, to be more precise, waves of potentialities. Later I would refer to these waves as the waves of guidance as they primarily guide the particle to occupy a preferred state of existence. These "waves" cannot be copied or even reckoned physically but can easily be calculated by mathematical formula. This quality of something, having the appearance and effect of a wave but not the nature of a wave, is pervasive in quantum mechanics and is fundamental to all things in our universe. All quantum entities like electron, protons, neutrons, quarks, atoms, and even larger entities exhibit this behavior. The information waves appear to surround every physical entity in the universe, providing potential space-time options, related to the present and future states that are potentially available to the entity. (p. 71-72)

Gupta thereby provides a context for his subsequent discussion of "*The Whole or Cosmic Mind or Digital Divine*".

The association of quantum reality, waves and consciousness has been variously explored and promoted -- often with considerable enthusiasm as an "explanatory panacea" and a key to paradigm shifts. For example, *Quantum Psychology* (1990) is the title of a book by Robert Anton Wilson focused primarily on the metaphysical and epistemological problems of Aristotelian reasoning and its use in everyday language.

As noted by the *Wikipedia* entry on *quantum mind*:

The quantum mind or quantum consciousness hypothesis proposes that classical mechanics cannot explain consciousness, while quantum mechanical phenomena, such as quantum entanglement and superposition, may play an important part in the brain's function, and could form the basis of an explanation of consciousness. It is not one theory, but a collection of distinct ideas...[of which a number are reviewed]

The contrasting entry on [quantum cognition](#) in *Wikipedia* is introduced as follows:

Quantum cognition is an emerging field which applies the formalism of quantum theory to model cognitive phenomena such as human memory, concepts and conceptual reasoning, human judgment, perception, and decision making. The field clearly distinguishes itself from the quantum mind as it is not reliant on the hypothesis that there is something micro-physical quantum mechanical about the brain.

Being a waveform

The concern here is with the extent to which **people are already free to "be a waveform" experientially -- or to "re-cognize" that they are -- rather than being obliged to assume that they must necessarily "be defined by a category"** articulated by authoritative others. From the perspective of fundamental physics, individuals (as bodies with mass) are necessarily already to be understood as a waveform -- whether or not they frame themselves conceptually in terms of this category. The insight might well be assumed to be fundamental to the thinking and identity of Hofstadter (*I Am a Strange Loop*, 2007).

At a less fundamental level, atoms and molecules constituting the human body are more appropriately understood in terms of the [molecular orbital](#). In this sense humans are essentially waveforms, whether or not they consciously identify with that modality.

Perhaps curiously it is the blogger John Corder, who has articulated an understanding of "being a waveform" in a novel (*The Trial of Poppy Moon*, 2012) based on [near-death experience](#). In a summary of the argument (*We exist in two forms at the same time*), Corder argues:

We're talking about something called quantum duality or [superposition](#).... [this] shows that everything exists in two forms, as particles and as waves at the same time. Quite remarkably, everything that has mass has an associated waveform. And yes, that includes us.

The problem is that as mass gets bigger the wavelength gets shorter. For anything larger than the smallest atomic particles, humans included, the wavelength of their waveform is so short as to be entirely undetectable using current technology. It's not until objects become very small, such as photons that we're able to detect their waveform as light and radio waves.

Nevertheless, the fact that we don't yet have the technology to detect them doesn't mean they have no significance in our lives. For example, could our waveform be where our minds, our consciousness is located. Is this what moves away from our body during a Near Death Experience? Is it in this form that we remain after we die? Being a waveform could explain many things.

Again however, **the issue here is how to move beyond the effort to "explain many things" through categories and descriptions**. There are indeed many available references "explaining" consciousness in terms of waveforms and inviting "buy in" to the insights offered. Little is however offered on how to "be a waveform" and what might be implied by that experience..

Identification with cycles: The argument can be developed through recognition of the extent to which people are intimately associated experientially with a variety of cycles (*Emergence of Cyclical Psycho-social Identity: sustainability as "psychically" defined*, 2007). These include the experience of: breathing, digestion, menstruation, sex, and contractions in labour. They are evident in cycles of behaviour (notably the more vicious and abusive)

These are all potentially to be experienced as waveforms. Of relevance is the insight offered by the [Uncertainty Principle](#), so vital to the quantum framework through which a distinction is made between "particle" and "wave", most notably in the case of light. This suggests a way of thinking about the experience of "being a category" (an essentially static "part") and "being a wave" (with all that implies dynamically), as discussed separately (*Being Neither a-Waving Nor a-Parting: cognitive implications of wave-particle duality in the light of science and spirituality*, 2013).

Especially intriguing are the contrasts expressed in the following schema

	Self-experience (reflexivity)	Self as experienced by others
Static (category)		
Dynamic (waveform)		

Clues to "being a wave": This suggests that clues are required for ways in which people can "be a wave", possibly taking advantage of the analogical process of "playing analogy leapfrog" which physicists now cultivate, as noted by Hofstadter (2013, p. 212). Can one fruitful analogy then suggest a subtler one of psychosocial relevance?

Can the emergent experiential subtleties indeed be appropriately anchored in to "the earliest kinds of extremely concrete, tangible, palpable waves in bodies of water and fields of amber grain -- waves that we can see with our eyes and feel with our bodies" (Hofstadter, 2013, p. 214).

Contrast with "being part of a wave": When "wave" is used as a descriptor, a person can be perceived as "being part of a wave" without it having the kind of experiential significance which is the focus of this argument. Like the molecules of water or air in palpable waves, they may move characteristically within the wave with little awareness of the wave movement as a whole.

This is the case with respect to the socio-economic waves distinguished above: *Cultural waves, Waves of modernity, Waves of economic development, Waves of growth, Waves of commerce, Waves of globalisation, Waves of change, Waves of resistance, Waves of war, Waves of social unrest, Waves of terrorism, Waves of feminism, Waves of migration, Waves of public opinion*:

The proprietary use of "waves", as indicated above, may indeed involve efforts to engender awareness of "being the wave" in question, at least to a degree consistent with achieving "buy in". This is notably evident in encouragement to "be the change that you want to see in the world" (Mahatma Gandhi).

Being "through" analogy-making: Hofstadter and Sander place the emphasis on analogizing as being something that an identity ("Einstein") does. However given how intrinsic it is to cognition -- especially in the Einstein example -- there is a case for understanding the analogizing process as a dynamic vehicle for identity -- to be fruitfully understood as wave-like. Rather than being something one does, one is the process. **Rather than "I think, therefore I am", there is the experiential choice of "I analogize, therefore I am".**

"Analogizing" is however presented by Hofstadter and Sander as a continuing process of "re-cognition" of relationships and patterns of relationships. This statement uses the conventional category language of "relationship" where a process framing would be more suggestive -- especially in moving beyond the particular etymological association of "analogy" with "logos". It is in this sense that the articulation offered by [Gregory Bateson](#) for recognition of a meta-pattern is fruitful:

The pattern which connects is a meta-pattern. It is a pattern of patterns. It is that meta-pattern which defines the vast generalization that, indeed, it is patterns which connect. (*Mind and Nature: a necessary unity*, 1979)

And it is from this perspective that Bateson warns: *Break the pattern which connects the items of learning and you necessarily destroy all quality* (1979, pp. 8-11). This echoes Christopher Alexander's sense that: *in our time the languages have broken down*. (*The Timeless Way of Building*, 1979).

The question is then the nature of the **dynamic** meta-pattern of connectivity, usefully understood through "transformations", as discussed separately (*In Quest of a Dynamic Pattern of Transformations*, 2012). Any particular transformation necessarily implies a dynamic. How the pattern of connectivity might itself be a dynamic vehicle for identity is necessarily a greater cognitive challenge -- arguably more readily understood through wave language. Use of such language was explored in that document in sections on *Modulating cognitive transformations: electrical metaphors and semiconduction* and *Potential emergence of coherent transformational connectivity*. This included indications offered by the [2D Smith Chart](#) (see [animation below](#)) and its extension to a [3D Smith Chart](#).

Rather than linear, bond-like "relationships", is there merit in imagining that (at their most fundamental cognitive level) analogies might be better compared to the mysterious nature of the "strings" of [string theory](#)? Is comprehension of such strings then to be usefully compared with use of the "thread" metaphor, noted above with respect to ["conversation threading"](#) on the internet -- and the possibility of its development (*Interweaving Thematic Threads and Learning Pathways*, 2010). If a string is currently understood in theoretical physics as a "hypothetical vibrating one-dimensional sub-atomic structure", does this suggest a way of thinking about the fundamental cognitive operation of analogies?

Attraction to curved forms as a vital clue

Entrainment by curves: A valuable clue to "being a wave" is provided by the felt sense of attraction to curves. This is variously evident in engaging, through observation, with:

- the curves offered by topography, as with landscapes, winding streams and rivers, or ponds -- as with Hofstadter's reference to wind-blown fields of crops
- some architectural designs, whether roadways (*The Way of 365 Curves*), pathways, or their decorative features, perhaps most notably in the case of buildings ([Christopher Alexander, The Timeless Way of Building](#), 1979)
- some decorative features of pottery, designs of (woven) clothing, or carpets, again as explored by Christopher Alexander (*A Foreshadowing of 21st Century Art: the color and geometry of very early Turkish carpets*, 1993)
- the movement of animals, especially bird flocking, herd movement, and the like
- the curves of the human body, and its associated movements (Roger Highfield, *Men lust for hourglass curves, say researchers*, *The Telegraph*, 10 January 2007). Clearly advertising is very sensitive to such possibilities.

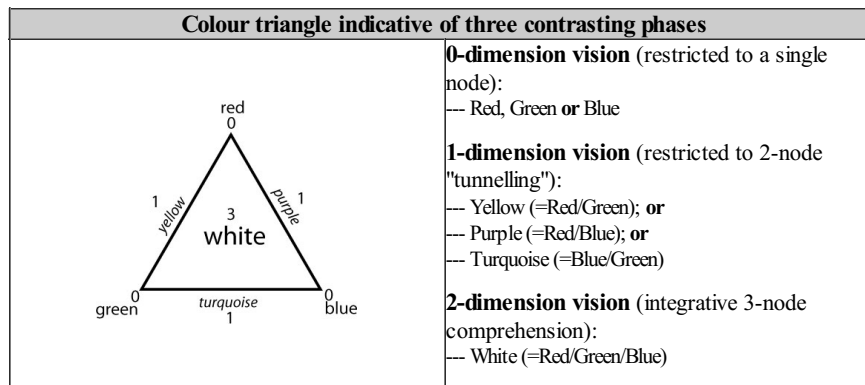
In each case there is a degree of entrainment as the eyes follow the curves -- whether statically visible or implied by movement -- effectively tracing a pattern whose attractor is associated with a higher order of connectivity.

Appropriately the attraction of curvature features as the somewhat ambiguous title of a study of gravitational attraction by Brian Koberlein (*The Attraction of Curves*, 2013). That gravity model has inspired an adaptation to marketing (Jimmy Vee and Travis Miller, *Gravitational Marketing: the science of attracting customers*, 2008). In economics, [Reilly's law of retail gravitation](#) states that larger cities will have larger spheres of influence than smaller ones, meaning people travel farther to reach a larger city. This derives from [demographical gravitation](#), a concept of "social physics", in an attempt to use equations and notions of classical physics to seek simplified insights into the behaviour of large numbers of human beings.

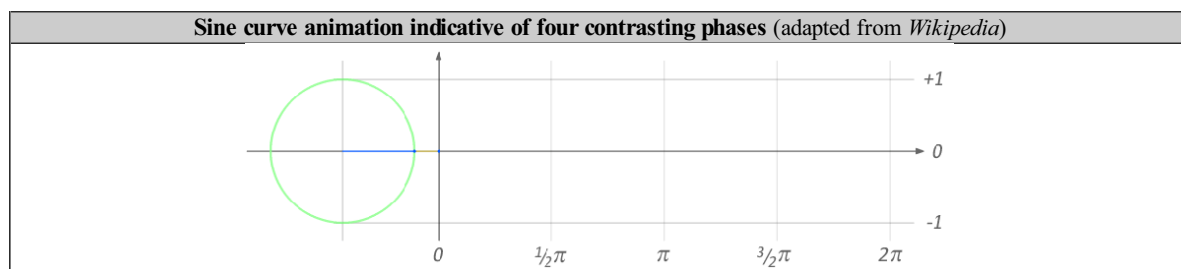
The attraction of curvature extends into more complex forms as characterized by spirals, notably some sea shells patterned in terms of the Fibonacci sequence (*Tao of Engagement -- Weaponised Interactions and Beyond: Fibonacci's magic carpet of games to be played for sustainable global governance*, 2010).

Cyclic integration of phases: Valuable insight is provided by the [Q-analysis](#) of mathematician Ron Atkin (*Multidimensional Man; can man live in 3-dimensional space?* 1981), as summarized separately (*Comprehension: Social organization determined by incommunicability of insights*, 1995). He makes his basic point using a simple colour triangle. The issue with regard to comprehension of the "disparate" colours is how understanding shifts from ability to recognize single colours only, to that enabling recognition of paired-

colours, to that enabling integrative recognition of the pattern of three colours. The latter is not an explicit feature of the schematic and highlights the role of inference.



A wave-based equivalent is suggested by the four phases of a [sine curve](#), together forming a circle, as indicated by the animation below. Here the challenge is recognizing how the distinct phases (waves) are intrinsic to a common cyclic dynamic. Again, whilst the waves may indeed be explicitly and distinctly recognizable, the cycle is implicit and only possibly inferred.



Both schematics are indicative of analogy or correspondence recognition -- that between three colours or that between four phases (which could also be denoted by colours). Atkin makes strong points with regard to the elusive nature of comprehension of integrative insight in practice (white in his first case, and a circle in the second). This challenge can be fruitfully compared with that of recognition of a cycle of [enantiodromia](#) (*Psychosocial Energy from Polarization within a Cyclic Pattern of Enantiodromia*, 2007). Some now point to the manner -- readily denied -- by which the USA has gone "full cycle" in implicitly embodying qualities it had previously most explicitly deplored in the USSR and Nazi Germany ([Naomi Wolf](#), *Fascist America, in 10 easy steps*, *The Guardian*, 24 April 2007).

The challenge of integrating disparate phases is most usefully highlighted by the classic elements of the 5-fold [Wu Xing](#) pattern of Chinese thinking and its classical Greek parallel (*Cycles of enstoring forming mnemonic pentagrams: Hygiea and Wu Xing*, 2012). It is extremely ironic that both are associated with health and the functional integration that implies.

Identification with waves of embodied movement

Non-linear dynamics: The attraction of movement in sport suggests fundamental attraction to curves of another form -- through the complex patterns of movement of a ball, within and between competing teams, or across a net. How people "move" elegantly, or how one "moves" in quest of the ball is a key to this attraction. Especially intriguing is acquisition of skills in capturing, hitting or throwing the ball. This implies a cognitive engagement with elusive, non-linear dynamics -- characteristic of wave motion.

Relevant indications are to be found in references to an "inner game", as discussed separately with respect to [Playfully Changing the Prevailing Climate of Opinion: climate change as focal metaphor of effective global governance](#) (2005):

It is however significant that for a variety of sports, emphasis has been placed on the "inner game", whether as a key to conventional success in the outer game or as an experience of significance in its own right (cf the Inner Game of: [Tennis](#), [Golf](#), [Frisbee](#), [Chess](#), [Poker](#), [Billiards](#), [Fencing](#), [Go](#), [Sumo](#), [Skiing](#)). The insight has been adapted to competitive economic activity (cf the Inner Game of: [Business](#), [Investing](#), [Wealth](#), [Work](#), [Management](#), [Trading](#), [Entrepreneurship](#), [Selling](#), [Prospecting](#)). The same is true of gardening (cf Diane Dreher, *Inner Gardening: A Seasonal Path to Inner Peace*, 2002; and notions of an "inner garden", or a "secret garden").

The attraction to curvature and its dynamics can be understood as an aspiration to that which is not provided by the linearity with which so much of modern life is characterized -- including that of any rational line of argument ([Cyborgs, Legaborgs, Finaborgs, Mediborgs: meet the extraterrestrials - them is us](#), 2013).

The curvature could be understood as implying a fundamental focus, as suggested by the gravitational model -- an integrative focus even more elusive than the sensed dynamics. This is recognized and appreciated to a degree in non-linear arguments, as with humour and its paradoxes, which are not conventionally comprehensible otherwise ([Humour and Play-Fullness: essential integrative processes in governance, religion and transdisciplinarity](#), 2005; Matthew M. Hurley and Daniel C. Dennett, *Inside Jokes: using humor to reverse-engineer the mind*, 2013).

Music, song and dance: The most obvious clue is offered by universal engagement with music, song and dance -- now omnipresent with the aid of electronic communication. These variously raise the question of how to "be the music", to "be the song", or to "be the dance" -- experiences variously sought and described by enthusiasts and practitioners, and consistent with the psychology of being "[in the flow](#)" or "in the zone".

This is the mental state of operation in which a person performing an activity is fully immersed in a feeling of energized focus, full involvement, and enjoyment in the process of the activity ([Mihály Csikszentmihályi](#), *Flow: the psychology of optimal experience*, 1990). Notably with respect to body movement, the argument has been developed by [Mark Johnson](#) (*The Meaning of the Body: aesthetics of human understanding*, 2007; *The Body in the Mind: the bodily basis of meaning, imagination, and reason*, 1987), and with George Lakoff (*Philosophy in the Flesh: the embodied mind and its challenge to western thought*, 1999).

One approach to understanding the "lost language" of pattern-shifting within a context of process reality is that offered with respect to insights into the 4,000 year-old chanted hymns of the *Rg Veda* of the Indian tradition (as discussed [elsewhere](#)). A very powerful exploration of this work by a philosopher, Antonio de Nicolas, uses the non-Boolean logic of quantum mechanics to suggest valuable insights into experiential integration. The unique feature of the approach is that it is grounded in tone and the shifting relationships between tone -- perhaps fruitfully to be understood as "modelling" analogical relationships.

It is through the pattern of musical tones that the significance of the *Rg Veda* is then to be found:

Therefore, from a linguistic and cultural perspective, we have to be aware that we are dealing with a language where tonal and arithmetical relations establish the epistemological invariances... Language grounded in music is grounded thereby on context dependency; any tone can have any possible relation to other tones, and the shift from one tone to another, which alone makes melody possible, is a shift in perspective which the singer himself embodies. Any perspective (tone) must be "sacrificed" for a new one to come into being; the song is a radical activity which requires innovation while maintaining continuity, and the "world" is the creation of the singer, who shares its dimensions with the song. (Antonio de Nicolas, *Meditations through the Rg Veda: four-dimensional man*, 1978, p. 57)

Other valuable insights are offered by [Joachim-Ernst Berendt](#) (*The World Is Sound -- Nada Brahma: Music and the Landscape of Consciousness*, 1991). Corresponding to such identification with sound may be that with the pattern of associations in a poem, as discussed separately (*Being a Poem in the Making: engendering a multiverse through musing*, 2012).

Sexual intercourse: Perhaps most appropriate is the clue offered by the wave-like experience associated with sexual intercourse -- as a more intimate form of dance through which identity is readily embodied, as separately discussed (*Reframing the Dynamics of Engaging with Otherness: triadic correspondences between Topology, Kama Sutra and I Ching*, 2011; *Intercourse with Globality through Enacting a Klein bottle: cognitive implication in a polysensorial "lens"*, 2009).

In the light of recognition of "the body in the mind", it could be asked what wave-like awareness is implied by the coordination of a proportion of the 320 paired muscles of the human body involved in such intercourse -- or in simply walking.

Breathing and meditation: The fundamental emphasis placed on cognitive identification with the cycle of the breathing process in many disciplines of meditation offers another indication. Various spiritual disciplines also use curvature of form to enable cognitive focus, as with the [mandala](#) or with the [spiral dynamics](#) promoted by the [integral movement](#) (*Designing Cultural Rosaries and Meaning Malas to Sustain Associations within the Pattern that Connects*, 2000).

Abstract waves: In the light of the argument of Hofstadter, regarding the ever more "abstract waves" explored by physics, the waves implied by the above indications are indeed of a subtler nature. There is a case for exploring how engaging with a ball in a wide variety of sports offers some form of resonance with intuitive understanding of "universality" and of engagement with it -- and even with a sense of "globality" (*Metaphorical Geometry in Quest of Globality -- in response to global governance challenges*, 2009). There is the interesting possibility that this sense is enabled to a degree by collective participation in a "Mexican wave" at a football stadium. What then does a hand wave "imply"?

Social initiatives as unrecognized waveforms

Unquestioned categories: The habitual use of "organization", "programme", "project", "strategy" and "initiative" discourages questioning how these are experienced in practice. -- although this tendency is challenged by such as [Gareth Morgan](#) (*Images of Organization*, 2007). This reluctance is reinforced by formalization, most notably through the legality of binding contracts whereby relationships are defined and the "existence" of entities is established beyond question -- and reinforced as linear links in organizations and other charts.

This is further reinforced by naming -- in effect "branding". This is the case even though the entity may be more a figment of the collective imagination, and a product of "puffery", rather than "existing" in some palpable sense, as separately argued (*Cultivating Global Strategic Fantasies of Choice : learnings from Islamic Al-Qaida and the Republican Tea Party movement*, 2010).

Beyond network to wave? As noted in the introduction, given the current "waves" of social unrest, a "wave focus" can be usefully explored as superseding the "network focus" by which waves are now engendered through social networks. The network focus had superseded the focus on conventional organization, whose hierarchical limitations had previously made apparent the need for a new modality. **Is the network focus now itself outmoded?**

The transition to networking highlighted the further possibility of its tensional organization to achieve greater integrity in "[tensegrity](#)" form (*From Networking to Tensegrity Organization*, 1984; *Polyhedral Empowerment of Networks through Symmetry: psycho-social implications for organization and global governance*, 2008). Of relevance to discussion of waveforms is the sense in which the integrity

of the spherically symmetrical variants of those (transitional?) forms is dependent on [non-linear dynamics](#) indicative of wave-like modalities (Faith D. Diehl, *The Geometry of Dynamic Structure*, 2000)

Experiential transition: The question is however the nature of the **experiential transition** from organization through network to wave -- as a focus of psychic importance, notably for the younger generations. A feature of any such exploration is the sense in which networks have long been experienced as embedded in the life of organizations, as has been frequently remarked. Ever more emphasis has been placed on "networks of contacts".

Latent wave experience: Wave experience may similarly be said to be embedded in both networks and in more formal organizations -- to what ever degree a bond is sensed as having a wave-like quality. This can be recognized through the emergence and "movement" of opinion. It can also be recognized in the manner in which an "image" emerges and is held to "exist" -- notably as the preoccupation of public relations and image consultants. More fundamentally there is the sense in which relationships in general have a wave-like dimension. This may be experienced as fundamental to any "bond" -- on which explanation may otherwise focus simplistically in defining and mapping relationships within a network, or within an organization.

Wave-like social initiatives: Understood in this light, the question is then whether social "initiatives" can be more fruitfully explored as being primarily wave-like -- in contrast to the tendency to frame them in terms of their formalization in programmes and declarations. This would be consistent with the value associated with any "wave of enthusiasm" transcending more palpable modalities. It could be recognized as especially associated with initiatives "going viral" via internet communication -- however they are enabled by social networking.

Would such understanding allow major social initiatives to be explored as waveforms -- especially in recognizing how they emerge and fade away, being no longer a carrier for enthusiasm? The latter process would be consistent with understandings of macro-historical cycles, as reviewed by [Johan Galtung](#) and [Sohail Inayatullah](#) (*Macrohistory and Macrohistorians: perspectives on individual, social, and civilizational change*, 1997) and the challenge of engaging with them, as discussed separately (*Engaging Macrohistory through the Present Moment*, 2004).

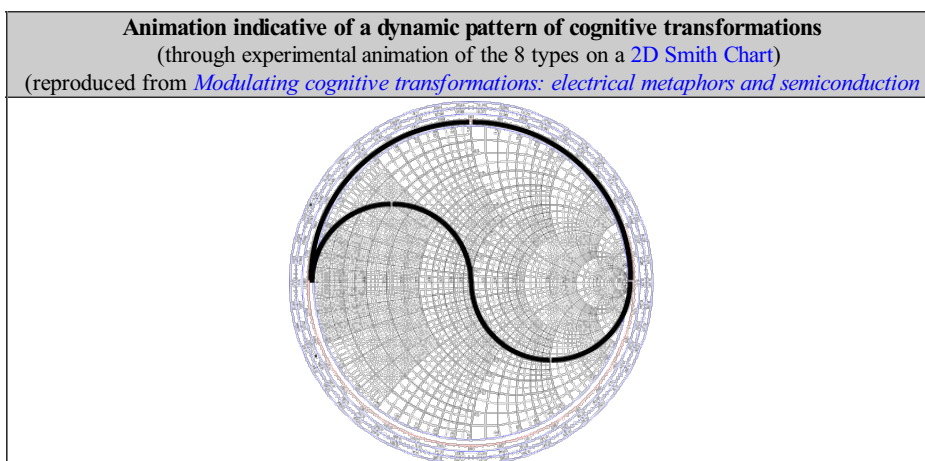
Optimizing appropriateness: There is of course the possibility that waves of ever greater abstraction, as explored by physics, might enable ever more appropriate engagement with social initiatives through their framing as waveforms of ever greater subtlety. In contrast to the explanation of reality in terms of ever greater abstraction by physics, in the case of social initiatives the corresponding process might be better understood in terms of greater "appropriateness" -- and the possibility of its "re-cognition" and comprehension (*Comprehension of Appropriateness*, 1986).

Confidence as a waveform? This in turn might reframe as wave modalities the processes of eliciting and sustaining belief and confidence -- now recognized as ever more fundamental to the financing of social initiatives (*Exploration of Prefixes of Global Discourse: implications of a cognitive prefix for sustainable confidality*, 2011; *Varieties of Confidence Essential to Sustainability: surrogates and tokens obscuring the existential "gold standard"*, 2009). Are confidence and belief more appropriately understood as waveforms? What then of waveforms as they might be appropriately considered in mathematical theology (*Mathematical Theology: Future Science of Confidence in Belief*, 2011)?

Given the recognized role of music and song in enabling and sustaining confidence, there is the strong possibility that conventional initiatives are currently undermined by the extent to which they repress the capacity to "be a waveform" -- considered as incompatible with the inherent linearity of "project logic". The possibility is suggested by the barely repressed tendency (at least in some cultures) to switch into dance mode or song whenever possible -- increasingly enabled by the ever present access to recorded music.

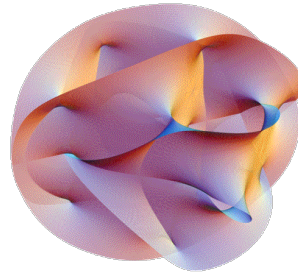
Framed in this way, this suggests that "being a waveform" may offer an unexplored key to engaging with development processes, as separately argued (*Knowledge Gardening through Music: patterns of coherence for future African management as an alternative to Project Logic*, 2000). The argument is also relevant to the comprehension and embodiment of global initiatives (*A Singable Earth Charter, EU Constitution or Global Ethic?* 2006).

Animations variously suggestive of "being a waveform"



Animation of a visual rendering of the [Calabi-Yau manifold](#)

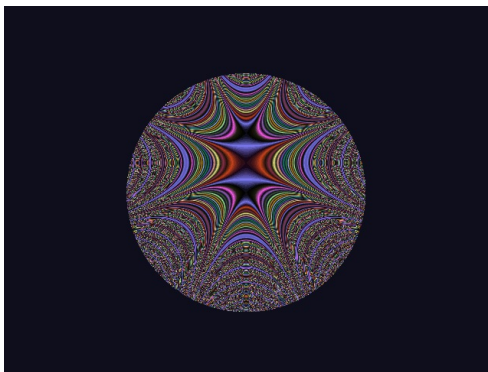
(based on an image from *Wikipedia*, which originally appeared on the cover of *Scientific American*, Nov. 2007). Such manifolds are higher-dimensional analogues of **K3 surfaces** of significance in **superstring theory**. The extra dimensions of spacetime are sometimes conjectured to take the form of a 6-dimensional Calabi-Yau manifold.



The image was previously used in a separate speculative discussion of *Global Brane Comprehension Enabling a Higher Dimensional Big Tent? Strategic implication in encompassing nothing and coming to naught* (2011).

The animation of the original image made use of selected aesthetic possibilities of Photoshop -- of which many others might be employed to improve the suggestive quality of the animation.

Experimental use of the Mandelbrot set (version 1)
as suggestive of an integrative pattern of waves



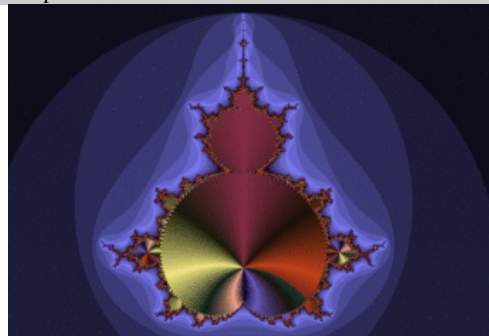
Animation on the left indicative here of progressive emergence of the visual form through a succession of iterations

The experiments previously featured in discussion of the psychosocial implications of the Mandelbrot set (*Sustainability through the Dynamics of Strategic Dilemmas -- in the light of the coherence and visual form of the Mandelbrot set*, 2005; *Psycho-social significance of the M-set*, 2005; *Imagination, Resolution, Emergence, Realization and Embodiment: iterative comprehension*, 2005; *Framing the Interplay of Leadership and Misleadership in the light of the coaction cardioid and the Mandelbrot set*, 2007)

Experimental use of the Mandelbrot set (version 2)
as suggestive of an integrative pattern of waves

Animation of different colouring conventions within the the M-set suggestive of different patterns of waves

The Mandelbrot set images (from which both animations were made) were generated by manipulating parameters in *Xaos: realtime fractal zoomer*



NB: The argument here is developed further in a second part (*Encountering Otherness as a Waveform: in the light of a wave theory of being*, 2013)

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