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Beyond Codexspace: Potentialities of Literary Cybertext

The use and abuse of visible language—or writing in the broadest sense—began, in the 1990s, to undergo huge, unprecedented, still continuing growth.¹ This growth takes place in what was once called cyberspace, in what many critics still consider an environment that is hostile to cultivated letters—hostile, at the very least, to the traditional and still pre-eminent delivery media which made language visible to civilized language animals. The still narrow bandwidth of networks in the 1990s and the limited capabilities of affordable interfaces meant that encoded text became the dominant medium of information exchange on computer-based networks. And to communicate over these networks, people still, predominantly, write and read. That is, they compose (literary) texts and publish them in cyberspace, where they are read, usually in silence, by friends, colleagues, and the general public.² All this has stimulated the emergence of an exuberant mass of new forms and proto-genres of visible language: Listserv mailing lists, online conferences or “chat” zones, MOO spaces, and so on. The advent of the World Wide Web extended and articulated networked literary production to include typographic and other concrete design aspects of textuality. However, the vast majority of this visible language is not seen by its writers or readers as belonging to “literary” or “artistic” production in the canonical sense. “Serious” literary hypertext came to exist and has been practiced to an extent.³ However, it is perhaps more significant, in cultural terms, that the new quasi-ephemeral forms of non-literary visual language have exerted an increasing influence on self-consciously literary production, in what might be characterized as the real-time realization of contemporary criticism’s postmodern intertextual ideals.⁴

But this temporary state of affairs, this momentary window of opportunity for the partisans of visible language, cannot last. As the bandwidth widens, as the audiovisual takes over from the keyboard and comes to dominate

screen, printer, speaker, and as yet undreamed-of appliances and peripherals, a huge swathe of visible language use will instantly migrate to non- or extra-literate sound and vision. By the time this happens, will visible language have become an understood and established literary medium within the new technosphere? As engaged with cyberspace as it now is with "codexspace," for example? This is an underlying concern of the work described in this chapter, the first of a small number of theoretical issues which I shall briefly outline as a context for this delineation of my own early practice.

My early cybertextual compositions were literary. They were designed to be published on computer-controlled systems linked to their now familiar peripherals. First and foremost, these pieces were designed to be visually scanned on screen, silently read and interacted with through keyboard and pointing device. They subscribed to the notion of written language as a distinct, quasi-independent system of signification and meaning-creation. Its relationship to spoken language is structured but indeterminate as to detail, and is subject to continual contestation, depending on the nature and function of the language being created. When the issue of the survival of textual language use into the audiovisual age was raised on a hypertext discussion list, I answered for its continuing creative role: "for the very reason that it is silent/because it allows the silent to speak/because it allows the dead to speak/because so many of our thoughts are silent, unspoken."⁵ Literature, which is engaged with the unique potentialities of computer-based networks, is uniquely placed to serve as a link between the silent literary culture of the past and that of the future.

However, the new literature will not be "computer literature." There is a recurring popular confusion concerning the nature of the "computer."⁶ It is not in itself a medium, neither a physical or a delivery medium, nor a content-bearing, artistic, or cultural medium. What we idly call "computer" is always a system of hardware, software, and peripherals, and this multiplicity is what may become, potentially, a medium; "potentially" because it is arguable that there must be agreement between producer/consumers about the use of a new medium before it can be recognized as such. Thus, link-node hypertext, especially as realized on computer networks, was a new, rapidly evolving textual medium, that gained wide acceptance. However, "computer poetry" is not a new medium; it is simply a misnomer. Neither is this a trivial matter of terminology. It is important to make it clear that literary developments in cybertext are not constrained by hardware technologies themselves; they are constrained only by software, which is an authored delivery medium. Apart from these constraints which are surmountable through engineering, there are those produced by, as it were, a "false consciousness" generated by the ideology surrounding the use of computer-based systems.

For example, we still expect our systems, our new media, to produce forms which are stable, closed. Hypertext in its most familiar link-node manifestation is limited and sometimes self-limiting. There were and

are developers and authors of hypertext who argue that despite these limitations, the medium has opened up huge spaces of unexplored potential for creative activity. Thus, it is time to recognize a new medium, define and accept its limits, and so proceed to exploit the space it has marked out. Unfortunately for this view, the computer, the underlying hardware on which hypertext systems are realized, does not have fixed functionality and is increasingly easy to reprogram. Thus, for example, as a poetic writer with fairly extensive (but far from professional) programming skills, I can break through the boundaries of link-node hypertext with relative ease. The forms of both delivery and artistic media change under my fingertips and before your eyes, allowing, for example, greater reader interaction with the work than is typical of most hypertext. This introduces a new element into the critical understanding and assessment of new literary objects. We must begin to make judgments about the composition of their structure—to assess, for example, the structural design or composition of the procedures which generate literary objects—not only the objects themselves. The poet must come to be judged as a sometime engineer of software, a creator of forms which manipulate the language that is his or her stock-in-trade in new ways. This is crucial to criticism, but it also has immediate practical consequences, because a general problem with hypertext is finding your way through it, or rather doing so in a way which is meaningful and enriching. While the poetics of linear, paper-based text has been extensively explored, the multi- or non-linear, generalized poetics of texts composed and structured in cyberspace has a long way to go.⁷

Multi- and non-linear poetics is a recurring theme in my work for other, more contingent reasons and is one of the concerns which originally inspired my move into machine modulated writing. As a trained sinologist who did research on parallelism in Chinese prose and poetry, I was well aware of non-linear rhetorical techniques in writing.⁸ The computer's programmable screen offers the possibility of representing such tropes directly, and the development of writing for new hypertextual media should also lead to the development and better understanding of non-linear poetics generally.

Finally, there is a question that is more purely a matter of content: the engagement of writers using these new, potential media with contemporary poetic practice (and with writing practice more generally). Few writers who are established in traditional literary media are engaged with the emergent forms and many new writers who are exploring those forms are insufficiently aware of relevant past experimentation, of the huge corpus of highly sophisticated writing which already exists, and against which any literary production—embracing all media—must be judged. I speak chiefly to the field of poetic literature, as a practitioner acutely aware of my own limitations and omissions, but to encourage deeper engagement of the world of letters with the high seas of potential literary outlawry.⁹

Scoring the spelt air

My own first explorations of machine modulated poetics began in the mid-1970s when personal computers first became widely available. It is clear that the computer's programmable screen provides a way of "scoring" the presentation of literary compositions which are intended to be read silently. Within a relatively simple authoring environment, the writer has the possibility of presenting the words of a text according to the rhythms of his or her inner ear, in terms of the speed at which words appear on the screen, the positions in which they appear, the pauses between them and between phrases or lines, and so on. There is also the possibility of exploring dynamically (in "real time"), non-linear aspects of a poem's rhetorical structures, by scoring its component words and phrases in alternate orders designed to highlight such structures. The most finished result of these investigations is the piece, *wine flying: non-linear explorations of a classical Chinese quatrain* (Figure 1.1).¹⁰ A collection of techniques for this scoring approach to poetic presentations on programmable machines is provided in a software framework for developing such work, a still-unrealized project, with the general title *Scoring the Spelt Air*.¹¹

However, text manipulation and generation by machine seemed to me, from the outset, to provide richer potentialities. When a friend wrote me a personal letter at about this time, coded into the acrostic letters of twenty-six words, one for each letter of the alphabet, I immediately set out to program such a simple and, potentially, poetic encoding technique.¹² At about the same time, I produced various text randomizers: experimenting with disordered text at different linguistic levels—sentence, clause, phrase, syllable, grapheme, and so on—and comparing the results. Another important theme underlying this and my subsequent work emerged in the process: an interest in the effects of procedural techniques on closely written given or supply texts; a testing and re-testing of the hypothesis that such texts seem to retain the tenor of their meaning-creation even after having been subjected to such transformations, so long as readers of the transformed piece are prepared or prompted to involve themselves actively in the reading process.

All of the work which followed involves the use of some form of constrained aleatory text-generation procedure. These rule-governed procedures are applied to a given text when a reader selects its title from a contents page. The selected piece is then "read" or "performed" by the procedure(s) in a series of screens of animated text. Because of the aleatory operations within the procedural rules every performance is unique; every reading is different and demands the active involvement of the reader.

I used conventional link-node structures only for the explanatory pages/screens of each work. The generational structures at the heart of the work could be mapped onto a link-node model having separate "lexia" for each word of the underlying given text(s) and with links generated on-the-fly

Indra's Net

It was only in the late 1980s that the technology to present the results of such work in an appropriately designed format became widely enough available to qualify as, at least, a potential medium of publication. In 1988, I acquired an Apple Macintosh. With programmable HyperCard and distributable disks, this system seemed, to myself and a few other practitioners, a readable medium. It was at this time that I produced the first published piece in a new framework of my own making, *Indra's Net*, a title which I used for this piece and also for the series of works which have followed from it.¹⁵

Indra's Net was one of two metaphors which guided the inception and development of this cybertextual project. The concept of Indra's Net originates in Hinduism. The net was made of jewels and hung in the palace of the god Indra, a generative representation of the structure of the universe. I first encountered it in a history of Chinese Buddhism: "a network of jewels that not only reflect the images in every other jewel, but also the multiple images in the others."¹⁶ As a metaphor of universal structure, it was used by the Chinese Huayan Buddhists to exemplify the "interpenetration and mutual identification" of underlying substance and specific forms. In my own work, it refers to the identification of underlying linguistic structures which are used to restructure given texts recursively, and so to postulate and demonstrate these structures' generative literary potential; or, on a more grandiose scale, to represent some of the underlying principles of meaning-creation within language itself, those which generate new language in the same way that the universe may be seen to be formed by the falling and swerving atoms of Lucretius.¹⁷

The other metaphor which helps to structure my work is taken from holography. The neologism, "holography," is based on the definition of "hologram" in the *Shorter Oxford English Dictionary*: "A pattern produced when light (or other radiation) reflected, diffracted, or transmitted by an object placed in a coherent beam (e.g., from a laser) is allowed to interfere with the undiffracted beam; a photographic plate or film containing such a pattern." This is transposed from light into language: "A pattern of language produced when the words or the orders of words in 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."

The first Indra's Nets were acrostic. *Indra's Net: I* is a sampler of this early work and the terminology used to describe it. I should say at the outset that when I first developed this work, I was ignorant of the earlier or coincidental experiments of Emmett Williams and Jackson Mac Low. John Cage's mesostics were also then unknown to me.¹⁸ William's "ultimate poetry," Mac Low's "Asymmetries," and, later, his "diastic" techniques are very similar to what I first termed "head- or internal-acrostic holography."¹⁹ However, there

are non-trivial differences between all this work and my own which arise from its method of publication, or more precisely the digital instantiation of my work, which allows such generative procedures to be experienced by the reader in real time, as the text is generated, and not after the author has produced and recorded the new text. The procedures thus move closer to the reader, and surely a major component of the appreciation of such work is the reader's potential understanding of "what is going on" and "how it's being done." Beyond a real-time experience, the programmable screen allows further intimacy with the process, once a composer has developed meaningful ways for the reader to interact with or even alter the procedures themselves. Moreover, any aleatory or chance-operation aspect of such work is only fully realized in a publication medium which actually displays immediate results of the aleatory procedure(s). Such works should, theoretically, never be the same from one reading to the next (except by extraordinary chance). Mac Low has preserved and published the effects of chance operations through a commitment to the performance of his pieces; software allows these effects to be carried over into the world of silent reading.

Indra's Net I contains examples of several "free internal-acrostic holograms," one "strict or head-acrostic hologram," one "26-word-story head-acrostic hologram," and both holographic and non-holographic "etymo-glossological Indra's Nets." The later involve the semi-automatic transformations of words from a given text into expanded glosses based on etymologies and associations of words. I will not discuss them further here because they have not yet been developed as have the acrostic and collocational pieces.²⁰ Neither will I detail the "strict" and "26-six-word story or sentence" forms, for similar reasons.²¹ Instead I shall outline what I now call the "mesostic hologram."

The implication of applying the word "hologram" to a text is that it is generated from material which is contained within itself.²² The given text is seen as a succession of the twenty-six roman letters, ignoring punctuation, and so on. The transformation may begin at any point in the given text. Each letter is, in turn, replaced by any word from the given text which contains the letter being replaced. This kind of hologram is unlikely to produce anything resembling natural English. Its primary transformational rule is based on arbitrary elements of the script (itself already at one remove from language as a whole) and is, on the face of it, unrelated to any significant aspect of grammar or rhetoric. On the other hand, the notion that words which share letters may, by this token, share something more, is perhaps worth poetic attention. Moreover, the given text may be adapted or composed with an eye to the transformation which is to be imposed upon it. This was undertaken in the case of "Under It All II," the central piece of *Indra's Net I* (Figure 1.2). As far as possible all of its nouns are plurals and all verbs agree with the third person plural. This means that new, derived phrases are more likely to be natural collocations.

white absences
 particularly notice
 imperative awake
 delicate intimate
 designs sleeping

intimacies

FIGURE 1.2 Screenshot from *Under It All*. This is the version of the piece as it appears in *Moods & Conjunctions: Indra's Net III*. Courtesy of the author.

An advantage of using software to produce this kind of work is the relative speed at which texts can be generated, allowing an experimental phase in the process of composition, with the results of earlier experiments fed back into the finished publication. The development of the *Indra's Net* project generally has been just such a process.

Indra's Net and visual poetry

Mesostic work is inherently visual, in the sense that textual choices are based on the identity of graphs in the written form of the language. Moreover, early on, it became apparent that this type of text generation implied a structure that could be represented in three (or more) dimensions. The flexibility of typography on the computer screen allows the instantaneous production of typographical effects which would be very difficult or time-consuming to reproduce on paper. A simple example is the use of emboldening to highlight the letters of the word(s) of the underlying given text after a mesostic transformation has been applied. From the collection, *Collocations: Indra's Net II* this emboldening is applied to letters on the screens, as they are generated.²³ A special rendition of *Golden Lion* was also published in paper form in what amounts to a piece of visual poetry in fine printing, as well as a snapshot of cybertext.²⁴

It is possible to conceive of more than one implicit three-dimensional space defined by (twenty-six) planes of words which share the same letter.

winds rains waking how many petals must have fallen silent
 sleeping forms points on blank white canvases all possible
 curves problems far beyond our artists capacities to resolve
 consider these our small children who awake see their
 sleeping parents doors ajar enter their rooms bright warm
 summers mornings all coverings abandoned except these
 sheets which trail their sculpted folds over partially concealed
 limbs and lie beneath white sheets whose pure brilliancies
 children particularly notice their parents barely sleep enjoy
 still teasing promises of deeper slumbers return our children
 know their parents now are dimly conscious of days approach
 notice underlying sheets once more plain white completely
 silent tender relations of bodies lying which children believe
 they fully understand they long to express perfectly follow
 lines linking these bodies then draw their parents intimacies
 towards themselves but see sheets infuriating pure white
 absences feel everything so still our children forget ignore
 lines points on linen canvases know nothing of bodies curves
 intimate designs sleeping forms are painfully aware even were
 they able to hold in mind draw these forms towards their
 hearts eyes hands still too young too inexperienced to follow
 lines of intimacies they pursue children artists with their own
 unique imperative visions committed to their most perfect
 realizations what can our children do they need methods
 processes techniques children jump into beds between upon
 their parents pummel with shrill words tiny fists limbs twist
 flail make demands hairs pulled tangled gentle bruises taunts
 scratches endless demands somewhere scant traces delicate
 structures remain dreams slip away their parents attempt
 to smooth refashion frayed crumpled forms lines so many
 so delicate once so finely drawn these alone remain white
 sheets beneath above affections storms break threads split
 lines shear successive gales all these which slip away with
 dreams gather lines forms show through within against their
 tender tempests tattered destroyed returned to days lights
 winds rains waking how many petals must have fallen

FIGURE 1.3 Scaled-down, monochrome version of the “three-dimensional” poster poem of *Under It All*. Courtesy of the author.

One of these is represented on the cover of a paper publication which accompanies *Collocations*.²⁵ Later I produced a poster poem of the entire text of “Under It All” in which tone was used to imply this three-dimensional arrangement of words (Figure 1.3). Each letter of the alphabet is assigned a particular weight of tone—*a* the lightest, *z* the darkest—placing it, visually, on a separate plane at a particular distance from the viewer. Each word from the text is printed in the tone which corresponds with that assigned to one of its constituent letters, according to simple rules intended ’s. Such

representations could be animated and translated for the computer screen or a computer-controlled installation.²⁶

Collocations

Results of the experimentation with the collection of pieces in *Indra's Net I* indicated two principles for further development: (re)composition of given texts in preparation for procedural transformation, and composition, through software engineering, of the procedures themselves.

Collocations: Indra's Net II contains the first publication of a collocational procedure which is simple, extensible, and rich in generative potential.²⁷ It was originally devised as a way of enhancing the syntactic naturalism of the mesostic pieces by restricting, where possible, the collocations (syntactic linking of words, here in simple pairs) generated by mesostic pieces to collocations which occur in natural English, specifically the given text(s). Thus, once the primary mesostic rule is satisfied, if it is possible to find a word from the given text which collocates with (follows) the last word chosen by the transformation, then this is always selected. The version of "Under It All" included in the *Collocations* suite exemplifies this double procedure.

However, *Collocations* also includes the first collocational procedure applied to a text without prior mesostic transformation, in the piece "Critical Theory" (Figure 1.4). This transformation can proceed beginning with any word in the given text, which we then may call "the word last chosen." Any other word—occurring at any point in the base text—which follows (collocates with) the word last chosen may then follow it and so become in turn the word last chosen.

Clearly, in this type of transformation, at the very least, each pair of successive words are two-word segments of natural English. However, the text will wander within itself, branching at any point where a word that is repeated in the base text is chosen, and this will most often occur when common, grammatical words are encountered.

dim minimal abstraction
they welcome the eye a
tableau but insist on a
temptation to make

FIGURE 1.4 Screenshot from "Critical Theory" in *Collocations: Indra's Net II*. Courtesy of the author.

Collocations also includes a sampler of earlier work and one essay in another transformational algorithm, which is based on suggestions of Harry Mathews.²⁸ In one of these accompanying pieces, a mesostic abecedarian sentence of twenty-six words—containing the letters *a* to *z* in turn—is extracted from the given text of “Under It All.” The sentence is difficult to construe. It is used to transform, mesostically, first itself, and then the text of “Under It All” and then “all literature.” (See note 21.) Finally, Mathews’s advice is indicated to attempt to construe the sentence. Synonyms are gathered for all its words and then the system is allowed to follow the syntax of the sentence, picking the gathered synonyms in place of the original words of the difficult sentence. This type of transformation is one that could be developed much further.

Moods & Conjunctions

The following three works in the Indra’s Net series—*Moods & Conjunctions*, *Golden Lion* and *Leaving the City*—do not introduce significant innovations in the technology of the form, that is, in the delivery medium itself. Instead they fill examples of existing forms with content. Content is offered up to the generative algorithms in a slightly different way in all three works, however, since they all set out from multiple given texts. The texts may be blended together in the generational process, or one given text may be transformed in terms of another. Although the content of these works is composed and selected as appropriate to the new potential medium, their significance, in so far as this is conceded by their readers, lies in that formed content. This is an important point to recall. In the world of “new media,” there is constantly the necessity to remind ourselves that novel literary technologies are not, ultimately, to be developed for their own sake. The works they generate or simply frame must be judged in the context of literature as a whole, as works inscribed as content-in-form.

“Moods & Conjunctions” is the title piece of *Moods & Conjunctions: Indra’s Net IV*.²⁹ “Moods” consists of two texts about sex and one about language. One of the two pieces on sex is simply composed of fragmentary clauses made from (i) the pronouns *I*, *you*, and *we*; (ii) the modal auxiliaries; and (iii) selected adverbial and interrogative conjunctions (“then” has also been allowed). The collocational procedure is applied to all three pieces, such that phrases from one text continue with words from the others. The piece will vary its style and tone considerably. In particular, the “modal” given text has a completely different tone which disrupts the expository prose of the other two given texts as the piece progresses.

Before *Moods & Conjunctions*, reader interaction with procedures and pieces was restricted to exploring explanatory pages, selecting pieces to

be generated and the ability to interrupt a piece and set it going at a new point in a particular reading. From *Moods*, new ways of interacting were introduced, allowing greater reader involvement with the generation of text. Pieces in *Moods* allow the reader to increase or decrease the likelihood of a collocational jump taking place (e.g., from one occurrence of the word “and” in a text to another). By moving a pointing device attached to the computer as text is being generated, the aleatory weighting is changed. Collocational jumps become more likely as the pointer is moved leftwards. When the pointer is moved to the right, such jumps become less likely. If it is moved to the extreme right, no jumps are allowed, effectively reading through the given text(s) in a normal linear fashion.

Golden Lion is based on two given texts.³⁰ “Han-Shan in Indra’s Net” is a short original poem. The second text, “An Essay on the Golden Lion,” is the translation and adaptation of a prose work by the Chinese Buddhist monk Fazang (643–712). “Golden Lion” is a mesostic transformation with collocational constraints (as described above), but here the letters of the poems are transformed, one by one, into words from the essay. In the display, a half-line of the poem is shown on the bottom of the screen, with words from the essay above, showing the poem’s letters emboldened (Figure 1.5). The effect is to produce a commentary on the poem in the words of the essay, where the commentary has the poem itself embedded within it. One particular, and slightly edited, rendition of *Golden Lion* has been published on paper as an artist’s book (see note 24).

Leaving the City takes two distinct given texts and blends them using the collocational transformation.³¹ One text is a long translation from a talk on poetry and language given by the Chinese poet, Gu Cheng (1956–93), at the School of Oriental & African Studies, University of London, in 1992.

full the ear everything even before
 form contingency conspires
 substance everything content in
 substance perfect substance since
 the ear sensible even its whole
 each interlocked interpenetrated
 everything

Leave me the space between

FIGURE 1.5 Screenshot from *Golden Lion: Indra’s Net IV*. Courtesy of the author.

The other text is a shorter piece which attempts to come to terms with the brutal events which ended the lives of both Gu Cheng and his wife, Xie Ye on October 8, 1993.

While developing these three works, it became clear that it would be possible to do two new things with the texts as they were generated, allowing much greater reader interaction. Each time these pieces are “read” on screen, they are different because of the chance operations. However, it is relatively easy to allow the reader to collect phrases or lines of generated text. This allows them to produce a third kind of text (similar to the edited cut-ups of earlier writers like Burroughs and Gysin), not composed by anyone, but selected and arranged.³² The illustrated poem, “Actual possession of the world ...,” is such a text, generated from *Leaving the City* (Figure 1.6). However, the cybertextual system also allows the selected phrases to be added to the given text, thus augmenting the possible collocations that may be picked by the procedure in subsequent text generation. The procedure “learns” new collocations and alters itself. The reader’s copy of the work becomes unique, different from every other copy. These potentialities were realized and published in the next Indra’s Net, *Book Unbound*.

Book Unbound

When you open *Book Unbound*, you change it.³³ New collocations of words and phrases are generated from its given text according to the collocational procedure. After the screen fills, the reader is invited to select a phrase from the generated text by clicking on the first and the last of a string of words. These selections are collected on the page of the book named “leaf,” where they are accessible to copying or editing. But they also become a part of the store of potential collocations from which the book goes on to generate new text. The selections feed back into the process and change it irreversibly. If the reader continues to read and select over many sessions, the preferred collocations may eventually come to dominate the process. The work may then reach a state of chaotic stability, strangely attracted to one particular modulated reading of its original seed text. Each reader’s copy of the work thus becomes unique, non-trivially different from every other copy.

The Speaking Clock

The Speaking Clock is a mesostic piece which tells the time.³⁴ It acknowledges Emmett Williams’s “Poetry Clock” and the mechanical “Word Clocks” of John Christie, but this digital clock tells the “real time” in language, by

ACTUAL POSSESSION OF THE WORLD ...*

actual possession of the world
 left Gu Cheng exposed maimed and handicapped
 this shining road back to the city
 into his own shattered emptiness
 finally I listened to the sounds like leaves or any other violence of the picture
 there is something in their lives that keeps them following this sound
 on the other side I could go anywhere
 recall a life that is distant from our own
 but this doesn't trouble me because I didn't use words
 he constantly tried to return
 following this phrase became the picture
 once I thought I felt that a new young light had awoken in the woman
 all softly speaking in a particular kind of way
 one of the world's unceasing infinity of transformations
 the violation of corporal integrity is in the wind
 they were flooded with both their lives
 they were flooded with the body
 and my ears went deaf
 became fraught and fell ill and she asked me what colour
 a truly extraordinary sound
 the speech of the cascading rays
 I didn't write poetry I didn't use words he claimed
 taken from the world he had left long ago into his own shattered emptiness
 living into this world
 both created and enforced
 to imagine such hatred
 I awoke I answered we keep on living I began to think of endless transformation
 and in gesture like a secret afterwards I began to think of these phrases
 they really were flying closer and they turned into words
 down was the summit and night was speaking
 for reasons that were flying closer
 suddenly the sounds poured endlessly into my life because I didn't use words
 taken from the world both created and enforced
 I began to think of whiteness
 this shining road back to the surface of the final sound

FIGURE 1.6 John Cayley, Text of “Actual possession of the world ...” lines gleaned at average collocational strictness 386/500 from *Leaving the City*. Courtesy of the author.

performing a mesostic transformation on a 365-word given text. The words of this text are arranged around the clock face on four screens. The digits 1 to 9 are mapped to the most common letters in the given text as “etanoslr.” The date in the form “mm/dd” is shown with time in the form “hh/mm,” by choosing words from the given text which contain the “digit letters” and emboldening these letters on the screen (Figure 1.7). The digit letters are arranged around the clock face to indicate the simple mapping of letters to numbers, and one of the clock face positions will be emboldened to show (roughly) the seconds after each minute. Zero is represented by a word with no emboldened letter. This is a ludic piece with at least one serious point to make about the language of time, and has shown itself to produce some richly evocative phrases.³⁵

(Plastic) Literary Objects

While, in terms of reader interactivity and the automatic generation of text and intertext, *The Speaking Clock* might have seemed a retrograde step, in terms of its presentation as a self-explanatory work, I felt that it took a step forward. The poem as a form, despite the wide range of potentialities

FIGURE 1.7 Four seasonal screenshots from *The Speaking Clock* show the times: (a) 12:11, (b) 12:14, (c) 12:20 and (d) 12:26, all on November 1, 1995. Courtesy of the author.

on offer in the world of contemporary poetics, remains recognizable as such. It is framed by various conventions of publication but, even outside these conventions, it requires little explanation before it is recognized for what it is, leaving aside the question of its readability. On the other hand, the cybertextual object often pretends to require a great deal of supporting explanatory material. This is perhaps inevitable, in the same way that we might have been overly fascinated by the technicalities of cameras and projection devices during the early history of the cinema, and since there is no escaping the requirement to write sets of instructions for using relatively unfamiliar “machines.”

In 1996, hypertext systems were, arguably, already familiar enough to allow for the creation of cybertextual objects designed to subsist and operate without extensive explanatory framing. Thus, at the time, I proposed a series of linguistic artifacts to be called (*Plastic*) *Literary Objects*, runnable on computers in the same way other applications and programs were run. I speculated that they would “generate text if left to their own devices and also respond to any of the recognized events produced by the standard peripherals of computer systems,” then chiefly keyboards and pointing devices. They would “shift their textual modulation from one type of transformation to another.” They would “‘learn’ (selectively), altering their content and also their processes of textual modulation in response to reader interaction.” They would be “designed as forms to be easily filled with new textual content composed or selected by their readers, who would thus become co-authors, in the form, of new (*Plastic*) *Literary Objects*.”

Actually existing (P)LOs, so designated, have not been created by myself or other practitioners—to my knowledge—although these speculations seem remarkably prescient of certain work that is contemporary in the early twenty-first century, notably that of Jhave (David Jhave Johnston).³⁶

After the first “speaking” clocks—literary time pieces remain an obsession—my own work became concerned with transl(ite)r(ation), the programmed, iterative spanning of literal disjuncture or distance. I have made a trans-lingual mesostic piece (*Oisleánd*, 1996), and a “text movie” involving transliteral morphing (*windsound*, 1998–99).³⁷ Various early and provisional versions of a navigable textual object generated from (more complex) transliteral morphs (*noth’rs*, 1999–) were also issued.³⁸ In 1999, *RiverIsland* attempted a spanning of and commentary on the incommensurate literal disjuncture between western and Chinese systems of transcription.

There was and is no obvious way to conclude the brief, expository presentation of what was then a nascent body of work. The question of the work’s value was and is bracketed, caught in the headlights of its formal engagement with “experimental poetics and technological innovation.” The

narrow formal attention that was a function of most early explorations of “new media” is still to be broadened and engaged with wider critical perspectives.

Programming is intimate with composition in all of this work. Its content-as-form is inherently protean, in a way that corresponds with the shape-shifting, multifunctional qualities of computer-based systems generally. It points to an area of potential literature which is radically indeterminate (not simply the product of chance operations); which has some of the qualities of performance (without, necessarily, breaking faith with silent reading); and in which the reader can extend the usual interpretative relationship with a text by exploring, configuring, and even permanently adding to the literary objects of their attention.³⁹ This not only takes us beyond the bounds of the codex, but subverts the links and lexia of hypertext, leaving us to explore the indeterminate, unbounded literary potential of cybertext.