



laetus in praesens

Alternative view of segmented documents via Kairos

18 May 2015 | Draft

Transcendent Integrity via Dynamic Configuration of Sub-understandings?

Interactive orbital animations of world views using data-driven documents (d3.js)

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Introduction

There is a universal tendency to rely on static representations and depictions of patterns of interrelated concepts. These can take the form of organization charts, systems diagrams, network maps, [semantic maps](#), [concept maps](#), or traditional mandalas and yantras. Such representation is also a characteristic of [argument maps](#) to hold the patterns of agreement and disagreement. This static emphasis remains a widespread preference, despite the increasing availability of techniques of animation for dynamic representation. It can be argued that this emphasis reinforces static understanding of the global problematique and the possibilities of remedial action through a global resolutique (*Dynamic Transformation of Static Reporting of Global Processes*, 2013).

Despite a degree of complementarity of the elements in any such depiction, there is an additional consideration to which little attention is given. There is every possibility that the nature of the elusive integration so widely sought may constitute a cognitive challenge to comprehension. However it may be indicated -- perhaps using qualifiers like "meta" or "transcendent" -- its elusive nature may be specifically obscured by forms of closure resulting from conventional labelling in static depictions. Such transcendent integration may not take the form of a category in any conventional sense.

It is for this reason that there is a case for exploring dynamic configurations in which integration is implied rather than misleadingly explicit. This can be usefully done using display metaphors based on the solar system or atomic model in which **the explicit is understood to move in some kind of orbit around the implicit**. The solar model is helpful in that planets take familiarly definable "concrete" form -- potentially accessible (even "habitable") -- whereas the sun is of a different nature and essentially inaccessible, despite the subtle influence it exerts.

Such a depiction has the further advantage in that it holds the sense in which the perspective from any one planet may usefully be understood as incompatible with that from another. This can be indicative of the challenging relationship between distinct "models" or "world views" -- each offering a contrasting perspective, with little indication **within** each as to relevance of the perspective **from** any other. This recalls the operation of two human eyes and the stereoscopic perspective which they together enable. This suggests the possibility of a form of stereoscopy requiring more than two eyes in order to achieve coherent depth perception of a higher order, however this might be comprehended, as argued by [Magoroh Maruyama](#) (*Peripheral Vision: polyocular vision or subunderstanding? Organization Studies*, 2004). The concern is then whether "sub-understandings" are what gives rise to disagreement and conflict in many domains -- and how best to render them comprehensible in their own right.

The possibility can be tentatively explored experimentally using orbital layout displays. It is somewhat ironic to note that that capacity to enable imaginative exploration of a system of multiple "overly-definitive" models has recently been considerably enhanced via the web. The irony lies in the fact that representation capacity (and its rate of development) now far exceeds consideration of the semantic implications of world views (or models) in orbits around more elusive understanding. Controversially, this is typically assumed to be unquestionably defined by those world views (or within them). At best it might be said, with respect to world views now, the transition has yet to be achieved from analogues to the [epicycles](#) of the [Ptolemaic system](#) of astronomy to current [heliocentric understanding](#) -- with all that implies.

The approach to [orbital layout animation](#) uses javascript [Data-Driven Documents](#) (d3.js). Such layouts are currently under active development, most notably through the freely accessible experiments of [Elijah Meeks](#) (*D3.js in Action*, 2015). That work has been based

on the Digital Humanities initiative at Stanford University and has been placed in the public domain and made freely adaptable.

That original animation offers as alternatives a "solar system" and an "atomic orbital" variant. With very minor modifications, other content can be experimentally associated of more general significance. Such experiments are notably suggested in the light of the classic paper by [George A. Miller](#) (*The Magical Number Seven, Plus or Minus Two: some limits on our capacity for processing information*, *Psychological Review*, 1956), as discussed separately (*Representation, Comprehension and Communication of Sets: the role of number*, 1978; *Patterns of Conceptual Integration*, 1984). These emphasize the point that most sets of categories of memorable significance are clustered within the constraints which allow them to be suggestively mapped onto a solar system template.

In what follows this approach has been adapted to a variety of domains in which comprehension of some form of transcendent integration may be appropriate via exposure to an interactive orbital dynamic. The domains tentatively explored as an illustration include: world religions, philosophies, natural sciences, cultural modalities, cognitive modalities, ruling elites, global governance, environmental conditions, conditions of change.

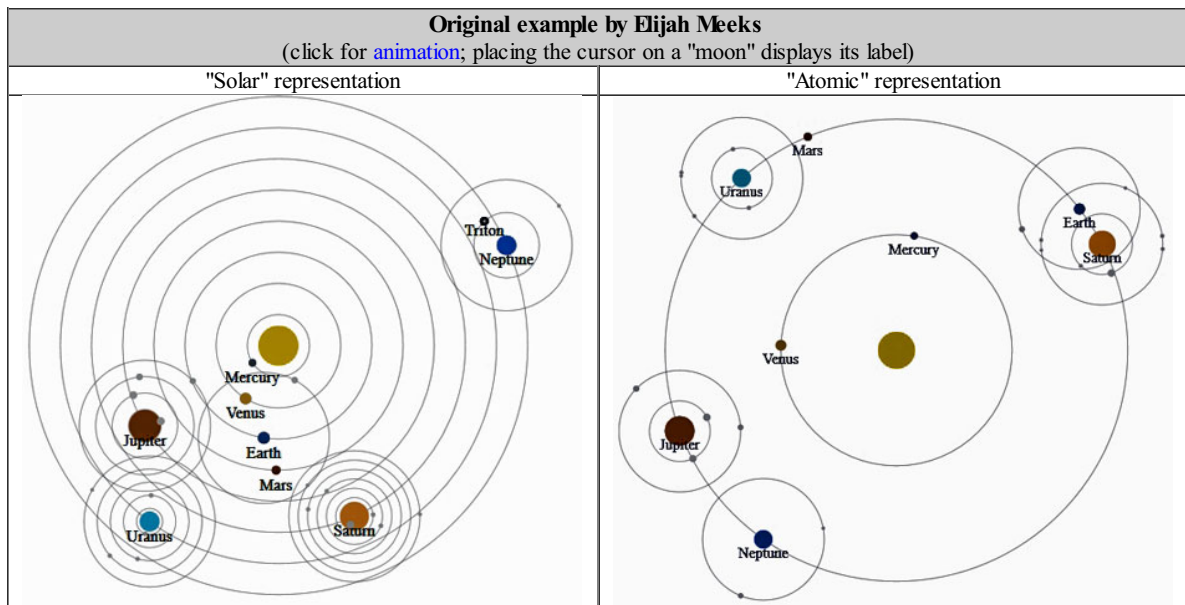
Examples and commentary on use of data-driven documents (d3.js)

The javascript function made available by [Elijah Meeks](#) offers several accessible displays [[hierarchical data as orbits](#); [solar system](#)], presumably clarified by arguments in his recent publication (*D3.js in Action*, 2015). Note also a set of [related software repositories](#).

NB: Display of the animations below may be problematic in certain browsers depending on the version.

The primary example of [d3.layout.orbit](#) offers the following different modes (of relevance to the experimental depictions below -- SWITCH OPTIONS WITH BUTTONS, top left of animation display; zoom browser screen to fit if necessary):

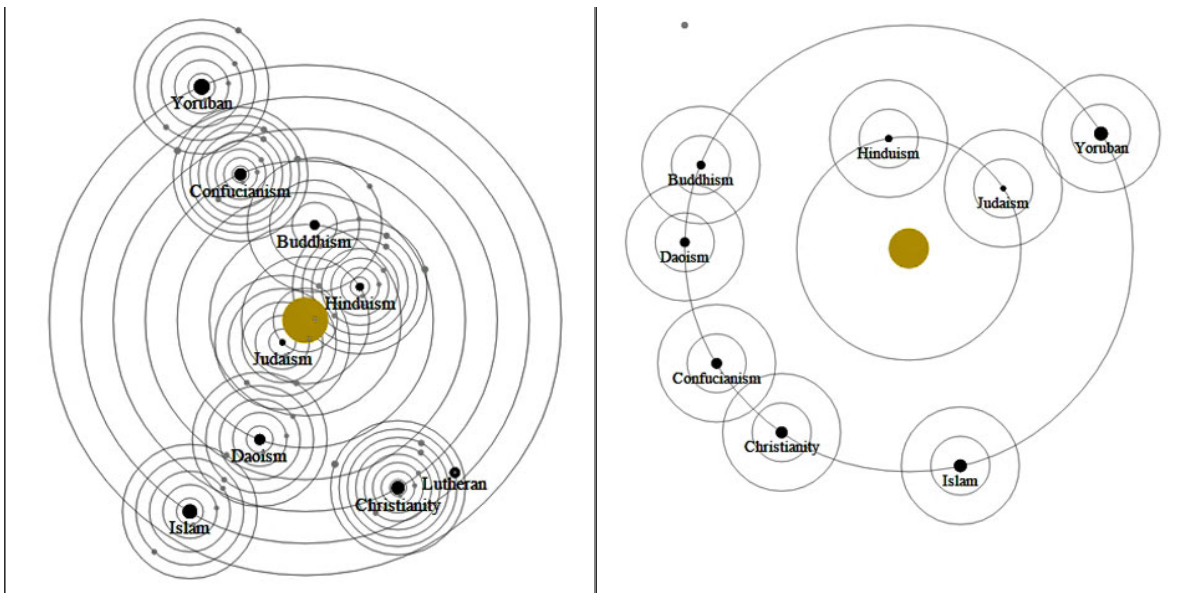
- "flat" is the default
- "solar" arranges each satellite in its own ring, equally divided from the set size of the layout.
- "atomic" places 2 satellites in orbit in the first ring and 8 in every ring after that.
- "custom" is achieved by passing an array of integers. Each integer sets the number of satellites in that ring, with the final value used to set the number of satellites in all remaining rings. Under the hood, "solar" could be achieved by passing [1], "atomic" could be achieved by passing [2,8] and "flat" could be achieved by passing [9999].



The following variants are based on relatively simple modification to the 3 mutually dependent application files for the solar system case - as provided by Elijah Meeks (as indicated [here](#)). The possibilities for making such modifications (and further improvements) are discussed in a later section below.

The first example illustrated below by two of the alternative displays is based on world religions. The choice of eight was inspired by the work of [Stephen Prothero](#) (*God Is Not One: the eight rival religions that run the world -- and why their differences matter*, 2010). In these early display experiments, no consideration is given to the order or size of the "planets", whether in terms of precedence or otherwise. The point of greatest relevance is that there is very limited ability, from any of the world views they represent, to explain or justify the relevance of the perspectives of others with respect to "divinity" (then appropriately associated with the distant sun). Each readily deprecates the existence of others, whatever the degree of their relationship as a consequence of interfaith dialogue..

Eight World Religions in "Solar" Layout (click for interactive animation: slower / faster)	Eight World Religions in "Atomic" Layout (click for interactive animation: slower / faster)



Using the atomic display, a similar approach can be taken to an indicative set of "philosophies" and "sciences", each variously understood as offering models and world views. Again within any one such world view, there is very limited capacity to explain the relevance of others. The case of philosophy has been succinctly expressed 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.

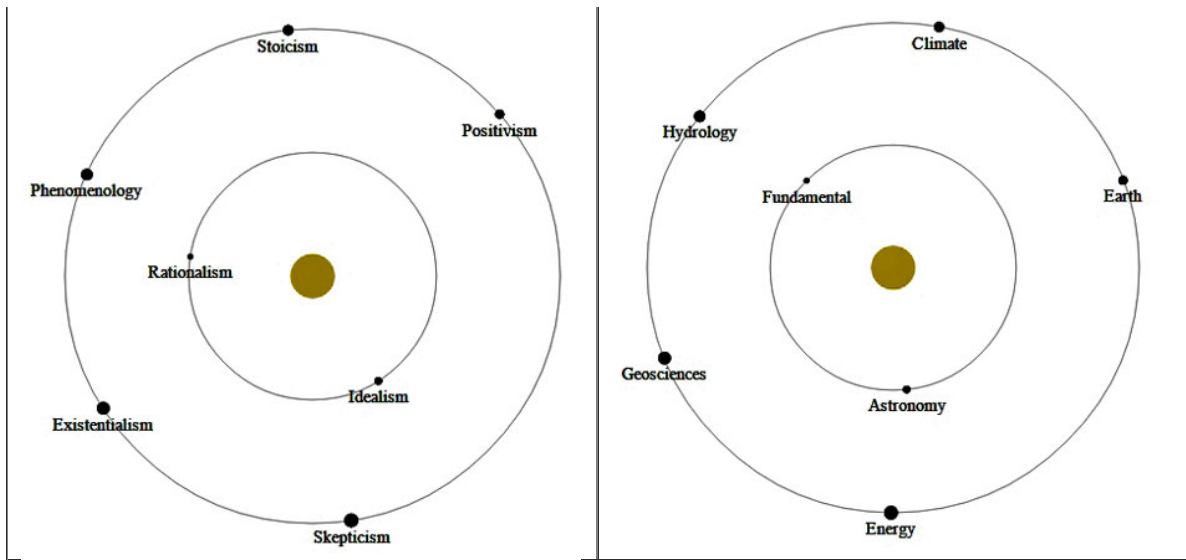
The challenge for science, especially in its quest for a Theory of Everything, is that the quest for any form of [unified science](#) has essentially been abandoned. This is curious in a period when much is made of the need for [interdisciplinarity](#), and even for [transdisciplinarity](#), in order to engage appropriately with the [global problematique](#). In using the atomic rather than the solar option for the images below, the whole question of the subdisciplines of any "planet" is set aside. However in both cases it is only with respect to library filing classification that any real attempt is made to organize either the "planets" or their "moons".

In the case of the philosophies there are various clusterings at the highest level, but little consistency between them. This makes all the more questionable any claims by philosophy to offer an integrative perspective, especially when each model or world view frames others as of little consequence or irrelevant. Appropriate to this argument, typically no model is capable of explaining or predicting the existence of other models or the probability that it will itself be superseded.

It is remarkable to note the very extensive [unclustered List of philosophies](#) offered by *Wikipedia*. More generally it is remarkable to note the relative limited effort by either philosophy or science to organize its own preoccupations or the associated disciplines (see [Intellectual Disciplines and Sciences](#)). This is especially ironic in the case of mathematics, given the sophistication of its disciplined approach to relationships -- but seemingly incapable of applying such capacity to the organization of mathematics (*Is the House of Mathematics in Order? Are there vital insights from its design*, 2000).

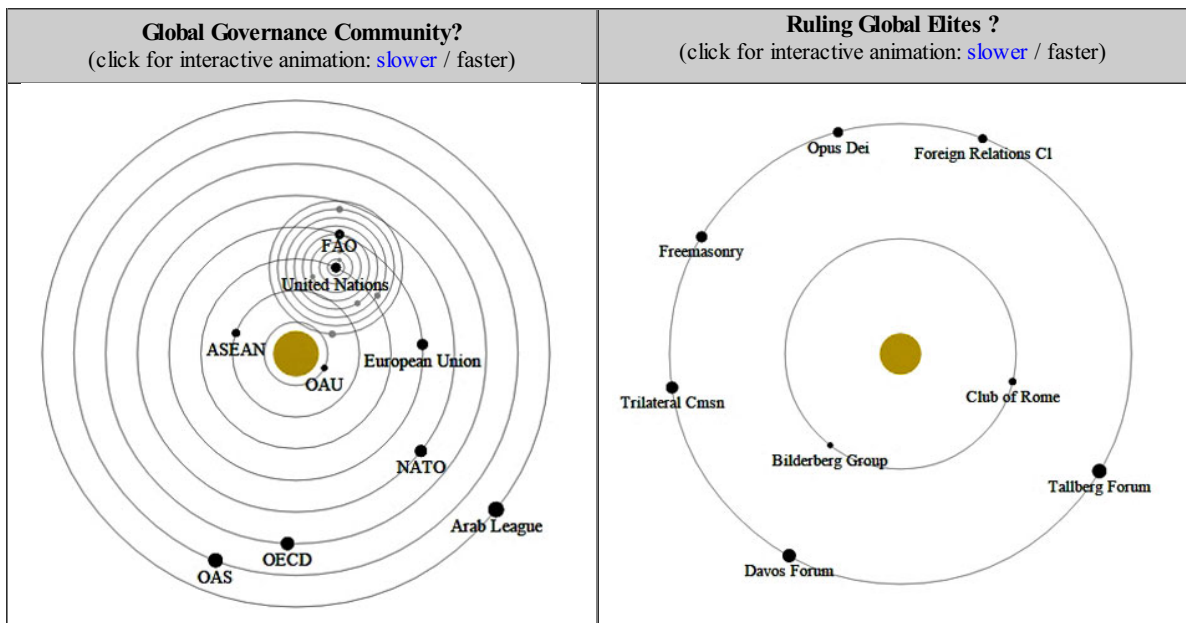
Without adding considerably more detail, and controversy, the two following animations are necessarily trivial.

Key Philosophies in "Atomic" Layout (click for interactive animation: slower / faster)	Natural Sciences in "Atomic" Layout (click for interactive animation: slower / faster)



Analogous images may be used to explore the integrative understanding of governance, whether through what is uncritically implied by "international community" (or "global community") or through variously questionable clusters of "ruling elites". Those tentatively identified in the latter case include the: Bilderberg Group, Club of Rome, Council on Foreign Relations, Opus Dei, Freemasonry, Trilateral Commission, World Economic Forum, and the Tällberg Forum, as derived from an earlier exploration (*Emergence of a Global Misleadership Council: misleading as vital to governance of the future?* 2007).

Despite vague allusions to the existence of an international community, it remains clear that each of the bodies identified views its own capacity to "rule the world", or to influence its governance, as relatively unique and unconstrained by others -- variously considered secondary or irrelevant. In the example below, "moons" are only indicated in the case of the United Nations



Cognitive and psychosocial implications

As noted above with respect to stereoscopic vision, the argument here is a development of that of Maruyama (1980) with respect to the need for polyocular vision in response to organizational and strategic challenges. Reliance on a singular world view recalls the one-eyed Cyclops of Greek and Roman mythology, as indicated separately (*Transcending One-eyed Global Modelling Perspectives: incorporating under-currents into global circulation of value*, 2010). The need for a minimum of two modes of perception has been argued by John A. T. Robinson (*Truth is Two-eyed*, 1979). Just how many more are required to elicit integrative coherence remains to be explored -- as well as the nature of their interplay -- although there are indications to that effect. Present global strategic perception might then be caricatured by the eye-rolling characteristic of some forms of drug use -- matched by the cyclopean hegemony sought through the military approach to full-spectrum dominance (Bruce Gagnon. *The Pentagon's Strategy for World Domination: full spectrum dominance, from Asia to Africa*, *Global Research*, 2014).

The challenge for the individual in this light may be explored otherwise (*Embodying Global Hegemony through a Sustaining Pattern of Discourse: cognitive challenge of dominion over all one surveys*, 2015). The orbital displays invite reflection on their relevance to dialogue and small group dynamics, including the family -- or to understandings of personal integration as articulated in systems such as the enneagram, chakras, subpersonalities, or the like. With "planets" as "eyes", present use of the variety of "models" enabling world views could well be caricatured in terms of "eye-rolling". As in astronomy, widely distant "eyes" may however be valuable in providing a necessary long baseline to enable certain forms of observation.

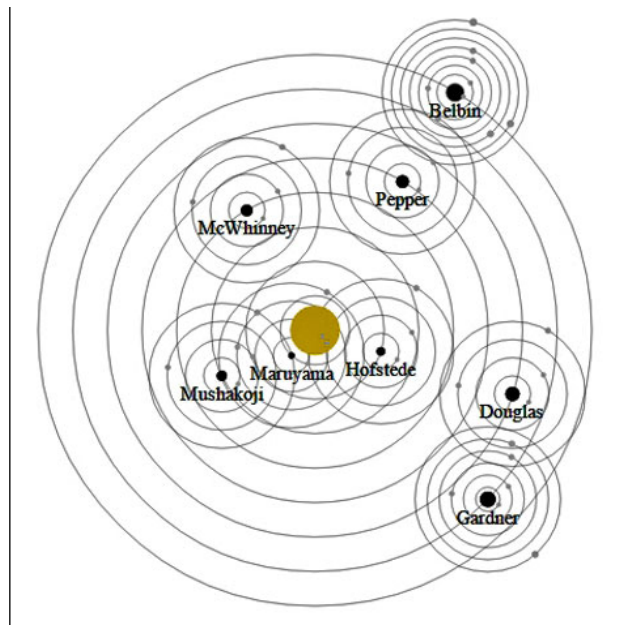
Of potential strategic relevance is how spiders make use of their 6 or 8 eyes (Gwen Pearson, *Spider Vision Made Clear*, *Wired*, 23 April 2014; David Edwin Hill, *Use of location (relative direction and distance) information by jumping spiders*, *Peckhamia*, October 2010; D. P. Harland and R. R. Jackson, *'Eight-legged cats' and how they see: a review of recent work on jumping spiders*, *Cimbebasia*, 16, 2000). Researchers have now discovered that the arachnids accurately sense distances by comparing a blurry version of an image with a clear one, a method called image defocus (Joseph Castro, *Jumping Spiders' Unique Vision Revealed*, *Live Science*, 26 January 2012). Given increasing insight from **biomimicry**, how might global society benefit from such a facility?

How does complementarity between eight contrasting perspectives work? **Edward de Bono** has envisaged the situation with only six (*Six Frames: For Thinking About Information*, 2008). Much relevant work has been undertaken through interrelating a requisite number of independent learning modules in **artificial neural networks** (Tomas Hrycej, *Modular Learning in Neural Networks: a modularized approach to neural network classification*, 1992). Of possible relevance to the challenge in current work in artificial intelligence on how to design an **octopod** -- notably the issue of how it avoids typing itself in knots (Nir Neshet, et al, *Self-Recognition Mechanism between Skin and Suckers Prevents Octopus Arms from Interfering with Each Other*, *Current Biology*, 2014; Katherine Harmon Courage, *How to Build a Robot Octopus*, *Scientific American*, October 2013).

An understanding of the diversity of modalities through which world views are articulated and understood can be explored using the orbital displays. One approach presents sets of cognitive "biases" as indicated in the table below, and summarized separately (*Systems of Categories Distinguishing Cultural Biases*, 1993).

Contrasting "systems" articulating cognitive "biases"	
<p>Magoroh Maruyama (<i>Mindscales, social patterns and future development of scientific theory types</i>. <i>Cybernetica</i>, 1980)</p> <ul style="list-style-type: none"> • <i>H-mindscape</i> (homogenistic, hierarchical, classificational) • <i>I-mindscape</i> (heterogenistic, individualistic, random) • <i>S-mindscape</i> (heterogenistic, interactive, homeostatic) • <i>G-mindscape</i> (heterogenistic, interactive, morphogenetic) <p>Geert Hofstede (<i>Culture's Consequences: international differences in work-related values</i>. 1984)</p> <ul style="list-style-type: none"> • <i>Power distance</i> • <i>Uncertainty avoidance</i> • <i>Individualism</i> • <i>Masculinity</i> <p>Kinhide Mushakoji (<i>Scientific revolution and interparadigmatic dialogue</i>, 1978) indicating the modalities through which the human mind grasps reality:</p> <ul style="list-style-type: none"> • <i>Affirmation</i> • <i>Negation</i> • <i>Affirmation and negation</i> • <i>Non-affirmation and Non-negation</i> <p>Will McWhinney (<i>Paths of Change: strategic choices for organizations and society</i>, 1991)</p> <ul style="list-style-type: none"> • <i>Analytic mode</i> • <i>Dialectic mode</i> • <i>Axiotic mode</i> • <i>Mythic mode</i> 	<p>Stephen Pepper (<i>World Hypotheses: prolegomena to systematic philosophy and a complete survey of metaphysics</i>, 1942)</p> <ul style="list-style-type: none"> • <i>Formism</i> • <i>Mechanism</i> • <i>Organicism</i> • <i>Contextualism</i> <p>Mary Douglas (<i>Natural Symbols: explorations in cosmology</i>, 1973)</p> <ul style="list-style-type: none"> • <i>Body conceived as an organ of communication</i> • <i>Body seen as a vehicle of life</i> • <i>Practical concern with possible uses of bodily rejects</i> • <i>Life seen as spiritual, and the body as irrelevant matter</i> <p>Howard Gardner (<i>Frames of Mind: the theory of multiple intelligences</i>. 1984)</p> <ul style="list-style-type: none"> • <i>Linguistic intelligence</i> • <i>Musical intelligence</i> • <i>Logical/mathematical intelligence</i> • <i>Spatial intelligence</i> • <i>Bodily-kinaesthetic intelligence</i> • <i>Personal intelligence</i> <p>Meredith Belbin (<i>Management Teams</i>, 1981): Team roles</p> <ul style="list-style-type: none"> • <i>Plant</i> • <i>Resource Investigator</i> • <i>Co-ordinator</i> • <i>Shaper</i> • <i>Monitor Evaluator</i> • <i>Teamworker</i> • <i>Implementer</i> • <i>Completer / Finisher</i>

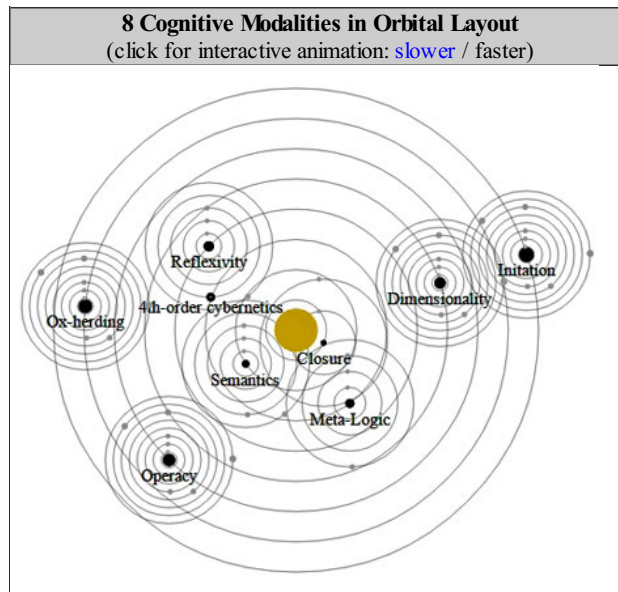
8 Cultural Modalities in Orbital Layout
 (click for interactive animation: [slower](#) / [faster](#))



A second approach offers a more disparate set of insights associated with various modes of cognitive embodiment, originally discussed in a different context (*Self-reflexivity: Armageddon as the ultimate Battle with Otherness*, 2015). Within that above and in what follows an effort is made to articulate contrasting ways of framing any view of reality. The patterns of each are incorporated into their associated orbital animations.

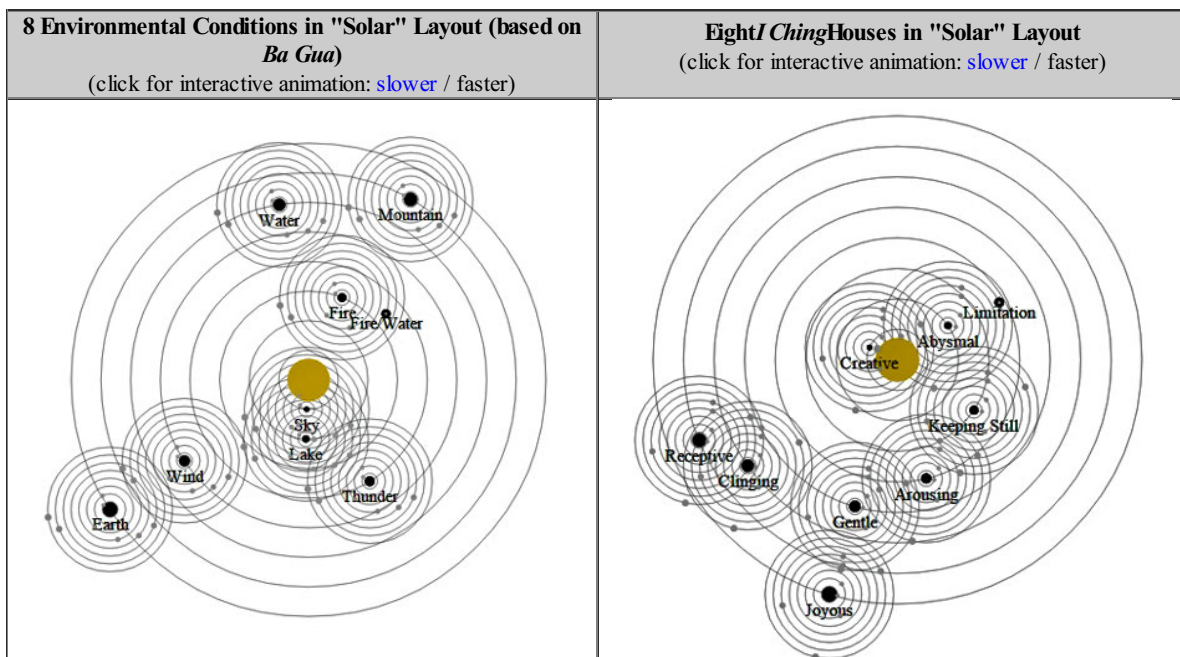
Contrasting understandings of cognitive "embodiment"	
<p>Semantics: general semantics, as originated by Alfred Korzybski (<i>Science and Sanity: an introduction to non-Aristotelian systems and general semantics</i>, 1933) and developed by Harry L. Weinberg (<i>Levels of Knowing and Existence: studies in general semantics</i>, 1959)</p> <p>Closure explored as:</p> <ul style="list-style-type: none"> • philosophy of cognitive closure, namely the hypothesis that human minds are constitutionally incapable of solving certain perennial philosophical problems. The work of Hilary Lawson (<i>Closure: a story of everything</i>, 2002) endeavours to provide an account that overcomes the problems of self-reference inherent in other philosophical systems. The theory of closure provides a new vocabulary with which to do this without need for a recourse to truth. • psychological closure, namely the desire for a firm answer to a question and an aversion toward ambiguity <p>Meta-logic, distinctions and boundedness: These are notably the preoccupations of: Francisco J. Varela (<i>The Extended Calculus of Indications -- interpreted as a three-valued logic</i>, <i>Notre Dame Journal of Formal Logic</i>, 1979), Louis H. Kauffman (<i>Virtual Logic: the calculus of indication</i>, <i>Cybernetics and Human Knowing: a journal of second order cybernetics and cyber-semiotics</i>, 5, 1998, 1) and George Spencer-Brown (<i>Laws of Form</i>, 1969)</p> <p>Operacy: dan ranking in the Eastern "arts": The <i>dan</i> ranking system is used by many Japanese organizations to indicate the level of expertise within a certain domain. Originally used with respect to the game of go (see go rankings), it is now also used in modern fine arts and, of greatest relevance here, to the martial arts. Why are such rankings valued with respect to Six Sigma expertise (<i>Learn Six Sigma Black Belt</i>)? Potentially intriguing is the importance acquired by "empty hands" skills in response to more conventional strategic weapons. Does this suggest the possibility of distinctions between levels of expertise in <i>jihād</i>?</p>	<p>Self-reflexivity and orders of cybernetics: as explored by Douglas Hofstadter (<i>Gödel, Escher, Bach: an eternal Golden Braid: a metaphorical fugue on minds and machines in the spirit of Lewis Carroll</i>, 1979; <i>I Am a Strange Loop</i>, 2007) and Hilary Lawson (<i>Reflexivity: the post-modern predicament</i>, 1986). Hence the relevance of cybernetics of higher order, as explored by Maurice Yolles and Gerhard Fink (<i>A General Theory of Generic Modelling and Paradigm Shifts: cybernetic orders. Kybernetes</i>, 2015).</p> <p>Ox-herding: Ten Ox-Herding pictures of Zen: A valuable metaphor from Zen is expressed in a set of images relating to 10 stages of herding oxen -- also known as the 10 bulls (D. T. Suzuki / Kubota Ji'un, <i>Ten Ox-herding Pictures with the Verses Composed by Kakuan Zenji</i>, 1996). In contrast to mechanical metaphors, the traditional interpretation of this pattern is intended to hold increasing degrees of self-reflexivity. This can be related to stages of engagement with the global problematique (<i>Progressive integration of the shadow of non-self-reflexivity</i>, 2007).</p> <p>Initiations: Initiations into secret knowledge: Although readily associated with rites of indigenous peoples, initiation is widely practiced by secret societies, most notably in the case of freemasonry. Many degrees may be upheld as corresponding to distinct levels of insight. Such transitions may be understood as a form of cognitive rebirth, as discussed separately (<i>Varieties of Rebirth: distinguishing ways of being "born again"</i>, 2004). Can insight into levels of engagement with an other, as in <i>jihād</i>, be understood in terms of a succession of such transitions?</p> <p>Dimensionality: Higher dimensionality indicated by geometry, topology and symmetry: Many efforts are made to clarify the distinction between conventional understanding of three-dimensionality and that relating to greater numbers of dimensions of which the most immediately challenging is four. Cosmological theories consider the possibility of many extra dimensions. For example, for a consistent quantum theory (noted below), string theory requires 26 spacetime dimensions for the bosonic string and 10 for the superstring. Another example is M-theory, which requires spacetime to have eleven dimensions. The implications for psychosocial comprehension can be variously considered (<i>Global Brane Comprehension Enabling a Higher Dimensional Big Tent?</i> 2011; <i>Dynamics of Symmetry Group Theorizing:</i></p>

comprehension of psycho-social implication, 2008; *Potential Psychosocial Significance of Monstrous Moonshine: an exceptional form of symmetry as a Rosetta stone for cognitive frameworks*, 2007; *Hyperspace Clues to the Psychology of the Pattern that Connects*, 2003).



Of particular significance is recognition of distinctions in levels of strategic comprehension and the progressive implication of attitudinal and philosophical dimensions into the engagement with any other, most notably in *aikido*. The other is of course most comprehensibly defined as an enemy in the conventional logic of combat. With respect to the "battle" of Armageddon, however, the question is how the nature of the relationship to the other might be comprehended at the higher *dan* rankings -- especially beyond those of the lower *kyu* grades. As with football and other games, like chess, how is comprehension of a higher order to be recognized and understood, as separately explored (*Engaging with Insight of a Higher Order*, 2014). How is it that so many grades are considered appropriate -- at least in the martial arts *dan* rankings? With respect to football and other games, the martial arts and the fine arts, what cognitively distinctive skills can be recognized?

One traditional Chinese pattern of categories suggests an especially interesting animated depiction, given the emphasis on the dynamic within that pattern. Two approaches are taken below. That on the left uses the environmental metaphors indicative of qualitative conditions of change. That on the right uses the psychosocial descriptions traditionally associated metaphorically with those same conditions.



An earlier discussion of the potential of dynamic representation of organizational systems explored ways of enabling organization charts to move (and potentially to "dance") using *SodaConstructor*, a Java based physics engine, central to *Soda Creative's* collaborative learning environment *Sodaplay.com* (*Animating the Representation of Europe: visualizing the coherence of international institutions using dynamic animal-like structures*, 2004). The animal-like models could be used to render strategy-delivering programmes (including international institutional structures) more meaningful and appealing by using dynamic representation techniques that have the recognized

communication strengths of animation -- notably for the media. This is seen as a means of shifting beyond the "pillarization" of international initiatives, previously criticized (*Coherent Value Frameworks: pillar-ization, polarization and polyhedral frames of reference*, 2008). The success of SodaConstructor in attracting millions of users at all levels of society is an indication of the creative potential of such tools.

Options for design improvement and experimentation

The orbital layout variants indicated above are based on relatively simple modification to the 3 mutually dependent application files for the solar system case -- as provided by Elijah Meeks (as indicated [here](#)). The files are distinguished as:

- **javascript layout function** (*d3.layout.orbit.js*): Modification to this is unnecessary for most simple experiments (and is basically beyond the competence required for the variants indicated above). Clues are however embedded as comments within that file
- **html file calling the javascript layout function** (eg *orbitalenvir.html*): A separate version is required for each of the displays above (and a link from the screen shots is provided to each such file). A number of simple modifications were made to the original to position the image on the page and provide for a title to the image. Once made this was used as a standard template for each of the images above. However a distinct variant is required for each, both to modify the displayed title of the image and to call the distinct json data file.
- **json data file called by the html file** (eg *orbitalenvir.json*): This distinguishes the displayed information in the interactive displays above. A distinct version is required for each of the experiments above. It is called from the html file. The content can be readily altered with a text editor, however for the multiple experiments above the separate files were generated by a simple program. Obvious changes that can be made are for "planets" (label at "key"; radius at "radius", period at "period") and for "moons" (label at "label", radius at "radius", period at "orbital_period"). Slightly more familiarity with the coding is required to increase or remove "moons". However the number of "planets" and their relative distance from the "sun" is controlled by coding in the other two files (as with other features, requiring greater familiarity with javascript).

Existing design options (possibly interactive) which could carry or enhance significance:

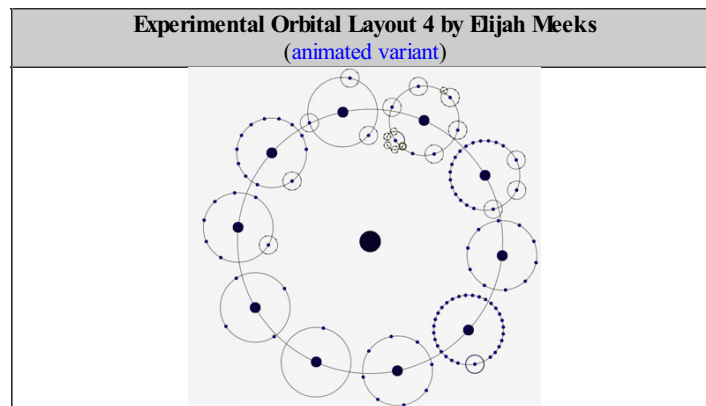
- **Colour**: This could be used to distinguish "planets" and/or "moons". This use (specified in the html file) is evident in the original example but was not applied to the adaptations
- **Size**: It is relatively easy to modify the radius of "planets", as might be indicative of some measure of relative influence or importance
- **Period** (rate of orbital movement): It is relatively easy to modify this variable. An issue with the "moons" is to have them move at a rate slow enough to enable their labels to be displayed when the cursor touches them. Other options could be envisaged.
- **Direction of orbital movement**: This can be easily changed by making the rate negative.
- **Visibility**: Changes can be easily made (in the html file) to the thickness of lines displayed to render the orbits more distinctive

Further design options requiring a degree of additional competence:

- **Sun gradation**: The basic emphasis of this approach to transcendent subtlety is that the "sun" is not well-defined or bounded, as in the physical case. This could be reflected in the animation by using simple radial gradient effects -- possibly extending beyond the inner "planetary orbits". An animation featuring this is presented below, but was developed using other software (as a gif animation).
- **Cross-links**: It is useful to consider how comprehension might be enhanced by displaying relational lines between "planets" and/or "moons" to indicate particular conditions of complementarity -- perhaps as "windows of opportunity" (or constraint). This can be related to separate speculation (*Orbiting Round Nothingness across Communication Space: possibility of an "Inter-other Transition Network"*, 2012).
- **Hot link labels**: Labels of planets or moons, when visible, could allow linking to explanatory text
- **Elliptic orbits**: Clearly there is a case for increasing the realism of any animation by allowing for elliptic orbits -- even of the most extreme nature in recognition of occasional exceptional influences (as with comets). This is especially interesting with respect to possibilities of "hidden" planets or moons from any given perspective.
- **Extending the array of planets/moons**: It is appropriate to note that the number of moon(let)s associated with known planets now far exceeds that provided by this provisional display. There are 67 [moons of Jupiter](#) (the 4 largest are known as [Galilean moons](#)). [Saturn has numerous moons](#) (some very small, clustered into rings as [orbital groups](#)) but with [7 of larger size](#). Clearly any depiction of the "planet" of philosophy could provide for a far greater number of schools of thought in this way. One issue is the manner in which the display would then require zooming facilities to a greater degree.
- **Perspectival shift**: Especially valuable is the possibility of offering a shift from the formal artificiality of the planar view of the "solar" system (or the "atomic orbitals") to the perspective from any particular world view, whether "planet" or "moon" -- preferably in three dimensions (using virtual reality techniques). Such depictions are now a common feature of science fiction and special effects (indicative of the view from a planet with multiple moons). This is especially helpful in enabling recognition of a "local" epicyclic perspective and its illusory limitations. However, although "illusory", this is the essential experience of any "local" perspective from a world view -- with the sense of "globality" marked by the periodic movement of planets whose orbits are less than obvious. The contrast between "local" and "global" in this sense offers a suggestive metaphor of the challenge of comprehending systemic cycles and feedback loops in practice (*Vicious cycles and loops*). Arguably the failure to do so is a

consequence of seeing them only as broken cycles (or as **epicycles**), rather than being able to engage with them as cycles in the orbital sense (*Psychology of Sustainability: embodying cyclic environmental processes*, 2002). Such confusion may have implications for remedial strategic responses of an integrative nature (*Breaking dysfunctional cycles*, 2002; *Dysfunctional Cycles and Spirals: web resources on "breaking the cycle"*, 2002).

- **Switching from planetary array to solar array:** It would be useful to enable any "planetary system", with its "moons", to be switched such that the "planet" became the "sun" and the "moons" became "planets". This could allow for a process similar to zooming on any map. This would also enable greater detail and complexity to be more readily visualized, as with sects claiming association with any religion such as Christianity. It would also reflect the psychology of any world view considering itself to be effectively at the centre of the known universe.
- **"Moons of moons":** The possibility of such an animation is currently being developed by Meeks, as indicated by the following screen shot.



The "atomic layout" option of the earlier displays lends itself to further interpretation in the future precisely because of its fundamental relation to the organization of the **periodic table of chemical elements**. The layout suggests another approach to its psychosocial relevance, as explored elsewhere (*Periodic Pattern of Human Knowing: implication of the Periodic Table as metaphor of elementary order*, 2009; *Periodic Pattern of Human Life: the periodic table as a metaphor of lifelong learning*, 2009). These note the manner in which knowledge can be fruitfully organized on the basis of that metaphor, as has been undertaken experimentally (*Functional Classification in an Integrative Matrix of Human Preoccupations*, 1982). Further possibilities remain to be explored (*Tuning a Periodic Table of Religions, Epistemologies and Spirituality: including the sciences and other belief systems*, 2007).

Psychosocial implication in circulation: circling the elusive

The challenge addressed by recourse to dynamic representation derives from what might be termed definitional overconfidence and overreach, with premature closure (typically by fiat), in contrast with the fluidity characteristic of divergent interpretations, as discussed separately (*Self-reflexivity: Armageddon as the ultimate Battle with Otherness*, 2015). It is therefore appropriate to ask whether a "device" such as that above would enable alternative understanding by configuring "around" that to which reference cannot be effectively made, as can be variously explored (*Paradoxes of Engaging with the Ultimate in any Guise: living life penultimately*, 2012; *World Introversion through Paracycling: global potential for living sustainably "outside-inside"*, 2013).

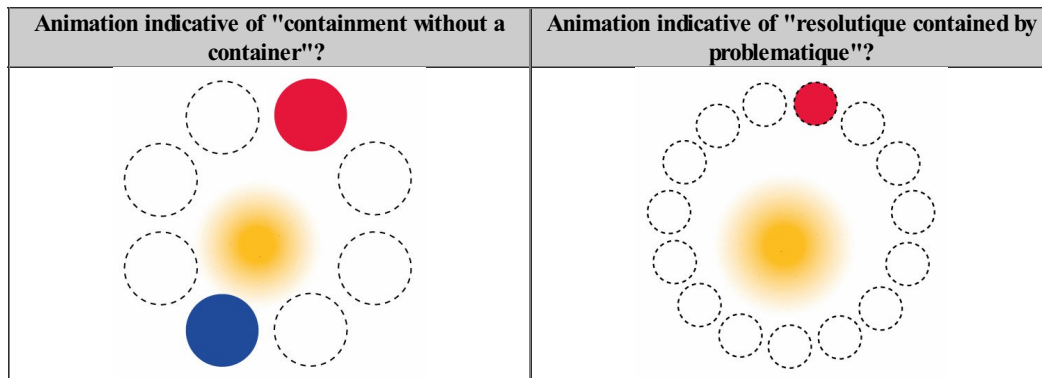
Such a representation might incorporate the features of an **argument map** to hold the patterns of agreement and disagreement, especially where the latter have a tendency to engender conflict. It might take forms characteristic of empty-centered mandalas, or configurations of polygons or polyhedra, as explored separately (*Embodying Global Hegemony through a Sustaining Pattern of Discourse*, 2015; *Memetic Analogue to the 20 Amino Acids as vital to Psychosocial Life?* 2015). There is a degree of charm to recognition of similarities with use of circlets of beads (*Designing Cultural Rosaries and Meaning Malas to Sustain Associations within the Pattern that Connects*, 2000).

Cognitive fusion: More intriguing is the sense in which any such **static** map would also be inadequate to the challenges of definition, language and comprehension. Insights as to further possibilities could be derived from the counter-intuitive challenges of the design of a container for plasma in the **ITER nuclear fusion reactor**. The principal requirement is that the plasma **not** come in any contact with the walls of the enclosing container -- since any such contact would destroy the container (explosively) and render inoperable the fusion process. This offers a powerful and well-articulated metaphor for the manner whereby understanding of the fundamental struggle for comprehension may need to be contained by definition -- but dissociated from any such definition in an unconventional way in order for meaning to be sustained and "carried".

Currently under construction, the unusual design to enable the fusion process requires a toroidal form within which the plasma circulates, namely the container only works through ensuring a cyclic **dynamic** of the plasma. The viability of this unconventional design as a source of future energy raises the question as to whether a cognitive analogue is required to endeavour to "contain without containing" what is implied by the struggle for comprehension. The metaphor is explored separately (*Enactivating a Cognitive Fusion Reactor: Imaginal Transformation of Energy Resourcing (ITER-8)*, 2006).

The animation on the left below suggests how a configuration of magnets might prevent the plasma travelling through the torus from coming in contact with the walls of the container -- through alternation of magnetic forces on the plasma. The magnets effectively

control the snake-like tendency for the plasma and maintain its circulation around the centre of the toroidal ring. Specific reference to the plasma "snake" metaphor is made in the literature on nuclear fusion. With respect to the solar configurations in the animations above, the gradient of the elusive central "sun" is better suggested in the animation below than in those above, as well as the nature of its extended influence on the "planets".



This visual metaphor recalls the creative breakthrough by [Nikola Tesla](#) with regard to magnetic field rotation, especially with respect to its potential psychosocial implications, as discussed separately [Potential implications of alternation and rotation in psychosocial fields](#) (2014) in a more general context ([Reimagining Tesla's Creativity through Technomimicry: psychosocial empowerment by imagining charged conditions otherwise](#), 2014).

Given the potential of such insights, the animation on the right above makes use of the identification by the [Millennium Project](#) of [15 Global Challenges for Humanity](#). These might be understood as constraints which could be used to constrain and focus a global resolutive -- provided attention is given to them through some process of alternation, as previously argued ([Policy Alternation for Development](#), 1984). At its simplest this might involve periodic reallocation of resources to each of the challenges.

Potentially even more intriguing is the sense in which, as a metaphor, the solar system suggests another way of comprehending the necessary dynamic of detachment. Each planet can be understood as a particular definition in concrete conventional terms, each separated from the other but having a dynamic circling relationship to a distant central sun of quite different nature -- both sustaining life and with the potential to dissolve each of them. This image recalls [The Pivot](#) of [Chuang Tzu](#).

Wave-particle duality: The issue of the comprehension of subtle complexity therefore seems to require unconventional approaches that constrain the tendency to define and label. The solar system metaphor is indicative in that respect with the physical inaccessibility of the sun. The psychosocial implications can however be speculatively explored ([Psychosocial Implication of Without Within: enjoying going solar for oneself](#), 2013).

Equally valuable is the comprehension of an atom with its circulating electrons, except that their distinctiveness has been called into question by comprehension of [atomic orbitals](#) in the light of quantum mechanics. This frames the question of whether there are subtleties of psychosocial "definition" that merit similar consideration, whether on the micro or the macro scale. Rather than a set of circulating definitions (or "models") around an undefinable core, further considerations apply as suggested by current understanding of orbitals.

Thus the orbiting electrons around a nucleus could not be fully described as particles (as might be conventionally defined), but needed to be explained by the [wave-particle duality](#). In this sense, the electrons have the following properties -- with implications for subtler understanding of the relationship between "models" or "world views". As described by [Wikipedia](#):

- Wave-like properties:
 1. The electrons do not orbit the nucleus in the sense of a planet orbiting the sun, but instead exist as [standing waves](#). The lowest possible energy an electron can take is therefore analogous to the fundamental frequency of a wave on a string. Higher energy states are then similar to [harmonics](#) of the [fundamental frequency](#).
 2. The electrons are never in a single point location, although the probability of interacting with the electron at a single point can be found from the wave function of the electron.
- Particle-like properties:
 1. There is always an integer number of electrons orbiting the nucleus.
 2. Electrons jump between orbitals in a particle-like fashion. For example, if a single [photon](#) strikes the electrons, only a single electron changes states in response to the photon.
 3. The electrons retain particle like-properties such as: each wave state has the same electrical charge as the electron particle. Each wave state has a single discrete spin (spin up or spin down).

Thus, despite the obvious analogy to planets revolving around the Sun, electrons cannot be described simply as solid particles. In addition, atomic orbitals do not closely resemble a planet's elliptical path in ordinary atoms. A more accurate analogy might be that of a large and often oddly shaped "atmosphere" (the electron), distributed around a relatively tiny Sun (the atomic nucleus).

What circulates? Given the continuing conflict arising world-wide from conventional definitions, and the certainty that they are unquestionable, such indications offer a language which reframes the definitional process in ways which honour the subtlety implied by the beliefs they evoke.

It is then useful to ask what can be understood as circulating (according to the fusion reactor metaphor) and how are more profound senses of meaning and identity to be related to a wave-particle duality ([Circulation of the Light: essential metaphor of global](#)

sustainability? 2010; *Being Neither a-Waving Nor a-Parting: cognitive implications of wave-particle duality in the light of science and spirituality*, 2013; *Being a Waveform of Potential as an Experiential Choice: emergent dynamic qualities of identity and integrity*, 2013; *Encountering Otherness as a Waveform -- in the light of a wave theory of being*, 2013).

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