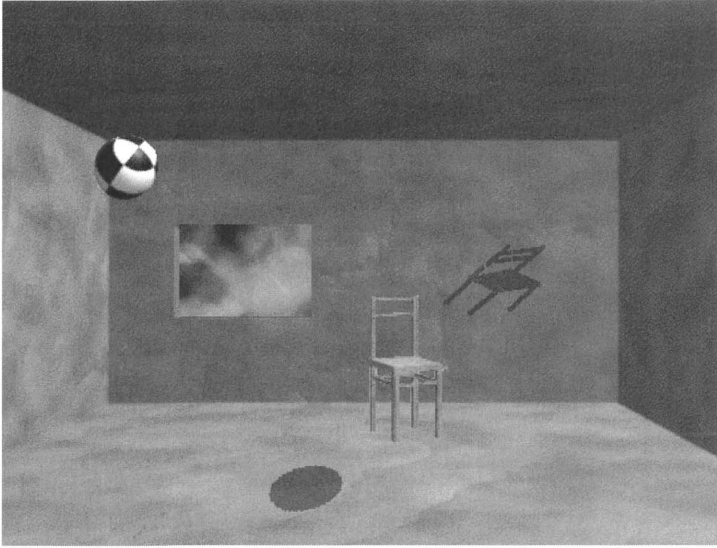


Visible Language 28.2



a general issue from the
quarterly concerned with
all that is involved in our
being literate

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Table of contents

- 100 **Recollect Orality**
Eleanor O. Close
- 110 **Can You See Whose Speech Is Overlapping?**
Charles F. Meyer
Ed Blanchman
Robert A. Morris
- 134 **The Writing Problems of Visual Thinkers**
Gerald Grow
- 162 **The News as a Post-Literary Spectacle**
Joseph F. Keppler
- 172 **More than a Book Review of *The Electronic Word***
Sharon Helmer Poggenpohl

Eleanor Close received her MFA in graphic design at the Rhode Island School of Design in 1992. Her thesis, from which this article is drawn, argues that visual and verbal language share a common bond on a fundamental level—sound. After teaching a year at the Rhode Island School of Design, she moved to Europe and is currently an independent designer working in Paris and Zurich.

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Recollect Orality

Eleanor O. Close

**A brief historical overview, playfully
presented, reminds the reader
of the relationships between orality,
literacy and our current electronic
social condition.**

Enter history.

In all human cultures, societies create distinctive identities by conserving their history and mores and then re-presenting this collective consciousness as a model for living. In oral cultures, representation of social consciousness exists exclusively inside the human mind. In order to share and maintain the social conditions someone (*the poets*) must recite (*rhapsodize*) to the community the history (*the genealogies*) and the mores (*the myths*). The mental intensity required to memorize and recall vast quantities of information and to compose, on the spot, a comprehensive and cohesive narrative is difficult for the literate mind to wholly appreciate.

Oral recitation is a collective ritual, an emotionally charged experience, involving a trance-like interplay between the poet and the audience. The rhythm of the continuous rise and fall of the voice, the accompanying gestures and the spontaneous response of the audience all determine, from moment to moment, what will happen next. No two recitations are exactly the same, but the social model does not decay because a general mental understanding is created within the group as a result of experiencing the ritual.

*In fourteen hundred and ninety two
Columbus sailed the ocean blue . . .*

But the rest of American history?

Enter ancient Greece.

The social conditions of ancient Greece varied widely and were in constant flux. There were serfs, farmers, mining and textile merchants, foreign slaves and city workers. The government was first a monarchy then an aristocracy, followed by alternating periods of tyranny and democracy. Vicious wars raged on and on.³ In this vast and diverse setting, oral knowledge

> > > **roots in history. ancient tongue. sound in sanskrit *svanati*.
from greek *rhaptein* to sew or stitch together plus *adain* to sing.
then *rhapsoidos* epic poem singer. and to *rhapsodia* recitation happening.
recall the patterns of poetic universe. then latin *rhapsodia* epic poem written down.¹⁴
a rhapsody. impassioned expression. verbalized or literary. public enemy's sound: >**

alphabet, Homer and other unknown poets began to translate the verses of Greek culture into the first written documents of their history. This transformation probably took about two hundred years, from 750 to 550 BC.⁵

When the Homeric poems were brought to Athens, they were examined by the aristocracy. Soon oral epics, the *Iliad* and *Odyssey*, were adopted as the literature of the educated elite, and orality became connected to the less educated classes, to a primitive way of thinking. The erosion of an ancient tradition began, simultaneously, with the expansion of a profound and entirely new consciousness. How – and in what forms – can the human intellect exist outside the mind?

The works of Greek literature after the Homeric transcriptions occurred are composed in an increasing tension between the genius of oral and the genius of written composition.

E. A. HAVELOCK⁶

no escape nouscape

Writing fixed, froze, imprisoned the moving continuum of oral recitation. The poet's dynamic voice, and the inter-active social ritual, was reduced to quiescent visual space. Response shifted from the mass audience to the individual reader, who, detached from the writer, responded only inside his own mind. Writing created a consciousness of self. *I write, therefore I am*. Logic, geometry, philosophy, theory – abstract thought was formulated by writing.

The first hunters and gatherers looked at themselves in astonishment one day, for an interminable instant, in the still waters of a poem.

OCTAVIO PAZ⁷

> > > as they fell to the floor and got rougher. now the family has got to suffer.
pallbearers got to carry them. while the families cry loud just to bury them.
newscast and people were heavily amazed. flavor flav just stared in a daze.
eyewitness news – channel seven. more news at 11."¹⁵ > > > > > > >

Enter politics.

The newly enlightened Greek aristocracy became quite aware, it seems, of their new power. . . . **the first creatures**

on earth to become aware of time

were also the first creatures to smile.

VLADIMIR NABOKOV ⁸

Plato, who was skeptical that this artificial new device could portray the reality of the mind, at first rejected writing as inhuman. But later, he decided – “*not that I mean to depreciate them*” – to reject the poets themselves, who – “*have plenty of brave words and fair conceits*” – are – “*not fitted by nature and education to take part at once both in politics and philosophy*” – excluded from his *Republic*.⁹ Skillfully does the pupil turn against his masters.

**I will throw out everything from the past except that
which is still of service to me.**

LE CORBUSIER ¹⁰

Exit poets.

Thus died the collective consciousness of Greek civilization. Literate propaganda, not literacy itself, discredited orality in the Western world and displaced the poets from the mainstream of society.

**By the fourth century BC propaganda had become
an ancient art in Athens, even if the Greeks chose
to call it ‘persuasion’ or some other benign term.**

GEORGE N. GORDON ¹¹

> > > **current transmission. cultural condition.** > > > > > > > > > > > > >

language
slanguage

The educated elite in Athens felt that the new knowledge they had acquired from written texts was theirs and theirs alone. The management of knowledge, education through distribution of specific texts, had become a commodity. Most academic institutions today continue to practice this kind of restrictive control over the intellectual development of their students.

apocalypse epochellipse

Enter the present. Echo ancient Greece.

The social conditions of postmodern America vary widely and are in constant flux. We have television, teleprompter, telephone, telefax, telecom, CDROM, desktop, laptop, PC, CRT, CAV, DAT. We are bombarded with information. *A!e!i!o!u!* Graphic designers, formerly facilitators of messages presented in silent visual space, are now faced with the task of articulating information transmitted both visually and aurally. We hesitate. We feel so far removed. We ask, ourselves,

Do I dare

Disturb the univers?

In a minute there is time

**For decisions and revisions which a minute
will reverse . . .**

So how should I presume?

T. S. ELIOT ¹¹

ensorship sensorship

> > > **resonant sensation. sympathetic vibration.
direct transference from thought to thought. correspondence on a wireless wave.
unheard. unseen. undeniably felt.** > > > > > > > > > > > > >

Surrounded by the spectacles of video, film, hypermedia, multi-media and virtual reality, we search for ways to orient ourselves in relation to the rapid-fire onslaught of communication technology. New products dazzle, and the information, the message being sent, seems to fade by comparison. We seem to lose our sense of vision. Is our work responsible or reactionary in relation to the social conditions? With an unclear vision of the future, we cast our gaze to history, hoping to discern a clue.

: Attention, Attention. This is a test of the fire alarm system.
Please disregard any and all alarms you may hear. Thank you :

ReVerse. ReVise. ReFlect. ReFract. ReCall. ReAct. *Hear! Here!* is *Civilization and its Discontents*. Freud offers sound advise: "Go ask the poets." After all, this is just . . .

> > > "you cannot travel on the path before you have become the Path itself."
gautama buddha¹⁶

Endnotes

- ¹ *Webster's New Collegiate Dictionary*. 1975. Springfield: G. & C. Merriam Company.
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- ³ Bertrand Russell. 1945. *A History of Western Philosophy*. New York: Simon Schuster, 9.
- ⁴ Richard Lattimore, trans. 1951. *The Iliad of Homer*. Chicago: The University of Chicago Press, 182.
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- ⁶ E. A. Havelock and Jackson P. Hershball, eds. 1978. *Communication Arts in the Ancient World*. New York: Hastings House Publishers, 19.
- ⁷ Octavio Paz. 1990. *The Other Voice: Essays on Modern Poetry*. New York: Harcourt Brace Jovanovich, 159.
- ⁸ Vladimir Nabokov. 1947. *Speak, Memory*. New York: G. P. Putnam's Sons, 22.
- ⁹ B. Jowett, trans. 1892. *The Dialogues of Plato Volume 2*. New York: Random House, *Timaus* 19, 5.
- ¹⁰ Le Corbusier. 1987. *The Decorative Arts of Today*. Cambridge: The MIT Press, 163.
- ¹¹ E. A. Havelock and Jackson P. Hershball, eds. 1978. *Communication Arts in the Ancient World*. New York: Hastings House Publishers, 56, essay by George N. Gordon, "Aristotle as a Modern Propagandist."
- ¹² T.S. Eliot, from his poem, "The Lovesong of J. Alfred Prufrock."
- ¹³ This is a general reference to the Aboriginal people of northern Australia, an oral culture which has existed for many thousands of years. They believe that every individual has a totemic spirit ancestor that lived during the mythological Dream-time and traveled throughout the land, singing the world into creation. In their wake these spirit ancestors left paths sprinkled with words and melodies. When a person walks along the path of his ancestor, he sings again the ancient songline, thus recreating the world for himself.
Bruce Chatwin. 1987. *The Songlines*. New York: Penguin Books, 12-14.
- ¹⁴ *Webster's New Collegiate Dictionary*. 1975. Springfield: G. & C. Merriam Company.
- ¹⁵ Public Enemy *Apocalypse 91...The Enemy Strikes Back*, Sony Music Entertainment Inc., New York 1991.
- ¹⁶ Bruce Chatwin. 1987. *The Songlines*. New York: Penguin Books, 179.

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Can You See Whose Speech is Overlapping?

Charles F. Meyer Robert A. Morris Ed Blachman

Recently in linguistics there has developed an increased interest in the analysis of computer corpora — samples of speech and writing distributed in machine-readable form. Computer corpora are typically annotated with markup to indicate such phenomena as paragraph boundaries and titles in written texts and pauses and speaker turns in spoken texts. As computer corpora become more common in linguistics, linguists need to concern themselves not just with developing standards for the markup they use but with ensuring that this markup is presented to the user in as readable a format as possible. In our discussion, we focus on a common characteristic of speech that any annotation system must deal with — overlapping speech — and describe software that we have developed that not only accurately marks the boundaries of overlaps but presents them to the user in a very readable format.

First we discuss the types of overlapping speech that any markup system will have to describe and then we critique two types of current systems for marking overlaps: those that stress readability and those that emphasize descriptive adequacy. We describe the problems inherent in each of these systems and conclude by discussing a system we have developed which is based on sophisticated document processing software. This system presents speech overlaps in vertical columns and balances the necessity of accurately describing the boundaries of overlaps with the need of the user to be presented this information in as readable a manner as possible.

Can You See Whose Speech is Overlapping?

Throughout the paper, we use sidenotes instead of footnotes. We do this in furtherance of our central point that more attention to the two dimensional nature of typography can address certain points of interest which arise in the written representation of spoken language

The study of English usage has a long tradition, dating back to the 19th and early 20th century grammars of Sweet (1891-98), Poutsma (1926-29), Curme (1947), and Jespersen (1909-49). These grammarians based their analysis of English on (primarily) literary texts of English and their lifelong work on these texts yielded much valuable information about the structure of English. Because these early grammars described only English and were heavily influenced by earlier grammars of Greek and Latin, they fell out of favor among those interested in studying non-Indo-European languages and in developing theories of human language. These interests gave rise to a range of new theoretical models of language, including structural grammars (such as Bloomfield, 1933) capable of providing linguistic descriptions of Native American languages and generative grammars intended to provide a theoretical framework for the study of language universals rather than the structure of individual languages (see, for instance, Chomsky, 1957 and 1975).

In recent years, however, some linguists have moved away from purely theoretical descriptions of language based on sentences they often invented themselves to studies based on the actual usage of language in texts such as those that the early English grammarians studied. These linguists recognized that if they wanted to obtain an adequate description of English usage, they had to not only investigate various types of English (e.g., spontaneous conversation, press reportage, technical documents) but base their investigations on a large enough sample to insure that an accurate description of English usage is obtained. To help the linguist carry out such studies, the computer has proven an invaluable tool for storing and analyzing large samples of language in the form of "computer corpora."

See Edwards and Lampert (1993:263f) for a comprehensive overview of the various corpora currently available or under development

The earliest computer corpus of English, the Standard Corpus of Present-Day English (Kučera and Francis, 1967), was compiled in 1961 at Brown University and contained 2,000 word samples of various types of edited written American English (e.g., journalism, fiction, belle lettres and government documents). This corpus spawned two parallel corpora: The Lancaster-Oslo-Bergen (LOB) Corpus of edited written British English (Garside, Leech and Sampson, 1987) and the Kolhapur Corpus of edited written Indian English (Shastri, 1988). In addition, the London-Lund Corpus of spoken British English was developed (Quirk and Svartvik, 1980) to allow the study of spoken English and to enable comparisons with written English.

Since the compilation of these corpora, there has been an explosion in the development of computer corpora. One of the projects of the Linguistic Data Consortium (Church and Liberman, 1991 and Walker, 1992) is to collect, computerize and grammatically analyze 100 million words of American English. The British National Corpus (Quirk, 1992) will be of similar composition except that it will contain 100 million words of spoken and written British English. The International Corpus of English (ICE) (Greenbaum, 1992) will consist of written and spoken samples of English from various regions of the world: Great Britain, the United States, India, Nigeria, Australia and New Zealand, to mention but a few of the countries whose English will be represented in the project.

The proliferation of corpora and hence computerized documents has made it increasingly important that a standard for the encoding of electronic documents be developed. In the Brown Corpus, for instance, a hodgepodge of symbols were used to distinguish periods ending sentences from those ending abbreviations; to mark section headings in scholarly articles and distinguish them from the text of the article and so forth. To establish such a standard, the Text Encoding Initiative (TEI) has begun an effort to develop standards for the mark-up of electronic documents (Sperberg-McQueen and Burnhard, 1994).

Our interest in the mark-up of electronic texts stems from our involvement in the American component of ICE. Because the TEI project is ongoing, ICE had to establish its own standards so that individual teams could begin marking individual corpora. The hope is to make ICE markup TEI-conformant once the TEI project

has an approved system of markup. In the meantime, we have begun developing an editor (described in Morris, Blachman and Meyer, 1994) that will enable a user to interactively insert ICE markup into a document. In creating this software program, we have grappled with the normal problems that developing software raises. But we have found particularly problematic the development of a way of representing overlapping speech in an electronic document.

Overlapping speech is a phenomenon that occurs in speech, particularly spontaneous conversation, any time that two or more individuals speak simultaneously. For instance, in the fictitious conversation to follow, speaker B's first words overlap with speaker A's (overlapping segments are set off with slashes):

Speaker A: I heard that my son's history teacher may win
a teaching award /he/

Speaker B: /You've/ got to be kidding

Overlapping speech is of interest to linguists because it gives a clue to how speech is organized. As Sacks, Schegloff and Jefferson (1974) note, one way for an individual to gain the floor is by overlapping his or her speech with the person who is currently speaking. Overlapping one's speech with another's is a technique for gaining the floor not just in languages such as English but in other languages as well (see, for instance, Hafez's 1991 study of turn-taking in Egyptian Arabic).

Encoding overlapping speech in an electronic document is problematic because a document is essentially a linear text, with each piece of the text occurring separately. When two pieces of the text overlap, however, the linear nature of the text is disrupted, and representing this disruption in an electronic document has created in current markup systems a tension between the need to adequately describe where overlaps begin and end and the desire to present this information to the user in a readable and visually revealing manner. As we will demonstrate, none of the systems for annotating overlapping speech is able to satisfactorily reconcile this tension: most that comprehensively mark overlaps create a visually difficult text to read; those that strive for readability tend to be descriptively inadequate.

To demonstrate how we developed a markup scheme that resolves the difficulties described above, we first outline the types of overlapping speech that any markup system will have to account

for, and then detail how these instances of overlaps are inadequately treated by current markup schemes. We conclude by describing our markup scheme and the manner in which it overcomes the inadequacies of existent markup systems.

The types of overlapping speech

Even though the samples of spoken English we have been working with contained many different types of overlapping speech, we have determined that there are two basic kinds of overlaps: “paired” overlaps, in which single stretches of speech overlap in the turns of two speakers; and “multiple” overlaps, in which more than a single overlap occurs in a speaker turn or more than two speakers overlap. We found it necessary to distinguish these two types of overlaps because while single overlaps require merely that the sections that overlap be marked, multiple overlaps require not only that the sections be marked but that some additional system of marking be developed (such as numbering) so that it is clear precisely which segments go together.

See endnote 1 for an explanation of the identification symbols and numbers following examples we have taken directly from corpora.

The examples below contain instances of paired overlaps. In the first example, the segment of speech ending Speaker A’s utterance, *trash*, overlaps with the segment beginning Speaker B’s turn, *your*.

A: so everyone has a minimum so that takes care of your
your maintenance and your snow and your /trash/
B: /your/ maintenance and all that stuff
(ICE-USA-S1A-002)

In the next example, single segments of speech also overlap, except that the first segment, *I’m*, occurs in the middle of Speaker B’s turn; and the segment of Speaker E’s turn that overlaps with *I’m, no*, is uttered a few seconds prior to the segment of speech (*I asked Dad...*) that follows it.

D: do we have dinner reservations for a certain time
tonight
B: I don’t know it’s my birthday /I’m/ not worrying
about it
E: /no/ I asked Dad he’s not yet so
(ICE-USA-S1A-003)

The examples below illustrate the two kinds of multiple overlaps. In cases like these, it becomes necessary to number the overlaps to insure that there are no ambiguities concerning which segments overlap.

In the first example, Speakers A and B overlap on two separate occasions: *mean* overlaps with *no*, and a few words later in the same turn, *that at all* overlaps with *when you go into*.

A: it's too oh it seems like there's like fat deposits
in there you know what I /1 mean/
B: /1 no/ it's not like /2 that at all/
A: /2 when you go into/ Portugal you know they don't
even it's not even like it's refined it comes right out of
the cow they just put it through a little strainer over the
sink and then here you go it's warm you know no refrigeration
it's like when you take it it's like a big lump of cream
(ICE-USA-S1A-004)

In the next example, three different speakers overlap on separate occasions. The first syllable of a word in the middle of Speaker A's turn (*re*) overlaps with an expression (*uhm-uhm*) uttered by Speaker B. Following this overlap, the last word in Speaker A's turn (*perhaps*) overlaps with the first words in Speaker C's turn (*this is*).

A: but this is a good illustration of how studying some-
thing forces you to /1 re/conceptualize as you just said what
how language works because language does not work necessarily by
genre but by parameter /2 perhaps/
B: /1 uhm-uhm/
C: /2 this is/ more of a scientific methods question
what happens when you get half way through a research project
and you realize that your original conceptualization was all
wrong you have to go back and start all over
A: yes that's why you have to you know how long we've
been planning this project
B: I think a very long time indeed
A: Yes
(ICE-USA-S1A-001)

Because overlapping speech has been the subject of much linguistic research, it has become necessary to develop systems of annotation for marking the instances of speech that overlap. These systems have been employed in two different contexts: written documents (such as scholarly books and articles) in which linguistic research on overlapping speech has been reported and computer corpora (such as the London-Lund Corpus) which are available for general linguistic research. The systems

A: when you go
 into Portugal you know they don't even it's not even like it's
 refined it comes right out of the cow they just put it through
 a little strainer over the sink and then here you go it's warm
 you know no refrigeration it's like when you take it it's like
 a big lump of cream
 (ICE-USA-S1A-003)

The problem with the above example is not its readability but its accuracy: in the last turn, *into*, which begins the second line of the turn, is actually part of the sequence (*when you go*) that overlaps with the last part of Speaker B's turn. But because *into* extended too far to the right in the first line of the turn, margin settings forced it onto the next line. While the margins could be reset for this example, the most important point is that vertical alignment cannot be consistently maintained in the system above because there is nowhere to place the right bracket if the overlaps extend beyond a line.

Importability of alignment often results from the use of the space "character" for formatting. With sophisticated document processing software, or even with desktop publishing programs, the interword space is often manipulated by the software to make typographic improvements.

Yet another problem with vertical alignment is its fragility. Du Bois (1991:89) notes that the alignment can be lost "if a user changes the margins, tab settings or fonts...". This is particularly problematic when documents are transferred from one system to another. For instance, when we ported a draft of this paper from Word Perfect 4.2 to Interleaf, the example on page 117 was rendered as:

Tom: I used to smoke a lot more than this
[]
 Bob: I see

Without manual intervention, the segments *lot more* and *I see* are no longer vertically aligned either with each other or with the braces intended to show overlap.

Systems emphasizing descriptive accuracy

The systems used by conversation analysts predate the widespread availability of low-cost computers and have focused on readability for printed text. However, many of the systems used to annotate overlaps in computer corpora have been biased towards descriptive adequacy and have shown little concern for readability. These systems surround the regions of overlap with special tokens.

This convention is not unique to linguistic scholarship, but is used in other disciplines where unambiguous description is required.

For example, concurrency must also be represented in computer languages for programming parallel computers (systems with more than one processor unit operating simultaneously on the data). That technology always permits but does not require the overlap of computation. In fact, for such computers, the actual order of overlap is never specified. Representation of such languages must only specify which instructions are permitted to overlap and iconicity is not an issue. Special tokens marking the concurrency boundaries provide a solution. A typical example is

```
cobegin
    instruction1;
    instruction2;
    instruction3;
coend
```

indicating that instruction1, instruction2 and instruction3 may be carried out in any order and with any degree of overlap.

A similar token-based strategy is employed in the markup of corpora, except that the order of the overlaps is conveyed by the linear order of the text. In the London-Lund Corpus, paired overlaps are indicated by stars placed around the segments that overlap. In the example below, *I* in Speaker A's turn overlaps with *and* beginning Speaker B's turn.

```
A:      yes that I think you told me *I*
B:      *and* none of them have been what you might call
        very successful in this world (LLC S.1.13 3-5)
```

In instances of multiple overlaps, stars are placed around one pair of overlapping segments, and plus signs around the other:

```
B: yes but they +would have been very few+
   *hardly any*
A +<<murmur>>+ *anyway* (LLC S.1.13 98-100)
```

In the International Corpus of English (ICE), separate markup is used to mark the start of an entire string of overlapping speech (<[_>) and its end (<[/>). In addition, each separate segment of overlapping speech is marked by a tag that begins the segment (<[_>) and ends it (<[/>). In the example below, the entire string begins with *thought* and ends with *his*. Within this string are two individual segments that overlap: *thought* and *and what's his*.

```
<$B><#/> yea that's right it's Anthony's birthday
<$D><#/> have a little birthday party
<$C><#/> today's more important
<$B><#/> just because I'm a hundred and one
```

```

<D><# /> I <[_><[_>thought<[/>
<B><# /> <[_>and what's his<[/><{/>
(ICE-USA-S1A-003)

```

For multiple overlaps, the same markup is used except that each separate string is numbered to insure that each segment in the string is unambiguously matched:

```

<D><# /> now honey
<C><# /> come on nightcrawlers cost money
<_1><[_1>babe<[/>
<D><# /> <[_1>when you<[/1><{/1> spend all the money you're
going to have to fork <[_2><[_2>over your birthday
cash<[/2>
<C><# /> <[_2>nightcrawlers cost money<[/2><{/2>
(ICE-USA-S1A-003)

```

After this article went to press, TEI released version P3 (Sperberg-McQueen and Burnhard, 1994).

The Text Encoding Initiative (TEI) is based on the Standard Generalized Markup Language (SGML), whose markup is by definition non-iconic. The markup for spoken texts (TEI P2, Chapter 34) provides a mechanism whereby timelines can have points specified with absolute or relative time, or no time at all (merely order). These points are assembled into one or more alignment maps and references can be made from those timeline locations to marked points in the text or vice versa or in both directions.

Thus, TEI would mark an earlier example (see page 116)

```

<align> <loc ID=P1> <loc ID=P2> <loc ID=P3><loc ID=P4>
<u who=A>it's too, oh it seems like there's like fat
deposits in there you know what <ptr target=P1> I mean <ptr
target=P2>
<u who=B> <ptr target=P1> No <ptr target=P2> it's not like
<ptr target=P3> that at all. <ptr target=P4>
<u who=A> <ptr target=P3> when you go into <ptr target=P4>
Portugal they don't even it's not even like it's refined...

```

This example has a particularly simple alignment map, which only marks the positions of its time points. If there were data about the exact timing, the alignment map might look like this:

```

<align type=time units=sec>
<loc id=P1 absolute="12:00 EST">
<loc id=P2 distance=1 since=P1>
<loc id=P3 distance=10 since=P2>
<loc id=P4> distance=2 since=P3>

```

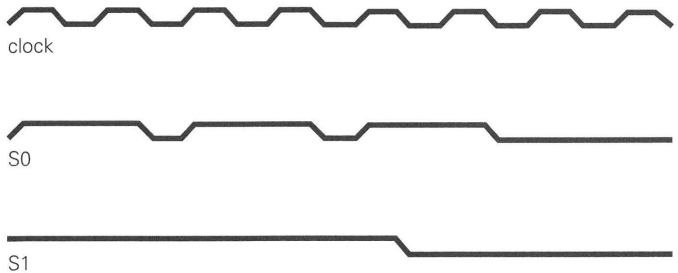
However, standard desktop computers have sufficient power to run software which can turn off all the markup at the user's request, thereby showing pure, readable text. An adequately designed program could do this in selective ways, permitting the scholar to easily emphasize all the speech satisfying particular linguistic properties described in the markup. For a discussion of a program that strips markup, ICECUP, see Quinn (1993).

While these systems are all descriptively adequate, their comprehensiveness creates a text that is full of markup and that is thus visually difficult for the user to read. In fact, all of Edwards' (1992) criteria for readability discussed above are violated, particularly in the ICE markup: related events are not placed spatially together, none of the markup (asterisks, curly braces, brackets) is iconic and the symbols are not concise but instead quite lengthy.

Mixed systems

The requirement to have both precise description and easy visual interpretation of concurrent events is not unique to linguistic scholarship. Traditional western musical notation strikes such a balance successfully, but so do specialized representation schemes in some other disciplines. For example, timing diagrams for digital electronics have a very music-like notation, but have the timing signature indicated on its own "staff line," the line labeled "clock" in the following example. All other timing is indicated relative to the pulses provided by the clock.

For speech, a number of markup systems attempt to strike a balance between readability and descriptive adequacy, and while these systems succeed quite well in this regard, they have individual inadequacies.



Typical integrated circuit timing diagrams indicating the synchrony of two signals compared to the clock signal. S0 and S1 must start rising at the same time, but they begin falling at different times. S1 has a duration of five clock ticks, whereas S0 has a repetition three times, each with duration two clock ticks.

In the system of annotation to be used in the Corpus of Spoken American English (CSAE) (Du Bois et al., 1993), an elaborate and elegant system has been devised to annotate both paired and multiple overlaps. In the example below, the first pair of overlaps, *to leave* and *They don't*, are vertically aligned and enclosed in single brackets. The next pair of overlaps are not vertically aligned but are enclosed in numerically indexed brackets: the lack of vertical alignment insures that the subsequent overlaps can be vertically aligned. The final overlaps are vertically aligned and numbered. In this system, the numbering is kept to a minimum both to insure readability and to prevent the numeral *1* from being confused with lower case *l* or the first person pronoun *I*.

In the published version of this example, the overlaps shown here as [2out2] and [2Berkeley2] were indicated with double brackets: [[out]] and [[Berkeley]]. The numeric notation reflects current CSAE practice. (J. Du Bois, personal communication)

B: Nobody wants [to leave].
 A: [They don't] move [2out2]
 S: [2Berkeley2] just keeps [3getting3] bigger [4and bigger4]
 B: [3Yeah3], [4Yeah4]
 ... Well it's amazing to me
 (Du Bois et al. 1993:51)

The CSAE system is the best of the systems we have surveyed so far because it both adequately describes single and multiple overlaps and, additionally, can present some overlaps in a visually clear manner. However, raw CSAE coding is subject (from a readability perspective) to the same problems we noted above with respect to vertical alignment approaches. Its advantage over those approaches is that because it is descriptively adequate, vertical alignment problems can be corrected by software or by sufficiently energetic human intervention.

A different approach is taken in the HIAT transcription system (Ehlich, 1993). HIAT is perhaps the most fully iconic system currently in use, as it adopts a visual approach not only to overlapping speech but also to aspects such as tone, volume, tempo, emphasis, interpretation and even non-verbal communication. HIAT's approach to overlapping speech is inspired by musical scores; it is a rigorous formalization and extension of the vertical alignment approach we've discussed earlier.

In most vertical alignment schemes, new lines indicate turn boundaries. Consequently, overlap in turns too long to fit on a line cannot be iconically represented. Ehlich's HIAT scheme (illustrated below) maintains iconicity by placing all overlapping dialogue within simultaneity areas, denoted by the rulings

or simultaneity braces. When one simultaneity area is insufficient, another may easily be added. This approach is not limited to displaying simultaneity; for instance, in the example below it also displays transcription conjectures (in parentheses), both simple and double. Note that iconicity is maintained at the expense of delimiting turn boundaries by line ends, though it seems to us that a boundary marker could easily be added to the scheme. In the example below, T begins by saying *Yeah*, then pauses while S1 says *Exactly!*, and then goes on to say *If you had simplified...*, with *If* overlapping the *act* of S2's *Exact*. It is impossible to tell whether this is one turn or two on T's part.

This notation is limited in the precision with which it can indicate overlaps. It is hard to tell from the display below whether T's *No* really overlaps the garbled conclusion of H's speech. Ehlich suggests that extra rules can be superimposed on the display to resolve questions like this (Ehlich, 1993:131).

1

T:	Yeah	If you had
H:	One could / one could uh divide by six at once.	
S1:	Exactly!	
S2:	Exact	
Sy:		(I got the

2

T:	simplified by six at once, then the same res/	No, leave it!
	Would've	
H:	Shall I (wipe it out)?	
S1:		
S2:		
Sy:	same)	

3

T:	been (immediately) the same result.
	(instantly)
H:	
S1:	
S2:	
Sy:	

For some purposes this lack of precision may be a blessing; to the extent that the transcriber is struggling to make sense of a somewhat indeterminate dialogue, this imprecision may be an accurate reflection of the audible record. But from the point of view of a linguist who's interested in overall analysis of a corpus rather than detailed analysis of a sample, this imprecision just makes this particular sample somewhat less useful.

Our work

We describe next the advances we have made in two areas. First, we have invented a music-like strategy that retains all of the advantages of such strategies but which is as comprehensive as the token-based strategies. Second, we have developed software that allows reading and annotation using our music-like strategy to be done even when there is a preferred underlying token-based strategy; thus a user can have the best of both worlds.

Like Ehlich, we find the case for a music-like strategy compelling. Our approach makes use of the most common approach to explicit formatting alignment: the ruled table. We use rulings to indicate overlap boundaries and thickened rulings to indicate turn boundaries. Our major departure from other approaches is to present the flow of the dialog vertically, with each speaker getting a column of the table. Below we show some of the previous examples in this form.

A	B
it's too oh it seems like there's fat deposits in there you know what I	
mean	no
	it's not like
when you go into	that at all
Portugal you know they don't even it's not even like it's refined	

This is a version of an example shown previously. Speaker A has the floor to begin with, yields it to speaker B during the first overlap, then uses the second overlap to retake it.

In the following three-speaker example, most of the dialogue belongs to speakers A and C... but B's *uhm-uhm* can't be neglected.

A	B	C
but this is a good illustration of how studying something forces you to		
re	uhm-uhm	
conceptualize as you just said what how language works because language does not work necessarily by genre but by parameter		
perhaps		this is
		more of a scientific methods question what happens when you get half-way through a research project and you realize that your original conceptualization was all wrong you have to go back and start all over

A: yes that's why you have to know how long we've been planning this project

B: I think a very long time indeed

A: Yes

Note that in this case the annotator chose to locate speaker A's second turn outside the tabular representation of overlap. That turn could just as well have gone in A's cell in an extra row, denoted by a thickened rule and added to the bottom, so as not to indicate an overlap with speaker C's turn. Indeed, a dialogue could be recorded entirely within a table. While perfectly readable, this would result in excessive white space wherever there were no overlaps. More likely, the annotator will choose a mixture comprising tables for the overlapped and closely related portions of the dialogue and conventional layout for the rest.

Like HIAT, there's a sense in which this notation is music-like, but it is most definitely not music. Perhaps the biggest difference is that music treats duration (at least relative duration) directly. Notes not only have position relative to each other and to the bars in which they are found, they have duration as well.

In contrast, rows of our tables have irregular durations — they “last” as long as the overlap they denote and deny the possibility of meaningfully indicating duration at a lower level. Also, our scheme can lose iconic representation of word boundaries. For reasons such as these, our notation is unsuitable for some linguistic purposes.

The software

The main software developed so far is an annotator’s assistant for the ICE markup described earlier. Its purpose is to help prevent errors during annotation. Spelling errors in the tagging are the most obvious kind of error. Most word-processing programs in use by corpus linguists for annotation have mechanisms that eliminate spelling errors in token-based tagging. The most common scheme uses the so-called “macro capability” available on many personal computers. Macros allow the user to define sequences of characters which will be automatically inserted in the text when specific keys are pressed. Since most computer keyboards have keys corresponding to more than the usual assortment of characters in a single (western) language, these extra keys are often used for such special, user-defined purposes.

Thus, misspelling tag names is a very simple error to prevent. Preventing constraint violations is more difficult. These errors arise because the marking scheme includes certain stated or deducible constraints. Unless the software enforces them, an annotator can enter illegal or nonsensical annotation leading to confounding of subsequent processing programs. For example, something denoted as a paragraph should never appear in the middle of something denoted as a sentence, although something denoted as a quotation sometimes may and sometimes may not.

There are no textually implied constraints as to where overlaps begin and end, so any strategy can, at best, offer the annotator easy ways to examine the nature of the overlaps and compare it to the original source. However, there are obviously restrictions on the relations between the time boundaries of speech fragments and the linguistic structure. For example, a word does not normally begin in the turn of one speaker and end in the turn of another (perhaps only in a play by Eugene Ionesco!). In our software, the linguist can express such constraints in a relatively

simple fashion: the entire set of valid tags is given a hierarchical structure and this hierarchy is examined at each point at which a menu of tag choices is to be offered. The tags currently in the document are parsed and no tags are offered other than those which can fit at that level of the hierarchy. Note, however, that “tags” marking the boundary of speech phenomena are not explicitly entered by the annotator, nor shown as such in the text. They are in fact represented by the table cell boundaries.

See English (1990) for a technical description of the facilities which enable the building of specialized editors such as ours.

The software is built on a powerful commercial document preparation system which can run on engineering workstations and medium-powered PC's. It has a built-in table editor which had most of the capabilities we needed for our speech representation. That editor largely supplied adequate capability to our design, though a few of its table ruling restrictions hinder us at some points. For example, it does not quite support our representation in case a table breaks at a page boundary. Using the page break control of the underlying software, we can insure that this never happens, but this potentially distracts the reader and may make the transcriber's task harder. Details of our constraint-based editor are available in Morris et al. (1994).

Limits to readability

While we believe that we have found a mixed system approach that offers good readability without sacrificing descriptive accuracy, we are also aware that there are underlying limits to readability that no existing system, and perhaps no system at all, can escape.

One such limit is typographical in nature. Any attempt to portray speech in writing must attempt to deal with the differing granularities of the two — the phoneme in speech, the printed character in writing. The size of written phoneme representations is not guaranteed to (and often does not) match the size of the phoneme; as a result, written representations of low-level overlaps will look “jerky” as the indicators of overlap will begin to take up as much space as the phoneme representations themselves. Worse, in a big table, these might even break across pages.

In fact, this “jerkiness” can occur even when the overlaps are somewhat less fine-grained, as in the following example:

Ken	Joanne
No. I don't thi	
nk so.	Isn't Ni
	ca
No.	ra
	gua one of the things you
I don't think so.	places you can't
	go?
No, we have -- No	I think is is
I don't think so. We have f- f- Techni-	
cally speaking, full diplomatic re	
lations	Oh yeah?
with Nicaragua	
Yeah, they have an an ambassador	
and, you know an American ambas	
sador there who --	I -- then why does
	everybod
like a nest of CIA spies	y always have to go through Mexi
	co
That's just --there- there isn't a	
direct transportation	
but there- it's not-	I thought - no but I
	th
it's	ought it
not like going to Cuba	
Wh	
ere they have to	Oh --
connections through Mexi	
co because	I knew someone
	who went to Cuba and had to go

From the Corpus of Spoken American English, with permission.

With overlaps like these, we believe the tradeoff between readability and descriptive accuracy can't be avoided.

Ken: ... (TSK) No.
 .. I don't thi[nk so].

Joanne: [Isn't Ni]ca[2ra2]gua one of the things you -

Ken: [2No2].

Joanne: .. [3places you can't3] go?

Ken: [3I don't think so3].
 [4No,

Joanne: [4I think is i=s4].

Ken: we have -
 No4]=,
 I don't think so.
 We have f- f- -
 .. (H) T=echnically speaking=,
 full= .. d=iplomatic re[lations] with Nicaragua,

Joanne: [Oh yeah]?

Ken: Yeah,
 they have a n- an ambassador=,
 and,
 .. you know an American ambas[sador there=,

Joanne: [I -
 then why does] everybod[2y always have to go through Me=xi2]co=?

Ken: who] -
 [2like a nest of CIA spies2].
 .. (H) That' just -
 there -
 there isn't a direct transportation,
 [but there,

Joanne: [I thought,

Ken: it's not],

Joanne: no,
 but I] th[2ought it <X w- X>2] -

Ken: [2(H) it's2] not like going to Cuba.
 .. Wh[3ere they have to3] make connections thr[4ough Mexico because4],

Joanne: [3Oh=3].
 [4(TSK) (H) I knew someone4] who went to Cuba,
 and had to go,

This is the original transcription of the example on page 128. Overlap numbering indicates which segments overlap. We extracted only the turn boundaries and overlap from this transcription. Although our software can support it, the markup given here is richer than what we are illustrating in this paper. In particular, the parenthetical expressions in this sample indicate inhalations and other noises which occupy time; since they are not indicated in our tabular markup, we have attempted to show in our table where the actual overlap begins. This leads to an illusory variance from the alignments here, for example in the last overlap, in which Joanne's noises begin in the middle of Ken's "through," but her speech in the second syllable of his "Mexico." Finally, note that turn boundaries are based on linguistic judgements made by the transcriber. Because overlaps make precise determination of turn boundaries difficult, our placement of them may not agree with CSAE's.

We took this monospaced sample directly from a diskette graciously provided us by the CSAE.

Another fundamental limit on readability is the physical page. In traditional vertical alignment approaches (and even HIAT), the limiting factor is the page width and resulting line breaks. In our notation, it is page depth and page breaks. In either case, some dialogue cannot be contained within the limits imposed by paper, and either iconicity breaks down entirely, or some convention is adopted that preserves iconicity while increasing the interpretive burden on the reader. In the HIAT representation, the numbering of areas alerts the reader to the continuation of a dialogue across line breaks; in our representation, when a table is continued across a page break, the bottom rule on one page and the top rule on the next page are omitted to indicate the continuation.

Page width becomes a limitation of our scheme when there are a large number of speakers. If there are not too many speakers, we can set the table on a turned page.

Ultimately, however, these limits reflect the embryonic nature of current technology. Any scheme with pretensions to iconicity is really an attempt to visualize the nonvisual phenomenon of overlapping speech. Visualization of nonvisual processes is currently an active area of computer science research. While efforts to date have focused on data-intensive processes (e.g., weather prediction), the spread of high-performance technology will inevitably bring attention to bear on more mundane visualization problems as well. In the end, the best way to see overlapping speech might not look anything like a printed page, nor be subject to the restrictions of print. And it will almost certainly allow the linguist to hear the speech at the same time that he or she sees it.

The use of text as the visual medium has one great disadvantage and one great advantage. The disadvantage is that there is no convenient relationship between the length of a written word and the duration of its utterance. The advantage is that the linguist or other consumer of the visualization has a rich and powerful set of mental skills which are based on written language. These skills outweigh anyone's vision of the near term capability of computers and can not be sacrificed to technological convenience. For now, we believe that approaches like ours provide an effective way to put current technology at the service of linguists.

Endnote 1

Most electronic corpora have detailed indexing schemes which are useful for citation as well as in support of linguistic analysis. For citations in our paper, we sketch these schemes here.

ICE

ICE citations have the form

ICE-<country>-<sample-type>-<sample-number>.

Thus, all of our samples are taken from the preliminary transcriptions of the American corpus (ICE-USA), are of type S1A, denoting face-to-face speech, and have three-digit sample numbers.

London-Lund

London-Lund citations have the form

LLC S.<sample-type>.<sample-number> <first-tone-unit>-<last-tone-unit>

'S' indicates that this is speech. (All LLC samples are speech, but the citation form is derived from that of another corpus, the Survey of English Usage, which also has written samples). Our citations all have sample-type 1, denoting face-to-face conversations. Tone units are intonation groups demarcated in the text by integers.

Endnote 2

T	H	S1	S2	Sy
	One could / one could uh divide by six at once.			
Yeah				
		Exactly!		
			Ex	
If			act	
you had simplified by six at once,				(I got the
then the same result/	Shall I (wipe it			
	out)?			
No, leave it! Would've been (immediately) (instantly) the same result.				

Above is our rendering of the example rendered in the HIAT notation on page 123. We have broken overlap cells at phoneme boundaries, which makes our rendering harder to read than HIAT's. However, it is more precise because it is not subject to inaccuracies arising from words whose typographic rendering is long but whose spoken duration is short. Some linguistic inquiries might not require phonemic granularity. Although we have not implemented it, in such cases our software could automatically place the entire word in the cell containing the last phoneme. Finally, note that in re-rendering this example, we have made judgements about the precision of overlap and the turn boundaries which may not be unambiguous in the HIAT rendering.

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The Writing Problems of Visual Thinkers

Gerald Grow

Some people produce characteristic, recurring writing problems as a result of inappropriately applying visual thinking to writing. This paper traces the writing problems of such visual thinkers to three factors: a lack of words, the unimportance of sequence and the presumption of context. Because some gifted visual thinkers have difficulty producing the kind of writing required in schools and colleges, they may become casualties of a form of learning style discrimination built into the educational system. This exploratory paper pleads for better understanding of the thinking processes that produce such writing problems and the development of new ways of teaching writing that directly address visual thinkers.

The Writing Problems of Visual Thinkers

Some people write badly as a result of applying visual thinking inappropriately to writing. The resulting mismatch between visual thinking and writing produces characteristic, recurring writing problems. Some who write this way are accomplished visual thinkers and successful professionals, others are visually-talented students struggling to survive “the verbal bias of schooling” (Olson, 1977b). If teachers recognize that certain writing problems result from a strength misapplied, they may be able to help train the visual thinkers who will be so important in the technologies of the near future.¹

Some visual thinkers do not have difficulty writing. They are able to shift between the mode of visual thinking and the mode of verbal thinking, or to use both at once. Conversely, some writers have learned to incorporate visual thinking into their writing process, into the images of their prose or into the illustrations that accompany their articles. Others appear to specialize in visual thinking without carrying out the kind of verbal thinking required for analytical, expository prose; that group is the subject of this paper. Whenever I refer to “visual thinkers,” understand that to mean “those visual thinkers who have difficulty writing.”

This paper is the result of sustained speculation, based on years of teaching writing, observations of visual thinkers and a review of the literature; it is grounded in a pilot study of three dozen master’s exams written (without editorial assistance) by interior design students and a study of a collection of papers by college undergraduates in architecture. Examples cited in the text come from this study, which I use not as proof, but as illustration of the line of exploratory thought developed here. I trace the writing problems of visual thinkers to three factors: a lack of words, the unimportance of sequence and the presumption of context. Table 1 summarizes the writing problems this paper explains as the result of misapplying visual thinking to expository prose.

Table 1: The Writing Problems of Visual Thinkers

- 1 Naming imprecise or lacking. "The doohickey bollusked up my thingamajig." Broad, vague nouns and adjectives.
- 2 Words as labels for unseen pictures, labels for complex but unexplained thoughts. Effort to label large visual wholes at once, without analyzing them into their parts. Each verbal element seems to refer to more than it says; words have multiple or cryptic, rather than specific, meanings.
- 3 General fuzziness of language. Words imprecise. Connections unclear. Syntax slippery. Words don't seem real to the writer. Has a "You know what I mean" quality.
- 4 Words used in a private and eccentric manner, like decor. When asked, writer might reply, "That's just what I use the word to mean."
- 5 Few active verbs. Passive voice. Unexplained appearances ("there is").
- 6 Imprecise verbs; overuse of "to be."
- 7 Effort to express thought as clustered, stacked, layered, enfolded.
- 8 Descriptions static; not arranged in dynamic sequence.
- 9 Weak transitions and connectives. Parts juxtaposed without being related. Reads like haiku or film script. "Dissolve," "jump cut" and "fade to black" would be appropriate transitions.
- 10 Undefined references: "He did it to them." Dangling modifiers.
- 11 Poor organization. Digressive. Gets lost in detail.
- 12 Weak narrative. No sense of conflict, drama, structure, buildup, climax. Stated, but not well argued. Unconvincing. Bland, even, one-level quality to prose. No main point. Reads like a list.
- 13 Contextless. No introduction. It is what it is; it is not defined by comparison with anything. Attempts to move visual into verbal through description or proclamation.
- 14 Aesthetic indiscrimination: all details are equally important.

This paper skirts a key difficulty — defining visual thinking — by the pragmatic expedient of looking at the writing of students who are successfully engaged in a course of study that is commonly assumed to require the ability to think visually. It also skirts the difficulty of testing for visual thinking by accepting the respective teachers' judgment that the students used in this study all displayed the ability to think visually in the manner required in their course of study. It does not discuss the complicating possibility that visual thinkers who have reached college or graduate school may already have modified their thinking to accommodate the educational environment. This is not an ideal beginning for a study, as it prevents us from facing some rich complexities inherent in the topic, but it was the way I was able to proceed.

For those familiar with it, this paper presents in some detail an alternative to the widely accepted orality-to-literacy explanation of writing problems as presented by Ong, Olson and their followers. It also supports an alternative to the conclusion of developmental thinkers (Inhelder and Piaget, 1958) that non-verbal modes of thought occur early in life and are naturally superseded by verbal literacy and abstract thinking in the teen years.²

The lack of words

Visual thinkers who have writing problems use words in an imprecise sense for the simple reason that words don't matter. The real thought is taking place in another dimension.³

- 1 The man known as the 'Genius' of architects is accredited with the destruction of the 'box' in architecture.
- 2 The designers and craftsmen of this period are also to be attributed with interjecting human comfort and scale as an important feature of the furnishings.
- 3 Since many people come from many parts of the world, the United States is compromised of many people from many nations. [The same writer later calls expulsion from a professional society "dismemberment."]

Words have such little relevance to visual thinkers that they often do not even name the things they talk and write about. They use vague terms like *it*, *this*, *that* and *thing*, along with vague pronoun references — as in this example:

I feel that it is up to the individual designer to decide which is the best direction for him to take. As far as its implications on the profession, it could be a good thing, in that a client may feel more confident in his designer choice for a particular job if he is specialized in that area. On the other hand, it could be negative if a client liked the work a designer did for him on a commercial job and wanted him to do a residential job and the designer refused.

The passage *points* instead of *naming*. Almost nothing is specified: "up to the individual;" "the best direction;" "its implications;" "a good thing;"

“a particular job;” “could be.” Note that the last two him’s in this passage refer to different people — not a problem in a visual thought, but a potential problem in writing that any editor would spot.

Slips of the tongue can betray the visual thinker’s tenuous relation to words. In the middle of a statement, visual thinkers sometimes insert a word which names some object in the room their sight just happened to fall upon, like this conversation in a kitchen: “Yesterday when I was driving to school, the dishwasher overheated and I had to stop at a service station.”⁴

In a conversational pattern I often observe, visual thinkers stop in mid-sentence, stumped for a word: they can see it but not say it. Teachers could accuse such students of not thinking. They are thinking, but their thoughts arrive in visual, not verbal, form.

Absence of analysis

The visual writer’s lack of names indicates the absence of the complicated habit of analysis, comparison, valuation, organization and selective perception that leads one to have words ready to name perceptions and express thoughts — a habit essential to good writing. The thought dates to Vygotsky in the 1920s:

The independent elements in a visual field are simultaneously perceived; in this sense, visual perception is integral. Speech, on the other hand, requires sequential processing. Each element is separately labeled and then connected in a sentence structure, making speech essentially analytical. (1978, 33, his italics)

Naming is an analytical process. We use words so naturally that this thought may not at first seem significant, but it is crucial. Prior to naming, a thinker must carry out a process of analyzing “things” into “component parts” and “relationships” so that distinct concepts exist which can be named. Further, naming requires commitment: To name something is to engage a particular theory of the world as context and to assert, in that context, the thing one names. Merely using a word often commits one to a vast interrelationship of assumptions and values — which is either a road-map or a quagmire, depending on the verbal ability of the speaker. What we name are not things, but the analytical concepts by which we relate to the world. Writing magnifies the analyzing and categorizing functions of the mind: “All writing fosters categorical thinking and analysis, because analysis is built into the very act of writing. Writing is a technology for dividing the world into categories” (Bolter, 1991, 209). And, we add, giving names to those categories.

Every good writer builds and maintains a mental network in which every known word exists in relationship to similar terms, contrasting terms, homonyms, etymological roots, contexts of meaning, dialects, appropriate settings, etc., and where words are related by not only by shades of meaning but by rhythm, rhyme, and reference to history, literature and experience — including non-verbal experience:

Semantic memory is the memory necessary for the use of language. It is a mental thesaurus, organized knowledge a person possesses about words and other verbal symbols, their meaning and referents, about relations among them, and about rules, formulas, and algorithms for the manipulation of these symbols, concepts, and relations. (Tulving, 1972, 385-386).

Drawing upon the rich, dynamic, intricately interlinked vocabulary that they have developed as their “inner thesaurus,” good writers choose words from a wealth of possibilities.⁵ By contrast, visual thinkers often use a word as if they had no choice: It seems to be the only word available. Visual thinkers may use a word as if the word had no opposite, stood in contrast to nothing else, and had no shadings of meaning that differentiated it from similar words. At those times, the visual thinker’s words have a prophetic quality; they seem to come directly from the mind of God and imply that if you don’t understand them, the fault is your own. Lacking a sure sense of how words relate to one another and what those contrasting groups of words mean to other people, visual thinkers may use broad, vague words or they may use common words in an arbitrary, eccentric manner, as if words were colors and they were creatively decorating a room. In this sense, they are more eccentric in word use than are oral thinkers, who gravitate to socially-shared meanings.⁶ When asked about such usage, visual writers tend to say something like, “Oh, that’s just what I use the word to mean,” as if words, like colors, had no public meanings but could be freely redefined to express the private purposes of the author. Visual thinkers sometimes treat language like decor.

Words as labels of unseen pictures

The words of visual thinkers often make more sense if you consider them not as the exposition of a verbal, logical idea, but as labels for unseen pictures. Such thinkers may use a few key words repeatedly, without elaboration, as if each word contained and powerfully expressed a complex thought in its entirety. The reader, though, sees only the words and does not have the writer’s mental pictures that are necessary to convey the real meaning. The words are cryptic. The best visual writers are mysterious and evocative; the worst are simply incomprehensible.

Often, simple grammatical errors take on a different meaning when considered as products of misapplied visual thinking. Consider the misuse of “it” in the following sentence:

Open office systems have too many demonstrable advantages for any employee not to consider it favorably.

“It” would normally be considered a simple error in number that fails to match the plural “systems” with its proper referent “them” (rather than the singular, “it”). Seen as the writing of a visual thinker, however, “it” makes sense when understood as referring to an “it” that is an unspoken, visualizable unit of thought that stands for something like: “the process of making the change to open office systems.”

Fear of words

Lack of words and lack of the analytical process which makes words available may not be a defect, but a deliberate achievement. Because words interfere with many nonverbal processes, some nonverbal thinkers fear them. Impinged upon by language, a visual thinker (or dancer or potter or painter) may feel like the caterpillar who could not walk for thinking about it. Words alone may not be the problem so much as words that trigger an invasive analytical consciousness which imposes combative categories upon activities which function much better as un verbalized skills or feelings. Nonverbal thinkers may fear the very states of mind that Ong, in a bittersweet moment, attributes to fully-developed literate thinking:

- Writing... is a particularly pre-emptive and imperialist activity that tends to assimilate other things to itself. (Ong, 1982, 12)
- Writing introduces division and alienation. (179)
- Moving into the exciting world of literacy means leaving behind much that is exciting and deeply loved in the earlier oral world. (15)
- The spoken word forms human beings into close-knit groups... Writing and print isolate. (74)
- Writing separates the knower from the known. (105)

Given accounts like this, perhaps we should all fear the consequences of a hyperliteracy that has not been “properly interiorized” so that it “does not degrade human life but on the contrary enhances it” (Ong, 1982, 83). Persons whose natural nonverbal talents and worldly skills can be “degraded” by improperly interiorized verbal, analytical thought have reason to fear having their minds “colonized” by the imbalanced form of literacy emphasized in schools. Such persons might include not only visual thinkers, but mothers, artists and craftspersons, kinesthetic male first-graders, inarticulate persons with highly developed interpersonal sensitivities and others.

Many people prefer to deal with their crafts or relationships intuitively and do not like to talk about what they do. Indeed, some activities, perceptions and kinds of thinking may work better in the absence of words (Weschler's 1982 biography of American artist Robert Irwin is titled with a quote from Paul Valery: *Seeing is Forgetting the Name of the Thing One Sees*). Visual thinkers work in regions of the mind where words are not essential and may be intrusive (Franck, 1973). They often engage in activities which focus not on words but on such non-verbal values as line, color, texture, balance, proportion, aesthetic experience and the manipulation of objects. Similarly, students of many kinds may resist the full achievement of *school* literacy for fear of losing their preliterate selves — including a sense of innocent wholeness, connection with their culture of origin, pleasurable embodiment in immediate experience, and the simple ability to stop thinking. (Rodriguez, 1981, gives an account of the loss of personal and cultural identity due to education.) In order to gain the trust of such learners, teachers must be prepared to teach them how to keep from being enslaved by the specialized analytical thought processes that (as Ong has vividly described) are so greatly empowered by writing.

This conclusion harks back to Arnheim's plea for an larger role for art in education (1969, 3) and goes against the current idea (implicit in Ong, Olson and many other writers about literacy) that students must give up the perceptual richness of their local culture to achieve the peculiar analytic isolation of high literate culture. Surely we should be seeking a way, after 300 years of the widespread use of tightly logical expository prose⁷ and some 2500 years of text-oriented thinking⁸ to domesticate literacy in the service of human wholeness.

Stacking, packing, and enfolding words

Because many elements can appear at once in visual thinking, the visual writer may try to make many elements occur at once in writing — trying to stack words, as it were, on top of each other, layering them, enfolding word within word, thought within thought, the way elements in a picture may be enfolded into one another.

The visual thinker may try to network words multidimensionally, as if a page of print had the capabilities of hypertext or the multiplicity of meanings inherent in dreams and myths. Instead of specifying and defining the subject, the words of a visual thinker tend to radiate out into multiple meanings. Single words may overlap with several different thoughts, expressing none of them separately. In this sense, visual thinkers don't write so

much with words in alignment as *worlds* in collision. The resulting ambiguity does not arise from the absence of gesture or oral context (as the orality argument would have it); it arises as the writer tries to make the newer technology of text work using the older logic of visual thinking.

The result is prose that requires interpretation; indeed, not even the writer has interpreted this prose. Such words arrive on the page like suitcases at the baggage claim: You know there is something in them and they have traveled far, but you cannot tell what the writer means. The words are filled with unstated meaning. They are (the term is Ricoeur's) "packed" and need unpacking. This method of using language, however, is not always a defect; radiantly evocative words have long been the language of myth, mysticism and love. Also, in earlier centuries, educated readers expected to interpret writing on several different levels at once (e.g., literal, allegorical, moral, and anagogical or spiritual), so that multiple meanings were the norm. This was before the era of clear, expository, fully-explicit prose.

Visual thinkers are accustomed to their own kind of interpreting; the very act of visual perception, as Gregory (1966, 1970) and Gombrich (1959) have shown, is interpretive. When oral thinkers leave you to guess at something they have written, it is usually something that would have been obvious had the writing been a conversation. Such is not the case with visual thinkers, even whose spoken words can be mysterious references to visual thoughts invisible to anyone but the thinker.

Writing done in this "packed" manner makes more sense when read as poetry than when read as prose. In a wonderful exercise, Couture (1986, 86) showed that such "elliptical" prose is easier to read when typed as free verse. In that form, the reader does not expect the prose to be fully explicit in spelling out its meanings. The reader expects to interpret, to make connections, to leap across gaps. But when elliptical prose represents itself as explicit prose, it fails to communicate. Students who write this way may fail in the assignment. Many are, I suspect, visual thinkers struggling with the mental technology of writing.

Difficulty with description

One might expect visual thinkers to excel at description. But when visual thinkers have difficulty writing, their descriptions are especially static, unmoving, repetitive and difficult to assimilate, precisely because the visual thinker does not "dramatize" description in the form a narrative, but "stacks" descriptive elements into a pile of details too large to keep in mind at once (this point was argued by Lessing in 1766).

Readers can grasp only a few unrelated elements at once (psychologist George Miller reached the well known conclusion that we can remember five, plus or minus two, unrelated items). But in a picture, say, of a face, a multitude of separate elements can be expressed within a larger visual whole. Accomplished writers create comparable wholes — they call them “narratives,” “story forms,” “theories,” “logical progressions,” “outlines” or “organizing metaphors”— inside which a large number of distinct elements become comprehensible because they are related to a central pattern. Visual thinkers, accustomed to unifying patterns of a spatial kind, need to learn to create unifying devices of the kind writers use.

In some cases, the visual habit of thinking in multiple meanings — stacking — may cause the author to unintentionally fuse two words. Some of the resulting words would be quite creative if they were intentional. In what could be mistaken for an error in spelling, for example, one student author discussed how dimmers, timers and light sensors can “illiminate” (eliminate + illuminate) the need for on and off switches. Another visual thinker referred to “affluential” lawyers (affluent + influential). Such “mistakes” indicate enfolded verbal thinking in which the words have not been extracted, made definite and placed in sequential relationships. These people may be thinking clearly, but doing so with images—and with words that have not yet been translated into expository statement.

Problems of Writing in Sequence

Importance of sequence

Sequence is of the utmost importance in verbal thought and writing: “Dog bites man” and “Man bites dog” are fundamentally different statements. In the visual expression of that thought, sequence is irrelevant, yet there can be no confusion about who bit whom: A picture can simply show it and show it all at once. Visual thinking produces whole, patterned expressions such as maps, symbols and pictures. Verbal activity leads to sequences such as narratives and explanations.

We have considered the possibility that visual thinkers may produce certain writing problems because they do not have the deeply developed habit of using words, along with the analytical and organizational skills required to maintain a network of interrelated, named concepts — a mental thesaurus. The next section will explore how visual thinkers show certain characteristic writing problems that appear to derive from thinking in wholes rather than in sequences.

Difficulty with transitions

Visual writers display difficulty in handling transitions and connectives. Because their primary mode of thought is spatial, visual thinkers lack the habit of relating one element precisely to the element that follows it. Juxtaposition — the jump-cut — is the visual thinker's normal mode of transition. In extreme, visual writing sounds like haiku: briefly-evoked scenes abut one another without explanation. One professor described the writing of his artist wife as “jumping from island to island, without traveling down the freeway bridge that connects them.”

Verbal thinkers, by contrast, relate one sentence to another through the use of connective terms like “on the other hand,” “but,” “accordingly,” “previously,” “in conclusion,” “as a result,” “notwithstanding” and so on. They have a sophisticated vocabulary of transitional words and phrases that specify the relationship between thoughts in the sequence and provide readers with signals that activate appropriate interpretations. Verbal thinkers work hard to place their sentences so that relationships among thoughts are either made explicit or strongly implicit.

In writing, visual thinkers use fewer transitions and use them less precisely, than verbal thinkers do. Consider these examples from the writing samples I analyzed:

- 1 A switch to an open office system also introduces a unique flexibility... This flexibility must be incorporated in considering the initial costs of switching to an open office environment. However, not only do you have the flexibility to reconfigure an existing space but consider a move to a larger space or to a new area of the country.
[Revision:] Switching to an open office system is always one of several choices, all of which should be considered in figuring the costs of the switch. Not only could you choose to reconfigure an existing space, you could move to a larger space or even to a different city. In some cases, moving may be cheaper than reconfiguring.
- 2 *Albeit* my apprehension, the readings were surprisingly palatable...

In the preceding examples, “however” was used for “moreover” and “albeit” for “in spite of.” The writer seemed to sense that some transition was called for but did not have even these fundamental transitional words ready at hand. The thought is coherent; the mode of expression, however, shows a weakness characteristic of visual thinkers who do not have a ready command of verbal transitions and connectives, or of the mode of thought that makes those transitions work.

Visual thinkers may have another reason for their difficulty with transitions. In writing, sequence is essential. Thought unfolds over time and many of the tools of syntax and vocabulary serve to control that sequence and interrelate

the sequence of words, phrases and sentences. To the visual thinker, sequence is individual, may be unimportant and is often subordinate to detail and pattern.⁹ To a writer, sequence is as important as the order of dishes at a meal; a carelessly used transition could cause dessert to appear before the appetizer. In this analogy, a visual thought is more like the menu: all possibilities are present at once — and none favored.

Overuse of to be

The visual writer's de-emphasis on sequence leads to the overuse of verbs that juxtapose without arranging. And, since everything tends to happen at once and in present time to visual thinkers, they tend to choose static verbs, the passive voice and heavily depend on forms of the verb "to be."

John Portman designed the Peachtree Center in Atlanta, Georgia. Portman's designs are noted for being in the downtown areas of cities, bringing revitalization to those areas. The Regency Hyatt House in Atlanta was a major development in hotel design. It was the prototype of future hotel design. In this design, Portman took into consideration the human factor and how people relate to their environment. The main features of the Regency Hyatt are: glass elevator cables, extensive use of art and foliage, a central atrium extending the height of the building, sidewalk cafes, and a rooftop restaurant. These design features are seen today in other hotels by other designers.

The writing of a visual thinker is difficult to revise, because you have to make so many guesses about the exact meaning and the relationship between statements. But here is the way a verbal thinker might have written the above passage.

[Revision:] With the Regency Hyatt, John Portman not only helped revitalize a decaying downtown, he set a new standard for hotel design. Designed for people and the way they relate to their environment, the Regency Hyatt looms around a soaring central atrium through which visitors ride in glass elevators — looking down at sidewalk cafes, fountains, works of art, walkways, balconies and extensive foliage — up to the elegant revolving rooftop restaurant. Hotels with these features, built by Portman and his followers, now dominate the skylines of old downtowns around the country.

(Notice how the writerly passage tries to get around using a static list of features—by framing them as seen from a moving elevator.)

The visual thinker's overuse of "to be" leads to subject-heavy, verb-weak sentences in which long noun clauses (the rough equivalent of visualized objects) are loosely strung together with "is." Instead of the dramatic method of "who does what to whom now, and now, and next," the visual thinker tries to infuse prose with a multiple simultaneity that flattens out into "is...is...is..."

How his quote relates while designing a space is that the space should be designed for people to enjoy, to prosper in or relax in.

[Revision:] Portman emphasizes that the interior should be designed as a space where people can prosper, relax, or enjoy themselves.

Weak narrative

A kind of “storytelling” animates the heart of good writing and perhaps, as Fisher (1977) has argued, the heart of all communication. Good writing is inherently narrative and storytelling is the fundamental mode of oral communication (Ong, 1982, 140). In narrative, pieces of thought behave like characters in a story: they move, act, change direction, contrast to others, contradict, set up expectations and fulfill them, make claims, assert truths, argue, conflict and resolve. Good writing is not “statements of fact” so much as unfolding drama of interactive statements that challenge and qualify one another, that expand, surprise, oppose or confirm one another. Good prose is verbal theater which the reader interprets and enacts.

The first example below shows how a good writer dramatizes a point. The second “flattens” the point as visual thinkers so often do; in it, the drama of heightened sequence is replaced by a limp string:

- 1 **When the topic of licensing interior designers comes up, the architect bristles for fear that he won't be allowed to design interior spaces any longer. This simply isn't true.**
- 2 The relationship between architects and designers is rapidly becoming more acceptable; once thought of as a threat to them, architects are now realizing designers are a valuable asset. [The misplaced modifier (“once thought of as a threat to them”) further spreads out a conflict that begs to be sharpened, then resolved. Notice the verbs: “is,” “are,” “are.” Even a single strong verb like “bristles” can animate a passage.]

Curtiss (1988) notes that art students typically have difficulty writing about themselves because they see their lives as a whole and do not easily break them into component episodes and sequences that are easy to write about. Unlike oral thinkers, visual writers have difficulty converting their thoughts into narratives. They tend to string thoughts together without any particular order. One thought doesn't follow another or lead to anything; it just *is*. When they use connectives at all, visual writers (like oral thinkers in this respect) favor the “additive” connectives: *and, also, again, furthermore, another* as well as connectives which do not explain how they connect (e.g., “I have already mentioned”).¹⁰ Unlike oral thinkers (who tend to sharpen and exaggerate), visual thinkers often *list* features without taking a position, imposing an order, or presenting an action:

Security is a design consideration not only in residential design for personal safety and property protection, or as generally thought of as in bank's security measures but must also be considered in relationship to every type of public space — malls, airports, parking lots, hospitals, etc.

[Revision:] In any type of space, the designer must consider security. People demand security — personal safety and the protection of property — in a home or a bank. It is just as important in a mall, airport or hospital.

In the habit of seeing everything as related to everything else in a continuously interacting gestalt, visual thinkers have special difficulty writing comparison and contrast:

Specialization, in and of itself, is neither good or bad. In my opinion, it has both advantages and disadvantages. Some narrowing of possibilities, within the broad field of design, lies in the specific skills of the individual. Personally, I think I would make a lousy salesperson, it neither excites or interests me to attempt to persuade people into one product over another.

The passage starts as a comparison of the advantages and disadvantages of specialization, but it abruptly jumps to an unrelated thought, then peters out. As in many of the examples cited in this paper, this one at first appears merely to be "bad writing." It might then be explained as a typical example of a student with "residual orality" failing to write "explicit prose." I am arguing that it also has specific characteristics that result when visual thinking is imposed onto expository prose. The teacher who recognizes this as not just "bad writing" but also as "visual writing" may (as we will consider later) be led to a different strategy of remediation.

Problems of Context

A good writer establishes the context for what is to follow. There are so many contexts in which to interpret experience that unless the writer directs the reader to a specific context, even the meanings of the most ordinary words become uncertain. "Male" and "female" mean something quite different when referring to electrical plugs than when referring to the mating rituals of whales. (Bransford and Johnson, 1972, is the classic demonstration of interpretation by context.) But because visual thinkers can always "see" the context they have in mind, they often assume that everyone else can too. For the visual thinker, context comes with the thought-image in the form of its background and surroundings. Context and image appear together as integral elements of a whole thought — just as the foreground of a painting appears with its background as an integral whole.

In a visual thought, a thing does not gain its reality the way words do, by existing in a network of comparisons, contrasts and shadings of meaning;

it simply appears. It is what it is. Visual thinkers too readily assume that everybody knows the context they are referring to. As a result, visual thinkers can show insufficient regard for setting context, for comparing the present subject to something else that is known, for cueing the reader to activate relevant schemata or contexts for interpretation or for other common methods of introducing topics. Phrases, like pictures, appear out of nowhere — full-blown and mysterious. Like children first learning to talk, visual thinkers expect you to know what context is built into their utterance (“Daddy, doggie!”) Visual thinkers may suddenly continue, without explanation, a conversation you last had a week ago, as if it was still going on; they may begin writing as if you were privy to their previous thoughts. When visual thinkers have writing problems, they tend to omit words that explain context and instead use terms that suggest sudden, unrelated, dreamlike appearances — terms like “there is,” “it is,” “one can see,” “also” and the like.

Many of the visual thinkers whose writings I examined did not introduce the topics they were writing about. They just started writing out of the blue. Others seemed to recognize the need to write an introduction, to establish a context, but did not seem to know how:

What is a Western point of view towards ethics? How about Eastern views? Are there differences, similarities? A good topic to discuss further is how interrelated the two might be... [Notice the verbs: is, are and be.]

Practice in context-setting, then, should be especially helpful for visual thinkers who want to write better. Such writers might benefit from studying how good pieces of writing begin.

Forest and trees

Visual thinkers seem to have unusual difficulty writing so that readers can see both the forest and the trees — main points and supporting details. Two tendencies pull them in opposite directions. On the one hand, visual thinkers have a natural love of detail: Looking at a tree, they may be drawn to the patterns of shadows cast by the tiniest hairs on the veins of the leaves. Seeing so much, visual thinkers get lost in aesthetic detail — a tendency I suspect is exaggerated by most artistic training. On the other hand, visual thinkers think in wholes. They love visual orderliness, balance and proportion. Indeed, if Silverman (1989) is correct, visual thinkers have a cognitive *need* to see the big picture. Given their disposition to gestalts, why do visual thinkers have difficulty organizing prose?

Visual thinkers may have difficulty organizing the details in their writing because they tend toward what I can only think to call “aesthetic indiscrimi- nation.” Verbal thinkers constantly analyze, compare, relate and evaluate. Good writing is fundamentally biased — biased toward a particular point. In writing, the elements of thought are *not* equal. Most thoughts are subordi- nate to other thoughts and all are subordinate to a single overriding theme. Well-organized prose does not suddenly happen at the typewriter; it is the end result of a long process of analytical perception and a commitment to a particular strategy for sequencing the elements of the thought. Good expos- itory prose grows from a subtle analysis which ranks details so they can be ordered in support of a central theme and expressed verbally. Expository writing is based on a thought process that is, at heart, analytical.

But everything can seem sublimely equal to a visual thinker. Every detail matters, no detail is irrelevant. Visual thinkers tend toward an approach to life that Manfred Clynes called “apreene”— a state of perceptual openness in which they “trust that whatever may come into awareness is worthy to be well received and even treasured” (quoted in Curtiss, 1987, 218).

Perhaps this receptive, non-evaluative attitude is a byproduct of the brain- wave state required for producing vivid visualizations, so that visual thinkers thus gravitate toward a state of consciousness inimicable to the precise use of words. Techniques for inducing more vivid visualization often empha- size such receptivity (e.g., the deep relaxation used in Autogenic Training). Perhaps this mode of thought is more fundamental and “natural” than analytical thinking; perhaps it even leads to more humane and holistic cre- ations. Unfortunately, when visual thinkers have writing problems, this mode of thinking can lead them to become immersed in a flood of ever- changing details of texture, color and form or to space into a wholeness in which everything is intensely real but “there are no words for it.” Then, visual thinkers, inclined to consider each element of perception, thought or writing equal to all others, tend to produce static, digressive prose that lies passively on the page and offers the reader little direction or help.

Summary

Visual thinkers have difficulty organizing expository prose because their preferred mode of thought is even more fundamentally different from the organization of expository prose than oral thinking is. Prose is organized by story, focus, sequence, drama and analysis — none of which is native to the country inhabited by a visual thinker. The writing of a visual thinker is like a map of all the possibilities; a verbal thinker writes like a guided tour.

Discussion

Shaughnessy. All of the problems identified by this approach sound like the familiar problems of “basic writers.” What difference, then, does the present theory make? It leads us to a major conclusion that could have widespread consequences: clashes between nonverbal and verbal thinking could be a hidden factor in the writing problems of many students, even though those problems have previously been analyzed as having other causes. In her widely respected analysis of writing errors, Shaughnessy (1977) cites many examples that, from our perspective, sound very much like the byproducts of visual thinking.

For reasons that are not always clear, or the same, writers at this basic level often fail to name the object or person or idea they are writing about... This evasion of the subject entangles the writer in passive constructions or inverted patterns — it is, there is, etc... Subjects tend to be vaguely named: a method of teaching is labeled *this idea*, controversial issues are called certain things, or independent study is referred to as this way... But the favorite word is thing, the all-purpose noun that parallels the all-purpose that of syntax or the all-purpose comma of punctuation. No noun comes so easily or covers such a range of “things. (199; her italics)

What are such writers thinking when writing “thing”?— Probably, they are thinking “thing” with the visual or kinesthetic imagination. Such writing problems might be attributed to “oral” thinking as well, but other errors seem too inward for orality. In another place, Shaughnessy describes a problematic passage as having “the quality of a writer’s inner, pre-verbalized thought, not yet shaped for communication” (232). Notice that in using “thought” and “communication,” she presumes that the communication will be in words; I have argued that some thoughts may already be shaped for communication, but in a *nonverbal* medium, and it is their use in a verbal medium that causes difficulty. A number of the errors Shaughnessy attributes to “basic writers” could easily have their roots in visual thinking and other nonverbal modalities of thought.

Orality, Literacy, and Visual Thinking. This paper has implications for a second approach to the teaching of writing — the orality-to-literacy model. Some of the central characteristics attributed to “orality” appear in the student writings quoted in this paper, where they are explained rather as characteristics of visual thinking. “Preliterate” thinking may thus not be as intensively oral (sound-derived) as Ong and others insist. Visual, synesthetic and other forms of non-verbal thought may well account for some of the features currently attributed to preliterate orality. Furthermore, visual thinking can continue in force after the acquisition of full literacy as a parallel mode of mind and may not be assimilated by literacy — as orality is thought

to be. The orality-to-literacy model envisions verbal thought replacing other modes as one matures. This paper envisions mature thought as an interpenetration of several different highly developed modes of thought.

Visual thinkers, as described in this paper, have several tendencies opposed to those Ong and his followers attribute to oral thinkers. Because words are secondary to their thinking, the language of visual thinkers may be more private and eccentric than the communal language of orality. Because their primary thought processes are non-sequential, I have proposed that visual thinkers have difficulty with the dominant mode of oral thinkers: narration. And, throughout his analysis, Ong (after McLuhan, I believe) considers the visual to be severely analytical; this paper assumes a more holistic concept of visual thinking (a view also held by many others writing about visual thinking, such as Franck, 1973; Jackson, 1975; McKim, 1972).

This paper differs in another respect from the orality-to-literacy model. Visual thinkers are not necessarily orally competent; some speak poorly and only when required to. Even in a primary oral culture, there must have been inarticulate people; such was certainly the case in my grandfather's time. I have argued that it is important to consider visual thinking as a modality separate from orality. In addition, anyone tempted to adapt the orality-to-literacy transition to visual thinkers should read Brandt (1990) for her critique of the orality approach.

Implications for Research. The theory offered in this paper is a first step toward improving the teaching of writing to visual thinkers — and perhaps to musical, kinesthetic, personal and interpersonal thinkers as well — to use Gardner's (1985) categories. The concept in this paper directs us to improve writing by first identifying the underlying thought processes, rather than assuming verbal thought and working to improve the mechanics of grammar and syntax.

How to teach visual thinkers to write better remains to be determined, though recent research on the teaching of reading and thinking suggest places to begin. In particular, the following seem to me to open important doors: Dixon's remarkable book, *The Spatial Child*; Silverman's (1989) account of the visual-spatial learner; John-Steiner's (1987) study of creative thinking in several modalities, including visual; Clarke's (1990) innovative approach to teaching thinking through graphic symbols; Sinatra's (1986) writing exercises based on an understanding of visual literacy;¹¹ Gardner's (1985) description of multiple intelligences; the revolutionary work by Lakoff (1988) and Johnson (1987) grounding linguistic thinking in metaphors developed from bodily experience, which challenges the fundamental principle of modern linguistics and deconstruction — that signs and semiotic systems are arbitrary — and legitimizes nonverbal activities in the teaching

of writing; recent advances in the teaching of reading, such as instruction in cognitive processes and learning strategies (Derry, 1988/9; Derry, 1990; Jones and Idol, 1990; Jones, 1986); research on the visual representation of ideas (Jones, 1988/9; Armbruster and Anderson, 1984; commercial seminars by Information Mapping, Inc.); the importance of schemata in text and in readers' understanding (Anderson, 1984); and metacognitive cues which signal readers on how to interpret and organize what is being written (Vande Kopple, 1985). Studies of the interrelation among different modes of thought — what Stacks and Andersen (1989) called “intra-personal communication” — may also provide valuable resources for writing improvement, especially if this helps maintain the integrity of nonverbal experience in the face of literacy's power. Non-verbal thinkers may be more emotionally and kinesthetically oriented than verbal thinkers; for them, drama may provide a fruitful link between experience and exposition. Innovative work in progress by Karen Klein and Linda Hecker (first developed for dyslexic students) uses kinesthetic walking-through exercises to help writers organize their stories at the bodily level before outlining them in writing.

Research is needed on how to integrate students with strong visual abilities but weak writing abilities into the college curriculum. Stories from the adult literacy movement show that some individuals can attain high positions without being able to read or write; perhaps some students with visual gifts should be forgiven the requirement of learning to write “college prose.” Special integrative programs may be required which pool students with complementary skills the way those skills are combined on the job — the way editors and art directors work together on publications.

A study could be made of visual thinkers who write well. How have they bridged the gap between visualizing and writing? Do they visualize and then transform the visual images into prose? Do they use frequent illustrations? How do they sequence their visualizations into prose? If they have faced and overcome the difficulties this paper posits, they may have valuable ideas for helping other visual thinkers write better.

Research on visual thinkers is hampered by the lack of a simple, reliable test for identifying them. Silverman, Dixon and Truch identify visual thinkers by analyzing the relations among subtests from the Wechsler IQ battery; but the visual portions of some IQ tests seem to me to prove only that their makers lacked the imagination to see the multiple possibilities inherent in all images. I once thought that a spatial rotations test would suffice (Wheatley, 1978), but while it seems to identify analytical visual thinkers (such as mathematicians and architects), aesthetically oriented visual thinkers do not necessarily do well on it. To label someone a visual thinker still requires a

judgment call. Yet the label is meaningful to teachers of fine arts, graphic arts, graphic design, architecture, interior design, publication design and other forms of visual communication.

Varieties of visual thinking

In this study, visual thinking has been limited mainly to “static imagery,” a limitation not acceptable in more advanced studies of “spatial ability.” There are other types of visual thinking. The analysis presented here and the students studied probably should be considered in terms of “spatial thinking” (Brown and Wheatley, 1990), in contrast to “visual thinking” (such as generating and transforming mental images) or “pattern recognition” (seeing similarities in complex forms). There may be several distinct forms of visual thinking that have distinctly different effects on the dynamics of writing.

Varieties of writing

The “writing” considered in this paper refers to the kind most college teachers would consider desirable (Olson, 1977a): writing to prove that you have learned. But perhaps such highly organized, logically-sequenced, fully-explicit expository prose should be looked upon as an unusual and highly specialized form of human expression. Certainly, stories are more universal than research papers and disorganized, illogical writing is more common than logical, organized writing. Illustrated writing may be more “natural” than writing in words alone.

Perhaps visual thinkers need to learn not to “write” (in Olson’s sense of “text”— logical, fully-elaborated, expository sequences made exclusively of words), but to “communicate” through mixed media. The dominant concept of writing — based on the typographically traditional book format — has been severely challenged by easy interplay between graphics and text that can be found in any well-designed magazine. Fortunately, typography has recently been rescued from the near-invisibility imposed on it by the typewriter. In page-layout software, text can be divided into segments that can be typographically differentiated and arranged into sidebars, boxes, tables, pull-quotes and the like, creating what Bolter called “topographical” prose that is at once verbal and visual. The user of hypertext can go even further and organize prose in a multidimensional non-linear structure (for good discussions, see Tuman, 1992, and Bolter, 1991).

Perhaps writing has been made unnecessarily difficult by the rarely challenged assumption that students should write in a one-dimensional sequence and produce a document composed exclusively of words typed in a uniform typeface. Visual thinkers might learn to write better if they abandoned the words-only typewriter format and composed their thoughts directly onto page-layout programs in which the visual presentation of the material is, from the beginning, an essential part of its meaning.¹² Visual thinkers may be best at communicating complex ideas in forms where words are used to refine and label images, rather than images used to decorate pages of text.

On the other hand (those "other hands" give this topic a spider-like fascination) so many aspects of good writing seem to arise when words are forced to substitute for all other forms of communication (such as gesture, tone of voice and pictures) that, to develop the right mental muscles, good writers may have to wrestle naked with the naked word. The strength of this engagement could be diluted, not helped, by graphics and layout. Learning to write better might even be influenced (as Halio, 1990, suggested) by whether one uses a computer with a graphic interface (such as a Macintosh or Windows) or a computer with a verbal interface (such as MS DOS).

Verbal bias of schooling

This paper arose from a concern with the fate of students who have a gift for visual thinking. The context for this concern is the existing educational system with its bias toward verbal performance and the kind of thinking that results in analytical, expository prose. Some of the writing problems of visual thinkers are almost certainly a byproduct of this narrow educational emphasis. It is like requiring everyone, regardless of body type, to lift 150-lb. weights in order to graduate. Unfortunately, even the literate bias of schooling (to use Olson's phrase, 1977b) does not necessarily produce good writers and there is reason to be concerned that many of our future students, visual thinkers or not, will write as poorly as the students cited in this paper. Some students appear to be pre-literate not due to any special gift, but due to the influence of television and the lack of effective education. Others, impelled by an inner talent for visual thinking, approach writing from a perspective that causes them special problems. And if proponents of visual literacy like Sinatra are correct, visual thinkers will not respond to the kind of writing drill that helps underdeveloped verbal thinkers. Both groups, however, will benefit from learning the importance, specific skills and hard work of communicating, in whatever modality.

Verbal thought reconsidered

It is common these days to read that verbal thought is linear, sequential, slow, located in the left hemisphere, and fundamentally incompatible with spatial thought.¹³ There are other possibilities. The increasing use of subliminal audio tapes suggests that the mind may have the ability to think in complete syntactical units at enormous rates of speed and in several channels simultaneously. One recent experiment suggests that the mind may be able to think a burst of a thousand words as rapidly as it can produce a picture: Korba (1986) estimated that people can think at the equivalent of 4,000 words per minute. It is my hunch that people engage in high-speed, multi-channeled fully-verbalized thinking, as well as simultaneous “multi-tasking” in cryptic forms of verbal thought, nonverbal modalities and integrated forms of thought. Such a concept challenges current ideas about the limitations of “linear” thought and could revolutionize our idea of where writing starts. Current models tend to set visual and verbal thinking against one another, but there may well be a mode in which visual and verbal thinking are deeply intertwined. Such a concept could revive interest in ideas that rarely appear in current research agendas — such as intuition and the creative unconscious.

Limitations of the study

There are problems with terminology in this field — and in this paper. More tentatively than it may sound, I have advanced the idea that visual thinking causes certain kinds of writing problems. But the three problems I have discussed — lack of words, problems of sequencing and difficulty communicating context — may be separable mental conditions that are not necessarily linked to visual thinking. Furthermore, many visual thinkers clearly do not have these problems; and people may have these writing problems without being visual thinkers.¹⁴

I have used the term “visual thinking” to stand for something that has yet to be defined with care, making a broad sketch of a field in which few details are clear. It is almost certain that the kind of mental states I attribute to visual thinking occur in other kinds of thinking as well and those may contribute to writing problems in a manner similar to what I have argued for here. The literature on mysticism, for instance, describes unitary states that are wordless, imageless, utterly holistic and so contextless as to be given names like “cosmic consciousness.” Joel Goldsmith (1959) describes such a state this way: “All that exists in this universe is God ‘is-ing’— Is, Is, Is” (185-6) (Note the verb!) Words, analysis, labels, sequence, syntax, context,

connectives and images all vanish to make room for a state of consciousness that is valuable for certain purposes (Goldsmith is a spiritual healer)¹⁵ but cannot be written, spoken or even visualized. Further knowledge about such states may, by contrast, help identify the actual states of mind at work when visual thinkers have writing problems.¹⁶

Conclusion

The modern world needs strong visual thinkers, but this crucial talent pool is at risk. Students of high visual ability, but low expertise in writing, may produce the kind of writing that makes them sound unintelligent, rather than gifted in a mode of non-verbal thinking. They may then become casualties of what might be seen as a form of learning style discrimination, a prejudice not only against visual thinkers, but against thinkers who are intuitive, kinesthetic, empathetic, holistic, musical, emotional, creative and those gifted with the peculiar insight and compassion of comedy. As Thomas West puts it, “conventional educational practices may be systematically weeding out many of those who might have the most to give” in terms of deep creative thinking on difficult problems in important fields. (245) Unless students such as the ones considered here are identified as having the writing problems of visual thinkers, they may never receive instruction sufficiently matched to their mode of thought that they can learn to write well enough to enter college and graduate in graphic design, interior design, architecture, engineering or other fields in which visual thinking is prized. And what we learn while trying to teach visual thinkers is likely to help us teach many different kinds of writers better.

Endnotes

- ¹ I was not familiar with Thomas West's excellent book, *In the Mind's Eye*, until after this paper was accepted for publication. He shows that many visually gifted creative thinkers (Faraday, Maxwell, Einstein, Yeats, Patton, and others) had difficulties in school because of problems with 'easy' tasks like spelling, speaking, getting organized and writing. He argues that such visual thinkers will be crucial to the creative solution of many complex problems in the future and we must revise education so it does not discriminate against them.
- ² Olson (1977a) suggests that Piaget's "stage of formal thought," reached around adolescence, is actually a byproduct of the kind of thinking developed by "school" literacy, and not an inevitable stage of intellectual growth.
- ³ All assertions in this paper are tentative and exploratory, but in order to keep the prose uncluttered, I have removed most qualifying terms. As you read, add "perhaps," "sometimes," "for some people," "in some way whose limits are not yet clear," and similar qualifying terms.
- ⁴ A Beetle Bailey cartoon parodied the power of the visual over the verbal for such people. To the increasing perplexity of his staff, General Halftrack says, "Gentlemen, there are legs in our maneuver plans. Several hips have developed. We must work on the hair before the launch date." Then the lieutenant gets up to close the door, through which the General can see the legs, hips, and hair of his pretty secretary. (Mort Walker, Dec. 10, 1989).
- ⁵ You sometimes find these analytical relationships called "hierarchical," but I suspect the relations among them are much more intricate than a hierarchy. A thesaurus, however, is probably a good map of the kind of mental organization underlying expository prose.
- ⁶ Ong's important summary of the characteristics of oral thought and expression appears in *Orality and Literacy*, chapter 3.
- ⁷ Olson (1977a) traces the origin of logical, expository, fully-explicit "school" prose to Locke, 1690.
- ⁸ The debate over the effects of literacy is covered in Kintgen, et al. (1988).
- ⁹ Some of the characteristics I attribute to visual thinking bear a strong resemblance to the networks of hypertext described by Bolter (1991).
- ¹⁰ Ong attributes this "additive rather than subordinative" use of language to orality (1982, p. 37), but I posit that visual thinkers use language that way, too.
- ¹¹ Some of Sinatra's excellent exercises are specifically directed to the writing problems attributed in this paper to visual thinkers.
- ¹² Has anyone tried training a group of poets to use the the typographic power available in a good page layout program?
- ¹³ I have avoided using the terminology of "right and left hemisphere" in this paper, partly because "right hemisphere" is a "left hemisphere" term. What does the "right hemisphere" call itself?
- ¹⁴ Linda Hecker reports that some dyslexic students have difficulties finding words or sequencing thoughts without having difficulties thinking visually (personal communication).
- ¹⁵ The nonverbal, even non-imagistic nature of Goldsmith's specialized thought process is emphasized by the title of one of his books: *Beyond Words and Thoughts*.
- ¹⁶ The approach taken in this paper—which could be said to consist of a constellation of poorly-defined terms, hunches developed beyond the evidence, a lack of building blocks based on solid empirical studies, top-down thinking and faith in the value of working out an intuition — is maddening to some researchers. Others, I hope, will find this kind of exploration exhilarating.

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The News as a Post-Literary Spectacle

Joseph F. Keppler

Totalitarian-like, the news culture dominates thought during crucial times in our nation. Purposely neither scholarly nor spontaneous, this article examines the news of the Persian Gulf war from a critical reader/viewer perspective. It proposes that video news works like an intriguing alphabet, the forms and meanings of which are pronounced by a monopoly of interpreter reporters, anchors and media guests. During a crisis traditional ABC's in print second the immediate electronic coverage. Normally the viewer and the reader can go separate ways, but a crisis calls for speed and singularity of attention. In the ignorant absoluteness of the singular entertainment of the Persian Gulf war, the difference between being literate in print and being literate in video hardly mattered. What did matter was the facility with which rhetorical strategies governed the principles and actions of people at war. To think otherwise was rendered irrelevant and impolitic.

The News As a Post-Literary Spectacle

On the radio station I tuned into during the commute, the BBC reported that Americans were ready to watch the war on TV with popcorn and beer. It was already dark in Seattle when I arrived home to study the news.

The sun was just coming up in the Middle East. There was euphoria about successful nighttime air raids. The television had maps and analysts and hidden voices. One reporter described the air battle from his hotel room in Baghdad; I saw a map and heard his voice. I aimed the remote control, anxiously changing stations to determine how the news differs. It was all the same. As I manipulated the hand controls, was I to think of symbolic masturbation, inane self-absorption or possible understanding?

Global coliseum

Perhaps Marshall McLuhan's insights about the electronic world fabricating a global village are in need of review. Television and radio may make the world a village, but the village now has a coliseum complete with armies in the night, vendors and partisan commentators interpreting fighting events. Guy Debord in his *Comments on the Society of the Spectacle* (trans. Malcolm Imrie. New York: Verso, 1990, 33.) describes, "Villages, unlike towns, have always been ruled by conformism, isolation, petty surveillance, boredom and repetitive malicious gossip about the same families." These characteristics he extends to the global village. Yet when the struggle in the village seems important and personal, neither McLuhan nor DeBord express what makes it so.

I was angry and afraid in my own living room. I understood the war news was being telecast like entertainment. I knew that communication by language was being transformed before us every time we watched television. Why then did the news still surprise me with its critical impotence in times of crucial importance? Times like this gave the news its intensity and demonstrated its contrivance. This was a life and death contest we witnessed as a spectacle. Observers were filing stories from Riyadh, Washington,

Baghdad; stories, quickly stories, quick, quick, more stories with explanations, opinions, anecdotes. Words rarely heard before were suddenly commonplace — Scud, Cruise, Tomahawk, Patriot — the vocables old, the meanings new.

Dan Rather interrupted his own coverage for a few seconds and told viewers to pause and think about this: *The United States at War in the Middle East*. Continuing coverage meant continuous information with a momentary reflection on our own state of war. Dan Rather, firm in his resolve to bring us the latest from *Showdown in the Gulf*, looked tired and confused. Maybe this came as a shock despite months of preparation. Tom Brokaw earnestly sought to keep everyone calm and informed. Peter Jennings and Ted Koppel interviewed refurbished experts: retired military personnel. Unlimited spoken text was on the screen. The old written alphabet had all but disappeared before the oral onslaught spoken over pictures.

What did they mean? What did my audiovisual anxiety mean? I was mesmerized. What was I learning?

These broadcasters were flummoxed by the enormity of the events they were discussing. Since they didn't know, they admitted not knowing, I was left to investigate their nil investigation. Hardly news. Yet the feebleness, the mental ineptitude was on all the channels. My anxiety increased because the people behind and in front of the news cameras were in effect blind, and they blocked the global village from being seen by anyone.

Ah, but they were also dumb. I concentrated on their words. The new military vocabulary flew in to do its subtle work. These specialized words hit my mind with the resonance of déjà vu and without the definiteness a dictionary or larger community brought to language. Desert Shield, Desert Storm, smart bombs, Stealth bomber — these ad hoc specialized terms placed their users into a hip community much like the way teenagers form a jargon to separate themselves from the child and adult worlds. Here it was a jargon that separated the military and the media from broader, more critical communities.

Walter J. Ong calls television part of our age of 'secondary orality.' In *Orality and Literacy* (New York: Routledge, 1990, 137.) he notes that "secondary orality promotes spontaneity because through analytic reflection we have decided that spontaneity is a good thing." Yet thinking of these news-casts and their spontaneity, I balance their chit-chat spontaneity with their informative journalism: the more spontaneous, the less expression. These shows are effective simulations of critical coverage. Are they giving me the bait-and-switch trick? There's no critical thinking and no "analytic reflection." There's only spontaneity by default.

Alphabet of images

Is video a new alphabet? There's little writing shown on television; the news is oral with a lust for the seen. Is television writing in fact diacritical? The news comes by camera, and the pictures are then voiced over to mean something. The visuals illustrate and impress while the audio reports the thinking. Constantly changing screens of images without the character of enduring individual letters create a twisted writing of the war. My eyes move across text when I read; my eyes don't move before the screen. This new alphabet of still-mind, moving-video images is based on, not letters or written words, but visual frames per second. Reporters narrate the war, giving it a third person point of view. They please adults with a picture book.

This was a post-literary spectacle. I couldn't believe it. Exactly, I thought, because there was nothing to believe. My eyes and ears were busy, my mind was merely processing the spectacle.

The alphabet and writers have formed my mind. I've been a reader almost all my life. To see something seems insufficient because it's too simple, too passive, too, well, mindless. Often to witness a public event is only as important as what I study or analyze about it. Susan Sontag's *Against Interpretation* was a great book because it seemed in retrospect another way of analysis, indeed, of interpretation. Now I'm faced with a media for which "against interpretation" truly applies. There's a perniciousness to not interpreting the news. I'm left with reporters' babbling to me a story which I watch and listen to like a good child with a good parent before a sweet dreams bedtime.

The dawn video pictures over a Moslem city seemed to me extraordinarily beautiful — a minaret in the blue air, the silver sunlight entering an open balcony. These video stills presented the light glinting through and around the archway of a graceful white pinnacle against a vivid blue sky.

Traditional language — traditional time

The war coverage came with flaring lights, bombing sounds and officially cleared military videotapes. So much for independence of the press. This was the televisual language of real war as announced by the network-covered global coliseum. The days were being counted as were the number of jets lost and of U.S. soldiers missing or dead. This was like a score being kept for only one side. Would the American reporter-participant point of view be ruined with equal time granted to an Iraqi reporter-participant point of view?

The war continued. Diplomatic and military participants were interviewed. Anchor people who had never mentioned the word before on camera now

peppered their news with the word, *pray* — we *pray* for our men and women, or we *pray* that the land battle will not have to happen. Thus religion entered the news. Not news of religious scoundrels but actual moments of vocal piety: we sincerely insisted that all would turn out in our favor.

The video spectacle of a war, not the live spectacle of a war, continued, though the pace slowed after the first days. War as it was on the television and war as it was in the field, on the sea and in the air — what was war on television? Ah, the medium indeed was the massage. There was no war before me just the video stories. The emotional response oscillated with the stories. Scud evoked more television fear than Patriot, Tomahawk or Cruise. The Allies pounded Iraq from the sky, hitting everything they wanted to hit. Carpet bombing reentered the mouths and ears of America; how deceitful traditional language could become, imparting a warmth and domesticity to blind brutality. Though I heard the words, ‘carpet bombing,’ I remembered seeing trails of smoke following the long array of bombs as they fell and hit and exploded. Why was there no sign of pain, only of power? My eyes were blinded not by darkness but by imagery.

My ears? No longer did voices emanate from a map with Baghdad highlighted. No more expressions of *wow*, *terrific* or *terrible*. Information management settled into a routine the reporters could not crack. Since reports were hypothetical possibilities, statistical chances, the reporters and anchors had to reach my ears for me to understand. What I could not see, I had to hear about — the future, for example. Imaginative scenes for the future coliseum began to intensify in horror. Bored with what they had been given to report, broadcasters uttered suggestions about what they might be reporting on in the very near future. (What did this do for the already anxiety-ridden citizen?)

Future coliseums seem to be fantastic elaborations of the present suspense. Breakthroughs, when first arriving, are experienced less as extensions of the past than as radical departures. Future dangers realistically portrayed change broadcast ennui into fear, and fear means rapt attention in an electronic world. The future coliseum pits imaginary horrors against the audience’s capacity for astonishment. I’m intimidated through serious discussion of previously unthinkable atrocities. I continue to watch.

Nonfiction: science and fiction

Would the Arab tyrant be simply assassinated or would he in anger let loose a flood of oil into the Persian Gulf and set it aflame? Would he sabotage water supplies? Would he contaminate the atmosphere? Would he fire chemical weapons at children? The scenes, though imagined, became debatable

possibilities for the audience. Speculation framed the war with the horror that advanced technology might be competently opposed with madness. Madness made the enemy invulnerable. The greatest superior force could only add to the madness to create an absurd victory over itself. Then when the enormities did happen, we learned of them within a scientific [hypothesis, test, conclusion] methodology. This added method to madness. Science rode in like the cavalry but contributed to the massacre till it was over.

What can I think of the spontaneous conjectures followed by the scientific explanations? Is this what I want, what entertains me, what educates me? Inform me, I ask the anchors, am I more American by birth or by television? This mixture of science and speculation clears the innocence from the airwaves.

Rhetoric and reality

President Bush was on the phone with Gorbachev, Mulroney, Mitterand; President Bush awakened at Camp David: Israel was hit again. President Bush wrote the prelude to this war and he introduced the necessity to fight. Without him there wouldn't be a *War in the Persian Gulf* on one channel, or *The Gulf War* on another, or *Showdown in the Gulf* on a third. Through government and business, Bush's presidency offered this powerful but philosophically impoverished nation a chance to learn technological skills by letting the military teach and furnish experience and fund further education. He was the head of an overwhelming social administration which offered money and prestige and solutions for the nation. This was a just war. It was not about oil and power; it was about not letting a madman get away with aggression. The President's script called for escalating suspense and triumphant retribution against the evil Saddam Hussein. Like notes next to paintings, the explanations entitled the works of war. The President's philosophy commissioned this entire audiovisual production of the Gulf War.

Poetic life and death

Language with the works — in bloody reality and then on cleared video — the Gulf War as a post-literary spectacle scaled back to prosaic briefings. News-people and politicians and soldiers star in their epic as real as poetry can be: It is life and death carried on precisely as if it weren't life and death but the ideals of life and death. Though no one can voice an epic poem in a culture no longer primarily oral much less literary, everyone can live as if their life were epic. It's privately perfect semiotics. Signs and signifieds cohere in

one's epic life poem. Life idealizes poetry; epic poetry idealizes life. Let the interviews begin. Some soldiers discriminate between the real and the ideal but others do not, and for them, war means live literature — live epic poetry in full living color. That's the transcendence available in poetry and in real life: communal and historical rhetoric shapes one's acts even unto death. One goes poetically to one's destiny.

Total rhetoric leads citizens to align with their soldiers in an integral conflict. The print, television and radio media in their continuity interject similar headlines about the war. Maps on the screen are matched with maps on the front page. The commentary on the air parallels the commentary on the page. The enemy has their whole version of the truth; we have ours. It is total: society vs. society. Or so it seems.

Journalists get along without blood in their language. They sell news and I go for it, a gripping documentary, a reality our language brings which is not over and won't be until death. Journalists don't tell you this. Even if they knew, they can't tell you all they don't tell you. It's not their job. Poets and soldiers do that sort of subtle and bloody work.

Journalists are cameras with voices. Their employers program their words as they program their pictures — program both in the sense of ordering and in the sense of presenting. If journalists are extensions of their employers, what am I watching and listening to but a post-literary spectacle orchestrated with all due spontaneity by a responsive and responsible media. Without any threat to their collaboration with political power, they continue their words and pictures as if these were the life and death occurrences of the war. The programming of the journalists, the programming of the soldiers, what am I watching but the program running its course. What am I expecting to happen? I'm programmed by my watching.

Technological timing

The temporal space that moving images offer is electronic-culture's most interesting perspective. It is precisely that television can space temporal phenomena like language that gives it such force in our novelty-ridden age. In a prior issue (4:1) of *Visible Language*, Walter J. Ong offered in "Comment: Voice, Print, and Culture" that language as sound "is not only perishable but always actually perishing. Sound exists only when it is going out of existence. When I pronounce the word 'existence,' by the time I get to the '-tence' the 'exis-' is gone and has to be gone. I can not stop a sound and still have a sound, as I might stop a moving picture projector and have a

still picture on the screen." Yet if we hear sound as the speed of the rolling cameras, we do not hear a sound and see an image as separate events. Of course we can analytically, but experientially the sound and image are constantly moving even if still.

Ong is right; yet compare the stills of video with the still lifes of painting. Not like paintings which are finished, still shots are felt as if they ought to be continuing. The moving picture apes moving sound, and together they go off to do their work on the mind. A camera differs from a brush in that temporal expectation. Language tied to a new alphabet of video frames leads to the spatial-temporal design of continuing messages.

History, please be seated.

With daily measurements broadcast media replace history. There's no time for the past, the present engulfs everything. Media replace history the way our bodies do, subtly incorporating our parents, grandparents, great-grandparents . . . and our own aging while continuing along in a present. Everyday we get the news and like a big wall calendar each day's coverage fills one block's worth and we move on with a fresh day's events. If history once had meaningful themes, broadcast reporting jump cuts those themes and makes our understanding more of a vicarious witnessing of diurnal flux than of an actual participant in humanity. Watching these climatic moments on television allows me to see the making of history, but not to see it as part of history. History as known since the Renaissance has vanished.

Why do I feel so ambivalent toward the media of television, radio and print? Am I nostalgic for the grand texts of history? Am I addicted to the blindness which the media offer as a substitute for personal investigations, intimate relationships, subjective philosophy? How is the daily material world to enter so largely into my mental world without media mediation? Is it mediation or is it all there is, and is the truth behind the news unreachable and unknowable and delusory? It seems to me finally that the news of the world is only news, video phantoms not at all coherent with my personal world.

Post-postscripted

For the United States the war is over. Media analysis began and rather quickly ended. Obviously nothing undoes what happened and all analysis is an afterthought, the closest we ever get to history. Commentators (like those on television or me) can hardly confront their own failure let alone change history.

Yet without counselors throughout this Persian Gulf struggle, the people were left with the post-literary spectacle as produced. No poets and no philosophers have the intimate contact and automatic respect people associate with those in the media. By ignoring such spirits, the media offer themselves and their experts as substitutes in a monopoly of thought.

Marshall McLuhan's devout Catholicism and reluctant Canadian identity helped him to discern the invisible global village. Now when the village stations are tuned into the coliseum and the network coverage guards the public mind as if it were a stadium of juvenile enthusiasts, villagers can hardly imagine anything but winning and losing.

This news about the news is bad indeed. It cannot help but make a spectacular fool of itself and us. Many have become addicted to blindness and can no longer see without our screens.

in relation to int

typography ...

Sharon Helmer Poggenpohl edits and publishes this journal and is an associate professor of design at the Illinois Institute of Technology's Institute of Design. She is currently writing a book, in the tradition of Moholy-Nagy's *Vision in Motion*, covering both the history and present thought at the Institute of Design from 1955 and into the future.

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More than a Book Review of *The Electronic Word*

Sharon Helmer Poggenpohl

A review of Richard Lanham's computer version of *The Electronic Word* becomes the occasion for reflection on typographic performance on the page and the screen. The rhetorical role of typography is examined in relation to interpretation and meaning of the text. Lanham's argument that communication needs to be looked *at* rather than *through* is extended through demonstration. The format of this example of the Expanded Book is subject to critical scrutiny.

More than a Book Review of *The Electronic Word*

Caught between the page and the screen, I deeply respect the achievements of our book culture, while I simultaneously understand that the screen is our future. Book culture is pervasive—the size of the journal you are now reading is a testament to Aldus Manutius' (1450-1515) octavo format, developed to make books more portable for the reader and easier to transport for the seller. It was a practical innovation by a scholarly publisher. The journal you are reading will change from paper to screen at some time in the future. It already exists in digital memory, but the problems of accessing it on the screen either on-line or with CD-ROM remain open as do other perplexing questions concerning authorial control, copyright law and presumptions of equipment and operating system. This journal, more than most others, cares about its appearance, not solely in cosmetic terms, but more particularly in terms of the reader pleasure derived from careful typographic consideration, visual diagrammatic or photographic evidence that advances understanding and its general exploratory attitude toward the communication of information.

While I can bring the journal to the screen and I can imagine wonderful new opportunities to pique interest, provide in-depth information and become even more visual, if I do it too soon, it will be a financial disaster (scholarly journals have a tenuous existence). If I do it too late, the journal loses its edge. Timing is critical.

In the spirit of the book to be reviewed, this journal and my own interests, this article is a hybrid. My purpose is to review the screen version of *The Electronic Word*,¹ but the article is also a reflection on ideas I, a design professor, have been pursuing that run parallel to those of Richard Lanham, an English professor and author of the book we will examine. Here I will necessarily re-present Lanham's ideas, I will reflect on them in my own terms by offering parallel concerns and visual demonstrations, and I will necessarily gloss or abstract aspects of his book. I am setting in motion a response that is slow to move in time via print, but if we imagine this response on screen, it becomes more immediate and could even evolve into a dialogue.²

The ideas

(a gloss) In *The Electronic Word*, Richard Lanham argues that book centered culture is being displaced by the electronic one, and as a consequence, linear thinking is being replaced by networked thought. He cautions us as a culture to not mistake the package for the idea, but to consider what books (or screens) can do to and for us. Examples of bureaucracies and industries centered on a particular technology come to mind. They frequently fail to adapt and subsequently perish as their technology becomes obsolete. Our business is ideas and information and their delivery to interested parties — not books or journals or software or screens. He does not deny that media shape our way of thinking and understanding. But he places technology firmly in the category of a tool for intelligent use, subservient to the ideas and information it will carry. What is at the root of the conflicting possibilities of book and screen is nothing less than a fundamental conflict within Western culture, the conflict between philosophy and rhetoric.

Now some of you may say — wait a minute — I am not schooled or skilled in Greek philosophy — I live in the here and now—time to move on. Despite having read some philosophy, I, too, am not equipped to comment on this argument in any technical way. While the conflict between the philosophers and rhetoricians is at the root of our problem with media and communication, Lanham is a sophisticated and broadly read author: he contextualizes his argument in various arenas from literature and art to science, law and management. He ferrets out the deeply held values and presumptions that have guided Western culture for millennia and that in this century have been opened to question by French deconstructionist philosophers whom he does not applaud. In essence what is at issue is the transparency of language. We need recall the Platonic ideal — pure thought — unsullied by the problems of representation by words or images — a kind of early Vulcan mindmelding. To this we contrast the philosopher's attack on rhetoric as a duplicity or outright lie.

(a re-presentation) "The intellectual structures of formal rhetoric have formed part of Western culture for so long, and yet we have for so long suspected and despised rhetoric as simple hypocrisy and deception, that it is very difficult to recognize it for what [it] is — an information system. Systems, at least for humanists, have never escaped from the Platonic orbit; they are closed patterns organized like human society in the *Republic*. Everyone has a single job; every element a fixed place; the aim is perfect stasis.... What Plato wanted above all to exile from his utopia...was style, the unabridged range of ornament, of purposeless play. Rhetoric defines itself as a counter-system

to the Platonic political order by admitting stylistic, ornamental behavior, by acknowledging that such behavior lies at the heart of human life....Behavioral biology provides a teleonomic explanation for the stylistic, playful component in human behavior....The evolutionary explanation sheds light on two ranges of motive to which rhetoric has anchored itself, game and play. Human purpose is energized by our competitive urge" (C219-222).

(a gloss) According to Lanham, game and play are the loyal opposition to "being serious." It is this opposition that has served Western thought for centuries. He goes on to discuss what he calls the C-B-S, or Clarity-Brevity Sincerity school of style, which permeates not only prose but also modernist design and architecture. Consider Miesian architecture; it is a high example of this style. In contrast, postmodernism self-consciously accepts elaborated surface and builds "meaning" between the sign and the interpreter. Miesian architecture is serious and transparent, while postmodern architecture is playful and opaque. Lanham presents a matrix that summarizes the situation (*figure 1*).

Unselfconscious to selfconscious is a stylistic continuum; unselfconscious is not without style. Lanham develops at length the idea of the oscillation between the elements on the matrix — between transparent and opaque — between looking *through* and *at*. I will take up these two in more detail.

Lanham's matrix charting the oscillation between communication attitudes.

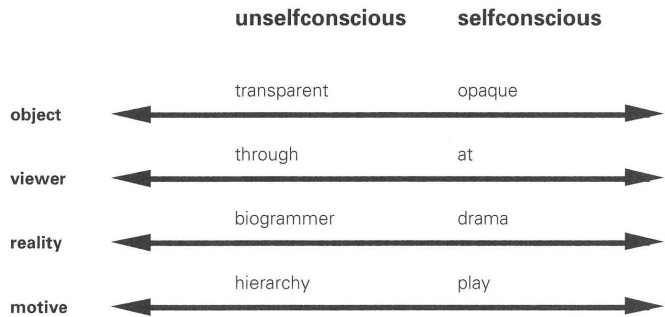


Fig. 1

Reflections on transparency

Transparent typography, like some Platonic ideal, has been one of the modernist articles of faith. Beatrice Warde and her “crystal goblet” theory of excellence in type design³ sought to reduce visible language to a transparent vehicle for thought. This ideal came closest to realization in modernist sans serif typography of Swiss and German origin in this century. Like much reductivist activity, it eventually hit the wall. It was carefully structured spatially, there was often no attention to the rhythm or emphasis of delivery, it was essentially delivered in a visual monotone. The aesthetics of an abstract, even gray field of type was the ideal. The text was deeply and transparently packed. To read it, one had to submit to the reading lesson,⁴ to exercise discipline and take no-doz. Still, on some level, the experience of reading, while difficult, was also transparent — we looked *through* the type.

There have been counter-arguments to Platonic typography. Interestingly, a Swiss, Wolfgang Weingart, set type into play in the mid-seventies, but the play remained a formalist statement, an avant-garde for the modernist situation. This journal has also set type into play (see for example: Wolfgang Weingart covers on volume 9; and volume 11, number 2, and volume 12, number 3 for more internal elaboration of the text). In general, some of the most unreadable and outrageous typography we see, predominantly in the design community — designers acting out for other designers — is possible because of the flexibility of typographic manipulation in the digital medium. What was play on the screen becomes chaos on the page. Reading is not the focus, but iconographic painting with type. Attempts to read this material make us selfconscious of the very act as we look *at* the typography.

In the past six or so years, I have been experimenting with the elocutionary and meaning-based possibilities of typography. The focus has been to go beyond the formalist palette of modernism — to set type into play with *meaning* — to open the reading lesson to make content more accessible, more engaging and more memorable and to compete with other more seductive technology. Again, digital technology makes this play possible. There are well defined origins for this kind of experiment in poets and typographers from the early part of this century: Apollinaire, Marinetti, Malevitch, the futurists and dadaists, and later the concrete poets and other visual artists interested in the conventions of language, Duchamp, Magritte, Ruscha and Baldesarri to name a few.

The work that follows was done in an advanced typographic studio at the Rhode Island School of Design. The goal was for the students to take the short story assigned to them and to *interpret* the story — to add meaning and

Fig. 2

perspective — using typographic means to engage the reader and to move beyond the transparency of typical book text. We theorized that the reader would be curious and stimulated to look at the text. They would read and enjoy a particular interpretation of the story.

A section of Chaucer's *Canterbury Tales*, "The Canon's Yeoman's Tale," is the first example (*figure 2*). It is increasingly difficult for young people to value the literature of the deep past — it fails to speak to their life and experience. In reading this tale, the student connected the yeoman's situation with that of *Generation X*.⁵ Her interpretation centered on the idea that people develop in the shadow of their elders or those in authority. The metaphor of the shadow and emerging from the shadow became the typographic idea for reorganizing the text. In every situation where the shadow of overprinted typography appears, it creates tension and drama, but does not impede the reading. Oral aspects of the tale are also attended to — typographic weight and scale change — to underscore the changing voices and the character of their speech.

Ray Bradbury's short story, "The Velde," was another subject for investigation (*figure 3*). This science fiction story is about a children's virtual reality playroom run amok. Few of the students thought much of the story; it seemed too predictable and Jetson-like. But in examining the story closely, one student became fascinated with the text's recurrent theme of eating. The presentation of the story took on the character of a cookbook with the story text expanded with details of cooking definition or technique — "to dress a turtle," for example. Small animal icons separate speakers allowing a previously highly broken traditional text presentation to take on a more flowing spatial presentation.

These two examples demonstrate the power of typography to open a text when it is presumed to be visible — when the reader is encouraged to look at the text. All reading is an act of interpretation. These examples, while rendered on the page, could also be on the screen. Even on the page, the text can be purposefully or playfully opened for our increased understanding or pleasure.

Do book conventions sit too heavy on the text? Is typographic exploration of the text too challenging to authorial control? Some readers and authors are no doubt horrified. Transparency is shattered. The authority of the author is challenged. Digital possibilities are exposed. The typographer/-designer becomes a particular kind of reader/interpreter. Likewise, authors have become defacto typographers, who frequently overcode and trick up the page because it is easily possible. The realm of word and form and meaning come together. They are plastic. The influence of one on the

Ha! said the Yeoman. 'Now we'll have a game,
Now I can talk, and I've a lot to tell.
He's gone, the foul fiend carry him off to Hell!
We'll never meet again, I'll tell you flat,
For pound or penny, I can promise that.
He was the first one brought me to the game,
Grief strike him down, before he dies, in shame!
For it's a serious thing to me I say,
As I am well aware, think as you may.
And yet for all my misery and grief,
Long hours and injuries without relief,
I never could leave the business, any price.
O that I had a brain that would suffice
To tell you all that's proper to that art!
Nevertheless I'll try to tell you part,
And since my master's gone I will not spare;
All that I know about it I'll declare.'

And by the time the man's gone raging mad
And risked and lost whatever goods he had,
He then eggs others on and off they run
To lose their goods, as he himself has done.
A spiteful wretch takes pleasure when he sees
That others suffer from the same disease,
So I was told once by a learned man.
But what's the odds? I'll on as I began.
When we had fixed a place to exercise
Our esoteric craft, we all looked wise;
Our terms were highly technical and quaint.
I blew the fire up till fit to tant.
As for proportions, why should I rattle on
About the substances we worked upon,
The six or seven ounces it may be
Of silver, or some other quantity,
Or bother to name the things that we were piling
Like orpiment, burnt bones and iron filing
Ground into finest powder, all the lot,
Or how we poured them in an earthen pot?
(You put in salt and pepper, be it stated,
Before these powders I enumerated,

'Look what we've got, put in your hand and grope
Hell's devils! What else could have been the stuff?
Silver filings are silver, right enough.
And you will find some silver there, I hope.

The priest put in his hand and took a scoop
And out he brought the metal with a whoop,
I nuzzed to the veins to see this silver rod.

'God's blessing on you, and the Mother of God
And all his saints preserve you, worthy master!'
He cried. 'And may they bring me to disaster
Unless you will vouchsafe your kind compliance
In teaching me this noble art and science.
I'll work for you with all my might and main!'

'Well, said the canon, 'let me try again;
We'll have a second shot; pay careful heed
And you'll become an expert, and at need
Can try it in my absence, once you're in
The ways of scientific discipline.
Let's take another ounce of mercury,
This is no time for chattering, said he,

'And do the same with it as we have done
The priest then set to business and began
To do precisely what this cursed man
Already with the first, our silver one.

Commanded of him, puffing at the fire
In the mad nope of reaching his desire.
Meanwhile the canon, if I need explain,
Stood ready by, to gull the priest again,
Dandling, to give him countenance in this,
A hollow stick ~ observe the artifice! ~
Into the end of which an ounce, no more,
Of silver filings had been stuffed before,
As in the beech-wood coal, with wax no doubt,
To stop the silver filings falling out.

And while the priest was busy at his job
The canon came and touched him with the knob
And with a flourish cast the powder in
Just as before ~ the devil scrape his skin,
Hear me, O God, and flay him for the trick! ~
And stirred the crucible with this same stick
Primed in the treacherous way that you have heard;
He always was a crook in deed and word.
He stirred the coals until the wax began
To melt over the flame, as any man

Except a fool of course would know it must.
Out of the stick slid all the silver dust
And down into the crucible it fell.
What can be better, gentlemen, than weir
And taken it all for gospel, right as rain,
For when this priest had been deceived again
He was so happy that I can't express
In words his ecstasy of happiness.

Body and soul. 'Eh,' said the canon. 'What?
He proffered to the canon on the spot

I have some powers, though I seem poor to some,

But let me tell you there is more to come.

D'you happen to have some copper here?' said he.

'Yes,' said the priest, 'I think I have, maybe.'

'If not you'll have to buy some right away,

He went away and came back with the copper,
The canon took it from him as was proper.

Be off with you, dear sir, be quick I say.'

And carefully weighed out a measured ounce.
My tongue is all too simple to pronounce
Words that could serve my thoughts or match my feelings
About his bloody-minded double-dealing.
Friendly he seemed to those he hadn't caught
But he was a fiend in what he felt and thought.
It wearies me to say how false he was,
Yet I must try to speak of it because
It may help others to beware his treachery
In time, and truly that's my only reason.
Within the crucible the canon placed
His ounce of copper, set it then in haste
Among the flames and cast the powder in,
Telling the priest to stoop down and begin
Blowing the fire, and it was all a hoax;
He made a monkey of him with his jokes.
He cast the molten copper in his mould
And put it in the water to get cold;
Leaning about it, in he put his hand.
Now in his sleeve ~ as you will understand,
You heard me say so ~ was a silver rod.
He took it slyly out, the filthy sod,
~ The priest knew nothing of his treacherous plan ~
And left it in the bottom of the pan.
He fumbled in the water, groped about
And with amazing sleight-of-hand took out
And hid the copper rod. With friendly charm
He took the unsuspecting victim's arm

'By God, you're much to blame! Stoop down and poke;
And said to him, as if it were a joke,

Help me as I helped you. That's only fair;

Come on, put in your hand and see what's there.'

other can be explored quickly, if not clearly. Consider as contrast an audio book, read eloquently by some actor with appropriate and subtle sound effects. This, too, is a specific interpretation. Rhythm and intonation, acoustic time and space are returned to the language. Another actor and producer would yield another interpretation emphasizing other colors in the text. Is there one text or are there as many texts as there are versions? Consider modern attempts to revitalize stories from the past: *The Gospel at Colonus*, a gospel choir rendition of the Oedipal tragedy; a feminist version of *King Lear*; *West Side Story*, a musical re-location of Shakespeare's *Romeo and Juliet*; *Kabuki Medea*, a modern Japanese version of the Greek Medea; and *J.B.*, a retelling of the story of Job by the poet, Archibald MacLeisch.

These kinds of experiments begin to suggest the radical re-mix of ideas now implicit in the unfolding word/image/sound digital realm. But at the heart of human making, whatever the medium, is a creative vision, an interpretation and control of extended language possibilities whether visual, verbal, textual, musical or spatial. While rich in possibility, once the book, tape or theater production is created, it is a closed system. Interpretation is always possible, but the authoritative text remains the touchstone.

(a re-presentation) "Fixed text accumulates its power through a compressed time-scale; we read in an hour what it took a year to think through and create, and the rush of that compression we will want to preserve. Volatile text pleads to a different constituency, to that chance which always favors the prepared mind; we don't want to forgo this source of power either." (C947)

(a gloss) Volatile text is interactive. The author is joined by the reader/writer in any one of us. We are encouraged to act on Jane Healy's theory that the learner is an active constructor of information rather than a passive receiver.⁶ Reading, writing, speaking, listening are *together*, they complement and reinforce each other. While print has necessarily taken a one-size-fits-all approach to language presentation — the reader must adapt to the writer — electronic language presentation postulates a reader and writer who have options and can position themselves on a continuum. Lanham imagines "cultural vandalism" as a teaching tool that allows the student to digitally work on a visual, acoustic or poetic masterpiece. What budding musician hasn't played along with a favorite orchestra or jammed with a favorite group — perhaps even taping the collaboration. What art student hasn't deconstructed analytically or even "painted" a masterpiece. What student of language hasn't studied the poetic form and style of a famous bard. The purpose is to gain insight from understanding the structure and choices open to the creator, but the digital activity itself is more like play. Time and again Lanham returns the discussion to the needed oscillation between purpose and play.

"Filthy creatures," he heard his wife say. "The vultures."

"You see, there are the lions, far over, that way.

George Hadley put his hand up to shield off the burning light from his squinted eyes.

"A zebra or a baby giraffe, maybe."

"Are you sure?" His wife sounded peculiarly tense. "No, it's a little late to be sure," he said, amused.

"Did you hear that scream?" she asked.

"No." "About a minute ago."

"Sorry, no."

The lions were coming. And again George

Hadley was filled with admiration for the mechanical genius who had conceived this

room. A miracle of efficiency selling for an absurdly low price. Every home should have one. Oh, occasionally they frightened you with their clinical accuracy, they startled you, gave you a twinge, but most of the time what fun for everyone, not only your own son and daughter, but for yourself when you felt like a quick jaunt to a foreign land, a quick change of scenery. Well here it was!

• **Now they're on their way to the water hole. They've just been eating," said Lydia. "I don't know what. "Some animal."**

• **"Nothing over there I can see but cleaned bone, and the vultures dropping for what's left."**

• **To dress a Turtle**

Fill a kettle, with a quantity of water sufficient to scald the callapach and callapee, the fins, etc. and about 9 o'clock hang up your turtle by the hind fins, cut off the head and save the blood, take a sharp pointed knife and separate the callapach from the callapee, or the back from the belly part, down to the shoulders, so as to come at the entrails which take out, and clean them, as you would those of any other animal, and throw them into a tub of clean water.

• **cleaned bone**

fleshing: quantity and distribution of muscle and fat on an animal or carcass; removal of flesh from bones and skin.

Books have been purposeful from the very beginning. In contrast, the screen has been a vehicle for play almost from its conception. In the fall of 1993, I asked students at the Institute of Design in Chicago, in a multimedia studio course I was teaching, to read *Einstein's Dreams*,⁷ from which they were to select five dreams to interactively represent using either Supercard or Macromind Director as the software base. *Einstein's Dreams* was a perfect text to use as a launching platform for demonstrations of various conceptions of time, because the author presents twenty-five or thirty dreams in which a particular notion of time is developed. Time underscores multimedia and interactivity, and designers need more experience thinking about and working with it. Multi-media also raises questions of text, sound and image, and their interrelationships. Screens from one of the solutions to this project show interactivity and the change of pace that can be developed on screen (*figure 4*). Working playfully allows the designer to step aside from conventions of the book to consider the possibilities of the screen.

The designer of this program was interested in encouraging people to explore new images and to associate them with prior experience. The viewer is taken through an experience that begins simply with screens that gradually become more densely interactive. As the viewer plans and takes a journey the screen becomes more highly textured. At the viewer's first visit, the objects show their generic states. As the viewer visits them again and again, the objects start to change, evolve and interact with each other. Finally all the objects merge into a single understanding based on the order of the objects visited. This is no static presentation — it is evolutionary based on the viewer's choices.

While the earlier book projects had to present the author's text as written, in this project the author merely provided the initial stimulus — a conception of time. The designer could choose to present the notion of time in any way they found appropriate. Because of this the designer was not bound to the author or any implications of book text. This is an important step to considering how the screen and the page are not synonymous or equal. This is a step in discovering how the screen can function as a medium. Alternative non-textual methods for representing an idea can be developed. The possibilities of the screen can be more fully developed.

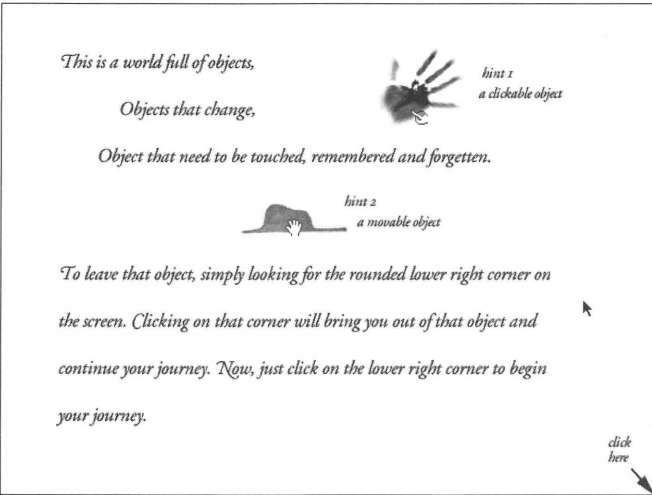
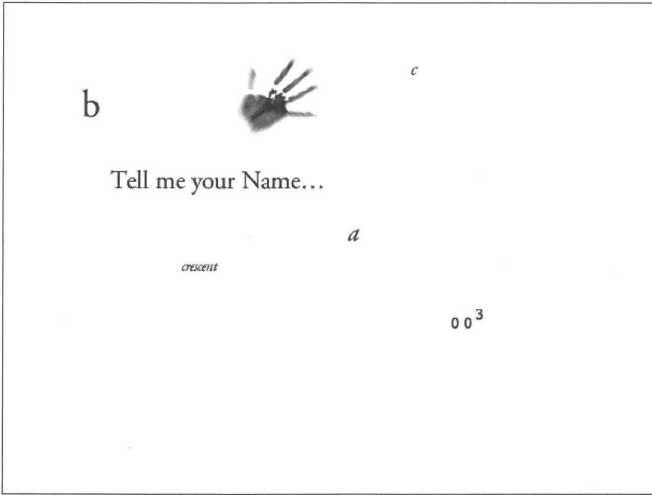


Fig. 4 Screens developed from inspiration drawn from Alan Lightman's *Einstein's Dreams*, created by Hsin Chien Huang at the Institute of Design, 1993. The first screens are simple and require simple interactions like typing a name to personalize the presentation and its memory.

Tuesday, August 9, 1994 9:23:04 AM

Sharon is planning a trip,
to places not marked on maps, but only existing in dreams,
to travel through air, time, and his mind



_____ is a must see, he put it in the first priority.

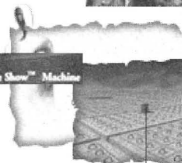
then he would like to visit _____
since he has dreamed of it a thousand times.

sombody told him that _____ is a nice place,
better includes it to _____
_____ is a nice place,
better includes it to _____
_____ is a nice place,
better includes it to _____

what else? maybe _____
but, just maybe ...

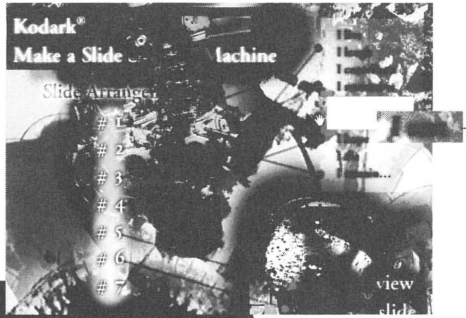
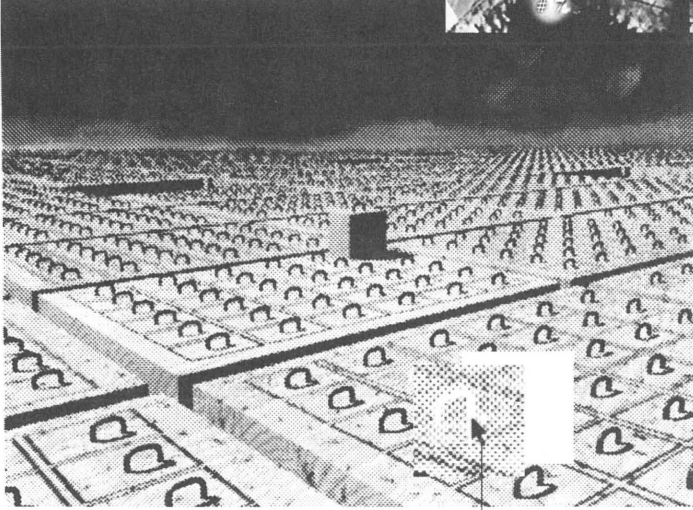


Kodak®
Make a Slide Show™ Machine



Here a stack of images are unpacked,
examined and a few are selected for
the "trip." The selection sets the stage
for what is to follow.

The images become more densely textured.
Clouds move continuously. Clicking on a
drawer causes it to open, releasing a sound.
The viewer literally explores the images
and makes discoveries.



Close



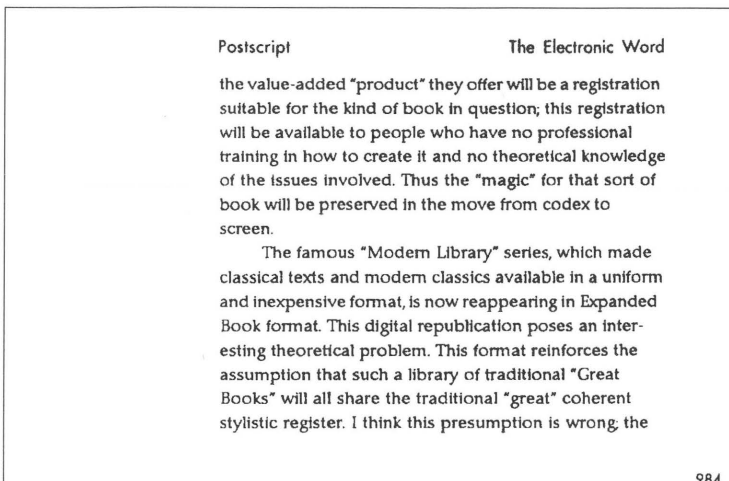
The format

Sampling the digital realm is an ongoing activity of mine. I have seen IBM's Columbus extravaganza and Voyager's *Between Alice and Ocean*. I kind of read Michael Joyce's *afternoon, a story* from Eastgate, and I've seen Octavo's attempt to go electronic. While this is not the place to develop comment or criticism on these early forays into the future, in fact all these attempts to explore and form our new media should be applauded for bringing to our attention the issues that swirl around the screen. Designers, myself included, firmly believe in the importance of *making* the prototype, of getting a communication product into the marketplace and of learning from experience with the end-user.

When I popped *The Electronic Word* into my computer, I expected this "reading" experience to be as short lived as my others, but to my pleasure Lanham's clear writing style and intelligence, together with the fact that he was developing ideas in which I had a significant interest, kept my attention. Reading the screen, however, was not a pleasure. I found I could read about one hundred cards (one card = one screen of information, *figure 5*) at a time. I almost abandoned the screen altogether when I realized there were slightly over one thousand cards. I nearly went out to buy the book version, which I knew I could read, skim, annotate and navigate with ease. But I persisted with the electronic version in order to get the "experience." It was Lanham's energetic prose that kept me reading.

And this perhaps points to a disparity between my reading pleasure, which was based on his linear prose, and the vehicle, the Expanded Book, on which

This is a typical screen from *The Electronic Book*.



it was delivered to me. The delivery was choppy, screen-by-screen. The prose was seamless and closely argued, and discouraged hypertextual leaps. Lanham suggests that writing style for the screen will change, but his own style is synonymous with the page.

Voyager, the developer of the Expanded Book format, apparently envisions it as a new "Modern Library" series. Designed for the Powerbook, the screen size on my Mac was not pleasing, the format did not fill the screen. I wanted more text per screen in order to smooth out the reading. Voyager imagines travellers in airports and hotels reading Expanded Books to pass the time. What is at issue is the various kinds of reading and writing we do. Not all writing and reading is appropriate for the screen. Hypertextual opportunities support investigation, tracing through references, hunting down comparisons, browsing with a purpose. This is reading more strongly associated with research than with literary pleasure. First readings of *good* books, and here I include nonfiction, are usually linear. What might a first reading of an Expanded Book be like? I am caught between the page and the screen.

Late in his discussion, Lanham celebrates a book, the Baskerville *Horace*, that for him exemplifies mastery and harmony of form. First he lists four levels of information that the book contains: "1) the binding and the paper (the physical substance of the book); 2) the typography; 3) the alphabetic information itself, those particular configurations we usually call 'style'; 4) the 'meaning' for which we read." (C976) He goes on to say that mastery and harmony depend on all four levels of expression emerging from the same transparent theory of style. The Expanded Book format, while not transparent at the beginning, becomes so as we read. And Lanham's style of writing is book-like, hence there is a disparity between electronic form, writing style and typography that signals a lack of harmony.

Lanham investigates the text in an ancillary document, *Electronic Word Annotations*, which contain six typographic demonstrations. Most of these demonstrations are trivial, but the section on paragraph, prose and sentence revision shows the dynamic possibilities of teaching with an annotated moving text demonstration.

In *The Electronic Word* itself, the interface is obvious and navigation is simple, but not too reliable. The reader can mark pages, print screens or fields, annotate in the text margins, move from footnote to reference details, close and automatically re-open to the last screen examined. If the reader moves from the main text through several linked references, the program is unable to return the reader to the paragraph from which the search commenced. This is a serious shortcoming — the reader's path should be

tracked several moves deep with a smooth return to the departure point. Other features include a progress bar to measure reader movement through the text, and a large print version, which is a blow-up of the regular screen that removes all margins and with it the possibility of annotation. This is a format that needs further exploration.

The *Electronic Word* is a significant book for its ideas rather than for its format. Thinking that everything can simply be translated into another medium is misleading. To his credit, the author reminds us of this translation problem with many explicit examples. Digital republication does not mean churning out the old stuff in the latest technology. Nevertheless, the University of Chicago Press has taken a brave step to explore the possibility of an electronic text delivery system. Digital technology alters the boundary conditions of communication. Lanham believes that new theory will emerge from the digital situation. For this we must be thoughtful and patient. When I called the University of Chicago Press to check on the publication details of this book, I also inquired about its success. The book format was sold-out, but the electronic version remained available.

(a re-presentation) "Life is information; life is the *logos*. It is an evolutionary system, dynamic, perpetually emergent. It *creates* new meanings, as does poetry, rather than simply communicating preexisting knowledge in a transparent capsule." (C887)

Endnotes

¹ Lanham, Richard A. 1993. *The Electronic Word, Democracy, Technology and the Arts*. Chicago: University of Chicago Press (A Chicago Expanded Book). ISBN 0-226-46884-4 \$19.95

System specs: Macintosh computer with at least 2MB of RAM, a hard drive (4MB of RAM recommended), system software 6.0.7, and Hypercard 2.1 or Hypercard Player 2.1 are required. This book is shipped on two 1.4 MB high-density floppy disks. The book version is ISBN 0-226-46883-7 \$22.50

² The character of response on paper or screen is different in many ways, not the least of which is the thought and attention that forms the response. Because this is a print response that will be fixed, I am perhaps spending more time on thinking it through, elaborating examples and formulating a formal presentation, than if I responded directly on-line.

³ Warde, Beatrice. 1958. *The Crystal Goblet: Sixteen Essays on Typography*. London: Sylvan, 11-17.

⁴ The idea of the reading lesson as it relates to typography is developed in my article, Probing the Text, in *Spirals91*, volume 5, 201-210.

⁵ Coupland, Douglas. 1991. *Generation X*. New York: St. Martin's Press.

⁶ Healy, Jane. 1990. *Endangered Minds: Why Our Children Don't Think*. New York: Simon and Schuster.