



# laetus in praesens

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28 June 2022 | Draft

## Future Global Exodus to the Metasphere

### Enabling mass migration of humanity to a cognitive frontier

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## Introduction

The publicity regarding the rebranding of Facebook as [Meta](#) has drawn attention to one particular understanding of the "metaverse" envisaged by techno-optimists (Kyle Chayka, *Facebook Wants Us to Live in the Metaverse: what does that even mean?* *The New Yorker*, 5 August 2021). Another understanding is offered from a psychosocial perspective (*Future Psychosocial Implications of the Metaverse: exploring possible non-technical and existential dimensions*, 2022).

Any framing of "metaverse" in relation to the "universe" of human communication, information and knowledge can be understood as confusing -- given the confusion associated with the immensity of the physical universe with its billions of galaxies. Any assumptions regarding the possibilities for humans of travelling freely within it from galaxy to galaxy are indeed appropriately cultivated through imaginative science fiction.

The difficulty for individuals and groups at this time is the obvious impracticality of such travel other than through imagination -- or in suspended animation for light years. The focus in practice for some is on the excitement of getting into orbit around the Earth, establishing a base on the Moon and on Mars, orbiting other planets. Again that possibility will in all probability be accessible only to the few whose experience will only be accessible vicariously..

Rather than travelling to distant parts of the solar system, the focus here is on "getting into orbit" around the Earth -- understood metaphorically in cognitive terms. This has the considerable advantage of maintaining a degree of groundedness in relation to the reality of the Earth environment in which people live and move and have their being.

From a metaphorical perspective, achieving a sustainable orbit suggests the merit of recognizing the distinctive "spheres" by which the Earth is surrounded -- enabling life. The lowest level is the [troposphere](#) (with which weather phenomena are primarily associated). Above it is the [stratosphere](#) (composed of stratified temperature layers). Between the troposphere and stratosphere is the [tropopause](#) border that demarcates the beginning of the [temperature inversion](#). Within the stratosphere is the [ozone layer](#), namely a region that absorbs most of the Sun's ultraviolet radiation. Beyond the stratosphere is the [mesosphere](#) in which temperature decreases with altitude.

The mesosphere is surrounded by the [thermosphere](#) within which ultraviolet radiation creates ions through [ionization](#) of molecules; the thermosphere constitutes the larger part of the [ionosphere](#) (composed of the [mesosphere](#) and [exosphere](#)). Above the thermosphere is the atmospheric boundary of Earth's energy system, known as the [thermopause](#). The exosphere is a thin, atmosphere-like volume surrounding the Earth where molecules are gravitationally bound to it. The [magnetosphere](#) is a region of space surrounding the Earth in which [charged particles](#) are affected by the planet's magnetic field -- with the [magnetopause](#) as the boundary between the planet's magnetic field and the [solar wind](#).

The suggestion in what follows is that this intensively studied articulation of atmospheric physics -- most obviously by climate scientists -- is potentially indicative of a set of metaphors of value to distinguishing cognitive processes in a global psychosocial system. A degree of credibility for the suggestion is already evident in the manner in which "atmosphere" is borrowed to describe the conditions of

psychosocial "weather" and "climate" -- as with "temperature" in references to "heated debate". Reference is also made to "stratosphere", as noted by Andrew Gallagher: *As the national debt increases every year, critics of government spending complain that we must do something before the debt goes into the stratosphere* (*Metaphors of Stars, Meteors and Outer Space*, 26 November 2014; see also *Stratosphere Quotes, Brainy Quotes*).

Indications emerging from such a metaphorical exercise might well prove to be relevant to the "heated" / "charged" debates regarding climate change, especially with respect to "temperature" and to "polarization" (*Weather Metaphors as Whether Metaphors*, 2015; *Climate Change as a Metaphor of Social Change: systemic implications of emissions, ozone, sunlight, greenhouse and overheating*, 2008; *Playfully Changing the Prevailing Climate of Opinion: climate change as focal metaphor of effective global governance*, 2005).

The primary focus of this exercise is however on recognition of analogous cognitive spheres and most specifically a "metasphere". Clearly "getting into orbit" involves traversing the "lower layers of the atmosphere", rather than the possibilities of sub-orbital focus on travel around the stratosphere. To what mode of insight and discourse might a metasphere be analogous in the light of the articulation above? If the metasphere is to be recognized as beyond the degrees of abstraction with which "stratosphere" is associated in discourse, what is needed to achieve the requisite escape velocity (*Navigating Alternative Conceptual Realities: clues to the dynamics of enacting new paradigms through movement*, 2002; *Combining Clues to 'Ascent' and 'Escape'*, 2002).

The considerable focus on aeronautics and the potential opportunities of space are a driving force for many. They are seen as fundamental to the future of humanity (Sherry E. Bell and Colonel M. V. "Coyote" Smith, *Human Migration into Space is a Biological Imperative*, *Journal of Space Philosophy* 1, 2012 1; Mike Wall, *Stephen Hawking Warns: humanity may have less than 600 years to leave Earth*, *Space*, 8 November 2017). "Coyote" Smith writes as Chief Future Scientist of the US Air Force. The *Journal of Space Philosophy* extends its focus to encompass a degree of recognition of space in non-physical terms, notably as cultural space.

To clarify this exploration, the variety of contrasting current uses of "sphere" and "meta" are noted prior to consideration of their relevance to "metasphere", "meta-sphere" and "meta sphere", whether as commercial, technical, or aesthetic/cultural initiatives. All of these have implications for the focus on the metaphorical cognitive framing in what follows. The current "crisis of crises" can then be explored as a "spherological crisis" -- as a meta-crisis. In the implications for any understanding of the [global brain](#), civilization could then be understood as faced with a form of "cognitive metastasis".

The array of subtle spheres currently recognized is presented as a pattern ironically anticipated by the extensive traditional arrays of heavenly and demonic realms -- implicitly recognized in references to a much-cited "Axis of Evil" and a lesser known "Axis of Good". Symbolically at least, these are then presumably to be understood as fundamental to the geometry of any metasphere.

Framed in this way, the question is in what manner a global exodus from an increasingly "uninhabitable" planet is to be envisaged -- and facilitated. Rather than the deceptive distraction of a physical exodus -- essentially impractical for the many -- this is explored as a form of cognitive migration, more appropriately understood as a form of cognitive home-coming. Such a transformation notably has implications for a more fruitful engagement with climate change (*Enveloping Development through Cognitive Enactivism: engaging with climate change by changing apprehension of climate*, 2009).

## Earth spheres and planetary boundaries?

Any indication of the spheres associated with the atmosphere suggests the merit of recognizing other spheres of potential relevance, *Wikipedia* identifies [Earth spheres](#) as phenomena of the earth that are on, above or below the surface of the planet. These phenomena have a spatial extent and are usually more or less shell-like around the whole celestial body. They are divided into three groups:

- *Natural earth spheres* also exist without human intervention.
- *Partially natural earth spheres* combine both natural properties of the earth and culture-related additions and changes.
- *Culturally conditioned earth spheres* exist only because of human activity.

A degree of clarification is offered in the distinction of spheres in the following. However it should be emphasized that the distinctions may vary according to the contrasting perspective of disciplines and schools of thought. As a suffix "-sphere" is readily appended to domains of preoccupation in the creation of neologisms, especially with respect to socio-cultural concerns. These may only be recognized to a limited degree.

**Natural earth spheres:** These are typically divided into four groups, within which other spheres may be distinguished, as with *The 17 Spheres of Earth* (*EarthHow*, 13 May 2022). Note the contrasting uses of "mesosphere".

Lithosphere	Hydrosphere	Atmosphere	Biosphere
mesosphere asthenosphere geosphere lithosphere pedosphere tectosphere	hydrosphere cryosphere	atmosphere troposphere stratosphere mesosphere thermosphere ionosphere exosphere magnetosphere plasmisphere	biosphere (ecosphere)

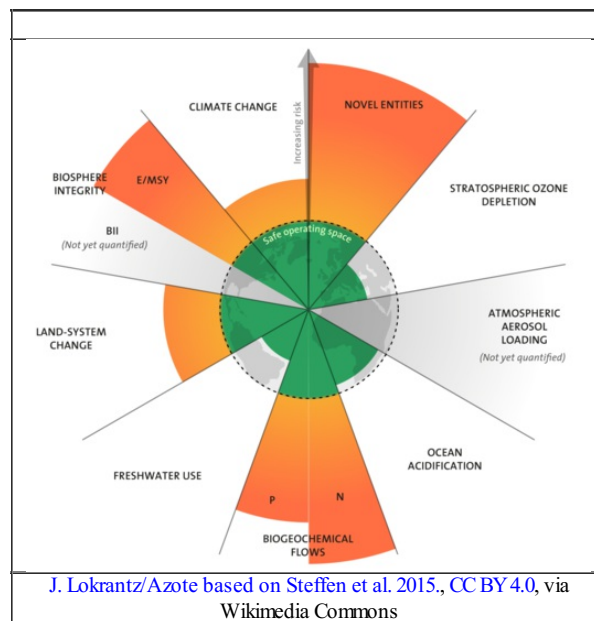
Featured in a comprehensive [List of Earth Spheres](#) (including synonyms and neologisms) additional to those above, are the following (excluding synonyms and neologisms).

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Lithosphere	Hydrosphere	Atmosphere	Biosphere
barysphere chorosphere edaphosphere magmaosphere mantlesphere pyrosphere relief sphere	aquasphere limnosphere oceanosphere psychosphere	gravisphere heterosphere homosphere ignosphere neutrosphere plasmaosphere protonosphere ozonosphere peplosphere electrosphere	biogeosphere ecosphere geobiosphere hydrobiosphere pathosphere phyllosphere physiosphere phytosphere piosphere rhizosphere viroosphere vitasphere xerosphere zoosphere

**Partially natural spheres:** agrosphere , chorosphere and landscape sphere toposphere

**Planetary boundaries:** The sense in which civilization is faced with a "spherological crisis" (discussed below) is evident from the recognition of [planetary boundaries](#) with which the spheres above are variously associated in systemic terms, as a consequence of human activity



Will Steffen, et al: *Planetary boundaries: Guiding human development on a changing planet*. *Science*. 347, 2015, 6223)

Johan Rockström, et al: *Planetary Boundaries: Exploring the Safe Operating Space for Humanity*. *Ecology and Society*. 14, 2009, 2):

## Socio-cultural spheres of global society

**Academic spheres:** There is clearly a tendency to associate "sphere" -- if only informally -- with many of the topics which are the focus of the many disciplines (*Intellectual Disciplines and Sciences: cross-referenced to world problems*, 1976).

**Sectoral spheres:** This tendency is also evident in references to sectors and domains of activity more generally, most notably in the identification of [12 Spheres of Life](#) in the Humanity's Team initiative:

- *economic sphere*: This is defined in relation to the three types of economic activity covered in national accounts (production, consumption and accumulation), namely the production, distribution, consumption and management of goods, services and currency. (*The Sphere of Economics, Humanity's Team*)
  - [commercial sphere](#) / business sphere
  - [financial sphere](#) (Margarita Delgado, *Role of the financial sphere in accelerating decarbonisation*, Central Bank Speech, 4 December 2020)
  - [corporate sphere](#)
- *public sphere*: This is an area in [social life](#) where individuals can come together to freely discuss and identify societal problems, and through that discussion influence political action. *Wikipedia* identifies 87 distinctive aspects and 37 subcategories (cf [Category: Public sphere](#))
- *aesthetic/creative sphere*: This is the realm of creative expression through various media (*The Sphere of Arts, Humanity's Team*)
- *legal sphere*: A way of protecting each individual's innate rights (*The Sphere of Justice, Humanity's Team*)
- *security sphere*
- *governmental sphere*: The administration of authority and leadership of a community (*The Sphere of Governance, Humanity's Team*)
- *educational sphere*: includes all forms of education; all ages, species and cross-species; formal and informal; awareness of

cultural memes and assumptions; perceptual filters; scientific studies; the brain while learning; the psychology of learning; learning to learn, etc. (*The Sphere of Education, Humanity's Team*)

- *environmental sphere*: The surroundings in which we live; the natural world as a whole -- including ourselves (*The Sphere of Environment, Humanity's Team*)
- *health sphere*: The vitality, well being and wholeness of a living system (*The Sphere of Health, Humanity's Team*)
- *infrastructure sphere*: Underlying physical structures and systems to support human society (*The Sphere of Infrastructure, Humanity's Team*)
- *media sphere*: The means of disseminating information and entertainment among people (*The Sphere of Media, Humanity's Team*)
- *relational sphere*: The field of human interaction: with sensations, emotions, thoughts, other beings, and the environment (*The Sphere of Relations*)
- *science / research sphere*: The ordering of knowledge by thesis, experiment and conclusions; includes all areas of science and all applications of scientific thinking and methodology. (*The Sphere of Science, Humanity's Team*)
- *spiritual and religious sphere*: The exploration and experience of our fundamental metaphysical nature as spirit (*The Sphere of Spirituality, Humanity's Team*)
- *development sphere*

**Spheres of influence**: In addition to the reservation above with regard to the identification of "spheres" in relation to domains of preoccupation, the term is commonly used more loosely to define a **sphere of interest** or a **sphere of influence**. Examples of the latter, as noted by *Wikipedia*, include: **Anglosphere**, **East Asian cultural sphere** (aka Sinosphere), **Eurosphere**, **Francosphere**, **Germanosphere**, **Greater East Asia Co-Prosperity Sphere** (imperial influence of the Japanese Empire), **Indosphere** (Greater India), **Persosphere**, **Islamosphere**, **Slavosphere**, **Soviet sphere of influence**, **Yugosphere**. Exceptional extensions of this pattern include **Fatosphere**, **Jihadisphere**, and consideration of gender-based spheres (Jone Johnson Lewis, *Separate Spheres Ideology: women and men in their own places*, *ThoughtCo*, 11 September 2019).

Missing from such an articulation based on a suffix, and an indication of a limitation of that framing, is the significance attributed to the American sphere of influence ( *The US Has Its Own "Sphere of Influence" and It's Huge*, *The Liberty Beacon*, 8 March 2022; Graham Allison, *The New Spheres of Influence: sharing the globe with other Great Powers*, *Foreign Affairs*, March/April 2020).

**Identifying additional spheres**: Most of the spheres noted above are usefully noted in the Wiktionary page on *Category:English words suffixed with -sphere*. In endeavouring to identify those of cognitive relevance, the following can be excluded of secondary relevance to a cognitive focus, except to the extent that they may offer useful metaphors.

- *Biological*: **blastosphere**, **cormosphere**, **lignosphere**, **gliomasphere**, **hystrichosphere**, **mammosphere**, **mycosphere**, **oosphere**, **rhabdosphere**, **sarcosphere**, **zygosphere**
- *Anatomical*: **cardiosphere**, **pancreatosphere**, **tracheosphere**
- *Environmental*: **piosphere**, **plastisphere**
- *Astronomical*: **chemosphere**, **chromatosphere**, **ergosphere**, **fluctosphere**, **photosphere**

**Culturally conditioned spheres**: As noted above, recognition is accorded to "culturally conditioned earth spheres" which only exist because of human activity. As argued by Dieter Gerten, et al:

We consider the cultural component of the Earth system as important as biogeophysical, economic and technological components. Generally speaking, there is a need to account for the unique capability of humans... to act as a self-conscious force with foresight skills. Schellnhuber (1999) calls this collective cognitive capacity of humanity an immaterial, metaphysical "global subject" , which on the one hand happened to have "conquered our planet"... , but on the other hand is now also on a quest for a more sustainable future as expressed in international agreements.... Thus, we like to emphasise... that the "global subject" is a manifold cultural phenomenon with distributed regional patterns as well as different aesthetical, cosmological and symbolic dimensions that coexist, evolve over time, and are driven rather by personal purposes or intentions than by functional or political purposes... (*On deeper human dimensions in Earth system analysis and modelling Earth System Dynamics*, 2018)

These spheres are variously distinguished by different authors -- and possibly conflated -- with some considered (if at all) as subspheres of the anthroposphere. The manner in which the socio-cultural and psycho-cultural spheres are distinguished tends to be a reflection of the biases of the disciplines with regard to the natural sciences and the behavioural sciences, to the exclusion of those with a cognitive or spiritual emphasis.

- David Turner: *A Lexicon of the Spheres* (Oregon State University, 2020)
- Sergey Vladimirovich Shaytura, et al: *Philosophy of Information Fields* (*Indian Journal of Information Technology INDJIT*, 1, 2019, 2)
- John Featherby: *What are the "Seven Spheres of Society"?* (Shoremount, 2020)
- Lalita Rana: *Noosphere: Terra-Incognita -- A New Territory to be Explored* (*IOSR Journal of Humanities and Social Science (IOSR-JHSS)*, 26, 2021, 7, Series 10)
- João Ribeiro Mendes: *Does the Sustainability of the Anthropocene Technosphere Imply an Existential Risk for Our Species? Thinking with Peter Haff* (*Social Sciences*, 10, 2021, 314).

**Spheres of potential psych-social significance**: The spheres noted above are variously supplemented by the following (notably as identified from the *Wiktionary* page):

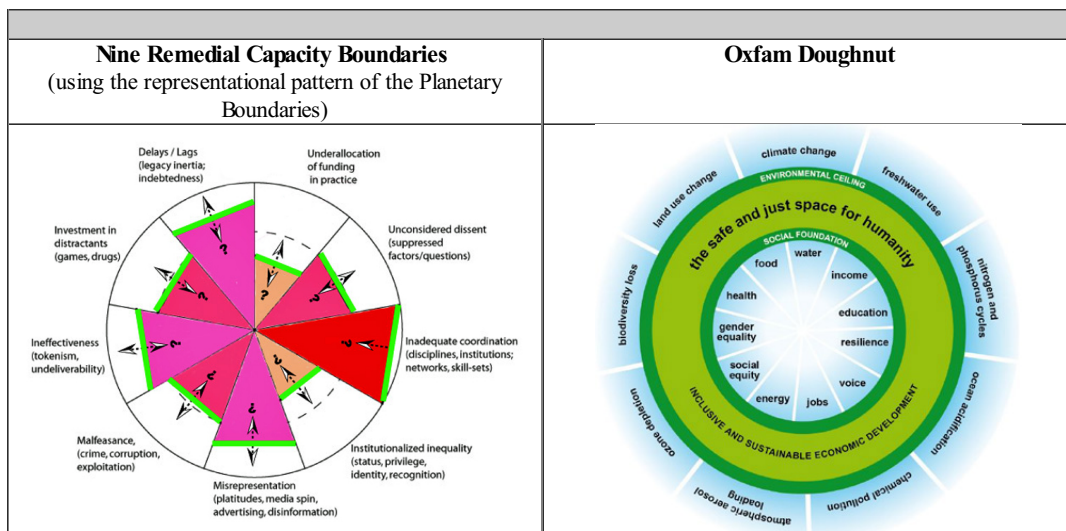
- **anthroposphere**: The anthroposphere may be defined as the part of the environment that is made or modified by humans. Put differently, the anthroposphere is the sphere of the earth system or its subsystems where human activities constitute a significant

source of change through the use and subsequent transformation of natural resources, as well as through the deposition of waste and emissions. (A. Kuhn and T. Heckelei, *Anthrosphere, Impacts of Global Change on the Hydrological Cycle in West and Northwest Africa*, 2010) [humanosphere](#)

- [sociosphere](#): All human beings on the planet and all their interrelationships. A well functioning sociosphere enables people to lead good lives within a sustainable environment and economic system. This can be held to include an [adminisphere](#).
- [technosphere](#): This is readily assumed to be an alternative term for anthroposphere. It can be understood to include everything man-made on the planet -- including all discarded trash (*What Is the Technosphere? EcoIdeaMan*, 9 February 2017). It can also be described as "a system, with its own dynamics and energy flows" -- the global emergent system that includes humans, technological artefacts, and associated social and technological networks (Mark Williams and Jan Zalasiewicz, *The Anthropocene Biosphere, Anthropocene Review*, 18 June 2015)
  - [biotechnosphere](#): (Abhik Gupta, *From Biosphere to Technosphere to Biotechnosphere: the Indian Scenario in an Eco-Ethical Perspective, Asia-Pacific Perspectives on Environmental Ethics*, 2008; A. Suzdaleva, *Biotechnosphere and Near-Earth Space, Safety in Technosphere*, 6, 2017, 1; Antonina Suzdaleva, et al, *Antirivers and their role in the biotechnosphere formation, MATEC Web of Conferences*, 86, 2016, 0)
- [cybersphere](#): The realm of information technology and electronic communication; the totality of information and contacts available over the Internet. ,
  - [blogosphere](#): made up of all [blogs](#) and their interconnections. The term implies that blogs exist together as a connected [community](#) (or as a collection of connected communities) or as a [social networking service](#) in which everyday authors can publish their opinions.  
  
Subcategories include: [clogosphere](#), [leftosphere](#), [tagosphere](#), [geekosphere](#), [graphosphere](#), [tweetosphere](#) (Twittersphere), [videosphere](#), [vlogosphere](#), [wikisphere](#)
  - [manosphere](#) (including [androsphere](#)): This is a collection of websites, blogs, and online forums promoting (to varying degrees) masculinity, misogyny, and opposition to feminism.
- [mediasphere](#): This is the collective ecology of the world's media, including newspapers, journals, television, radio, books, novels, advertising, press releases, publicity and the blogosphere; any and all media both broadcast and published.
- [noosphere](#): articulated by [Vladimir Vernadsky](#) and [Pierre Teilhard de Chardin](#) as two related but starkly different philosophical concepts, the former being grounded in the geological sciences, and the latter in theology. Both conceptions of the noosphere share the common thesis that together human reason and the scientific thought has created, and will continue to create, the next evolutionary geological layer. Vernadsky defined the noosphere as the new state of the biosphere and described as the planetary "sphere of reason". The noosphere represents the highest stage of biospheric development, its defining factor being the development of humankind's rational activities. For Teilhard, the noosphere is the sphere of thought encircling the earth that has emerged through evolution as a consequence of the growth in complexity/consciousness
  - [ethnosphere](#): Defined from an anthropological perspective by [Wade Davis](#) as the sum total of all thoughts and dreams, myths, ideas, inspirations, intuitions brought into being by the human imagination since the dawn of consciousness. The ethnosphere is humanity's great legacy. It's a symbol of all that we are, and all that we can be as an astonishingly inquisitive species. And just as the biosphere is being severely eroded, so too is the ethnosphere, and if anything, at a far greater rate.
  - [ideosphere](#): The ideosphere -- like the [noosphere](#) (i.e., the realm of [reason](#)) -- is the metaphysical 'place' where thoughts, theories, [ideas](#), and [ideation](#) are regarded to be created, evaluated, and evolved.
  - [infosphere](#) / information sphere: a term used to speculate about the common evolution of the Internet, society and culture; a metaphysical realm of information, data, knowledge, and communication, populated by informational entities termed [inforgs](#) (or, informational organisms). Though one example is cyberspace, infospheres are not limited to purely online environments; they can include both offline and analogue information
  - [logosphere](#): An adaptation of the concepts biosphere and noosphere, derived from the interpretation of the meaning of words, conceptualized through an abstract sphere
  - [psychosphere](#): The sphere or realm of human consciousness, seemingly rarely used. For K.Z. Freeman:
    - Simply put, it is the sphere of human thought. But since for most thought implies conscious thinking only, it would be better to say that the Psychosphere is a sphere of human consciousness. Imagine a biosphere, only instead of it being the global sum of ecosystems, the psychosphere is the sum of subtle fields of thought. And unlike the noosphere, which is the sphere of direct human thought, the psychosphere could more easily be imagined as a sphere of human emotion - or general consciousness - instead of specific thoughts. (*Psychosphere*, 7 May 2015)
  - [religiosphere](#) / religio-sphere: [Ebenezer Obadare](#) (*The Emergent Religionsphere: organisation and practices*, 2007):
    - [Sphere of Ministry](#) / Commissionsphere

- **Ecclesiosphere**; Recognized by Emile Poulat as a sphere of influence of the Roman Catholic Church that forces the other spheres but also other countries to come to terms with it.
- **Martyrosphere**
- **semiosphere**: The sphere of signs and symbols. It falls under biosemiotics and is an abstract, epiphenomenal, dialogic membrane of semiosis, in which sign processes operate under the set of all interconnected *Umwelt*. (Yuri Lotman, *Universe of the Mind: a semiotic theory of culture*, 1990).

**Remedial capacity boundaries?** Rather than the crisis of planetary boundaries noted above, any "spherological crisis" also calls for recognition of global civilization's "remedial capacity" in psycho-social terms, as presented below left from a separate discussion (*Recognizing the Psychosocial Boundaries of Remedial Action: constraints on ensuring a safe operating space for humanity*, 2009). The notion of a safe operating space for humanity framed by the planetary boundaries is central to the Oxfam Doughnut model, reproduced below left (Kate Raworth, *A Safe and Just Space for Humanity: can we live within the doughnut?*, 2012) and discussed separately (*Exploring the Hidden Mysteries of Oxfam's Doughnut: recognizing the systemic negligence of an Earth Summit*, 2012).



## Cognitive metastasis: crisis of crises as a spherological meta-crisis?

**Meta-crisis:** As with the suffix "-sphere", the prefix "meta-" is readily associated with well-recognized disciplines to form neologisms -- which may not be widely accepted, if at all. There is therefore the possibility that a "meta-" dimension may emerge from many disciplines, or be proposed. Of particular interest is the shift in focus and perspective and how it contrasts with long-standing issues in relation to **transdisciplinarity** and **interdisciplinarity** -- and any higher order of integration (*Varieties of Disciplinarity, Interdisciplinarity and Transdisciplinarity*, 1998; cf *Integrative Knowledge Project*). In addition to the connectivity these imply, there is the significance of a "**meta-perspective**" as variously understood to suggest a transcendent perspective potentially with a relatively high degree of self-reference.

Arguably the "crisis of crises", anticipated by John Platt, may well be a consequence of a failure of meta-reflection -- and not of inter- or trans-disciplinarity methodologies as often assumed, As a meta-crisis it can be variously understood:

- John Platt: *What we must do; a mobilization of scientists as in wartime may be the only way to solve our crisis problems* (*Science*, 28 November 1969).
- Richard A. Slaughter: *Critical Futures Study and Curriculum Renewal* (University of Lancaster, 1982)
- Kyle Kowalski: *A Crisis of Crises: what is the meta-crisis?* (*Slowww*); *Introducing the "Meta-Crisis Meta-Resource": a digital directory of all people and projects in the wisdom web* (*Slowww*)
- Jonathon Rowson: *How to Think about the Meta-Crisis without getting too excited* (*Emerge*, 17 February 2020); *Meta-crisis (P2P Foundation)*
- Zachary Stein: *Education is the Metacrisis* (*Perspectiva*, 27 January 2022); *The Meta-Crisis is a Human Development Crisis* (*Emerge*, 24 June 2019)
- Will Franks: *Going Meta on the Meta-Crisis: 22 meta-moves for the Age of Doom and Bloom* (*Phoenix Collective*, 11 April 2020)
- Chris Russill and Chad Lavin: *From Tipping Point to Meta-Crisis: management, media, and Hurricane Katrina* (*Minnesota Scholarship Online*, 2011)
- Cheryl Hunt: *A Tipping Point? Spirituality in a time of meta crisis* (*Journal for the Study of Spirituality*, 12, 2022, 1)
- Adrian Pabst and John Milbank: *The Meta-crisis of Secular Capitalism* (*PhilPapers*, 2015)
- Johannes Achill Niederhauser: *The Meta-Crisis of the Meta-Crisis* (*Halkyon*)
- Robb Smith: *The Metacrisis is Giving Rise to the Transformation Age* (*Integral Life*, 20 July 2020)
- Andrew Sweeny: *Understanding the Meta-Crisis*, 19 October 2019)
- Michael Every: *A Global 'Meta-Crisis' Is Underway* (*Wealthion*, 5 May 2022)
- *A Deeper Dive Into the Meta Crisis* (Center for Humane Technology, 2 December 2021)

The question is whether the array of meta-disciplines and methodologies lacks a similar degree of "joined-up", self-referential thinking. **Is the crisis of crises a meta-crisis, namely a crisis in meta-capacity?**

**Variety of meta-perspectives:** Given the possibility that the crises of the times are engendered or sustained by inadequacies of any "meta-perspective", it is appropriate to explore the use currently made of "meta" in the widest variety of contexts. One approach is to use web facilities for listing "words starting with meta", of which there are several. Most fruitful proved to be use of that method in relation to entries in *Wikipedia* for which the facility *All pages with prefix* is provided. This offers a list of some 5,900 entries in total, or 2,700 with the exclusion of redirects. As presented below, these can be usefully and **provisionally** reduced to 139 by the exclusion of: variant spellings, species, collective initiatives, place names, products, and references to works of art -- although these are indeed potentially indicative of recognition of a meta-perspective.

In the presentation below, no distinction is made between terms in which the prefix "meta" may be followed by a hyphen, a space, or neither. The **tentative** clustering by column is used to distinguish terms of potentially greater relevance to the cognitive emphasis of the above argument (right hand column) from those which may be considered of less immediate relevance, despite the valuable implications they may offer (left hand column).

Tentative clustering of meta-perspectives			
Technical / Descriptive	Analytic / Operational	Behavioural / Practice	Cognitive / Self-referential
metaballs	meta-analysis	metacommunity	meta-cognition
metacontent	metabolism	metacostitution	metacognition
metacrap	meta class	meta censorship	meta-communication
meta data	metacompilation	metacomic	metacprehension
metadatabase	metacomputing	metacompact	metaconscious
meta-description	metadynamics	meta-design	meta-consent
metafile	metageography	meta-discipline	meta-dialogue
meta-function	metagraphics	metadrama	metadiscourse
metakey	meta guiding	metaethnicity	meta-discussion
metalink	meta-information	meta-fiction	meta-emotion
metamerism (color)	metainterpreter	metagame	metaepistemology
meta noise	metakit	meta-heuristics	meta-ethics
metaphasis	metamorphosis	meta-history	metagnomy
metaphrase	metamedia	meta humour	meta-knowledge
metaplasm	meta-moderation	meta-institution	meta-learning
metapopulation	meta-optimization	meta-joke	meta-logic
metaprobability	meta-power	meta-language	meta memory
metarepresentation	meta-process	meta-leadership	meta-message
meta search	meta-production	metalepsis	meta-metaphysics
metaserver	meta-programming	meta level	meta-ontology
metastability	meta-regulation	meta-linguistics	metampsychosis
metastate	meta-research	meta marketing	meta-narrative
metastasis	meta-rights	meta-mathematics	metanoetics
metasyntax	metarule	metamedicine	metanoia (psychology)
metatable	metascape	metamemetics	metanoia (rhetoric)
meta-tag	meta-schedule	meta-model	metanoia (theology)
metatext	metastasis	metamour	meta-perspective
meta-value	metasymplectic geometry	meta-object	meta-philosophy
meta-variable	metasystem	meta-organization	metaphor
	meta-universe	meta-play	metaphysics
	metaverse	metaplot	metapsychiatry
		meta-politics	metapsychology
		metapragmatics	meta-reasoning
		meta-problem	meta thinking
		meta-puzzle	
		metarealism	
		meta-science	
		metasemantics	
		meta-story	
		metastudy	
		metatheatre	
		metatheism	
		metatheory	
		meta-thesis	
		metatony	
		metaxy	

**Cognitive metastasis?** There is a curious sense in which the very proliferation of seemingly unrelated meta-perspectives is indicative of "cognitive metastasis". As "brain metastasis" the cognitive implications are readily associated with the pathology of brain cancer:

- Adam Gerstenecker, et al: *Cognition in patients with newly diagnosed brain metastasis: profiles and implications* (*Journal of Neuro-oncology*, 120, 2014, 1)
- J. S. Wefel, et al: *Neurocognitive aspects of brain metastasis* (*Handbook of Clinical Neurology*, 149, 2018).
- Nicholas B. Dye, et al: *Strategies for preservation of memory function in patients with brain metastases* (*Chinese Clinical Oncology*, 4, 2015, 2015)
- Elise F Nassif, et al: *Brain metastases and treatment: multiplying cognitive toxicities* (*Expert Review of Anticancer Therapy*, 19, 2019, 4)

These variously note that brain metastases are common, occurring in 20-30% of cancer patients.

However it is its use as a metaphor which merits consideration -- potentially in relation to any understanding of the [global brain](#). For example, a chapter is devoted to "cognitive metastasis" by [Zahra Mesrizadeh](#) (*The God of the Gaps: understanding science through the lens of religion and politics*, 2021). The focus on the potential transcendence offered by a meta-perspective is then paradoxically associated with a psychosocial interpretation of the title of the study by [Thomas Homer-Dixon](#) *The Upside of Down: catastrophe, creativity, and the renewal of civilization*, 2006).

Readily explored as a metaphor, the implications of cancer for society call for cognitive consideration (Dennis Meadows, *Uncontrolled Growth, the cancer of society, must be stopped*, *Le Monde*, 15 April 2022; Mercedes B. Suleik, *Corruption: cancer of society*, *Business Mirror*, 27 August 2015; Ahmed Rashidi, *We must seek cure for societal cancer*, *Tallahassee Democrat*, 29 July 2016).

## Meta-sphere and global spherological crisis?

Any cognitive analogue to the nested spheres of the atmosphere (as detailed above) requires a degree of consideration of the *magnum opus* of the philosopher [Peter Sloterdijk](#) (*Spheres*, 1998). *Spheres* deals with "spaces of coexistence", spaces commonly overlooked or taken for granted which conceal information crucial to developing an understanding of humanity. A valuable [review](#) of the first volume by John Ganz notes:

For Sloterdijk, this crisis of modernity and post-enlightenment... is a *spherological* crisis: it concerns the gradual destruction of those protective -- or immunological, to use Sloterdijk's terminology -- membranes that mankind dwelled in for millenia, the bursting of the shared spaces that human beings had cultivated to provide meaning, metaphysical comfort, and shelter from the inhuman exterior. This metaphor of the sphere—the preservation, growth, and development of which can be thought of as the sole preoccupation of what we call culture -- shares with Sloterdijk's style in general the quality of being astonishing, strange, and novel, as well as being, at the same time, familiar, intuitive, and even self-evident...

Rather than taking philosophy as a purely theoretical enterprise concerned with developing a disinterested, complete picture of the world, this conception treats it as a therapeutic method, a way in which to affect change in oneself. As a very ancient technique for the support of human life, it's unclear whether philosophy can compete with the rapid proliferation of new technologies of human augmentation. If philosophy has a place in this world, it looks like this.

Although without specific reference to metasphere, other commentaries on *Spheres* include:

- Mark Carrigan: [Peter Sloterdijk and the concept of the sphere](#) (18 April 2022)
  - What I found most compelling about Sloterdijk's approach is his sensitivity to the continual unfolding of our spheric existence. What I found particularly interesting as a philosophically-minded biographical sociologist is his developmental account in terms of spheres...
  - These spheres are regarded by him as immunological: "Only in immune structures that form interiors can humans continue their generational processes and advance their individuations" (pg 63). Exactly what protection is needed shifts as human civilisation shifts which calls for newer immune systems adequate to changing reality, such as I'd suggest is taking place with the shift towards platform society..
- Pieter Lemmens: [Spheres](#) (*Inference*, 3, 2017, 1):
  - A sphere can be defined as a shared, intimate, and disclosed inner space, one that human beings inhabit and on which their existence is vitally dependent. This may be the key to Sloterdijk's conception of anthropology: human life is as much a matter of its various envelopes as anything else.
- Maiju Loukola: [From Foaming Exercises to Scenarios of Coexistences: anticipating emancipatory spatial practices](#) (*RUUKKU - Studies in Artistic Research*, 14, 2020)
  - Throughout the spherical theory Sloterdijk builds a meta narrative of human history outlined as a constellation of various systems of collective, co-joined spaces. On the other hand this meta-sphere entails systems and habitations of contamination and immunology, in all imaginable scales – from the fetal period of being-in-womb to apartment blocks and skyscrapers ("spatial immune systems" and "dwelling machines") to villages, nations, maps, to air conditioning to islands to space travel to religious systems, to the world and the cosmos.
- Joshua Mostafa: [Sphere Theory: A Case For Connectedness](#) (*Los Angeles Review of Books*, 21 August 2012):
  - Sloterdijk begins his attempt to think beyond individualism with a rejection of the idea of essential loneliness: it is not, he says, an inherent characteristic of the human condition. "In nascent individualism the individuals, as living observers -- as inner witnesses of their own lives, one could say -- adopt the perspective of an outside view on themselves, and thus augment their interfacial spheric opening with a second pair of eyes that, strangely enough, is not even their own." In other words, individualism requires a kind of paradoxical self-objectification.
  - Sloterdijk contends that, by neglecting the spatial dimension of 'being in the world' in favor of questions of authenticity, Heidegger gave himself a blind spot that not only left his own philosophically project unbalanced, but himself vulnerable to the political blindness of radical nationalism. *Bubbles* attempts to remedy that neglect: to think through the implications of existence as 'being-with' -- that is, as part of a containing sphere.
- Huenemann: [From Cynicism to Spheres: a review of Peter Sloterdijk's philosophy](#) (24 January 2015):

- Spheres are more than a geometrical figure to Sloterdijk. They are enclosed social spaces whose limits are equidistant from a center. "The sphere is the interior, disclosed, shared realm inhabited by humans – insofar as they succeed in becoming humans. Because living always means building spheres, both on a small and a large scale, humans are the beings that establish globes and look out into horizons. Living in spheres means creating the dimension in which humans can be contained. Spheres are immune-systematically effective space creations for ecstatic beings that are operated upon by the outside" (I, 28). Spheres then are shelters from formless, chaotic, and inhuman forces. They can be found wherever humans are found – in the womb, in the family, among friends, in church, in nations and empires, and on maps of our world and the cosmos. One might see each social or ideological sphere as the phenotypic expression of the human need for community.
- Hélène Frichot: *The Atmospheric Ecologies of Peter Sloterdijk: a new thinker for architecture?* (43rd Annual Conference of the Architectural Science Association, ANZAScA, 2009)

As indicated by Wolfgang Lueckel:

For the reliability of any given social system, Niklas Luhmann proposed a concept that he called "second-order observation". This mandates the presence of a **metasphere of observation** beyond what Luhmann called the basic-level observer of the first order. Observation is necessary to evaluate the state of a society and to find distinctions between different states, objects, or persons. The second-order observation thus is an additional controlling element that places the direct observation under an additional layer of observation. The most important function of any kind of observation for Luhmann is the identification of "distinctions". For the observation of the second order that means: "If we wish to observe observation we must be able to draw distinctions between distinctions". (*Atomic Apocalypse: 'nuclear fiction' in German literature and culture*, ProQuest, 2010) [emphasis added]

## Variety of understandings of metasphere

**Technical framing:** Of interest is the inspiration offered by "metaphere" for a number of commercial initiatives: *Metasphere* (providing remote telemetry solutions); *Metaphere Technologies* (hotel software); *Metasphere* (game in a sandbox metaverse).

From the perspective of Aris Alexopoulos:

A meta-sphere is a term used for a sphere embedded inside a medium that gives effective doubly-negative permittivity and permeability. It is found that the scattering resonances can be manipulated via the meta-sphere parameters while the issue of reducing the scattering cross section to zero is examined. (*Scattering Cross Section of a Meta-Sphere Progress In Electromagnetics Research Letters*, 9, 2009)

For the [IOTA Foundation](#), developing IOTA as an open, feeless data and value transfer protocol, most notably as a game platform. It is a distributed ledger and cryptocurrency designed for the Internet of things (IoT), opening the metaverse to everyone.

The Metasphere is an iteration of what the general public is expecting the metaverse to be. With the vast technological range and capabilities of IOTA, the possibilities are endless and the sky isn't even close to being the limit!

The Metasphere is being developed and created by [IOTA+ AG](#) and has visions of being the most widely used metaverse in crypto, not just on IOTA... the lead project manager at IOTA+, has a vision that *every average person or gamer can enter the metasphere without the need to deep dive into crypto and without being confronted with all the token and staking stuff. People should be able to leverage the advantages of crypto, like NFTs, without the need to dive into all the specifics. Furthermore, it would be cool to see Sphere evolve into a real metaverse, while also attracting companies, individuals, and whoever is interested...*([Introduction to Sphere](#))

Under the banner of *Metasphere*, an interdisciplinary team of researchers, data scientists, designers and developers works on digital systems to facilitate the transformation of information to knowledge. A presentation has been made on the theme: *Metaphors of the Metasphere*, *Utrecht Mini Symposium 'Meta' Paris*, 19 May 2006) by Marianne van den Boomen.

**Cultural/Aesthetic framing:** In 1992, a year designated the International Space Year by the United Nations with the theme "Mission to Planet Earth", Roger Malina commented on a series of articles in *Leonardo* exploring what space means for art and culture (*The Cultural Dimension of Space Exploration*, *Leonardo*, 25, 1992, 1). Malina concluded that: *The cultural dimension of space exploration is not a secondary issue -- it is part of the very commitment that makes space exploration possible.* That early perspective was reprinted as *Leonardo Thinks 1968 – 2011: historical opinion*, *Leonardo Electronic Almanac*, 3 June 2011).

A growing movement of artists is creating art in zero gravity -- both in parabolic flights and in outer space itself. The pioneer has been [Lowry Burgess](#). When one of his [sculptures was launched into orbit](#) in 1989, it became the first official non-scientific payload in space. Interviewed by Amanda Geffer, the perspective of Burgess was featured as *The Cosmos as Canvas* (*New Scientist*, 23 May 2007).

A valuable articulation of the Burgess perspective is presented as *On the Dominance of the Metasphere: the visibilities and invisibilities of the ecology/exology of sky and space*, which is a chapter in a compilation by Sherry Bell and Langdon Morris (*Living in Space: cultural and social dynamics, opportunities and challenges in permanent space habitats*, Apogee Books, 2009). Most accessible is that of

Burgess himself (*The Philosophical Aesthetics of Space Culture and Arts Journal of Space Philosophy* 1, 2012, 1).

As noted in a eulogy by his university:

Burgess was instrumental in leading a team of CMU students, faculty, and alumni, along with international artists, scientists, designers and engineers, to create [Moon Ark](#), which will be carried to the moon as part of the Robotics Institute's competition for the Google Lunar XPrize. Like much of Burgess' artistic practice, this work pushed the boundaries of technology to outer space while creating a poetic examination of life on earth. (*Conceptual Artist Lowry Burgess Reached For The Stars, Carnegie Mellon University*, 4 February 2020)

Presented as a conversation with Burgess, the relation of the metasphere to the noosphere is framed as follows:

The Metasphere resides within the Noosphere, and intersects with Cyberspace. Metasphere is seen in maps of finance, tracks of transactions across the globe. Metadata flows from defense to energy, government sanctioned extradition over off to unimpeded access. Metasphere is immanent, descending round the sanctioned psyche: Leviathan uprising from the pentagon. Metasphere will choke us all.

Meta is a neuroma in the Noosphere. No drugged out trippers traipse enchanted in the pathways of the Metasphere. Art will prove an antidote -- but where is the vein in which to enter the measure? (*is the metasphere resident in the noosphere?* *ZenGlop*, 20 December 2007)

**Reification and misplaced concreteness:** A fundamental reservation with respect to any understanding of metasphere is the unconstrained tendency to appropriate subtle insights and render them into products -- most obviously commercial products and services. The commodification of values and qualities is already evident with respect to metasphere, as noted above.

The process is most evident in relation to the commodification of the deities of Ancient Greece and Ancient Rome. The [Twelve Olympians](#) of Greece have long been appropriated as trademarks, as with the corresponding [Dii Consentes](#) of Rome. This pattern is recognized more generally as reification, whether as the [reification of knowledge](#), through which the representation of facts and/or assertions are transformed, or especially as the logical [fallacy of misplaced concreteness](#).

Irrespective of the controversial of [reification in Marxism](#), the process can be understood as an extreme form of cognitive perversion. It is comparable with the [misappropriation of cultural property](#) so characteristic of colonialism and the treatment of indigenous peoples.

Any framing of space through art, as undertaken by Burgess, merits critical consideration as a potential form of reification through which experience is degraded rather than enhanced. It recalls the familiar problem of indicating a distant focus of attention to a dog -- who then focuses attentively on the pointing finger rather than that to which it points. Ironically the point is well-made by the most famous painting by [René Magritte](#) (*The Treachery of Images: This is Not a Pipe*, 1929),

## Metasphere and its symbolic connotations of higher and lower realms

**Symbolic subtlety of hyperobjects:** The many references to spheres could be understood as extremely ironic in a materialist society -- given that the spherical nature of the realms indicated above is seldom perceptible. Do they exist in reality? Are they merely psychosocial constructs -- even a product of pseudo-science?

As constructs are they however of fundamental importance in some integrative sense yet to be fully comprehended -- and possibly eluding comprehension? For example, should they be considered to be [hyperobjects](#) in the light of the arguments of [Timothy Morton](#), namely objects that are so massively distributed in time and space as to transcend spatiotemporal specificity (*Hyperobjects: philosophy and ecology after the End of the World*, 2013). Such questions are especially relevant to the "higher degree" of order implied by a metasphere and the challenge to its comprehension -- a problematic engagement understood through metaphor (*Comprehension of Unity as a Paradoxical Dynamic*, 2019; *Living with Incomprehension and Uncertainty*, 2012)

The irony of the purported existence of such spheres is the resemblance they then bear to the traditional articulations of "[heavenly spheres](#)" and their problematic complements (Helena Avelar de Carvalho, et al, *On the Heavenly Spheres: a treatise on traditional astrology*, Martha Washington, *The Heavenly Spheres: character of residents in each, and their occupations*, Forgotten Books, 2018). This would be consistent to a degree with the allusive indication of [Gregory Bateson](#) (*Angels Fear: toward an epistemology of the sacred*, 1987).

There is a sense in which humanity finds it necessary to articulate such comprehensive subtle patterns and to associate them, however symbolically, with the perceptible. A degree of clarification of this process is offered by [D. McConville](#) (*On the Evolution of the Heavenly Spheres: an enactive approach to cosmography*, *Semantic Scholar*, 2014), appropriately cited by [A. Muntean](#) (*Spherical encounters of the Anthropocene: from telescope to kaleidoscope*, *Semantic Scholar*, 2020). The patterning potential is discussed in a critical review of [Jeremy Lent](#)'s 5-fold study of the [Patterning Instinct](#) (*Patterning Intuition with the Fifth Discipline*, 2019).

**Symbolic realms:** In a period of global crisis, there is considerable irony to the topological association of the world with a doughnut given the above-mentioned use of the metaphor by [Kate Raworth](#) (*Doughnut Economics: seven ways to think like a 21st-century economist*, 2017; *A Safe and Just Space for Humanity: can we live within the doughnut?* *Oxfam Discussion Papers*, 2017; *Introducing 'The Doughnut' of social and planetary boundaries for development*, *Oxfam International*, 10 February 2012). This has evoked a preoccupation with [doughnut economics](#) in relation to achieving the UN's 17 Sustainable Development Goals. The metaphor featured in a gathering of the World Economic Forum (Kate Raworth, *How to do business with doughnuts*, 25 January 2018).

The irony is all the greater in that the widespread reference to nine "planetary boundaries" (mentioned above) derives from a presentation to the Club of Rome by the [Stockholm Resilience Centre](#) (Johan Rockström, et al., *Planetary Boundaries: exploring the safe operating space for humanity*, *Ecology and Society*, 14, 2009, 2). Curiously the boundaries have been strictly defined in purely physical terms, as challenged in a commentary thereon (*Recognizing the Psychosocial Boundaries of Remedial Action: constraints on ensuring a safe operating space for humanity*, 2009; *Exploring the Hidden Mysteries of Oxfam's Doughnut: recognizing the systemic negligence of an Earth Summit*, 2012).

Extensive significance of nine is characteristic of Norse mythology, most notably the nine worlds that are supported by [Yggdrasil](#) as the "World Tree" (Joshua J. Markby, *Nine Realms of Norse Cosmology*, *Ancient History Encyclopedia*, 20 December 2018). Ironically the Stockholm music label [Acronym](#) has separate recordings for both "Planetary boundaries" and "Yggdrasil" (the World Tree).

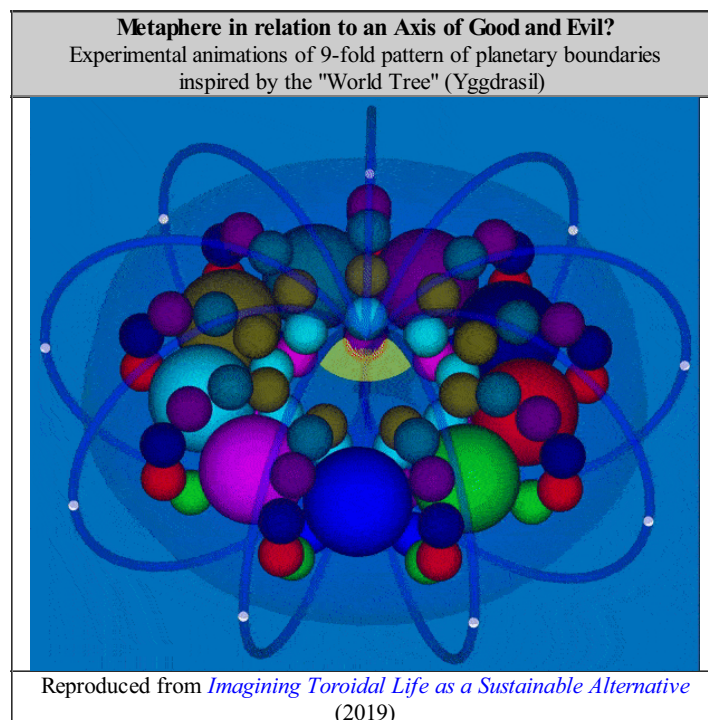
This reinforces any argument that the [Stockholm Resilience Centre](#) may have been influenced in some way in originally distinguishing nine such boundaries, as indicated separately (*Axis Mundi, Yggdrasil, Omphalos and Sahasrara?* 2020).

The case for a 9-fold winding of a torus (as a "doughnut") is presented separately (*Imagining Toroidal Life as a Sustainable Alternative: from globalization to toroidization or back to flatland?* 2019). This is reminiscent of arguments regarding the *Potential implications of alternation and rotation in psychosocial fields* in the light of the remarkable insights of [Nikola Tesla](#) (*Reimagining Tesla's Creativity through Technomimicry Psychosocial empowerment by imagining charged conditions otherwise*, 2014).

Any quest for widespread popular comprehension of the "planetary boundaries" could be fruitfully associated with the intuitive (if not instinctual) appeal of toroidal motion. To what extent is this reflected in the appeal of many carousel-like fairground rides -- "merry-go-rounds" -- to which the animations below then bear a fruitful resemblance? It is probable that carousels in Nordic countries would use the 9 gods of Norse mythology in their rides.

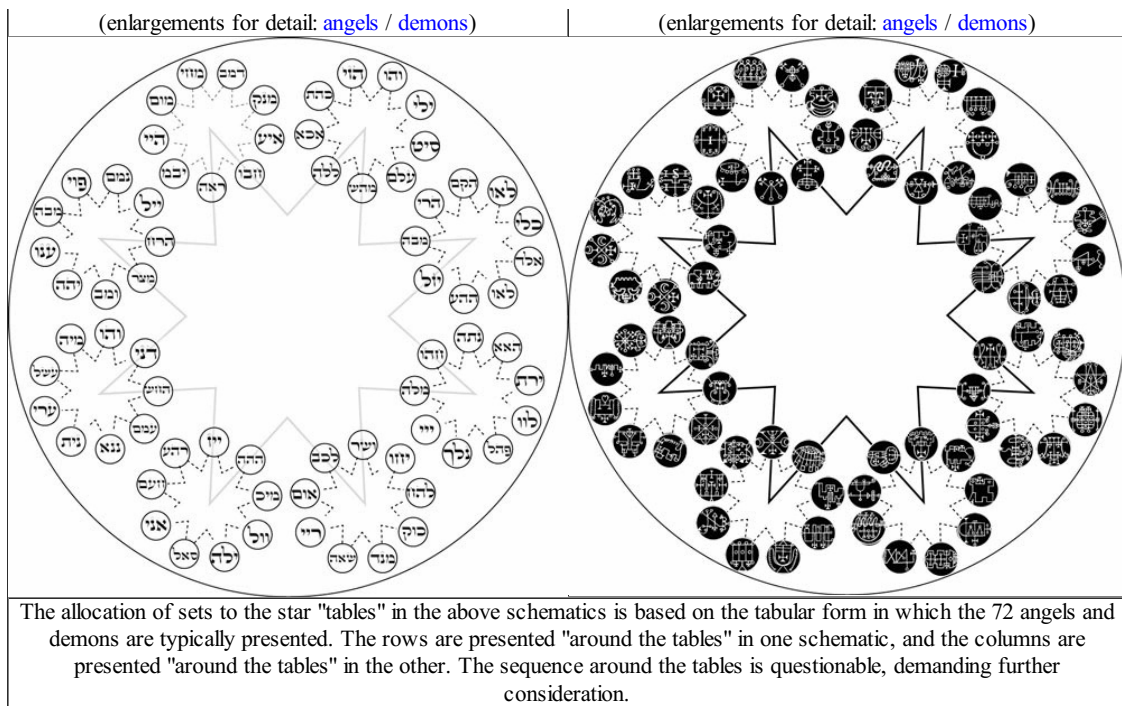
In a period in which strange significance for world (dis)order is associated with an "Axis of Evil", references to an "Axis of Good" are exceptional and equally controversial (*Axis of Good*, *Washington Monthly*, July 2001; *Towards an 'Axis of Good'*, *Al Jazeera*, 2 January 2006). There is however the possibility that the geometry of a meta-sphere implies a paradoxical polarity (Jonathan Melenson, *The Axis of Good and Evil*, *Designing Games for Ethics: Models, Techniques and Frameworks*, 2011; Sven Hansen, *Tilting the Axis of Good and Evil*, *The Resilience Institute*, 25 August 2016).

Religions are deprecated by science for the significance they accord to [heaven](#) and [hell](#) -- compounded by any recognition of their multiplicity and hierarchical articulation. There is therefore considerable irony to the recognition by science of multiple "spheres" or "realms" -- perhaps "heavenly" in the case of the disciplines, and "hellish" in the case of the "wicked problems" they face or ignore. There is therefore a case for exploring useful representations of a metasphere encompassing such spheres.



**Clues from traditions?** With the suggestion above that the meta-realm merits consideration as a hyperobject, mnemonic clues can be sought for global governance from mathematical theology and hyperbolic tessellation (*Engaging with Hyperreality through Demonique and Angelique?* 2016). As presented below, one experimental presentation of that exploration of a traditional articulation derived from the [72-fold angels of the Shemhamphorash](#) complemented by the set of 72 demons (*List of demons in the Ars Goetia; Goetia Demons*). These have some resemblance to the [Tree of Life](#) which is the focus of the traditional Kabbalah; the angels are held to be the inhabitants of that 10-fold pattern, with its 22 interconnecting pathways.

Experimental configurations alternating between sets of 72 angels and 72 demons reproduced from <i>Hyperbolic reframing of the Demonique and Angelique of tradition</i> (2016)	
Animation of 8 sets of 9	Animation of 9 sets of 8



Similar animations could, for example, be explored with the sets of [peaceful deities](#) and [wrathful deities](#) of Buddhism or Hinduism (Kalyanaraman Srinivasa, [Multiple Hells and Heavens in Hinduism](#), *Springtree*, 20 February 2014). As indicated with respect to the Hindu understanding of a "multiverse with multiple worlds":

Hindus who are well versed in scriptures do not believe in just one heaven or one hell. They believe in multiple heavens or worlds of light and multiple hells or worlds of darkness, stretching across the vast spaces of the manifest universe like beads upon the thread of Brahman. According to Hindu cosmology, creation is an endless phenomenon, as mysterious as the mystery of the Divinity itself. ([Hinduism, Life after Death and Planes of Existence](#), *HinduWebsite*)

## Engendering the metasphere through metaphor

**Enacting versus Engendering -- acquiring "possession"?** Reference to a cognitive frontier in the sub-title of this argument suggests the possibility of acquiring some form of exclusive possession of an unexplored terrain -- a *terra nullius*. With respect to the metasphere, any such sense is potentially illusory; ownership of "meta-terrain" cannot be achieved in any conventional sense. The metasphere as envisaged in this argument calls for a more subtle mode of engagement, as separately discussed ([Affinity, Diaspora, Identity, Reunification, Return: reimagining possibilities of engaging with place and time](#), 2013).

Property "possession" and ownership  
 Questionable claims to possession  
 Possession of a sense of place  
 Divided realms and domains as variously possessed

Dispossession, repossession and being possessed  
 Possession of a worldview within the noosphere  
 Associative diasporas and degrees of possession  
 Reimagining unification and reunification through metaphor

Of particular relevance, as discussed there is the psycho-social appropriation of a space at the collective level, described by the process of *land nam* as coined by [Ananda Coomaraswamy](#) (*The Rg Veda as Land-Nama Bok*, 1935), to refer to the Icelandic tradition of claiming ownership of uninhabited spaces through weaving together a metaphor of geography of place into a unique mythic story. This territorial appropriation process, notably practiced by the Navaho and the Vedic Aryans, was further described by [Joseph Campbell](#) (*The Inner Reaches of Outer Space: metaphor as myth and religion*, 2002):

*Land nam* ("land claiming or taking") was [the Norse] technical term for this way of sanctifying a region, converting it thereby into an at once psychologically and metaphysical Holy Land.... *Land nam*, mythologization, has been the universally practiced method to bring this intelligible kingdom to view in the mind's eye. The Promised Land, therefore, is any landscape recognized as mythologically transparent, and the method of acquisition of such territory is not by prosaic physical action, but poetically, by intelligence and the method of art; so that the human being should be dwelling in the two worlds simultaneously of the illuminated moon and the illuminating sun.

This is potentially indicative of the manner in which the metasphere is engendered as an inhabitable space, whether for the individual or the collective. However the process may be better understood through the descriptions of [enactivism](#). As argued by [Francisco Varela](#), et al. (*The Embodied Mind: cognitive science and human experience*, 1992):

The key point, then, is that the species brings forth and specifies its own domain of problems ...this domain does not exist "out there" in an environment that acts as a landing pad for organisms that somehow drop or parachute into the world. Instead, living

beings and their environments stand in relation to each other through mutual specification or codetermination (p. 198).

**Metaphor as the primary means of "going meta":** The emphasis here is on the capacity of metaphor to ensure the requisite connectivity by which a viable psycho-social system is engendered and sustained (*Correlating a Requisite Diversity of Metaphorical Patterns*, 2015; *Innovative Global Management through Metaphor*, 1989). This is notably evident in the array of figures of speech people choose to employ (*Questionable Classification of Figures of Speech*, 2016). These are now fundamental to the need for powerful rhetoric in governance.

As argued by Varela, in the light of insights from Buddhism, it is a case of "laying down the path through walking". There is however a considerable challenge to the manner in which the sciences and the arts seek a degree of hegemony in exclusive appropriation of cognitive space. Whilst an aesthetic revolution is a welcome complement, it is less evident whether those promoting it, as with Lowry Burgess, are sensitive to its limitations (*Martha Senger, Aesthetic Phase Shift: the coming reformation in fractal space-time*, G2 Institute for Integral Aesthetics; *Aesthetic Bootstrapping in the Wake of Art or Reviving the Epic in an Era of Irony*) The latter offers insights into how aesthetics relates to the sciences of chaos and performing the real.

**Metaphorizing discourse:** There is no difficulty in recognizing the extent to which discourse has become problematic, whether in national assemblies, parliaments, or the media (social media or otherwise). The current scene has been described as poisonously divisive. Each faction is adamant that the facts and principles it presents are beyond question. Each is necessarily right, with any in disagreement being by definition wrong. Discourse between nations, between religions, between political parties, and between disciplines currently offers little hope for a more fruitful modality.

Curiously efforts towards transcending this situation -- if they are more than tokenistic -- seem to be readily entrapped by the same dynamic. Each is necessarily right or better, with others essentially misguided, misinformed or behind the times. A distinctive mode could be explored which does not rely on facts and truth as commonly understood, or on the deprecation of fake news and pretence. The focus is then not on being right or wrong or the attribution of blame.

As argued separately, the question is whether discourse could shift from dispute with regard to facts and principles to a process in which their definitive and determinative nature is continually reframed through metaphor (*Metaphorizing Dialogue to Enact a Flow Culture*, 2019). How divisiveness might be transcended by systematic embodiment of metaphor in discourse is explored there in the following:

Metaphorizing -- beyond one-off usage	Requisite metaphoric "circumlocution" avoiding disruptive disagreement
Sustaining dialogue through metaphor?	Sustainable discourse framed metaphorically as "orbiting"
Indicative precedents of metaphorizing skills	Metaphorizing as artful indulgence in misplaced concreteness?
Discourse and debate reframed as cognitive combat through metaphor?	Re-imagining: metaphorizing, metamorphizing and cognitive shapeshifting
Integrity of metaphorizing framed by complementarity between alternatives	Sustainable discourse: longest conflict versus longest conversation?
Imagining a relevant philosophers' game -- and beyond	

**Potential and constraints of geometrical metaphors:** There is a curious embodiment in common metaphorical phrases of seemingly fundamental intuitive understanding relating to globality. These are expressed in terms of abstract geometrical forms: points, lines, volumes, and the like (*Metaphorical Geometry in Quest of Globality -- in response to global governance challenges*, 2009). For example, the current international focus of efforts to "fix" the global financial system is through an approach of dimensionality inadequate to the complexity it represents -- if only in terms of the metaphors used to communicate the challenge. The issues are discussed separately in detail in relation to more complex possibilities (*Engaging with Globality -- through cognitive lines, circlets, crowns or holes*, 2009)

Of some relevance are the "complementary" perspectives Maurice F. Stanley (*The Geometry of Ethics, Paideia*, 1998) and David Rapport Lachterman (*The Ethics of Geometry: a genealogy of modernity*, 1989).

**Methodology with respect to metaphor.** As clarified by *Wikipedia*:

- **Metaphor identification procedure (MIP)** is a method for identifying metaphorically used words in discourse. It can be used to recognize metaphors in spoken and written language. Mainly intended for scholars, it can be helpful in empirical research. The procedure aims to determine the relationship of a particular lexical unit in the discourse and recognize its use in a particular context as possibly metaphorical... A group of scholars called Praggeljaz started the Praggeljaz procedure in 2007, and elaborated on a detailed method of identifying metaphors.
- **Metaphoric criticism** is one school of rhetorical analysis used in English and speech communication studies. Scholars employing metaphoric criticism analyze texts by locating metaphors within texts and evaluating those metaphors in an effort to better understand ways in which authors appeal to their audiences.
- **Metaphorical framing** is a particular type of **framing** that attempts to influence people's decision-making by mapping characteristics of one concept in terms of another. What makes metaphorical framing unique from the various other methods of framing (analogic, gains vs loss, episodic vs thematic) is that the concepts being compared do not have to literally relate to each other. The purpose of metaphorical framing is to convey an abstract and/or complex idea in easier to comprehend terms. This is done so by mapping characteristics of an abstract/complex source onto characteristics of the simpler/concrete target. Metaphorical framing is based on Lakoff and Johnson's seminal work on conceptual metaphor theory that states that our cognition, our way of thinking, is metaphorically conceptualized. Metaphorical framing has been used in political rhetoric to influence political decision-making.

**Memetic warfare / cognitive warfare:** Various cultures cultivate myths with regard to warfare between deities. Although readily dismissed as myths, such gods can be understood as metaphors for what are now explored as fundamental cultural mems associated

with distinctive values. It is to be expected that the metasphere will provide an arena for metaphorical warfare.

Such warfare is consistent with the evolution of information warfare into memetic warfare and cognitive warfare. The use of war as metaphor is a longstanding literary and rhetorical trope. In political usage, [war metaphors](#) are used to manage a perceived societal problem, with the concept taking the place of an individual or state enemy in true war (*Review of the Range of Virtual Wars*, 2005).

## From cognitive exodus to cognitive home-coming?

**Home-coming?** As presented above, the shift in emphasis to a metasphere perspective from any focus on spheres merits "re-cognition" from a cognitive perspective. It could be framed as a paradigm shift. The title of the discussion refers to a "global exodus", thereby suggesting a complex nexus of connotations.

It is somewhat amusing to note the exchanges in quest of of an appropriate antonym for "exodus" (*Antonym of "exodus" English Language and Usage*). Candidates discussed include "introduus" and "influx" -- after setting aside "introitus" and "introit", given their vaginal and liturgical ambiguity. Potentially more relevant however is the sense of "home-coming", rather than any inward migration. This offers useful connotations of "return of the prodigal", "rebirth", "renaissance", and "eternal return" -- in addition to any process of [enantiodromia](#) (*Varieties of Rebirth: distinguishing ways of being "born again"*, 2004). The latter distinguished the experiential implications of:

- A. [Cultural rebirth](#) (renaissance, aesthetic birth, mytho-poiesis)
- B. [Socio-religious rebirth](#) (birthright, destiny, reincarnation, social status, ceremony, ritual, group affiliation, games, sports)
- C. [Psycho-behavioural rebirth](#) (sin-to-virtue, changing patterns of consumption, conversion)
- D. [Developmental rebirth](#) (education, perspective, initiation, cultural creativity, individuation)
- E. [Therapeutical rebirth](#) (release from trauma, mentors, self-help, discipleship)
- F. [Cognitive perspective](#) (metacognition, critical thinking, philosophy, aesthetic sensibility, orders of thinking, systematics, orders of abstraction, disciplines of action)
- G. [Experiential rebirth](#) (operacy, flow, embodiment of mind, speaking with God, born-again, possession, psychedelic experience, embodiment in song, spiritual rebirth)

**Terraforming?** Such a home-coming is then to be contrasted with the excitement evoked by "going to the stars", namely imaginative projections with respect to the physical migration of humanity to near space or outer-space. That exodus is then reframed as a form of return to a cognitive home-land -- "re-cognized" otherwise. The shift away from a planet held to be "uninhabitable" is then not physical but cognitive -- however that can be understood as a transformation of perspective. Rather than any technical focus on [terraforming](#) other planets -- modifying their atmosphere, temperature, surface topography or ecology -- the focus is then on the cognitive terraforming of Earth, namely the possibilities of engaging otherwise with its "spheres" to render it cognitively habitable.

The elitist fantasy of enabling the migration of the few to outer space locations necessarily implies the problematic condition of those who do not benefit from this physical transition. In cognitive terms this has been evoked with respect to any rebirth, understood in spiritual terms, namely the tragic circumstances of the ["left-behind"](#). Unfortunately that meme is currently relevant to the disadvantaged populations of the planet -- and a major driver for the migration crisis. This is despite the rapidly degrading conditions of the societies attracting such migration -- in terms of quality of life whether understood physically or cognitively.

The focus on physical exodus from Earth therefore merits recognition as a form of mass distraction or mass deception (*Strategic Opportunities of the Twice Born: reflections on systemic camouflage of mass deception*, 2004).

**Cognitive terraforming?** Given the imagination applied to the technology of physical terraforming, and its fictional representation, the question is how any form of cognitive terraforming is to be imagined and developed.

The simple default response is through the use of psychoactive substances -- a response massively employed worldwide at all levels of society. By contrast, the technical creativity applied to articulating the complex possibilities of terraforming the spheres of other planets merits recognition as indicative of the complexity to be envisaged in cognitive terraforming.


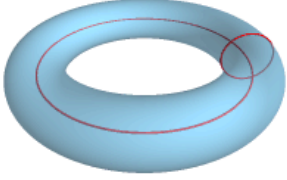
As yet to be fully explored are the possibilities of radical cognitive engagement with environmental categories and disciplines (*Existential Embodiment of Externalities*, 2009). These could be fundamental to a more fruitful strategic engagement with climate change (*Weather Metaphors as Whether Metaphors*, 2015). This argues the case for transcending solar illusion via a Galilean-style cognitive revolution. Such arguments suggest the necessity for radical engagement with an increasingly surreal reality (*Cognitive Embodiment of Nature "Re-cognized" Systemically*, 2018; *Enveloping Development through Cognitive Enactivism: engaging with climate change by changing apprehension of climate*, 2009).

**Requisite cognitive eversion?** The nature of a sphere has acquired considerable familiarity, most obviously through ball games. This has extended to understandings of global, most notably through images of Earth from space. The recognition that humans "inhabit" the Earth by "living on" a sphere is held to be unquestionable. This is the case even though through the revolution of the planet around the Sun suggests that, from another perspective, humans "live on" the torus traced out by that annual cycle (*Imagining Toroidal Life as a Sustainable Alternative: from globalization to toroidization or back to flatland?* 2019).

The assumption that humans "live in" three dimensions alone -- in cognitive terms -- can also be questioned, as argued separately (Ronald Atkin, *Multidimensional Man; can man live in 3-dimensional space?* 1981; Antonio de Nicolas, *Meditations through the Rig Veda: four-dimensional man*, 2003). It is in the light of such arguments that it is appropriate to ask whether any possibility of "living in" a metasphere calls for a radical process of turning the conventional perspective "inside-out".


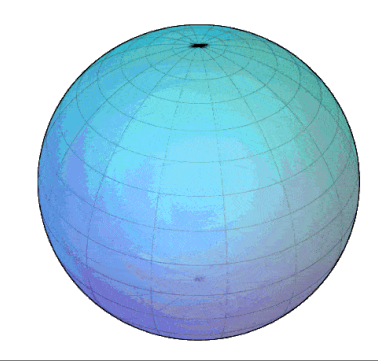

The seeming impossibility of doing so is usefully challenged by the geometrical process described as eversion or inversion. However

improbable, this can be visualized in the case of the cube, as illustrated separately (*Inversion of the cube and related forms: configuring discourse otherwise?* 2018). Equally improbable is the possibility of turning a torus inside-out, or transforming a sphere into a torus, as illustrated in the following animations.

Animations of transformation of a sphere in relation to a torus	
Turning a punctured torus inside-out	Ring torus becomes a horn torus, then a spindle torus, and finally degenerates into a sphere.
	
By <a href="#">w:en&gt;User:Surot</a> - English Wikipedia, Public Domain, <a href="#">Link</a>	User:Kieff [Public domain], via <a href="#">Wikimedia Commons</a>

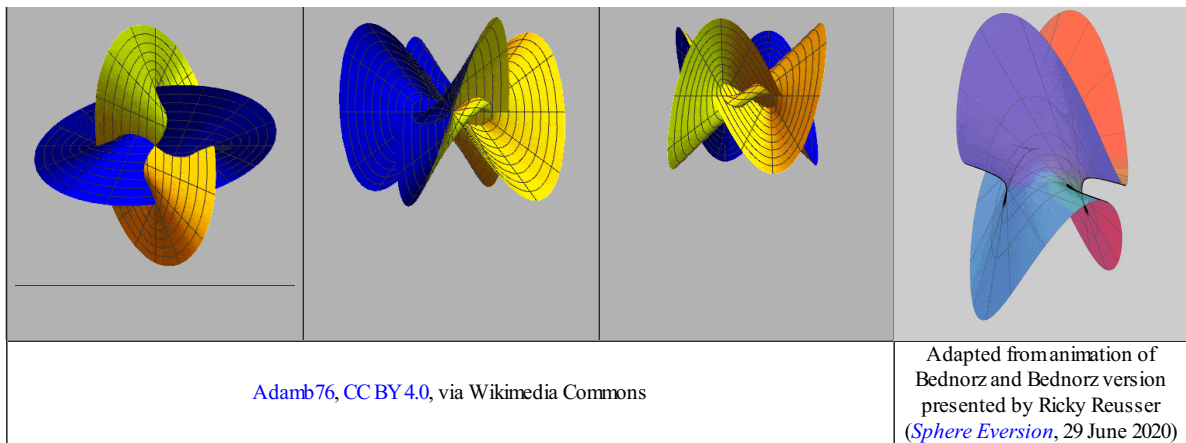
As argued separately, such a process may be required if there is to be any possibility of reconciling the "headless hearts" with the "heartless heads" (*Time for Provocative Mnemonic Aids to Systemic Connectivity?* 2018). With respect to access to a metaspherical perspective, the radical nature of the cognitive process is suggested by the following animations of turning a sphere inside out in a three-dimensional space. In differential topology, this is known as [sphere eversion](#), extensively discussed in the *Wikipedia* entry from which the following are reproduced.

A valuable representation and explanation of the Bednorz and Bednorz version (left) is provided by [Ricky Reusser](#) (*Sphere Eversion*, 29 June 2020). Screen shots derived from that smooth animation are presented in the central animation below -- in which a blue sphere is turned inside-out to reveal the orange inner surface.

Animations of sphere eversion		
Analytic sphere eversion	Screen shot animation of ruled surface version	Using Thurston's corrugations
		
Reproduced from <i>Wikipedia</i> as described by Adam Bednorz and Witold Bednorz, <i>Analytic sphere eversion using ruled surfaces</i> ( <i>Differential Geometry and Its Applications</i> . 64, 2019, June)	Adapted from animation of Bednorz and Bednorz version presented by Ricky Reusser ( <i>Sphere Eversion</i> , 29 June 2020)	<a href="#">Carsten Steger, CC BY-SA 4.0</a> , via <a href="#">Wikimedia Commons</a>

With respect to the "magic" of the seemingly improbable transformation process, as further clarified by Ricky Reusser (*Sphere Eversion*, 2020), he presents a detailed animation of the particular portion of the animation by Bednorz and Bednorz (2019), from which the version (below right) is derived. The *Wikipedia* entry offers a set of explanatory screen shots of the original version, presented below as separate animations.

Animations of ruled surface sphere eversion (detail)			
Top view	Side view	Diagonal view	



References to eversion do not offer any indication of the potential cognitive and psycho-social implications -- despite their challenge to conventional understandings of globality and globalization. **Ruled surface animation is valuable in suggesting transformation of the pattern of connectivity of the global "network of externalities" into a network of "internalities" -- with "global" as then understood coherently through embodied cognition.** This could prove to be a key to fruitful psycho-social engagement with climate change.

The animations are necessarily indicative of a complex cognitive transformation for which other links are usefully provided by Reusser relevant to both this eversion and the topic in general:

- Adam Bednorz: [Sphere Eversion](#) (a webpage with videos and DIY instructions using paper)
- Marcel Padilla: [Sphere Eversion with Transparency: turning a sphere inside out](#) (video)
- Chris Hills: [Everting a Sphere](#) (a collection of links and resources)

The possibilities of living "inside-out" or "outside-in" invite imaginative reflection, as with the following:

- [Cognitive Osmosis in a Knowledge-based Civilization: interface challenge of inside-outside, insight-outsight, information-outformation](#) (2017)
- [World Introversion through Paracycling: global potential for living sustainably "outside-inside"](#) (2013)

The latter presents the challenge in the following terms:

Incoherence of external reality  
 Transformation of worldview from "inside-outside" to "outside-inside"  
 Imagining a window of strategic opportunity for change  
 Insightful confusion: outside-in, inversion, introversion?  
 Alleviating the "weight" of external matters  
 Alternation of worldview between "inside-outside" and "outside-inside"  
 Paradoxical cycling between "inside-outside" and "outside-inside"

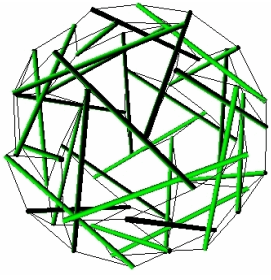
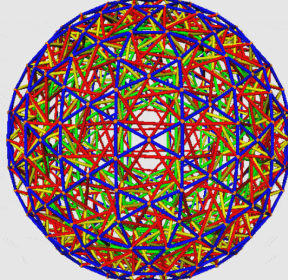
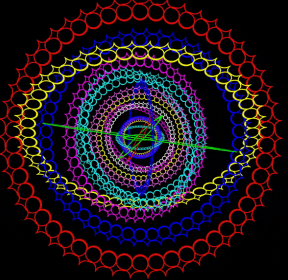
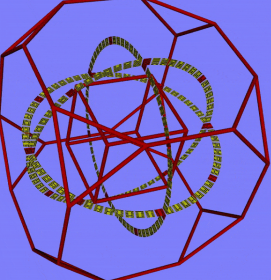
Paracycling: towards a terminological and visual clarification  
 Sphere eversion as guide to the cognitive twist of global introversion?  
 Imagining transcendence appropriately challenging to comprehension  
 Approaches to distinguishing requisite cognitive variety  
 Paradoxically dynamic coherence of internalized "pantheons"  
 Engaging with "peaceful" and "wrathful" deities  
 Embodying the world as a strategic opportunity

**Metasphere as a psycho-social Dyson sphere?** A [Dyson sphere](#) is a hypothetical megastructure envisaged by astrophysicists. It completely encompasses a star and captures a large percentage of its solar power output. It is used to explain how a spacefaring civilization would meet its energy requirements once those requirements exceed what can be generated from the home planet's resources alone -- an immediate prospect for Earth-based civilization. As conceived in physical terms, construction of such a sphere far exceeds human capacity.

There is however the possibility that any design of the metasphere could be explored as a psycho-social Dyson sphere -- a psycho-social construct. This potentially combines insights regarding the sociosphere, the psychosphere. and the cognitive sphere. In this non-material sense, engendering it is far more feasible as a process . This would be consistent with recognition of the central role of the Sun in the symbolism and myth of many cultures, most obviously with respect to insight and creativity. How humanity might dwell cognitively on the inner surface of such a sphere has been a [feature of science fiction](#). Variants hypothesized include the so-called [Dyson swarm](#), [Dyson bubble](#) and [Dyson shell](#), in addition to other types: [Dyson net](#), [Bubbleworld](#), [Stellar engine](#), and [Niven Ring](#).

It is intriguing to note that the current design of tensegrity structures (below left) offers clues to the potential ordering of the networks characteristic of psycho-social organization -- with implications for engendering a Dyson sphere ([Transcending Psychosocial Polarization with Tensegrity: biomimetic clues to collective resilience and unshackling knowledge](#), 2021; [From Networking to Tensegrity Organization](#), 1984). As one example, a celebrated early image of a complex tensegrity is a feature of a page on [92-prism tensegrity](#) in [Tensegrity Wiki](#) where it is analyzed by [Taffgoch](#) and [Adrian Rossiter](#) (of Antiprism). The tensegrity can now be generated by [Antiprism Polyhedron Modelling Software](#) as indicated there.

Given the possibility of multiple rings to form a Dyson shell, the third animation is based on a "gyroscopic" configuration of the 20 rings of the Crown Chakra. With their traditional cognitive implications, these have been separately explored with respect to the strategic viability of interrelating 1,000 perspectives in virtual reality ([Global Insight from Crown Chakra Dynamics in 3D?](#) 2020). Also with cognitive implications, the 3-ring configuration of *I Ching* hexagrams in virtual reality (far right) derives from an exploration of cognitive

Clues to organization of a Dyson metasphere? Animations illustrating simple and complex tensegrity structures			
Icosahedral tensegrity	Multilayer dome generated with Antiprism from 3-frequency icosahedron dual as a prism tensegrity sphere	Clues from possible "gyroscopic" movement of multiple "Dyson rings" (see variants)	Mutually orthogonal configuration of 3 circles of 64 hexagrams within a drilled truncated cube
			
	Imperfect reproduction of Antiprism animation	<a href="#">interactive web -- mp4 -- x3d</a>	

**Cognitive twist entangling space and time?** The time travel meme has long been rendered familiar by science fiction. Far less known is the manner in which physics now recognizes an increasing degree of equivalence between space and time which renders such possibilities probable rather than a matter of fantasy. This has recently resulted in the formation of [space-time crystals](#) as a result of the development of quantum mechanics -- despite its theoretical obscurity and with implications for quantum computing (Pennsylvania State University, *Spacetime crystals proposed by placing space and time on an equal footing*, 27 May 2021; Keith Cooper, *'Time crystals' work around laws of physics to offer new era of quantum computing*, *Space*, June 2022; Lancaster University, *Time crystals 'impossible' but obey quantum physics*, *LiveScience*, 2 June 2022).

Although the focus of such physics is on the radical transformation of matter alone, the potential cognitive and psycho-social implications are attracting attention, as exemplified by the work of [Alexander Wendt](#) (*Quantum Mind and Social Science: unifying physical and social ontology*, 2015; *The mind-body problem and social science: motivating a quantum social theory*, *Journal for the Theory of Social Behaviour*, 48, 2018, 2).

The pandemic and its consequences have highlighted widespread concern with the increasingly elusive possibility of conditions returning to "normal". This is now framed as "the light at the end of the tunnel". Recognition that it is becoming unreasonable to expect to return to that old "normal" -- whether or not that is desirable -- discussion has however shifted to understanding the nature of the so-called "new normal" (*The New Normal – what needs to be different than before?* *UNESCO Futures of Education*; *The New Normal and Coronavirus*, *Johns Hopkins Medicine*; Hans Eicholz, *Defining the "New Normal" after Covid-19 will Require More Just Scientific Expertise*, *EconLib*; *Covid-19: What does the 'new normal' mean?* *The Star*, 21 May 2020; *This Week in the New Normal*, *OffGuardian*, August-September 2021).

Space-time crystals may well suggest the possibility of metaphorical clues to viable global governance of the surreal, as argued separately (*Enabling the "New Normal" through "Renormalization"*, 2021):

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>Topological challenges to the geometry of globalization and polarization</li> <li>Space-time crystals as fundamental to comprehension of global order</li> <li>Via sphere, torus and hyperbola to space-time crystals of governance?</li> <li>Comprehension of requisite complexity through game-ball design?</li> <li>Contrasting forms of coherence framed by positive and negative curvature</li> </ul> | <ul style="list-style-type: none"> <li>Space-time crystals as space-time polyhedra fundamental to appropriate organization</li> <li>Imagining complementary images of the shape of civilization</li> <li>Logic of renormalization as enabling flying metaphorically understood?</li> </ul> |
|---|--|

**Mysterious hole enabling "home-coming":** A contrast was made above between the process of exodus from an increasingly uninhabitable planet and a complementary home-coming into a metasphere. The animations above usefully frame the role of a hole in enabling the seemingly improbable transformation from one form to another (*Mistaken recognition of holes repressed by a global focus?* 2019)

From a cognitive perspective, there is then a case for clarifying the mysterious nature of any such hole as in the remarkable exploration by [Roberto Casati](#) and [Achille C. Varzi](#) (*Holes and Other Superficialities*, 1994) -- with respect to the borderlines of metaphysics, everyday geometry, and the theory of perception (reviewed by Steven A. Gross, *What's in a Hole?* *The Harvard Review of Philosophy*, 1994). They seek to answer two basic questions: Do holes really exist? And if so, what are they, as queried in an extensive [entry on holes](#) in the *Stanford Encyclopedia of Philosophy*.

It is therefore intriguing to note the importance to the culture of the Roman Empire of the hole understood as enabling entry into the underworld of Hades -- the point of entry now claimed by archaeologists to be at Baiae in Italy (Robert F. Paget, *In the Footsteps of Orpheus: the story of the finding and identification of the lost entrance to Hades, the Oracle of the Dead, the River Styx and the Infernal Regions of the Greeks*, 1967).

This usefully frames the question of how a netherworld merits integration into modern governance (*Cognitive embodiment of an "underworld" into governance*, 2010). The question is especially pertinent given the continuing recognition of the role of evil by the highest authorities (*Ensuring Dynamics of Sustainability by Appreciative Recognition of Evil*, 2022). Understood otherwise, the cognitive challenge can be framed as *Embracing error and the netherworld* (2014) or as the *Incorporation of evil into models of requisite subtlety* (2022).

With "introitus" proposed as one antonym of "exodus" (as noted above), the mysterious nature of the requisite hole can be explored in terms of its vaginal connotations in the light insights from the sciences and the humanities regarding any form of renaissance (*Engendering Invagination and Gastrulation of Globalization*, 2010). Are the animations above, variously framing a hole, suggestive of the cognitive nature of the "birth channel" with which home-coming might be associated?

The process of home-coming also invites interpretation in the light of the symbolic significance -- as a strange attractor -- associated with sacred places like Jerusalem, especially when understood in terms of the mysterious nature of singularities (*Jerusalem as a Symbolic Singularity: comprehending the dynamics of hyperreality as a challenge to conventional two-state reality*, 2017). As noted in the latter, further insight is offered by use of "meta-", as in consideration of Jerusalem in terms of [meta-cognition](#) (36,600), [meta-logic](#) (3,850), [meta-theory](#) (10,700), [meta-epistemology](#) (1,440), [meta-discourse](#) (4,240), [meta-design](#), [meta-dialogue](#) (213), [meta-language](#) (24,000), [meta-organization](#) (419,000) or meta-framework (916) -- in addition to [meta-physics](#) (401,000). The figures are those of unfiltered web search results at the time of writing for: *Jerusalem metacognition*, etc. These include studies by institutes based in Jerusalem -- potentially misleadingly.

The contrast has been made above between imaginative aspiration to exodus by space travel and a cognitive analogue as yet far from being appropriately explored. Metaphor offers one insight, as does abstraction. More curious is any cognitive analogue to the familiarity with the process of being "beamed up", as widely popularized by *Star Trek*. A contrasting understanding is provided by the eschatological insight of evangelists into the process of [rapture](#).

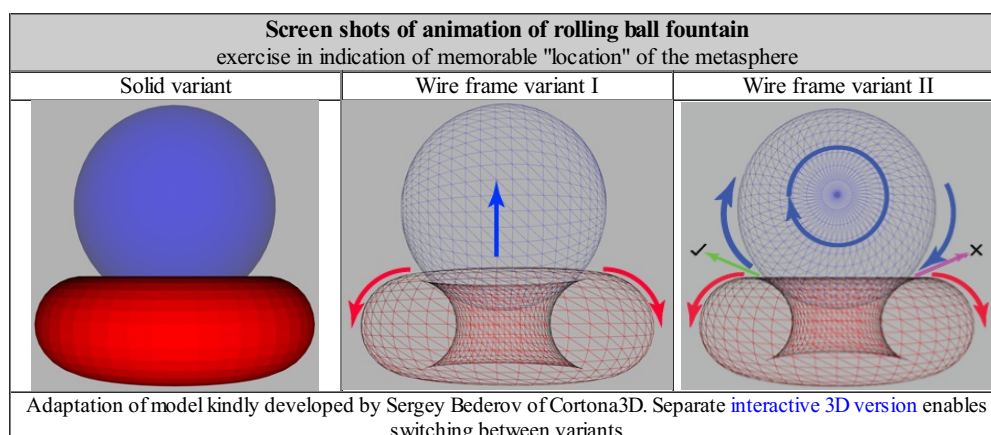
**Memorable "location" of the metasphere?** The arguments above help to frame the question as to "where" the metasphere could be meaningfully understood to be located -- especially since it is "otherwise" rather than "elsewhere". The question can be explored in the light of a clarification by [Ralph Abraham](#):

For Plato and his followers there was a parallel universe in which mathematics resides, now and forever. But for the philosophical phenomenologists of the 19th and 20th centuries, mathematics is a cultural artifact, in coevolution with the human mind and culture... But since the computer graphic revolution of the 1960s, new branches of contemporary mathematics -- such as chaos theory and fractal geometry -- have come to light. Fractal structures -- having a long and unquestioned existence before being introduced into the visual realm and hermeneutics of human apprehension and discussion -- have complicated the arguments. In this 21st century, a similar conundrum has emerged following the psychedelic revolution: what is the location and origin of the psychedelic state of consciousness? And taking these two questions in hand, what is the relationship of these two parallel universes? (*Mathematics and Mysticism*, 2015)

For Abraham, the dialectic of these two opposing views is essentially unresolvable, raising the question of where mathematics comes from. Citing the neurophenomenological study by [George Lakoff](#) and [Rafael E. Núñez](#) (*Where Mathematics Comes From: how the embodied mind brings mathematics into being*, 2000), Abraham examines these questions from the perspective of Neoplatonic cosmology, and from the viewpoint of personal experience with this cosmological model.

Given the cognitive interplay between sphere and torus as described above, one memorable approach to positioning the metasphere is the familiar rolling ball fountain (or rotating ball fountain) of which there are many images on the web (typically of commercial products, inhibiting reproduction of their images). Such devices use a hidden source of water to ensure the seemingly improbable rotation of a very heavy stone ball, suggested by the image on the left below. Variants take the form of rotating ring fountains.

As a mnemonic aid, the first wire frame perspective suggests a comprehensible manner in which the rotation is achieved. However the second perspective on the same model (a side view) indicates how that understanding is flawed.

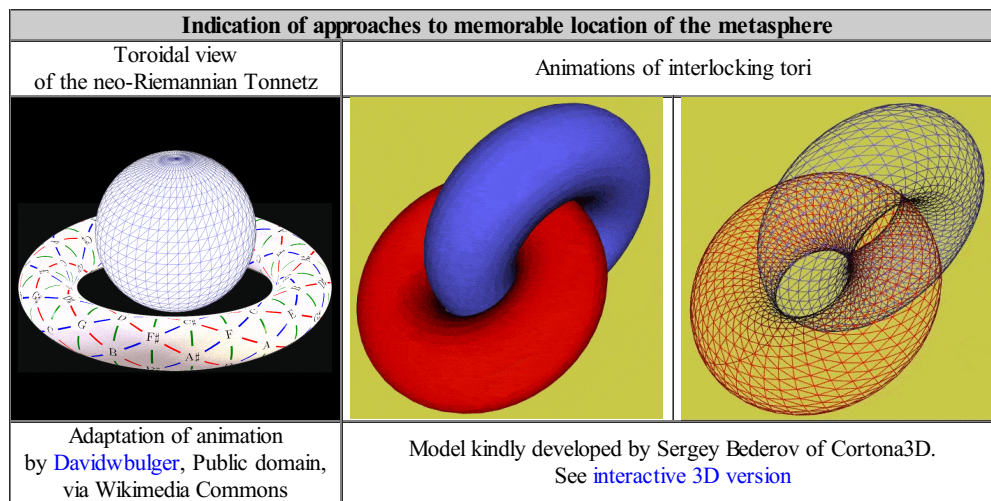


Another approach is to benefit from cognitive insights into the organization of music by the human brain as patterns of tones, as clarified by the work of [Dmitri Tymoczko](#) relating music and geometry (*A Geometry of Music: harmony and counterpoint in the extended*

*common practice*, 2011; *The Geometry of Musical Chords*, *Science*, 313, 2006). The organization of tones in **musical tuning** and **harmony** has long been explored in terms of the **Tonnetz** (a tone-network), namely a conceptual **lattice diagram** representing tonal space. Tymoczko has developed his understanding through its generalization (*The Generalized Tonnetz*, *Journal of Music Theory*, 56, 2012. 1). The central animation below is an adaptation of its representation as a torus by **David Bulger** -- with the addition of a sphere to suggest the manner in which the metasphere may be engendered through musical connectivity (*Tone-of-voice insights from music and the organization of the Tonnetz*, 2020)

The two approaches juxtapose sphere and torus in a somewhat simplistic manner, raising questions concerning how the sphere moves in relation to the torus -- usefully triggered by the operation of the fountains mentioned. The animation on the right suggests that the metasphere might well be understood as a "metatorus" -- through the **interlocking of two tori** (with access to an interactive 3D version). It is such a configuration which might prove more indicative of psycho-socially sensitive global knowledge architecture (*Enabling Wisdom Dynamically within Intertwined Tori*, 2012; *Interlocking tori: combining the two alternative representations*, 2006; *Torc-bearing, Playing-ball, Scoring and Nesting*, 2019; *Aesthetic reconciliation of contrasting toroidal metaphors?* 2019).

Although there are various reference to "meta-torus" from an aesthetic perspective, noteworthy is its relevance to new forms, as discussed and extensively illustrated by Xiaofei Guo, et al. (*Non-orientable order and non-Abelian response in frustrated metamaterials*, *ResearchGate*, November 2021).



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