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## Contrarian Analysis as a Means of Avoiding Intelligence Failure

### Vulnerability of mainstream narrative from suppression of alternative perspectives

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#### Introduction

[Contrarian analysis of competing hypotheses](#)

[Application of contrarian analysis to remedial global strategies?](#)

[Identifying competing global strategic hypotheses](#)

[Misleading quest for strategic singularity](#)

[Requisite variety of strategic "ways of looking"?](#)

[Variety of relationships and forms of connectivity](#)

[Navigating disinformation through "triangulation" and more](#)

[References](#)

## Introduction

Much is currently made of the purported intelligence failure on the part of Israel and its intelligence allies, most notably the USA -- in the inability to anticipate the attack by Hamas on behalf of Palestine in October 2023. In the case of Israel, comparisons are made with the intelligence failure associated with the 1973 Yom Kippur war. In the case of the USA, they are made with respect to 9/11, as specifically noted in the subsequent [US Senate inquiry](#) (cf Kjetil Anders Hatlebrette and M. L. R. Smith, *Towards a New Theory of Intelligence Failure? The Impact of Cognitive Closure and Discourse Failure, Intelligence and National Security*, 2010; Richard S. Tracey, *Trapped by a Mindset: the Iraq WMD Intelligence Failure*, Maxwell Air University, 2006; David L. Hoover, *A Failure of Imagination in the U.S. Intelligence Community*, *American Intelligence Journal*, 31, 2013, 1; *Learning from the 9/11 response: groupthink and failure of imagination*, 2005).

Predictably such events evoke questionable commentary on the possibility that they were [false flag operations](#) -- orchestrated by Israel and the US respectively, possibly by "rogue elements" (Peter Koenig, *The Israel-Palestine Conflict: Netanyahu's "false flag", connecting the dots – and more*, *Global Research*, 11 October 2023). Rather than an "intelligence failure", it is argued that the horrific disasters then enabled other radical agendas to be advanced where previously this would have been impossible. The failures would then merit recognition as a higher order of strategic intelligence -- however perverse.

It has even been argued by Michel Chossudovsky that *Netanyahu's "False Flag" is a "Copy and Paste": the Pentagon's secret "Operation Northwoods" (1962) directed against Cuba* (*Global Research*, 11 October 2023). As the proposal for a false flag operation, [Operation Northwoods](#) had included the indication that "casualty lists would cause a helpful wave of indignation" (U.S. Joint Chiefs of Staff, *Justification for US Military Intervention in Cuba (TS)*, U.S. Department of Defense, 13 March 1962).

Rejection of such a perverse possibility assumes that national strategic thinking respects norms and would see it as totally abhorrent and therefore unimaginable. This assumption is specifically called into question by the influential early study on the strategic validity of the "unthinkable" (Herman Kahn, *Thinking about the Unthinkable*, 1962; *Thinking about the Unthinkable in the 1980s*, 1984). The controversial strategic justification for Nagasaki, in addition to Hiroshima, has been cited as one tragic example (Antony Beevor, *Was the US justified in dropping atomic bombs on Hiroshima and Nagasaki during the Second World War?* *HistoryExtra*, 6 April 2022; *The Bombing Of Hiroshima And Nagasaki: Justified Or Not?* 7 September 2022).

The justification is otherwise evident in the well-documented complicity of such as [Henry Kissinger](#) in alleged war crimes involving thousands of fatalities, as most recently presented by Greg Grandin (*Henry Kissinger, War Criminal -- Still at Large at 100*, *History News Network*, 15 May 2023). A pattern is evident in the widely cited response of [Madeleine Albright](#) -- as US Ambassador to the UN -- to a query regarding the enabling of the deaths of 500,00 children in Iraq as a consequence of sanctions: *We think the price is worth it* (Lesley Stahl, *CBS News*. 1998).

As enabled and reinforced by mainstream discourse however, **the main question explored here is whether global strategy at this time is itself dangerously vulnerable to what may in future be perceived as intelligence failure.** Is an unforeseeable "Hamas-

event" to be anticipated in other contexts? It is however far less relevant whether the failure is deliberately orchestrated -- potentially on the part of "rogue elements" -- or a consequence of a lack of vigilance and due diligence (*Neglected signals of systemic negligence*, 2015; *Strategic engagement: higher orders of vigilance?* 2010).

In what follows the specific concern is: **are valuable strategic insights lost as a consequence of ensuring a dangerous form of consensus through the repression of alternative perspectives** and discrediting or eliminating their advocates (*Over 1,700 environment activists killed in decade*, BBC, 29 September 2022). Cultural biases have notably been variously recognized (Brian J. Phillips, et al, *Where is Conflict Research? Western bias in the literature on armed violence*, *International Studies Review*, 24, 2022, 3; Janne Mende, et al, *Transcending a Western Bias: Towards a decolonised entangled perspective in norms research*, *European Review of International Studies*, 9, 2022, 3).

In the current context **it has become unclear how many insightful strategic perspectives are considered a threat to the point of being appropriately deprecated and suppressed** -- potentially reframed in the guise of disinformation and "conspiracy theories". In the light of the latest instance of apparent "intelligence failure", **what other strategic assumptions have become unquestionable** through cultivation of a form of groupthink by mainstream discourse?

Irrespective of their potential credibility, where are alternative perspectives appropriately held and explored -- despite the particular focus of their advocates, however exaggerated? Whilst many continue to be articulated controversially through social media, or through initiatives such as BRICS, is it the case that the most radical are only documented appropriately in secret by intelligence agencies -- with mandates to ensure that they are not taken into serious consideration?

Historically the pattern may have been set by the Catholic Church through its regulatory *imprimatur*. Deemed pseudoscience, the pattern has been evident in the highly restricted access allowed by the Royal Society to some studies of Isaac Newton (of which he was president) -- only now published through the [Newton Project](#).

## Contrarian analysis of competing hypotheses

Valuable clarification of the current context of intelligence failure has been presented by [Scott Ritter](#) in the light of his direct involvement with the relevant intelligence agencies (*Israel's Massive Intelligence Failure*, *Consortium News*, 9 October 2023). The marginalization of his informed perspective -- prior to being subject to marginalization variously deemed to have been politically motivated -- merits comparison with the influential role of many perceived to have been complicit in war crimes. The impunity is similarly evident in the tolerant treatment of Catholic clergy accused of child abuse. Ritter's arguments are approvingly reviewed by Mark Wauck (*Scott Ritter: It Was An Intel Failure*, *Meaning in History*, 10 October 2023).

**Competing hypotheses:** Ritter draws attention to the methodology of [analysis of competing hypotheses](#) (ACH). This is a means of evaluating multiple competing hypotheses regarding observed data. It is used by analysts in various fields who make judgments that entail a high risk of error in reasoning. ACH aims to help an analyst overcome, or at least minimize, some of the cognitive limitations that make prescient intelligence analysis so difficult to achieve. (Richards J. Heuer, Jr, *Analysis of Competing Hypotheses*, *Psychology of Intelligence Analysis*, 1999). Developed by the Center for the Study of Intelligence of the US Central Intelligence Agency, the study reviews cognitive psychology literature concerning how people process information to make judgments on incomplete and ambiguous information.

The requirement for such analysis is further clarified by Benjamin B. Anderson (*Psychology of Alternative Analysis*, *American Intelligence Journal*, 32, 2015, 1):

Have you ever felt uncertain about an agency assessment or disagreed with a majority view? How did you feel? More importantly, what did you do? This article examines the cognitive challenges analysts experience when they arrive at a conclusion distinct from the majority consensus. In particular, it examines the psychological barriers of producing alternative analysis products. After discussing various psychological experiments conducted by academic institutions, we examine how their findings apply to how the Intelligence Community (IC) approach alternative analysis...

As a result of the "analytic failures" associated with Iraq's weapons of mass destruction (WMD) programs in the early 2000s, senior IC leadership emphasized the need for, and institutionalized, alternative analysis. The 2005 *WMD Commission Report* declared, "We must stress the importance of fostering a culture of alternative analysis throughout the Intelligence Community. Alternative analysis should be taught in the very first analyst training courses as a core element of good analytic trade craft". In 2007, the Office of the Director of National Intelligence published intelligence Community Directive (ICD) *Analytic Standards 203* identified alternative analysis as a core element of analytic trade craft and defined it as "rigorous, systematic analytic consideration of alternative viewpoints, explanations for observed or reported phenomena or possible future outcomes".

As a consequence of the intelligence failure of the Yom Kippur war, Ritter notes the development within Israel of: "a culture of contrarian thinking, built around critical thinking designed to challenge unitary assessments and groupthink". This included the creation of a "doubting Thomas" function -- charged with questioning conclusions and assertions before an initiative could be considered further. According to Ritter, the process was abandoned following 9/11 -- replaced to a considerable degree by reliance on AI modelling. The "doubting Thomas" function recalls that of the [Devil's advocate](#) within the Catholic Church, charged with arguing "against the canonization (sainthood) of a candidate in order to uncover any character flaws or misrepresentation of the evidence favoring canonization". The importance of that function was reduced in 1983.

**Red-team/Blue-team:** A simpler procedure is notably used by the military in the evaluation of strategies through war games, typically using a so-called "[Red Team](#)" and an opposing "[Blue Team](#)":

- [Cybersecurity Red Team versus Blue Team: main differences explained](#) (*Security Trails*, 7 December 2018)
- [Red Team versus Blue Team](#) (*European Council blog*, 15 June 2019)
- [Red team versus blue team: how to run an effective simulation](#) (*CSO Online*, 26 July 2017)

The two-team framework may be further enhanced by a "Purple Team" perspective designed to integrate the learnings from Red and Blue team operations, as clarified by Daniel Miessler ([The Definition of a Purple Team](#), 28 June 2019; [The Difference Between Red, Blue, and Purple Teams](#), 4 April 2020). As noted from the perspective of naval intelligence for the US Center for International Maritime Security: *Holistic understanding of the adversary and empowered application of contrarian analytical techniques at all levels of warfare will close the gap between understanding one's own force and adversary plans* (Christopher Blake and Grace Jones, [Intel Owns Red: how red teaming can prepare the fleet for the fight ahead](#), *CIMSEC*, 30 March 2021).

**Contrarian analysis:** Framed as "contrarian analysis", examples of application of the methodology in marketing include:

- Ivan Russo, et al: [Challenges and Tricky Points: a research note on contrarian case analysis and data calibration](#) (*Australasian Marketing Journal*, 27, 2019, 2)
- Rania Mohamed Samir Hussein, et al: [Social Media Continuation Intention: a contrarian analysis](#) (*The Journal of Marketing Theory and Practice* 29, 7)
- Ned Davis: *The Triumph of Contrarian Investing: crowds, manias, and beating the market by going against the grain* (McGraw-Hill, 2003)
- David Dreman: *Contrarian Investment Strategies: the psychological edge* (Free Press, 2012)

A commentary on failures in risk management, as noted by Jim DeLoach ([5 Common Risk Management Failures](#), *Corporate Compliance Insights*, 1 April 2016), notably indicates:

- *Process indicators:* There are no efforts to apply contrarian analysis to the critical assumptions underlying the strategy so that trending and other risk indicators can be monitored to ascertain whether one or more critical assumptions are either becoming invalid or have become invalid.
- *Behavioral indicators:* A dominant CEO ignores the warning signs posted by the risk management function, resists bad news or contrarian information that the organization's strategy is not working and/or does not involve the Board with strategic issues and policy matters on a timely basis

Of particular relevance is the possibility that alternative and contrary perspectives may derive from little known constituencies articulating what are termed "[faint signals](#)". As noted for the International Monetary Fund with respect to the foresight technique of [horizon scanning](#):

... this scans for faint signals of disruptive developments or breaks in trends, sometimes from fields outside of one's profession. Scanning can include desk research, expert surveys, attending conferences, inviting external specialists, and reviewing recent futures work. Because its outcomes and potential uses are less clear ex ante, horizon scanning can often get crowded out by activities with a clear output unless it is made a regular activity. Scenarios are a small set of infinite possible futures over a sufficiently long horizon to generate perspectives different from the present (Alberto Behar and Sandile Hlatshwayo, [How to Implement Strategic Foresight \(and Why\)](#), February 2021)

**Unrecognized vulnerabilities?** As noted separately, the question remains: **do the permissible mandates of those charged with challenging assumptions and alternative perspectives take full account of the options and vulnerabilities** ([Misrepresentation of the scope of the crisis?](#) 2020).

The question can be considered in the light of an early argument (C. G. Lord, et al, [Considering the Opposite: a corrective strategy for social judgment](#), *Journal of Personality and Social Psychology*, 47, 1984, 6). Later discussions include; Ivar Fahsing, et al ([Have you Considered the Opposite? A debiasing strategy for judgment in criminal investigation](#), *The Police Journal*, 96, 2021, 2) and Tobias Greitemeyer ([Counter Explanation and Consider the Opposite: do corrective strategies reduce biased assimilation and attitude polarization in the context of the COVID-19 pandemic?](#) *Journal of Applied Social Psychology*, 53, 2023, 8).

Some wider implications, together with those of Structured Analysis of Competing Hypotheses, have been clarified by recent studies, as variously reported (Kristan Wheaton, [Analysis of Competing Hypotheses, Futuribles](#), 2018; Mandeep K. Dhami, et al. [The "analysis of competing hypotheses" in intelligence analysis](#), *Applied Cognitive Psychology*, 33, 2019, 6; John Wilcox and David R. Mandel, [Critical Review of the Analysis of Competing Hypotheses Technique: lessons for the intelligence community](#), *IEEE International Conference on Requirements Engineering*, 2015).

## Application of contrarian analysis to remedial global strategies?

Since the methodology of Analysis of Competing Hypotheses (ACH) has been extensively explored, and justified in a variety of contexts, it is clearly of interest whether its use is detectable in relation to the many remedial global strategies proposed by international organizations -- purportedly articulated with "intelligence" by "experts", despite the decision-making constraints of a complex political context.

**Implications of evil:** A necessarily controversial point of departure are claims by authorities regarding the "evil" nature of perspectives distinct from those they promote ([Existence of evil as authoritatively claimed to be an overriding strategic concern](#), 2016). This is exemplified by the assertion of the acclaimed leader of the freeworld, in accord with his allies (Tovah Lazaroff, [US President Biden: Hamas's ISIS-like slaughter of Jews is 'pure evil'](#), *Jerusalem Post*, 10 October 2023). From such a perspective, any initiative in

disagreement with US foreign policy can be framed as "evil". This suggests the questionable implication that the initiatives of those capable of such assertions are in some way to be considered "pure good". This perception is typically reciprocated (*Framing by others of claimants of evil as evil*, 2016).

For the Intelligence Community this suggests the need for explicit insight into alternative perspectives that lend themselves to such characterization (Jeanie Smith, *See No Evil, Speak No Evil, Hear No Evil: politicized potentials of the intelligence cycle*, *The Institute of World Politics*, 7 December 2017). Crime has been framed in this light (Michael Woodiwiss, et al, *Organized Evil and the Atlantic Alliance: moral panics and the rhetoric of organized crime*, *The British Journal of Criminology*, 49, 2009, 1). A major difficulty is the extent to which national leaders may themselves be indicted as variously complicit in crime, or claimed to be evil by their competitors.

The context for any analysis is further complicated by the manner in which evil and opposition are conflated in situations in which opposition is systemically valued as negative feedback (*Ensuring Dynamics of Sustainability by Appreciative Recognition of Evil*, 2022). This calls for engaging otherwise with the paradoxes of positive and negative.

**United Nations strategic assumptions?** Given the significance of remedial strategies and conflict to the United Nations, of relevance is the remark of Lawrence Woocher *Conflict Assessment and Intelligence Analysis: Commonality, Convergence, and Complementarity*, United States Institute of Peace, June 2011):

Conflict assessment is rarely associated with any dedicated institutions; rather, it is undertaken as is seen fit by development agencies, international organizations such as the United Nations, foreign ministries, and NGOs. The assessment process is accordingly seen as one piece -- and typically a small piece -- of these organizations' core functions of engaging in diplomacy, development, and peacebuilding. Rarely do organizations dedicate substantial staff and resources to conflict assessment. This means that it is common for the individuals or groups conducting the assessment to be also those developing the policy or programming ideas, a stark contrast to intelligence analysts, who in most settings are proscribed from even offering policy recommendations.

However a search for references relating to the United Nations only resulted in reference to use of Analysis of Competing Hypotheses (ACH) in the *UN Military Peacekeeping-Intelligence Handbook* (2019, p. 58) and to the *Criminal Intelligence Manual for Analysts* (United Nations Office on Drugs and Crime, 2011). No references were found to the application of the method in relation to the UN's Sustainable Development Goals. It is unclear that the method is systematically employed with regard to competing global strategic hypotheses, nor how these might be recognized.

**Validity of counter-arguments:** For Martha Whitesmith:

Valid counter-arguments outside of philosophical thought experiments are competing hypotheses that explain available evidence. Following the principles of infeasibilism in intelligence comes down to the interpretation of available information judged to be sufficiently credible to be used to validate assessments: how well analytical judgements explain the relevant credible information... Further, the consideration of multiple hypotheses and the principle of disconfirmation are founding principles of a key structured analytical technique that has been recommended and taught in Western intelligence communities since the 1990's, the Analysis of Competing Hypotheses. However, there is no evidence to indicate that the consideration of multiple hypotheses or the principle of disconfirmation have been made a compulsory part of intelligence analysis and assessment processes within intelligence communities. This would require substantial cultural and bureaucratic shifts that would have significant consequences for intelligence collection as well as analytical approaches (*Justified true belief theory for intelligence analysis, Intelligence and National Security*, 37, 2022, 6),

Whitesmith notes that the original ACH method has eight basic steps. The first, is to develop at least three mutually exclusive competing hypotheses that aim to cover all reasonable possibilities. However little is said about how the competing hypotheses are detected or selected. This recalls the problematic politics of accreditation to which many marginal actors are exposed and by which their proposals are deprecated or ignored -- most obviously within a UN context. What is held to be "credible" and "reasonable" -- and by whom? The matter is all the more problematic when the advocate or the proposal is deemed to be "evil".

To what extent is the formulation of remedial strategy trapped by a mindset as argued by Richard S. Tracey:

This menu of alternative analytical techniques includes placing analysts in the role of an adversary, devil's advocacy, brainstorming, "what-if" analysis, alternative futures analysis and analysis of competing hypotheses. However, some of these approaches are arcane, can cause friction in the analytical ranks and perhaps most importantly are resource intensive. (*Trapped by a Mindset: the Iraq WMD Intelligence Failure*, Maxwell Air University, 2006\_

Provocatively it might even be asked how intelligence is recognized within the international community -- given criteria asserting that NATO itself is "brain dead" (*Are the UN and the International Community both Brain Dead?*, 2019; *Quest for Intelligent Life on Earth - from a Future Perspective*, 2023).

**Biased identification of competing hypotheses?** With respect to a particular domain, Gustavo S. Betini, et al ask the question: *Why are we not evaluating multiple competing hypotheses in ecology and evolution?*:

The use of multiple working hypotheses to gain strong inference is widely promoted as a means to enhance the effectiveness of scientific investigation. Only 21 of 100 randomly selected studies from the ecological and evolutionary literature tested more than

one hypothesis and only eight tested more than two hypotheses. The surprising rarity of application of multiple working hypotheses suggests that this gap between theory and practice might reflect some fundamental issues... While scientists have developed a number of ways to avoid biases, such as the use of double-blind controls, we suspect that few scientists are fully aware of the potential influence of cognitive bias on their decisions and they have not yet adopted many techniques available to overcome intellectual and practical barriers in order to improve scientific investigation. (*Royal Society Open Science*, 4, 2017,1)

As indicated above, there would appear to be a major challenge in identifying hypotheses that can be considered as suggesting potentially credible alternative perspectives. Whilst the study above focused on a narrow range of topics, it is then appropriate to ask to what extent the argument is relevant in the policy sciences and the formulation of remedial strategies of governance.

**Fashionable contrarianism?** Given the controversial role of the [World Economic Forum](#) (WEF), it is appropriate to note that it has been specifically claimed to give "contrarian ideas a stage.. in the most powerful gathering of business and government leaders" (Hans van Leeuwen, et al, *Davos: a pointless elitist indulgence or inspirational agenda-setter?* *Financial Review*, 15 January 2023). The Forum has been promoted as trying to address concerns over the years by "inviting contrarian views into its inner circle and adding NGO representatives to the mix of CEOs" (*Can the WEF stop de-globalisation?* *Swissinfo*, 21 May 2022).

It is intriguing to note the existence of a [World Social Forum](#) (WSF) and the challenge it could be understood specifically to pose to the perspectives of the WEF. It is doubtful whether the respective "competing hypotheses" would be identified in a context where the analytical methods promoted for the Intelligence Community could be applied. It could then be asked by whom this might be proposed and undertaken, as speculatively discussed (*All Blacks of Davos vs All Greens of Porto Alegre: reframing global strategic discord through polyphony?* 2007).

Many references to "contrarian" can however be understood as indicative of a tolerable degree of difference -- contrarian-lite -- rather than of the radical perspective of strong critiques of a given mainstream narrative (as is characteristic of the WEF-WSF non-interaction). Any difference is then only a degree of divergence from the norm -- potentially as a means of promoting uniqueness in quest of the recognition this may bring to the advocate. Investment policies may notably promote themselves as "contrarian" in justification for their capacity to achieve higher returns.

It is then a challenge to determine how the hypotheses espoused by a "contrarian" correspond to the framing offered by Chengwei Liu (*How to Be a Smart Contrarian*):

There's a good reason why we're suspicious of new ideas: Many are unrealistic. But over time managers get conditioned to discounting anything that isn't familiar. They dismiss ideas that challenge their assumptions about how the world works, make judgments based on stereotyping, and create cultures that limit their choices. The secret to avoiding these traps is to become a smart contrarian -- someone who looks for business practices that don't make sense, who's not too reliant on a small group of like-minded people, who can embrace diversity, and who's happier on the sidelines. (*Harvard Business Review*, 22 September 2021)

The concern is similarly relevant to the insightful argument of Alain-Philippe Durand and Ken S. McAllister (*Humanities = Jobs: The Tactics of Contrarian Entrepreneurial Humanists* *ADE Bulletin 159 / ADFL Bulletin 47.2*).

## Identifying competing global strategic hypotheses

With an emphasis on competing strategic hypotheses, a key question is how are those to be considered to be "competing" then to be identified. As stated by Erin G. Pleggenkuhle-Miles and Mike W. Peng: "Much of the truly interesting and provocative research of today stems from the current debates in our field" (*Embracing Debates to Advance Global Strategy Research, Research Methodology in Strategy and Management*, 5, 2009). They focus on the scale and scope of research embracing debates as manifested in competing hypotheses in leading management journals. It could then be asked what hypotheses are not taken into account by such journals -- and their focus in "management". Is the "embrace" comprehensive enough, and what constituencies might perceive themselves to be excluded from the "embrace" -- and why?

One approach to the systematic identification of competing strategic hypotheses is the methodology of the [Global Strategies Project](#) of the online [Encyclopedia of World Problems and Human Potential](#). In addition to profiling hundreds of advocated strategies, with claims to their particular advantages, it also includes (where available) arguments questioning any such claim. The merit of the approach is that the strategies profiled derive from an extensive array of international constituencies -- whether or not these are formally accredited by international institutions or disciplines.

One primary focus for strategic articulation is that of the consensual assumption on which the UN's 17 [Sustainable Development Goals](#) (SDGs) are based as the current exemplar of global governance strategy. It is then of interest to ask by what hypotheses have these been meaningfully challenged to the extent they have been explicitly formulated. A question of interest is whether global strategies of that nature emerge from a rational process, as the consequence of a form of compromise and the traditional art of "muddling through", or otherwise (*Systemic Coherence of the UN's 17 SDGs as a Global Dream*, 2021).

In considering any array of strategies, it may then be asked whether the discourse of their advocates is such as deliberately to ignore alternative perspectives which might be a challenge to their strategic resolve -- especially when it is difficult to sustain? More problematic in the case of the SDGs, is the currently documented failure of these strategies to be recognized as being in part due to their failure to address competing hypotheses?

Distinctive from the methodology of analysis of competing hypotheses, as promoted by the Intelligence Community, is that of [root cause analysis](#) (RCA). A set of hypotheses held to be in competition could indeed be seen as in no way dependent on such systemic analysis -- if the focus is primarily on hypotheses which reflect contrasting political preferences. In science and engineering, RCA is a widely used method of problem solving to identify the root causes of faults or problems.

The use of RCA in relation to global strategies and "sustainability" is far less evident -- especially when sustainability is considered more broadly rather than from a technical perspective (Abhishek Jayswal, et al, [A Sustainability Root Cause Analysis Methodology and its Application](#), *Computers and Chemical Engineering*, 35, 2011, 12). As argued by John Ehrenfeld:

The root of this problem is neither business's misunderstanding of what's at stake nor corporate cynicism about the sustainability cause (though these may be contributing factors). The problem really stems from management's failure to see unsustainability as a deep-seated systems failure and to appreciate the extent to which radical thinking and action are required to embark upon a sustainable trajectory. Given this great blindness, one must ask a critical question: Can anything be done to radically transform the way that businesses work? ([The Roots of Sustainability](#), *MIT Sloan Management Review*, 46, 2005, 2).

The possibility of broader application is specifically articulated in the light of a seven year root cause analysis of the complete sustainability problem:

Countless solutions to the environmental sustainability problem have been tried over the last forty years. While there have been some small successes, the overall problem remains un-solved. The global ecological footprint is at 50% overshoot and rising, with no credible solution in sight. Why is this? Because popular solutions do not resolve root causes. Root cause analysis has worked spectacularly well for business problems. So why can't it work for large-scale social system problems like sustainability? (Jack Harich, et al., [Solving the Sustainability Problem with Root Cause Analysis](#), *Ecosystem Services Partnership Conference*, 2012)

In a concluding note, the authors of the latter comment on [Agenda 21](#) (the predecessor of the UN's SDGs, to which similar comments now apply):

Adopted by 178 governments at the first Earth Summit in Rio de Janeiro in 1992, Agenda 21 contains long lists of "activities" to promote sustainable development. These actions have not been implemented on anything more than a token basis. Solution failure is widespread but only weakly acknowledged, such as by titling the 2012 version of Agenda 21 *The Future We Want*. More realistic would be a new document titled *The Analysis We Need*. It would sell the idea that only a proper root cause analysis can solve the problem. Wish lists can't.

Rational methodologies, whether ACH or RCA, are severely handicapped in addressing ideological preferences which may be at the root of competition between "hypotheses", as is evident in their capacity to trigger and sustain violent conflict over decades -- however much they may see others as being at the root of strategic challenges. In the case of religions, their understanding of root causes may differ radically from those given credence by such methodologies -- hence the strategic importance accorded to "evil", for example, as noted above ([Root Irresponsibility for Major World Problems](#), 2012; [Fundamental Need for Human Sacrifice by Abrahamic Religions](#), 2018).

## Misleading quest for strategic singularity

**Problematic single-factor focus:** The methodology of analysis of competing hypotheses, and root cause analysis, together share a particular bias which merits a challenge in its own right. This can be variously understood as the quest for a singular explanation, namely a single factor to which priority attention and resources can then be appropriately accorded. Other factors can then be set aside as relatively irrelevant ([Promoting a Singular Global Threat](#), 2002). The single factor can be variously framed as the truth, the most credible, or the most appropriate or effective -- in contrast with others then framed as incorrect, ineffective, lacking credibility, or simply wrong. Evidence may well be selected in the light of that focus -- neglecting evidence to the contrary.

This translates into the possibility of a singular strategic focus -- potentially to be caricatured as a form of "silver bullet" or panacea, especially in response to whatever is framed as "evil" ([Emerging Memetic Singularity in the Global Knowledge Society](#), 2009). Aside from widespread anticipation of a messianic leader, this focus may even be embodied symbolically as a location ([Jerusalem as a Symbolic Singularity](#), 2017).

Much is now made of the complexities of the global problematique and the wicked problems by which it is characterized ([Challenge: beyond single-factor strategy development](#), 2008). As previously discussed, [Edgar Morin](#) (*Pour Sortir du XXe Siecle*, 1981) and [Kenneth Boulding](#) (*Ecodynamics; a new theory of societal evolution*, 1978) both noted decades ago the dangers of single-factor explanations. In Boulding's words:

The evolutionary vision sees human history as a vast interacting network of species and relationships of many different kinds, and there really is no "leading factor" always in the forefront. At times, changes in material technology are the major mutational developments and create niches for social changes of various kinds. At other times, however, intellectual or spiritual movements take the lead and create niches for new material artifacts and technologies; sometimes climatic changes dominate the scene; or sometimes biological mutations dominate, such as the disease bacteria that caused the great plagues. (p. 19-20)

**Contrasting hypotheses versus Contrarian hypothesis:** Whilst the following are variously recognized:

- the promotion of competition as vital to a healthy economy -- and as virtually unquestionable as a fundamental truth
- the recognized value of diversity in a gene pool -- as being vital to healthy biological development (for fear of the consequences of incest)
- the value of preserving biodiversity -- as being vital to a healthy ecosystem, with concern at its vulnerability

In systemic terms it is somewhat extraordinary to note how the quest for singular explanations and consensus can then be translated into quests for global hegemony, whether political, cultural, scientific or religious -- rather than the appropriate cultivation of diversity, whatever that may be understood to mean (*Comprehension of Appropriateness*, 1986).

It is also strange to note that it is commercial preoccupations which tend to be most articulate in their appreciation of contrasting perspectives (Martin Reeves, et al, *Why Conflicting Ideas Can Make Your Strategy Stronger*, *Harvard Business Review*, 31 May 2023).

The bias shared by the methodology of analysis of competing hypotheses and root cause analysis can then be understood as also evident to a degree in contrary analysis. If a contrarian perspective is only framed in opposition to a single-factor preoccupation, this effectively results only in a binary dynamic with its own limitations -- especially when the "other" is deprecated, condemned, and possibly suppressed.

**Requisite variety as radical contrast:** Missing from a strategic methodological effort -- seeking to reduce "competing hypotheses" to a single priority -- is then the recognized value noted with respect to competition, gene pools and biodiversity -- and the dangers of their unquestioned limitation. From a systemic perspective the requisite multiplicity is noted as technically [requisite variety](#). The review of the intelligence failure of 9/11 framed this specifically in terms of group think and lack of imagination.

In that light it is then appropriate to ask how a multiplicity of competing strategic hypotheses is to be sustained by institutions potentially perceiving some of those hypotheses as a threat to their identity and budgets. The challenge is all the greater when another dimension is added to the multiplicity. Viable competition may indeed call for what can be characterized as "radical" -- namely a significant contrast, rather than a superficial one.

With respect to eliciting radical contrasts, as much valued with respect to creativity, there is a particular challenge in that "radical" is now readily conflated with threatening challenge and terrorism (*Radical Innovators Beware -- in the arts, sciences and philosophy*, 2016). As noted there, the specific "deradicalisation" initiatives can be recognized as a form of dumbing down.

**Requisite diversity?** Clues as to how disparate strategic hypotheses might fruitfully be are most obviously available from the biological realm -- especially since there is ever greater sensitivity to the consequences of biodiversity loss in relation to ecosystemic viability. With respect to "radical", notably as it relates to the need for a paradigm shift in response to the crises of global governance, reference may be usefully made to an innovation in fundamental physics.

Physicists proudly refer to the much-quoted statement by [Niels Bohr](#) in response to Wolfgang Pauli:

"We are all agreed that your theory is crazy. The question which divides us is whether it is crazy enough to have a chance of being correct. My own feeling is that it is not crazy enough."

To that [Freeman Dyson](#) is cited as adding:

"When a great innovation appears, it will almost certainly be in a muddled, incomplete and confusing form. To the discoverer, himself, it will be only half understood; to everyone else, it will be a mystery. For any speculation which does not at first glance look crazy, there is no hope!" (*Innovation in Physics*, *Scientific American*, 199, No. 3, September 1958)

However those comments, and the continuing development of fundamental physics, help to frame the question as to whether and how "correctness" is ensured by a singular explanation -- and how the future may reframe any such assumption. The question with regard to the much-sought "new thinking" with respect to "global governance", and the "governance of globalization", is whether any theory is "crazy enough" -- as may well be essential.

## Requisite variety of strategic "ways of looking"?

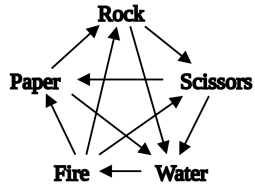

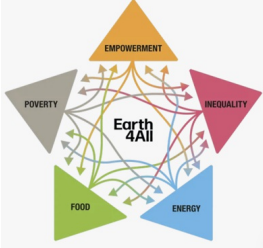
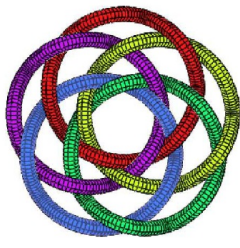
The United Nations now envisages a [Summit of the Future](#) planned for 2024 -- in the light of the UN Secretary-General's vision for the future of global cooperation in the form of a report titled *Our Common Agenda* (2021). This is framed as a new quest for a unifying "answer" seemingly with little recognition of requisite variety in systemic terms. This is unfortunate when it might be expected that the United Nations would be a flag bearer for a more appropriate understanding of diversity in the light of its associated paradoxes (*Paradoxes of Durable Peace, Heaven and a Sustainable Lifestyle*, 2023).

The challenge of such a summit can be presented otherwise -- as the quest for an appropriately "deadly question" capable of reframing current discourse modalities, as argued separately (*World Futures Conference as Catastrophic Question*, 2013)? Furthermore, rather than single deadly question, a more fruitful quest might be for a configuration of such questions. This might call for a reconfiguration of the set of Sustainable Development Goals in the light of the cognitive and existential questions with which each is associated.

**Borromean discourse?** As suggested above by the inspiration for new thinking in fundamental physics, the requisite diversity may necessarily be characterized by the perception of "craziness" -- mutually perceived. Ironically this recalls the influential strategic philosophy of [Mutually Assured Destruction \(MAD\)](#). In that sense the distinctive hypotheses call each other into question -- even to the

point of being perceived as mutually incommensurable. Curiously this pattern may be most readily understood through the widely recognized hand game of [rock-paper-scissors](#) -- now extended to a "5-weapon" version [rock-paper-scissors-spock-lizard](#).

It can be argued that this 5-fold pattern merits comparison with the strategic challenge of the "5-turnarounds" promoted in the Earth4All initiative of the Club of Rome, as discussed separately ([Beyond binary dialogue -- the subtle possibility of "Borromean intercourse"?](#) 2023). This frames the possibility in terms of the paradoxical configuration of [Borromean rings](#) of which there are 3-fold, 5-fold, 7-fold, and more variants (Marc Chamberland and Eugene A. Herman, [Rock-paper-scissors meets Borromean rings](#), *The Mathematical Intelligencer*, 37, 2015, 2)

5-fold game of Rock-Scissors-Paper-Lizard-Spock		"5-turnarounds" of Earth4All initiative of Club of Rome	5-fold Borromean rings
oriented graph	hand gestures		
			
<a href="#">Geysirhead, CC BY-SA 4.0</a> , via Wikimedia Commons	<a href="#">DMacks, CC BY-SA 3.0</a> , via Wikimedia Commons	Reproduced from <a href="#">Earth4All</a>	Reproduced from Chamberland and Herman (2015)

**Thinking hats?** The mutually challenging relationship between a 6-fold pattern of radically distinct ways of thinking has been extensively argued by [Edward de Bono](#) in a series of books ([Six Thinking Hats: an essential approach to business management](#), 1985; [Six Frames For Thinking About Information](#), 2008). He has adapted the pattern to "action" and to "values" ([Six Action Shoes](#), 1991; [Six Value Medals](#), 2005).

Further insights are to be derived from the manner in which this pattern has been variously accepted or rejected in favour of others. Of particular interest is the extent to which the pattern has been considered in relation to global strategy articulation. Given the problematically discourse between Palestine and Israel over decades, it remains unclear why that primitive binary modality has not been transcended in the light of other arguments of Edward de Bono ([Water Logic: The Alternative to I am Right You are Wrong](#), 1993; [Intelligence is Not Enough](#), 2013).

Given the subtlety of their mystical insights, it is remarkable that the righteous theologians of the Abrahamic religions, have been completely unable to reframe their binary dogma in terms of some form of "water logic". (or [Flowscapes](#)). At the time of writing, anticipating the Israeli response to Hamas, strategic consideration could also have been given to "Po" -- de Bono's timeout process ([Po: Beyond Yes and No](#), 1973), as discussed separately ([Categorical Straightjackets PO: A suggestion for a de-patterning device for international organization descriptions](#), 1974)..

In considering the nature of "radically distinct" and "conceptually incommensurable", the unstated psychodynamics in practice merit particular attention ([Epistemological Challenge of Cognitive Body Odour: exploring the underside of dialogue](#), 2006; [Dynamically Gated Conceptual Communities](#), 2004; [Snoring of The Other: a politically relevant psycho-spiritual metaphor?](#) 2006; [Reframing Personal Relationships between Innovators or Leaders](#), 1998)

**"Ways of looking"?** Insight has been variously engendered from recognition of the variety of ways of looking, This was originally framed in aesthetic terms in a much-cited poem by [Wallace Stevens](#) ([Thirteen Ways of Looking at a Blackbird](#), 1917), as is evident from its use by other poets, and discussed separately ([Ways of looking -- and ways of thinking?](#) 2021; [Thirteen ways of apprehending blackbird song](#), 2014).

The social sciences have considered the variety through the lens of the much-cited study by [Gareth Morgan](#) ([Images of Organization](#), 1986). This offers an 8-fold framework through which organizations can be perceived: machines, organisms, brains, cultures, political systems, psychic prisons, flux and transformation, and instruments of domination. This could be contrasted with an 8-fold organization of computer memory, as discussed separately ([Torus interconnect -- as used in supercomputers](#), 2019).

Rather than simply recognizing the variety of ways meriting attention, the more fundamental challenge is exploration of the necessarily paradoxical processes through which incommensurable modalities might be fruitfully interrelated ([Interrelating Multiple Ways of Looking at a Crisis](#), 2021). It is far from clear that this possibility has been considered by the intelligence community -- given the focus on identifying a preferred hypothesis, despite the challenges of confirmation bias.

Nor is it clear whether there is articulated recognition by the United Nations of the necessity of interrelating multiple strategic perspectives -- despite variously promoting their diversity in cultural terms ([Diversity, Equity and Inclusion](#), United Nations Development Programme; [Universal Declaration on Cultural Diversity](#), UNESCO).

**Axes of bias?** Seemingly unrelated to the strategic preoccupations of the intelligence community, it is intriguing to note the variety of ways in which cultural biases have been explored by different authors ([Systems of Categories Distinguishing Cultural Biases](#), 1993; [Systematic approaches to contrasting ways of thinking](#), 2021). Typically characterized by "7 plus or minus 2" orientations, these can be understood to include the patterns distinguished by:

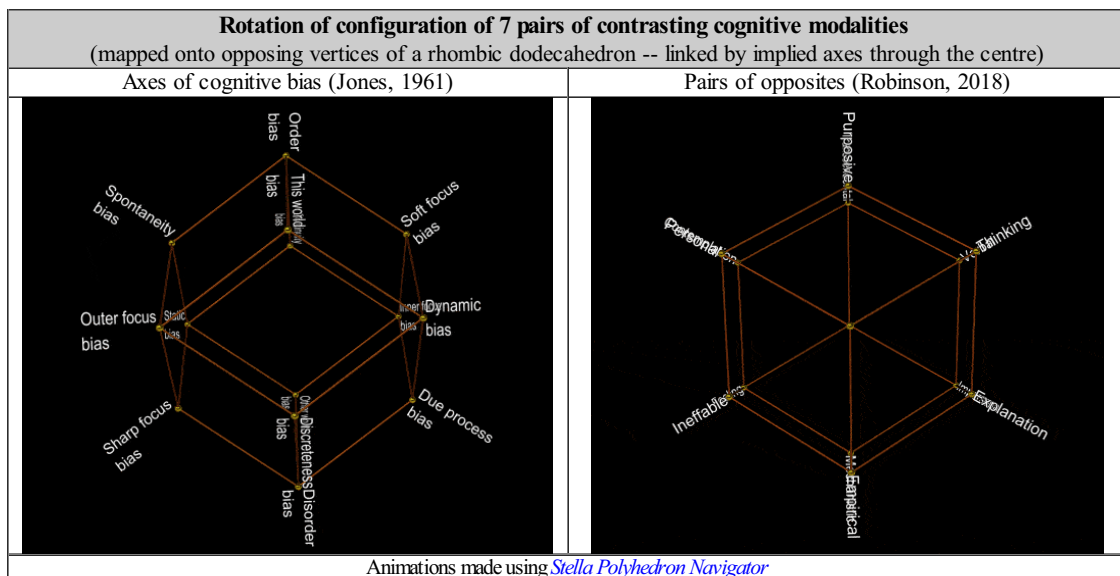
- Magoroh Maruyama: [Mindscapes, social patterns and future development of scientific theory types](#) (*Cybernetica*, 1980, 23, 1, pp.

- Geert Hofstede: *Culture's Consequences: international differences in work-related values* (Sage, 1984)
- Kinhide Mushakoji: *Scientific revolution and interparadigmatic dialogue* (United Nations University, GPID project, 1978)
- Will McWhinney: *Paths of Change: strategic choices for organizations and society* (Sage, 1991)
- Stephen Pepper: *World Hypotheses: a study in evidence* (University of California Press, 1942)
- Mary Douglas: *Natural Symbols: explorations in cosmology* (Pelikan, 1973)
- Howard Gardner: *Frames of Mind: the theory of multiple intelligences* (Heinemann, 1984)
- Emmanuel Todd: *La Troisième Planète: structures familiales et systèmes idéologiques* (1983)
- William Thomas Jones: *The Romantic Syndrome: toward a new method in cultural anthropology and the history of ideas* (Martinus Nijhoff, 1961)

Potentially the most relevant to "interrelating" the incommensurable cognitive modalities distinguished is the philosophical approach of Jones -- despite the title (which refers to its application to one case study). As a valuable complexification of a pattern of strategic of 7 axes of bias, it is summarized separately (*Axes of Bias in Inter-Sectoral Dialogue*, 1992; *Axes of Bias in Inter-Cultural Dialogue*, 1993), and presented in the animation below (left). This has been variously discussed and illustrated in relation to polyhedral configurations of **cognitive bias**:

- *Values, principles and axes of bias -- as configurations of spikes?* 2020
- *Matching sets of psychosocial polarities to tensegrities: case of Axes of Bias?* 2021
- *Constraint of the 7-fold on comprehension of more complex patterns?* 2021
- *Complementary features of "stargate" de-sign and functionality?* 2018
- *Encompassing a global dynamic of "bristling spikes" -- with "spikeholder capitalism"?* 2020
- *Memorable representation of the dynamics of a hyper-wealth complex* 2022
- *Achieving credibility of "cognitive bones" via "experiential flesh"?* 2023

The framework of Jones is comparable to the set of 7 pairs of opposites of **Oliver C. Robinson** (*Paths Between Head and Heart: exploring the harmonies of science and spirituality*, 2018), as summarized by the author (*Palintonos Harmonia: the alchemy of opposites*, Paradigm Explorer, 2018, 2), and presented below (right). Images of both configurations were presented in an introductory argument (*Values, principles and axes of bias -- as configurations of spikes?* 2020).



Especially noteworthy with respect to use of the **rhombic dodecahedron** is the importance of its role in the study of logical connectivity (*Oppositional Logic as Comprehensible Key to Sustainable Democracy: configuring patterns of anti-otherness*, 2018). This polyhedron is a geometric dual of the **cuboctahedron** whose particular characteristics with respect to transformation between polyhedral forms have been highlighted by Buckminster Fuller, notably proving fundamental to his design of geodesic domes.

It might then be asked how mapping the radically contrasting strategic biases of WEF and WSF onto the axes of that configuration would position them such as to render their asserted differences predictable. The animations above are reproduced from a discussion of the role of missiles and their analogues -- especially evident in the Ukraine-Russia and Palestine-Israel confrontations (*Missiles, Needles, Missions, Rifles, Projects, Bullets*, 2020).

The challenge for civilization is remarkably framed by the massive investment focus on missiles and the threats they constitute -- with the ultimate threat of nuclear war, as tracked by the **Doomsday Clock** now at seconds to midnight. This is curiously matched by the role of needles, whether to deliver the COVID-19 vaccine as the much sought cure-all, or in their role in delivering psychological relief from the stressful realities of daily life. As a new source of inspiration, the "reset" promoted by WEF evokes a new fervour in some as a mission of dramatic urgency requiring worldwide mobilization -- recalling the acclaimed role of such missions in the past: sustainability, socialism, communism, capitalism, religion, and the like.

**Polyhedral configurations:** Of relevance to the polyhedral configuration of contrasting hypotheses is the sense in which such a configuration effectively frames a complex space of discourse -- namely of discourse of a higher order of complexity, as separately

discussed (*Second-order Dialogue and Higher Order Discourse for the Future*, 2023). The concern emphasized above is the tendency to "collapse" that space -- effectively reducing its dimensionality, possibly to a single modality.

A particular advantage of polyhedral configurations of bias is the sense in which they offer a means of interrelating the disagreements fundamental to contrasting hypotheses -- avoiding the tendency to eliminate as many as possible. Some relevance to [multi-criteria decision analysis](#) and to [multivariate analysis](#) is evident (J. W. Seaman Jr, et al, *Polyhedron Graphs for Displaying Multivariate Data, Computers and Mathematics with Applications*, 14, 1987, 4). However it is seemingly the relatively obscure discipline of oppositional logic which makes extensive use of such geometry, as discussed separately (*Oppositional Logic as Comprehensible Key to Sustainable Democracy*, 2018; *Reframing forms of connectivity through the logic of oppositional geometry*, 2020; *Relevance of oppositional logic to relating virtues and sins*, 2022).

## Variety of relationships and forms of connectivity

**Connections and relationships:** In a society in which connectivity is variously stressed, there would seem to be relatively little recognition of the variety of "connections" most generally understood -- in contrast with the extensive interest in the variety of interpersonal relations, and their value (Mere Abrams, *35 Terms That Describe Intimate Relationship Types and Dynamics*, *Healthline*, 27 January 2020; *Relationships: The Importance of Having a Variety of Relationships in Your Life*, *Maeonline*, 9 December 2022). On the other hand, the wider variety is suggested by the number of [synonyms for relationship](#) proposed online -- ranging up to 1,259. These include, for example: connection, association, link, correlation, correspondence, parallel, alliance, bearing and interdependence.

From ChatGPT, the following distinctive connections were elicited:

The concept of "relations" or "connections" is broad and can be studied in various fields, each emphasizing different types of relationships. Here's an overview of some domains where the study of relations is prominent:

- **Mathematics:** In mathematics, relations are a fundamental concept. They are used to describe and analyze the connections between elements in sets. Types of relations include equivalence relations, partial orders, and functions.
- **Set Theory:** Relations are studied within set theory, a branch of mathematical logic. Here, the concept of a relation is often formalized and explored in detail, covering topics like reflexive, symmetric, and transitive relations.
- **Graph Theory:** Graph theory focuses on the study of relationships between entities represented as vertices or nodes connected by edges. Graphs can model relationships in a wide range of systems, from social networks to transportation networks.
- **Logic:** Logical relationships between propositions are studied in logic. This includes the study of logical connectives (and, or, not), implications, and the structure of logical arguments.
- **Philosophy:** In philosophy, relations are considered in various contexts. For example, philosophical discussions might explore relations between concepts, individuals, or events. Analytic philosophy often employs logical relations in examining language and thought.
- **Social Sciences:** Interpersonal relations are a central focus in the social sciences. Sociology, psychology, and anthropology study how individuals and groups relate to each other in social, cultural, and psychological contexts.
- **Systems Theory:** Systems theory examines relationships and interactions within complex systems across diverse domains. It encompasses a wide range of disciplines and considers how elements within a system are connected and influence each other.
- **Computer Science:** In computer science, relations are used in databases, formal methods, and algorithms. The study of algorithms often involves analyzing the relationships between data elements.
- **Linguistics:** In linguistics, relations between linguistic elements are studied. This includes syntactic relationships between words in a sentence and semantic relationships between meanings.
- **Physics:** In physics, the concept of relations is evident in the study of fundamental forces and interactions between particles. Fields like quantum mechanics and general relativity involve intricate relationships.

**Coaction cardioid:** Presented in this way, the sense in which the relationship may be problematic in some manner is avoided. Of relevance in this respect is the generalization of patterns of relationship between species offered by [Edward Haskell](#) (*Generalization of the structure of Mendeleev's periodic table*, 1972), as previously discussed (*Playing the Great Game with Intelligence: Authority versus the People*, 2013).

Possible 8-fold Positive-Negative Hybrid Conditions				
		Y = "Control component"		
		Negative	Neutral	Positive
X = "Work component"	Positive	<i>predation</i> (positive negativity)	<i>allotrophy</i> (positive neutrality)	<i>symbiosis</i> (positive positivity)
	Neutral	<i>amensalism</i> (neutral negativity)	O (neutral neutrality)	<i>commensalism</i> (neutral positivity)
	Negative	<i>synnecrosis</i> (negative negativity)	<i>allopathy</i> (negative neutrality)	<i>parasitism</i> (negative positivity)

Yet to be further clarified is how contrasting "species" in nature are to be usefully compared to contrasting strategic "hypotheses". Haskell interrelates these contrasting forms of connectivity in a coaction cardioid, as discussed and illustrated separately (*Cardioid Attractor Fundamental to Sustainability: 8 transactional games forming the heart of sustainable relationship*, 2005). The following comment (edited from several clarifying interactions) was elicited from ChatGPT with respect to the potential correspondence with logical connectives. (*Oppositional logic and its geometry -- 16 minus 2 connectives?* 2021)

Haskell's Coaction Cardioid, inspired by Christopher Alexander's work, presents an 8-fold pattern of relationships between species

in nature (symbiosis, predation, etc.). Here's a speculative exploration of how this pattern might correspond to logical connectives, with some general insights into why these particular logical connectives might be considered relevant:

- **Intersection/Conjunction (AND):** Describes a relationship where both elements are required or both conditions must be satisfied. In the context of species interaction, this could represent scenarios where the presence of two species is necessary for a particular ecological outcome. The intersection of elements in the Coaction Cardioid could symbolize symbiotic relationships, where different entities come together in a shared space for mutual benefit. This might correspond to the logical "AND" connective. (Represented by "000")
- **Union/Disjunction (OR):** Indicates that at least one of the elements or conditions is true. In species interaction, this could signify scenarios where one species or another can contribute to a particular ecological process. The areas where elements are close but do not intersect might represent a form of unity without complete overlap, similar to the logical "OR" connective, where one or both propositions can be true. (Represented by "001")
- **Complement (NOT):** Represents the absence or negation of a condition. In species interaction, this might indicate scenarios where the absence of one species has a specific ecological consequence. Distinct or separated areas in the Coaction Cardioid might correspond to a negated or complementary relationship, analogous to the logical "NOT" connective. (Represented by "100")
- **Implication (?):** Represents a directional relationship, where the truth of one proposition implies the truth of another. In the context of species interaction, this might represent cases where the presence of one species influences or leads to the presence of another, similar to the logical "?" (implies) connective. (Represented by "010")
- **Biconditional (XNOR):** Implies a bidirectional relationship, where the truth of one proposition implies the truth of the other, and vice versa. This could be relevant in species interactions where the presence of each species is mutually dependent. Areas where elements are connected bidirectionally in the Coaction Cardioid might signify a mutual or two-way relationship between entities, akin to the logical biconditional connective. (Represented by "011")
- **XOR (Exclusive OR):** Implies an exclusive choice, where only one of the conditions can be true. In the context of species interaction, this might represent situations where the presence of one species excludes the possibility of the other. Distinct areas in the Coaction Cardioid where elements do not overlap might correspond to an exclusive relationship, similar to the logical XOR (exclusive OR) connective. (Represented by "111")
- **NAND:** Indicates that the conjunction is not true, meaning at least one of the conditions is false. This might represent scenarios where the presence of one species prevents the occurrence of a particular ecological outcome. Areas where elements are not in intersection could symbolize a negated conjunction or a lack of shared space, similar to the logical "NAND" connective. (Represented by "110")
- **NOR:** Represents a situation where neither of the conditions is true. In species interaction, this could signify scenarios where the presence of neither species leads to a particular ecological outcome. Distinct areas where elements are not in proximity might represent a negated union or a lack of unity, analogous to the logical "NOR" connective. (Represented by "101")

This analogy is still metaphorical, and it's important to recognize the distinction between design principles and logical connectives. However, exploring these connections can offer creative insights into the relationships between elements in both natural patterns and logical systems. The specific choice of logical connectives would depend on the nuances of the ecological relationships being considered. The goal is to use logical operators that accurately capture and model the dynamics of species interaction in nature.

The biological adage that every species is recognized as "another species lunch" suggests the relevance of a cognitive equivalent (recalling the rock-scissors-paper game described above). Clearly there is a case for exploring how distinctive modalities are related to one another in any theory of argumentation or discourse.

**Correspondences:** Another approach is through insights into "correspondences" (*Theories of Correspondences -- and potential equivalences between them in correlative thinking*, 2007). Similar insights may be derived from systemic consideration of "equivalence" (*Systemic Equivalences between Ebola, Alien Invasion and Dissidence*, 2014).

During the Cold War, the moral equivalence of actions by the US in response to the USSR was argued to be a myth by Jeane Kirkpatrick, US Ambassador to the UN (*The Myth of Moral Equivalence*, 1986). Later instances merit consideration, notably in relation to Iraq, Syria, Libya, and Afghanistan (*Mirroring Global Moral Equivalence*, 2010). Unfortunately for the US, any claims it makes regarding Palestinian responsibility for humanitarian tragedies, will be set against the [claims made to the UN Security Council by Colin Powell](#), as US Secretary of State, on 5 February 2003 which gave false justification for the Iraq intervention and its millions of fatalities.

From that perspective, US support for the Israeli argument will be recognized as undermining the credibility of that argument. The difficulty for those with unlimited resources -- with the power to lie -- is that it becomes impossible for them to prove the truth of facts they present. Technology now enables all evidence to be fabricated and manipulated, especially that in electronic form. Scott Ritter, using the comprehensive data accumulated by *Al Jazeera*, has offered a credible alternative narrative (*Both Hamas and Israel could have reasons to hide the truth about the Al-Ahli hospital blast*, RT, 20 October 2023; *Video Investigation: What hit al-Ahli Hospital in Gaza?* *Al Jazeera*, 19 October 2023).

Controversial commentary on the Israel-Palestine relationship with respect to Gaza may draw historical "parallels" with the [Warsaw Ghetto](#) and the [Warsaw Ghetto uprising](#) -- yet another reminder that the "optics" may have far more consequences than the "facts":

- Haidar Eid: *Gaza 2023: Our Warsaw Uprising moment* (*Aljazeera*, 10 October 2023)
- John Phoenix: *Gaza: Warsaw Uprising* (*Shoah*, 11 October 2023)
- Adam Sherwin: *Israel-Gaza conflict: BBC News says it was wrong to air comparison of Hamas attacks to Warsaw Ghetto uprising* (*inews*, 9 October 2023)
- Paul Waldie: *Jewish groups in Poland angered by comparison of Palestinian attack to Warsaw ghetto uprising* (*The Globe and Mail*, 15 October 2023)
- Mark LeVine: *Gaza is no Warsaw Ghetto* (*Aljazeera*, 2 February 2009)

The subtlety of such controversial comparison frames the potential symbolic significance of [Masada](#) to Israeli identity in relation to Gaza, as highlighted by various authors (Uri Avnery, *A Gaza Masada? Counterpunch*, 17 December 2007; Charles Harb, *Israel-Gaza war: A*

The situation in Gaza is like a modern-day Masada, except the role of the Romans is being played by the Israeli army and the role of the Sicarii, the breakaway Zealots, is being played by Hamas.

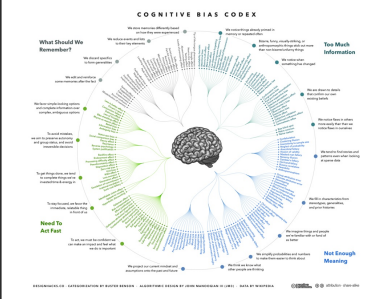
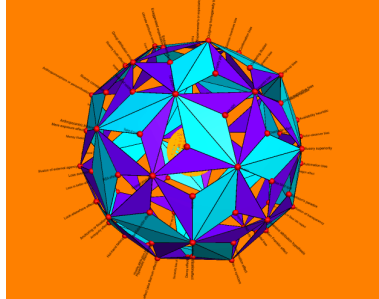
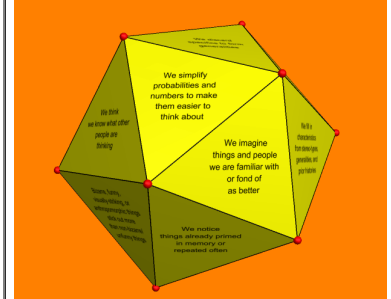
Masada, Gaza and the Warsaw Ghetto can be understood as entangled aspects of a "Masada complex":

- Jamie Levin: *The Masada complex Masada offers a grim reminder of the importance of compromise* (*The Jerusalem Post*, 26 January 2012)
- Robert Alter: *The Masada Complex: it may seem surprising that an archaeological site should provide the focus of debate on basic issues of national policy*(*Commentary*, July 1973)
- Oscar B. de Ojalora Martes: *La agresividad militar israelí y su origen romano: 'el complejo Masada'* (*Hoy*, 17 de octubre 2023).
- Milton Viorst: *The Masada Complex* (Alicia Patterson Foundation, 2 April 2011)

Given the focus here on intelligence failure, another approach to requisite connectivity is through the analyses of the manner in which systems more generally can fail (*Variety of System Failures Engendered by Negligent Distinctions*, 2016).

**Viable configurations of the disparate:** The systemic generalization offered by Haskell with respect to ecosystems suggests that similar insights might be sought with respect to the viability of psychosocial systems. Rather than any single-factor focus, this could be explored in terms of viable configurations of the disparate and of patterns of "disagreement" (understood systemically).

The challenge is usefully presented in diagrammatic form as a circular configuration of 180 [cognitive biases](#) -- the [Cognitive Bias Codex](#) (below left). The larger set of cognitive biases can be tentatively configured in 3D in the following animations, necessarily raising the question of how they may be clustered and interrelated in any such mapping.

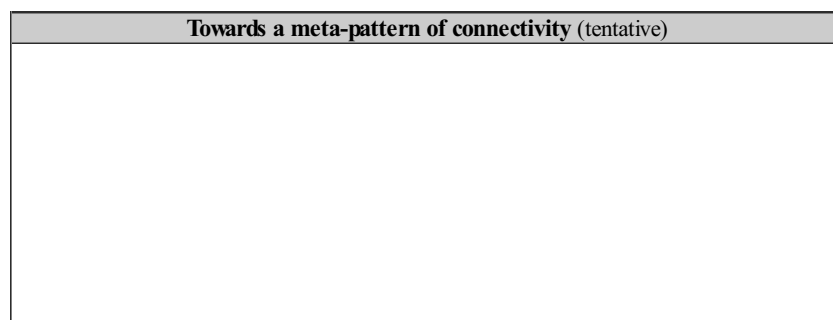
Cognitive Bias Codex		
Circular configuration	Tentative mapping of biases from the Codex onto 180 vertices of truncated truncated icosahedron (Animation)	Tentative mapping of clusters from the Codex onto 20 faces of icosahedron (Animation)
		
By Jm3 [CC BY-SA 4.0], from <a href="#">Wikimedia Commons</a>	Animations prepared using <a href="#">Stella Polyhedron Navigator</a>	

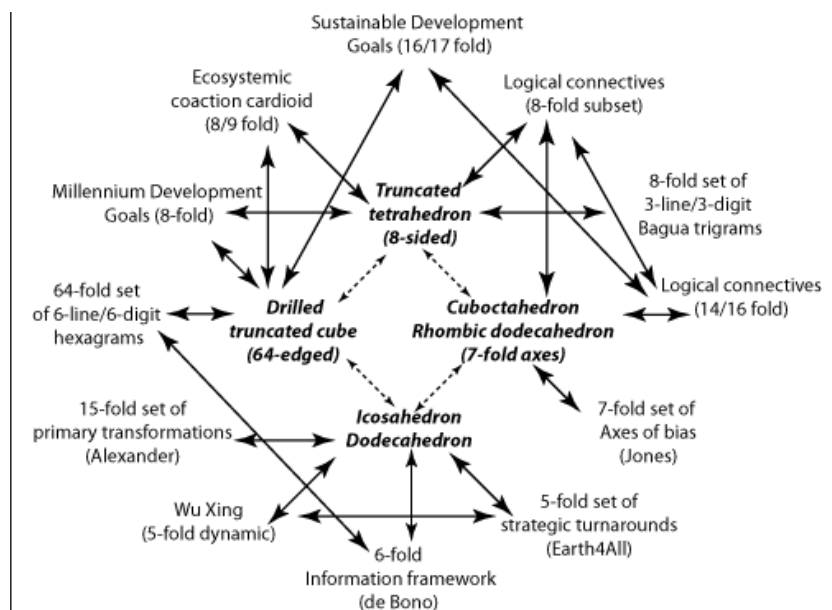
Given the problematic nature of the disparate -- and its implications for violent disagreement -- there is clearly a case for eliciting systemic insights through which difference may be understood otherwise:

- *Dynamics of N-fold Integration of Disparate Cognitive Modalities* (2021)
- *Global Coherence by Interrelating Disparate Strategic Patterns Dynamically* (2019)
- *Polyhedral clues to the dynamics of relating disparate ways of looking* (2022)
- *Reconciling disparate strategic frameworks* (2020)
- *Alternation between disparate forms of governance -- imagined through "organizing"* (2020)
- *Systemic configuration of highly disparate cognitive modalities -- in the light of 5-ring strategy?* (2019)
- *Interweaving disparate insights?* (2018)

## Navigating disinformation through "triangulation" and more

**Nexus of entangled patterns?** Given the proactive response of ChatGPT to the speculative exploration of a correspondence between a set of 8 logical connectives and Haskell's 8-fold coaction cardioid, it would seem that there may be a valuable nexus of related correspondences (variously mentioned above) meriting consideration, if only for mnemonic reasons.





When presented with this complex (as text), ChatGPT declined to be drawn further, limiting itself to the following "proactive" comment - together with suggestions on how it might be further explored and presented.

It's a rich tapestry of ideas that integrates various domains of knowledge, from mathematics and logic to philosophy and cultural symbolism.

With the pattern above understood as a tentative effort to articulate a [metapattern](#) of connectivity, intelligence failure in "connecting the dots" can then be framed in the light of the much-cited insight of Gregory Bateson:

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

And it is from this perspective that Bateson warns in a much-cited phrase: *Break the pattern which connects the items of learning and you necessarily destroy all quality*. It will be intriguing to observe the extent to which AI is able to "connect the dots" to elicit patterns of information of higher order in the future -- as a development of the approach of Pieter Wisse (*Metapattern: context and time in information models*, 2000). From the perspective of neurolinguistic programming, of particular relevance of to intelligence failure is its understanding of distortion (Michael Carroll, *An overview of the Meta Model and explanation of the five distortion categories*, NLP Academy, March 2016).

The exercise above could be considered an anticipation of the future capacity of AI to propose such maps in 2D, 3D or more. Of particular relevance in their presentation will necessarily be the degree to which they are designed from a mnemonic perspective to enable and enhance comprehension. This may well draw on aesthetic criteria leading to presentations recalling the attractive structure of flowers and flower arrangement -- the principles of *ikebana* -- notably in the light of the insights of Keith Critchlow (*The Hidden Geometry of Flowers: living rhythms form and number*, 2011).

**Flatland or otherwise?** In a period in which "truth" has become suspiciously related to propaganda, and variously challenged as disinformation, there is a case for considering a probabilistic relation to any assertion of "fact", for which Vasily Nalimov offers one justification (*Towards the Dynamic Art of Partial Comprehension*, 2012; *Zen of Facticity: Bull, Ox or Otherwise? Herding facts and their alternatives in a post-truth-era*, 2017).

The configurations animated above suggest that the challenge of navigating information in a global society calls for further insight from how the physical globe is navigated. It is of course the case that any current location is viewed as factual -- even to the point of reinforcing a "flat earth" perspective. Distant locations, and assertions about them, readily appear to be hypotheses. Having visited some, if that is the case, they may be presented as factual -- whether or not others are prepared to give credence to such "stories". There is also the question whether the "stories" of visitors from distant locations are to be believed -- or whether they should be viewed as misinformation or disinformation. Such differences can be framed as a question of perspective.

In contrast to some of the animations above, the cognitive globe is not "transparent". Most people would be challenged to prove to the satisfaction of others that the experiential world is round rather than flat. Given the importance of time to the appearance of what is considered factual, there is a further consideration. It is convenient to assume that local reality can be assumed to be relatively flat. The progress of the seasons calls into question the sense in which informed reality is most appropriately associated with a global form. It could then be argued that people effectively live on a torus -- the annual path of the Earth around the Sun -- with other implications for cognitive navigation (*Imagining Toroidal Life as a Sustainable Alternative*, 2019). This frames and illustrates the question: from globalization to toroidization or back to flatland?

**Extra dimensions?** Physics and mathematics offer further possibilities, whether or not they are widely known and appreciated. The influential geometrical insights of Eugenio Calabi could inspire further exploration of their psychosocial implications and the challenge to navigation of a knowledge society -- readily claimed to be "multi-dimensional" (Steve Nadis, *The Mathematician Who Sculpted the Shape*

of *Space*, *Quanta Magazine*, 16 October 2023). Calabi was able to frame the perceptual challenge in terms of manifolds: A **manifold** is a surface or space that can exist in any dimension, with an essential feature: A small "neighborhood" around every point on the surface looks flat. The Earth, for example, looks round (spherical) when viewed from afar, but a tiny patch of ground looks flat. Calabi is renowned for his early having framing of the matter in terms of the **Calabi conjecture** -- resulting in a proof decades later by **Shing-Tung Yau**. This established the mathematical existence of objects now called **Calabi-Yau manifolds**.

Physics has concluded (however provisionally) that reality is 10-dimensional -- despite assumptions relating to the perception of three space and one time dimensions. The six **extra dimensions** of the universe are now held to be hidden in a minute Calabi-Yau manifold (less than  $10^{-17}$  centimeters in diameter) -- elusively described metaphorically as "curled up" (Steven Abel, *The Search for Extra Dimensions*, *PhysicsWorld*, 1 November 2000; Sean Carroll, *Extra Dimensions*, 3 June 2004; *How to understand Extra Dimensions?* *PhysicsStackExchange*, 2022; *What is a curled up dimension?* *Reddit*, 2021).

**Wave-based reality?** As noted, there is no lack of acknowledgement of the "multi-dimensional" nature of psychosocial reality -- variously described as complexity -- to whatever degree it is locally "curled up". How such insights from physics enable that reality to be navigated remains to be explored. The so-called **complexity sciences** have yet to clarify the possibilities and their implications (*Local Reality of Overcrowding -- Global Unreality of Overpopulation*, 2019).

The transformation of perspective from 2D to 3D can itself help to frame consideration of the individual and collective implications of "quantum reality". Their credibility has been remarkably argued by **Alexander Wendt** (*Quantum Mind and Social Science: unifying physical and social ontology*, 2015).

The increasingly popular credibility of "vibration" as a qualifying descriptor ("vibes" in jargon terms), is then consistent with any reframing of individuals and groups as waveforms, notably following the arguments of Wendt (*Encountering Otherness as a Waveform: in the light of a wave theory of being*, 2013, *On being "walking wave functions" in terms of quantum consciousness?* 2017). Indicative animations can be presented (*Animations variously suggestive of "being a waveform"*, 2013).

**Triangulation?** Navigational insights in relation to "misinformation" in a global setting are offered through the traditional recourse to **triangulation** -- most familiar in terms of **surveying** over a relatively flat surface. Arguably then the perspective of every distant point is distorted to some degree. Clarity is achieved by triangulating between several "disparate" points -- with the longer the baseline the better (as with **Very-long-baseline interferometry**)

The implication for the processing of disparate news sources in communication space -- each purporting to present facts in a trustworthy manner -- is the need to confront and juxtapose the perspective offered by each. "Disparate" then implies "contrasting", namely a challenge to the claims made by any one of them. It is through their confrontation that confirmation may be achieved -- to some degree -- especially with the advantage of a very long baseline.

Further insights are suggested by the mathematics required for the navigation of the globe, most notably through the role of the so-called **Pentagramma Myrificum**. As discussed separately, this offers clues from spherical geometry to "getting around" and circumnavigating imaginatively (*Global Psychosocial Implication in the Pentagramma Mirificum*, 2015).

Consideration can also be usefully given to contrasting "orientations", especially as emphasized in the continuing preoccupation in Chinese culture with **feng shui** and its use of the circular geomantic compass (**luopan**), as discussed separately (*Coherent representation of cognitive modalities*, 2008). In a period in which global strategy is emphatically framed by the 16 (+1) Sustainable Development Goals (SDGs), there is the curious possibility that these might be explored through the 16 **geomantic figures** of potentially greater memorability. Given the crisis of the times, the case made for deriving "navigational" insights from disparate cultures merits consideration (*Enhancing the Quality of Knowing through Integration of East-West metaphors*, 2000; **Susantha Goonatilake**, *Toward a Global Science: mining civilizational knowledge*, 1999).

Missing is the potential adaptation of any circular "compass" to a 3D configuration, as explored with respect to the SDGs (*Cognitive Navigation of the Elements as Indicative Strategic Metaphors*, 2023).

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