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Irregular Solid: John Cayley's Cybertextually Engineered Digital Poetry

London-based poet, theoretician, Chinese translator, and publisher John Cayley is a powerful digital poet whose sophisticated efforts in the field began in earnest prior to the emergence of the World Wide Web (www) in the mid-1990s. Cayley's innovations—like Jim Rosenberg's work—suspend the use of traditional link-node components (using basic mechanisms only to organize or index materials). In hypertextual terms, he creates virtual objects for exploration, while simultaneously programming a kinetic body of work that contains randomized elements.

Cayley's instigations of "machine modulated" poetry—his preferred classification—began in 1988, and are gathered under the general title *Indra's Net* (or *Hologography*). Works included in this self-published compendium have become increasingly refined, visually innovative, and complex over time. From the beginning, Cayley's programmes have used "given" texts as a foundation. Kinetic processing is applied so that the texts mutate before the viewer's eyes.

Cayley's conceptual interests in the digital presentation of poetic material involve a few general approaches—e.g., "machine modulated poetry|books unbound|plastic literary objects|POtential LIterary Outlawry"—outlined on the *Indra's Net* www page (which also includes expansive theoretical essays).¹ These categories announce Cayley's interest in computational, flexible, and

equational textuality (note the reference to Oulipo in the POLIOU of “POtential LIterary Outlawry”). Cayley produced seven instalments of *Indra’s Net* prior to the emergence of the www, which were initially published on diskette by Cayley’s wellSweep Press (some of the stacks are available for download on the www).² Since 1996, he has produced roughly the same number of poems, all of which are available via the www. Although each piece contributes to an overall understanding of Cayley’s inventive project, and some of the significant motivations of digital poetry in general, it is impossible for me to address each of the titles in detail. In this essay, I introduce his general procedures, briefly discuss early works that establish his complex processes, and then introduce recent works that explore alternative approaches to composition.

Before introducing Cayley’s works themselves, I will introduce collocation, a technique that plays a significant role in each title. Cayley’s collocation process actively produces content through generative algorithms embedded within the programme that shuffle language using a formula to determine word placement. Describing some of the details of collocational mechanics (i.e., the imposed programmatic constraints) in the introductory section of *Moods & Conjunctions: Indra’s Net III* (London: Wellsweep, 1993-94), Cayley writes that the, “transformation can proceed with any word in the given text, which we then may call ‘the last word chosen.’ Any other word—occurring at any point in the given text—which follows (collocates with) the last word chosen may then follow it and so become in turn the word last chosen.”³ In some examples of this work, as in *Moods & Conjunctions* (see below), one visual “level” of text appears, forming a stanza drawn word-by-word from the database. Another variation of the process, that has a startling effect, involves two levels of text being presented (illustrated directly below). These methodologies have obvious forebears in the “mesostic” and “diastic” work of John Cage and Jackson Mac Low (with Charles Hartman), as well as in

Emmett Williams's 1966 "IBM Poem." Cayley's process also recalls visual works that were being done with computers in Fred Truck's "ArtEngine" project from the mid-1980s to the early 1990s.⁴ Cayley's approach differs from previous examples, however, in that the texts are not static. For instance, the words presented by the "holographic transformation" in works contained on the diskette *Golden Lion: Indra's Net IV* (London: Wellsweep, 1994) continually appear and dissolve (in a manner similar to later works of Cayley's that appear on the www) until the reader ends the sequence by clicking on the screen.

"Hologography," an invented concept built on the model of holography, is another metaphor Cayley uses to describe the mechanical output of the work. According to Cayley, a hologram is "a pattern of language produced when the words of a given text are glossed, paraphrased, etymologized, acrostically or otherwise transformed, and such transformations are allowed to interfere with the given text; a set of rules, a machine or a computer program which defines or displays such a pattern."⁵ Like Hugh Kenner and Joseph O'Rourke's programme TRAVESTY, the work represents an ordered juxtaposition of words within a continuous string of verbal information. In other words, instead of the angle of light impacting on the projections of the work, it is the presence of another text that shapes what the viewer sees. This example from *Golden Lion* illustrates the characteristics of a two-level text described above:

multiplying everything casting
 everything existence in from one
 moment to another infinitude and
 so produces greater perfection
 everything is substance endlessly
 multiplying with content integral
 lion the

Leave me the space between.⁶

In this particular example, the Zen-like message of the lower text, which is a direct quotation from a given text composed by Cayley (a short poem called “Han Shan in Indra’s Net”), serves as an affirmative follow-up to the expansive, abstract, chaotic language presented directly above it, which is drawn from a given text written by the Chinese Buddhist monk Fazang (AD 643-712), translated by Cayley, into which letters of Cayley’s line are sequentially embedded in bold typeface. “What you see now,” Cayley writes in the introductory section of *Moods & Conjunctions*, is “an irregular solid, a constellation of words in three dimensional space associated and structured by two very different criteria: through their membership of the set of words which composes a particular text, and because they share a particular literary/graphic element.”⁷

Cayley’s programmes mutate before the viewer’s eyes, using “given” texts and kinetic processing. Nine different kinetic variations on a set of themes are presented in *Moods & Conjunctions*. Collocational procedures drawing from three different sets of source materials generate the output. These base texts include the author’s own poems and statements in poetic form, which he refers to as “modal elements,” previously generated collocational work, and an essay titled “Critical Theory.”⁸ Besides indexing the constructions, the opening screen provides useful information, such as links to “Introductory & Explanatory” materials, an index, the “Given Texts,” and to instructions on how to use “this book.”⁹ In the introductory materials, Cayley discusses the constraints he has imposed (such as the collocation described above), the operative metaphors of holography and the *Indra’s Net* project, and other details of the work; several possible variations of holograms, that have ornate titles like “the SINGLE-SENTENCE OR TWENTY-SIX-WORD-STORY ABCEDARIAN OR HEAD-ACROSTIC,” are described in detail.¹⁰ Cayley provides instructions informing the viewer how to change the

course of the reading (by clicking on words), and how to alter the ways in which texts are generated. This latter feature involves a clever and crucial mechanism contrived by Cayley that most importantly gives some input on the manifestation of text to the viewer. As the text is being generated, the position of the mouse determines the likelihood of a collocational jump occurring in the text. Placing the mouse to the left increases the possibility of a jump for the viewer, and at the far right no jumps are enabled and the given texts are presented in their original formation; a range of degrees of intervention is possible. As with many of his works, Cayley balances random elements, programmatic constraints, and interactivity—a combination that proves to be quite forceful and also serves to embody philosophical characteristics outlined centuries ago in Fazang’s influential text (e.g., “everything is contingent / Nothing has existence in itself.”)¹¹

The title piece of *Moods & Conjunctions* operates as described above: base texts are recombined to generate an incessant series of stanzaic texts that are themselves somewhat fragmented but programmed so that speculative—if not plausibly introspective—values emerge in a series of six-line poems with varying line lengths and syntax. In these two samples, I requested a medium degree of collocation:

if I use
 or rather we avoid
 language
 as if I could
 why don’t we
 all

of our bodies
 particular shapes of my
 own another’s sculpted
 corporality
 or to your own
 and.¹²

The expressions that result, drawn from given texts on language and sex, address communicative difficulties in physical and sensual relationships. Issues involving a person's ultimate detachment from others, the potential for language to be ineffective, and the difference between reading about, or being with, someone else's body become acutely pronounced in these cyborgian utterances.

As previously demonstrated by Kenner and O'Rourke, the structures and themes that emerge reflect those of the input text. In *Moods & Conjunctions* (as well as other programmes), fragments are merged into an alternative dialogue unveiled by the programme. To give an example of how the given texts are processed, the first stanza combines passages taken from the given texts titled "Modal Element 1—sex" ("To the language we use / Or rather we avoid language / As if articulation were inappropriate") with "Modal element 2" texts composed of fragmentary clauses and phrases written by Cayley (e.g., "if only I could because you have if I could why don't we") and "Modal element 3—language."¹³ The second stanza above essentially condenses the first several lines of the given text "Modal Element 1:"

What finally we seem to know
 And know intimately
 When making love
 Are the shapes of our bodies
 Particular shapes of my own and my partner's body
 Curves of flesh and bone
 Which we come to know intimately
 Which seem to be perfectly suited
 Both to your own
 Another's sculpted corporality
 And to mine

However, the new text significantly alters the meaning and sense of the given text by replacing "and to mine" with "or to your own."¹⁴ Short phrases are combined in collocational

arrangements (as in the previous example) to make nonsensical texts with a medium degree of collocation. In this example, the “Modal element 2” given text (quoted above) is predominant:

we will
 much as you used to
 may I
 could
 because you have
 because we how

could we
 couldn't we
 when can we
 while we how I could
 why don't we
 shouldn't.¹⁵

Essentially, the output re-presents the given text(s), endowing them with a programmed yet variable discourse—if not intercourse—between themselves that is directly conducted by the viewer. Because the given text is presented as multiple fragments, it is not a surprise that the output text is wildly disconnected. A re-connection of language occurs in the shuffling of words, which almost communicate something in the compilation of lines, but are not able to make a complete articulation before a new line, or form, of thought is presented. The other segments of this section of *Moods & Conjunctions* perform in a similar way. “Modal element 3” draws from a sixteen-line given text on language. The lines of the given text:

The hearing the appreciation of writing
 Why it so often seems to you
 To fail
 That I have failed
 And to me that you
 Have got it wrong
 Because we would have been
 So embarrassed so ashamed
 If we had tried to express that content
 In this form

are transformed into:

fail
that content
in this form
the hearing
the hearing
the appreciation of
writing
why it

so often seems to you
to fail
that I have failed
and to me that you

have got it wrong
because we have all
made the words I use
and to me

that I have failed
and because this is an
experience
which we had tried to me.¹⁶

The two other sections that present a single plane of collocational text, “Critical Theory” and “the sentence re-read” (which comes from an unknown source, and is an experiment that does not invite user input via the mouse) also operate in the same manner. “Critical Theory” draws from forty-six lines that address qualities of contemporary artifice to arrange new statements. In this example I requested a medium amount of collocation:

rusting scrap obscure
photographs torn printed
extracts all juxtaposed
with dim minimal
abstraction they are
tortuously

arranged or even the
midst of the wall bound
frame
there is a temptation to
make

the critique itself an
object like the work
considered an
inadequacy an inability to
stand on

an essential seductive
quality no matter how
troubling their
configurations of these
simple objects all too

easy....¹⁷

In reading Cayley's variable, various texts, a viewer may migrate between the non-linear and linear at his or her own discretion. Alternating back and forth between the two, balancing sense and (what is close to) nonsense is perhaps the most effective way to use the programme, as it modulates the surprising utterances with ordinary articulations asserted by the core text. The sense of surprise—not knowing what formations of language the programme is going to issue next—is one of the great strengths of this work. While all of the words are simple, they are able to reflect and portray a range of meanings in their perpetually shifting context. Cayley's programmes present an entirely different sensibility of text altogether. While embracing deconstructive ideas, like Jacques Derrida's concept of "undecideability" (which suggests that any stable meaning that an author might seek to impose on a text can be betrayed), Cayley's works clearly reflect a Buddhist approach that is not self-centred but is ready and open to anything. Unlike the simpler, slotted configurations used in many text generators, the appearance of words and phrases programmed by Cayley—though sometimes quite close to the original—is

extremely variable and does not follow a pre-set pathway on each activation. Basic words, in their reconfiguration, have the ability to present unexpected and complementary additions as they arise in the perpetuation of language, as they do above.

The four presentations in *Moods & Conjunctions* that feature two visual planes all appear in a similar manner, with a single word first appearing at the bottom of the screen, followed by a stanzaic text which uses the letters of the initial word (in order, one letter per word) to arrange its vocabulary (randomly drawing words that begin with the appropriate letter from the given texts). These pieces do not permit the viewer to adjust the degree of collocation by moving the mouse, although the viewer can make jumps at any point in the narrative by stopping it and clicking on one of the words, which then becomes the root word providing the skeletal structure for the subsequently generated passage. Though the texts are less participatory, they are engaging in their application of procedure, which as described above produce a type of perpetually shifting dual narrative. Occasionally, an abstract line-drawing is inserted that appears as if it has been scratched onto the screen. These highly performative texts challenge the viewer to establish a method of reading the effusive output. Texts already intertwined by virtue of their alphabetic structure, containing more than a technical association, emerge. In the sample below, single words that appear at the bottom can be read as a type of meta-text that encapsulates the passages that the programme is producing, and also become a part of the running narrative:

Approach forget
underlying deeper

here

realizations underlying
approach express
small underlying

surely

visions intimacies

is

realizations

a

resolve dreams
refashion brilliancies
underlying resolve
intimacies dreams
conscious forget

refinement

realizations forget

of

brilliancies approach
refashion nothing
unique waking
underlying everything

language

refashion forget

if

which everything

we

brilliancies unique
visions underlying
dreams

never

waking dreams waking
realizations dreams

write

traces enjoy
 everything silent
 approach brilliancies
 waking nothing

anything.¹⁸

The single words that appear first, at the bottom of the screen, are drawn sequentially from one of the given texts; they appear both to precede (by coming into view first) and follow (remaining at the bottom after the collocation has transpired), a condition that highlights their dual role in the formation of expression. Successive screens can be read either as individual units of poetry or as a serial text. Themes of the given text are presented in condensed, abstract, and oblique form as the collocations transform the language into a kinetic doppelganger of its original formulation. The dualistic works presented in *Moods & Conjunctions* explore themes established by the given texts on sex and language, subjecting these already challenging negotiations to further stricture and constraint via programming. Through a non-linear narrative that re-presents Eastern philosophical views to challenge idealized interpersonal rapport, the reader is reminded of complex human issues. While it may appear that the viewer is getting a diluted version of the original texts, the themes are, in fact, enlivened and extended, always changing (even as they revolve around the same axis) and represented anew. The random insertion of graphical images into the collocations at unpredictable moments also serves to impart alternative, unexpected information as well. In the introductory materials, Cayley acknowledges that the holographic process is, “unlikely to produce anything like natural English.”¹⁹ His statement is correct, although the abstract expressions produced sometimes compare syntactically with Dada and other experimental forms such as Language Poetry, the deviations of which from traditional

modes of language serve to provide a reasonable poetic context for the work. Cayley most directly asserts his perspective on the importance of innovative forms of expression by inserting a quotation from Ezra Pound's "Canto XCVI" as the epigraph to "Critical Theory:" "If we never write anything save what is already understood, the field of understanding will never be extended. One demands the right, now and again, to write for a few people with special interests and whose curiosity reaches into greater detail."²⁰

Later titles by Cayley, *Leaving The City: Indra's Net V* (1995), *Golden Lion*, and *Book Unbound* (1995) employ similar collocational techniques and produce results similar to those found in *Moods & Conjunctions*, with slight differences. All of Cayley's titles through the mid-1990s utilize similar methods, processing given texts into a synthesized expression that effectively blends them into one verbal unit. Each project involves identifying individual documents that are of a kind with each other and then combining them together—via the calculations of a computer programme—into a new text.

When the given texts are much longer, as is the case in *Leaving the City* (in comparison to those in *Moods & Conjunctions*), the impact is significant. With a larger and more complex word base, the syntax is less fluid. Another effect of the larger pool of words from which the programme has to choose cannot be captured in a static representation of the text: onscreen pauses occur as the programme skims through the given texts to locate a word of appropriate structure to follow the word that has already appeared. These occasional pauses, which last no more than a few seconds, add dramatic effect for the viewer, who has no way of predicting the length or content of a line or stanza.

Golden Lion is a crucial text towards understanding Cayley's project because it uses as its base-text Fazang's prose work that refers to "Indra's Net," which inspired the name for Cayley's

ongoing presentations. Fazang's image of a lion becomes a metaphor for Cayley's expressive intentions:

the lion is the whole
 each sensible organ of the lion is a separate part
 which shares the content of the whole
 complementary but separate
 combining to make the lion
 distinct and integral.²¹

Cayley describes *Golden Lion* as a “demonstration of interpenetration and mutual identification” between his poem and Fazang's essay, a description which can be applied to the associations and relationships he builds in all his works.²² Further, the hologrammatic transformation in *Golden Lion* contains more than five hundred words, and short phrases are used instead of single words as the alphabetic skeleton of the passages; thus the syntax is more fractured than in previous programmes. The asyntactic jumps are challenging but can be managed by a viewer who does not rely on punctuation or line-breaks.

It is tempting to read the messages transmitted in Cayley's poems as a type of commentary on themselves. Because of the acknowledgement of the influence of Fazang's essay, what emerges from the collocation conveys not only a statement by one text regarding another, but also relates to the *Indra's Net* project as a whole. In *Book Unbound*, the language addresses the relationship between books and burgeoning forms of electronic writing and the rise of the internet (which was blooming into the worldwideweb at this time), and their association with human forms in culture. In some ways, *Book Unbound* is the most enigmatic of Cayley's works yet, as the given text (a piece of prose by the author) is hidden. However, *Book Unbound* enables viewers to influence directly the dynamics of the work using an approach that varies from the methods in earlier works. The reader is invited to select a phrase from the generated text by

clicking on the first and the last words of a string of language. The textual selections made by the viewer are then stored in a file called “Leaf,” which can be accessed, edited, and used to enter new information into the poem. As a result of this process, Cayley explains, “readers can alter the work itself (irreversibly), collecting generated lines or phrases for themselves and adding them to the hidden given text so that eventually their selections come to dominate the generative process. The reader’s copy may then reach a state of chaotic stability, strangely attracted to one particular modulated reading of its original seed text.”²³ Whether or not the viewer opts to participate in the text, discernible patterns do not present themselves on either the level of the line or of the passages individually or as a whole, even though words are frequently repeated.

Unlike the generic interfaces Cayley works with in other titles, *The Speaking Clock: Indra’s Net VII* (1995) has a more visually complex scheme and uses the time of day (as well as the month) on the computer’s clock to arrange the language in motion at the centre of the screen. In order to achieve this effect, Cayley devises a system that establishes a correlation between the numbers one to ten and the most common letters in his 365-word given text. The given text is broken into four sections of about ninety words each that, according to the author’s notes, represent “seasonal” quarters of the year; it appears around the circumference of the clock at the edges of the screen. Each of the sections is further broken into three segments (separated by Roman numerals), which are read across the screen (i.e., on both sides of the active “clock” mechanism). The writing is inventive, discursive, without punctuation, and often has a serious tone; most of the segments directly mention time or clocks, as in this sample: “I each shaped breath tells real time is concealed / beneath the cyclical behaviour of clock and time / piece lost warmth true cold spelt out / and no breath like this last / even as.”²⁴ Sections of the poem often refer to these subjects indirectly, by referring to cycles and the passage of life, as in the ninth

segment (“July-September” screen), “**IX** would she / become more conscious of mortality if she were denied / the sense that she constantly returns / to a previous state of existence / with the same name in the cycle;” this particular section uses the concept of “entropy” as a symbol that indicates a passing of time.²⁵ It is possible to read the given texts vertically, though the viewers who do so will encounter an increased level of fragmentation. For example, the previously mentioned section, read vertically, becomes: “**IX** would she / conscious / if she were denied / she constantly returns / of existence / in the cycle.”²⁶ In some respects, this text actually resembles some of the output from Cayley’s earlier programmes; viewers who are tolerant of such abstraction will find many ways to approach reading *The Speaking Clock*.

The programme selects words from these texts that contain the letter that corresponds with the momentary time and date; the word is placed in sequence in the area in the middle of the “clock,” with the signifying letter emboldened. The following arrangement is used: the first of four lines shows the month, the second signifies the date; the current time can be told by interpreting the two lower lines, which show the hour and minute. If a zero is needed, a word without a bold letter is inserted. Emboldening the letters on the clock figure itself represents the seconds of a minute, so that every five seconds a different letter around the circular display is highlighted. At the centre, the words do not change at once (i.e., one word does not instantly replace another word); instead, the letters that comprise the words are perpetually transformed letter-by-letter as time passes, until the new word appears. The following illustration (fig. 1) shows an example of text generated from springtime (month IV on the calendar).

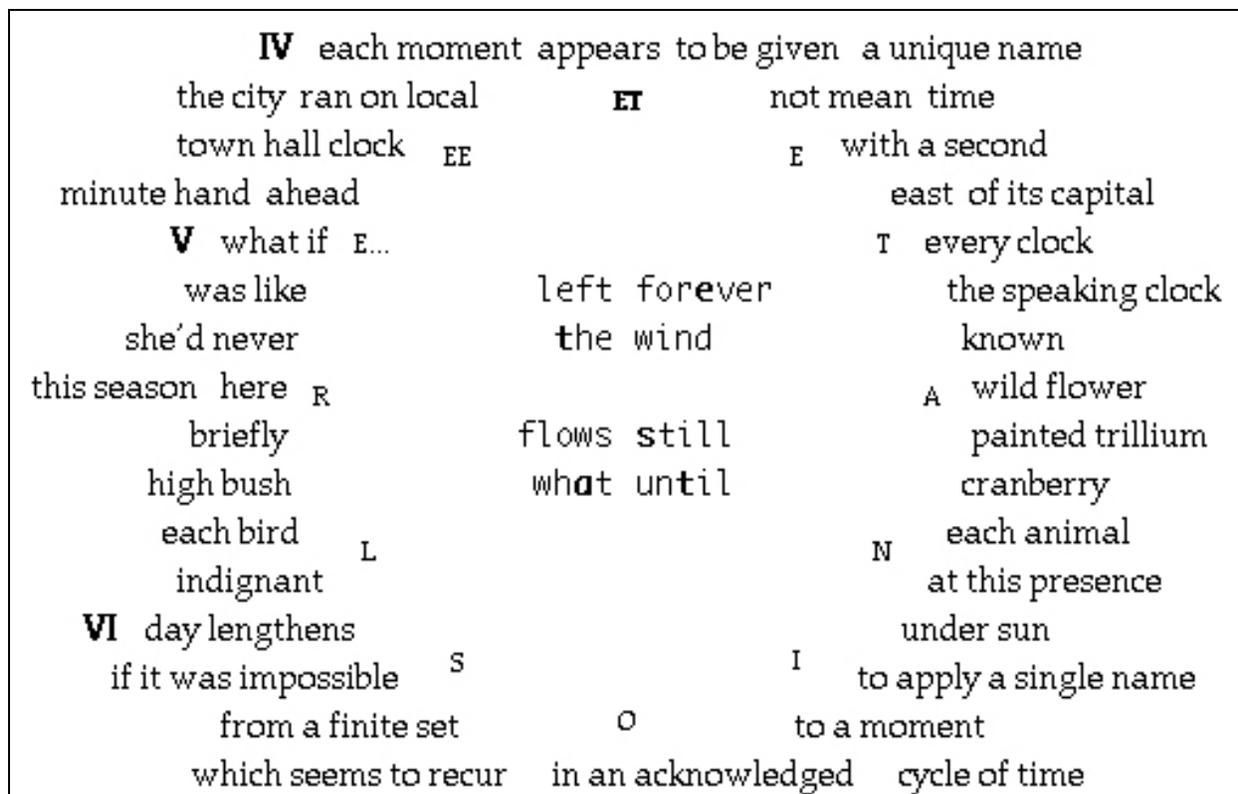


Fig. 1. John Cayley. Screen shot from "The Speaking Clock." Diskette.

The outer rim of text is also a text, thus there are two layers of language to absorb; one is static, the other is kinetic. The most difficult thing for an uninitiated viewer, who has not been given instructions, would be establishing the relationship between the bold letters and the representation of time. This of course is ultimately not very important, as it is unlikely that anyone will use the poem to tell time. Instead, the viewer absorbs continuously generated output made using "quasi-aleatory" procedures.²⁷ Cayley, according to a 1996 email, explains that his motivation for creating the piece arose from two questions, which are contained in *The Speaking Clock* as part of the given texts: "What if it was impossible to apply a single name from a finite set to a moment which seems to recur in an acknowledged cycle of time? What if it was impossible to apply the word 'dawn' to more than one single instant at the beginning of some one particular day?"²⁸

Cayley's most recent works are remarkably advanced in comparison with his previous titles, as he now also inscribes a type of "live" transformation and transfiguration of text on the screen, sometimes in addition to holographic effects, thus combining the visual and generative possibilities for poetic expression (both of which are viewer-controlled). Though Cayley has not yet reached the point at which his online poems enable viewers to enter verbal or visual content (which would be tremendously difficult given the complexity of programming and media he uses), he has steadily produced prolific cybertextual works in which viewers control what happens on the screen. In his online "text movie" *Windsound*, which won a \$10,000 award from the Electronic Literature Organization upon its launch in 2001, Cayley cinematographically advances his HyperCard works of the 1990s (a process that began with his 1996 piece *Oisleánd*).²⁹ In this poem, which is based on his own writings along with his translation of a Sung-period lyric, "Cadence: Like a Dream" by Qin Guan (1049-1100), Cayley removes the viewer's control of the output on the screen (though in later pieces, as described below, he also develops navigable movies that include "transitional phases which are generated 'on the fly'").³⁰ Visual and poetic values transpire on the screen during the "transliterated morphs (textual morphing based on letter replacements)" that are illuminated in a sequence of alphabetic shifts that occur between nodal texts while the program is running, as represented in fig. 2.³¹

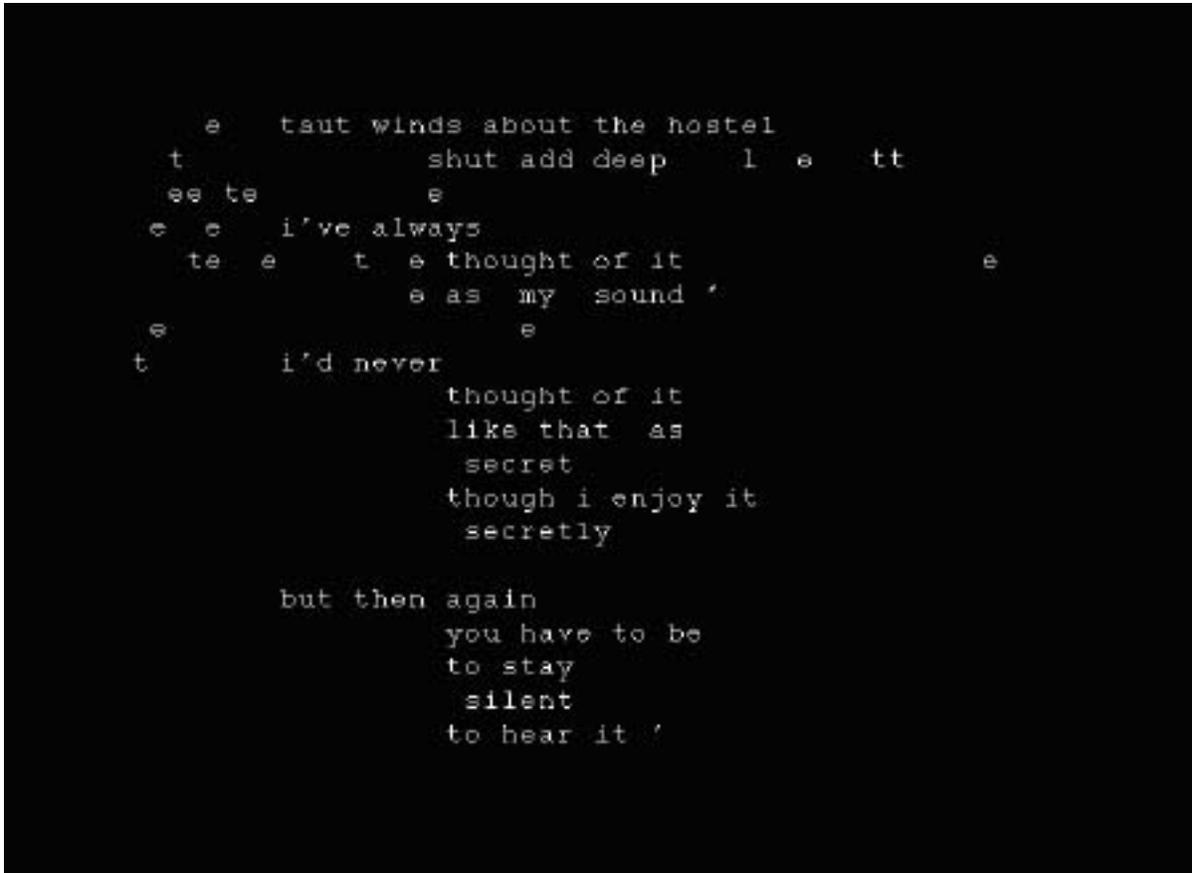


Fig 2. John Cayley. Screenshot from *Windsound*. 27 March 2005.

As in his later work, *Overboard*, which is “installed as a dynamic linguistic ‘wall-hanging,’ an ever-moving ‘language painting,’” Cayley presents *Windsound* as screens of text that algorithmically unfurl into one another over the course of twenty minutes.³² These works are to be observed, not interfered with. Intriguingly, when any of the nodal texts begin to reach lucidity, the possibility of clear communication immediately begins to dissolve. The way that the letters of the words are cycled cannot be represented by a static image, and the reader cannot determine where the poem “is” in its synthesis of base texts, so the effect is less noticeable and the narrative is reminiscent of the type of abstraction seen in Cayley’s previous works. What is discernible in the example above is that the stray letters or fragments in the margins (e.g., “e”, “t”, etc.), which are the remains of words that were once present, contribute an effect that also complicate a linear narrative. The viewer sees animated text, hears a continuous low-level audio

track, and also, at various times, hears synthesized speech from one of three voices. As he has in other works, Cayley treats the manufacture of linguistic structures at a granular or atomic level so that literary expression is created (or re-created). In her review of the piece, Heather McHugh writes that *Windsound* “reveals the power of letters, even as it plays with the limits of literal intelligibility. It explores the power of sequences, even as it plays with non-sequitur” and “bespeaks significant emotion” in its manipulation and presentation of language.³³

Another poem that illustrates the progression of Cayley’s work in this vein is the 2003 title *riverIsland* which is “a navigable text movie composed from transliteral morphs with (some) interliteral graphic morphs.”³⁴ As before (e.g., “hologography”), Cayley has had to invent original nomenclature to classify the procedures used in his productions. Toward defining the first of these new concepts (i.e., transliteral morphs), Cayley writes, “If texts are laid out in a regular grid, as a table of letters, one table for the source and one table for the target, to morph transliterally from one text (one table of letters) to another, is to work out, letter-by-letter, how the source letters will become the target ones.”³⁵ Letters and words in various languages, plotted in the centre of the screen, gradually change one letter at a time. Various patterns emerge in this morphing, giving the in-between iterations of language many different appearances, because the many shifts between texts do not occur sequentially. Built with HyperCard, *riverIsland* unites different movies and soundtracks in two different visual fields, as seen in fig. 3, which the viewer negotiates through Cayley’s programmatic application.

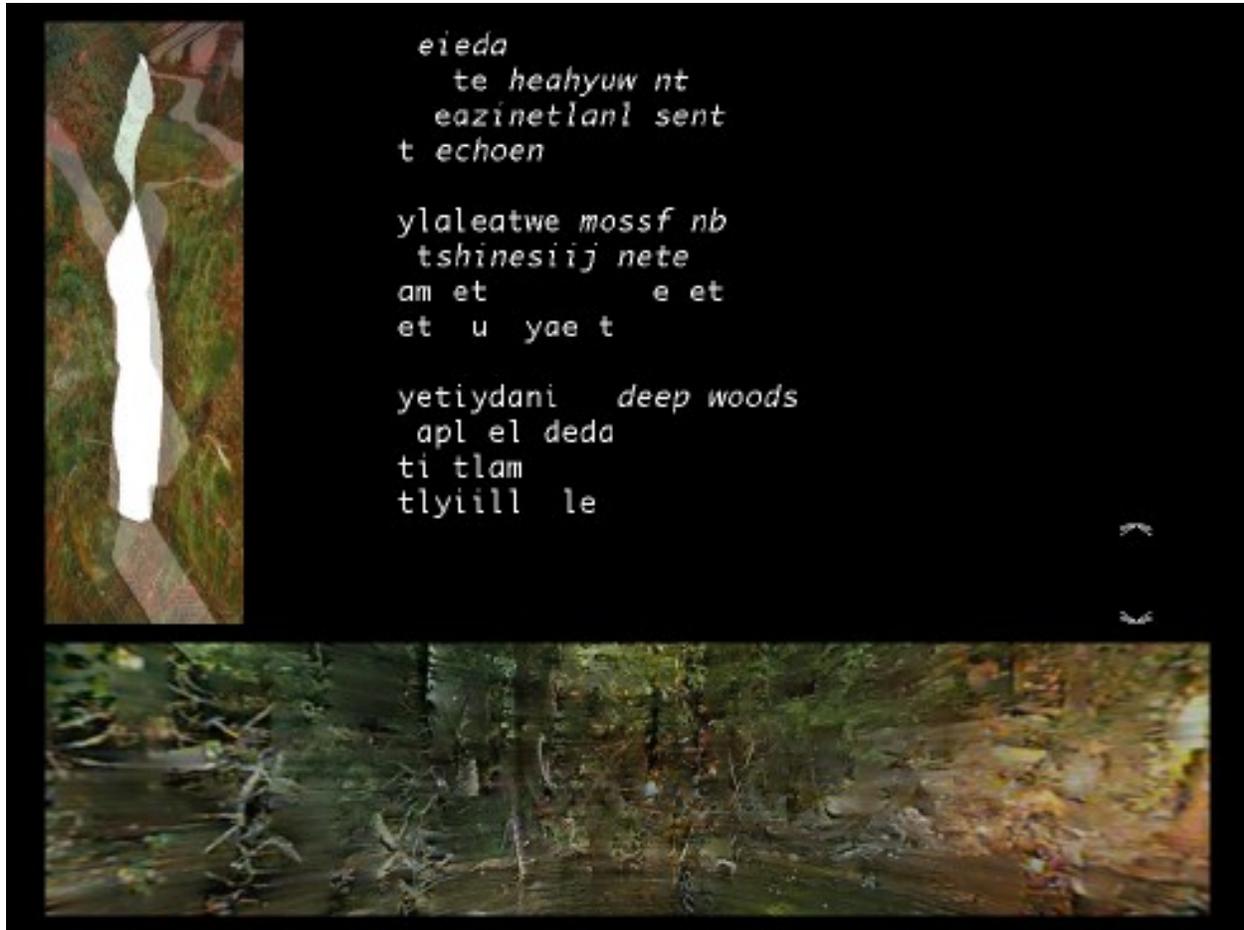


Fig. 3. John Cayley. Screenshot from *riverIsland*. 28 March 2005.

A sequence of sixteen poems is arranged in a “horizontal” loop comprised of Cayley’s poetic adaptations of sixteen quatrains by Wang Wei. The sixteen texts in the vertical loop are all based on one of the poems in the same sequence, which is shown at the beginning of *riverIsland*; variations in this second loop include alternative translations of the poem. The work is controlled in two ways: either by two mapped images or by positioning the mouse over compass arrows shown on the screen. To move between texts, “by way of an on-the-fly transliteral morph,” the viewer leaves the mouse pointer atop an arrow key.³⁶ A second method of navigation is achieved by dragging one of the two movies shown on the bottom and on the left of the screen. Textual positioning is achieved by altering the perspective from which one sees the movie (or given

image). Changes in the audio, which consist of multiple voices speaking in several languages as well as water sounds, also occur as a result of re-positioning. Once the visual positions are established, the shown text begins to shift, morphing to the corresponding position as specified by the viewer's input. Essentially, the programming enables the viewer to move between randomly selected points in either sequence, and then watch as the corresponding poem evolves out of the poem that preceded it. Another dimension of the poem—which beyond its aesthetic qualities addresses the materiality (or “atomic structure”) of language—is presented here as a movie that uses the aforementioned “interliteral graphic morphs” to blend a series of depictions in different alphabetic and other systems of inscription of the character “kong” (or “empty”).³⁷ *riverIsland* is in part a rumination on the possible emptiness of any experience (implying void/nonpresence rather than something vacuous or without content), but also recognizes the potential for words to be empty (through an imposed detachment from one another), and the possibility for language to be regenerated in alternative forms with variant meanings. The overall emptiness embodied in the verbal content of this work coincides harmoniously with the media that project manipulated audio and visual materials; the elements (combined and on their own) are crafted so as to invite contemplation. As seen previously in Pablo Ladislao Györi's 3-D work, the viewer encounters a plotted, interconnected set of materials through which he or she visually navigates, guiding the experience while the computer programme controls the textual angle from which the visual materials are viewed.

Given the persistent regenerative aspects of Cayley and Rosenberg's work, where content is determined from “given” texts, or pools of text, their electronic poetry is not so different from the initial processes in written or even oral poetry. In both digital and non-electronic work, selecting the words and arranging them in a textual field remains primary. The digital poet then

has the opportunity to programme the selected and arranged words to achieve new poetic effects. From selection to arrangement to programming, Cayley's work embodies an inherent beauty. He is adept at providing groupings of words—sometimes original work, sometimes translations and adaptations of other writings—which represent themselves in remarkably poetic ways. The text, while sometimes asyntactic, is never nonsense; it is inventive in terms of its expression, a combination of fresh words and phrases appearing in conjunction with recycled text. Technically speaking, the HyperCard stacks of words are set up in an order, which are then subverted by the programmer by making links from an index, and by the collocational or randomizing device that algorithmically establishes the succession of words that appear, based on their alphabetic structure. Multiple texts are spliced together, and the words themselves do not change; the reader's order of reading them does. The holographic transformation creates marvellous text, recycling the given texts, recycling the words anew with each reading. The linking systems employed in the generative sections of *Indra's Net*, like the interactive areas of Rosenberg's work, are conceptually and practically unique and unconventional in comparison to most other hypermedia works that have been produced. Cayley's works "run" on their own, generating texts for the reader who can interact with the programme but does not choose pathways between words directly in the way that she might choose a pathway through the disparate areas of a www-site or a work of hypertext fiction. Cayley's work self-consciously springs from several contemporary poetics movements including Fluxus, Oulipo, experimental "cut-up" and machine-generated work, and Language Poetry. However, to provide his meta-structures, Cayley has turned to an Eastern cosmology to establish his foundation. He explains this theoretical orientation in the "Introductory and Explanatory" materials in *Golden Lion*:

Indra's Net is "a network of jewels that not only reflect the images in every other jewel, but also the multiple images in the others." In Hindu mythology, this net hung in Indra's palace and had the power to bring anything into being. In Chinese Buddhist thought, and especially in the teaching of the Huayan school, it was used as a metaphor for universal structure and exemplified the "interpenetration and mutual identification" of underlying substance and specific form.³⁸

This approach to conceiving his grouping of works does not suggest that they are interchangeable, or function in the same manner, but that they complement each other. Cayley's description of the processes involved with creating *Golden Lion*, in the essay "Machine Modulated Poetry by Potential Literary Outlaws" ("MaMoPo:by:PoLiOu"), illustrates the general constructive principles that are used to unify and support his initiative:

Indra's Net pieces employ generative algorithms and semi-aleatory processes and the composition of the algorithm is seen as an integral if normally invisible part of the composition of the piece. One of the unique facilities offered by the computer in this context is the ability to set up a feed-back loop. "Experimental" texts can be generated and the results reviewed quickly and painlessly enough to allow the processes to be modified and improved.³⁹

In many of the titles, an alterable element allows viewers to control certain variables by engaging with the text. Thus, Cayley's imposed constraints do not complete the transaction of the poem on their own but rather in conjunction with the input of the reader, which adds further degrees of chance into the textual mix. Not only do the poems reflect the other texts presented by the author (i.e., the Indra's Net model described in the quote above), they are heralded into being by reflecting the reader's movement and selections within them.

Digital poetry is a new genre of literary, visual, and sonic art launched by poets who began to experiment with computers in the late 1950s; its formation as a genre has been an evolving process, employing various methods used before the advent of the personal computer that are becoming refined in today's www environment. Poets endeavour to explore a variety of computerized techniques, from interactive installations to randomized and visual attributes. As

examples of digital poetry (defined by the authors of *Aesthetics of Digital Poetry* as “creative, experimental, playful and also critical language art involving programming, multimedia, animation, interactivity, and net communication”), Cayley’s works are exemplary models.⁴⁰ He shapes his own poetics using Eastern cosmology while also referring to artists who have previously engaged with aleatoric methods, including Cage, Mac Low, William Burroughs, and Brion Gysin. In operational mode, Cayley’s poems project kinetic dynamics and portray a strong degree of indeterminability. Transience and intransience alternate through his projects; texts steadily perpetuate themselves after being activated by the reader, who, by engaging the programmes, reorganizes multiple fixed texts into a series of fleeting formations. The output, if transitory, is not superficial: output texts are sophisticated, if imperfect, and command careful perusal as Cayley sets up a series of operations that make links fluid, almost transparent.

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NOTES

¹ See <http://www.shadoof.net/in/inhome>.

² Since Macintosh computers no longer use diskette drives, this is the only sensible way to circulate these works. In order to explore the stacks of files, the viewer would need to have HyperCard software or a (downloadable) HyperCard emulator programme.

³ *Moods & Conjunctions*, n. p.

⁴ Describing ArtEngine in an online interview with Judy Malloy, Truck explained that his programme “takes two images given by the artist and from them, constructs a new third image. The Engine can remember this image and then combine it with other given images. The interaction here can be quite subtle, as the artist manipulates the data given the Engine to modify the program’s logical process” (Interview).

⁵ *Moods & Conjunctions*, n. p.

⁶ *Golden Lion* n. p.

⁷ *Moods & Conjunctions*, n. p.

⁸ *Ibid.*, n. p.

⁹ *Ibid.*, n. p.

¹⁰ *Ibid.*, n. p. Some of the introductory section is very edifying, some is fanciful. To give just one example, Cayley defines the “SINGLE-SENTENCE OR TWENTY-SIX-WORD-STORY ABCEDARIAN OR HEAD-ACROSTIC” as, “a sentence or story or story-sentence the first word begins A as in Another or Awakened the second word begins B as in Bloody or By the third C as in Clod or Care the fourth D as in Damn or Dawn and so on to a last twenty-sixth in the modern Roman alphabet word beginning Z say Zeroes or Zilch so there are words for all letters in the tiny universe of xxvi elements and each word can replace each letter in the original sentence to make a new story beginning for example Another Near Obsessive Time Had Each Realized or Awakened While Awakened Knowing Night Enfolds Night Enfolds Dawn and so on making the FIRST TRANSFORMATION of the NET or HOLOGOGRAM which of course itself may be transformed....” etc.

¹¹ *Golden Lion*, n. p.

¹² Text was generated 18 July 2004.

¹³ *Moods & Conjunctions*, n. p.

¹⁴ *Ibid.*, n. p.

¹⁵ Texts were generated 19 July 2004.

¹⁶ *Ibid.*

¹⁷ *Ibid.*

¹⁸ *Ibid.*

¹⁹ *Moods & Conjunctions*, n.p.

²⁰ *Ibid.*, n.p.

²¹ Fazang quoted in *Golden Lion*, n.pag., translated by Cayley. The original spelling of “complementary” was “complimentary.”

²² *Golden Lion*, n. p.

²³ *Book Unbound*, n. p.

²⁴ *The Speaking Clock*, n. p.

²⁵ *Ibid.*

²⁶ *Ibid.*

²⁷ Email to Christopher Funkhouser, June 1996.

²⁸ *Ibid.*

²⁹ <http://www.shadoof.net/in/windsound.html>

³⁰ *Ibid.*

³¹ *Ibid.*

³² *Ibid.*

³³ <http://www.eliterature.org/Awards2001/comments-poetry.php>.

³⁴ <http://www.shadoof.net/in/riverisland.html>.

³⁵ *Ibid.*

³⁶ *Ibid.*

³⁷ *Ibid.*

³⁸ *Golden Lion*, n.p.

³⁹ <http://www.shadoof.net/in/intheory.html>

⁴⁰ Friedrich W. Block, Christiane Heibach, and Karin Wenz, 13.