

# ANTICIPATING WHEN BLACKBIRDS SING CHINESE

CONVERSION FROM TWEETS TO SONGBITES TO ENSURE INTEGRITY OF COMMUNICATION

ANTHONY JUDGE

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With thanks to the blackbird whose creative singing inspired and sustained the writing of this document

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## **Introduction**

Blackbirds are renowned for the imaginative quality and complex variety of their song, as well as their capacity for mimicry [[extended sample](#)]. Such song invites speculation on how information could be encoded into it. The brevity of each "verse", as represented in sonograms, suggests that the song could be rendered visually by ideograms reminiscent of Chinese characters -- given the great variety of those logograms and their aesthetic possibilities traditionally celebrated in calligraphy.

In a period of invasive surveillance in which the security of all electronic communications is under constant threat, a case was previously made for the use of carrier pigeons to bypass that threat (*[Circumventing Invasive Internet Surveillance with Carrier Pigeons: rewilding the endangered world wide web of avian migration pathways](#)*, 2013). That "technology" is dependent on the capacity of pigeons to transport messages physically. By contrast, the capacity of blackbirds to transport information through song offers other possibilities -- as yet to be explored.

Any such consideration is reframed by the manner in which tonal modalities are especially appreciated within some languages and cultures -- most notably Chinese. Tonal distinctions are a challenge for many others -- especially in comparison with the subtle requirements of Chinese. The implications are significant with the progressive challenge of China for America, whether or not any conflict takes physical form. The conflict in cyberspace has already been extensively documented.

There are learnings to be derived from the history of the past World Wars in which particular

significance was attached to the role of so-called [code talkers](#) ([Code Talkers: use of the Native Indian tongue for secure communications](#)). Advantage was derived from the unusual terminology and construction of various languages. The challenge has been recognized in the recent instigation by the US [Intelligence Advanced Research Projects Activity](#) (IARPA) of [The Metaphor Program](#), a two-phase project designed to first develop automated techniques for recognizing, defining, and categorizing linguistic metaphors and then use that information to characterize differing cultural perspectives (Alexis C. Madrigal, [Why Are Spy Researchers Building a 'Metaphor Program'? The Atlantic Monthly](#), 25 May 2011; Tim Hornyak, [U.S. spies want computers to analyze metaphors](#), [CNET](#), 30 May 2011). Clearly a secondary objective is to determine the existence of strategic threats embedded in electronic communications.

The focus here on "blackbirds" offers a further twist to future possibilities in that the term is used as metaphorical jargon for so-called [black helicopters](#). This reference became popular in the US militia movement and associated political groups in the 1990s as a symbol and warning sign of an alleged conspiratorial military takeover of the United States. A range of Blackbird aircraft has also been produced (Peter W. Merlin, [Blackbird Facts](#), NASA). For example, the [Lockheed SR-71 Blackbird](#) was an advanced, long-range, Mach 3+ strategic reconnaissance aircraft. Introduced in 1966, it constituted the pinnacle of the US military's Cold War reconnaissance efforts. It was the fastest manned aircraft in the sky until it was retired in 1998.

The sense of "bird" has been extended to developments in drone technology, as with the original [Lockheed D-21](#), a Mach 3+ reconnaissance drone. The envisaged Robot SR-72 is fast enough to encircle Earth in less than six hours (Iain Thomson, [SR-71 Blackbird follow-up: a new terrifying Mach 6 spy-drone bomber](#), [The Register](#), 1 November 2013). The existence of clandestine drone development has become evident (Chris Davies, [RQ-180 drone leaks continue ahead of Mach 6 'Son of Blackbird'](#), [SlashGear](#), 13 December 2013). Under development in China is the [Chengdu J-20](#) fifth-generation stealth fighter expected to be operational in 2017-2019 ([China to match US as only nations with 2 stealth fighters](#), [WantChinaTimes](#), 5 April 2014).

What kind of "singing" was imagined as being associated with such blackbirds by their designers and enthusiasts -- perhaps only unconsciously? Ironically the SR-71 carried an "[HRB Singer](#)" infrared camera, which ran during the entirety of a mission for route documentation, to respond to any accusations of overflight. HRB is now part of [Raytheon Intelligence and Information Systems](#).

Recent Chinese interest in carrier pigeons has been noted ([China's army to train 10,000 new pigeon recruits](#), [Metro](#), 3 March 2011; [China's Most Secret Weapon: the messenger pigeon](#), [Time](#), 2 March 2011). There is therefore some probability that the "code talker" approach of the past will be recognized as a precedent for "code singing" -- potentially enabled by blackbirds. Its wider incomprehensibility would then recall reference to variants of the phrase "[its Chinese to us](#)". Relevant to this argument is the extent to which songbirds are appreciated and trained in China. As recently noted by Mary X Dennis ([The Social Lives of Chinese Songbirds](#), [Audubon Magazine](#), 6 January 2013), it is not uncommon to hear a bird sing out the entire Chinese National Anthem.

Recognition has been accorded to a shift from [Realpolitik](#) to [Noopolitik](#) ([David Ronfeldt](#) and [John Arquilla](#), [The promise of Noopolitik](#), [First Monday](#), August, 2007). This will necessarily be accompanied by forms of memetic warfare to match the ongoing cyberwarfare. With this transition, the strategic Blackbirds of the future may well be defined in terms of [memeplexes](#) within the noosphere. The following argument explores the possibility that, whatever the form they take, they may well "sing Chinese" -- operating "under the radar" of conventional communication processes thereby evading invasive security countermeasures.

In order to frame discussion of "under the memetic radar", extensive use is in the following argument of the extensive post-modern exploration of the poem by [Wallace Stevens](#) ([Thirteen Ways of Looking at a Blackbird](#)).

## **Sonification and desonification -- for communication integrity**

The potential of [sonification](#), namely the use of non-speech audio to convey information or perceptualize data, has long been recognized -- as a means of circumventing high orders of information overload to enable pattern recognition. This has been promoted by the [International Community for Auditory Display](#) which prepared a seminal report on the field for the US National Science Foundation (*Sonification Report: Status of the Field and Research Agenda*, 1997). The possibility has been summarized separately (*Technical feasibility of musical sonification*, 2009) with regard to the feasibility of "compressing" information so that the patterns of content can be more easily apprehended

Various technical possibilities have been summarized in a recent report (*Convertor from Text to Poetry, Song or Music: computer-assisted aesthetic enhancement of treaties, declarations and agreements*, 2007). The feasibility of such initiatives is now widely recognized through rapid development, and widespread use, of applications such as:

- [Speech recognition](#) (also known as automatic speech recognition or computer speech recognition) converts spoken words to machine-readable input. The term "voice recognition" is sometimes used to refer to speech recognition where the recognition system is trained to a particular speaker -- as is the case for most desktop recognition software,
- [Screen readers](#) which attempt to identify and interpret what is being displayed on the screen. This interpretation is then re-presented to the user with text-to-speech, sound icons, or a Braille output device. Screen readers are a form of assistive technology (AT) potentially useful to people who are blind, visually impaired, illiterate or learning disabled, often in combination with other AT, such as screen magnifiers.
- [Music visualization](#), a feature found in some media player software, generates animated imagery based on a piece of recorded music. The imagery is usually generated and rendered in real time and synchronized with the music as it is played.

## **Cognitive fusion to engage with information complexity and overload**

A technical concern corresponding to that of sonification is that of cognitive fusion in relation to information fusion as a challenging requirement for the future -- especially under conditions of information overload in which rapid decision-making is required, as in supersonic fighter aircraft (A. Josang and R. Hankin, *Interpretation and fusion of hyper opinions in subjective logic*, [Proceedings of 15th International Conference on Information Fusion](#), 2012). The latter is organized by the [International Society of Information Fusion](#). The challenged can be succinctly characterized as one of [throughput](#).

Exploiting the design challenges of nuclear fusion as a metaphor, the future potential of cognitive fusion can however be speculatively explored (*Enactivating a Cognitive Fusion Reactor: Imaginal Transformation of Energy Resourcing (ITER-8)*, 2006; *Mass-Energy transformation in psychosocial system containers*, 2011).

Related issues are evident in the light of explorations of [synaesthesia](#), [grokking](#), and the like (*Authentic Grokking: emergence of Homo conjugens*, 2003; *Implication of Indwelling Intelligence in Global Confidence-building*, 2012). The nature of [hyperintelligence](#) is already a matter of debate with respect to future development of artificial intelligence and related speculation. However such speculation tends to avoid the nature of hypersubjectivity (\*\*\*\*).

With respect to either Chinese [logograms](#) -- or blackbird songbites -- how might those with the capacities of [synaesthesia](#) experience either -- or both? How might their comprehension be compared to the case of the Native Indian code talkers?




An interesting challenge with respect to so-called cognitive fusion is the ambiguity of its interpretation as path logical. Thus it can be understood as mistaking thoughts for the phenomena that thoughts represent -- in contrast to cognitive defusion. A similar "confusion" is found with respect to so-called [Knight's move thinking](#), understood as a pathological form of disconnected thinking. However, in chess (and similar strategic games) from which the metaphor derives, it is valued as creative reframing and exploitation of an opportunity. Most ironical, such a move is familiar to dancers as being closely related to the waltz -- suggesting that "non-pathological" is unfortunately understood as unidirectional movement (characteristic of a parade ground). The creative do not dance?

## Transformation of linear text information into a songbite

Several pointers merit consideration in imagining future possibilities.

**Embedding significance in an image:** This is of course a feature of many widely-documented approaches to visualization, especially including mapping techniques. One particular approach of relevance in relation to secure communications is the embedding of information in an image, possibly in addition to any form of encryption, as in [steganography](#). Of interest here with respect to mapping is the variety of [concept maps](#), [semantic maps](#), [argument maps](#), [cognitive maps](#) and [mind maps](#).

With respect to the argument here, of relevance is the development and widespread use of techniques based on a [QR code](#) (abbreviated from Quick Response Code) as extensively described in *Wikipedia*.





| Examples of QR code   |   |   |
|---|---|---|
| 21x21   | 29x29   | 57x57   |
|  |  |  |

QR code is the trademark for a type of [matrix barcode](#) (or two-dimensional [barcode](#)) first designed for the [automotive industry in Japan](#). A barcode is a machine-readable optical label that contains information about the item to which it is attached. A QR code uses four standardized encoding modes (numeric, alphanumeric, byte / binary, and [kanji](#)) to efficiently store data; extensions may also be used. QR codes can be readily generated through [available software](#).

More specifically, New York City Department of Transportation has installed signage with graphics, each accompanied by a quick response code. The QR code takes scanners to an obliquely explanatory [haiku](#) – a short form of poetry, developed in Japan, consisting of only 17 syllables. Each *haiku* delivers a message aimed at raising safety awareness among drivers, cyclists and pedestrians. The [Curbside Haiku](#) is a set of 12 eye-catching designs of which 144 have been installed.

For users of Twitter, there is now a free [Twitter Profile QR Code Generator](#) through which identity can be presented via such an image readable by any smartphone.

**Embedding significance in a logogram and calligraphy:** Of particular interest is the manner in which significance is embedded in Chinese characters, understood as a phonetic system of writing, rather than ideographic (John DeFrancis *The Ideographic Myth*, 1984)

| Examples of Chinese characters -- names of first four hexagrams of <i>I Ching</i><br>(see <a href="#">Transformation Metaphors derived experimentally from the Chinese Book of Changes -- for sustainable dialogue, vision, conferencing, policy, network, community and lifestyle</a> , 1997) |   |  |   |
|--|---|--|---|
| Creativity   | Receptivity   | Initial difficulty   | Inexperience  |
|   |  |  |  |

**Embedding significance in a sound pattern:** This is the technique extensively explored within the context of [sonification](#), as noted above. The process could be understood more generally through any form of musical composition.

With regard to the possibility of loading a full MP3 soundtrack into QR Code, the practical answer is no (as [separately noted](#)). The amount of data in a digital sound file is too large for QR codes. The solution is to put the sound resource on a public network like Internet and then have the the QR code contain a pointer to the resource. Music can however be listened to via QR codes by providing the codes on any surface offering a link to an internet resource (as [described separately](#)).

**Embedding significance in a poem:** This process calls for little comment. Of greater relevance to this argument is the manner in which significance of strategic relevance can be articulated in poetic form, notably when improvised in poetic exchanges between negotiating parties ([Poetry-making and Policy-making: arranging a marriage between Beauty and the Beast](#), 1993; [Poetic Engagement with Afghanistan, Caucasus and Iran: an unexplored strategic opportunity?](#) 2009; [Multivocal Poetic Discourse Emphasizing Improvisation: clarification of possibilities for the future](#), 2012).

**Embedding significance in a song:** As with poetry, this calls for little comment. With respect to this argument, it is appropriate to note the Beatles song [Blackbird](#) (1968), composed as a reaction to racial tensions escalating in the United States in the spring of 1968.

## Memescapes engendered and sustained by multidimensional soundscapes

There is increasing articulation of the challenge of relating meaning to [soundscapes](#). Clearly there is difficulty in representing such "sound landscapes", as addressed by A. S. W. Wong and S. K. Chalup ([Towards visualisation of sound-scapes through dimensionality reduction](#), IEEE International Joint Conference on Neural Networks, 2008):

Sound-scapes are useful for understanding our surrounding environments in applications such as security, source tracking or understanding human computer interaction. Accurate position or localisation information from sound-scape samples consists of many channels of high dimensional acoustic data. In this paper we



demonstrate how to obtain a visual representation of sound-scapes by applying dimensionality reduction techniques to a range of artificially generated sound-scape datasets.

Relevant commentary is provided notably from the perspective of urban planning (Damiano Oldoni, et al, [Soundscape analysis by means of a neural network-based acoustic summary](#), Inter-Noise, 2011; José Fornari, et al., [Soundscape design through evolutionary engines](#), *Journal of the Brazilian Computer Society*, 2008; Danièle Dubois, et al., [A Cognitive Approach to Urban Soundscapes](#), *Acta Acustica*, 2006; [Visitor Experience and Soundscapes : Annotated Bibliography](#), US National Park Service, 2010).

Of relevance to the argument here is how meaning disassociated from explicit tangible referents might be framed by any soundscape -- as with that engendered by song or music. As articulated in a blog ([The Eye and Ear, RiseInRuin](#), 8 January 2009)

The ear, to me, seems much more adept at seizing three dimensional metaphors than the eye. The "inner ear" (Joyce) seems to expressively react to the three dimensional soundscape of a "picturesque" song, with an ease that the eyes don't achieve. Music is a spatial metaphor, that shapes the body (literally in dance) in accord with it's abstract three-dimensional space. The music is seized and it becomes a seizure. The space in music is abstract until one fictionalizes it into anthropomorphic three-dimensional shapes. It is an assemblage of lines, shapes, colors and textures, that if seized might become an abstract anthropomorphic rendering, that blasts back at you a myriad of fragments that make non-sense. Sometimes there is something there -- a three-dimensional noun, attributed to the abstract adjectives. This spawns the imagination to bound itself into a *fictional* world of psychosis. These are the *power of adjectives* -- the *power of the world in the middle of the Freudian triad*. Language is at work here in music. It becomes alive, when heard as descriptive nouns.

The eye, before re-cognition, sees the landscape without a prefix. The "inner eye" is more difficult to three-dimensionalize. An abstract painting still expresses itself in the power of three-dimensions, but most often the multi-dimensional reflection is immediately mapped and pieced together in two-dimensions, meaning the spatial perception is lost in a categorical containment. The sites, I think as well as Smithson, need to take in the three-dimensional metaphorical reflection in the mirror without the interpretive mind reducing it to a two-dimensional logical picture.

I think the ambiguous must be embraced to be in the in-betweens of three-dimensional expressiveness, where two-dimensional logical pictures are somewhere in the void of "behind", where "in front of" is an ambiguous scattering that one does not account for through categorical confines, but rather seizes it through the scale of the eye and the ear. The seizure is the in-between sensible intuition that is both expressive and impressive at once. It is where the body meets the world in a spiral of sensation where logic, and reason sink into the "background". It is a paradox. The in-between aesthetic expressive-impressive is not thought, but three-dimensionally imagined and felt by the body. The primitive, perhaps, remains in the "inner ear".

Such language points to the challenge of what might be termed a "memetic landscape" or a "landscape of ideas" -- a memescape (W.O. Cawley Jr., [What is the memescape? The Big Think](#), 7 April 2006). A free app has been developed as described by Vanessa Carr ([Visualizing the memescape](#), *Need to Know on PBS*, 4 June 2010). For Bradley E Wiggins and G. Bret Bowers

([\*Mememes as Genre: a structural analysis of the memescape\*](#), *New Media and Society*, 26 May 2014):

A tenable genre development of Internet memes is introduced in three categories to describe memetic transformation: spreadable media, emergent meme, and meme. We argue that memes are remixed, iterated messages which are rapidly spread by members of participatory digital culture for the purpose of continuing a conversation.

The memescape is discussed, with respect to a Science-Art Manifesto, by Iona Miller ([\*Digital Universe: New Media Morphs the Memescape\*](#), 2006), by citing [Marshall McLuhan](#): *We are compelled by the quantity of available social and political facts to learn a new visual language for mastering the inner dynamics by the outer* (*New Media as Political Forms*, 2-3). It is this memescape which animals, especially birds, seek presumably to define and populate through song

Efforts to communicate a memescape in two dimensions (through an image) reduce any significance needing to be carried in three dimensions or more. Song, as used by birds, makes clear the sense in which a memescape is built and maintained -- much like a cognitive nest or cocoon. This recalls the need of some indigenous peoples to renew periodically their environments with song -- as has been described in terms of "songlines" ([\*From Information Highways to Songlines of the Noosphere\*](#), 1996; [\*Cultivating the Songlines of the Noosphere: from presentations by representatives to embodying presence in transformation\*](#), 1996). Environments are recognized by them as "sung".

**What might be the requisite dimensionality of a memescape in order for the meaning to be beyond detection and recognition by conventional surveillance devices operating at lower dimensionality?**

### **Information transfer possibilities of blackbird singing capacity**

Research has long been conducted into the nature of language in animals and the future possibility of higher orders of communication with them. This has notably focused on dolphins, whales and chimpanzees. A distinction must necessarily be made between forms of communication based on empathy and habitual response -- in contrast with what might be otherwise imagined.

The issue can be speculatively explored in relation to communication with extraterrestrials, especially of a more sophisticated nature ([\*Communicating with Aliens: the psychological dimension of dialogue\*](#), 2000; [\*Self-reflective Embodiment of Transdisciplinary Integration \(SETI\) the universal criterion of species maturity?\*](#) 2008). It can also be explored in terms of the nature of future communication with artificial intelligence (\*\*\*\*).

**Songbirds:** Bird song has long been an inspiration to poets, and a delight to many other people. As noted above with respect to China, Mary X Dennis ([\*The Social Lives of Chinese Songbirds\*](#), *Audubon Magazine*, 6 January 2013):

Taking the dog out is nothing unusual – but since when do pet *birds* get taken for walks? In China, since the Qing Dynasty. Songbirds have been a common pet in China for centuries, and while the birds are confined to cages, to care for one properly involves a daily regimen of walks and socialization.

In every Chinese city, countless songbirds, usually mynahs, thrushes, or larks, are kept in handmade bamboo cages with a hanger built into the top. Many of their pets are very well-trained - its not uncommon to hear a mynah belting out the entire Chinese National Anthem, or a bird hung in the doorway of a shop welcoming passersby to come in for a look. While walking their birds, a bird's owner will swing the cage back and forth like a

pendulum, forcing the bird to get a bit of exercise as it clings to its perch. (see also: [Songbirds of China](#), *Roaming Freely*, 16 March 2014; Liu Lu, [Birds of a Feather](#), *China Daily*, 3 May 2011)

As noted by Clive K. Catchpole and Peter J. B. Slater (*Bird Song: biological themes and variations*, 2003), bird song has been studied extensively in the past few decades, so that there is now hardly an area of animal behaviour on to which studies of song do not shed light [see [Additional background references](#)]

A valuable British Library compilation of resources ([Listen to nature: the language of birds](#)) has sections on:

1. [Song: The dawn chorus / Vocal appropriation / Duetting / How does one bird hear another's song?](#)
2. [Calls: Calls as deceitful mimicry / Calls of young birds](#)
3. [Bird to man communication](#)
4. [Birds that talk to themselves](#)
5. [Instinct or learning - nature or nurture? "Talking" birds / The functional use of sounds by a trained parrot / "Singing" birds and birds taught human tunes](#)

The last notes:

Deprived of the opportunity to copy their natural vocabulary, captive birds of certain species will copy not only human speech, but almost any other sounds such as the dripping of a tap or the clink of milk bottles -- even human singing.

Of particular relevance to this argument is the recent development of a highly advanced bird song decoder, which can automatically identify the call of a vast variety of birds (Claire Marshall [Software can decode bird songs](#), *BBC News*, 18 July 2014). The software brings the "cracking of the dawn chorus" one step closer. It used recordings of individual birds and of dawn choruses to identify the characteristics of each tweet (Dan Stowell and Mark D. Plumbley, [Automatic large-scale classification of bird sounds is strongly improved by unsupervised feature learning](#), *PeerJ*, 2014, e488).

**Blackbird song:** Whilst bird song in general has long been recognized as an inspiration to poets, with respect to the following argument it is appropriate to note the extent to which poets have identified their own "voice" in society with that of the blackbird -- as is evident from the variety of poetry journals and websites named with "blackbird" in some way.

Each blackbird song is often two to three seconds long with a similar interval before the next burst, and is rich and mellow with a languid delivery and fluted quality [[extended sample](#)]. Most birds have a wide repertoire of songs and birds can even develop a 'regional accent' as certain characteristic phrases spread through adjacent territories.

Male blackbirds have a large repertoire of songs with a stereotypic structure whereby each song starts with a motif part consisting of relatively simple low-frequency elements followed by a twitter part having more variable high-frequency elements

As noted by Brian Hill ([Do blackbirds mimic human whistling?](#) *RSPB Ask an Expert*, 18 March 2014):

The song repertoire of an adult blackbird is highly complex and is down to a bird's individual inventive ability along with the species high capacity for learning. The variety within a bird's song is also dependent on its age, its stage in the breeding season and the time of year. Song learning occurs throughout a blackbird's life and reciprocal



learning between neighbours can create local dialects.

A blackbirds' song is not just made up of repeated learned phrases from other blackbirds, blackbirds like a great many other birds, are superb mimics. Studies have shown that they are not only able to mimic other birds, but also domestic cats, as well as a variety of mechanical sounds. Blackbirds have even been recorded making the sound of a reversing lorry! It has also been noted that blackbirds can imitate human whistles either as a singular note or phrase. A bird may hear someone whistle and may replicate this sound in their song as it develops.

As noted by [Joan Hall-Craggs](#) (*Inter-specific Copying by Blackbirds*, *Journal of the Wildlife Sound Recording Society*, 4, 1984, 7; *The development of song in the Blackbird (Turdus merula)*. *Ibis*, 104, 1962): Blackbirds have a formidable capacity for learning and remembering through the years the sound patterns of both its own and other species. Its memory is so good that it learns not only to repeat words but to whistle several airs without confounding them together. They may even be taught to speak, according to J. M. Bechstein (*Handbook of Cage Birds*, 1897).

**Bird song analysis:** Robert Rasmussen and Torben Dabelsteen. *Song Repertoires and Repertoire Sharing in a Local Group of Blackbirds*. *Bioacoustics: The International Journal of Animal Sound and its Recording*, 13, 2002, 1, pp. 63-76)

The result shows that one needs to analyse more than 200 songs to estimate a male's repertoire, which averaged 44 different motifs. Relative to other species, this is a medium to large song repertoire. The size of the repertoire of start motifs (on average 32) varied only a little between the individuals, whereas that of central motifs (on average 12) varied rather much between the same individuals, suggesting that they form a potential cue for assessment of male quality. The males within the neighbourhood showed a high degree of start motif sharing, which, together with the relatively large repertoires, could be constraining neighbour recognition.

A valuable analysis based on 538 songs, with multiple sonograms, is provided by Douglas G. Smith and colleagues (*Stereotypy of Some Parameters of Red-Winged Blackbird Song*. *The Condor*, 82, 1980). Also of value is the analysis by Barry Kentish, et al (*Multivariate statistical analysis of songs of the male Common Blackbird*. *EMU*, 2001). [Listen to [extended sample](#)].

**Message encoding potential:** Possibilities are indicated by the work of Torben Dabelsteen and colleagues (*An Analysis of the Full Song of the Blackbird Turdus merula with Respect to Message Coding and Adaptations for Acoustic Communication*. *Ornis Scandinavica*, 15, 1984) which notes:

The aim of the present study is to decipher the message coding of the male Blackbird song, i.e. to estimate the potentials of different song parameters to carry different types of messages, and to elucidate adaptations to signal functions. A detailed quantitative description of the song is given together with a description of individual differences and variations induced by rivals.

Related studies see indicated separately in [Additional background references](#)

## **Noopolitics and memetic warfare within the noosphere**

**Noopolitics:** 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; A. V. Baichik and S. B. Nikonov, *Noopolitik as Global Information Strategy*, 2012).

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.

Seemingly there are as yet no studies of "memetic warfare" (as such) in relation to "noopolitics" (as such).

**Memetic warfare:** As yet to be clarified is the extent to which "memetic warfare" is a primary characteristic of noopolitics, as might be readily assumed. For Brian J. Hancock ([Memetic Warfare: the future of war](#), *Military Intelligence Professional Bulletin*, April-June 2010):

Memes form the invisible but very real DNA of human society. A meme is essentially an idea, but not every idea is a meme. In order for an idea to become a meme it must be passed on -- or replicated to another individual. Much like a virus moves from body to body, memes move from mind to mind. Just as genes organize themselves into DNA, cells, and chromosomes, so too do replicating elements of culture organize themselves into memes, and co-adaptive meme complexes or "memeplexes"...

The principle of memetic warfare is to displace, or overwrite dangerous pathogenic memes with more benign memes. Once a critical level of saturation of the new meme set is achieved in the target population, undesirable human artifacts and behaviors such as weapon caches and IED attacks will disappear. Ideally the virus of the mind being targeted will be overwritten with a higher fidelity, fecundity, and longevity memeplex in order to assure long term sustainability. When this is not practical, it is still possible to displace a dangerous memeplex, by creating a more contagious benign meme utilizing certain packaging, replication, and propagation tricks.

As a primary instrument of *Realpolitik*, the use of "missiles" merits consideration, especially given the manner in which metaphoric use of the term may be indicative of a transitional condition to *Noopolitik*. Such "intermediaries" have been considered separately ([Missiles, Missives, Missions and Memetic Warfare: navigation of strategic interfaces in multidimensional knowledge space](#), 2001) under the following sections:

|   |  |
|---|--|
| <a href="#">Missiles, Missives and Missions</a>                       | <a href="#">Viewing simplicity through complex frameworks</a>  |
| <a href="#">Missile defence and conceptual defence</a>                | <a href="#">Entrapping 'simple people' in complexity</a>       |
| <a href="#">Mainstream hegemony and its conceptual defence system</a> | <a href="#">Liberating 'complex people' through simplicity</a> |
| <a href="#">Conceptual defence systems and memetic warfare</a>        | <a href="#">Navigating complexity</a>                          |
| <a href="#">Simplicity vs Complexity</a>                              | <a href="#">Strategic simplicity vs strategic complexity</a>   |
| <a href="#">Viewing complexity through simple frameworks</a>          |  |

**Metaphorical warfare:** The section on [Conceptual defence systems and memetic warfare](#) notes that a variant of memetic warfare might be considered under the name 'metaphoric warfare', but there have been no references to this on the web. However, a 'metaphoric projectile' is identified in an exploration of metaphoric vehicles, This is evident in Patrick Crogan's review of the implications of the work of [Paul Virilio](#):

Virilio uses metaphors as a means of the rapid derailing of the conventional

understandings of things. We will see this in the following sections of this paper where his mobilisation of the figures of the tendency, the accident and the journey will be examined. In Virilio's texts, the metaphoric vehicle is pushed to crash velocity, as it were, in the attempt to challenge the traditional apprehension of the metaphoric tenor. It becomes a metaphoric projectile. This 'dangerous driving' of the metaphoric vehicle is consistent with Virilio's fast-moving, schematic characterisations of the major tendencies immanent in contemporary phenomena. (In: John Armitage (Ed.), *Paul Virilio: From Modernism to Hypermodernism and Beyond*, 2000)

**Operating "under the memetic radar":** A preoccupation in development of the stealth characteristics of Blackbird aircraft and drones is the capacity to operate "under the radar". The term is widely employed metaphorically with respect to covert operations more generally. This raises the question of the nature of the "stealth technology" capable of operating "under the radar" in a noopolitical context -- within the noosphere. Clearly one form has become evident with respect to electronic surveillance. Of greater interest and relevance to this argument might however be a recognition of "memetic radar" technology as it might be deployed in noopolitics. **What might then be capable of operating "under the memetic radar"?**

The above mentioned IARPA [Metaphor Program](#) could well be understood as an element in the design of some such memetic radar system -- purportedly focused as it is on the interpretative translation of metaphors of significance to measures of defence. The challenge for any protagonists may however be more interesting to the extent that metaphor is of relevance to what might be termed the dimensionality of communication. The question might then be the dimensionality of meme transfer within a memescape such as to elude cognitive and technological techniques characteristic of *Realpolitik* -- namely the dimensionality required to operate "under the memetic radar".

**Humour and aesthetic metaphor:** The condition can be usefully illustrated by the use of humour, especially to elude repressive intervention in constraining environments. This is acknowledged through recognition of the inability of some in that environment to "see the joke". More generally this incapacity is recognized as a characteristic of those with an [autism spectrum](#) disorder, most readily recognized in the form of the [Asperger syndrome](#). Given the remarkable extent to which *Realpolitik* could be understood as associated with a lack of any sense of humour, or the capacity to laugh at oneself, the question would be how this might translate into any adaptation to *Noopolitik*. Is humour a characteristic of noopolitics?

This suggests that operating "under the memetic radar" may be a question of use of aesthetic metaphor and humour of dimensionality to which opponents may not have access -- in terms of ability to comprehend and "see the joke". Communication of higher orders of significance could be carried by this means. Rather than conventional understandings of secrecy, as characteristic of *Realpolitik*, the issue would then be how "open secrets" could be communicated without being meaningful to those who would wish to control their dissemination. Their efforts to reduce the dimensionality of metaphoric communication -- as with the Metaphor Program -- would expose them to patterns understood as essentially meaningless. The significance of whatever was associated with the meta-pattern of connectivity would lack meaningful coherence.

**"Engendering autism"?** Ironically memetic warfare could then be framed as extending the autism spectrum such as effectively to render the opponent relatively more autistic. The capacity of stealth aerospace technology, including drones, to operate at amazing speed -- as noted above -- could then be interpreted as a challenge in metaphorical terms. Speed in conventional terms might then be out-matched by speed in cognitive associative terms. The issue has figured in developing computer capacities to play chess. However, as noted above with respect to Knight's move thinking (specifically valued by the intelligence community), the challenge is reframed when the "moves"

are essentially aesthetic in response to considerations of higher dimensionality than can be effectively embodied in an algorithm.

**Strategic advantage through metaphor:** Reframed metaphorically, "stealth", "speed" and "highest" offer strategic advantage through articulation of aesthetic qualities, as notably explored in blackbird song. The argument can be framed otherwise by the traditional association of metaphor in Chinese culture with complex systemic encodings (\*\*\*\*). This is naturally deprecated from within any *Realpolitik* mindset. Warnings regarding the comparative strategic advantage of such cultures, when innovation is inspired by elusive metaphors, are extensively presented by [Susantha Goonatilake](#) (*Toward a Global Science: mining civilizational knowledge*, 1999) and separately discussed (*Enhancing the Quality of Knowing -- through Integration of East-West metaphors*, 2000). The strategic challenge might be succinctly caricatured as how to frame "[dumbing down](#)", or to "[borgify](#)" the opponent.

## Engaging with a memespace of paradoxical complexity

**Blackbird as enigma:** With "blackbird" as focal theme of this argument about complexity and its comprehension, it is curiously appropriate to discover that it figures as the central motif in a much-cited enigma by one of the most famed American poets. As succinctly expressed by [Kent Palmer](#):

[Wallace Stevens](#) was a poet who thought about the nature of poetry and wrote his poetry about it. Wallace Stevens was one of the first truly modern poets who wrote self reflexive experimental poems that challenged all the norms of poetry of his time changing the course of the poetic tradition (*Idea, Essence, Existence and Archetype*, 2001).

The enigma that has evoked so much commentary is his "poem" [Thirteen Ways of Looking at a Blackbird](#) (1917). As an enigma, any engagement with it (or with comment about it) is itself problematic. It effectively calls for a creative way of looking at "ways of looking" and the imaginative responses it might evoke.

This challenge is helpful in clarifying the connectivity amongst the associations to "blackbird" emerging from the above argument. It conforms to the tradition of [literary paradox](#), namely an anomalous juxtaposition of incongruous ideas for the sake of striking exposition or unexpected insight (Nicholas Rescher, *Paradoxes: their roots, range, and resolution*, 2001). This aesthetic tradition has been articulated by [Cleanth Brooks](#) (*The Language of Paradox*, 1947) arguing that:

Yet there is a sense in which paradox is the language appropriate and inevitable to poetry. It is the scientist whose truth requires a language purged of every trace of paradox; apparently the truth which the poet utters can be approached only in terms of paradox.

For Viorica Patea (*The Poetics of the Avant-garde : modernist poetry and visual arts. SPELL: Swiss papers in English language and literature*, 26, 2011):

Influenced by experimental concerns with structure and multiplicity of form, the modernist poet seeks to achieve a serial equivalent to Cubist multiple perspectives. This is Stevens's favorite technique, evident in poems such as *Sea Surface Full of Clouds*, *Metaphors of a Magnifico* and *Thirteen Ways of Looking at a Blackbird*, in which a landscape, a narrative or the portrait of a blackbird is viewed from different angles and rendered by a series of variations and rhetorical riddles.

Given recognition of the undeniably enigmatic nature of Stevens' account of the blackbird, it is

appropriate to frame further consideration of it by recalling attitudes evoked by a disparate range of other well-known enigmas: The Sphinx, [Mona Lisa's enigmatic smile](#), [riddle](#), [koan](#), [uncertainty principle](#), [Fermat's Last Theorem](#), [Voynich manuscript](#), [Enigma of Bologna](#), [Godel's incompleteness theorems](#). One website frames discussion of the poem as [The Dao of Wallace Stevens](#).

Given the significance of the [Enigma Machine](#) for encoding meaning during World War II, **is there a case for considering the singing blackbird as an "enigma machine" in its own right?** How then to comprehend the integrative nature of the memetic system of which the "13 ways" are indicative? Expressed otherwise, is the singing blackbird to be compared with a [graffiti artist](#) -- variously inscribing its encoded identity into the memescape through sound? In contrast with conventional thinking, might human identity "operating under the memetic radar" then be understood as requiring the interrelationship of "13 ways" in order to be decoded? Could the enigma of human identity then be compared metaphorically to [crop circles](#) in memespace?

The issue here is to find a fruitful way of discussing a paradoxical blackbird without engaging in extensive commentary on other potentially more insightful commentaries -- themselves effectively constituting "ways of looking at a blackbird".

**Varieties of blackbird:** A first observation of relevance is the lack of clarity, or mention, of whether Stevens is referring to the songster blackbird, a crow or a raven. Some have assumed it is a raven. Stanza V, containing *The blackbird whistling*, suggests that it may be the songster blackbird rather than raven or crow. The calls of a raven are rarely described as including a whistle ([Common Raven Sounds](#)). For Simon Armitage (*The Poetry of Birds*, 2009) it is the red-winged blackbird that is the most likely species for the poem.

From an etymological perspective, it may not immediately be clear why the name "blackbird", first recorded in 1486, was applied to this species, but not to one of the various other common black English birds, such as the [carrion crow](#), [raven](#), [rook](#) or [jackdaw](#). However, in [Old English](#), and in [modern English](#) up to about the 18th century, "bird" was used only for smaller or young birds, and larger ones such as crows were called "fowl". At that time, the blackbird was therefore the only widespread and conspicuous "black bird" in the British Isles.

Three unrelated birds are called Blackbird. Red-Winged Blackbird (*Agelaius phoeniceus*) and Yellow-head Blackbird (*Xanthocephalus xanthocephalus*) of North America are members of the Troupial Family. Blackbird (*Turdus merula*) of Europe is a close cousin of American Robin (*Turdus migratorius*).

In accepting the requirement for a multiplicity of perspectives, any sense of a singular blackbird can be understood as a form of interpretative vortex, possibly a form of cognitive blackhole -- a psychoactive interface with a mirroring function, or a catalyst for imagination. (papers \*\*\*) This recalls the Zen tradition of engagement with a *koan*.

With Stevens' failure to distinguish which blackbird is the focus of his poem, the scene is set to evoke commentary on its relation to the "blackbirds" of other highly influential poets, and the influence of their perspectives on each other:

- [Samuel Taylor Coleridge's \*The Raven\*](#) (1798): Subtitled *OR, A Christmas Tale, Told by a School-boy to His Little Brothers and Sisters*), includes the following lines:

|   |   |
|---|---|
| Underneath an old oak tree                    | Over hill, over dale, did the black Raven go.           |
| There was of swine a huge company             | Many Autumns, many Springs                              |
| ...   | Travelled he with wandering wings...                    |
| Next came a Raven, that liked not such folly: | Round and round flew the Raven, and cawed to the blast. |
| He belonged, they did say, to the witch       | He heard the last shriek of the perishing               |



|   |  |
|---|--|
| Melancholy!                                     | souls--  |
| Blacker was he than blackest jet,               | ...  |
| Flew low in the rain, and his feathers not wet. | Right glad was the Raven, and off he went fleet,   |
| ...   | And Death riding home on a cloud he did meet,      |
| Where then did the Raven Go?                    | And he thank'd him again and again for this treat: |
| He went high and low,                           | They had taken his all, and revenge it was sweet!  |

- [Edgar Allan Poe's \*Raven\*](#) (1845): One early review notes:

In this weird and wonderful creation, art holds equal dominion with feeling. The form not only never yields to the sweep of the thought, but that thought, touching and fearful as is its tone, is made to turn and double fantastically, almost playfully, in many of the lines. The croak of the raven is taken up and moulded into rhyme by a nimble, if not a mocking spirit; and, fascinating as is the rhythmic movement of the verse, it appears like the dancing of the daughter of Herodias. ([The Poetical Works of Edgar A. Poe, The Atlantic Monthly](#), 4, October 1859).

A later review of Poe, renowned for his tales of mystery and the macabre, traces the considerable influence of Coleridge, noting that:

... in imitation of Coleridge, he humanized his redoubtable raven. His mind was like a mirror in the precision with which it reflected the prevailing tendencies of his time, and with no more intention. The effect of Coleridge's influence on Poe has never been properly estimated.... Not only did Coleridge exert a general influence, which Poe shared with every other man of letters in this country, but he transmitted a special and unique influence to him alone. This had already made of Coleridge a great poet, while to it Poe owes the tardy measure of fame which has been accorded him.... Poe assumes that a talking bird is the most natural thing in the world. In his so-called *Juvenile Poems* ... thirteen years before *The Raven* was published, he already makes use of birds as symbols of Nemesis or Destiny, and many of the passages are nearly identical in thought with some of Coleridge's lines. ([The Works of Edgar Allan Poe, The Atlantic Monthly](#), 462, April 1896)

- [Ted Hughes' \*Crow\*](#) (1970): This is a collection of poems based around the character Crow, which borrows extensively from many world mythologies, notably Christian mythology ([The Life and Songs of the Crow](#), 1970). As noted by Neil Roberts:

Crow holds a uniquely important place in Hughes oeuvre. It heralds the ambitious second phase of his work, lasting roughly from the late sixties to the late seventies, when he turned from direct engagement with the natural world to unified mythical narratives and sequences. It was his most controversial work: a stylistic experiment which abandoned many of the attractive features of his earlier work, and an ideological challenge to both Christianity and humanism. ([Crow: From the Life and Songs of Crow, The Ted Hughes Society Journal](#), 2012)

**Symbolic associations:** So framed, elements of traditional symbolism with respect to blackbirds can be evoked as seems appropriate. In a technological world, increasingly disassociated from nature, it is credible that significance previously carried by animal species is attached to technological devices. This is especially obvious in the case of the animal names by which many

military vehicles are distinguished, notably in the case of planes ([F-15 Eagle](#), [F-16 Fighting Falcon](#), [Me-262 Swallow](#), [FW-200 Condor](#), [P-36 Hawk](#), [Curtiss SOC Seagull](#), [Fw190 Shrike](#), [RQ-11 Raven](#)). With respect to this argument, this is evident in the case of the SR-71 Blackbird -- and the functions with which it has been associated.

This highlights the question of the symbolism potentially appropriate to any interpretation -- especially as it may clarify the significance associated with the complex of references to blackbird above. However, **rather than the more obvious transition from biosphere to technosphere, the concern here is with how this might play out in a transition from technosphere to noosphere --** as it frames any memespace.

Curiously, with respect to blackbird symbolism, the blackbird songster seldom figures. Whether distinguished or not, both crows and ravens have appeared in a number of different mythologies and folklores throughout the ages, as noted below (supplemented by the respective collective nouns).

| <b>Symbolic associations</b>   |  |
|--|--|
| <b>"blackbird"</b><br>(possibly conflating or confusing specific associations)   | <b>raven and crow</b><br>(undistinguished, notably as with <a href="#">Le Corbeau</a> )  |
| <ul style="list-style-type: none"> <li>• symbolic significance (through the colour black) as archetype of living life in higher realms, and therefore symbolic of higher Intelligence, higher thought and higher Ideals.</li> <li>• seductive temptations of the flesh (notably as a diabolic form for the temptation of Christian saints)</li> <li>• an association to <a href="#">blackbirding</a>, as previously used in kidnapping for slavery, and potentially (by extension) with respect to the more recent process of <a href="#">extraordinary rendition</a></li> </ul> | <ul style="list-style-type: none"> <li>• embodying deity or accompanying a deity</li> <li>• indicative of surveillance by an all-seeing deity is watching -- recalling depictions of the eye of providence (as with that of Horus)</li> <li>• bearing a message from the Divine, possibly an omen of bad tidings -- even a precursor to death</li> <li>• scavengers, notably feeding on carrion</li> <li>• collective noun: murder / congress / horde / muster -- with rooks being named as a clamour or parliament</li> </ul> |
| <b>raven</b><br>(as variously considered)  | <b>crow</b><br>(as variously considered)   |
| <ul style="list-style-type: none"> <li>• the bringer of light that escaped from the darkness of the cosmos -- namely creation, bringing light where there was none</li> <li>• trickster or even a shape-shifter (because of its high intelligence and ability to adapt to different situations).</li> <li>• symbol of transformation</li> <li>• a harbinger of death</li> <li>• agent of divine espionage on the world of men</li> <li>• characterized as: <i>Watching with a baleful eye / A black scavenger / Sentinel of the sky / Looking for a</i></li> </ul>               | <ul style="list-style-type: none"> <li>• prophecy and divination, foretelling and warning</li> <li>• life mysteries and magic, providing insight and means of supporting intentions and deep authenticity.</li> <li>• omen of change</li> <li>• adaptability to changing conditions and extremes</li> <li>• ugliness, blackness, evil and disgrace****</li> </ul>  |

*weakness / Looking for a chance /  
Looking for an error* (Louis Shalako,  
[The Raven](#), 2013)

- collective nouns: cloud / grind / merle / cluster

### **blackbird** (as songster)

- a call from the gateway between the worlds of reality and dreams
- encouraging self-awareness through indicating ways in which hidden motivations and potential can be discovered.
- enabling intelligence, wisdom and inner joy.
- a sacred bird (in Ancient Greece) because of its beautiful singing
- offering grounded guidance to creative awareness as intuitive perception unfolds.
- putting the listener into a trance which enables him or her to travel to otherworlds (according to Druid legend regarding the [Birds of Rhiannon](#))
- capable of imparting mystic secrets.

**Challenging ambiguity of relevance to governance:** There is clearly a degree of ambiguity to the above associations. Furthermore, irrespective of the above, it is curious to note the association of crow/raven with carrion and to recognize that the image of the blackbird songster does not merit the association with "turd" (as a consequence of the Latin name, shared by the thrush family [Turdidae](#) of the genus [Turdus](#)).

More relevant to this argument is the remark of John Marzluff and Tony Angell (*In the Company of Crows and Ravens*, 2007) that: *Crows and people share similar traits and social strategies. To a surprising extent, to know the crow is to know ourselves.* In his [review](#) of that book, Paul A. Johnsgard notes:

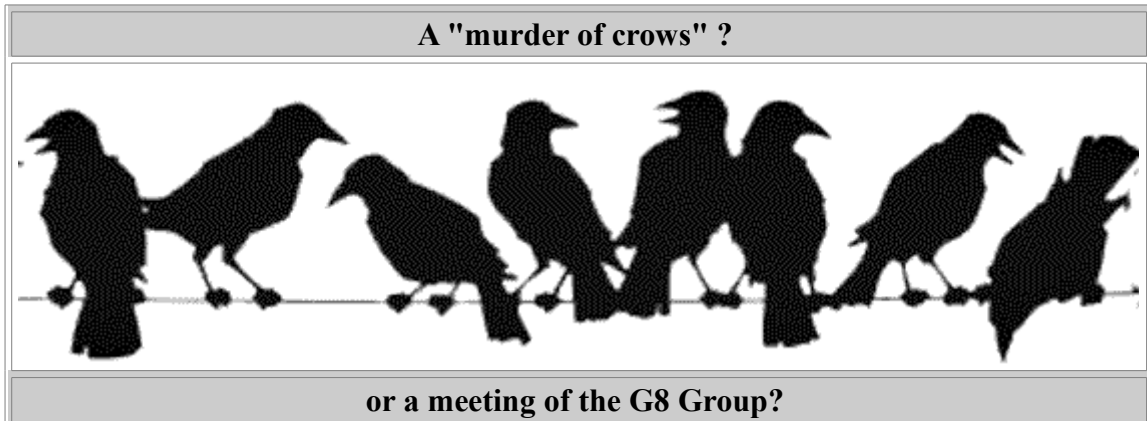
On examining various Nebraska birds under ultraviolet light a few years ago, I was amazed at the visual transformation of a crow into a stunning creature shimmering with a violet iridescence that reminded me of some birds of paradise . It made me realize that our human visual abilities are sometimes pitifully inadequate to appreciate the real beauty of our often seemingly mundane natural world.

In the USA the term "[Jim Crow](#)", meaning "Negro", was a pejorative political expression by 1838. With respect to perception of politicians themselves, even more relevant are the collective nouns by which they may be variously framed: *a lie of politicians, an equivocation of politicians, or an odium of politicians.* Any problematic association with blackbirds is not helped by the black-suited clothing propensity of male politicians worldwide.

As being characteristic of crows and ravens, to which they are often compared, use of "caw" and "cawing" is frequently made in commentary with respect to politicians, as with the early remark of [William Cobbett](#):

"Caw me caw thee", as Lord Byron describes the tickling and the complimenting which passed between the King and the Scotch. accordingly, the Lord Mayor having cawed the "consistent advocate", thought it but right that he should caw the city. He thought it right that he should caw somebody; and eloquent as he is, and full of invention, he seems to have thought it impossible to caw the Lord Mayor; and so he fell to cawing the

city (*Cobbett's Political Register*, 48, 1823, p. 79)



More recently Gray Matthews has argued:

Instead of being sullied, again, into the complicit role of cawing like crows on a fence, we should be developing a more devastating -- less dismissive -- critique of the hollowness of discourse masquerading as serious political communication, by focusing on its futility, not mere banality, and the egregious losses of speech and the preciousness of time itself. We need, therefore, to better understand language use when it is useless. (*Practical Advice from Communication Experts*, *Communication Currents*, 6, 2011, 4)

For R. J. Derosa (*Of Crows, Poetry, and Politicians*):

I often stop and watch a crow cawing atop a pole. Each caw takes a lot of energy.... Politicians also make a lot of noise. I would rather listen to birds any day. **Crows and politicians share one similarity; they both puff themselves up prior to emitting sound.** Given a choice, I will always prefer crow-talk (*RJ Derosa's Weblog*, 27 March 2012). [*emphasis added*]

Corresponding curiously to the work of Stevens, is the focus on "tin crow" in the the work of renowned Chinese poet [Bei Dao](#) (*Daydream*, 1986; *The August Sleepwalker*, 1990). As a Chinese imperial symbol, the crow is traditionally depicted with three legs drawn within a solar disk: sunrise, midday and sunset. In his review, Tony Wheldon (*Blackbirds: Contemporary Chinese Poetry*, *The American Poetry Review*, 1991) argues that he:

... grapples here with the sense of an epoch coming to an end, with books -- and with history -- awaiting the flames, a "tin crow" presiding over all. The crow -- especially as it's described as a "tin crow...on a marble pedestal" -- is the first of the Chinese Imperial emblems and represents *Yang*, or the active life of the emperor. This tin crow has a dual significance, representing the inorganic nature of the present regime while it conjures up images of a despot-filled past repeating itself in the present. As with so many younger Chinese poets, Bei Dau's concerns focus on the eternal rhythms that bind culture. Bei Dau's crow might as well have been a phoenix. For the past is constantly rising, transmogrified, from its own ashes in China. Although Bei Dau's poetry, on the whole, puzzles me -- it's mostly poorly translated and hermetically obscure -- his is the most powerful poetry written in China today.

Use of "raven" in commentary on "cawing" by politicians is readily to be associated with their "ravenous" appetite for resources -- whether personally, for a constituency, or for a lobby with which they are complicit. This in turn is readily associated with "vultures" -- as used with regard to



"[vulture fund](#)", for example. A form of conflation of associations of crow and raven could be recognized in use of "craven politicians" ([Craven, Dishonest, Corrupt Politician: A Definition](#), *Daily Kos*, 13 November 2013; [The Dispossessed and the Greedy Capitalists, Craven Politicians, Scheming Bankers... Human Wrongs Watch](#), 22 October 2011; [Distraught father blames 'craven, irresponsible politicians and the NRA'](#), *Daily Mail*, 25 May 2014)

**Global governance by a "murder of crows" -- the G8 Group ?**



In French culture in particular, the crow/raven has acquired particular significance in books and film concerning a mysterious writer of poison-pen letters in a community [Le Corbeau](#) (1943/1951). In recognizing any capacity of crows to whistle, there is some irony to the manner in which politicians may be "[whistled at](#)" as an expression of disapprobation.

The crow figures in collections of fables, as in that of [Jean de La Fontaine](#) ([The Crow and The Fox](#)). Recollection of one of [Aesop's Fables](#), merits further reflection given the above-mentioned iridescence of crows under ultraviolet light:

If we are to believe Aesop, crows are known to take the color shed by peacocks, replacing their "own rusty black ones [feathers]" with the "borrowed plumage" in order to strut amongst the flock of the favored ([The Vain Crow](#)). ([A Cawing Kakaphonic Constellation of Crows, Or, The Refrain of Just "Bird-wisdom"](#), *On Icarian Seas*, 3 July 2013)

Again, in the light of Stevens' poem, caution has been expressed regarding any particular interpretation. For Richard Allen Blessing ([Wallace Stevens' "Whole Harmonium"](#), 1954):

Peter McNamara [[The Multi-faceted Blackbird and Wallace Stevens' Poetic Vision](#), 1964] agrees with Rosenthal [[The Modern Poets: a critical introduction](#), 1960] that the blackbird brings awareness of death, but emphasizes that the awareness of death is *important... only as a stimulus to man's explorations of the things of this life*. It is true enough that ravens, crows, and other birds of black hue are often associated with disaster and death in literature and popular imagination. Nevertheless, it seems to me that to see the blackbird as representing death or any other single possibility from all thirteen points of view is to misread the poem. As the title implies, the point of *Thirteen Ways of Looking at a Blackbird* is that in thirteen different contexts the imagination is able to provide thirteen different values for a bird which would appear to the utilitarian or the scientist to have only one value, one way of being looked at. (p. 26)



It is understandably appropriate that the SR-71 should be named as "Blackbird", benefitting primarily from associations to the sleek skills of ravens -- as valued in use of that variant in naming many sports teams. That said, there is a strange contrast between the masculine values associated with "ravens" and the more feminine values associated with "songbirds". Curiously, in the sense of being "invisible" to radar through stealth technology, SR-71 shares a form of "blackness" with the blackbird songster -- whose song typically emanates from an invisible source.

With respect to eliciting information from informants, the focus in the first case may be on getting them to "croak" and only secondarily on ensuring that they "sing". Strangely evidence is currently emerging that [John McCain](#) is alleged to have been labelled as a "songbird" when held captive by the North Vietnamese (Wayne Dupree, [EXPOSED: Veterans voice displeasure and non-trust of John "Songbird" McCain who spilled his guts to get out of torture](#), 3 September 2013). Within Chinese military culture, references to songbirds relate primarily to those women singing military songs.

**This pattern helpfully frames the strategic opportunity of blackbird songsters in operating "under the memetic radar" characteristic of conventional mindsets -- unable as they are to associate strategic value with aesthetic communication skills.**

**Reality and imagination:** Comparative comments on these different blackbirds have been variously made. For Paulina Ambrozy ([The Black Bird of Edgar Allan Poe and Wallace Stevens' Thirteen Blackbirds](#), *Studia Anglica Posnaniensia: international review of English Studies*, 2003), both Poe and Stevens perceived imagination as the ultimate faculty of the human mind capable of giving shape and meaning to the world's chaos -- but with different approaches:

*The Raven* embodies Poe's search for a total disjunction between the real and the imagined world whereas Stevens' poems present a close interrelation between those two realms. Poe's work shows that the ultimate meaning should be sought beyond the physical world, out of time and space, while Stevens argues that the tangible real, the sensuous world with the multiplicity of perspectives it offers is the powerful substance for his imagination and a necessary element of his poetic landscape....

The opening lines of the *The Raven* and [Stevens'] [Domination of Black](#) establish strikingly similar settings: in *The Raven* it is "the bleak December," "a dreary midnight," and a chamber lit by "dying ember"; in Stevens' work it is a windy autumn night and a room warmed by the fire. In the latter however, the inner-outer relation is more dynamic. While the student's abode is isolated from the world outside, Stevens' room is open for the contact with reality.

Given the above-mentioned relation between the peacock and the crow in Aesop's [The Vain Crow](#), it is curious to note that Stevens' *Domination of Black* focuses on peacocks and their calls -- in contrast to the focus on "blackbirds" in the other poem. For Kenneth Lincoln ([Sing with the Heart of a Bear: fusions of Native and American Poetry, 1890-1999](#), 2000):

To begin, the trochaic title is strangely reverse of blank verse (the only pentameter in the poem): *Thirteen Ways of Looking at a Blackbird*. The trochee's insistently reverse rocking, beginning with that superstitious surd, *thirteen*, an indivisible number with no stable root, sets up an inverse poetics, or radical set of "Ways" -- that is, passages or mental journeys -- of "looking at" (not so much seeing) a bird the color, all colors, of the night. This is trickster stuff, as Ted Hughes darkly develops in *Crow*, the off-comic possibilities of god as Harlequin who tosses disappearing dice with reality. The poem shows us seeing a "black" bird as surd pronoun, *it*, treading syllabic night terrain, searching for winged focus on a disappearing, then reappearing radical. Call it the

*blackbird factor*, the unpredictable quark of reality, the poem's decentering center. Disruptively patterned, this wild shadow is its own original being, in motion.

The trap associated with any such commentary is however framed by Steven's own poem. As with the Sanskrit adage, *Neti Neti*, it is a case of "not this, not that" -- somewhat as with the uncertainty principle of physics. Any interpretative associations could then be considered somewhat like the notes of a musical instrument -- to be variously combined and played in an attractive composition.

**Techno-poetics of flight:** It is potentially striking to note the extent to which **the SR-71 Blackbird could be understood as having the symbolic significance -- unconsciously or not -- of the raven or crow, or with blackbirds in general.** Especially evident is **the sense of a hidden, all-seeing eye on high -- a threatening harbinger of death.** As such it could even be understood as representing a global "secular deity" -- namely the USA -- with which change is potentially associated and in whom the world is encouraged to believe.

A relation between the avian blackbird and the SR-71 is notably explored by [Christopher Schaberg](#) (*Bird Citing: on the aesthetics and techno-poetics of flight*, *Nebula*, 6, 2, 2009) within the following context:

Here, I would like to suggest that we might also learn to investigate the practical and political mysteries of commonplace *figurations* that reveal how humans struggle to attain a *certain* animality. To this end, the following pages explore an aesthetic and poetic trend around human air travel that I call *bird citing*. A first order bird citing appears as simple as the citation of a bird in an aesthetic object such as a poem, such as in Wallace Stevens's widely anthologized Modernist paragon, *Thirteen Ways of Looking at a Blackbird*....

In these lines the blackbird is cited as a poetic object worth visualizing. Yet as the reader catches sight of the blackbird, the blackbird's own ocular perception is cited, and object becomes subject. In these lines, bird citing becomes a double bird sighting -- the view zooms from panoramic to the point of a blackbird's eye, from distant topography, to intimate anatomy...

... my aim is to outline a network of allusive avian vectors and spectacles that intersect along lines of flight. Such lines of flight can be imaginative and imagistic, as in Stevens's poem; they can be straight forwardly symbolic, as in the bird insignias that appear on the tails of many commercial jets; or, bird citing can be starkly literal, as in errant birds flitting in and out of sliding doors at the baggage claim. In other words, I am particularly curious about how bird citing appears where many lines of flight converge: at airports. I want to suggest that there are curious overlaps in the multiple significations of bird forms that collide and collude in this networked space.

It is remarkably appropriate that "ways of looking" should be framed and challenged in poetic form -- traditionally renowned for its role in this respect. As noted by [Gregory Bateson](#), in explaining why "we are our own metaphor" to a conference on the effects of conscious purpose on human adaptation that:

One reason why poetry is important for finding out about the world is because in poetry a set of relationships get mapped onto a level of diversity in us that we don't ordinarily have access to. We bring it out in poetry. We can give to each other in poetry the access to a set of relationships in the other person and in the world that we're not usually conscious of in ourselves. So we need poetry as knowledge about the world and about

ourselves, because of this mapping from complexity to complexity. ([Mary Catherine Bateson](#), *Our Own Metaphor*, 1972, pp. 288-289)

Bateson is thus pointing to the advantages of poetry in providing access to a level of complexity in people of which they are not normally aware.

### **Ways of looking at ways of looking -- in a period of invasive surveillance**

It has been noted that in his poem *Thirteen Ways of Looking at a Blackbird* Wallace Stevens' description of a *Turdus* in a snowy autumn landscape alludes to the Cubist painting tradition of observing subjects simultaneously from numerous viewpoints to present a novel perspective.

In the current period, following the controversial disclosures regarding the degree of invasive electronic surveillance, **how might a variety of ways of looking be elicited and juxtaposed. In that respect -- perhaps such that together their strange integrity rendered them meaningless to conventional observation.** [Umberto Eco](#) might be said to offer an example ([Eternal Fascism: Fourteen Ways of Looking at a Blackshirt](#), *New York Review of Books*, 22 June 1995, pp.12-15).

There is clearly a strong case for exploring more complex understanding of "ways of looking" in the current period, with active discussion of more (world) wars to come. This is especially the case in a period characterized by the following oft-quoted lines from the first stanza, as articulated by another poet, [W. B. Yeats](#) following the First World War ([The Second Coming](#), 1919):

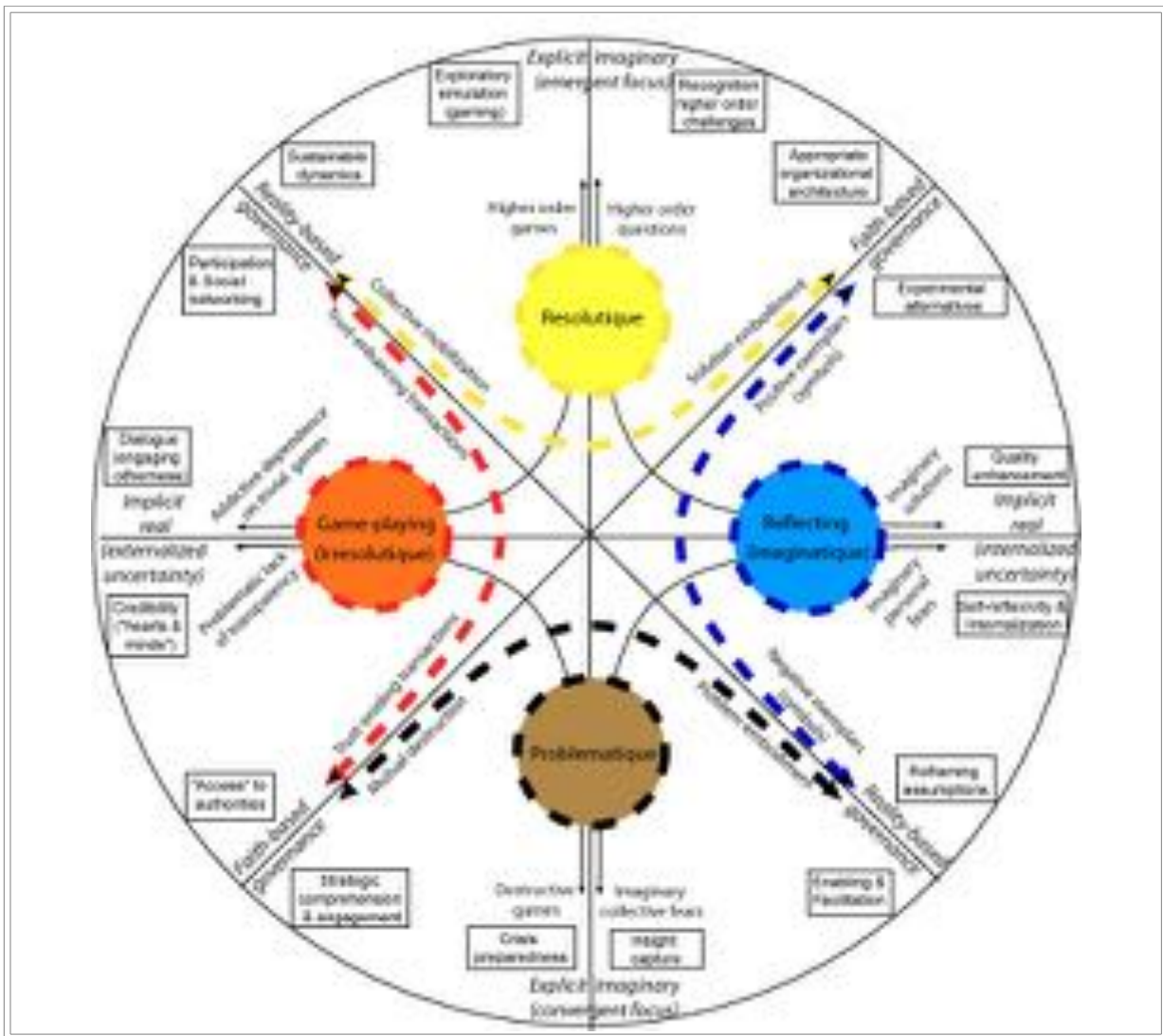
Things fall apart; the centre cannot hold;  
Mere anarchy is loosed upon the world,  
The blood-dimmed tide is loosed, and  
                                everywhere  
The ceremony of innocence is drowned;  
The best lack all conviction, while the worst  
                                Are full of passionate intensity

The challenge could be framed in terms of a quest for clues as to an appropriate response ([In Quest of Uncommon Ground Beyond: impoverished metaphor and the impotence of words of power](#), 1997; [In Quest of Mnemonic Catalysts -- for comprehension of complex psychosocial dynamics](#), 2007).

The above arguments suggest a way of framing the relation between the "reality" of *Realpolitik*, as preoccupied with the real, and *Noopolitik*, as preoccupied with imagination, and with how looking can be variously framed.

One approach is to make explicit use of the [complex plane](#) of mathematics to interrelate the real and the imaginary as suggested by the following schematic, discussed separately ([Imagining the Real Challenge and Realizing the Imaginal Pathway of Sustainable Transformation](#), 2007)

**Memespace mapped in terms of the plane of complexity?**



The above schematic helps to make the fundamental point that all "ways of looking" are essentially inadequate -- necessary but not sufficient. The issue is then how to take the argument further.

### Post-modern challenge to simplistic binary framing of the other

One helpful approach, especially relevant to current framing of global strategy, is the commentary of Nüzhet Akin (*From '0', the Logic of Imagination, to 'Ground Zero', the Imagination of Logic: the enigmas of Wallace Stevens' 'Blackbird' and current US action. Journal of Arts and Sciences, Sayı, 12 Aralık, 2009*). For Akin **the difficulty of interpreting the poem arises at the point where the reader seeks to find a logical answer to the nature of the blackbird**. This is clarified by Akin in the following:

- The blackbird dominates the entire poem of thirteen stanzas. Its function, rather than its nature, has to be understood as a unifying motif and presence. Since it is a common denominator, it may be interpreted -- which is the easiest way out -- as metaphysical conceit.... After repudiating all emotional and sentimental possibilities, the blackbird emerges as a constant element that establishes 'a central logic' suggestive of a central vortex or axis around which possibilities of correlations among events and concepts must be formed.
- Yet, it signifying a central logic does not mean that Stevens approves of it. Quite the contrary, the idea of the central logic is Stevens' sarcastic outlook upon normatively oriented

orthodox and dogmatic mind. He not only refutes the validity and reliability of such a faith in central logic by nullifying it always, but also Hegelian Dialectic, a false assumption which does not take us to anywhere, let alone to the ideal, where no antitheses can be produced....

- Working in line with this systematic way of establishing logical arguments, logo-centric pattern of thought leads one to seek for correlations as of binary oppositions, such as right and wrong, moral and immoral, god and man, white and black, man and woman, reality and illusion, good and evil, essence and form. Since in each binary opposition the first term is dominant over the second term, logo-centric approach becomes biased against each second term, that is, right, moral, god, white, man, reality, good and essence are always considered as universally accepted clichés signifying what is divine and universally right and true; whereas, wrong, immoral, man, black, woman, illusion, evil and form are biased as signifiers of what is wrong....
- The binary oppositions are deliberately created by the poet. He creates them so as to bait the biased traditionally oriented minds.... Just when his readers are content with binary oppositions and get ready for taking a biased stand against any of the opposite suggestions, the poet, then, offers ‘oneness’ of binary oppositions... After deconstructing what has already been constructed as of binary oppositions, he lets the blackbird as a central object-not to signify the central logic-get situated at the heart of each stanza, thus attracting and drenching the entire selective attention of the reader: the rest, other than the blackbird, gets blurred and obscure. When any one of the binary juxtapositions begins to dominate over the other, the blackbird intrudes and destroys the intention of the reader to seek for the Logos. Therefore, the blackbird is refined from all, becoming possibilities of suggestion and signification....
- Expectancy for absolute order remains a spiritual yearning, an emptiness that craves to be filled in.... The idea of man remains as the only solid fact which is mere imagination. Nothing exists outside imagination, as imagination is the all-embracing faculty that transforms all what have been perceived; or all which are in imagination have associations with reality, the idea. The idea establishes one’s sense of the world, the order one seeks for. The idea is completely subjective and it is there to fill in the vacuum due to a lack of certainty for universal order....
- From Wallace Stevens’ post-modern depiction of logic of imagination, the post-modern world today has come to a new understanding and interpretation of the essential logic, which is virtually created for securing benefits and privileges of first world states in the global arena. This has been the logic on which the Empire is established.... Like the devastated Hiroshima and Nagasaki, historically marked as the ground zero, the ruins of the World Trade Center have enabled the Empire to claim a virtual reference point or a corner stone to initiate a Post-Modern war for the invasion of the world....
- Wallace Stevens marks a radical change from the normative past in establishing a pattern of thought that is the ‘logic of imagination.’ With his synthesis of condition of man in a chaotic and disordered universe, he proposes that whatsoever has been learned from the universal cultural reservoir of man has been a compilation of myth. His understanding and diagnosis depict a futile effort in man in seeking out for a universal reference point onto which some universal logic be established as absolutely signifying the universal truth. Having grasped that there is none, he existentially returns to himself, and explores the logic behind his imaginative capability as the only fact. He finds out that it is human imagination which embodies truth, filters it and transforms it....
- During the process of what is to be called as Post-Post-Modern, the US Empire acts as if it has taken ‘ground zero’ as a reference point, but, in fact, it fills the gap and pit of



detonations with a virtual reality

Again, whilst indicative, such language is necessary but not sufficient. It points to the potential of imaginative self-reflexivity, as carefully argued by [Douglas Hofstadter](#) (*I Am a Strange Loop*, 2007; *Surfaces and Essences: analogy as the fuel and fire of thinking*, 2013). Other approaches are necessarily called for in the light of other imaginative "languages".

## Imaginative composition of ways of looking or listening

The commentary evoked by Stevens' "thirteen ways" has inspired exploration of "ways of looking" in many other domains -- but seemingly not with respect to invasive surveillance. The above-mentioned commentary of [Umberto Eco](#) might be considered an exception (*Eternal Fascism: Fourteen Ways of Looking at a Blackshirt*, *New York Review of Books*, 22 June 1995, pp.12-15), framed otherwise by [Naomi Wolf](#) (*Fascist America, in 10 easy steps*, *The Guardian*, 24 April 2007). Stevens has created a form of template inviting imaginative responses of every quality -- as is evident from the literature. This preceded the current enthusiasm for articulating laundry lists of "ways" of framing challenges.

It might be expected that these responses would have given rise to insightful schematic depictions of how any set of ways could be configured. This does not appear to have been the case.

**Number of possible ways:** The concern can be related to the more general question of the number of ways which can be fruitfully distinguished, by whom and under what conditions. Clearly some would favour "one way of looking", others would opt for 2, 3, 4, etc. Increasing the number of ways challenges comprehension in engaging with complexity. The challenge with two ways is indicated by the [uncertainty principle of physics](#). The challenge of 12 ways can be variously explored (*Enabling a 12-fold Pattern of Systemic Dialogue for Governance*, 2011; *Checklist of 12-fold Principles, Plans, Symbols and Concepts*, 2011).

According to the number of "ways", a "systematic" approach can be speculatively taken to the patterns of comprehension associated with distinctive, complementary (but essentially incommensurable) ways. One exercise with a [particular methodology](#) explored the range of ways of looking -- from 1-fold through to 20-fold (*Distinguishing Levels of Declarations of Principles*, 1980). An effort was made to articulate the qualitative distinctions between the elements within each pattern. These were tentatively labelled as follows:

| Patterns of N-fold ways of looking                            |   |
|---|---|
| 1. <a href="#">Inadequacy of formulations</a>                 | 11. <a href="#">Empowerment and importance of a form</a>                |
| 2. <a href="#">Opposition/Disagreement</a>                    | 12. <a href="#">Harmoniously transformative controlled relationship</a> |
| 3. <a href="#">Dialectic synthesis</a>                        | 13. <a href="#">Creative renewal</a>                                    |
| 4. <a href="#">Developmental interaction</a>                  | 14. <a href="#">Cycle of development processes</a>                      |
| 5. <a href="#">Constraints on existence</a>                   | 15. <a href="#">Construction and development of form</a>                |
| 6. <a href="#">Coherence through renewal</a>                  | 16. <a href="#">Values and assumptions</a>                              |
| 7. <a href="#">Modes of change</a>                            | 17. <a href="#">Relationship potential of a form</a>                    |
| 8. <a href="#">Constraints on change</a>                      | 18. <a href="#">Inadequate transformation attempts</a>                  |
| 9. <a href="#">Implementation of a transformation process</a> | 19. <a href="#">Qualitative transformation</a>                          |
| 10. <a href="#">Endurance of a form</a>                       | 20. <a href="#">Significance of mutually constraining forms</a>         |

Any such pattern of distinctions necessarily raises the question why not 12 (or less), or 14 (or more)? The argument can therefore be developed further by making use of a particular geometrical

configuration with which 13 ways can be imaginatively associated.

**Multiverse of memescapes?** Curiously an imagined "universe" or "world", as a memescape of particular dimensionality, is readily understood as spherical -- for those living imaginatively (if only cocoon-like) "within their own world". More curious is the focus on the **spatial** (geometrical) nature of such globality -- if only as a metaphor. Multiple universes can then constitute a multiverse -- consistent with the verses of Stevens' poem.

However it is also readily understood that a world has **dynamics** -- implying time -- such as rotation and revolution. It is however less clear what these dynamics imply in **temporal** terms for the "world" of any individual or group. Especially challenging is how the **cycles** of a world are to be understood in relation to one another -- and to other "worlds". One approach to cyclic understanding of a world is through toroidal dynamics (*[Complexification of Globalization and Toroidal Transformation](#)*, 2010; *[Implication of Toroidal Transformation of the Crown of Thorns: design challenge to enable integrative comprehension of global dynamics](#)*, 2011)

**Sphere packing as a fundamental spatio-temporal pattern:** The imaginative challenge in retaining a relationship to 12, embodying 13, and "moving on" to 14 (or more), can be explored through [sphere packing](#). This assumes that the spatio-temporal cognitive "worlds" are somehow packed in cognitive spacetime -- in terms of their potential unfolding (explication) and infolding (implication).

A key contribution to such explorations is the work of [R. Buckminster Fuller](#) (*[Synergetics: explorations in the geometry of thinking](#)*, 1975; *[Synergetics 2: further explorations in the geometry of thinking](#)*, 1979) -- as separately discussed (*[Geometry of Thinking for Sustainable Global Governance: cognitive implication of synergetics](#)*, 2009).

Of particular relevance to "reconciling" 12, 13 and 14, is the related work of [Keith Critchlow](#) (*[Order in Space: a design source book](#)*, 1969). He explores the relationship between the [Platonic forms](#) and [Archimedean forms](#) of polyhedra, so fundamental to many conventional patterns (*[Examples of Integrated, Multi-set Concept Schemes: Annexes to Patterns of N-foldness](#)*, 1984). It is the representation of the configuration of them which is especially relevant to this argument.

As noted in that compilation with respect *[Polygons and Polyhedra](#)* (1984), there are 13 distinct [Archimedean polyhedra](#) in which similar arrangements of regular, convex polygons of two or more different kinds meet at each vertex of the polyhedron [which can itself be circumscribed by a tetrahedron, with 4 common faces]. Such semi-regular polyhedra are defined by the fact that all their vertices lie on a circumscribing sphere. Critchlow configures 12 of them, **within their circumscribing spheres**, in a closest packing configuration around the circumscribing sphere of the 13th -- a truncated tetrahedron -- as shown below. The truncated tetrahedron is the only semi-regular solid with 12 independent axes passing through its vertices from its centre. Removal of the central sphere allows the 12 other spheres to close into a more compact icosahedral configuration.

|   |  |
|---|--|
| <b><a href="#">Archimedean polyhedra</a></b><br>(as discussed in <i><a href="#">Imaginative Reconfiguration of a post-Apocalyptic Global Civilization: engaging cognitively with the illusion of the "End of the World"</a></i> , 2012) |  |
| Successive truncations of <a href="#">octahedron</a><br>2, 3, 4-fold symmetry   | Successive truncations of <a href="#">icosahedron</a><br>2, 3, 5-fold symmetry |

1. [truncated octahedron](#) (14 polygons: 4 / 6 sided)
2. [cuboctahedron](#) / vector equilibrium (14: 3 / 4)
3. [truncated cuboctahedron](#) (26: 4 / 6 / 8)
4. [snub cube](#) (38: 3 / 4)
5. [rhombicuboctahedron](#) (26: 3 / 4)
6. [truncated cube / hexahedron](#)(14: 3 / 8)

1. [truncated icosahedron](#) (32 polygons: 5 / 6 sided)
2. [icosidodecahedron](#) (32: 3 / 5)
3. [truncated icosidodecahedron](#) (62: 4 / 5 / 10)
4. [snub dodecahedron](#) (92: 3 / 5)
5. [rhombicosidodecahedron](#) (62: 3 / 4 / 5)
6. [truncated dodecahedron](#) (32: 3 / 10)

[truncated tetrahedron](#) (8 polygons: 3 / 6 sided)

**Arrangement of the 12 Archimedean polyhedra in their most regular pattern, a [cuboctahedron](#), around a [truncated tetrahedron](#)** (from Keith Critchlow, *Order in Space*, 1969, p. 39). Arrows indicate the succession of truncations from 1 to 6 in each case. (*Clicking on a polyhedron links to a spinning image*)



Missing from such **explicitated spatial representation** is a sense of their **implicated cognitive dynamics** -- ensuring the distinctive integrity of each world, as a mode of knowing, to those "inhabiting" any one of them. These dynamics are implied to a degree by the interlocking circles characteristic of each of the above spherically symmetrical polyhedral forms.

Potentially these circles offer the possibility of sustaining future reinforcement in ordering social

networking on the web (cf. [\*Spherical Configuration of Interlocking Roundtables: Internet enhancement of global self-organization through patterns of dialogue\*](#), 1998; [\*Polyhedral Empowerment of Networks through Symmetry: psycho-social implications for organization and global governance\*](#), 2008). They also have strategic implications (cf. [\*Representation of Interlocking Elements for a Sustainable Global System: configuring strategic dilemmas in intersectoral dialogue\*](#), 1995).

**Embodying incommensurability:** With respect to the degree of paradox and self-reflexivity associated with the post-binary challenge of concern here, the schematic above is suggestive of the degree of incomprehensibility inherent in the relationships "between the worlds".

**Indicative of geometrical transformation, the lines are also indicative of a requisite cognitive shift from one "way of looking" to another -- from one logical modality to another.** The schematic is necessarily misleading since any such "way" might be treated as central through the window or lens through which reality is imagined -- as the focus of attention in the moment (however illusory from any other perspective). It is in this sense that each can be understood both as the "baleful eye" of the blackbird (as raven) and as a particular mode of singing and imaginatively sung reality. Ironically the number of facets in the schematic as a whole is of a similar order to the number of songs in a blackbird repertoire.

Further insights can be derived from the extensive exploration by Buckminster Fuller of the transformational dynamic of the structure which he termed a [vector equilibrium](#) ([\*Vector Equilibrium and its Transformation Pathways\*](#), 1980).

**From looking to listening?** It is curious that the focus of Stevens' poem concerns "looking" at the blackbirds, rather than evoking the possibility of "listening" to them. Looking might well be consistent with the blackbirds understood in their "raven/crow" modality rather than in their "songster" modality.

With respect to listening, the schematic above suggests a [multiverse](#) of memescape worlds based on sound, rather than one to be "envisaged" (Bradley Wiggins and G. Bret Bowers, [\*Memes as Genre: a structural analysis of the memescape\*](#), *New Media and Society*, 26 May 2014). Bird song might then be mapped onto the many lines of the schematic -- as song lines. Each spherical polyhedron then offers a distinctive pattern of potential song lines, variously oriented to one another in framing the globality of the whole. This is reminiscent of experiments in 3D musical notation \*\*\*

With one of the collective nouns for ravens being "congress", this offers an association to the 4,300 line epic tale of the [\*Conference of the Birds\*](#). In that poem, the birds of the world gather to decide who is to be their king, as they have none. The wisest of them all suggests that they should find the legendary [Simorgh](#), a mythical Persian bird roughly equivalent to the western [phoenix](#). After much decision-making discussion, when the group of 30 birds finally reach the dwelling place of the Simorgh, all they find is a lake in which they see their own reflection.

The progressive articulation of the relationship between the thirty birds recalls the argument from the perspective of management cybernetics by [Stafford Beer](#) for a [syntegration process](#) based on the 30-edged [icosahedron](#) ([\*Beyond Dispute: the invention of team syntegrity\*](#); 1994). The icosahedron is one of the forms through which the vector equilibrium can be transformed.

**From description to question?** The stanzas of the poems take the form of descriptions. This form has led many to compare them with *haiku*. A *haiku* may well imply the possibility of a question. In that sense, it can pose the cognitive challenge of a *koan*. The strategic relevance of *haiku* has been discussed separately ([\*Ensuring Strategic Resilience through Haiku Patterns: reframing the scope of the "martial arts" in response to strategic threats\*](#), 2006). The challenge of "13 ways" could then fruitfully be understood in relation to both *haiku* and *koan*.



The schematic multiverse would then constitute a pattern of questions to be fruitfully understood as existentially challenging. Considered in this way, this argues for the function of the blackbird as a kind of marker at the point when any inadequate conclusion is assumed regarding binary oppositions or their reconciliation (as noted above by Akin, and discussed below). The blackbird then brings reflection "up short" -- offering a mysterious darkened mirror, into, or through, which one might step ([\*Stepping into, or through, the Mirror: embodying alternative scenario patterns\*](#), 2008).

Some such schematic could then be understood as a mapping of cognitive traps implied by premature closure on answers of lower dimensionality. This offers the association to [blackbirding](#) as a term used in the past for kidnapping for slavery -- suggestive of how one might be cognitively kidnapped and enslaved in restrictive dimensionality.

**Self-reflection and engaging with an other:** Arguments include:

- Thirteen Ways of Looking at Oneself ([\*Fourteen Ways of Looking in a Mirror\*](#), *Hello Poetry*, 2010)
- Donald Moss (*Thirteen Ways of Looking at a Man: psychoanalysis and masculinity*, 2012)
- Lisa Raphals ([\*Thirteen Ways of Looking at the Self in Early China\*](#), *History of Philosophy Quarterly*, 26, 2009)
- Keath Fraser (*Thirteen Ways of Listening to a Stranger*, 2005).

**Polysensorial intercourse:** Taken further, this offers the sense in which *Thirteen Ways of Looking at a Blackbird* can be used as a template for comprehension through other senses, notably listening. As suggested by Terra Brockman :

I am convinced that if the poet Wallace Stevens had worked outdoors on an organic farm rather than indoors at the Hartford, he would have written *13 Ways of Listening to Cicadas* instead of *13 Ways of Looking at a Blackbird*. Take my adaptation as an example of imitation being the sincerest form of flattery -- or a sign of insanity triggered by the cicadas' ear-splitting buzz ([\*13 Ways of Listening to Cicadas\*](#), Center for Humans and Nature, 20 August 2012).

Related possibilities include:

- Thirteen Ways of Listening to Oneself
- Mithril-Moony ([\*Thirteen Ways of Listening to Water\*](#))
- Gibbons Ruark ([\*Thirteen Ways Of Listening To The Songbirds\*](#) *The Cortland Review*, 2004).

Global strategic discourse is primarily based on vision -- despite the unrelated importance attached to music ([\*Metaphor and the Language of Futures\*](#), 1992). As a potential cognitive trap in its own right, this suggests that looking at a polysensorial approach merits consideration, if the proverbial "elephant in the living room" is to be recognized ([\*Strategic Challenge of Polysensorial Knowledge bringing the "elephant" into "focus"\*](#), 2008).

The mirroring/marker function of the blackbird -- and possibly its song -- could be considered even more generally in terms of *Thirteen Modes of Intercourse with the Other*, as variously noted ([\*"Human Intercourse": "Intercourse with Nature" and "Intercourse with the Other"\*](#), 2007; [\*Intercourse with Globality through Enacting a Klein bottle Cognitive implication in a polysensorial "lens"\*](#), 2009 )

## **Embodying a multiverse of uncertainly ordered incongruity**

The engagement evoked by the poem on *Thirteen Ways of Looking at a Blackbird* suggests that its



intuited appropriateness's is indeed consistent with the cognitive challenge of uncertainly ordered incongruity -- a [multiverse](#) of [requisite complexity](#) in cybernetic terms.

The 13 stanzas of its poetic form certainly encourage a play on "multiverse" and the complex associations offered by imaginative astrophysical speculation on the coexistence of multiple universes. The cognitive focus here has highlighted an appropriate form of uncertainty cautioning against premature closure. The poem expresses a degree of incongruity consistent with the strange degree of order evident in a global civilization -- acclaimed as knowledge-based.

**Threefold uncertainty:** Rather than the **twofold** uncertainty of physics, that uncertainty might be more fruitfully described as **threefold** -- as usefully indicated by the dilemma as to which blackbird the poem refers:

- **as raven**, the sense of the technical sleekness of the SR-71 offers one frame, with which the expression "raven-haired beauty" is aesthetically consistent. Its etymological associations with the predatory sense of "seize by force", "rapine", "plunder" or "abduct", are also significant -- as has recently been made evident. The dark and terrible beauty is admirably echoed in the macabre work of Edgar Allan Poe, in addition to *The Raven*.
- **as crow**, the sense of exposure to accumulating waste and degradation is also appropriate, namely the challenge of systemic neglect and remaindering ([Reintegration of a Remaindered World: cognitive recycling of objects of systemic neglect](#), 2011). This is consistent with the humiliation of "eating crow". It is also consistent with the special insight traditionally associated with an archetypal "old crow", despite the disparagement of such a reference. The articulation of the associated wisdom is valuably presented by Ted Hughes' *Crow*
- **as songster**, the improbable sense of joy in life and the potential of the future -- with which the emphasis on the "positive" is so frequently associated. This is consistent with the experience of many and use of the phrase "a little bird told me".

In the terms of the previous section "looking" might well be consistent with the blackbirds in their "raven/crow" modality -- rather than in their "songster" modality.

**Reality and imagination:** The twofold is however strikingly apparent in the relation between reality and imagination, as variously indicated above. Especially relevant is the argument of Nüzhet Akın ([From '0', the Logic of Imagination, to 'Ground Zero', the Imagination of Logic: the enigmas of Wallace Stevens' 'Blackbird' and current US action](#). *Journal of Arts and Sciences*, Sayı: 12 / Aralık 2009) regarding *Mathematical Verification of 'Imagination' as Central Logic*:

To begin with, the nature of the blackbird is axiomatic, that is, the blackbird is "aphorism whose truth is held to be self-evident. In logic an axiom is a premise accepted as true without the need of demonstration and is used in building an argument" ([C. Hugh] Holman, 1992). Therefore, the blackbird is there in the poem as a predominant solid fact that is meant to initiate an argument. Without the blackbird, there is no possible argument to be initiated. Since the existence of the blackbird cannot be ignored, it becomes a focal point of attraction that forces the readers' line of thought or vision. It establishes the readers' relation with the universe and his idea of it where the blackbird is.

Akın offers an "equation" relating man and women, as referenced in the poem, by 1 and 0, concluding:

"0" has no numerical value, but it cannot be ignored, because it is there. It also signifies what is not there. Therefore, "0" is different from other numbers because it signifies both a presence and absence. It signifies the idea of man, or his essential logic, which is

his imagination.... Since "0" signifies the initial natural number, the blackbird stands for the initial step for the functioning of logic, which is imagination. In each stanza, the blackbird appears as the constant reminder of this initial step, or "the elementary logic" that the reader must take and consider when establishing logical correlations and setting "language, and the careful statement of basic incidence relationships through the use of appropriate symbolism" (Frank Allen, 1973). For Wallace Stevens, the language is poetry and the appropriate symbol is the blackbird, which is seemingly irrelevant to the context of the poem; yet it serves his purpose in urging the reader to initiate logical questioning about what seems illogical. Therefore, the correlation is in the mind of the beholder, as long as he lets "a new intelligence prevail" and hinders the "stale intelligence of the past" (George McMichael, 1985). The blackbird, the null element "0", or the elementary logic establishes the poem, "the poem of the act of the mind" (George McMichael, 1985)

**Aesthetic paradox:** Any such "equation" could be fruitfully explored in terms of the focus of the [Euler identity](#). This offers a fundamental relation between reality and the imaginary -- understood as a paradox in mathematical terms. Its implications are discussed in a section on [Enabling a reconciliation between one and nothing:  \$\pi\$  and the mysterious Euler identity](#) in a related context ([¿ Embodying a Way Round Pointlessness ?](#) 2012). As noted there, the so-called [Euler identity](#) (or Euler equation) has been named as the "most beautiful theorem in mathematics" and has tied in a nomination by mathematicians for the "greatest equation ever" (Robert P. Crease, [The greatest equations ever](#), *PhysicsWeb*, October 2004). It is presented as follows:

|                    |  |
|--------------------|--|
| $e^{i\pi} + 1 = 0$ | <ul style="list-style-type: none"> <li>• <b>e</b> is <a href="#">Euler's number</a>, the base of <a href="#">natural logarithms</a>,</li> <li>• <b>p</b> is the ratio of the circumference of a circle to its diameter, as discussed above.</li> <li>• <b>i</b> is an <a href="#">imaginary number</a> defined by its property <math>i^2 = -1</math>.<br/>This is consistent with 3 variants: <math>i^0 = 1</math>, <math>i^1 = i</math>, <math>i^3 = -i</math></li> </ul> |
|--------------------|--|

As noted by *Wikipedia*, its [mathematical beauty](#) is associated with its use of the three basic arithmetic operations only once: [addition](#), [multiplication](#), and [exponentiation](#). It also links five fundamental [mathematical constants](#) ([Five constants tie together multiple branches of mathematics](#), 2008). **Paradox:** With regard to the comprehensibility of the Euler identity, the mathematician [Benjamin Peirce](#), is widely quoted as declaring at the end of a lecture in which he proved that identity:

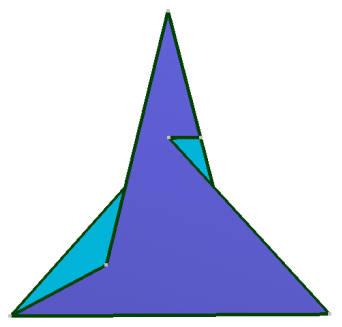
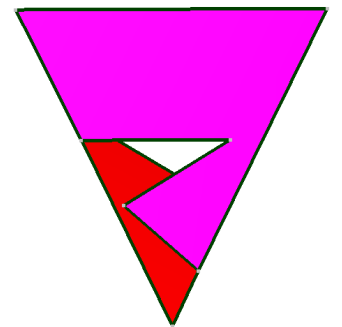
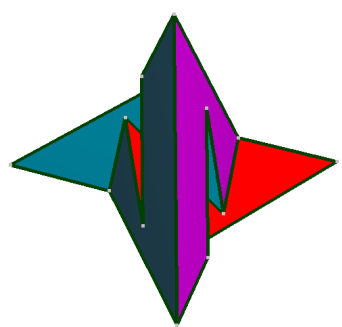
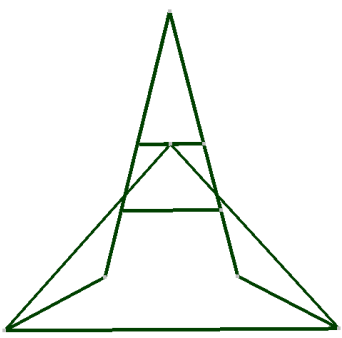
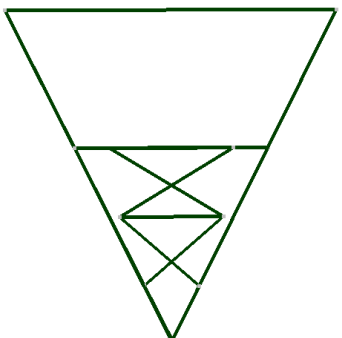
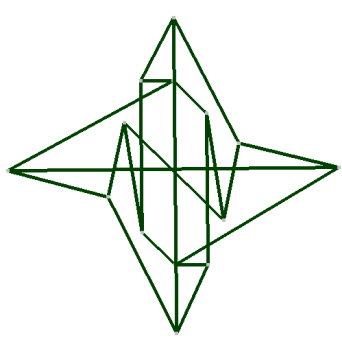
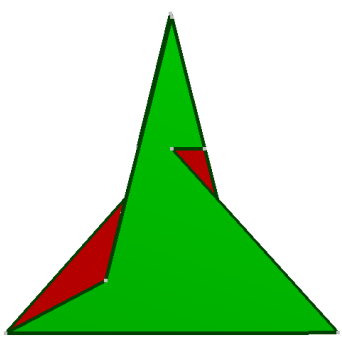
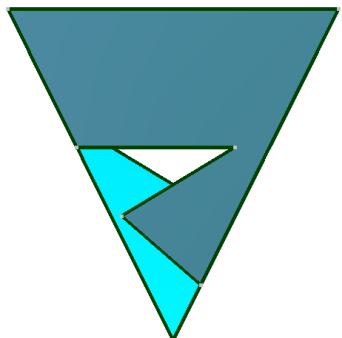
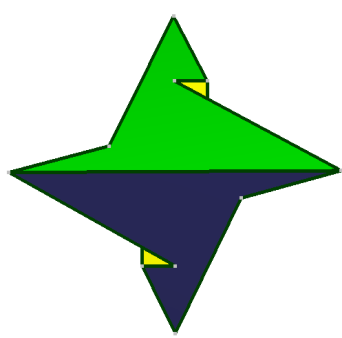
Gentlemen, that is surely true, it is absolutely paradoxical; we cannot understand it, and we don't know what it means. But we have proved it, and therefore we know it must be the truth. (Quotation from [Edward Kasner](#) and [J. Newman](#), *Mathematicas and the Imagination*, New York 1940)

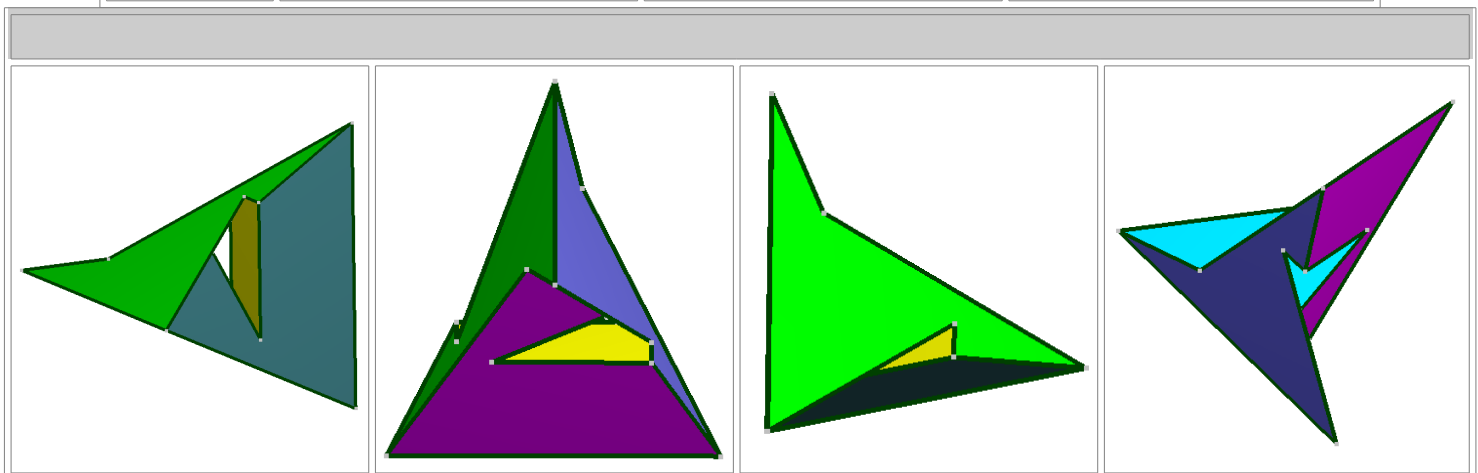
This suggests that the theme of paradox merits recognition in the quest for sustainable globalization and in relation to the nature of "nothingness" in that context.

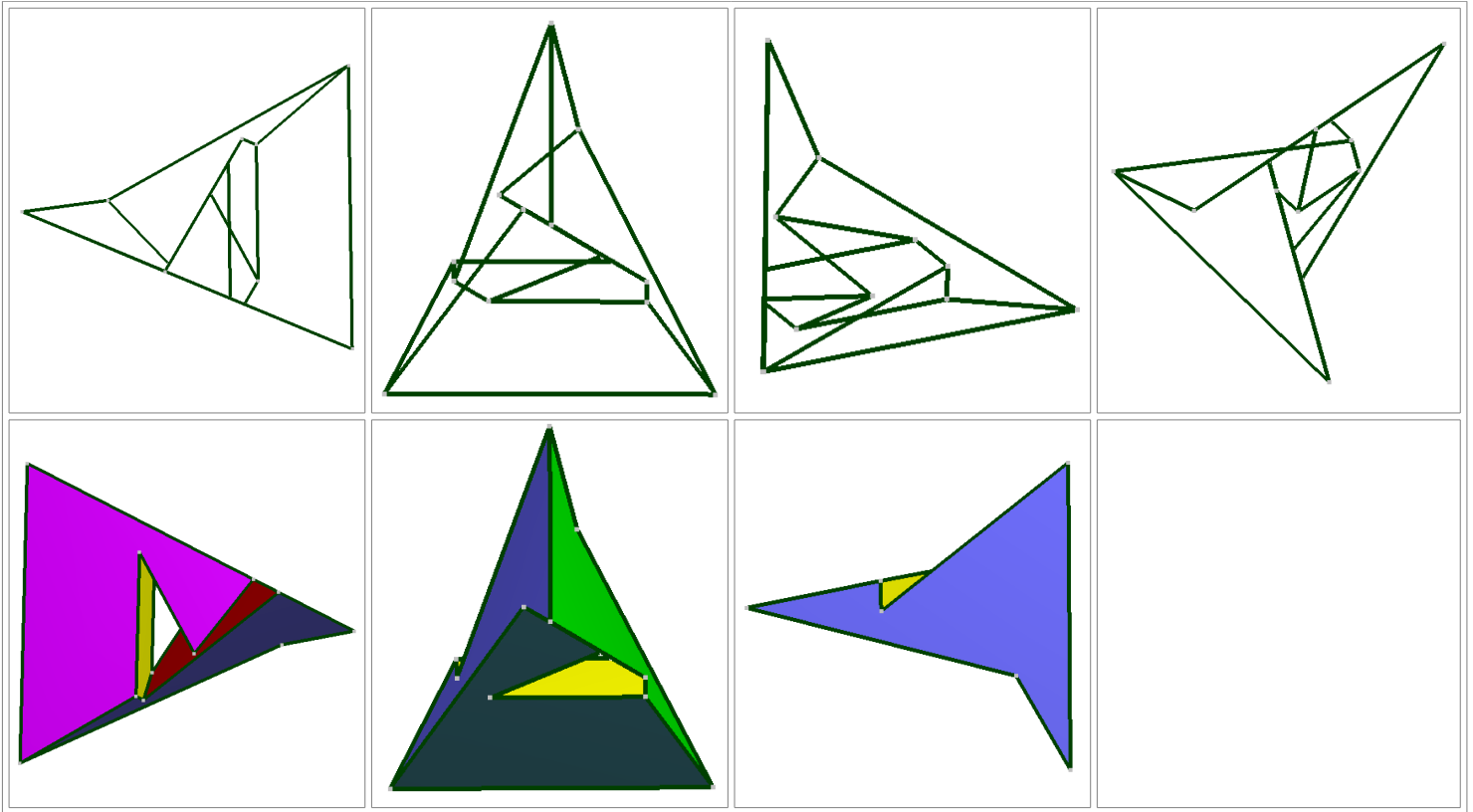
As a complement to the "beauty", there is then an interesting aesthetic challenge to embody "uncertainly ordered incongruity" in a form which contrasts with the elegance of the polyhedral sphere packing schematic above -- and is a challenge to it. A valuable candidate is the [Szilassi polyhedron](#), notably because of the incongruity of its shape -- despite its mathematical uniqueness (7 hexagonal faces all in contact with each other -- 21 edges and 14 vertices). The "incongruity" of

the form, as a schematic, offers a degree of resemblance to the form of a bird -- as an abstraction.

**Use of Szilassi polyhedron to illustrate "13 ways of looking at a blackbird" ?**  
 (prepared using *Stella Polyhedron Navigator*)

|  |   |  |   |
|--|---|--|---|
| <p>The 7 faces are distinctively coloured to offer contrasting views on rotation (wire frame view also shown)</p>                    |    |    |    |
| <p>Use of colours recalls the observation above that the plumage of some "blackbirds" appears iridescent under ultraviolet light</p> |    |    |    |
|  |  |  |  |



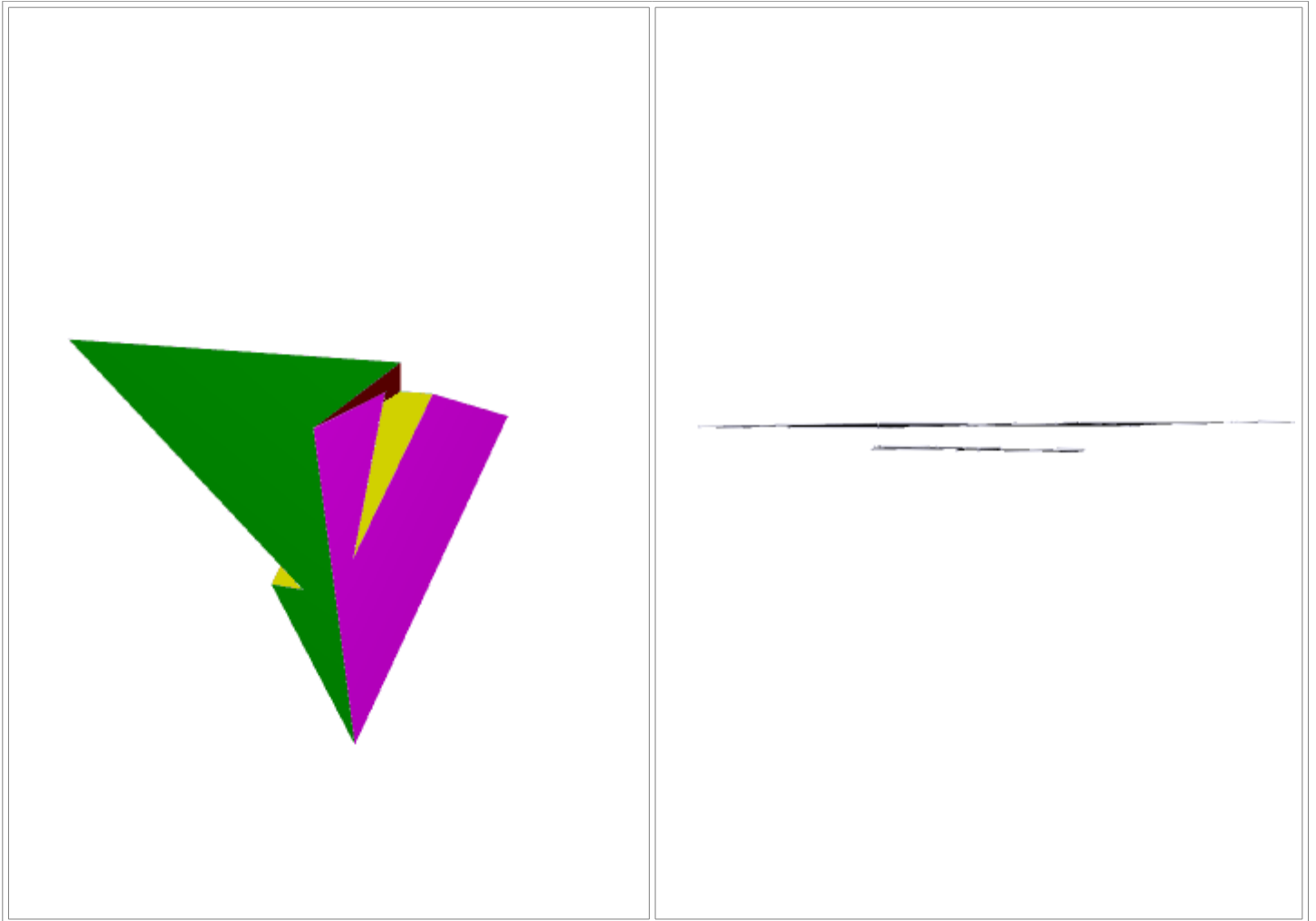


**Animations of Szilassi polyhedron to show all faces**

highlighting the necessity of a dynamic, interrelating partial views, to enable comprehension of the blackbird in its totality

Faces distinctively coloured  
(using colours of screen shots above)

"Blackbird variant"  
(transformation from/to memetic "stealth mode")



The animation on the right usefully highlights the manner in which "memetic stealth" may take the form of appearing to be linear -- camouflaging greater complexity apparent from the perspective of higher dimensionality emerging in time ([The Isdom of the Wisdom Society: embodying time as the heartland of humanity](#), 2003). Any "memetic warfare" of interest in the noopolitical sphere could then be fruitfully understood as between the dynamics of emergent subtlety and the linear mindset of "business-as-usual".

Curiously black is a preferred colour of those challenging conventional modalities, whether SWAT Teams, Blackwater security agents for the US, blackshirts, anarchists, or poets identifying themselves as blackbirds -- as voices of strange dissent. Given the preoccupation of the above argument, there is a delightful irony to the improbable transformation of [Blackwater](#) into Xe in a period which has seen the emergence of [Xi Jinping](#) as the President of the People's Republic of China -- recalling the above-mentioned significance of the crow as a primary emblem of imperial China, last represented by the [Empress Dowager Cixi](#) a century ago. As a type of lyric poetry, [Ci](#) uses a set of poetic meters derived from a set of patterns based upon certain musical song tunes.

Further discussion of insights through the above polyhedron is provided separately ([Mapping of WH-questions with question-pairs onto the Szilassi polyhedron](#), 2014).

### **Thirteen ways of apprehending blackbird song**

The above argument frames the possibility of exploring a future convergence between the following. "Blackbird" is then best understood generically as an alternative voice, transcending any conventional framework and therefore implying a degree of dissent through its challenge to



conventional modes of comprehension. It is reminiscent of references to a "still small voice". The section might then have been titled *Thirteen Ways of Engaging with Dissent*.

It is indeed possible that aspects of this convergence have already been explored and documented under other headings, notably in Chinese, Japanese or Korean literature.

**1. Sonograms:** The use of sonograms or sound spectrograms (as discussed above with respect to bird song) suggests the possibility of exploring alternative visual renderings. Ideally these would be more compact, aesthetic and memorable. Of some interest are the skills with which these can be used for identification purposes by those familiar with those techniques.

It is possible that such analysis and rendering could be applied to pronunciation of Chinese-style logograms ([sinographs](#)), given the tonal variation possible (as discussed below). This could highlight innovative possibilities for convergence. More generally, could bird song be mapped onto Chinese characters? Conversely (as discussed below), could Chinese characters be interpreted as notation for particular bird song -- possibly through simulation?

**2. Musical languages:** According to *Wikipedia*, musical languages are languages based on musical sounds, either instead of or in addition to articulation. They can be categorized as [constructed languages](#), and as [whistled languages](#). Whistled languages are dependent on an underlying articulatory language, in actual use in various cultures as a means for communication over distance, or as secret codes. Musical languages can be distinguished from the numerous [tonal languages](#), such as Chinese (as discussed below).

The mystical concept of a [language of the birds](#) connects the two categories. There is a case for developing reflection on (long-term) future use of Twitter from this perspective ([Re-Emergence of the Language of the Birds through Twitter?](#) 2010).

Of value to any such investigation is the legacy of [Olivier Messiaen](#), a French composer and ornithologist influenced by Japanese music. He was known particularly for the inspiration that bird song provided for his music -- to the extent of incorporating birdsong [transcriptions](#). He notably composed the piece [Le merle noir](#) (1952) for flute and piano based entirely on the song of the blackbird.

**3. Music notation:** There are many approaches to 2D representation with [systems of notation](#) by symbols, including numbers and letters (see also [coloured music notation](#)). Some have been developed and used in response to particular musical traditions. Others are used more generally. There is continuing exploration of alternative notation systems, some of which are subject to patent (Gardner Read, *Pictographic Score Notation: a compendium*, 1998).

The experimental approach to notation by [Vinko Globokar](#) is especially noteworthy (Marko Šetinc, [Improvisation as Dialectic in Vinko Globokar's Correspondences](#), 30 May 2012; James Bunch, [Writings : Improvisation as Dialectic in Vinko Globokar's Correspondences](#), 23 April 2014; Cory Scott Hills, [Graphic Notation as Means of Musical Gesture: examining percussive works by John Cage, Morton Feldman and Vinko Globokar](#), University of Kansas, 31 December 2011)

Of interest to the argument here is the further possibility of 3D and 4D visual renderings -- using newer information technologies. Can the form of Chinese characters be interpreted as a musical notation -- by analogy to western [solmization](#), namely the system of attributing a distinct syllable to each note in a musical scale?

Of some relevance is the well-known fascination for drumming of the quantum physicist [Richard Feynman](#) (Jagdish Mehra, *The Beat of a Different Drum: the life and science of Richard Feynman*, 1994). A variety of relevant approaches have been taken to drumming patterns (Florence W. Deems, [Drumming the I-Ching Patterns](#), 2013; Michael Drake, *I-Ching: The Tao of Drumming*, Talking Drum Publications, 2003).

**4. Cognitive "movement":** Of related interest is [eye movement in music reading](#), namely the complex manner in which a [musical score](#) is scanned by a musician's eyes. The phenomenon has been studied by researchers from a range of backgrounds, including cognitive psychology and music education. Three oculomotor imperatives have been highlighted by research, as noted by *Wikipedia*:

- the eyes must maintain a pace across the page that is appropriate to the tempo of the music -- achieved by manipulating the number and durations of fixations, and thereby the scanpath across the score.
- an appropriate rate of refreshment of the information being stored and processed in working memory -- achieved by manipulating the number and duration of fixations.
- maintaining a span size that is appropriate to the reading conditions.

These recall the remarks made separately regarding numeric cognitive constraints ([Conceptual clustering and cognitive constraints](#), 2014):

- "[Miller number](#)" ( $7 \pm 2$ ): the much cited constraint reported by [George Miller](#) (*The Magical Number Seven, Plus or Minus Two: some limits on our capacity for processing information*, *Psychological Review*. 1956).
- "[Spreadthink number](#)": as identified by [John N. Warfield](#) (*Spreadthink: Explaining ineffective groups*, 1995). This reflects the fact the inability of groups to reach agreement on complex issue. In the SCI, this is assumed to be 5.
- "[Dunbar's number](#)": as formulated by [Robin Dunbar](#), This is a suggested cognitive limit to the number of people with whom one can maintain stable social relationships The commonly used value is 150.
- [Span of control](#)

The concerns are reminiscent of those required in scanning the strategic situation in board games like chess and go, as discussed separately ([Strategy games as pointers to comprehension of multi-dimensionality](#), 2006). These are frequently associated with comments concerning the distinct "energy" or tensions characteristic of certain strategic conditions. A valuable description of this subtle perception is provided (in translation) by Michel Bruneau ([Dynamic Chess Classification -- Chess Theory](#)) which explicitly acknowledges how difficult it is to explain the meaning of "energy" in chess. The document distinguishes, and comments on, 7 game conditions:

|                     |            |             |
|---------------------|------------|-------------|
| "Quick divergency"  | "Unstable" | "Exhausted" |
| "Slow divergency"   | "Balanced" | "Aborted"   |
| "Damped divergency" |            |             |


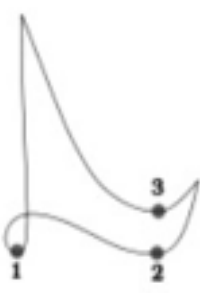
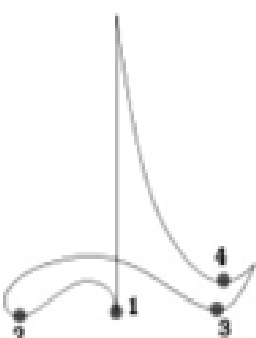
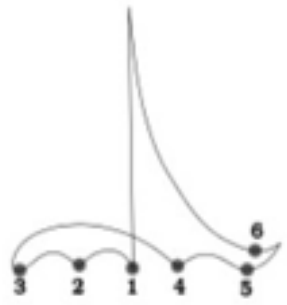
The document states that "chess energy" or "tension" is the result of various imbalances appearing on the chessboard during the unfolding of the game. Their brief description, in energy terms, of each condition -- as a discontinuity -- suggests an intriguing resemblance to geometrical descriptions of the 7 [elementary catastrophes](#). Their descriptions might be usefully refined by a chess-playing mathematician familiar with catastrophe theory. Such descriptions might also be usefully confronted with analogous descriptions by *go*-playing mathematicians (cf David H. Stern et al. [Modelling Uncertainty in the Game of Go](#); Bruno Bouzy and Tristan Cazenave, *Computer Go: an AI oriented survey*, 2001).

Whilst necessarily respectful of these constraints, of interest is how music can enable them to be reframed or circumvented in some way. Of particular relevance is work on the cognitive implications of movement ([Mark Johnson](#), *The Body in the Mind: the bodily basis of meaning, imagination, and reason*, 1987; Maxine Sheets-Johnson, [Kinesthetic experience: understanding movement inside and out](#), *Body: Movement and Dance in Psychotherapy*, 2010).

How do blackbirds scan the memescape they are "decorating" -- with the strategic implications these may have for other birds?

**5. Conducting music:** As the art of directing a musical performance by way of visible gestures, the primary function of the [conductor](#) is to unify performers, set the tempo, execute clear preparations and beats, and to listen critically and shape the sound of the ensemble. The nature of the movements and preoccupations in conducting music, notably as they are typically depicted, are reminiscent of Chinese logograms and the manner in which a logogram is constructed (as noted below). A variety of resources exist, as indicated by the following:

- Brock McElheran ([Conducting Technique For Beginners & Professionals](#), Oxford University Press, 1989).
- Ennio Nicotra (*Introduction to the orchestral conducting technique in accordance with the orchestral conducting school of Ilya Musin*. Edizioni Curci, 2007).
- John Watkins (*The Art of the Conductor: the definitive guide to music conducting skills, terms, and techniques*, iUniverse-Indigo, 2007)
- Michael Miller (*The Complete Idiot's Guide to Conducting Music*, ALPHA, 2012)
- [Max Rudolf](#) (*The Grammar of Conducting*, Macmillan, 1981)

| Examples of movements of orchestral conductor's baton<br>(reproduced from <i>Wikipedia</i> ) |  |   |  |
|--|--|---|--|
|            |  |  |  |
| 2/4, 2/2, or fast 6/8 time   | 3/4 or 3/8 time  | 4/4 time  | slow 6/8 time  |
| For other relevant examples: <a href="#">Advanced Patterns</a>                               |  |   |  |

What movements might a conductor consider using with respect to a bird song -- as with Messiaen's [Le merle noir](#) (1952)? Clearly a blackbird can be usefully understood as "auto-conducting" -- although possibly in response to another bird.

There is a case for exploring how a songbird embodying movement in song might be compared with the embodiment of the [waggle dance](#) by bees. This is a term for a particular figure-eight dance of the honey bee through which successful foragers share information with other members of the colony about the direction and distance to flowers, to water sources, or to new housing locations. Another lead might be provided by engagement with ritual ([Luc Sala](#), [Ritual: the magical perspective](#), 2013).

**6. "Compression" as a mnemonic aid:** The length of a blackbird song could be usefully compared with widespread use of [telephone ring tones](#), for which a variety of encoding formats have been developed. Birdsong can of course be recorded for use as a ring tone.

Of related interest is the compression of a *haiku* poem or *koan* into some such compressed format, as discussed above with respect to use of the QR code to represent *haiku*.

### Haiku in Chinese

Example of one haiku (reproduced from [a collection](#)) translated into *Simplified Chinese* by Yiwei Huang in 2012, also appearing as part of the essays *Becoming a Haiku Poet* and *Haiku and the Japanese Garden*.

流星雨...  
轻轻的浪花  
打湿了你我的鞋尖



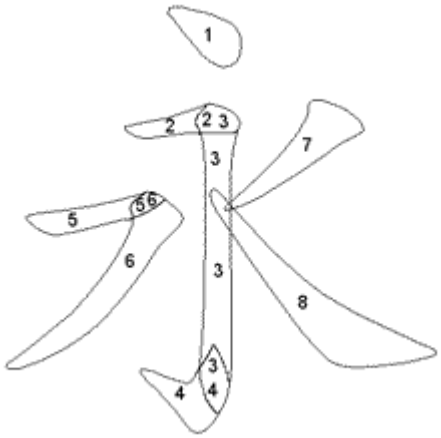
meteor shower  
a gentle wave  
wets our sandals

As an indication of response to such modalities, a daily BBC broadcast of bird tweeting has been initiated ([David Attenborough to launch Tweet of the Day on Radio 4](#), BBC Radio 4, 24 April 2013; Brett Westwood and Stephen Moss, *Tweet of the Day: a tear of Britain's birds from the acclaimed Radio 4 Series*, Saltyard Books, 2014). Also of interest are smartphone apps enabling identification of birds from bird song ([Bird Calls : 4500+ Bird Sounds](#), [Bird Songs](#), [Bird Identification and Bird Guide](#); [WeBIRD](#), the [Wisconsin Electronic Bird Identification Resource Database](#)).

**7. Insights from Chinese characters in the light of the Eight Principles of Yong:** Of potentially remarkable relevance is the thinking with regard to the elaboration of the most aesthetic form of a Chinese character (as in widely practiced [Chinese calligraphy](#)), using eight common [strokes](#) in [regular script](#), according to the [8 Principles of Yong](#). This is illustrated with the character *yong*, signifying "forever" or "permanence". In Japan the principles (and the associated 72 types of "brush energy") were the focus of the Daishi school of calligraphy associated with [Kukai](#). **There is clearly a strong case for exploring what is understood by *yong* in relationship to "sustainability" -- as it is now so widely used with respect to strategic issues of governance.** Of particular relevance with respect to calligraphy are the cognitive and philosophical associations in the process of elaborating a character, as cultivated within the Zen tradition.

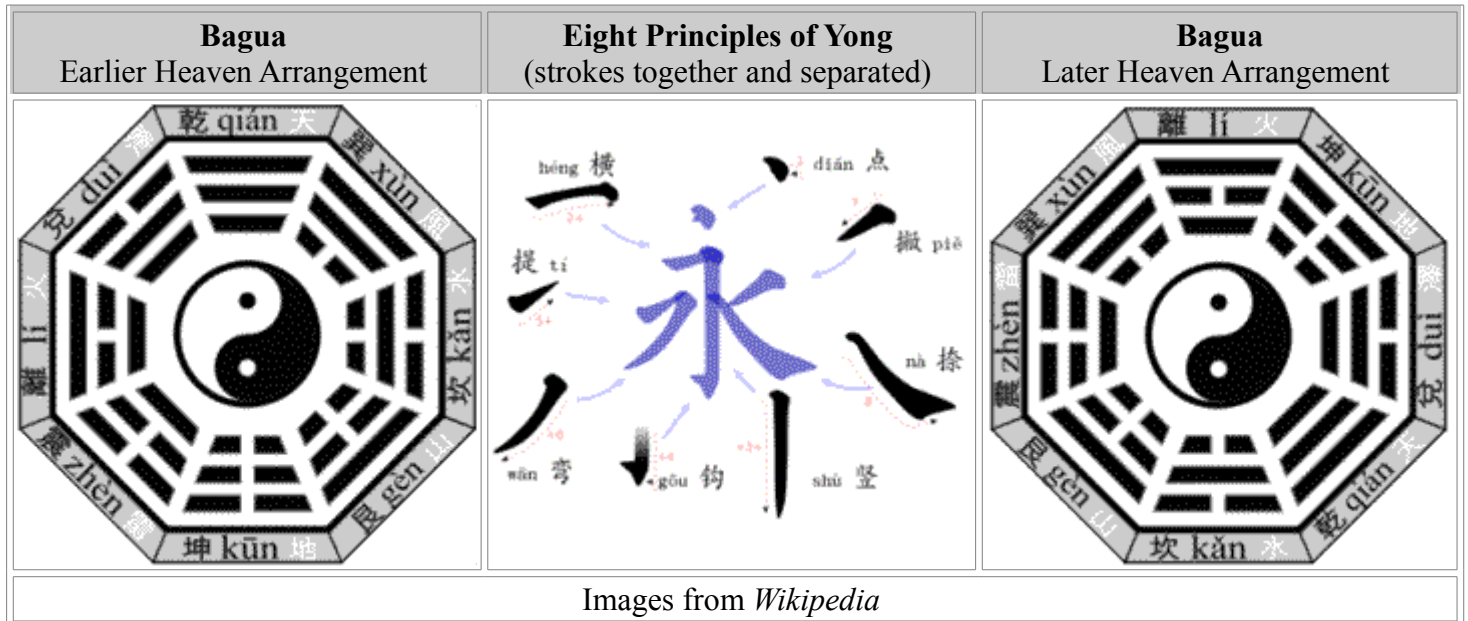
### Eight Principles of Yong regarding formation of Chinese characters

(images from [Wikipedia](#))

| Stroke order<br>(animation)   | Stroke order<br>(colour gradation<br>from black to red)                             | Strokes numbered<br>(strokes overlap briefly where there<br>are multiple numbers in an area) |
|---|---|--|
|  |  |         |

The directionality associated with the strokes of the *Eight Principles of Young* can be speculatively contrasted with that of the alternative [Bagua](#) arrangements -- as presented below. This could be

done through the metaphors through which the directions are traditionally distinguished.



These considerations might prove to be fruitfully associated to those of *Neidan*, namely the cognitive processes of internal alchemy, traditionally relating to the quest for "immortality" -- perhaps to be understood in terms of those required for "sustainability".

**8. Tonal pronunciation:** Chinese logograms may be variously pronounced using four distinct tones (five in Mandarin) in various combinations (*Introduction of Four Tones in Chinese Pronunciation*, *yeschinese*, 27 July 2011; *Six Basic Steps for Learning Four Tones in Chinese Pronunciation*). From "easiest" (for learners) to "hardest", these are:

- 1-1
- 4-4, 2-4
- 2-2, 4-2, 1-4
- 2-3, 3-3, 1-3, 2-1, 3-4, 3-1, 1-2
- 4-1, 4-3
- 3-2

An extensive discussion of the representation and use of tone in languages is provided by *Wikipedia*.

**Comprehensive indication of tone distinctions using tone letters and tone diacritics**  
(reproduced from *Wikipedia*)


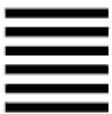





| Name            | Top tone | High tone | Mid tone | Low tone | Bottom tone | Falling tone | High falling tone | Low falling tone | Rising tone | High rising tone | Low rising tone | Dipping tone (falling-rising) | Peaking tone (rising-falling) |
|-----------------|----------|-----------|----------|----------|-------------|--------------|-------------------|------------------|-------------|------------------|-----------------|-------------------------------|-------------------------------|
| Tone diacritics | ◌̊       | ◌̊́       | ◌̊̄      | ◌̊̀      | ◌̊̎         | ◌̊̌          | ◌̊̍               | ◌̊̎              | ◌̊̏         | ◌̊̐              | ◌̊̑             | ◌̊̒                           | ◌̊̓                           |
| Tone letters    | T        | T̊́       | T̊̄      | T̊̀      | T̊̎         | T̊̌          | T̊̍               | T̊̎              | T̊̏         | T̊̐              | T̊̑             | T̊̒                           | T̊̓                           |



**9. Computer input of Chinese characters:** The resources and thinking that have been allocated to this challenging task are indicated in an extensive *Wikipedia* entry ([Chinese input methods for computers](#)). A distinction is notably made between a [phonetic approach](#) and a [root-shape approach](#), and the corresponding keyboard requirements. (See also [How to Read and Type Chinese Characters on the Internet with Input Methods](#))

Some attention has been given to a 3D approach (Akira Wada and Jungpil Shin, [Three Dimensional Virtual Calligraphy Simulation with Pen Tablet](#)). Clearly of relevance to this argument are the approaches to [speech recognition](#) and its conversion into traditional Chinese characters (Venessa Wong. [Can Speech-Recognition Software Work in Mandarin?](#) *BloombergBusinessWeek*, 19 March 2012; Jun Luo, Lori Lamel and Jean-Luc Gauvain, [Modeling Characters versus Words for Mandarin Speech Recognition](#), ICASSP. 2009) .

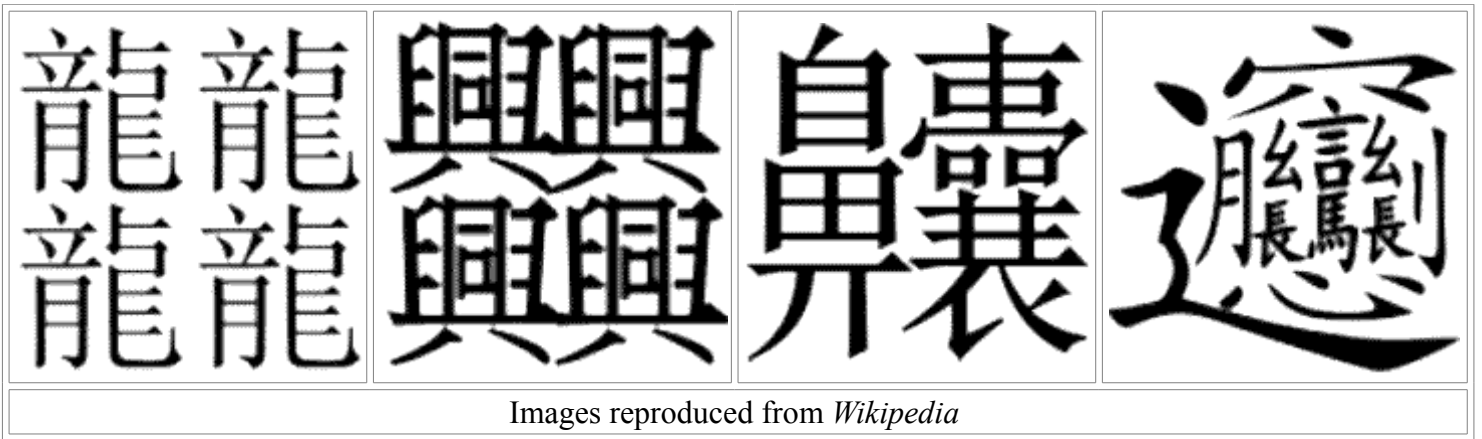
**10. Dynamic superimposition:** Discovery of the genetic code offers a further lesson through the manner in which its deterministic nature was anticipatively over-hyped and through the subsequent obligation to focus on epigenetics as a complementary source of insight. The same might be expected of any memetic code and the complementary role of epimemetics. This is strikingly evident in advocated patterns of psychological types which focus, in their visual presentation, on the types in isolation rather than on the dynamics within which they are embedded.

| Juxtaposition of related animations based on the 64 hexagrams of the <i>I Ching</i><br>( <i>Psychosocial Implication in Gamma Animation: epimemetics for a Brave New World</i> , 2013) |   |   |
|--|---|---|
| Hexagram coding  | Codon transitions   | Hexagram character  |
|    | <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Lysine</p>  <p>A</p> </div> <div style="text-align: center;"> <p>G</p>  <p>A</p> </div> <div style="text-align: center;"> <p>A</p>  <p>A</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> <p>1</p>  <p>C</p> </div> <div style="text-align: center;"> <p>U</p>  <p>U</p> </div> </div> |  |

There are indications from the literature that songbird speciation is intimately linked to song patterns -- implying an association to DNA of relevance to any further exploration of the memetic significance of song.

**11. Drilled truncated cube as a mapping surface:** In the quest for any comprehensible and memorable form (whether visual or auditory), capable of holding a complex of potential elements in a communication, the [drilled truncated cube](#) has notable advantages with its 64 edges (of 9 types), 32 faces (of 5 types), and 32 vertices (of 4 types). Potentially appropriate to this argument, the most complex Chinese characters have 64 strokes, as illustrated below:

|  |   |  |   |
|--|---|--|---|
| <i>Zhe</i> (verbose)<br>(64 strokes in 4 groups) | <i>Zheng</i> (flourish)<br>(64 strokes in 4 groups) | <i>Nang</i> (poor enunciation)<br>(33 strokes) | <i>Biang</i> (a kind of noodle)<br>(57 strokes) |
|--|---|--|---|



Images reproduced from *Wikipedia*

As noted above, there is a 64-fold pattern of hexagrams to the *I Ching* with which a 64-fold stroke pattern might be expected to be associated in some way -- as with the codons of the genetic code. The 4-fold clustering of the images on the left (above) is indicative of one type of potential symmetry. The polyhedron is used as a mapping surface for those codons (left below). It is also used for labels of the hexagrams (right below). Of interest is whether it could be otherwise suitable for "memetic codes", as discussed separately ([Relating configurative mappings of 64 I Ching conditions and 48 koans](#), 2012).

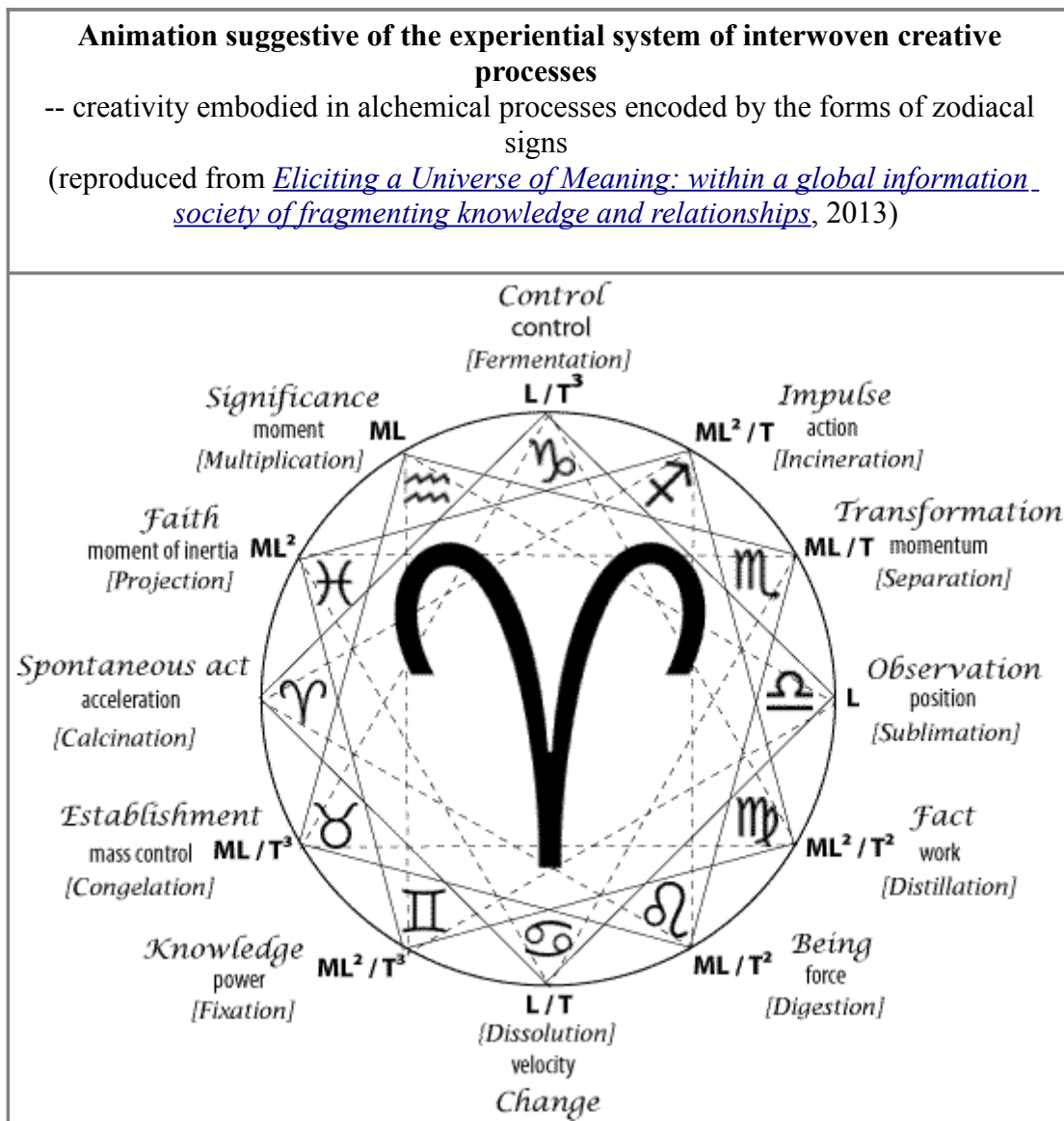
| <b>Drilled truncated cube -- a polyhedron with 64 edges, approximating a torus,</b><br>Indicative assignment of labels with faces variously coloured or not<br>(images produced with <a href="#">Stella Polyhedron Navigator</a> ) |   |
|--|---|
| Codons assigned as labels to edges   | Chinese hexagram labels assigned to edges |
|  |   |

Although seemingly obscure, compact polyhedral forms of this type are potentially significant to the design of high performance computer memory. The polyhedral model (also called the [polytope method](#)) is a mathematical framework for [loop nest optimization](#) in [program optimization](#) (see also: [Frameworks supporting the polyhedral model](#)). The power of supercomputers is partly due to their use of a design based on a [hypercube](#) configuration of distributed memory parallel computers (see [N-dimensional modified hypercube](#)).

With respect to this argument, the question is whether communication capable of passing "under the memetic radar" is necessarily to be understood as some form of "hypercomprehension" with which blackbird song might be associated ([Hyperaction through Hypercomprehension and Hyperdrive:](#)

*necessary complement to proliferation of hypermedia in hypersociety*, 2006). The issues are consistent with the recent arguments framed by [Timothy Morton](#) (*Hyperobjects: philosophy and ecology after the End of the World*, 2013).

**12. Cognitive fusion and synaesthesia:** With respect to synaesthesia, of relevance to this argument is the role it played in the creativity of Olivier Messiaen (Joseph Edward Harris, *Musique colorée: Synesthetic Correspondence in the Works of Olivier Messiaen*, 2004). Following the transformation of alchemical operations, via chemistry, into chemical engineering, a case can be made for imagining the sequence of creative processes in terms of the systemic process thinking essential to the productivity of chemical plants. Such systemic thinking remains to be engendered with respect to the creative process itself -- as with the cognitive implication of the dependence of a global civilization on "oil". To be emphasized, however, is the sense in which creativity is an imaginative process beyond the bounds of science -- and essentially disruptive of the tangible states and processes which it defines. The following schematic is derived from [Arthur M. Young](#) (*Geometry of Meaning*, 1976).



The animation is a reminder of the manner in which a helicopter pilot is obliged to embody instinctively and intuitively the various skills and insights required to control the vehicle (as was the inspiration of Arthur Young). The implication is that a similar pattern of skills, but of a subtler cognitive order, is required for other form of (self)governance, whether of the individual or of a

collectivity. Is governance too readily assumed to be less challenging than flying a helicopter -- perhaps too readily compared with riding a bicycle, driving an automobile, or piloting "the ship of state"?

More generally, the animation above exemplifies the challenge of the quest for comprehensible succinctness of which blackbird song is an indicator (*In Quest of Mnemonic Catalysts -- for comprehension of complex psychosocial dynamics*, 2007). A more complex animation is presented separately (*Dynamic Exploration of Value Configurations: interrelating traditional cultural symbols through animation*, 2008).

The challenge is highlighted otherwise in research on [synaesthesia](#) and development of cognitive fusion capacity in response to circumvent information overload, as discussed above and separately (*Enactivating a Cognitive Fusion Reactor: Imaginal Transformation of Energy Resourcing (ITER-8)*, 2008). Is the above animation suggestive of the nature of such a "reactor"?

**13. Interestingness:** The interest aroused by the Stevens' poem on *Thirteen Ways of Looking at a Blackbird* (as discussed above) raises the more general question as to how best to understand "interest", whether with respect to the poem or more specifically with respect to blackbird song. Why indeed are "blackbirds" of special interest and a relatively unique focus of attention -- possibly to be understood as an enigma?

Aspects of this question have been explored separately (*Investing Attention Essential to Viable Growth: radical self-reflexive reappropriation of financial skills and insights*, 2014). As noted there, with respect to the term "interestingness", this phenomenon is attracting increasing attention. It might however be asked what enables the blackbird to be creative and original, namely to sustain interestingness in the effort to attract a mate and define its territory. **From what memespace does sustainable creativity emerge -- as so effortlessly demonstrated by the blackbird?**

As an illustration of interestingness, there is particular charm to the examples below from the Torigun collection of imaginative art by Japanese artist Sato.



These images recall those of the German "unmanned camera pigeon" used in World War I (see *Wikipedia* entry on [war pigeon](#)), as discussed separately (*Demonstrated military capacity of carrier pigeons*, 2013).

### **Imagining future communication integrity enabled by aesthetics**

Talking black birds -- in this case mynahs -- trained to express uplifting slogans, are a significant feature of the utopian tale of [Aldous Huxley](#) (*Island*, 1962):



There was a rustling in the bushes on his left and suddenly, like a cuckoo from a nursery clock, out popped a large black bird, the size of a jackdaw... The bird cocked its head and looked at him first with the right eye, then with the left. After which it opened its orange bill, whistled ten or twelve 7 notes of a little air in the pentatonic scale, made a noise like somebody having hiccups, and then, in a chanting phrase, do do sol do, said, "Here and now, boys; here and now, boys."

The above argument speculatively suggests the future emergence of an unusual mode of discourse. This could be termed "hypercommunication" and might be related speculatively to the mythical tradition of the *Language of the Birds*, as separately explored (*Re-Emergence of the Language of the Birds through Twitter?* 2010). The strategic relevance of aesthetics has been explored with respect to use of poetry (*Poetry-making and Policy-making: arranging a marriage between Beauty and the Beast*, 1993; *Poetic Engagement with Afghanistan, Caucasus and Iran: an unexplored strategic opportunity?* 2009).

Framed otherwise, can it be affirmed that the future will be dependent on the modes of communication of the present? The imaginative challenge might also be recognized in terms of some form of "noopolitical singularity" (*Emerging Memetic Singularity in the Global Knowledge Society*, 2009).

The argument has used the various forms of ambiguity in relation to "blackbirds" to point to the potential emergence of unforeseen modes of communication. These could well depend on the aesthetics of communication to hold higher orders of subtlety than are the focus of the conventional modalities of invasive surveillance, irrespective of current IARPA investment in the *Metaphor Program*. The "code talkers" of the future may well communicate "otherwise".

**Preliminary experimentation:** Concrete steps towards such modalities might include:

- training blackbirds to transport information, perhaps better understood as memes. This would represent a further development of the role of carrier pigeons as separately discussed (*Circumventing Invasive Internet Surveillance with Carrier Pigeons: rewilding the endangered world wide web of avian migration pathways*, 2013). Any training would necessarily build on the considerable experience over centuries in China with regard to teaching songbirds.
- exploratory formulation of an extension of the original *IP over Avian Carriers* developed for carrier pigeons
- genetic modification of blackbirds in order to enhance their meme transfer capacity
- simulation of blackbird communication to explore modes independent of the birds themselves (much as drones may substitute for carrier pigeons)
- experimental use of sound snippets of blackbird song to enable communication

**Conversion from tweets to songbites:** In a global culture with separate (and unrelated) fascinations with music and with Twitter-style communication, there is a case for imagining a blend of these two modalities -- a sound-based extension to the practice of tweeting. This possibility is partially implied by musical and tonal languages (as noted above) and enthusiasm for ring tones. The viability of such a mode can be readily framed as credible. It may well take the form of multiple developments of aesthetic languages variously shared by secretive constituencies. Of particular interest are techniques for embedding memetic subtlety in aesthetic modalities as framed by the argument above. Some possibilities have been discussed separately:

- *Convertor from Text to Poetry, Song or Music: computer-assisted aesthetic enhancement of treaties, declarations and agreements* (2007)
- *Configuring a Set of Zen Koan as a Wisdom Container: formatting the Gateless Gate for*



[Twitter](#) (2012).

- [Conversion of Global Hot Air Emissions to Music: aesthetic transformation and instrumentalization of vaporware](#) (2009)

If songbirds can be taught to sing the Chinese National Anthem (as noted above), there is a distinct charm to the possibility that they might be taught to articulate strategic initiatives in song as explored more generally:

- [A Singable Earth Charter, EU Constitution or Global Ethic?](#) (2006)
- [Reframing the EU Reform Process -- through Song: responding to the Irish challenge to the Lisbon Treaty](#) (2008)
- [Participative Development Process for Singable Declarations: applying the Wikipedia-WikiMusic concept to constitutions](#) (2006)
- [Structuring Mnemonic Encoding of Development Plans and Ethical Charters using Musical Leitmotifs](#) (2001)

The increasing credibility of some such possibility is indicated by titles of publications in a new MIT Press series on [Technologies of Lived Abstraction](#):

- Anna Munster ([An Aesthesia of Networks: conjunctive experience in art and technology](#), 2013)
- Stamatia Portanova ([Moving without a Body: digital philosophy and choreographic thoughts](#), 2013)
- Luciana Parisi ([Contagious Architecture: computation, aesthetics, and space](#), 2013)
- Eleni Ikoniadou ([The Rhythmic Event: art, media, and the sonic](#), 2014)
- Steve Goodman ([Sonic Warfare: sound, affect, and the ecology of fear](#), 2012)
- Erin Manning ([Relationescapes: movement, art, philosophy](#), 2012)

Possibilities of communications "under the memetic radar" remain to be explored. Ironically there is some probability that songbirds were used in the past in some Asian cultures for romantic communications -- where these were prohibited by convention.

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