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Tank Warfare Challenges for Global Governance

Extending the "think tank" metaphor to include other cognitive modalities

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Introduction

The recent publication of the *Global Go To Think Tank Report* (University of Pennsylvania, 2019) is much to be appreciated. In a time of global crisis of unprecedented dimensions, it is wonderful to know that there are 8,248 [think tanks](#) addressing the strategic issues which humanity faces. From the report it becomes clear that their ranking is achieved by feedback from 1,796 peer institutions and experts from the print and electronic media, academia, public and private donor institutions, and governments around the world. As such it lends itself to recognition as a kind of modern *Almanach de Gotha* -- a ranking of new thinking of the highest order in this period of civilization.

Identifying new insights of the highest quality? Given the richness of the expertise thereby summarized, an immediate question of interest is whether the report contains any indication of the best strategic insights that had emerged from those so ranked -- especially those ranked most highly. It is surely these which should be prominent in the policy deliberations of global, regional and national governance at this time. However there seem to be no such indications. Think tanks are ranked there by quality, but with no indication of the "take away" insights for which they are appreciated -- other than the sectoral categories with which they are associated. Of course it is readily inferred that each so ranked, and those ranked most highly, would claim that it is their insights which are naturally to be considered the best.

Missing therefore is the nature of the "tank thoughts" which have emerged from these think tanks. Crucially however, some indication of the extent to which the insights reflected an interdisciplinary perspective would be highly desirable -- especially since the challenges for governance at this time (and always) lie in the problematic interactions between seemingly coherent sectoral strategies, however brilliantly innovative.

Where then is one to find the 10, 20 or 100 key insights from each sector -- the "new thinking" for which so many claim to be looking -- appropriately ranked and interrelated in terms of their impact on each other? How are they to be understood as enabling or inhibiting the alternative strategies which are advocated by other think tanks?

To what output from think tanks should world leaders be immediately attentive? What should be ignored as irrelevant to the crises of the times -- and especially why? How should leaders be briefed on the output from the multiplicity of think tanks -- given the challenge of [information overload](#)?

The challenge could be framed otherwise. Each year one might ask what is the "new thinking" to which governance is currently attentive? What new thinking has emerged from which disciplines -- or from the UN, from the OECD, from the EU, from NATO -- as might be a focus in their annual reports? How is such "new thinking" to be recognized and ranked? Should precedence be given to the

thinking emanating from those most highly ranked -- a function of the *Almanach de Gotha* in determining [order of precedence](#) on diplomatic and social occasions?

Interdisciplinarity and a systemic perspective: Governance can be readily recognized as a problem of interdisciplinarity -- or so one might assume. Unfortunately the only mention of interdisciplinarity in the report related to the University of Pennsylvania as producer of the report -- having a "history of innovation in interdisciplinary education and scholarship". It is indeed possible, however, that such an intersectoral, meta-perspective is highlighted under other key words "systems", "transdisciplinary", "complexity", and the like.

A further question provoked by this vast array of think tanks is whether there is any sense of the knowledge ecosystem they constitute as a network in the light of their thoughtful output. The question was raised in an earlier consideration of the phenomenon and its future relevance (*Meta-challenges of the Future for Networking through Think-tanks*, 2005).

Remedial capacity: More intriguing, where are the studies of the limited uptake capacity of governance institutions with respect to such new thinking, if such is indeed what think tanks are capable of producing?

Is there a need to focus systemically as much on "remedial capacity" as on "new thinking", as separately argued (*Recognizing the Psychosocial Boundaries of Remedial Action constraints on ensuring a safe operating space for humanity*, 2009). Whereas the think tank review focuses usefully on "performance", as collectively evaluated, is there a need to complement this with a focus on *Remedial Capacity Indicators Versus Performance Indicators* (1981). That early critique of social indicators was developed for the Goals, Processes and Indicators of Development (GPID) project of the United Nations University (Warsaw, 1981), and later incorporated into *Insights into Maldevelopment: reconsidering the idea of progress* (Edited by Jan Danecki).

Think tank efficacy and bias: The development here of this concern follows from an earlier question regarding the possible cognitive bias associated with "tank" as a [generative metaphor](#) or [root metaphor](#) ("*Tank-thoughts*" from "*Think-tanks*": *metaphors constraining development of global governance*, 2003). This was developed with Nadia McLaren for a *Workshop on Networking the Future: Think Tanks and Building a European Knowledge Platform* (Conference on the Futures of Europeans in the Global Knowledge Society, 2005).

In a period of multiple regional conflicts and the widely discussed prospect of World War III (together with various other forms of collapse), is there a case for evaluating the efficacy of "think tanks" and the relevance of their "tank thoughts" at this time? Or is the ranking sufficient indication of their relevance -- at least for some? Alternatively, is it indicative of the existence of a collective cognitive blind spot, as is characteristic of tanks as vehicles -- thereby rendering such questions irrelevant to them?

Is the set of think tanks as good as it gets in the production of insights for governance? Is there any source of critique on the quality and relevance of that thinking -- other than in enhancing the quality of such "tanks" and their mutual appreciation? More provocatively, are these indeed the environments which have most significantly enabled and engendered the complex of crises with which humanity is faced -- through failure to consider self-reflexively the consequences of the proposals they so confidently articulate?

Alternative "tanks" and "tank warfare": Think tanks, named as such, are a relatively recent phenomenon. The earlier commentary focused on questions of what "tank" might imply, as a metaphor, for the cognitive processes which take place within and the un clarified confusion with the vehicles which are a natural consequence of the military strategies many recommend.

This commentary avoids that issue and focuses instead on other kinds of "tank" to which attention might usefully be accorded at this time -- given popular investment in them -- thereby challenging the appropriateness of the term. Examples include: feel tanks, sense tanks, thrill tanks, safe tanks, design tanks, and the like. The variety of such tanks constitutes a form of ecosystem in a knowledge-based civilization -- now characterized by the emergence of noopolitics (David Ronfeldt and [John Arquilla](#), *The promise of Noöpolitik, First Monday*, August, 2007; A. V. Baichik and S. B. Nikonov, *Noopolitik as Global Information Strategy*, 2012).

The concern here therefore extends to the well-recognized phenomenon of "tank warfare" -- whether understood in dramatic physical terms or with respect to the ongoing memetic warfare and that of the future -- perhaps to be understood as "cognitive warfare" (Brian Hancock, *Memetic Warfare: the future of war, Military Intelligence Professional Bulletin*, April-June 2010). Does the questionable focus on "tanks" as appropriate cognitive vehicles now herald a new era, as previously argued (*Noopolitics and memetic warfare within the noosphere*, 2014)?

Varieties of cognitive "tank" beyond the conventional "think tank"

Rather than explore the above issues further in the quest for an appropriate replacement for "tank", the argument here can be framed more appropriately through the names of other kinds of "tank" which might work as well as "think tank" -- raising the question as to why that term has so obviously "worked" over decades. Given the development of cyberspace and cyberwarfare, any such tank might well take no tangible physical form.

The question is then what reasonably familiar environments are characterized by a particular tank-like focus and intensity, thereby lending themselves to recognition as an experiential "hot house" however they may be bounded and contained. The device of **using "tank" in the label for each of the following environments is intended as a means of provocatively highlighting the inappropriateness of the term in many cases -- as could well be true of the environments for strategic thinking at this time.**

Consider the following environments, in no particular order -- but in the light of the relative psychological investment people may have in them (in contrast with their engagement with the insights of think tanks):

- **Feel tank:** These would be environments in which feeling was the predominant cognitive mode. Given the role played by night clubs and raves, "vibe tanks" would be readily comprehensible. "Emoti-tanks", inspired as a term by enthusiasm for [emoticons](#), might merit a degree of consideration. Given an acknowledged degree of popular alienation from the elitist modality with which

"heartless" think tanks are associated, the question is in what context "heartfulness" and compassion are cultivated. The challenge has been framed by the economist [Paul Collier](#): *the debate on migration is polarised into two strident positions, a heartless and the headless (Why camps are the wrong way to help today's refugees, The Spectator, March 2017)*. With "democracy" a feature of think tank discourse, in what contrasting environment is the "populist" discourse enabled -- given its obvious success, however "headless" and deprecated?

- **Sense tank:** Potentially in contrast to the previous, or a variant thereof, are those environments which are promoted in terms of the sensual experience they offer -- notably as facilities associated with tourist destinations. A variant might for example include beauty parlours and the like.
- **Heart tank:** The above however miss much of the subtlety associated with romantic environments, thereby calling for recognition of variants (such as "love tanks" or "passion tanks"?) -- widely recognizable as the attractive focus of destination promotion as quality environments (as a "place to be"). The emotional processes could be recognized in the promotion of contexts in which expression of "like" is particularly encouraged -- "like tanks"? Some mutual interest community groups might be recognized in that light.
- **Training tank:** By contrast, but indicative of the same subtlety, are environments enabling the articulation of stress and hate -- possibly evoking skills in [anger management](#) -- "stress tanks", "hate tanks", "anger tanks"? Examples of these include some carefully crafted cult environments, variously recognized as focusing on [brainwashing](#) and personality modification ("cult tanks"?). Some may make use of forms of solitary confinement, readily described as a being "in the tank", whether voluntarily or not. The constraints and processes of "boot camp" (whether correctional [boot camps](#), [fitness boot camps](#), or [military training camps](#)), offer that sense -- even suggesting "boot tanks"?
- **Safe tank:** Missing from the emphases above (or deliberately confused with them) are those associated with therapeutic environments offering a "safe place", perhaps to be recognized as "safe tanks". An obvious variant is "rehab tank" -- or perhaps a "health tank", readily recognized in spas and "fat farms" ("fat tank"?). A psychotherapeutic clinic or consultancy might be understood in that way ("shrink tanks"?), especially where use is made of [sensory deprivation](#) tanks for purposes of perceptual isolation and total relaxation.
- **Bunker tank:** Seemingly distinct from the previous modality, with its more personal psychological focus, is the focus on security of well-being, possibly understood in terms of a "bunker mentality". This could be recognized in terms of the home -- as a "home tank"? Clearly it would include the more extreme preoccupations expressed by survivalists. It is otherwise to be recognized in the sense of a "safe operating space", as in the report titled [Planetary Boundaries: exploring the safe operating space for humanity](#) (2009)
- **Thrill tank:** Beyond the focus of a "vibe tank" or a "sense tank" would be that offering thrills of some kind, readily evident in certain entertainment facilities (where "something is happening"), but possibly extending to adventure camps and the experience they offer. A variant would obviously be recognizable in terms of some form of "sex tank" (as with a brothel) -- a place designed for orgies by which some may be attracted. As with the staging of a boxing or wrestling ring, or MMA, the staging of a [strip club](#) in which strippers perform before an audience, could be seen in that light.
- **Gym tank:** Perhaps as a variant of "training tank", the cultivation of fitness and bodily-kinesthetic intelligence is readily recognized in gyms -- but "gym tanks" would be preferable to "physio tanks" or "kine tanks". These clearly extend to include the *dojos* of traditional martial arts cultivation -- "dojo tank"? Of some relevance to this argument, *dojo* (meaning "place of the [Way](#)" in Japanese) has been used increasingly in other fields, such as meditation and software development. Environments in which circus acrobatics are developed would also merit consideration.
- **Sweat tanks:** The dynamics of a [sweatshop](#) as a bounded environment -- possibly one employing bonded or under-age labour -- merit distinctive consideration.
- **Game tank:** Various forms of gaming occur in, or engender, environments which have a tank-like quality. These include trading rooms, gambling casinos and online gaming, notably when the latter features annual face-to-face gatherings. Similar gatherings are evident in the case of competitive environments, possibly ranging from mathematical Olympiads to track racing, and including any stadium context (as with the archetypal [Colosseum](#) of Rome).
- **Food tank:** Restaurants (as experienced by some) clearly lend themselves to framing as "food tanks", especially the [canteens](#) of institutions. The operation of [fast food establishments](#) gives a sense of how they are effectively managed as tank environments -- "fast tanks"? By contrast, given the nature of environments in which food is especially appreciated, these offer a complex of related metaphors of relevance to the implementation of strategic insight ([Dreamables, Deniables, Deliverables and Duende: global dynamics "at the table" inspired by dining and wining in practice](#), 2015).
- **Drink tank:** As with food tanks, and in some cases to an even greater degree, pubs and [bars](#) lend themselves to recognition as "drink tanks" -- possibly emphasized to a greater degree through the dynamics of a saloon or tavern. The term "bar" is in effect less adequate in that it is indicative of a counter that is lent upon, whereas use of tank emphasizes the contained space in which

the process occurs. Appropriately "tanked up" is a jargon reference to being drunk. Use of tank also has appropriate associations to the various forms of tank in which spirits and beers ferment and mature -- offering metaphorical allusions to cognitive analogues.

- **Prison tank:** Various forms of incarceration tend to include cells or enclosures for more than one occupant which may be termed a tank, if only in jargon. This may apply to temporary enclosure for those awaiting a formal hearing in some judicial process. Prisons themselves may use forms of solitary confinement for disruptive inmates, readily termed placement "in the tank". Environments for enhance interrogation would be perceived in this light (as with "black sites"). Clearly variants include the use of concentration camps, internment camps, "resettlement" camps and ghettos ("ghetto tanks"). Relegation of personnel to a constraining unit within an institutional career structure may well evoke such a sense of "imprisonment".
- **Wait tank:** Partially implied by the previous modality are those environments primarily characterized by waiting -- as with a waiting room or any provisional posting in a career system. These involve extremely familiar processes which have been variously studied (*Waiting as an Experience of Fundamental Significance: commentary on web resources on types of waiting and anticipation*, 2018). Think tanks and their researchers are often forced into awaiting approval on a contract.
- **Design tank:** Environments cultivating a "hot house" creative process can be readily recognized as tanks-- adapting for artistic and other inventive purposes the otherwise narrowly defined role of scientific laboratories. They may range from "design laboratories" to "fashion houses". One sense is suggested by use of the term "business incubator". An art colony can be similarly understood as cultivating the intensity of focus of a think tank -- with appropriate cross-fertilization of ideas and the freedom from distraction.
- **Apart tank:** Whether in the form of a gated community or social housing, both have characteristics which merit exploration as constituting a tank -- from which inhabitants may seek desperately to escape, or which outsiders may seek enthusiastically to enter. A less memorable abbreviation would be "resi tank". An obvious extreme would be capsule accommodation or a pod hotel.
- **Intent tank:** The nature of the focus of intentional communities clearly suggests their recognition as constituting tanks of a kind -- one in which intent is cultivated, irrespective of any spiritual or religious dimensions. Ecovillages might be recognized as a variant of a "residential tank" -- perhaps as an "eco tank". A particular example is offered by ecosteries.
- **Spirit tank:** More specific than the previous example (but with similar, if not greater, intent), is the case of monasteries, convents, ashrams, hermitages, and similar environments -- lending themselves to the questionable characterization as "God tanks"? Variants would of course include churches, mosques, temples and synagogues -- "faith tanks?". Other variants would naturally include those whose functions extend to religious education, as with Jesuit schools, Hebrew schools, or a Muslim Madrasa.

Understood in systemic terms, the scope of the inquiry could be extended in the light of intensive cultivation, of which there are many examples in agriculture and animal husbandry -- readily recognized as functioning as tanks, especially in the case of hydroponics and intensive animal farming. "Farm" might well be the appropriate metaphorical substitute for "tank" -- notably given current use of "farming out".

Given that understanding, how might that methodology be applied to the intensive cultivation of cognitive ability of some kind, most notably of creative insight? Some think tanks would perceive themselves as investing in that process through the cultivation of excellence -- suggesting "excel tanks". This recalls the role of schools for the specially or exceptionally gifted. The EU has specifically cultivated networks of excellence (*Networks of Excellence: key for the future of EU research*, 2007).

Of relevance to any such consideration is the contrast between monoculture (typical of intensive farming of any kind) and permaculture. To what extent are conventional think tanks engaged primarily in monoculture and the linear thinking by which it is characterized? Permaculture could indeed be considered a valuable metaphor for the practice of interdisciplinarity.

Thinking "inside-the-box" as reinforced by think tanks

Think tank as a neologism: As indicated by *Wikipedia* with regard to the origins of "think tanks", there is a long history of establishing "safe" environments in which strategically relevant insights could be engendered as a source of advice for policy makers. The term "think tank" is of very recent origin however.

Until the 1940s, most think tanks were known only by the name of the institution. During World War II, think tanks were often referred to as "brain boxes" (after the slang term for skull). Think tank had been an appropriate expression for the brain since 1905. The phrase "think tank" in wartime American slang referred to rooms where strategists discussed war planning. Later the term "think tank" was used to refer to organizations that offered military advice. Its meaning began to change during the 1960s when it came to be used in the US to describe private nonprofit policy research organizations.

In a table listing the 177 *Top Think Tanks Worldwide (U.S. and non-U.S.)* from the current *Global Go To Think Tank Report*, none was named as a "think tank", none used "tank", and only one referred to "think" (but as "thinking"). In a table listing the 97 *Top Think Tanks in United States*, none was named as a "think tank" or had any reference to "think" or "tank". Searching through the various listings of think tanks by region, only the *Nepal Consortium for South Asian Think Tanks* included any such reference in its name. Of the 177, the preference by 71 was for some variant of "Instit*"; of the 97 in the USA, the preference for a variant of "Instit*" was evident in the case of 41.

There is therefore a strong sense in which the think tanks of the world only identify to an extremely limited degree with the term by

which they are labelled. That they should be content to gather together under that banner, or to be recognized as being of a similar nature for some purposes, is only potentially evident. Curiously the situation recalls the past degree of controversy associated with "nongovernmental organization" as recognized in terms of [Article 71 of the UN Charter](#).

It could even be said that (as "non-university" organizations) think tanks are to universities as NGOs have been to governments. With some think tanks also recognized as NGOs, there is a curious -- if not problematic -- conflation of the two categories in the role of lobbies. A further twist is to be found in the deprecation of any such categorisation. One notable body -- both recognized as an NGO and ranked in the *Global Go To Think Tank Report* -- has declared itself to be a "non-nongovernmental organization". Are there "non-think-tank think tanks" -- or perhaps "non-thinking think tanks"?

Less evident, as with any ranking, is whether some identified in this way have little respect for the output of others of lower ranking or with different agendas. The *Global Go To Think Tank Report* offers no indication of which think tanks are in regular communication with each, and which are strongly critical of others -- effectively in competition with them, whether or not this merits recognition as warfare (Murray L. Weidenbaum, *The Competition of Ideas: the world of the Washington think tanks*, 2008). How does that dynamic contribute to sustaining the [Washington Consensus](#)?

Multi-lingual usage: It is therefore somewhat strange to note that it is only the European Parliament which makes deliberate use of "think tank", although posing a problem in doing so. Thus the [European Parliamentary Research Service](#) (EPRS) listed in the *Global Go To Think Tank Report*, has as a qualifier on its name: "The European Parliament's in-house research service and think tank". This is somehow distinct from another entity (not listed in the report) explicitly titled: [European Parliament Think Tank](#).

Given the heavy multi-lingual commitment of the European Parliament, the websites of both offer a facility for obtaining the translation of "think tank" into a wide range of languages, enabling two translations to be compared, as indicated below for a selection of such languages. It could be concluded that in the case of the European Parliament Think Tank (left column), a translation of "think tank" has simply been avoided. In the case of EPRS, the only language (other than English) using "think tank" is Italian. In practice, however, "think tank" may well be used where linguistic formalism can be avoided.

Comparative translations of "think tank"				
	Comparison of translation of "think tank" by two units of the European Parliament (for a selection of languages, with links to <i>Wikipedia</i>)		Exploratory translations	
			Military "tank"	"Weaponised" cognition
English	European Parliament Think Tank	The European Parliament's in-house research service and think tank (EPRS)	(battle) tank	armoured thinking
Danish	Europa-Parlamentet Think Tank	Europa-Parlamentets interne forskningstjeneste og tænketank .	hær tank	pansret tænkning
Dutch	Europees Parlement Think Tank	De interne onderzoeksdienst en denktank van het Europees Parlement.	pantser, legertank	gepantserd denken
French	Parlement européen Think Tank	Le centre de recherche et de réflexion du Parlement	char d'assaut, char de combat	pensée blindée
German	Europäisches Parlament Think Tank	Der interne Forschungsdienst und die hauseigene Denkfabrik des Europäischen Parlaments	Panzer	gepanzertes Denken
Italian	Parlamento Europeo Think Tank	Il servizio interno di ricerca e think tank del Parlamento europeo	armatura, carro armato	pensiero corazzato
Portuguese	Parlamento Europeu Think Tank	O serviço interno de pesquisa e reflexão do Parlamento Europeu.	blindado, tanque (de guerra)	pensamento armado
Spanish	Parlamento Europeo Think Tank	Servicio de estudios y grupo de reflexión interno del Parlamento Europeo.	armadura, blindado, tanque	pensamiento blindado
Swedish	Europaparlamentet Think Tank	Europaparlamentets interna utredningstjänst och tanksmedja	bepansrade	pansarbeteende

The case of the European Parliament is indicative of another phenomenon, namely the manner in which some institutions may have think tanks which are not declared as such. In this case that of EPRS is only so identified by a subtitle -- although it appears in the ranking, whereas the European Parliament Think Tank does not.

In the case of NATO, its [Think-Tank for Information and Decision Execution Superiority](#) (TIDE Sprint) does not appear in the ranking but appears to have used "think tank" to refer to periodic gatherings better understood in terms of brainstorming. On the other hand, the OECD as a whole is ranked as a think tank but does not have any specific unit associated with such functions. It is variously described as performing the functions of a think tank for its member governments as well as, informally, for the G8.

In the case of the G20, the [ThinkTank for Sustainability](#) is not ranked but offers that function with the [T20 network](#) (Think Tanks from G20 countries) and the [Council for Global Problem-Solving](#), as primary contributors to this G20-insights platform -- complementing the [G20 Information Centre](#) (not ranked).

The United Nations does not appear to have any think tank as such, although some of its regional bodies may (curiously) be included in the ranking. As with NATO, the term may be used to describe occasional brainstorming gatherings. On the other hand, the [Academic Council of the United Nations System](#) (ACUNS), is loosely described by others as a UN think tank (*U.N. think tank to leave Yale for Canada*, Yale News, 24 January 2003),

As international bodies, all these may be faced with the implications of translating "think tank" in contrast to the "tanks" of other cognitive modalities. Curiously, as with the European Parliament Think Tank, the website provides only for contact in the form of "questions" -- suggesting that think tanks perceive themselves to be a source of "answers", but see no need for any other input from the wider world. This reinforces the impression articulated by social movements that institutional elites may well have "listening" facilities of a sophisticated

nature, but could well be challenged in their capacity to "hear".

Conflation of associations? Some confusion regarding the nature of think tanks is evident in the discussion by Enrique Mendizabal (*What is a think tank? Defining the boundaries of the label*, *On Think Tanks*, 22 October 2014). The *Global Go To Think Tank Report* clarifies its focus definitively in the following terms:

Think tanks are public-policy research analysis and engagement organizations that generate policy-oriented research, analysis, and advice on domestic and international issues, thereby enabling policy makers and the public to make informed decisions about public policy. (p. 12)

It is appropriate to emphasize the two processes from which "think tank" emerged. Most obvious -- especially given reference to "brain boxes" -- is with respect to a thinking environment. The other is the wartime context with which that thinking was associated and from which "think tank" emerged, notably in support of military strategy. It is the latter which merits careful consideration in terms of the current marshalling of intellectual resources in support of strategies in which the military dimension may be secondary or completely absent. The fact that defence research is a major source of funding for think tanks contributes to this confusion of associations.

However, like it or not, use of "tank" also holds a degree of association to military preoccupations which could be considered questionable, as argued more generally (*Enhancing Sustainable Development Strategies through Avoidance of Military Metaphors*, 1998). Alternatively, it could indeed be argued that the challenge of the times requires a marshalling of intellectual insights -- honouring the martial dimension traditionally associated with strategic thinking since *The Art of War*, as separately explored (*Ensuring Strategic Resilience through Haiku Patterns: reframing the scope of the "martial arts" in response to strategic threats*, 2006).

As is evident from the translations above, "tank" in practice calls for a qualifier, although there is little doubt of the nature of a "tank" in many contexts. The table above explores the sense in which **the thinking associated with "tank" may be effectively "armoured" in some way -- suggesting that it has been "weaponised" to some degree** (as discussed further below). What form this may take, given the nature of the "non-thinking tanks", calls for reflection.

The issue here is with what context "tank" is associated -- given its obvious military applications. Ironically it could be argued that the degree of confusion is used as a form of semantic camouflage -- a "stealth mode" -- to prevent the nature of the beast from being clearly recognized (Andy Williamson, *The Problem with Think-tanks: transparency*, *Political Innovation: innovative conversational politics*, 9 September 2011).

Succinctly stated, **think tanks have an identity problem, whether with respect to themselves alone or in the eyes of the public** - which they variously purport to serve (through their support for democratic authorities) or seek to manipulate through advocacy processes (in support of vested interests). The problem is all the greater given the increasing popular suspicion (and deprecation) of the quality of thinking of the elitist world with which think tanks are so readily associated (*Radical Disaffection Engendered by Elitist Groupthink?* 2016). Slang use of "tank" as a verb, may well imply failure.

Think tank metaphors of public choice theory: Justifying the inquiry above into the weaponisation of "think tank" thinking, a valuable critical discussion of this theme is provided by **Diane Stone** (*Capturing the Political Imagination: think Tanks and the policy process*, 2013), with the latter containing the following sections:

Knowledge Influence and Agency in Policy	Policy Relevance and Effectiveness
Identifying Thinktanks	Policy Entrepreneurs Research Brokerageand Networking
Explaining and Analysing Thinktanks	Second Hand Dealers in Ideas
US Exceptionalism and Parliamentary Systems	Public Choice Theory and Thinktanks
Thinktank Organisation and Management	Policy Institutes and Privatisation
Innovation Stagnation and Demise	The Foreign Policy Club
Knowledge Communities and Policy Institutes	Thinktanks and the Study of International Relations

With respect to the **public choice theory**, with which many think tanks are associated, Diane Stone remarks:

In addition to their policy relevant applications of public choice theory, the research brokers of think-tanks know that the language in which they couch their policy ideas will enhance their receptivity. By **extending the metaphors of war or faith to public choice theory**, it can be portrayed as a weapon or a 'sect of economists',... It is part of the libertarian and neoconservative arsenal in the sense of being a store of **intellectual ammunition**. It is also one source of enlightenment in the **'broad church'** of economics. The use of these metaphors transforms public choice theory into more than an objective economic theory of policies. It gives an impression of the way in which it is applied and worked and given wider social and political significance.... In the war of ideas, **public choice analysis is a sophisticated weapons system**. It is wielded by scholars not to compel but to persuade others of the superior intellectual force of markets and individual choice... With public choice. think-tanks are 'much better armed, whether to defend against mandated benefits and eco-hysteria, or to press the offensive against socialized approaches'(pp. 155-156; emphasis added)

Stone gives specific examples of the metaphors in play (with citations, excluded here):

- The **market** metaphor is less apparent in think-tank descriptions of public choice, perhaps because the market metaphor is endemic within the theory in its explanation of politics.
- The market metaphor is a **'product'** in the sense that the theory is refined, distributed and sold to decision-makers in the 'market'

place of ideas' as a way of conceptualising policy problems.

- The neo-conservative faith of public choice is surrounded by an '**evangelistic fervour** that somehow - in the future - public choice is about to transform our understanding'
- Think-tanks are not unlike **missions** to win over converts to the public choice gospel....
- The evil this faith battles is the pursuit of private interest at the expense of the public. **Salvation** is to be found in constitutionalism, the rule of law and balanced budgets....
- If people remain committed to their '**false beliefs**', 'political propagandising' is to be advocated. It is to be deployed against the '**coercive powers**' of the state
- The enemy is government which 'acts as umpire, regulator, jailer, warmaker, and sometimes executioner..' (pp. 155-156, emphasis added)

Stone concludes:

Although think-tank analyses may not always state that a public choice perspective is employed, in many cases the theory is implicit in efforts to explain the 'tyranny' perpetrated by democratic government paying off favoured voter blocks... The consumers of public choice analyses from think-tanks are more diversified... They are consumers of political language that 'acts very largely to win or maintain public support or acquiescence'... (pp. 156)

Cognitive modes: The exploration which follows could also be framed by recognition of the **multiplicity of forms of intelligence** as identified by **Howard Gardner** (*Frames of Mind: The Theory of Multiple Intelligences*, 1983). He has suggested recognition of:

- musical-rhythmic intelligence,
- visual-spatial intelligence,
- verbal-linguistic intelligence,
- logical-mathematical intelligence,
- bodily-kinesthetic intelligence,
- interpersonal intelligence,
- intrapersonal intelligence,
- naturalistic intelligence
- existential intelligence
- moral intelligence

It could be usefully asked which of these, separately or in combination, would be evident in a "think tank" and which would be obvious in the intelligence demonstrated so evidently by leaders of nations and the world at this time -- possibly to the despair of those in think tanks formulating recommendations for their consideration. The cases of Donald Trump, Sergio Berlusconi, **Beppe Grillo**, Boris Johnson, Nigel Farage, and the like, would come readily to the mind of many (*What's next for Ukraine under comic-turned-president?* *Al Jazeera*, 22 April 2019). What forms of strategic intelligence are they demonstrating -- especially given their popular appeal?

To the extent that these cognitive modalities reflect alternative ways of knowing of potential relevance to governance and the **democratic deficit**, the question has been usefully raised as to whether the think tank metaphor continues to be relevant to the times (Andy Williamson, *The think-tank model has passed its use by date*. *LSE Blog*, 17 October 2011). The author argues that, although think-tanks are in crisis, there is still a need for evidence-based policy prescriptions -- namely an alternative model for quality research to impact on evidence-based policy-making. The author has described an alternative elsewhere (*The Problem with Think-tanks: an alternative model*, *Political Innovation: innovative conversational politics*, 12 September 2011).

Think tank methodology and groupthink: Appropriately there is the question whether either individual think tanks, or the set of think tanks, are vulnerable to **groupthink** (Enrique Mendizabal, *Groupthink: many lessons for think tanks*, *On Think Tanks*, 1 March 2012). The question would follow appropriately from the acknowledged intelligence failures of 9/11 and the subprime mortgage crisis.

What questions do think tanks typically avoid asking and do they have strategic similarities, as explored separately (*Lipoproblems -- Developing a Strategy Omitting a Key Problem: the systemic challenge of climate change and resource issues*, 2009; *Vigorous Application of Derivative Thinking to Derivative Problems*, 2013).

The development here of this concern follows from an earlier question regarding the possible **cognitive bias** associated with "tank" as a **generative metaphor** or **root metaphor** ("*Tank-thoughts*" from "*Think-tanks*": *metaphors constraining development of global governance*, 2003). This was developed with Nadia McLaren for a *Workshop on Networking the Future: Think Tanks and Building a European Knowledge Platform* (Conference on the Futures of Europeans in the Global Knowledge Society, 2005). As further discussed below, are think tanks collectively susceptible to cognitive bias of some kind, as yet to be usefully recognized (*List of cognitive biases*, *Wikipedia*)?

Given the range of cognitive modalities suggested above, could these be understood as variously located on a spectrum of a kind -- as with the **autism spectrum**? Each modality would then constitute a form of "comfort zone" for those cultivating it. Of some relevance are the largely forgotten arguments of quantum physicist **David Bohm** with respect to enhancing the quality of dialogue. He suggested recognition of "foughts" and "theelings" which could well be indicative of overlapping categories along such a spectrum

Cognitive boundaries of cognitive process containers

Container metaphor: With "thinking" understood as but one of the valued cognitive modalities, it is fruitful to ask what other modalities could be readily understood as framed by the think tank metaphor. The question has particular validity in that it effectively relates to the extensive literature of cognitive psychology on the so-called **container metaphor**, most notably highlighted by **George Lakoff** and **Mark Johnson** (*Metaphors We Live By*, 1980). Of particular relevance to this argument is the extensive review of that metaphor with respect to the European Union (Peter Drulak, *Metaphors Europe Lives by: Language and Institutional Change of the European Union*, European University Institute, 2004). That institute is ranked as one of the think tanks in the *Global Go To Think Tank Report*.

The question acquires further relevance through the argument regarding the ubiquity of containers by [Alexander Klose](#) (*The Container Principle: how a box changes the way we think*, 2015). The subtitle is a reminder of concerns that the internet context, which has emerged later even than "think tank", is in process of modifying the way in which people think ([Nicholas G. Carr](#), *The Shallows: how the internet is changing the way we think, read and remember*, *Atlantic*, 1 July 2011; Hannah Collins, *12 Ways The Internet Is Changing How We Think*, *Ranker*; *Is the internet changing the way we think?* *Psychologies*, 15 September 2010; *How is the internet changing the way you think?* *Edge Foundation*, 2010). **What has dependence on "think tanks" done to the quality of strategic thinking?**

Of further relevance to this argument is the distinction made between purportedly uncreative "thinking inside the box" and that appreciated as innovative [thinking outside the box](#) -- with the valuable ambiguity offered by "out-of-the-box thinking", namely that which is a product of the former, namely of box-constrained thinking. In placing the metaphorical focus on think tank, this offers the paradox that thinking "outside the box" is not something which is effectively cultivated (or appreciated) "within the box" -- preoccupied as it is by out-of-the-box insight production.

Is this a self-image which is deliberately cultivated by think tanks, complicit as they may be with a questionable peer review system? **Are think tanks then primarily to be understood as producers of "contextually conditioned concepts"?**

Thinking the unthinkable vs Feeling the unfeeling? Such questions are all the more relevant in that many think tanks are called upon to address issues of extremism and radicalisation. Paradoxically, however, the requirement is that this should be done without espousing any perspective which might be framed as "radical" or indicative of "extremism" -- despite claims to be able to "think the unthinkable". The ironies of this situation have been discussed separately (*Radical Innovators Beware -- in the arts, sciences and philosophy*, 2016).

In this curious modern period of hypersensitivity to subtleties of expression in relation to identity politics, could it be said that think tanks have trapped themselves within a metaphor which is the antithesis of the creativity which they would claim as their primary characteristic? The insight of policy scientist [Geoffrey Vickers](#) is appropriate: *a trap is a function of the nature of the trapped* (*Freedom in a Rocking Boat: changing values in an unstable society*, 1972).

Boundaries: Use of "tank" whatever the associations, implies a strong boundary -- even one "reinforced" to reduce impact from the external environment (as with any battle tank), or to prevent any uncontrolled escape to it (leakage).

In considering the possibility of bounded environments, as containers for other cognitive modalities, it is then appropriate to ask what form any boundary might take and the nature of the transfers across those boundaries. A case could be made for exploring the variety of boundaries in systemic terms in order to determine how some might be relevant to the operation of an alternative think tank -- if only under certain circumstances. The exploration could extend to a sense of the variety of containers of potential relevance to focusing different cognitive modalities.

The classic study of [Gareth Morgan](#) (*Images of Organization*, 1986) is suggestive with respect to both containers and their boundaries. He considers the perception of organizations as: machines, organisms, brains, cultures, political systems, psychic prisons, flux and transformation, and instruments of domination.

Some alternative metaphors to "tank" could then include:

- **biological cells**, especially given the process of osmosis through which they may communicate with the environment (*Cognitive Osmosis in a Knowledge-based Civilization: interface challenge of inside-outside, insight-outsight, information-outformation*, 2017)
- **bubbles**, especially given metaphoric reference to the manner in which people and organizations may function within bubbles, as argued with respect to [filter bubbles](#) and the extensive study by [Peter Sloterdijk](#) (*Bubbles: Spheres Volume I: Microspherology*, Semiotext(e), 2011). From a strategic perspective, there is the challenge that(as a comfort zone) a tank may be a zone of dangerous complacency (*Pricking the Bubble of Global Complacent Complicity*, 2017). Bubbles are a common feature in depicting statements in political strip cartoons.
- **balloons**, notably through the manner in which "trial balloon" is used by think tanks in making strategic proposals, and the criticism which use of that metaphor invites (*Globallooning -- Strategic Inflation of Expectations and Inconsequential Drift*, 2009).
- **cocoons**, especially in the light of the tendency to [cocooning](#), referring to the increasing tendency to stay inside one's home, insulated from perceived danger, instead of going out -- clearly with implications for those operating within any cognitive environment felt to be "home"

In the quest for a more fruitful alternative, it is appropriate to note a degree of use of "school" (as in [school of thought](#)), "college" (as in [invisible college](#)), and "community" -- to which appreciative reference may be made by those functioning within a think tank. Unfortunately terms like "eco tank" are already appropriated for products. A degree of use of "environmental think tank" could be seen as complicit in the problematic use of "tank".

Arguably the quest for an appropriate environment potentially needs to be far more radical in its nature, as suggested by the design constraints for the experimental [ITER](#) toroidal nuclear fusion reactor (currently the focus of massive international investment). There the challenge is to contain the circulation of plasma under very high pressure and temperature -- such that, paradoxically, it does not come in contact with the walls of the toroidal container (whose integrity it would otherwise destroy). This offers a powerful metaphor for collective interdisciplinary cognitive processes, as discussed separately (*Enactivating a Cognitive Fusion Reactor: Imaginal*

Transformation of Energy Resourcing (ITER-8), 2006). A **"container for the uncontainable"** would seem to be a requirement for those with a capacity to **"think the unthinkable"** -- especially if enhanced by the capacity to feel the unfeeling.

Recognizing the ecosystem of cognitive tanks

Arguably the explosive development of the internet has already encouraged the retreat or migration of many into closed communication environments (*Dynamically Gated Conceptual Communities: emergent patterns of isolation within knowledge society*, 2004). The groups on social media offer a prime example of this, on which many have commented. Is the communication within such groups an example of "tank psychology" -- of "tanky thinking"? The guilds of online gaming imply processes of this kind.

The suggestions for wider application of the tank metaphor could be seen as stretching the metaphor to an unreasonable degree. However it could be argued that widespread acceptance of "think tank" is already more extreme than many of those suggested above. This is especially evident in use of "tank" in the operation of many closed environments (if only as a jargon expression), most notably in its use with respect to incarceration, whether provisionally or as a form of punishment. Ironically some think tanks could be readily recognized as "intellectual ghettos".

In framing such a variety of more or less closed environments as tanks, the question is: **are systemic principles (applicable in the operation of each tank to some degree) evident in all of them.** -- to some degree? Tanks as variously bounded environments raise questions as to what enters them and what leaves -- especially in cognitive terms. Clearly such tanks can be considered as forms of organization and lend themselves to the very extensive range of approaches to [organizational analysis](#).

More relevant than such analysis however is the manner in which forms of organization lend themselves to perception as tanks. Again this recalls the classic study of [Gareth Morgan](#) (*Images of Organization*, 1986) and the distinction he makes with respect to the perception of organizations as: machines, organisms, brains, cultures, political systems, psychic prisons, flux and transformation, and instruments of domination. A tank can indeed be understood as a flexible term for any of these "containers".

In this light, could many organizations (if not most) be understood as tanks of a kind -- possibly to the point of being experienced by those within (or without) as psychic prisons in Morgan's terms? Secret societies and cults are especially suggestive in this respect -- both as think tanks of a kind (in cognitive terms), and in emulating the secretiveness of many think tanks. It is of course the case that many of the environments framed above as "tanks" would strongly object to that framing. It is however unclear what framing, if any, would work better at this time, given the need for a meaningfully succinct term through which systemic processes could be widely recognized within whatever container they are evident.

The more fundamental question is then how the various "tanks" (as suggested above) interact and form a kind of psychosocial ecosystem -- an experiential cognitive ecosystem. Within such an ecosystem various kinds of information are exchanged, from the most physical to the most subtle -- including the spiritual, as it may be understood by some. In this sense, **"think tanks" are then only one of a wide variety of cognitive tanks -- of variously bounded cognitive environments.** Arguably there is little understanding of how this ecosystem operates -- and little desire to understand it, most notably on the part of tanks with a commitment to thinking only.

In principle, this challenge was a preoccupation of the [Society for General Systems Research](#) -- long enfolded by the [International Society for the Systems Sciences](#), which exhibits little interest in such generality.

Information warfare as predominant feature of future civilization

The possibility of information warfare, in contrast to other modes, has been an early theme evoked by [Heiner Benking](#) (*A Humane Information Society or Information War? Reflections about societies, cultures, human potentials and tools such as: filters, brokers, agents, knowbots, and maps*, Benjamin Franklin Institute of Global Education, 1998). Given the framing offered by tank warfare as a metaphor, of relevance is whether this constitutes an unfruitful framing of the information warfare of the future (Imran Shamsunahar, *Are Tanks as Obsolete as Battleships? The National Interest*, 15 October 2017). The latter commentary stresses their psychological value in addition to their technical value. It is however a detailed assessment of their strategic value which can be fruitfully read with respect to the relevance of the variety of tanks considered above (Michael B. Kim, *The Uncertain Role of the Tank in Modern War: lessons from the Israeli experience in hybrid warfare. The Land Warfare Papers* (Association of the United States Army), 109, 2016).

A fundamental strategic question is whether any desirable global governance "breakthrough" can now be appropriately compared to the historic role of the array of 378 tanks in the successful attack on the [Hindenburg Line](#) at Cambrai in 1918, heralding the end of World War I. Is the current strategic focus on "red lines" with respect to virtual wars -- and in anticipation of World War III -- to be compared with deprecated lines of defence, such as the [Maginot Line](#)? (*Review of the Range of Virtual Wars: strategic comparison with the global war against terrorism*, 2005). Seemingly strategic thinking continues to follow that pattern (*Tank Wars Are Coming: how the U.S. Army plans to fight Russia or China, The National Interest*, 9 May 2019).

Information warfare is readily recognized as characteristic of increasingly surreal conditions (*Surreal nature of current global governance as experienced*, 2016). The challenge for land-bound tanks is whether "hybrid warfare" involves other dimensions. There is a further irony in that the main battle tank considered in the review of Israeli experience has been named the [Merkava](#) since the 1970s. This derives its symbolic significance from the Judaic mystical tradition regarding a multi-dimensional equivalent of some relevance to this argument (*Framing Global Transformation through the Polyhedral Merkabah: neglected implicit cognitive cycles in viable complex systems*, 2017).

Memetic warfare: Could the highly problematic dynamics of society now be explored in terms of [memetic warfare](#) -- a form of virtual [tank warfare](#) in the [noosphere](#), especially given the alternative terms for conventional tank warfare, namely armoured warfare and mechanised warfare? Is the use of fake news to be compared to use of [decoy flares as a countermeasure](#)?

Are the various tanks described above to be recognized as variously cognitively "armoured" against their environments (as a form of protection and to facilitate aggressive encroachment)? More problematic is whether in doing so the thinking cultivated could be challenged as primarily mechanistic.

As clarified by the range of references, memetic warfare is now recognized as central to noopolitics:

- Michael Prosser: *Memetics: a growth industry in US military operations* (2005), who proposed the creation of a Meme Warfare Center (see also *Memes that Kill: the future of information warfare*, *CBInsights*, 3 May 2018).
- Keith Henson: *Evolutionary Psychology, Memes and the Origin of War* (2006), who defined memes as "replicating information patterns: ways to do things, learned elements of culture, beliefs or ideas."
- Robert Finkelstein: *Military Memetics. Social Media for Defense Summit*, 2011
- Jeff Giese: *It's Time to Embrace Memetic Warfare* (*Defence Strategic Communications: official journal of the NATO Strategic Communications Centre of Excellence*, 1, 2015, 1 pp. 67-75)
- Jacob Siegel: *Is America Prepared for Meme Warfare? Memes function like IEDs* (*Motherboard*, 31 January 2017)

It has been noted that memes and social networks have become weaponised, while many governments seem ill-equipped to understand the new reality of information warfare. The question is how will who fight the variety of disinformation and propaganda in the future (*Varieties of Fake News and Misrepresentation*, 2019)? It is in this context that Michael R. McBride asks *Why the US Government Spent Millions Trying to Weaponize Memes* (*Medium*, 5 July 2017).

According to Jacob Siegel, in functioning like the IEDs of information warfare, memes are: *natural tools of an insurgency; great for blowing things up, but likely to sabotage the desired effects when handled by the larger actor in an asymmetric conflict*. This is clearly an insight to be borne in mind in a period of rising social unrest and populism -- and the emergence of other kinds of tank, as argued above.

Western secret services are alleged to be perfecting clandestine tools which are designed to weaken countries like viruses weaken bodies, according to the head of Russian foreign intelligence, arguing that this kind of warfare is currently used in Venezuela. (*Venezuela the latest victim of West's 'virus-like' black ops – Russian intel chief*, *RT*, 18 June 2019)

The nature of memetic warfare was previously considered in terms of *Conceptual defense systems and memetic warfare* within a larger context of some relevance to this argument (*Missiles, Missives, Missions and Memetic Warfare: navigation of strategic interfaces in multidimensional knowledge space*, 2001).

Complicity of think tanks in questionable processes: The ranking provided by *Global Go To Think Tank Report* (2019) of 8,248 think tanks avoids the fundamental issue of the often highly problematic relations between them. They are effectively engaged in a form of tank warfare between each other (as representatives of different "sides") and against segments of the populations in which they are variously embedded -- dubiously funded by vested interests.

With respect to the latter especially, a commentary on the dynamics has been periodically provided by George Monbiot (*Secretive thinktanks are crushing our democracy*, *The Guardian*, 12 September 2011; *How corporate dark money is taking power on both sides of the Atlantic*, *The Guardian*, 2 February 2017; *The educational charities that do PR for the rightwing ultra-rich*, *The Guardian*, 18 February 2013). A complementary perspective is offered by Hopi Sen (*How I learned to stop being bitter and love the thinktanks*, *The Guardian*, 7 November 2012; Jamie Whyte, *Hard to believe, I know, but: George Monbiot is wrong*, *Institute of Economic Affairs*, 18 May 2017).

From noopolitics to "noo-warfare"? As presented by *Wikipedia*, *noopolitics* is an information strategy of manipulating international processes through forming in the general public a positive or negative attitude by means of mass media. The aim is to reframe external or internal policy (of a state or block of states) such as to create a positive or negative image of ideas and promulgated moral values .

- David Ronfeldt and John Arquilla, *The promise of Noöpolitik* (*First Monday*, August 2007)
- John Arquilla and David Ronfeldt: *The Emergence of Noopolitik: toward an American information strategy* (Rand, 1999)
- A. V. Baichik and S. B. Nikonov: *Noopolitik as Global Information Strategy* (*Vestnik St. Petersburg University*, 9, 2012, I. pp. 207-213)

As discussed separately (*Noopolitics and memetic warfare within the noosphere*, 2014), although *Realpolitik* is commonly equated with hard power, and seemingly *Noopolitik* with soft power, both are broader in their embodiment of a form of organization. Specifically, *Realpolitik* is not limited to hard power and coercion, but embodies a hierarchical form of organization. Likewise, *Noopolitik* is not limited to reliance on knowledge and soft power, but embodies a networked form of organization.

Think tanks and infowar: There is no lack of references to think tanks and infowars:

- Gregory J. Rattray: *Strategic Warfare in Cyberspace* (MIT Press, 2001)
- Andrew Korybko: *The Ins and Outs of the West's Anti-Russian Infowar: the role of "government organized" NGOs* (*Global Research*, 21 February 2019), noting that one of the most common modus operandi is for Western governments to fund various think tanks and "NGOs"
- Daniel Brandt: *Infowar and Disinformation: from the Pentagon to the Net* (MIT)
- Edward Lucas and Anne Applebaum: *Mapping the New Battlespace of Information* (*Center for European Policy Analysis*)
- John J. Fialka: *Pentagon Studies Art of 'Information Warfare' to Reduce its Systems' Vulnerability to Hackers* (*Wall Street Journal*, 3 July 1995)
- *Restart of Gov., InfoWar and SpiritWars Think tanks!* (*SpiritWars*, 26 2019)

The emphasis is primarily on the role of think tanks in engaging with the think tanks of the "other side" and to a far lesser degree with

how think tanks (supposedly "on the same side") engage competitively with each other. The current importance of memetic warfare is made apparent by the study by P. W. Singer and Emerson T. Brooking (*LikeWar: The Weaponization of Social Media*, 2018).

Memetic tank warfare "under the radar" of think tanks?

Extending understanding of memetic warfare: The manner in which think tanks have effectively disparaged alternative cognitive modalities (as suggested above by the variety of possible alternative "tanks") frames the concern with how all such tanks are effectively engaged in some form of "tank warfare" -- obviously including those tanks other than think tanks. The increasing popular disparagement of elitist thinking (whether characteristic of "think tanks", "God tanks", or otherwise) suggests that the current so-called social unrest may be heralding a conflictual dynamic within the noosphere between many forms of tank.

In the introduction above, the emphasis was placed on how new thinking is to be identified -- and how it might be ranked within a psychosocial ecosystem. What indeed are the 10 new strategic ideas in any year, whether formulated from the perspective of a discipline or an institution? Having extended the relevance of the tank metaphor, **what might be the "new thinking" or insight corresponding to alternative cognitive modalities?** How might it be recognized as emerging from each such tank? How might that emerging elsewhere be recognized from any given tank?

The recognized strategic challenge of "faint signal detection" might be considered especially problematic from within the cognitive constraints of any particular tank given the size of the "orifices" through which it is able to sense the world (Thomas A. Quiggin, *Seeing the Invisible: national security intelligence in an uncertain age*, 2007). The failure of conventional think tanks to anticipate the [subprime mortgage crisis](#) of 2008 offers a striking example.

What other faint signals might prove to be the source of similar surprise (*Uncritical Strategic Dependence on Little-known Metrics: the Gaussian Copula, the Kaya Identity, and what else?* 2009). Now understood as a phenomenon conforming to "Black Swan theory", considerable insight into such a crisis is offered through the study which preceded it by Nassim Nicholas Taleb (*The Black Swan: the impact of the highly improbable*, 2007). Arguably further insight is evident from Taleb's subsequent book (*Antifragile: things that gain from disorder*, 2012), given the nature of the disorder now emerging and prevailing in major democracies (previously upheld as the epitome of order).

Detection of weak signals from non-think tanks? A remarkable study, recently completed for the Government of Canada, specifically undertook a literature review of 600 "weak signals", notably benefitting from insights from think tanks around the world (Policy Horizons Canada, *The Next Generation of Emerging Global Challenges*, *Horizons*, 19 October 2018). The study identified the following 16 global challenges.

- Working in the Digital Economy
- Global Health and Wellness for the 21st Century
- The Emerging Asocial Society
- Shifting Dynamic of Privilege and Marginalization
- Building Better Lives Across the Gender Spectrum
- Inhabiting Challenging Environments
- Balancing Risks and Benefits in the Emerging Surveillance Society
- Humanity+
- The Evolving Bio-Age
- Living Within Earth's Carrying Capacity
- The Pervasive Contamination of the 'Natural'
- Envisioning Governance Systems that Work
- The Changing Nature of Security and Conflict
- Truth Under Fire in a Post-Fact World
- The Arts Transformed
- Erosion of Culture and History

This set of challenges was clearly informed by the 17 UN [Sustainable Development Goals](#) and by the 15 [Global Challenges](#) of the [Millennium Project](#). It remains unclear how such separate initiatives converge on sets of challenges and goals of such numerically similar size, without questioning that tendency, as discussed separately (*Aesthetic criterion: meaningful completeness and phi?* 2019; *Comprehension of Numbers Challenging Global Civilization*, 2014).

Given the deliberate focus on "weak signal" detection by the Canadian study, the question here is however whether the new set of global challenges can be said to demonstrate adequate sensitivity to what might be inferred to be the cognitive preoccupations of the set of non-think tanks suggested above. How might the manner of articulation of those cognitive environments relate to this set of challenges?

Clearly the Canadian report and its challenges are articulated in the language of think tanks, as would be required under the circumstances. The challenges are specifically identified as global -- as have been the other sets mentioned. By contrast, the manner in which social unrest is being articulated is readily subject to criticism that its concerns are incoherent (as with the highly unpredictable [Yellow Vests movement](#) in France). This suggests that there is a dangerous disconnect between the language of think tanks and popular preoccupations -- and that the focus on "global" challenges is avoiding a requisite degree of "local" sensitivity. In this sense the rise of populism, purportedly surprising to think tanks (before the fact) could be recognized as unsurprising (whatever the rationalizations after the fact).

Biases of think tank methodology: The Canadian study is specific in indicating that it supplemented its literature review of "weak signals" with a crowdsourcing initiative via questionnaires with the support of foresight tools such as the AI-assisted research tool [Shaping Tomorrow](#) and [Futurescaper](#). Given the nature of such a process, is it possible that the questionnaires, those selected for questioning, and the manner in which responses were processed, could be criticized as effectively **processing the insights into a language characteristic of think tanks**? Is the methodology susceptible to the [logical fallacy](#) of reification and [misplaced concreteness](#) with respect to the experiential subtlety of many of the cognitive modalities framed above as "tanks"?

Curiously a very similar methodological problem was more recently raised by the nation-wide [Grand Débat National](#) in France through which all citizens were invited to formulate their concerns and suggestions in the light of the unprecedented social upheaval over many

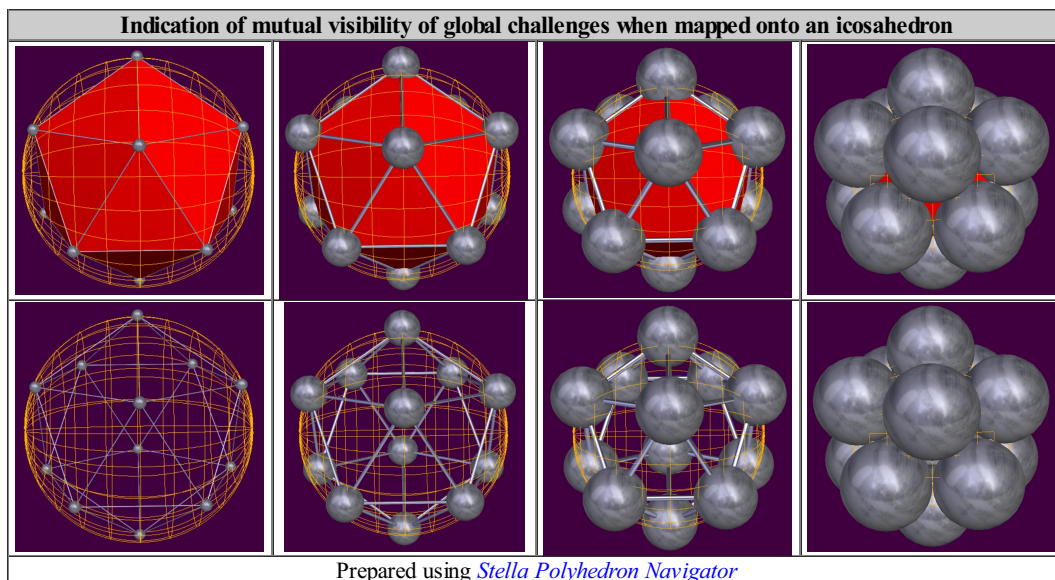
months arising from the Yellow Vests movement. The problems and possibilities of processing the vast amount of such information have been discussed separately (*Multi-option Technical Facilitation of Public Debate: eliciting consensus nationally and internationally*, 2019).

In the French case, the information could be said to have been selectively processed in a manner which could be readily challenged. Both cases could however be seen as examples of inability to connect with the cognitive modalities suggested by the set of "tanks" above. Of particular concern is the nature of the purported consensus elicited, whether understood as "national" (in France and for Canada) or "global" (as claimed by the Canadian study). Arguably **many of the "non-thinking" cognitive modalities are inherently "local" in nature, rather than "global"** -- beyond the scanning capacity of either, namely methodologically "below the radar", whatever the process used.

Mutual visibility of global challenges? Are distinctive "global challenges" effectively invisible to each other -- from the perspective of any one of them? Is comprehension of their global nature subject to the **horizon effect** -- now encountered by artificial intelligence? Is each effectively "over a cognitive horizon", were they all to be appropriately mapped onto a sphere consistent with a "global" understanding of them? Rather than "under the radar", the appropriate metaphor would then be "off the radar". In those terms, is there something to be learned from **over-the-horizon-radar** technology?

Reflection on such questions is aided by the following images variously highlighting the manner in which the connectivity of such challenges can be portrayed "globally", depending on the importance given to each relative to the whole. The assumption in this case is that there are 12 global challenges (a compromise between the 8 of the Millennium Goals and the 17 of the Sustainable Development Goals) and that they can be suitably mapped onto an icosahedron with 12 vertices. The left-most image indicates the obvious horizon effect, rendering each invisible to the next -- unless it is assumed that there are no "sides" to be considered, as indicated in the lower row of images.

The challenges may be represented with greater size, as in the second column and thereafter. The horizon effect disappears in the second row, with each visible to its immediate neighbours. In the final column, each is in direct contact with its immediate neighbours.

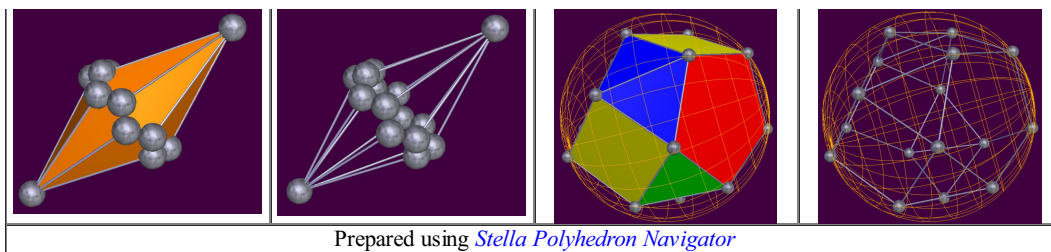


The images are helpful in discussion of the constraints on memorability in the light of what is recognized as the most cited paper in psychology (*George Miller, The Magical Number Seven, Plus or Minus Two: some limits on our capacity for processing information, Psychological Review, 63, 1956, 2*). This clarifies the "chunking" challenges to memory as a method for keeping groups of information accessible for easy recall. It could be argued that the viability of any political process involving a greater number of "chunks" (challenges, political parties, issues, etc) would be questionable, especially in engaging the general public. In a political process, bedevilled by short-termism, what role might chunking play in the collective memory with respect to any global set of strategies? **How many challenges can be remembered in the absence of mnemonic aids -- irrespective of their systemic connectivity?**

The final images on the right are also useful with respect to any understanding of the dynamics of "closest packing" of a set of challenges -- as represented by spheres, and discussed and illustrated separately (*Psychosocial Implication in Polyhedral Animations in 3D: patterns of change suggested by nesting, packing, and transforming symmetrical polyhedra*, 2015)..

The assumption of 12 global challenges is of course in contrast with the 17 Sustainable Development Goals and the 16 Emerging Global Challenges articulated by the Canadian study. In the latter case, these invite exploratory mappings through relatively "extraordinary" forms such as follows. What might be the forms appropriate to ensuring the comprehensibility of the set of 17 Sustainable Development Goals? Is the 17th better understood as a coordinating central point in a configuration of 16? In the case of the 15 Global Challenges of the Millennium Project, should the 15th be coordinating perspective on the remaining 14?

Possible configurations of 16 Global Challenges mapped onto unusual polyhedra			
Mapping onto 16 vertices of heptagonal deltohedron		Mapping onto 16 vertices of acrohedron	



There is a problematic possibility that increase in the size of sets of challenges, from the 8 Millennium Goals through to the 17 Sustainable Development Goals merits critical investigation as being consistent with the [Peter Principle](#). More generally this would then be understood that sets get increased in size until they are effectively "incompetent", and especially "incomprehensible".

Unreality of global perspectives: The challenge of bias can be argued more specifically otherwise, namely with respect to overcrowding and overpopulation (*Local Reality of Overcrowding -- Global Unreality of Overpopulation: comprehensible reframing of engagement with global issues via metaphors of proximity*, 2019).

Overpopulation can be readily recognized as the root cause of multiple problems of governance, as can be argued (and denied) from a variety of perspectives (*Scientific Gerrymandering of Boundaries of Overpopulation Debate*, 2012; *Institutionalized Shunning of Overpopulation Challenge: incommunicability of fundamentally inconvenient truth*, 2008; *Overpopulation denial: failure to consider progressive implications of overpopulation*, 2009; *Failure of radical analysis of root causes*, 2015).

Given current governance capacity, which problems would not be easier to manage if there were fewer people? Which problems will become magnified to an unforeseeable degree in the years to come, and further complicated by their mutual aggravation? The point can be emphasized in the light of the remarkable reluctance of think tanks to estimate future migration, as argued separately (*Anticipating Future Migration into Europe (2018-2050): Beyond the irresponsibility of current political and humanitarian short-termism*, 2017).

Intriguingly the only text reference to population issues in the Canadian study is: *Life extension could also create prolonged periods of dying and boredom, and challenges of overpopulation and social strife*. However a single image (inhibiting access to the term by search facilities) is very explicit in noting the problems of population increase and die off, recalling the images of the famous *Limits to Growth* (1972) study of the Club of Rome.

It is indeed the case that global overpopulation is unreal from a "non-thinking" perspective, however this is not the case with regard to local "overcrowding" -- a problem which is a matter of experience. It is "felt". The Canadian study makes no mention of this in a period when many tourist locations are placing a cap on visitors as a result of local protest -- notably as a consequence of pressure on accommodation and quality of life. It is readily to be imagined that that study was under undeclared pressure to exclude consideration of such matters, as has been the case at the global level (irrespective of any systemic arguments, which think tanks might otherwise have formulated). The point was argued more specifically in a critique of a recent report for the Club of Rome (*Exhortation to We the Peoples from the Club of Rome: Review of "Come On! -- Capitalism, Short-termism, Population and the Destruction of the Planet"*, 2018). How is a think tank to be distinguished from a "pressure group"?

Underlying warfare: As with the Canadian study, it is not difficult to suspect some form of "deal" or "understanding" between the "Club" and "Rome" in the ongoing memetic "warfare" to ensure that any strategic implications of overpopulation are carefully downplayed through the manner in which proposals on the issue are crafted (as with "population" rather than "overpopulation" in the subtitle above). Is the relation between the Pope's encyclical *Laudato Si'* (24 May 2015) and the historic [Paris Climate agreement](#) (12 December 2015) to be seen as a similar exercise in denial, as variously argued previously (*Papal Concern for Climate Change and Refugee Care: a means of concealing criminal systemic negligence?* 2015; *Institutionalized Shunning of Overpopulation Challenge: incommunicability of fundamentally inconvenient truth*, 2008)?

Such studies are also remarkable through the manner in which **the focus on "global" conclusions obscures the existence of underlying tank warfare, whether between think tanks serving different interests or with (and between) those cognitive modalities whose preoccupations are otherwise -- and often in conflict**. Are "global challenges" meaningful to think tanks -- but inherently meaningless to cognitive modalities of another kind, focused on "local reality"?

Clustering and interrelating strategic insights

With the 8,248 think tanks, as indicated in the *Global Go To Think Tank Report* (2019), it is appropriate to ask (perhaps too naively), where their insights are clustered and interrelated -- systemically or otherwise.

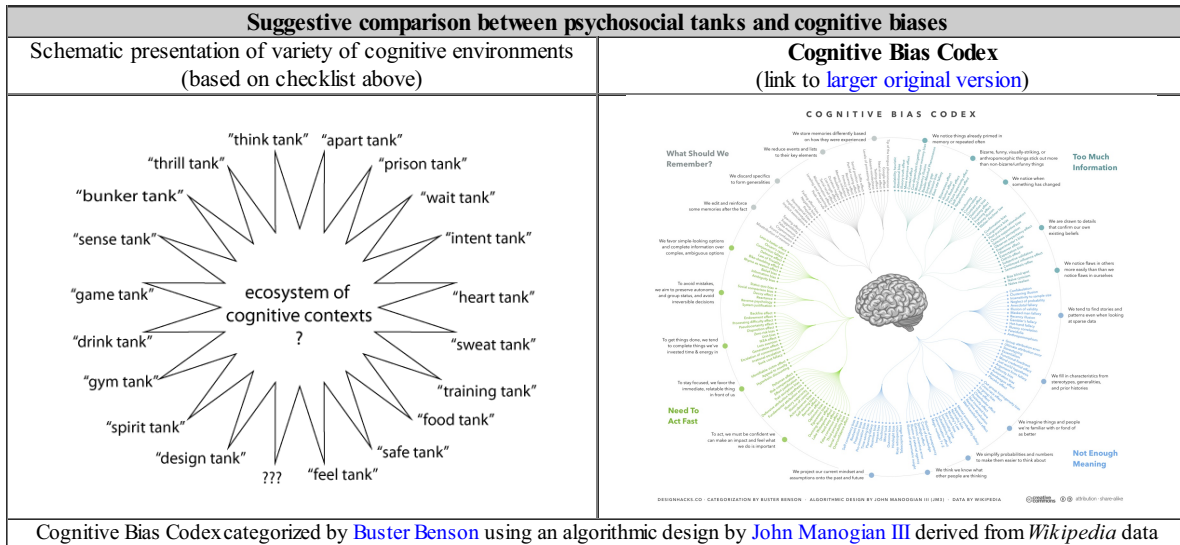
An obvious response is that, if their insights are not highly confidential (as many are), they would appear in the vast array of publications of those think tanks, or of the journals which value their output, as ranked by the peer review system. This implies a massive budgetary constraint on their accessibility, irrespective of the challenges of information overload. As vital seeds for the future development of humanity, many would effectively "fall upon stony ground" -- a phenomenon meriting reflection (*Imminent Collective Communication "Info-death"? Collapse of global civilization understood otherwise*, 2018).

Clearly the same would apply to the insights of the other forms of tank suggested above -- an issue aggravated by their potential alienation from the text mode primarily favoured by think tanks and their policy-making clients. Twitter can now be seen as a response to this (*Re-Emergence of the Language of the Birds through Twitter?* 2010).

Ironically, given the clear distinctions made in cartography, there is a case for exploring the distortions in cartographical projections of "global" as a means of distinguishing and "mapping" the distortions in psychological projection of "globality". Any such exploration could

necessarily be informed by the more systematic approach to [cognitive biases](#) and their classification (see [List of cognitive biases](#)). The *Wikipedia* description includes a remarkable *Cognitive Bias Codex* as reproduced below right. This clusters some 180 biases into 20 subcategories clustered into four main categories.

The tank metaphor is very suggestive of how the psychosocial tanks might be represented on a conventional [systems diagram](#) (as boxed labels) with the tanks variously linked by feedback loops. In the absence of such systemic insights, the set of tanks can be configured provisionally in a circular array as indicated below left.



It is of course a serendipitous convenience that the two displays suggest a potential degree of comparison to be explored between the 20 subcategories of the *Cognitive Bias Codex* and that of the set of 20 (?) psychosocial tanks as biases of a different nature. Arguments are developed separately for the value of a 20-fold set of concepts of strategic relevance, as discussed further below ([Requisite 20-fold Articulation of Operative Insights? Checklist of web resources on 20 strategies, rules, methods and insights](#), 2018).

Experimental challenge: It is appropriate to note that the UN has avoided any articulation of the systemic links between its 17 *Sustainable Development Goals*, as was the case with its earlier *Agenda 21* (1992). Similarly the Millennium Project seemingly downplays its indication of such linkages with the set of 15 *Global Challenges*. By contrast the Canadian study of 16 *Global Challenges* is far more explicit in this respect although the mapping offered is necessarily "flat" to ensure facility of reproduction in print and on the web -- irrespective of issues of global comprehension. How many such links are indicative of the strategic robustness of a [viable system](#)?

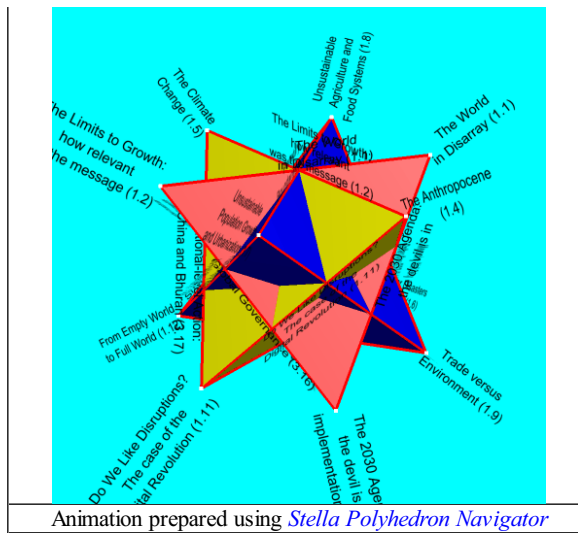
As indicated above, **missing is any experimental approach to configuring 15 to 20 strategic insights in order to render such relatively complex sets comprehensible and memorable**, rather than readily forgettable. Is this also the case with various experiments in reframing statistical arguments through [infographics](#)? How might these avoid reinforcing the "Flat Earth" syndrome in the face of global challenges?

Earlier experiments, of potential relevance to this argument, have included:

- **Earth Summit** (Agenda 21): *Configuring Globally and Contending Locally: shaping the global network of local bargains by decoding and mapping Earth Summit inter-sectoral issues* (1992)
- **Human values:** *Dynamic Exploration of Value Configurations: polyhedral animation of conventional value frameworks* (2008)
- **Civilizational collapse:** *Mind Map of Global Civilizational Collapse: why nothing is happening in response to global challenges* (2011)
- **People and Planet:** *Scientific Gerrymandering of Boundaries of Overpopulation Debate: review of The Royal Society report -- People and the Planet* (2012)
- **Sustainable Development Goals** (Millennium Development Goals): *Interplay of Sustainable Development Goals through Rubik Cube Variations: engaging otherwise with what people find meaningful* (2017)
- **Club of Rome:** *Exhortation to We the Peoples from the Club of Rome: review of "Come On! -- Capitalism, Short-termism, Population and the Destruction of the Planet"* (2018).
- **European Union:** *Coherent Representation of the European Union by Numbers and Geometry: mapping structural elements and principles onto icosahedron and dodecahedron* (2019)

In the case of the recent Club of Rome report, the critique above offered the following reframing of the report's checklists: To the extent that the distinction there of 12 unsustainable trends (section #1) and 18 strategic initiatives (#3) is indicative of some unrecognized coherence, it is appropriate to note that these can be effectively mapped onto a [compound of 3 tetrahedra](#) (rather than the 2 of the star tetrahedron). This has 18 edges, 12 faces and 12 vertices -- as with its dual. As mapped below, this could be the most compact visualization -- despite setting aside the segments of the second section. Of course the question is whether the labels could be more meaningfully positioned to highlight systemic patterns.

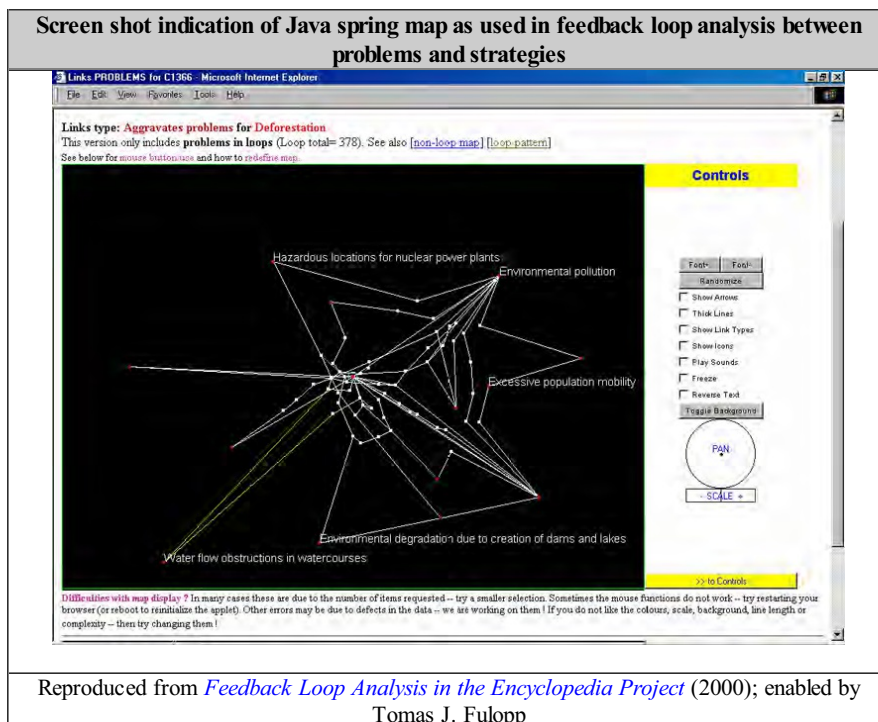
Mapping of Come On issues onto a 3-tetrahedra compound
(12 vertices="unsustainable trends"; 18 edges="strategies")



Indicative simulations of memetic "tank warfare" in psychosocial systems?

It is remarkable that so little attempt seems to have been made to simulate and represent the dynamics between psychosocial cognitive/behavioral functions of the kind indicated here as "tanks". Some form of this has purportedly been an intention of *FuturICT* as a "Living Earth Platform", namely *a simulation, visualization and participation platform to support decision-making of policy-makers, business people and citizens.*



An early example of this approach, using spring mapping techniques, has been that of interactive representation of world problems and global strategies, variously aggravating or enhancing each other, as illustrated below.



Indicative animation of tank warfare: The static circular configuration of psychosocial tanks (above left) is of course simplistic and unrepresentative of the dynamics between the cognitive modalities which are tentatively framed by the "tanks". The different tanks interact with each other variously in ways which call for exploration. The dynamics are typically problematic in many cases and can be appropriately recognized as a conflictual condition of "tank warfare" -- especially given the cognitive dilemmas they evoke. One approach would be though use of a Java spring map, as shown above, as developed for a more general case.

The animations below suggest how such systemic "warfare" might be represented as a first approximation. The animations have been developed using *force-directed layout graph drawing* techniques (d3.js). This constitutes one form of interactive spring map representation.

The animations depict the dynamics between the 20 tanks distinguished above (and distinctively coloured), with arbitrary assumptions as to the extent and nature of their links. The animations are indeed simplistic, especially as a consequence of the limited technical competence of the author in producing and displaying them on the web. They are interactive, as illustrated by movement of the (yellow) cursor. But, for convenience of display, the animations have been converted into gif animations which are not interactive.

Dynamics of an extreme case?	Force-directed layout offers a wide range of options, of which very few are employed in these animations.	Highlighting intervention by "think tank" modality
	<p>Especially relevant is the ability to change the "charge" between "tanks". Also of relevance is modification of the "length" of the links separating the "tanks".</p> <p>The two examples here are compromises in the use of these parameters</p> <p>Labels can be attached to the "tanks" -- only indicated in these cases when the cursor is placed on the "tank" (another possibility is to have all labels visible)</p>	

Systemic configuration of highly disparate cognitive modalities -- in the light of 5-ring strategy?

Recognizing radically distinct cognitive modalities: The set of psychosocial "tanks", as tentatively presented above, deliberately obscures the very distinctive manner in which these "tanks" may be bounded as containers for quite distinctive cognitive processes (as noted briefly above). Whereas the configuration may necessarily be "global" (and therefore "unreal" in some sense), the challenge is to embody cognitive modalities which may be necessarily "local" (with an associated sense of "reality").

Appropriate consideration of such differences can be fruitfully recognized in the 5-fold distinctive modalities made in the classic Japanese strategic manual, *The Book of Five Rings (Go Rin No Sho)*. In strategic studies, this has long been appreciated as a complement to the Chinese classic, *The Art of War*. The five rings are explicitly distinguished by metaphor to clarify the radical distinctions between the cognitive modalities associated with each of the five strategic approaches. As chapters of that study, they are named as:

- *The Book of Earth*, perhaps usefully understood as the solidity of reification and the "concrete" to which the think tank modality typically aspires
- *The Book of Water*, perhaps especially understood through strategic references to liquidity and the need for nimbleness -- or through crowd psychology, and the "slipperiness" of emerging leaders
- *The Book of Fire*, perhaps understood through recognition of the fundamentally radical, whether disruptive or innovative, or both (as with what is experienced as inspiration and a "flash" of revelation)
- *The Book of Wind*, perhaps usefully understood through associations to "movements of opinion", the "winds of change", and the cultivation of narrative
- *The Book of the Void*, perhaps usefully understood in allusion to elusive fundamental values, notably reinforced by religious frameworks (especially through apophasis)

These distinctions strongly recall the 5-fold *Wu Xing* pattern of Chinese thinking, understood as the five types of *chi* dominating at different times. There is therefore the possibility of clustering the 20 (?) psychosocial modalities into five strategic categories of memetic "tank warfare" (Xiaoying Qi, *Paradoxical Integration: globalised knowledge flows and Chinese concepts in social theory*, University of Western Sydney, 2011).

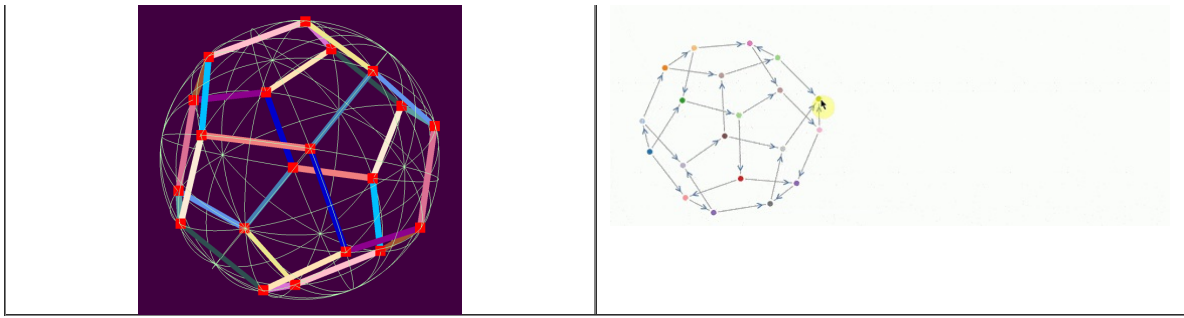
The categories might well bear a relation to the *Panchatantra (Five Treatises)*, an ancient Indian collection of interrelated animal fables in Sanskrit verse and prose -- the most translated work in Indian culture -- analogous to Aesop's fables. Comparison could also be explored with the *Pancasila*, of similar derivation, namely the official, foundational philosophical theory of Indonesia based on five principles.

In a period of major preoccupation with climate change, it is somewhat ironical to note the extent to which the metaphors above from nature are in themselves a feature of climate -- as so widely understood experientially (*Weather Metaphors as Whether Metaphors*, 2015).

Indicative animations of coherent tank configuration as a psychosocial ecosystem: The possibility that there is a degree of coherence interrelating the system of tanks can be pursued in the light of earlier arguments and animations (*Requisite 20-fold Articulation of Operative Insights? Checklist of web resources on 20 strategies, rules, methods and insights*, 2018). Of particular relevance is the coherence offered by mapping in terms of the dual configuration of icosahedron/dodecahedron -- the latter with 20 vertices -- as explored separately (*Time for Provocative Mnemonic Aids to Systemic Connectivity? Possibilities of reconciling the "headless hearts" to the "heartless heads"*, 2018). That study includes many animations of some relevance.

The dodecahedron is characterized by 15 great circles (*Fifteen Great Circles on a Sphere, Wolfram Demonstrations Project*) -- appropriate to any quest for "global" configuration. The 5 rings and the 5-fold *Wu Xing* pattern might then correspond to five great circles rotating through its 20 vertices, as indicated below.

Rotation showing 15 great circles through 20 dodecahedral vertices (edges on same circle similarly coloured)	20-fold systemic configuration of "tanks" as a dodecahedron (illustrating disruption of coherence by the singular think tank modality)



Pattern of "trumping" alternative distinctions: Requiring further consideration is the manner in which any one ring of modalities might be understood as undermining or overriding ("dominating") any other ring -- whilst being undermined in its turn by others. Given the contrasting modality exhibited so successfully by Donald Trump (the self-acclaimed expert in deals) -- to the dismay of many committed to the staid think tank modality -- this process could be recognized in terms of what is known in [contract bridge](#) as "trumping" cards of any other suit (*At Bridge Tables, 'No Trump' Takes On a Whole New Meaning, The Wall Street Journal, 23 July 2016*).

The process is recognized world wide in terms of variants of the hand-game [Rock–Paper–Scissors](#), whether with different "weapons" or more of them. With respect to the latter, one popular 5-weapon game is "[rock-paper-scissors-Spock-lizard](#)", invented by Sam Kass and Karen Bryla. Mathematically it is recognized that as long as the number of moves is an odd number and each move defeats exactly half of the other moves, while being defeated by the other half, any combination of moves will function as such a game.

These considerations suggest visual comparison of the following, bearing in mind that it is the 3-fold Rock-Scissors-Paper which is most immediately comprehensible, with the 5-fold variants (of relevance to this argument) as a greater challenge. In the case of the *Wu Xing* cycle, as illustrated below, the interaction arrows can be understood as black=generating; white= overcoming.

Suggestive comparison of cycles of interaction				
Rock-Scissors-Paper 	Rock-Scissors-Paper-Lizard-Spock 	Chinese 5-phase Wu Xing cycle 	5-fold Borromean rings 	Discordian mandala
Reproduced from <i>Wikipedia</i>		Adapted from <i>Wikipedia</i>	From Chamberland and Herma (2013)	Reproduced from <i>Wikipedia</i>

The 5-fold images above invite various explorations of strategic relevance (*Engaging with Elusive Connectivity and Coherence: global comprehension as a mistaken quest for closure*, 2018; *Correlating a Requisite Diversity of Metaphorical Patterns*, 2015):

- **Scissors-Paper-Stone:** This metaphor has been extended to 5-ring and 7-ring Borromean configurations (Marc Chamberland and Eugene A Herma, *Rock-Paper-Scissors meets Borromean Rings*, Grinnell College, 2014). As with the 3-ring game, the authors argue the case for 5-part and 7-part games with contrasting "weapons", noting that the number of such "games" has been extended to 13. Of relevance to this argument is whether the "weapons" are nations, as with the Group of 5 [Permanent Members of the UN Security Council](#), the [Five Eyes](#) intelligence alliance, the [Group of 7](#), or sets of mutually overriding strategic priorities of governance. Do 3-fold groups invite similar insight ([Trilateral Commission](#), [Trilateral Cooperation Secretariat](#))? What then of the viability of any cartel or [crime ring](#), most notably [triads](#)?
- **Wu Xing:** *Cycles of enstony forming mnemonic pentagrams: Hygiea and Wu Xing* (2012); *Transformation pathways in multivocal discourse* (2015)
- **Borromean rings:** *Requisite curvature: reconciling the Triple Helix, the Triskelion and the Borromean condition* (2018); *Borromean challenge to comprehension of any trinity?* (2018)
- **Discordian mandala:** *Con-quest Aesthetically Reframed via the Concordian Mandala: inspired by implications of the systematics of the Discordian Mandala* (2016); *Visualization in 3D of Dynamics of Toroidal Helical Coils: in quest of optimum designs for a Concordian Mandala* (2016)





With the focus of discussion of the last three on insights from 3D images and animations, the question is: **how can a 5-fold configurations of circles, rings or cycles be rendered more comprehensible if these imply quite distinct cognitive and strategic modalities?** The images below are highly suggestive of the implication that the 5-fold pattern can only be comprehended to a limited degree, requiring instead another mode of cognitive engagement -- namely it must be "played competitively" in some way. This is consistent with efforts to understand strategy in terms of game theory, as investigated by some think tanks.

It is however the actual engagement in the game which is of relevance to this argument, given the variety of cognitive modalities then implied. This is consistent with the arguments of various authors from the perspective of cognitive psychology, As discussed separately

(*Body knowledge: understanding without proof*, 2012), The dependence of understanding on metaphors framed by body movement can be associated with the work of a colleague of Lakoff, namely [Mark Johnson](#) (*The Meaning of the Body: aesthetics of human understanding*, 2007). The focus is also a preoccupation of others ([Maxine Sheets-Johnson](#), *The Primacy of Movement*, 1999 and *The Corporeal Turn: an interdisciplinary reader*, 2009; [Barbara Tversky](#), *Mind in Motion: how action shapes thought*, 2019).

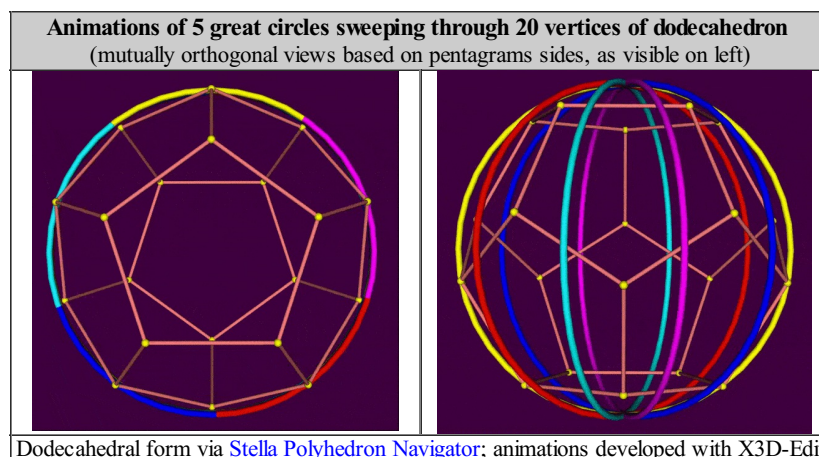
So-called "body thinking" has also been reviewed as characteristic of ancient China by Kuang-Ming Wu (*On Chinese Body Thinking: a cultural hermeneutic*, 1996). He argues that Chinese thinking is concrete rather than formal and abstract, and this is gathered in a variety of ways under the symbol "body thinking". As now argued from a Western perspective, the root of the metaphor is that the human body has a kind of intelligence in its most basic functions.

The metaphor of body thinking is extended far beyond bodily functions in the ordinary sense to personal and communal life, to social functions and to cultivation of the arts of civilization. As the metaphor is extended, the way to stay concrete in thinking with subtlety becomes a kind of ironic play, a natural adeptness at saying things with silences. Play and indirection are the roads around formalism and abstraction. Western formal thinking, he argues, can be sharpened by Chinese body thinking to exhibit spontaneity and to produce healthy human thought in a community of cultural variety.

Contrasting illustrations of interwoven cycles in 2D and 3D		Speculative animations of the cognitive challenge	
Olympic rings (original by Pierre de Coubertin)	Rattan ball used in kick volleyball (Sepak takraw)	Truncated icosahedral stitching pattern of association football	Highlighting 5-fold elements
			
Reproduced from <i>Wikipedia</i>		From <i>Requisite complexification of imagery to embody greater significance</i> (2014)	

The central image recalls the recognition of the relevance of weaving to governance, notably as practiced by Mohatma Gandhi, as separately discussed (*Warp and Weft of Future Governance: ninefold interweaving of incommensurable threads of discourse*, 2010). This is reflected in the interest in carpet weaving by [Christopher Alexander](#) (*A Foreshadowing of 21st Century Art: the color and geometry of very early Turkish carpets*, 1993) as speculatively discussed (*Interweaving Thematic Threads and Learning Pathways: noonautics, magic carpets and wizdomes*, 2010).

Interweaving rotation of 5 great circles? In the absence of an adequate spherical weaving animation (inspired by the rattan ball above), one experimental approach to interrelating the think tanks of this argument is through great circles as illustrated by the following experimental animation. Here 5 great circles, primarily associated with two opposite pentagrams of the dodecahedron, are shown as rotating such that they variously interconnect all the 20 vertex "tanks". Missing is any indication of the "trumping" effect (interweaving) which is so fundamental to recognition that each modality may override any other, but is vulnerable to being overridden in its turn (as noted above).



Anticipating "global navigation" -- in cognitive terms? Arguably the current challenge of comprehending and enabling global navigation could be compared with the historical challenge of navigating the globe -- centuries ago (and a reality in practice for many today). The technical insight into the possibility of doing so only emerged from the work on the so-called *Pentagramma Myrificum* by the mathematicians [John Napier](#) and [Carl Friedrich Gauss](#), as discussed separately (*Global Psychosocial Implication in the Pentagramma Mirificum: clues from spherical geometry to "getting around" and circumnavigating imaginatively*, 2015). The latter includes animations of relevance to the above argument, in contrast to the perspective offered by a "Flat Earth" metaphor potentially to be seen as characteristic of think tanks ([Thomas L. Friedman](#) (*The World Is Flat*, 2005; *The World Is Flat; the globalized world in the twenty-first century*, 2006).

An alternative approach to representation of interweaving and the "trumping" effect is through use of 5 helical circles (*Concordian*

Dynamics of tank comprehension and enclosure

The focus here on the think tanks ranked in the *Global Go To Think Tank Report*, together with the forms of enclosure indicated by the variety of cognitive environments, raises the question of how their contrasting insights are to be comprehended. Ironically, it would be unusual to find any think tank preoccupied with the challenge of how the wider world is to comprehend their insights and why it is so evident that that comprehension is lacking, notably among decision-makers -- to a potentially disastrous degree. It would appear sufficient that comprehension of a kind is achieved within the closed environment of some kind of tank. The lack of attention to how the variety of seemingly incommensurable insights are indicative of a larger pattern fundamental to global insight and governance could be seen as tragic at this time. The poverty of interlinkages and feedback loops between checklisted global challenges is only one indication of this.

Possibilities of developing the argument can be variously explored in ways which pose their own integrative challenge.

Closure: Potentially more fundamental than the container argument (noted above) is that with respect to closure, whether the **epistemic closure** of epistemology, the **cognitive closure** of philosophy, the **closure** of psychology, or that of **sociology**. The matter has been addressed by **Hilary Lawson** (*Closure: A Short History of Everything*, 2002). It can be readily recognized that any tank, and especially a think tank, is an exercise in closure, and even a celebration of its advantages.

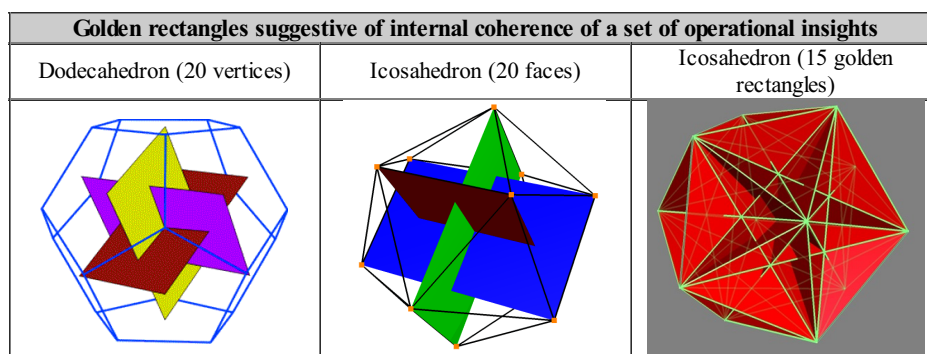
Cloistered rectangular thinking? It is curious that monastic and academic courtyards and **quadrangles** ("quads") down the centuries, and into recent times, have tended to cultivate a form of architectural closure. A study of such quads (Julie Sturgeon, *The Quad Angle*, *College Planning and Management*, 1 February 2009), notes an earlier extensive survey by Jonathan Romig containing the following remark:

A room, whether indoor or outdoor, has a spatial focus. In a principle going back at least to the architect Vitruvius (1st century CE), a room with a focus in the center will have a proportion of up to 1.62 to 1 (length to width; the "golden section"). Above this proportion and certainly above 2:1, the focus of a space moves to the end(s). Thus the popularity of the long basilica form for Christian spaces, where the congregation in the nave is wholly subservient to the activity and symbolism of the altar, focused at one end in the apse. The location of the focus of a space is an inevitable consequence of the shape of that space -- longer spaces have the focus at the end, and shorter spaces in the middle... **When we survey successful American campus spaces that are clearly formed or designed, in the vast majority of cases we find that they have a shape with proportions of less than 2:1** (*The Long Quad in American Campus Planning*, 11 January 2002, unpublished article/email communication; emphasis added)

Given a choice, what architect could resist that criterion of aesthetic proportion? Or is this a myth, as argued by John Brownlee (*The Golden Ratio: Design's Biggest Myth*, *Fast Company*, 13 April 2015). Given their deliberate closure, should academic "quads" be considered as archetypal tanks?

Quadrivium versus Trivium? In framing topics of relevance, there is a further potential irony through the traditional academic framing of the **quadrivium**. The point to be raised with respect to the argument above is whether the institutional tendency to rectangular enclosure (with which the architecture of think tanks is presumably associated) encourages thinking in a "single rectangular mode" -- as exemplifying a form of completeness. Clearly in the 2D format of a "quad", there is little possibility of emphasizing the complexity of 15 such rectangles in 3D -- in order to reinforce what might then be recognized as thinking of a global nature. By contrast, it could be said that a single rectangle, however well proportioned, reinforces any unconscious sense of the elegant adequacy of a "Flat Earth" world view. The argument has obvious implications for the design of negotiating tables (about which there are many references), given the questionable success of global negotiating processes and the dynamics of cabinet meetings in this critical period.

To the extent that the 20 (?) cognitive modalities lend themselves to dodecahedral configuration, with 4-fold subsets interrelated by golden rectangles, those which are "thinking-oriented" could be understood as forming one such rectangle. Others, equally subject to a "Flat Earth" syndrome, could be interrelated by other such rectangles. Especially striking is the sense in which some would necessarily be mutually orthogonal in 3D, thereby highlighting the challenges of mutual comprehension and any capacity for coherent global insight. The point is clarified by the following images reproduced from a more extensive discussion of a requisite 20-fold articulation of operative insights in the light of dodecahedron/icosahedron duality (*Coherence, comprehensibility and credibility of a cognitive toolkit*, 2018)



Given the global strategic implications of the highly problematic relation between the three Abrahamic religions, their "mutually orthogonal" nature can be similarly explored through 3D animation (*Reconciling Symbols of Islam, Judaism and Christianity: catalytic methodology for effective interfaith dialogue*, 2017).

The "quadrilateral" focus implied by the quadrivium has however been traditionally associated with that of the **trivium** of which a new formulation has been proposed (Henry Etzkowitz, et al., *Whither the university? The Novum Trivium and the transition from industrial to knowledge society*, *Social Science Information*, 51, 2012). That proposal can be compared with widespread interest in the **Triple helix model of innovation**.

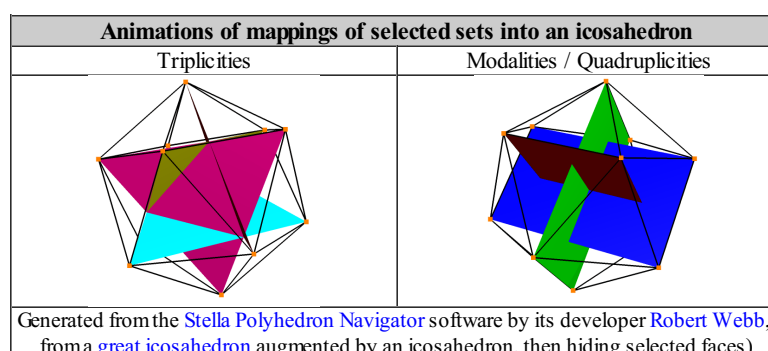
Of relevance to the mutual entanglement of these associations is the remarkable survey by Leon Conrad (*Integration and the Liberal Arts: a historical overview*, *On the Horizon*, 22, 2014, 1), Their mutual implication constitutes an exemplification of the two culture challenge articulated by C. P. Snow (*The Two Cultures and the Scientific Revolution*, 1959). This is a feature of the **World Academy of Art and Science** with its concern for the integration of insight from all fields of inquiry. Of relevance to this argument, Snow's book evoked that of **John Brockman** (*The Third Culture: beyond the scientific revolution*, 1995) which can be understood as an argument for integrative comprehension.

Geometrical dynamics of incommensurable cognitive modalities? It is indeed appropriate to celebrate the possibility of integration in lengthy texts, richly enhanced by metaphor and figures of speech. Curiously however, even the orderly presentation of such devices is currently problematic (*Questionable Classification of Figures of Speech -- as fundamental to the need for powerful rhetoric in governance*, 2016). There is therefore a case for noting the curiously unrelated efforts of authors such as:

- Buckminster Fuller: given his insights into the geometry of polyhedra (*Synergetics: explorations in the geometry of thinking*, 1975/1979) -- despite his apparent failure to apply it as claimed by the subtitle of that *magnum opus* (*Geometry of Thinking for Sustainable Global Governance: cognitive implication of synergetics*, 2009)
- Christopher Alexander: given his remarkable investigation of pattern language, the nature of order, and its implications for transformation (*Harmony-Seeking Computations: a science of non-classical dynamics based on the progressive evolution of the larger whole*. *International Journal for Unconventional Computing (IJUC)*, 5, 2009; *The Nature of Order*, 2003-4), offering the possibility of their adaptation to psychosocial order (*5-fold Pattern Language*, 1984; *Geometrical configuration of Alexander's 15 transformations*, 2010).
- Vladimir Ivancevic and Tijana Ivancevic: *Geometrical Dynamics of Complex Systems: a unified modelling approach to physics, control, biomechanics, neurodynamics and psycho-socio-economical dynamics* (2006)
- Alexander Wendt: *Quantum Mind and Social Science: unifying physical and social ontology* (2015)

From static geometry to dynamics: Of particular interest with respect to any potential integrative relationship between quadrivium and trivium, is the exploration by Arthur Young, given his adaptation of his insights into the dynamics of navigation of any "vehicle", as they might be relevant to global governance (*The Geometry of Meaning*, 1976). In a 12-fold pattern, he distinguishes 3 4-fold sets and 4 3-fold sets of operations in the governance of a vehicle. Suggestively, such insights can be further adapted to the 12-fold challenge of discourse and strategic articulation (*Typology of 12 complementary dialogue modes essential to sustainable dialogue*, 1998; *Typology of 12 complementary strategies essential to sustainable development*, and on *Characteristics of phases in 12-phase learning / action cycles*, 1998).

Although Young is especially qualified to discuss navigation in 3D, as developer of the Bell helicopter, he chooses to map the 12-fold pattern in 2D alone. He relates that 2D pattern (controversially) to that of the 12-fold pattern of astrological symbols. Specifically he notes a degree of correspondence to the 3 quadruplicities and 4 triplicities of that framework. As animated below, these lend themselves to representation in 3D, as discussed and illustrated separately (*Insights into Dynamics of any Psychosocial Rosetta Stone: standing wave understood dynamically rather than statically*, 2018).



Controversial or not, with respect to issues of comprehension, there can be little doubt that a greater degree of credibility is attached to that astrological framework worldwide than to the insights of think tanks. Why might that be? Is deprecation an adequate response at this time? More problematic is the sense in which world leaders, most notably Ronald Reagan have made use of that framework (as widely documented). With respect to this argument, it is not that specific framework which is relevant but rather the integrative value widely associated with a framework of such dimensions -- beyond the credibility of models articulated by think tanks.

The controversy highlights the constrained ability of any tank to explore insights emerging in the tanks of other cognitive modalities -- without deprecating and dismissing them, notably as superstition and pseudoscience (in contrast to what is otherwise honoured as "faith"). If indeed "trivium" offers a vital complement to "quadrivium", the situation is ironically well-framed by the etymology of "trivia" - originating as it does in early understanding of "trivium". Given that the challenges of global civilization currently derive primarily from

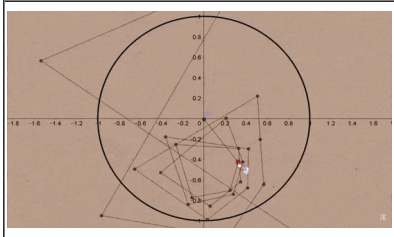
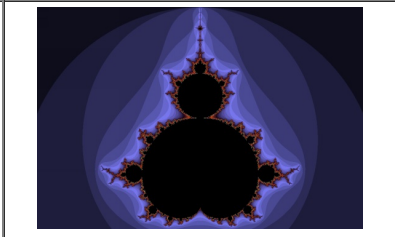
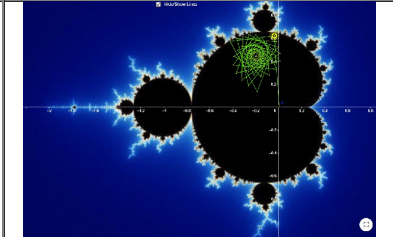
unresolved issues between religions, this handicap would appear to be more than dangerous (*Root Irresponsibility for Major World Problems: the unexamined role of Abrahamic faiths in sustaining unrestrained population growth*, 2007). Under the circumstances, could it be argued that science is currently indulging in a form of "trivial pursuit" (*Challenges More Difficult for Science than Going to Mars -- or exploring the origins of the Universe or of Life on Earth*, 2014)?

Aesthetics of comprehension: Myth or not, there is a case for exploring the contribution of aesthetics to comprehension as it may be facilitated, for whatever reason by the [golden ratio](#) proportions of those rectangles indicated by the symbol *phi*. There is a significant symbolic irony meriting further explanation in that the coherence variously associated with the 12-foldness of the dodecahedron is notably related to the 15 [golden rectangles](#) associated with its 15 great circles (*Aesthetic criterion: meaningful completeness and phi?* 2019). Although think tanks would tend to deprecate the strategic relevance of aesthetics, the importance of "optics" and "presentation" has become undeniable in effective communication of any strategic proposal. This aesthetic dimension contrasts strangely with the cognitive modality of think tanks.

A potentially valuable approach to the aesthetic development of this argument is through the [Mandelbrot set](#), given both its fundamental significance in the mathematics of complexity and chaos, as well as the widely acknowledged beauty of its fractal rendering (see below centre). As previously discussed, the question is how it might be of relevance to articulation and communication of strategy (*Sustainability through the Dynamics of Strategic Dilemmas -- in the light of the coherence and visual form of the Mandelbrot set*, 2005; *Psycho-social Significance of the Mandelbrot Set: a sustainable boundary between chaos and order*, 2005; *Imagination, Resolution, Emergence, Realization and Embodiment: iterative comprehension ordered via the dynamics of the Mandelbrot set*, 2005).

There are many discussions of the Mandelbrot set and many software applications through which it can be freely explored ([Mandelbrot Explorer](#); [Mandelbrot Viewer](#); see listing [Fractal-generating software](#)). Few of these are of direct assistance to the strategic aspects of this argument. References to the detection of *phi* in the Mandelbrot set are allusive, if not elusive. Possibly most helpful in this respect are the videos of [Ben Sparks](#) (*What's so special about the Mandelbrot Set?* *Numberphile*, 18 April 2019; *Windmills of Your Mind Spirals/Circles, GeoGebra*) and his colleague [Holly Krieger](#) (*Fibonacci Numbers hidden in the Mandelbrot Set, Numberphile*, 5 October 2017). Although the remarkable articulation of the latter makes no specific mention of the golden ratio, it is implicit as the [convergence of the Fibonacci series](#) described there in relation to the Mandelbrot set. As Krieger effectively implies, the rendering of the Mandelbrot set is in a sense "bounded" by convergence to the golden ratio.

Sparks illustrates the challenge of flowers in ordering patterns of seeds, namely the relative inefficiency of hierarchical patterns, whether 3-fold, 5-fold, or more -- even when the sequence is rotated to some degree. The optimum layout is well-recognized as the spiral layout of sunflowers governed by the [Fibonacci series](#) with its relation to the golden ratio. Sparks develops the argument in terms of mappings into the [complex plane](#) as illustrated in the animation below left. Of particular significance is the manner in which the emergent patterns, however they emerge, are orderly ("stable") within the bounding circle but chaotic ("unstable") outside the circle. The interactive version (below right) is provided separately by Ben Sparks (*Mandelbrot Iteration Orbits, GeoGebra*) for different 'c' values (by moving the yellow circle).

Animation showing emergent patterns under various conditions (stable and unstable)	Visual rendering of Mandelbrot set (vertically oriented)	Successive screen shots of iteration orbits from left-hand image onto Mandelbrot rendering (conventionally oriented)
		
<p>Sequence extracted from Ben Sparks (<i>What's so special about the Mandelbrot Set?</i> 2019)</p>	<p>Created with <i>Xaos</i> fractal viewer</p>	<p>Sequence produced from (<i>Mandelbrot Iteration Orbits, GeoGebra</i>).</p>

There is no lack of recognition of the complexity of "strategic space" within which the articulation and display of strategies could be compared metaphorically to the competitive challenge faced by flowers ([Keith Critchlow](#), *The Hidden Geometry of Flowers: living rhythms, form and number*, 2011). Missing is any sense of the requisite complexity within which otherwise incommensurable strategies may need to be embedded in order for their collective coherence to become comprehensible. The tendency to organize any such articulation into multiple sections -- multi-petalled "strategic flowers" -- can then be compared with the branching 3-fold, 5-fold, N-fold patterns in the animations above (left and right). The "bullet points" by which an articulation is presented could then be usefully compared to the seeds of such flowers -- as with the UN Sustainable Development Goals.

The (complex) plane from which the patterns emerge is indicative of a complex context in which stable patterns of various branchings emerge in various positions -- with unstable patterns emerging outside the boundaries. There is little collective understanding of the complexity of that strategic space or of how the relationship between any such patterns is indicative of the possibility of larger coherence -- however that is to be comprehended. This is the challenge of governance, whether democratic or otherwise.

It is intriguing that the "planar" language is reflected in the widespread reference to "plans" and "planning" (by which a "Flat Earth" understanding is reinforced), or otherwise in reference to the "field" with which they are associated -- as one preferred metaphor for any academic discipline or specialization. With respect to the argument regarding "tanks", the boundary offered by the Mandelbrot set is usefully suggestive of that between the orderly stable space within the tank and the chaotically unstable condition outside it. Potentially of

greater interest is the sense in which the positions within the Mandelbrot set boundary, with which the patterns are variously located, themselves constitute tank boundaries -- with that of the Mandelbrot set as a whole then constituting an elusive meta-pattern encompassing and containing all such patterns -- effectively a "meta-tank", a "tank of tanks", or a tank container.

As yet, the amazing insights promised by the Mandelbrot set could readily be said to have been less than useful, notably in the light of efforts to apply them to financial governance -- especially before and after the subprime mortgage crisis (Horace Campbell, *Fractals and Benoit Mandelbrot: lessons for society*, *Pambazuka News*, 21 October 2010; Alejandro Nadal, *Understanding Instability: Mandelbrot, fractals, and financial crises*, *Triple Crisis*, October 2010; David Orrell, *Fractal Finance*, *World Finance*, 4 January 2011; Christian Walter, *The Mandelbrot programme and the pragmatic programme*, *Chance and Finance*, 3 November 2015; Tren Griffin, *Benoit Mandelbrot's Ideas about Investing and Markets*, *25iq*, 9 December 2017). Tentatively this could be understood as a consequence of the restrictive focus on the conventions of a singular complex plane -- when mathematics has already envisaged higher dimensional extensions. These include less familiar renderings of the Mandelbrot set in 3D, termed a **mandelbud**. Also of relevance are variants termed **multibrot sets**, for which there are various images and animations (*Animated morph of multibrots $d = -7$ to 7*).

One approach to considering the relevance of such complexity is to use the argument above regarding the need for variously oriented planar frameworks for "tanks" of distinctive nature, notably mutually orthogonal planes. Naively, as an exploratory illustration to that end, the complex plane in which the Mandelbrot set is conventionally rendered could be subject to rotation on its two axes -- the axis of real numbers and the axis of imaginary numbers. The Chinese yin/yang notation of unbroken and broken line can then be used to distinguish the real and imaginary characteristics of 8 distinctive **octants** (rather than 4 quadrants), thereby framed in a **multiview projection** as presented separately (*Comprehension of Requisite Variety via Rotation of the Complex Plane: mutually orthogonal renderings of the Mandelbrot set framing an eightfold way*, 2019).

Movement and music: The argument may be developed further by reference to the dynamics of body knowledge, as noted above (*Body knowledge: understanding without proof*, 2012; Mark Johnson (*The Meaning of the Body: aesthetics of human understanding*, 2007; Maxine Sheets-Johnson, *The Primacy of Movement*, 1999; Barbara Tversky, *Mind in Motion: how action shapes thought*, 2019). Tversky notably summarizes her argument with reference to geometry (*The Geometry of Thought*. *Edge*, 26 June 2019).

With the argument above regarding the need to engage in competitive play to embody the elusive comprehension in question, it is perhaps no surprise that the dimensions of the pitches/fields/courts for many ball sports approximate in proportion to the golden section (association football, 1.54; rugby, 1.43; hockey, 1.67; squash, 1.52; basketball, 1.86-1.88, netball, 2.0; volleyball, 2.0; ice hockey, 2.35). Seemingly an exception, a half-court in tennis is 1.44. This suggests the fascinating possibility that the binary dynamics over the length of any such rectangle are somehow a competitive effort by each to appropriate the "golden" quality of the whole through encroaching on the territory possessed by the other. This suggests the value of experimental games across mutually orthogonal rectangles in 2D, if not in 3D (*Destabilizing Multipolar Society through Binary Decision-making: alternatives to "2-stroke democracy" suggested by 4-sided ball games*, 2016; *Transforming "game-play space"*, 2005)

Potentially more intriguing is the "bridge" offered by music through the cognitive insights of Dmitri Tymoczko (*The Geometry of Musical Chords*. *Science*, 313, 2006). Ironically it is music that is appreciated in many tanks, whether within think tanks (as an accompaniment to thought) or within battle tanks (Jonathan Pieslak. *Soundtracking Iraq*, *Journal of Music*, 1 October 2009; *Sound Targets: American Soldiers and Music in the Iraq War*, Indiana University Press, 2009). As an integrative modality, this raises the question of why no effort is made to articulate coherently strategic distinctions and feedback loops in musical form in order to render them both comprehensible and memorable (*A Singable Earth Charter, EU Constitution or Global Ethic?* 2006).

There would indeed seem to be a case for reflecting in some way the dynamics between the think tanks in the *Global Go To Think Tank Report*. The problematic emphasis on static reporting has been reviewed elsewhere (*Dynamic Transformation of Static Reporting of Global Processes: suggestions for process-oriented titles of global issue reports*, 2013).

In quest of new questions of strategic relevance

New questions as catalysts for new thinking: A curious methodological contrast is offered to that of the elaboration of the *Global Go To Think Tank Report* (2019). That is the approach of the **Edge Foundation, Inc** and its World Question Center. This is described as an association of science and technology intellectuals created in 1988 as an outgrowth of **The Reality Club**. Its main activities are reflected on the [edge.org website](http://edge.org), edited by publisher and businessman John Brockman. The site is a critically noted online magazine exploring scientific and intellectual ideas. In addition to being compiled into books, the website notably features the responses to annual questions of the following nature:

- 2018: *What is the last question?*
- 2017: *What scientific term or concept ought to be more widely known?*
- 2016: *What do you consider the most interesting recent [scientific] news? What makes it important?*
- 2015: *What to think about machines that think?*
- 2014: *What scientific idea is ready for retirement?*
- 2013: *What should we be worried about?*
- 2012: *What is your favourite deep, elegant, or beautiful explanation?*
- 2011: *What scientific concept would improve everybody's cognitive toolkit?*
- 2010: *How is the internet changing the way you think?*

What indeed are the new questions asked by think tanks in the past year -- or by institutions such as the United Nations, OECD, the EU, or NATO? Where might these be found? What newly enabling metaphors have been offered to frame strategic reflection (*In Quest of Mnemonic Catalysts -- for comprehension of complex psychosocial dynamics*, 2007).

There is indeed the possibility that the inability to engender new thinking through new questions is a key to why the global strategic response at this time would appear to be less than "fit for purpose". As currently framed, the situation may be both ungovernable and lack any possibility of engendering the consensus for which appeals are so frequently made (*Ungovernability of Sustainable Global Democracy?* 2011; *The Consensus Delusion: mysterious attractor undermining global civilization as currently imagined*, 2011).

As might be inferred from the argument above, the current knowledge-based civilization could be in a condition in which new question formulation is discouraged or inhibited. This would follow from criticism of mainstream media and the increasing commitment to controlling the narrative. **What indeed might be the questions of strategic relevance which are not being asked at this time** -- including those which might be asked by children (*Challenging Questions of Global Significance from the Young: can satisfactory answers be found for savvy kids?* 2016).

From a strategic perspective, it is difficult for think tanks to acclaim their capacity to "think the unthinkable" if they are unable to consider how to "ask the unaskable" -- especially when there is widespread use of the slogan "expect the unexpected"? Do the "non-thinking" cognitive modalities make use of other ways of articulating questions?

Interrelating new thinking in systemic terms: Where is the methodology which explores new thinking systemically? Would that be some kind of byproduct of [citation analysis](#), perhaps combined with [impact factor](#) analyses? Or is it just a question of some variant of publication or patent production statistics?

Might it appropriately take the form of a global mind map of strategic insight, as otherwise considered (*Mind Map of Global Civilizational Collapse: why nothing is happening in response to global challenges*, 2011). Or, perhaps ironically, is the current challenge that civilization is now beyond any capacity to digest "new thinking"?

Consistent with this argument, any reference to "global" collapse is characteristic of the unreality of think tank discourse -- however "peaks", [population overshoot](#) and "die off" are portrayed through statistical graphs (*Checklist of Peak Experiences Challenging Humanity*, 2008).

In a period of emerging multiple crises -- a crisis of crises -- the question is brought to a focus in relation to emergencies, as discussed separately with respect to the particular case of the *Deepwater Horizon* oil spill of 2010 (*Enabling Collective Intelligence in Response to Emergencies -- illustrated by the case of deep oil spill containment* 2010). The discussion included the following sections:

Expertise and arrogant assumptions	Wiki-model for eliciting strategic responses to urgent issues
Enabling timely gathering of remedial collective intelligence	Unforeseen disasters and unheeded warnings
Mistaken intelligence gathering assumptions in a knowledge society	Geoengineering: a disaster in waiting
Extreme considerations in intelligence gathering	Technological negligence as environmental terrorism?
Illustrative examples	

That argument raised the question as to why a Wiki-type facility had not been immediately enabled as a crowd-sourced facility for insights. Seemingly however, despite the lack of insight over an extensive period as to how to remedy the problem, the authorities preferred instead to seek insight from a limited range of sources -- presumably think tanks of the highest ranking.

That argument noted the existence of proposals for a [Global Solutions Wiki](#) (2009), and followed from work over an extended period on the online [Global Strategies Project](#). This profiled strategies advocated or undertaken by international constituencies in response to world problems -- themselves profiled in a related [World Problems Project](#).

References

Donald E. Abelson. *Do Think Tanks Matter? Assessing the Impact of Public Policy Institutes*. McGill-Queen's University Press, 2009

Christopher Alexander:

- *A Pattern Language*. Oxford University Press, 1977
- *The Nature of Order: an essay on the art of building and the nature of the universe*. Center for Environmental Structure, 2003-4. [\[summary\]](#)
- *Harmony-Seeking Computations: a science of non-classical dynamics based on the progressive evolution of the larger whole*. *International Journal for Unconventional Computing (IJUC)*, 5, 2009 [\[text\]](#)

John Arquilla and David Ronfeldt. *The Emergence of Noopolitik: toward an American information strategy*. Rand, 1999 [\[text\]](#)

A. V. Baichik and S. B. Nikonov. *Noopolitik as Global Information Strategy*. *Vestnik St. Petersburg University*, 9, 2012, I. pp. 207-213

John Brockman. *The Third Culture: beyond the scientific revolution*. Simon and Schuster, 1995

Stanley D. Brunn. *Gated Minds and Gated Lives as Worlds of Exclusion and Fear*. *GeoJournal*, 66, 2006, 1/2 [\[abstract\]](#)

Nicholas G. Carr. *The Shallows: how the internet is changing the way we think, read and remember*. W. W. Norton, 2010

Keith Critchlow. *The Hidden Geometry of Flowers: living rhythms, form and number*. Floris Books, 2011

Jan Danecki (Ed.). *Insights into Maldevelopment: reconsidering the idea of progress*. University of Warsaw, 1993

Howard Gardner:

- Frames of Mind: the theory of multiple intelligences. Basic Books, 1983
- Multiple Intelligences: new horizons in theory and practice. Basic Books, 2006
- Intelligence Reframed: multiple intelligences for the 21st Century. Basic Books, 1999
- Five Minds for the Future. Harvard Business Review Press, 2006

Jeff Giese. It's Time to Embrace Memetic Warfare, *Defence Strategic Communications: official journal of the NATO Strategic Communications Centre of Excellence*, 1, 2015, 1 pp. 67-75 [[text](#)]

Jerome Glenn and John Peterson. Information Warfare, Cyber Warfare, Perception Warfare and their Prevention. World Future Society, 1995 [audiocassette].

Brian J. Hancock. Memetic Warfare: the future of war. *Military Intelligence Professional Bulletin*, April-June 2010, pp. 41-46 [[text](#)]

Vladimir G. Ivancevic and Tijana Ivancevic. Geometrical Dynamics of Complex Systems: a unified modelling approach to physics, control, biomechanics, neurodynamics and psycho-socio-economical dynamics. Springer, 2006

Mark Johnson. The Meaning of the Body: aesthetics of human understanding. University of Chicago Press, 2007

Michael B. Kim. The Uncertain Role of the Tank in Modern War: lessons from the Israeli experience in hybrid warfare. *The Land Warfare Papers* (Association of the United States Army), 109, 2016 [[text](#)]

Alexander Klose. The Container Principle: how a box changes the way we think. MIT Press, 2015

George Lakoff and Mark Johnson. Metaphors We Live By. University of Chicago Press, 1980

Hilary Lawson. Closure: A Short History of Everything. Routledge, 2002

Cheng Li. The Power of Ideas: the rising influence of thinkers and think tanks in China. WSPC, 2017

Thomas Medvetz. Think Tanks in America. University of Chicago Press, 2014

James G. McGann:

- The Fifth Estate: Think Tanks, Public Policy, and Governance. Brookings Institution Press, 2016
- Comparative Think Tanks, Politics And Public Policy. Edward Elgar Publishing, 2006 [[text](#)]
- Think Tanks and the Transnationalization of Foreign Policy. *Foreign Policy Research Institute*, 16 December 2002 [[text](#)]

James G. McGann (Ed.). Global Go To Think Tank Report. University of Pennsylvania, 2019 [[text](#)]

Gareth Morgan. Images of Organization. Sage, 1986

S. B. Nikonov. Noopolitics as a Global Information Strategy. LAP LAMBERT Academic Publishing

Xiaoying Qi:

- Paradoxical Integration: globalised knowledge flows and Chinese concepts in social theory. University of Western Sydney, 2011 [[text](#)]
- Globalized Knowledge Flows and Chinese Social Theory. Routledge, 2014 [[contents](#)]

Thomas A. Quiggin. Seeing the Invisible: national security intelligence in an uncertain age. World Scientific, 2007

Gregory J. Rattray. Strategic Warfare in Cyberspace. MIT Press, 2001

David M. Ricci. The Transformation of American Politics: the new Washington and the rise of think tanks. Yale University Press, 1994

Andrew Rich. Think Tanks, Public Policy, and the Politics of Expertise. Cambridge University Press, 2004

Andrew Rich, et al. Think Tanks in Policy-making: do they matter? Friedrich Ebert Stiftung, 2001 [[text](#)]

Priscilla Roberts. A century of international affairs think tanks in historical perspective. *International Journal: Canada's Journal of Global Policy Analysis*, 70, 2015, 4, pp. 535-555

John Rothrock. Information Warfare: time for some constructive skepticism. In: John Arquilla and David Ronfeldt (Eds.), In Athena's Camp: preparing for conflict in the information age. RAND Corporation, 1997

Donald Schön. Generative Metaphor: a perspective on problem-setting in social policy. In: Andrew Ortony (ed.), Metaphor and Thought. Cambridge, University Press, 1993, pp. 137-165

Andrew Dan Selee. What Should Think Tanks Do?: a strategic guide to policy impact. Stanford Briefs, 2013

Maxine Sheets-Johnstone:

- The Primacy of Movement. John Benjamins, 1999
- The Corporeal Turn: An Interdisciplinary Reader. Imprint Academic, 2009

P. W. Singer and Emerson T. Brooking. LikeWar: The Weaponization of Social Media. Eamon Dolan/Houghton Mifflin Harcourt, 2018

James A. Smith. The Idea Brokers: think tanks and the rise of the new policy elite. The Free Press, 1991

C. P. Snow. The Two Cultures and the Scientific Revolution. Cambridge University Press, 1959

Diane Stone:

- Capturing the Political Imagination: think tanks and the policy process. Routledge, 2013
- Knowledge Actors and Transnational Governance: the public-private policy nexus in the global agora. Palgrave MacMillan, 2013.
- Banking on Knowledge: the genesis of the global development network. Routledge, 2000.
- Think Tanks Across Nations: a comparative approach. Manchester University Press, 1998.

Diane Stone and Andrew Denham. Think Tank Traditions: policy research and the politics of ideas. Manchester University Press, 2004.

Raymond Struyk. Improving Think Tank Management: practical guidance for think tanks, research advocacy NGOs, and their funders. Results for Development Institute, 2015

Nassim Nicholas Taleb:

- The Black Swan: the impact of the highly improbable. Random House, 2007 [[summary](#)]
- Antifragile: things that gain from disorder. Random House, 2012 [[summary](#)]

Barbara Tversky:

- Mind in Motion: how action shapes thought. Basic Books, 2019
- The Geometry of Thought. *Edge*, 26 June 2019 [[text](#)]

Dmitri Tymoczko:

- The Geometry of Musical Chords. *Science*, 313, 5783, 7 July 2006, pp. 72-74 [[text](#)]
- A Geometry of Music. Oxford University Press, 2011

Geoffrey Vickers. Freedom in a Rocking Boat: changing values in an unstable society. Allen Lane, 1972

Murray L. Weidenbaum. The Competition of Ideas: the world of the Washington think tanks. Transaction Publishers, 2008

Alexander Wendt. Quantum Mind and Social Science: unifying physical and social ontology. Cambridge University Press, 2015

Arthur M. Young. The Geometry of Meaning. Delacorte Press, 1976



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