

Art and Technology

Interactivity Part III -> Literary Machines

People often speak of giving their first, uninhibited response to something—before their brains kick in and spoil things. But the histories of new media show that people's first reaction is to treat them as if they were the old media. That first, uninhibited, naïve response is pure habit. If something is *truly* radical, we're insensitive to it. We act on our models of the world—which is why those models are so important.

Claude Levi-Strauss: “(My project) cannot be contained within precise territorial limits or within the framework of any one system of classification. However it is approached, it spreads out like a nebula, without ever bringing together in any lasting or systematic way the sum total of the elements from which it blindly derives its substance, being confident that reality will be its guide and show it a surer road than any it might have invented. Starting with a myth chosen not so much arbitrarily as through an intuitive feeling that it was both rich and rewarding, and then, after analyzing it in accordance with rules laid down in previous works (L.S. 5, 6, 7 and 9),* I establish the group of transformations for each sequence, either within the myth itself, or by elucidation of the isomorphic links between sequences derived from several myths originating from a single community. This itself takes us beyond the study of individual myths to the consideration of certain guiding patterns situated along a single axis. At each point on the axis where there is such a pattern or schema, we then draw, as it were, a vertical line representing another axis established by the same operation but carried out this time not by means of apparently different myths originating from a single community, but by myths that present certain analogies with the first, although they derive from neighboring communities. As a result, the guiding patterns are simplified, made more complex, or transformed. Each one becomes a source of new axes, which are perpendicular to the first on different levels, and to which will presently be connected, by a twofold prospective and retrospective movement, sequences derived either from myths originating in more remote communities or from myths initially neglected because they seemed useless or impossible to interpret, even though they belonged to peoples already discussed. It follows that as the nebula gradually spreads, its nucleus condenses and becomes more organized. Loose threads join up with one another, gaps are closed, connections are established, and something resembling order is to be seen emerging from chaos. Sequences arranged in transformation groups, as if around a germinal molecule, join up with the initial group and reproduce its structure and determinative tendencies. Thus is brought into being a multi-dimensional body, whose central parts disclose a structure, while uncertainty and confusion continues to prevail along its periphery.

*See Bibliography, pages 361-370, for full information on this and other references.”¹

Ted Nelson: “A piece of writing—say, a sheet of typed paper on the table—looks alone and independent. This is quite misleading. Solitary it may be, but it is probably also part of a literature.
 “By ‘a literature’ we do not mean anything necessarily to do with belles-lettres or leather-bound books. We mean it in the same broad sense of ‘the scientific literature,’ or that graduate-school question, ‘Have you looked at the literature?’
 “A literature is a system of interconnected writings. We do not offer this as our definition, but as a discovered fact. And almost all writing is part of some literature.”²

Ted Nelson: “The point is clear, whether in science or business or belles-lettres. Within bodies of writing, everywhere, there are linkages we tend not to see. The individual document, at hand, is what we deal with; we do not see the total linked collections of them all at once. But they are there, the documents not present as well as those that are, and the grand cat’s-cradle among them all.”³

Ted Nelson: “From this fundamental insight, we have endeavored to create a system for text editing and retrieval that will receive, and handle, and present, documents with links between them. We believe there is something very right about the existing system of literature; indeed we suspect that there are things right about it that we don’t even know, as with Nature. And so we have tried to mirror, and replicate, and extend, existing literary structure as we have here described it.”⁴

Scholar -> Artist

Most texts and paintings and sculptures exist as objects in frames or on pedestals or in documentation, but objects disconnected from their initial environment, and from other artworks. Our books make references to other books and writings explicit only with great difficulty; for instance, in short footnotes which mention but rarely duplicate the whole of a referenced text.

A scholar often carries such connections around in his or her head. A poet or artist juxtaposes elements of the world so that other people can sense such connections. Philosophers often destroy such connections.

Ted Nelson has worked for 26 years to engineer a system that will allow such connections to coexist with the texts and images themselves. It is as if the reference network that Levi-Strauss traced through a mammoth set of index cards were spoken with its myths; as if the native could directly tell the anthropologist the networked structure of a myth-system, along with the myth. As if a painting could show the viewer the canvases that led up to the present one; could explicate the painterly strategies used and who used them before on what paintings; could list the musical and theatrical works that could serve as translations of different elements in the work, and provide texts or existing critical reviews.

To the extent that documents and their interconnections are entered into Nelson’s system, structures such as those in Levi-Strauss’s tetralogy will have a new value, because one may test for their existence. A work such as *The Raw and the Cooked* will latently exist in the system. It could be created faster than it could be read. In a very real sense, the writer would have the same relationship to his or her text as any other reader would have.

The nature of the scholar, more than anything, will change from someone who chronicles and researches to someone who allows others to SENSE the connections: the poet or artist. Levi-Strauss again comes to mind, as do other poet-scholars: McLuhan; Derrida; Eisenstein; Joyce.

Document ↔ Document

Ted Nelson: “The Xanadu™ Hypertext system is a fast linking electronic repository for the storage and publication of text, graphics and other digital information; permitting promiscuous linkage and windowing among all materials; with special features for alternative versions, historical backtrack and arbitrary collaging; with royalties for copyright holders and capable of indefinite growth.”⁵

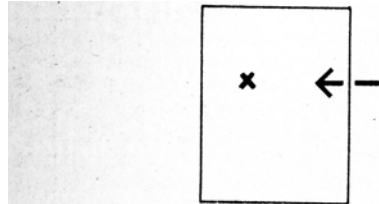
Nelson has encoded the possibility of literature, as described above, at the level of the data structure. His is an important achievement, because the basic unit of his data is TEXT AND A POINTER TO ANOTHER TEXT. In this way, elements in his system assume the existence of other elements. This is the first attempt to create a functioning, computer-based model of literature that has an elementary particle that points beyond itself, meaning that this data structure is isomorphic with both Nelson’s definition of literature and Levi-Strauss’s explanation of myth. It also models a structure that, in Derrida’s terms, has an Other that is “always already” present (if deferred). While Nelson is not familiar with either Levi-Strauss or Derrida, the structure of his system directly addresses their textual strategies.

Art Papers is not the place for an in-depth presentation of Nelson’s system. I encourage all readers to order his book *Literary Machines*, from the address given below. However, Nelson’s explication of some of the possible links his system can provide will help clarify the nature of his design.

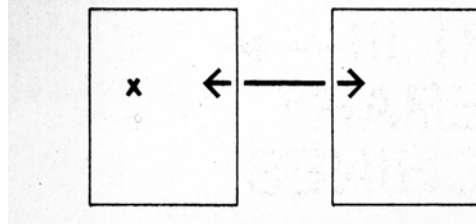
Ted Nelson: “A link is simply a connection between parts of the text or other material. It is put in by a human. Links are made by individuals as pathways for the reader’s exploration; thus they are parts of the actual document, part of the writing.”⁶

Some of the links he lists are:

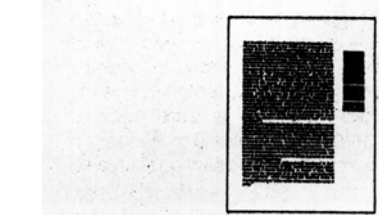
Book marks—marks which allow a person to return to a specific location in a text.



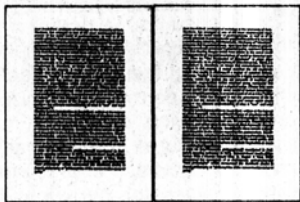
Jump-link—a mark that, when activated by a reader, jumps the reader into a new, specified text, from which he or she may return at any time.



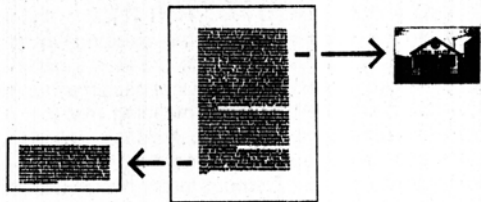
Marginal Notes—easy enough: notes written in the text’s margins, available to all future readers (as in medieval manuscripts passed from reader to reader).



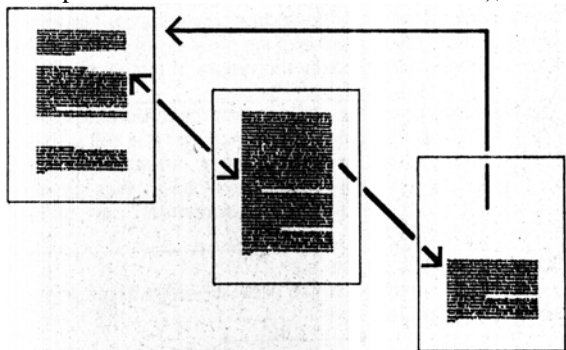
Side-By-Side Writing—Connecting one text to another (or to an image, etc) that will be displayed beside it.



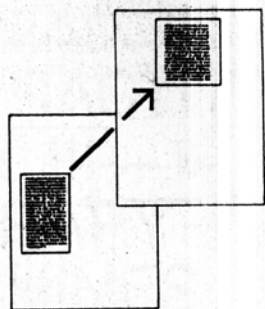
End-Sets—a collection of links connected to links, forming complex objects, such as one connecting a span of text, a picture, and a footnote.



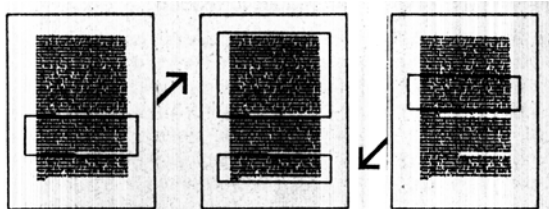
Links may have different attributes such as directionality, version-spanning (linking a section between differing developmental versions of the same document), etc.



It is important to note that these links are not between a text and a copy of another text, but between the texts themselves. The links exist as windows or doors, and in this sense are closer to architecture than painting. Because these link actual documents, and are not just excerpted copies of segments; a change to a source document will show up when that document is windowed into a new document.



It also means that any given document as it appears on your screen is in fact—not just theoretically—a composite of separate documents; already plural: it exists as a pastiche.



Montage ← → Hyperpoetry

It appears that most of the Xanadu-like systems are using linking-systems such as these to connect like structures. Brown University has a small system that runs on a Macintosh that

Jeffrey Young:

“sets out the text of *Romeo and Juliet* with links, denoted by special symbols, placed within the text. Clicking on these links opens new windows that display annotations and commentaries on the play. But the source of real excitement is that Shakespeare’s text cross-references to a film database on a laser disc player connected by a cable to the computer. Clicking the mouse on any line from the drama on the screen shows the line performed in the Zeffirelli film version of the play on a TV monitor.”⁷

The first connections, then, exemplify what Eisenstein would call LINKAGE montage, and opposed to CONFLICT montage.

Linkage montage, as defined by the filmmaker and teacher Kuleshov, is a strategy for conceiving for film construction:

Kuleshov: “If you have an idea-phrase, a particle of the story, a link in the whole dramatic chain, then that idea is to be expressed and accumulated from shot-ciphers, just like bricks.”⁸

Thus, images are linked because of what they have in common. Against this, Eisenstein formulated conflict-montage:

Sergei Eisenstein: “In my opinion, however, montage is an idea that arises from the collision of independent shots—shots even opposite to one another: the ‘dramatic’ principle.”⁹

He notes elsewhere:

Sergei Eisenstein: “In the realm of art this dialectic principle of dynamics is embodied in conflict as the fundamental principle for the existence of every artwork and every art-form.
FOR ART IS ALWAYS CONFLICT:
(1) according to its social mission,
(2) according to its nature,
(3) according to its methodology.
According to its social mission because: it is art’s task to make manifest the contradictions of Being. To form equitable views by stirring up contradictions within the spectator’s mind, and to forge accurate intellectual concepts from the dynamic clash of opposing passion.”¹⁰

In time, we will see hyper-poets who use such linking system to

Sergei Eisenstein: Manifest the contradictions of Being.¹¹

And not just to match a text with its illustration, as with the Brown University demo. Instead of jumping from Shakespeare’s text to the Zeffirelli film, someone may jump from Juliet’s last dying lines to a film showing the reflection of a Buddhist temple in the still, lotus-covered surface of a reflecting pond. With a soundtrack of your father’s own voice, recorded years ago, as he tests the microphone, one, two, three.
Nelson does not seem to appreciate hyperbole from others—he denigrates *The Whole Earth’s Review’s* comment that the correct size of his Xanadu Hypertext system is that of the world (they, of course, play off Lewis Carroll’s reference to a map that is exactly the size of the world, and positioned at each point exactly over it.⁸ It may be that, like the poet-scholars listed above, he is too often misunderstood or not taken seriously, and that he is sensitive to this. But he deserves to be taken seriously: by artists, scholars, software designers, and those who are in a position to help fund his project.

TEXT → TEXTS

1. Levi-Strauss, Claude. *The Raw and the Cooked (Le Cru et le Cuit)*, Harper and Row, New York, 1969.
2. Nelson, Ted. *Literary Machines*, Self published, 1981. p. 2/7 NOTE: For a copy, send \$15 to Ted Nelson, 8480 Fredricksburg #138, San Antonio, Texas 78229.
3. Nelson, Ted. Ibit p. 2/9
4. Nelson, Ted. Ibit p. 2/9
5. Nelson, Ted. Ibit p. 3/2
6. Nelson, Ted. Ibit p. 2/20
7. Jeffrey S. Young, "Hypermedia," in *Macworld*, March 1986, p. 120
8. Kuleshov, quoted in Eisenstein, *The Cinematographic Principle and the Ideogram*, in *Film Form*, Harcourt, Brace and World, 1949, p. 36.
9. Eisenstein, Sergei, "A Dialectic Approach to Film Form," in *Film Form*, Harcourt, Brace and World, 1949, p. 49.

10. Eisenstein, Sergei, *Ibid*, p. 46.

11. Eisenstein, quoted in Edgar, "Art and Technology, Interactivity Part III→Literary Machines," in *Art Papers*, Volume 10, Number 4, p. 34.

NOTE: Those of you who own computers and modems can now receive ART COM ELECTRONIC via the *Whole Earth Review's* system called The Well. You can reach The Well through a local uninet number (in Atlanta it's 321-5935). When yu connect, push <RET> <RET> . <RET>

then, when it asks you what to service, type

WELL

Andit will connect you. The Well's direct dial # is 415-332-6106, but uninet is cheaper (total cost is about \$6.00/hour). If you have the Southeast regional blues, use the Well and Art Com to shake 'em off.

ROBERT EDGAR

Robert Edgar is...and does so in Atlanta.

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