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Future Psychosocial Implications of the Metaverse

Exploring possible non-technical and existential dimensions

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Introduction

The following indications were evoked by the Pew-Elon Internet and Technology Project Canvassing of Experts undertaken in February 2022 by the Pew Research Center and Elon University's Imagining the Internet Center. However the responses here are not constrained by the survey's particular focus on the **Future of the Metaverse** and the degree to which it could become a broadly adopted aspect of daily life by the year 2040. The results of the survey are expected to be published in June 2022. This follows the results of an earlier survey by the two bodies whose results are published as *Visions of the Internet in 2035*. The concerns in what follows are, however, not with the technological emphasis but rather with the psychosocial emphasis -- whatever that may be deemed to mean.

IOT (Internet Of Themes vs Internet Of Things)? The metaverse as a network of connected virtual worlds in 3D could be understood as a simple extrapolation of what is already recognized in terms of the Internet Of Things. More intriguing is how it might be envisaged and experienced as an "Internet Of Thoughts". There is a sense in which, by contrast, any development of the Internet Of Things would be experienced as increasingly invasive and alienating, however much it may enable marketing of products and services, and their interplay with consumerism.

This trend features prominently in promotion of "Metaverse" through Meta by Mark Zuckerberg and related economic considerations (Hannah Murphy, *Facebook patents reveal how it intends to cash in on metaverse*, *Financial Times*, 18 January 2022; Jee Young Lee, *A Study on Metaverse Hype for Sustainable Growth*, *International Journal of Advanced Smart Convergence*, 10, 2021, 3).

A contrast might similarly be made with regard to the extrapolation of biotechnology, as notably envisaged by transhumanists. Again, the more intriguing emphasis in that context is on memes rather than on genes -- suggesting an "Internet Of Memes". Rather than an externalized form of connectivity -- and any associated disconnect -- the question is the nature of one that is internalized to a far higher degree. Such a focus is of particular relevance now that the possibility of memetic warfare is envisaged.

Verse and metapoiesis? The argument can be developed by highlighting the potential future significance of "verse" in relation to "meta". Clearly verse suggests a powerful association to the aesthetics and memorability of poetry and song, especially through the connectivity they imply in terms of rhyme, rhythm and symmetry, as discussed separately (*Potential for Coherence through Engaging Strategic Poetry Memorable cycles of subdivision enabling viable governance*, 2021). How might these elements of musicality of language then come to be recognized in an enhanced manner implied by "meta"? Note the contrast with the meaningfully problematic emphasis on "metadata".

Subtler inferences are potentially implied and confused by appropriation of "MetaPoetics" as a title used by the Academy of American Poets and as a category of literature (*Metapoetics*). Further subtlety is potentially implied by "metapoiesis", with "poiesis" understood as the creative activity in which something is brought into being that did not exist before.

It has been argued that embracing a "meta-poietic" mindset is the best, if not the only, method to authenticate meaning in our secular times (Hubert Dreyfus and Sean Dorrance Kelly, *All Things Shining*, 2011). For the authors: *Meta-poiesis, as one might call it, steers between the twin dangers of the secular age: it resists nihilism by reappropriating the sacred phenomenon of physis, but cultivates the skill to resist physis in its abhorrent, fanatical form. Living well in our secular, nihilistic age, therefore, requires the higher-order skill of recognizing when to rise up as one with the ecstatic crowd and when to turn heel and walk rapidly away.*

Transverse? The reframing of the "inter" of IOT, as offered by "meta", also calls for reflection in terms of the complex of prefixes of which both are a part -- multi-, cross-, pluri-, trans-, intra- -- as discussed separately (*Varieties of Disciplinarity, Interdisciplinarity and Transdisciplinarity*, 1988; Alexander Refsum Jensenius, *Disciplinarities: intra, cross, multi, inter, trans*, 2012). Possibilities were anticipated by Erich Jantsch (*Towards interdisciplinarity and transdisciplinarity in education and innovation*, 1972).

By the same token, given the psychosocial emphasis here, use of "meta" implies some form of transcendence of "con-" and "pro-" as they feature in the binary interplay of "converse" and "proverse" (*Con-quest Aesthetically Reframed via the Concordian Mandala*, 2016; *Prefix "Re-cognition" as Prelude to Fixing Sustainability -- "Pro" vs "Con" ?* 2017). Does such transcendence suggest a form of non-binary discourse -- "metaversing" rather than "conversing"? Such considerations of "inter- vs meta-" reframe any focus on IOT, suggesting recognition of a "Metaverse Of Themes" or a "Metaverse Of Memes", -- and a new understanding of metapoiesis. Given the current focus on a Great Reset and the emphasis implied by use of the prefix "re-", these obviously contrast with any sense of "reverse" in relation to the emergence of metaverse.

Such arguments invite speculative discussion of related matters (*Interweaving Thematic Threads and Learning Pathways: Noonautics, Magic carpets and Wizdomes*, 2010; *Global Civilization through Interweaving Polyamory and Polyanimosity? Loving/Hating the world otherwise through contractual bonding with any significant other*, 2018).

Rather than as an image readily imagined in conventional terms, is imagination of the nature of a metaverse better understood as a "hyperobject" -- whatever that may now be deemed to indicate? (Timothy Morton, *Hyperobjects: philosophy and ecology after the End of the World*, University of Minnesota Press, 2013; *Hyperobjects: an excerpt*, Academia.edu; *Introducing the Idea of 'Hyperobjects': a new way of understanding climate change and other phenomena*, *High Country News*, 19 January 2015). Such an object, to the extent that it can be objectified, is held to be of such vast temporal and spatial dimensions in relation to human life that it defeats traditional ideas about what is indicated -- associated with references to hyperreality.

Specific possibilities of metaverse

The following possibilities variously imply a form of communication enhanced by AI -- to whatever degree. Taken together they invite the question as to whether they are sufficiently disparate to fulfil the need for the requisite variety which may be a fundamental characteristic of a viable metaverse (*Dynamics of N-fold Integration of Disparate Cognitive Modalities: prefixes determining experience of the present moment underlying pseudophilia*, 2021; *Global Coherence by Interrelating Disparate Strategic Patterns Dynamically*, 2019; *Framing Cognitive Space for Higher Order Coherence*, 2019).

1. **Connectivity promotion beyond profiling and metadata**: There is widespread familiarity with the controversial collection of personal data. A metaverse would of course see a massive development of this, presented controversially as being in the interests of all concerned. Just as the metadata of profiling is used problematically with minimum oversight to influence public opinion, this capacity would be developed to a far higher degree.

   Complementing these trends, there is the far greater possibility within the metaverse of enabling fruitful connectivity. Traces of this are already evident in marketing books (Amazon), films (Netflix), online dating, and the like, where users are presented with options "in the light of" a track record of their previous preferences. The metaverse would see a very extensive development of such techniques to promote contacts between people, projects and concepts, already evident in suggestions of who to follow. In addition to the number of such suggestions, the development would be slued to a much higher degree in the relevance of the proposals made (in contrast with the relative crudity of the algorithms currently used).

   These developments will be highly vulnerable to commercial, political and security pressures ("abuses") influencing who needs to be in contact with whom, especially with respect to who should be prevented from contact with whom (as being dangerous according to some criteria). These may be conflated with understandings of an "information diet" by which personal filters are variously crafted and controlled, purportedly in the interests of cognitive health and appropriate sociability -- extending the ambiguous implications of "programming" (Jamie Tarabay, *Hollywood and the Pentagon: a relationship of mutual exploitation*, *Al Jazeera*, 29 July 2014; Michael McCaffrey, *The Pentagon and Hollywood's successful and deadly propaganda alliance*, *RT*, 12 March 2018).

   In such an enriched information context, a potential issue will be the management of a far greater number of contacts, and of how to function viably in multiple loops. or out of them. How much bonding will be tolerable -- a challenge already evident in the quantity of emails or other messages that some receive daily? How channels are opened and closed will be a major concern, as explored by Orrin Klapp (*Opening and Closing; strategies and information adaptation in society*, 1978)

2. **Patterning connectivity**: There are extensive references to the "pattern which connects", as originally articulated by Gregory Bateson:

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

   And it is from this perspective that he warned in a much-cited phrase: *Break the pattern which connects the items of learning and you necessarily destroy all quality.*

   Belief systems and pantheons as features of a metaverse might then be explored in this light -- with the metaverse recognized as

constituting the "pattern which connects". Following engagement with such a succession and variety of pantheons, the concern might then be framed as to whether the process offers insight into the nature of any "meta-pattern" -- as distinguished from a metaverse -- what form that might take, and how engagement with it might be cultivated (*Meta-pattern via Engendering and Navigating "Pantheons" of Belief? Exploration of three-dimensional patterns inspired by mathematical experience of interrelationship*, 2021).There is of course the irony that each pantheon has a natural tendency to cultivate the assumption that it is itself that meta-pattern -- or that its array of (secondary and dependent) deities is indicative of its more fundamental and transcendent nature. All else is then necessarily illusion and potentially dangerous as such.

In a proactive metaverse, as implied above, patterns of connectivity would be actively proposed -- beyond the current "see also" features of many search results. Optionally search results could be provisionally ordered into "seductive" patterns with increasing emphasis on "opt in" as the default, rather than "opt out". The metaverse could then be understood as a catalytic environment through which possible patterns of memes would be highlighted for consideration, as separately implied (*Patterns of N-foldness: comparison of integrated multi-set concept schemes as forms of presentation*, 1980). Transcendent ordering of this kind will then be understood as enabling comprehension of a higher order, whatever that is deemed to mean (*Engaging with Insight of a Higher Order: reconciling complexity and simplexity through memorable metaphor*, 2014; *Transdisplinarity-3 as the Emergence of Patterned Experience*, 1994).

3. **Enabling discourse between contrasting perspectives:** In the light of the level of discord which currently prevails in society (and which continues to emerge), a primary function of the metaverse would be to act as a container for challenging discourse -- necessarily a container with special characteristics (*Further Constraints on Conceptual Container Design*, 1983; *Complementarity and Self-Reflexivity -- between nuclear fusion and cognitive fusion*, 2006). Following from the previous point highlighting the engendering of proposed patterns, with any potential for concord or discord these will be best understood dynamically. The most comprehensible metaphor for such pattern dynamics is dance whether between compatible partners (in agreement) or incompatible partners (in conflict, amicable or otherwise). The appreciation of the patterned responses in fencing offers another metaphor. It is to be supposed that the metaverse might then offer dramatically advantageous approaches to the management of conflict.

Framed in this way it is to be expected that the metaverse might enable -- catalytically and sustainably -- higher levels of discourse, whatever they may be discovered to be. Of particular value this could reframe disagreement fruitfully (*Reframing the Dynamics of Engaging with Otherness*, 2011; *Triangulation of Incommensurable Concepts for Global Configuration*, 2011; (*Using Disagreements for Superordinate Frame Configuration*, 1992). The metaverse might prove to be a key to transformation of unfruitful disagreement into fruitful complementarity -- enabling the comprehension of that process.

Virtual meetings have already become commonplace. As yet unforeseen, the development of their dynamics could prove to be enabled in fundamental ways within the metaverse in the light of the pattern process noted above. A significant possibility is that conference discourse would be tracked (as with "passing patterns" in ball games) such as to enable recognition of emergent patterns of a higher order. In effect, as a form of knowledge architecture, the pattern of discourse would creatively engender configurations of insights as an outcome of the interaction -- in striking contrast to the outcomes of conventional events.

Such possibilities can be variously explored (*Envisaging the AI-enhanced Future of the Conferencing Process: Meeting design through interactive incorporation of participants and content*, 2020; *From Zoom Organization to Zome Configuration and Dynamics: integrating the doughnut, helix and pineapple models towards global strategic coherence*, 2020; *Multi-option Technical Facilitation of Public Debate: eliciting consensus nationally and internationally*, 2019). Of particular interest is the role of music (*Knowledge Gardening through Music: patterns of coherence for future African management as an alternative to Project Logic*, 2000).

4. **Enabling complementary cognitive modalities**: Experience of the internet has long moved beyond dependence on the text mode alone, which however remains fundamental to institutional and governmental processes, despite the quantities of information and their challenge to communication and comprehensibility (*Comprehension of Numbers Challenging Global Civilization*, 2014). It is to be expected that such challenges will encourage a switch to a high level of sonification within the metaverse. Just as facilities are now offered to translate text between many languages -- or to read it -- it is to be expected that facilities will be developed to "translate" text to other cognitive modes, most notably to music and gesture and to new forms of graphic representation. How such developments will enable haptic and odour-based engagement with information, for those dependent on them, may well evoke highly creative responses.

Of particular interest is the manner in which the metaverse will then facilitate a fruitful shift between multiple cognitive modes -- ensuring a requisite variety of complementary modes. Of further interest is the degree to which the definitiveness of facts is called into question to enable a valuable intermediary condition (*Zen of Facticity: Bull, Ox or Otherwise? Herding facts and their alternatives in a post-truth-era*, 2017; *Living as an Imaginal Bridge between Worlds: global implications of "betwixt and between" and liminality*, 2011).

The implication that the metaverse will necessarily be one of faster paced communication may well be challenged by emerging preferences for a far slower pace and the ability to change pace. The experience of process of waiting, which delays in electronic communications have so obviously highlighted, may itself be reframed (*Waiting as an Experience of Fundamental Significance*, 2018).

5. **Enabling boundary flexibility and permeability**: The previous point highlights the probability that the metaverse will challenge to a greater degree the definitiveness of conventional boundaries, whether physical, administrative or conceptual, as defined by categories. To be anticipated is a shift to a greater degree of fluidity with permeability and a form of "conceptual osmosis" (*Cognitive Osmosis in a Knowledge-based Civilization: interface challenge of inside-outside, insight-outsight, information-outformation*, 2017).

The metaverse will therefore enable a form of image flexibility, according to changing preferences, enabling individuals both to project themselves variously -- reinventing themselves -- and to perceive others variously as a means of mitigating divisive challenges (*Interfacer for Reduction of Discrimination and Harassment: recovering personal control of visual proximity through virtual reality*, 2017).

Any such emphasis on image may itself be reframed in terms of metaphor. The metaverse will enable and encourage the capacity of individuals to choose and embody distinctive metaphors within which to live, whether temporarily or permanently (George Lakoff and Mark Johnson, *Metaphors We Live By*, 1980). In an ageing society this may also facilitate the approach to death (*Metaphors To Die By: correspondences between a collapsing civilization, culture or group, and a dying person*, 2013). Such possibilities may encourage recognition of the variety of ways of perceiving reality (*Interrelating Multiple Ways of Looking at a Crisis: beyond the pandemic discipline of the one right way*, 2021; *Cyclopean Vision vs Poly-sensual Engagement*, 2006).

6. **Enhancing choice and selection:** The value of a Global Positioning System (GPS) to determine physical location on the surface of the planet is now undisputed. It is indeed possible to navigate the qualitative sensual worlds of taste, sound, colour and smell with the aid of a range of conventional tools. These are primarily dependent on word-of-mouth and personal experience -- facilitated and manipulated by advertising -- making it challenging to explore beyond a habitual sensual environment (and possibly costly and disappointing).
The metaverse may be expected to develop well-established, participative, open source, information management techniques to collect and organize aesthetic options for any to explore, as described separately (*Global Quality Navigation System (GQS): participative enhancement of aesthetic discovery*, 2008). Emphasis would be placed on enabling access to richer experience, possibly combining several sense experiences. Such qualitative patterns may well offer insights into new approaches to knowledge organization -- potentially of great significance for psycho-social organization in the emerging knowledge-based society.

7. **Enhancing cognitive intercourse with nature**: In response to widespread current concern regarding the degree of cognitive "disconnect" from nature, the metaverse may engender facilities to enhance engagement -- even to the point of enabling a degree of cognitive embodiment of what is otherwise perceived as an externality (*"Human Intercourse"; "Intercourse with Nature" and "Intercourse with the Other"*, 2007; *Cognitive Embodiment of Nature "Re-cognized" Systemically: radical engagement with an increasingly surreal reality*, 2018). The point has been extensively argued by Henryk Skolimowski (*The Participatory Mind: a new theory of knowledge and of the universe*, 1995).

Such a facility has every possibility of proving vital to a more fruitfully credible engagement with the issues of climate change, depletion of non-renewable resources, and severe loss of biodiversity (*Existential Embodiment of Externalities: radical cognitive engagement with environmental categories and discipline*s, 2009; *En-minding the Extended Body: enactive engagement in conceptual shapeshifting and deep ecology*, 2003).

8. **Radical reframing of work**: The pandemic has made it evident how quickly people can adapt to other modes of work, most obviously the possibility of remote work. There is every probability that the metaverse will challenge many outmoded assumptions of economists relating to "work" and the manner in which it is rewarded, as discussed separately (*Engagement: 14 Contrasting concepts of meaningful employment*, 1996; *Being Employed by the Future: reframing the immediate challenge of sustainable community*, 1996; *Re-enchantment of Work: Hi Ho, Hi Ho, Its Off to Work We Go: Engagement in the 21st Century*, 1996).

Especially striking from that perspective are the forms of activity which have not been recognized as "work", whether housework/homemaker, hobbies, sport, studying, craftwork, political activism, war, and the like. Notable in this respect is whether the millions "work" when incarcerated with a forced-labour obligation. Especially ironic is the question of whether plants and animals "work" -- as understood in thermodynamic terms -- exemplified by roadside panels in forested areas of Tasmania to the effect: *This is a working forest*. From that perspective, when are the "unemployed" not "working"?

The metaverse is likely to reframe the conventional quest for jobs to facilities through which individuals can themselves engender employment (*In Quest of a Job vs Engendering Employment Escaping economic disempowerment through enabling metaphors and software*, 2009). This frames the question as to what is employment and how it is rewarded -- for the individual and for society. The references above highlight the ill-defined role of psychic income, well-recognized by those who derive their satisfaction from activities for which there is no financial reward -- most obviously the voluntary activity on which many social services may be increasingly dependent.

Any such reframing highlights the degree to which "work" and "employment" may be increasingly recognized as a matter of making connections or facilitating them. Whereas many connections will be made by AI facilities in a metaverse, it is those which are not made in this way -- requiring invidious intervention and creativity -- which may in future come to be recognized as constituting work, whether physical or otherwise.

How is making a connection to be rewarded as work? This question points to considerations regarding cultural artefacts and

intellectual property. Specifically, in the case of academic papers, does inclusion of a citation, in establishing connectivity, then constitute work? Should academics be rewarded in some way in terms of citations -- given the abuses which this could engender? What of a new theory or invention -- otherwise conventionally "rewarded" as acquisition intellectual property? (Martin Schwirn. *A legal minefield called the metaverse*, Computer Weekly, 11 January 2022; Pin Lean Lau, *The metaverse: three legal issues we need to address*, The Conversation, 3 February 2022).

The issues in relation to employment frame the more general question of how a more general understanding of work engenders the mutual confidence on which society is now recognized to be so desperately dependent. Specifically how will the metaverse engender a higher degree of mutual trust? (*Varieties of Confidence Essential to Sustainability: surrogates and tokens obscuring the existential "gold standard"*, 2009). How will this be understood in relation to the "social fabric"?

9. **AI Companionship**: Much is currently made of the challenge of loneliness, especially in an ageing society. The metaverse will in all probability offer facilities in order to mitigate this -- far beyond those of current smartphones and other surrogates (*Forthcoming Major Revolution in Global Dialogue: challenging new world order of interactive communication*, 2013; *AI Dialogue: beyond the Turing Test to the Buber Test?* 2020). Whether understood as a companion (robot or otherwise), such a device will offer conversation on any topic, news, provocative critical comment, humour, riddles and other challenges, consolation, music, and the like -- according to preferences.

Such companions will function as "social secretaries", introducing or blocking contact with others. This will raise the question as to how they are used, abusively or otherwise (and by whom), to restrict individual exposure to alternative perspectives and contradictions (*Avoiding Dialogue with Alternative Worldviews at any Cost*, 2005; *Question Avoidance, Evasion, Aversion and Phobia*, 2006).

Most obviously, as with devices which anticipate this dev elopement (Siri, Alexa, and many others), the future will see them functioning as "rememberancers" -- mitigating the erosion of individual and collective memory in the face of ever increasing quantities of information (*Erosion of Memory in Traditional Cultures*; *Societal Learning and the Erosion of Collective Memory*, 1980)

Given the current role of ankle bracelets for electronic surveillance, it is to be expected that analogues will be developed within the metaverse -- as is already evident in constraints on communications imposed on individuals by security services. Especially problematic is the extent to which this will be done without the knowledge of the individual concerned.

10. **Enhancing individual security and vigilance**: Current developments of the internet have made only too evident the vulnerabilities of individuals to cyber crime, identity theft, phishing, viruses and the like. It is to be expected that the metaverse will see a considerable development of these trends -- especially with corresponding evolution of the Dark Web (probably featuring a corresponding "dark metaverse" and its own version of "Meta"). Clearly the metaverse will make far greater provision for identity protection, reduction of exposure to malware, and avoidance of new forms of abuse -- together understood as functions blocking exposure to risk. Curiously this can be compared to development of immunity against invasive processes within the metaverse -- the development of a psychosocial immune response system.

There is every probability of challenging dynamics between the AI agents associated with individuals -- with development of a form of "arms race" between AI agents to ensure their advantage, if not a degree of hegemony.

More intriguing is the associated development of identity disguise and the use of multiple identities -- tendencies already evident. By contrast, especially intriguing is increasing recognition of the necessity for a degree of exposure to risks as a means of regular testing requisite vigilance in a challenging environment. This is already evident in the deliberate use of hackers to test the cybersecurity of institutional systems. The strategy has been caricatured by the aggressive role required of Cato, the anti-hero's butler in the iconic *Pink Panther* movie series.

11. **Reframing engagement with politics and governance:** The pandemic has already made it especially evident that conventional modes of institutional operation are far less than fit for purpose -- despite widespread use of the internet and social media and the challenges they represent.

It is to be expected that the metaverse will see major developments in this regard, most significantly with respect to the organization, comprehension, communication and memorability of knowledge sustaining more appropriate governance (*A Singable Earth Charter, EU Constitution or Global Ethic?* 2006; *Structuring Mnemonic Encoding of Development Plans and Ethical Charters using Musical Leitmotivs*, 2001; *Potential for Coherence through Engaging Strategic Poetry*, 2021). An early speculation with respect to future possibilities is presented separately (*Aesthetics of Governance in the Year 2490*, 1990).

The argument above emphasizes a shift to a focus on themes and memes as can be variously discussed. This will in all probability dramatically effect individual engagement with these processes, notably an enhanced facility to engage with the *Zeitgesit* (*Reading the weave and communicating musicality*, 2021).

12. **Enabling human evolution: *homo conjugens* and *homo undulans*?** There is a case for arguing that development of the metaverse will enable a transition to a new understanding of humanity -- a form of collective self-reflexivity. From this

perspective it is appropriate to recall that any sense of "meta" -- as implying "above"-- may distract from the sense in which "meta" implies a higher degree of self-reflexivity and enhanced "indwelling" (*Implication of Indwelling Intelligence in Global Confidence-building*, 2012).

In cognitive terms, this is a transition potentially comparable to that between Neanderthal and Cro-Magnon, as can be variously speculated (*Authentic Grokking: emergence of Homo conjugens*, 2003; *Emergence of Homo undulans -- through a "grokking" dynamic?* 2013; *Dynamic patterns of play engendered by Homo ludens and Homo undulans?* 2019).

Widespread use is currently made of "hyper", typically associated with "fast" and "intensive" -- and by extension living in the fast track, as might be imagined in the context of the metaverse. It is therefore appropriate to note the reaction of Timothy Morton in instigating the use of hyperobject, as discussed above. He has subsequently made a speculative distinction between hypersubject (as characteristic of those living in a hyperobject) and hyposubject (Timothy Morton and Dominic Boyer, *Hyposubjects: on becoming human*, 2021), as discussed separately (*Living as a hyperprocess in a hyperobject as a hyposubject?* 2022).

For the authors: *Like their hyperobjective environment, hyposubjects are also multiphasic and plural: not-yet, neither here nor there, less than the sum of their parts. They are, in other words, subscendent (moving toward relations) rather than transcendent (rising above relations). They do not pursue or pretend to absolute knowledge or language, let alone power. Instead they play; they care; they adapt; they hurt; they laugh.*

Especially intriguing from this perspective is any sense of degrees of self-reflexivity (or cognitive intensity) and how the invasive pressures of the metaverse environment will encourage recourse to ever more subtle degrees of cognition -- undetectable by metaverse technology. Such cognitive developments are associated with reframing the vexatious relationship between objective and subjective (*Clues to distinguishing "degrees of intensity"*, 2018; *A Subjective Objection: Objecting to Subjection*, 2016; *Conditions of Objective, Subjective and Embodied Cognition: mnemonic systems for memetic coding of complexity*, 2007; *¡¿ Defining the objective ∞ Refining the subjective ?! Explaining reality ∞ Embodying realization*, 2011).

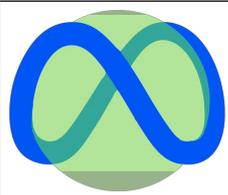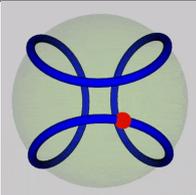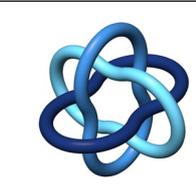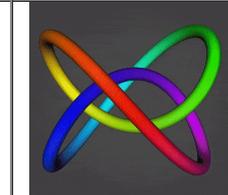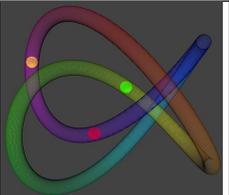## Towards symbolic complexification of "metaverse" comprehension?

As noted above, the promotion of metaverse has been very strongly associated with the rebranding of Facebook as Meta (Kari Paul, *'Live in the future': Zuckerberg unveils company overhaul amid shift to metaverse*, T*he Guardian*, 16 February 2022; Gray Beltran, *When a Logo Doesn't Risk It All: Meta's Brand Is Designed for Unknown Worlds*, The New York Times, 10 November 2021).

There is a case for recognizing that, rather than as conventionally printed in 2D, the logo of Meta is represented in 3D where possible, as shown separately (*Facebook Rebrand as 'Meta" Reveals its Metaverse Plan*, *Designboom*, 31 October 2021). The curve in 3D is of course subject to copyright, with all that this may imply controversially with respect to the metaverse promoted thereby.

The 3D representation can be emphasized in 2D by representing it as surrounding a sphere (as on the left below). Depending on its orientation, the Meta logo is topologically comparable to an intriguing degree to the seam curve of the tennis ball and baseball shown in the animation below. Although rarely recognized as such, the mathematics of the tennis ball curve invites extensive commentary. As a hypotrochoid, the curve invites extensive commentary (*Re-membering the Globe from a Flatland Perspective*, 2020). This refers to the an *Interactive display of generalized baseball and tennis-ball seam curves in 3D* (also developed by Sergey Bederov). In symbolic terms, it is of course extremely ironic that worldwide engagement with the elegance of that fundamental curve elegance is through vigorously striking it competitively, as in the games of tennis and baseball.

The curve can in turn be compared with the logo of the International Mathematical Union (centre below) which is a 3D representation of the Borromean 3-ring linkage which also invites commentary, as that choice of logo indicates (*Borromean challenge to comprehension of any trinity?* 2018; *Requisite curvature: reconciling the Triple Helix, the Triskelion and the Borromean condition*, 2018; Engendering holistic integration: Borromean knots and Klein bottles?2010). The animations on the right below are distinctive presentations of the Mereon Trefoil.

If such knots are to be understood as "holding" the requisite variety of cognitive operations for a viable global system, there is a case for exploring that recently discovered knot which has been the focus of extensive attention. This is most succinctly presented by Louis Kauffman (*Pattern, Sign and Space: Mereon Thoughts*. University of Illinois at Chicago, 2003). Otherwise known and visualized as the Mereon Matrix and the Mereon Trefoil, its potential significance is elaborated in a far more extensive work (Louis H Kauffman, et al, *The Mereon Matrix: everything connected through (k)nothing*, 2018; frontmatter) to which detailed reference is made in the conclusion of a related exploration (*Identifying Polyhedra Enabling Memorable Strategic Mapping*, 2020).

Indication of contrasting degrees of complexification				
Meta (Facebook) logo with added sphere	Tennis/Baseball seam curve	International Mathematical Union logo	Mereon Trefoil with added sphere	Mereon Trefoil with moving spheres
Adaptation of Meta logo	Interactive version (X3DOM)	Re;produced from Wikipedia	Gif animation (no sphere)	Interactive version (X3DOM)

The generation of the Mereon Trefoil can be presented through the helical winding together of 3 spheres in animations by Sergey Bederov, as presented separately (*Contrasting orientations indicative of complementary cognitive modalitie*s, 2022). This is especially relevant to fruitful comprehension of the complexity of the Triple Helix model of innovation, namely the set of interactions between academia, industry and government, to foster economic and social development. By contrast, with that technique, the trefoil generated with 2 spheres offers a means of exploring the challenge of binary thinking -- exemplified by the reconciliation of the "headless hearts" and the "heartless heads", or between the "two cultures". The form generated with 1 sphere is of interest in relation to the new Meta logo and the possibilities then implied by its further topological articulation.

Necessarily of relevance to the possibilities of complexification, the Bederov approach can be extended to a greater number of spheres, and using different parameters, as discussed separately (forthcoming).

Risks of enhancing exploitation in the metaverse

The emergence of the metaverse is readily understood as a new environment appropriate to a knowledge-based global civilization. Various processes can be enhanced (and welcomed) as emphasized above. Others, far less evident, will necessarily also emerge -- notably in association with the "Dark Web". Traces are apparent in the patents already filed enabling enhanced exploitation. The environment offers a new playing field for those already highly skilled in exploitation.

There is a curious naivety to the manner in which people relish the freedom offered by the internet and social media at no apparent financial cost -- whilst at the same time deploring measures which platforms are able to take in manipulating and suppressing aspects of that activity. The lesson of the Facebook/Cambridge Analytica scandal is readily forgotten (Soumik Roy, *Facebook: If something is free, 'you' are the product*, *TechHQ*, 9 April 2018; Scott Goodson, *If You're Not Paying For It, You Become The Product*, *Forbes*, 5 March 2012).

In order to enrich the insight from the Neanderthal/Cro-Magnon dynamic, indicated above with respect to emergent evolution, there is a case for using a much earlier dynamic as a metaphor to frame the relationship between mega corporations and the individual (*Systemic Biomimicry of Dinosaurs by Multinational Corporations: clearing the ground for future psychosocial evolution*, 2011). The hegemony sought and achieved by dinosaurs can then be compared with the comparative viability of mammals enabling their evolution (*Mammals in the Age of Dinosaur*s, *Paleobiology*, 10 May 2017).

The danger for Meta then lies in adopting strategies justifying the critique that *Metaverse Exploits The Alternatives*, matching Margaret Thatcher's TINA slogan: *There Is No Alternative*. The danger for any alternatives -- the *mammals* -- lies in their primary strategic emphasis on reactive rhetoric: *stop the dinosaurs* -- or awaiting a "meteor". Strategically the contrast is exemplified by any comparison between the Great Reset of the World Economic Forum and the disarray of the World Social Forum (*All Blacks of Davos vs All Greens of Porto Alegre: reframing global strategic discord through polyphony?* 2007). Neither extreme has proven able to elicit the "polyphony" associated with the "verse" of metaverse.

Although the viability of the early mammals justifies the iconic study by E. F. Schumacher (*Small Is Beautiful: a study of economics as if people mattered*, 1973), the small -- as *mammals* -- have yet to adequately empower themselves in relation to the *dinosaurs.* Arguably a clue lies in *The Taming Power of the Small* of the Chinese *Book of Changes.* Socrates offers another: *The secret of change is to focus all your energy on not fighting the old, but on building the future.*

For "the small", the emerging challenge of the metaverse is the degree to which it will endeavour to create an environment perceived by many to be ideal -- as implied by assertions of the World Economic Forum (*The Great Reset Explained: You Will Own Nothing and Be Happy*, *Right Wing News*, 19 July 2021; *"You Will Own Nothing and You Will Be Happy"? – The Great Reset*, *Global Economic Forum*, 6 September 2021; *The Great Reset -- You Will Own Nothing and You Will Be Happy*, *The Thinking Conservative*, 14 January 2021; Isaiah McCall, *You Will Own Nothing and Be Happy (The Great Reset)*, *Medium*, 24 December 2021).

Use is frequently made of the octopus metaphor to indicate the tentacled manner of the problematic entanglement of alternative initiatives by the powerful. Although reference is increasingly made to forms of encirclement and recycling (and most recently to the circular economy), the manner in which problematic features of the metaverse might be fruitfully encircled and neutralized are not explored (*Encycling Problematic Wickedness for Potential Humanity*, 2014).

Understood from this perspective, the ideal form of imprisonment or incarceration is then one in which the inhabitants are not aware that they are prisoners and cultivate a form of freedom which would otherwise be understood as illusory. Systemically this is curiously comparable to the current design challenge of using magnetic confinement to ensure that the circulating plasma does not come in contact with its toroidal container in order to enable nuclear fusion. Mixing metaphors, this frames the question whether, unknowingly, the metaverse and the Great Reset will come to constitute a container for an unforeseen form of fusion by strategic alternatives (*Enactivating a Cognitive Fusion Reactor: Imaginal Transformation of Energy Resourcing (ITER-8)*, 2006). Such magnetic containment can be recognized as structural violence -- avoiding the need for physical violence.

Ironically it could be argued that the security services deployed by authorities effectively provide a form of container for protests under the banner of "freedom", as with the Freedom Convoy initiatives of 2022. The longer-term challenge is the viability of the organization engendered by those protesting -- once they acquire the freedom to which they aspire. The English language encourages the strange illusion that "freedom", as a seemingly obvious characteristic of any "land of the free", implies that everything is "free". As noted by Project Gutenberg: *The word free in the English language does not distinguish between free of charge and freedom* (*No Cost, or Freedom?*).

The contradictions are only rarely addressed (Markos Kounalakis, *Freedom Isn't Free: the conflicts and costs for world order and national interests*, 2022; *Cost of Freedom*, *Free Bassel Khartabil Sadafi Collective*, 2015; Ronald Coase, *The Problem of Social Cost*,

Journal of Law and Economics, 3, 1960). The latter is the subject of a commentary by Dawn Allen (*The Social Cost of Freedom*, *Legal Reader*, 12 September 2017).

As with intergovernmental summitry, analysis of the aspirations of the Occupy Movement (2011) may elicit learnings of relevance to the metaverse, but the question is whether these are effectively retained:

- Alasdair S. Roberts: *Why the Occupy Movement Failed* (*Public Administration Review*, 72, 2012, 5)
- Manfred B. Steger and Paul James: *Levels of Subjective Globalization: Ideologies, Imaginaries, Ontologies* (*Perspectives on Global Development and Technology*, 12, 2013, 1-2)
- *Occupy Wall Street: a Marxist assessment* (*Bulletin of the League for the Revolutionary Party*, 1 March 2012)
- *The "Occupy" Movement: A Leaderless Democracy?* (*The Real Truth*)
- Jackson Rawlings: *What Went Wrong (and right) With The Occupy Movement -- and what contemporary resistance movements can learn from it* (*Medium*, 8 August 2018)
- Sam Sanders: *The Surprising Legacy Of Occupy Wall Street In 2020* (*NPR*, 23 January 2020)
- Yasmeen Serhan, *The Common Element Uniting Worldwide Protests* (*The Atlantic*, 19 November 2019), arguing that for many of the protests taking place around the world, the lack of an appointed leader is deliberate.
- Case Western Reserve University: *A decade after the Occupy movement, a new digital archive chronicles its history -- and continuing influence* (*phys.org*, 8 August 2020)
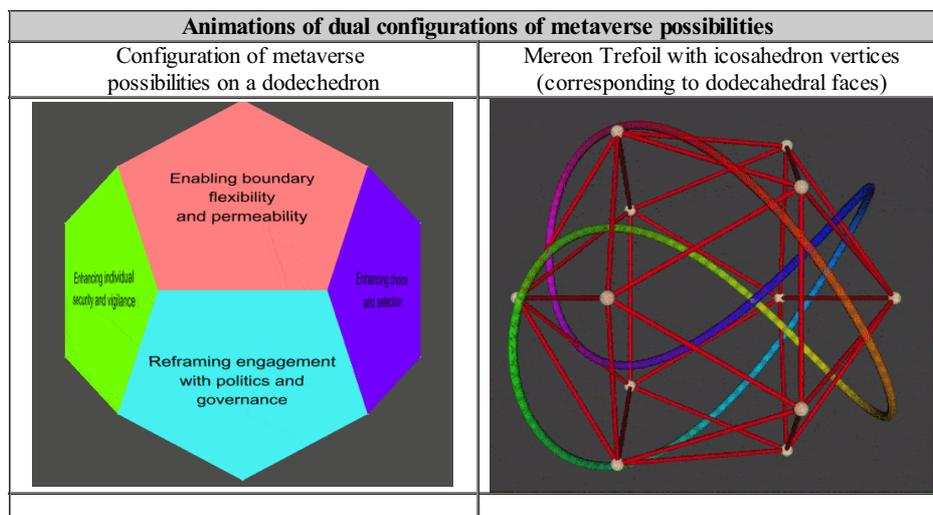
A current comment by George Monbiot characterizes such protests in the following terms:

> ... incoherent protests now sweeping rich, English-speaking nations. Others include the truck blockade in Ottawa and its duplicates in Australia, New Zealand and the US, and the angry men outside the British parliament, waiting to pounce on passing politicians. By incoherent protest, I mean gatherings whose aims are simultaneously petty and grandiose. Their immediate objectives are small and often risible, attacking such minor inconveniences as vaccine requirements and face masks. The underlying aims are open-ended, massive and impossible to fulfil. Not just politically impossible, but mathematically impossible. Listening to these men (and most of them are men), it seems that every one of them wants to be king (*Angry Men*, 18 February 2022)

What viable form might self-reflexive initiatives then need to take, as argued separately (*Consciously Self-reflexive Global Initiatives: Renaissance zones, complex adaptive systems, and third order organizations*, 2007)? Within the metaverse is it probable that the primary strategic advantage over the binary dinosaur-mindset will be a more fruitful understanding of cycles and their embodiment in psychosocial processes, as can be variously discussed (*Encycling wickidity in the light of polyhedral viruses and their mutation*, 2015; *Cognitive Cycles Vital to Sustainable Self-Governance*, 2015; *Embodiment of Identity in Conscious Creativity: challenge of encompassing "con"*, 2011). Proponents of the metaverse may well be liable to fall victim to their own objectivity.

Configuring ways of perceiving the metaverse?

As an illustrative self-reflexive exercise, in the spirit of the speculations above, there is a case for exploring their configuration in lieu of an effort to represent them in systemic terms on a mind map in 2D or 3D. A case can be made for the use of polyhedra for that purpose (*Identifying Polyhedra Enabling Memorable Strategic Mapping*, 2020). As presented below, the 12 possibilities above are mapped onto the 12 faces of a dodecahedron. Its geometrical dual, the icosahedron with 12 corresponding vertices, can then be used to suggest how connectivity between the possibilities might emerge in a non-linear fashion -- indicated by rotation of the Mereon Trefoil passing through those vertices.

Animations of dual configurations of metaverse possibilities	
Configuration of metaverse possibilities on a dodechedron	Mereon Trefoil with icosahedron vertices (corresponding to dodecahedral faces)

The identification above of a pattern of 12 possibilities is clearly arbitrary. It is however consistent with as yet unexplained widespread preferences for 12-fold articulations of relevance to global initiatives (*Checklist of 12-fold Principles, Plans, Symbols and Concepts: web resources*, 2011). There is therefore good reason to extend the pattern to dialogue (*Enabling a 12-fold Pattern of Systemic Dialogue for Governance*, 2011; *Eliciting a 12-fold Pattern of Generic Operational Insights: Recognition of memory constraints on collective*

strategic comprehension, 2011). Also arbitrary is the systemic connectivity within such arbitrary mappings -- an issue highlighted separately (*Time for Provocative Mnemonic Aids to Systemic Connectivity? Possibilities of reconciling the "headless hearts" to the "heartless heads"*, 2018).

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