

The Revenge of the Page

David Kolb

Charles A. Dana Professor Emeritus of
Philosophy

Bates College, Lewiston, Maine

841 W36th Ave., Eugene OR 97405

Tel: 01 541 345 3110

dkolb@bates.edu

ABSTRACT

Writers of literary hypertext have urged complexly linked hypertext forms. Some writers have applied this to expository and argumentative hypertext, taking advantage of hypertext's ability to expand the "margins" of a document in new directions. Where argumentative issues or contexts are complex and self-reflexive enough, these writers urge that hypertexts become complex multi-dimensional expository and argumentative texts with elaborate rhetorical and argumentative structures that take place over sequences of links. However this ideal is challenged by developments on the Web, where argumentative hypertexts are dominated by a linked mini-essay style that uses one-step link patterns for its rhetorical moves. Was the ideal of complex hypertext rhetorical structures mistaken? This essay analyzes the situation, argues for the viability of more complex hypertexts, suggests some causes for the dominance of the single page and single-step rhetorical move, and looks at some developments that may challenge this dominance.

Categories and Subject Descriptors

H.5.4 Hypertext/Hypermedia, Architecture, Navigation, Theory, User Issues

General Terms

Human Factors, Standardization, Languages, Theory

Keywords

Hypertext, exposition, argument, rhetoric, style, Web

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1. INTRODUCTION

1.1 The Ideal of Complexly Linked Texts

Hypertext makes no essential demands to be written in this or that way. Like paper, hypertext can hold many kinds of texts. But we can ask how hypertexts have in fact developed and how they make use of the affordances of hypertextual media.

In a Web essay on "centers in hypertext", J. D. Hollis argued that in a hypertext network, central nodes emerge and can be identified because they share certain characteristics:

Purely architecturally, what constitutes a center in hypertextual space? First, it must be deeply interlinked with other strong centers, literally. . . . The presence of Bernstein's patterns in high concentration is a good indication of strong centers. Link gradients, as a pattern, have strong applicability—in particular, nodes and links can flow towards a strong center, attracted as if by gravity, pulling the reader downhill. [7]

This presumes that a long hypertext would develop as a complex network that would include transitions and rhetorical gestures that took place over various kinds of lengthy link patterns. Mark Bernstein examines literary and some argumentative hypertext and finds various extended link patterns (he names cycles, counterpoints, mirror world, tangle, sieve, montage, neighborhood, split/join, Rashomon, overview, tour, Moulthrop move, missing link, navigational feints). Bernstein describes the aim of his study as follows:

This paper describes a variety of patterns of linkage observed in actual hypertexts. Hypertext structure does not reside exclusively in the topology of links nor in the language of individual nodes, and so we must work toward a pattern language through both topological and rhetorical observation. Instances of *these patterns typically range in scope from a handful of nodes and links to a few hundred*. . . I do propose that by considering these patterns, or patterns like them, writers and editors may be led to more thoughtful, systematic, and sophisticated designs. These patterns are offered, then, as a step toward developing a richer vocabulary of hypertext structure. . . . All the patterns discussed here *may (and usually do) contain other patterns as components*. A

Cycle, for example, may contain sequences and cycles as well as individual nodes. Two parallel cycles might be composed to form a Counterpoint pattern, or a group of cycles might converge to a Tangle. The great utility of structural patterns, in fact, derives in large measure from the ways that patterns can be combined to form larger structures. [1] (my emphasis)

Bernstein, like Hollis, expects hypertexts to involve complex link and rhetorical devices that extend for more than a single link step. In an hypertext essay published online in 2000, I urged a similar complex link form for hypertext argumentation:

Imagine a hypertext that was complex in complex ways. Imagine a hypertext made up of complexes of nodes with link patterns demanding attention and rewarding rereading. It might be composed of just text or it might include the full panoply of hypermedia. What would be important would be the links. Not intensities linked but intensity in the links. Not different discourses linked but discourse in the links. . . . Imagine a hypertext that was more than a reference work, and more than a series of fun surprises. Its patterns of linking would demand attention beyond the current node and the immediate horizon, like a seductive but difficult book that challenged and resisted the reader and asked to be reread. A text that made new gestures and created new intellectual objects. . . . Gestures that took whole patterns of links to accomplish themselves. [10]

1.2 Where Are These Texts?

But where are such hypertexts? Most of the examples Bernstein cited in his study came from literary hypertexts constructed using Storyspace, with its maps and link types. In 1995 Eastgate also published my *Socrates in the Labyrinth*, a text exemplifying and urging complex link patterns in non-literary expository and argumentative hypertext. Today, thirteen years later, Eastgate's list of published "Hypertext Nonfiction" contains only six items, while their "Hypertext Fiction" list has grown to twenty-nine items. Meanwhile on the Web expository and argumentative hypertexts have multiplied, very, very many of them. Some are long essays with linked footnotes and references. Some are single web sites, often with links in a tree-structure. Some are linked chains and nets of short essays and blog entries from one or more sites.

These Web expository and argumentative hypertexts all tend to have much less complex link structures than the hypertexts envisioned by the above quotations. Web hypertexts for the most part contain nodes that are each complete single-subject mini-essays linked to other mini-essays after the fashion of *Wikipedia*, or of George Landow's *Victorian Web*. In these texts, rhetorical, expository, and argumentative moves tend to be finished in single link steps (evidence, expansion, agreement, disagreement, refutation, etc.), avoiding the kinds of longer subtle link patterns that Bernstein discerned in more complex hypertexts.

It might seem that this simpler style is due to the way *Wikipedia* and the *Victorian Web* concentrate on factual information rather than argumentation. However, the same

mini-essay style is found in chains and nets of linked blog entries that are certainly devoted to argumentation.

2. LINK PATTERNS

2.1 Single-step Link Patterns

Some rough numbers may help differentiate these forms of hypertext.

2.1.1 *Wikipedia and the Victorian Web*

The *Wikipedia* article "Hypertext" runs 2309 words, and contains 171 links to within *Wikipedia*, 25 links out to the Web, and 17 navigation links, for an average of 11 words per link. The article "Ted Nelson" runs 1092 words and the article "Xanadu" runs 1148 words, with similar link patterns. Most links in the body of the articles stay within *Wikipedia* [20]; external links are specially marked and mostly listed at the end of the article. The density of links is high, but the links are almost all one step amplifications or connections to relevant other topics. There are no complex link patterns extending more than one step, though, like any encyclopedia, there can be long chains of single-step relevancies, such as hypertext → Nelson → Xanadu → XeroxParc → Smalltalk → LISP.

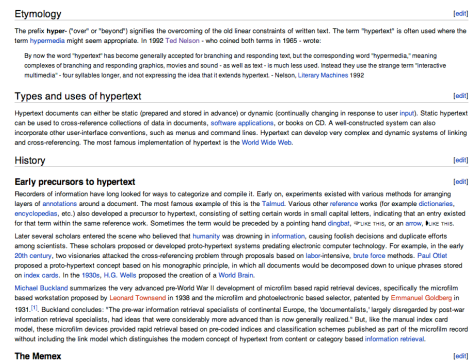


Figure 1. A portion of the *Wikipedia* page on "Hypertext" showing many single-step links.

The *Victorian Web* [13] offers another set of mini-essays. There are fewer links than in *Wikipedia*, but they exist in a more structured context. The site provides graphical index pages gathering links to articles on subject matters such as "Religion," "Technology," "Anthony Trollope." Individual pages show breadcrumbs locating them in the overall tree of nodes. For example, the essay on Charles Darwin is located at "Home → Science → Biology." Essays are of varying length. The essay on Charles Babbage is 1319 words long, with 3 links to other parts of the Victorian Web, 12 links out to the Web, and 7 navigation links, for an average of 60 words per link. The article on Victorian Astronomy is 390 words, with 4 links to within the site, 7 outside links, and 2 navigation links, for an average of 30 words per link. An essay on the Quakers has 826 words, 6 links inside, 1 outside, 6 navigation, 63 words per link. The links within the site form chains of related topics similar to those in *Wikipedia*, for example Quakers → Evangelical Revival → The Olney Hymns → In Memoriam (indexpage) → Tennyson.



Figure 2. The *Victorian Web* index page for Tennyson's *In Memoriam*.

2.1.2 Blogs

Blogs also do mini-essays but they tend to have shorter nodes with fewer links. A 1/8/08 post on Megan McCardle's blog [17] at the *Atlantic Magazine* web site ran 354 words, with no links. A 1/8/08 Matt Yglesias post on at his Atlantic blog [21] ran 118 words with one link. The post had a handful of comments that ranged in length from 7 to 119 words and included no links except back to the post. Brian Leiter's three philosophy blogs [15] had on 1/8/08 posts of lengths such as 492, 1160, 188, 1354, 139, 27, 788, and 584 words. None of them had any links.

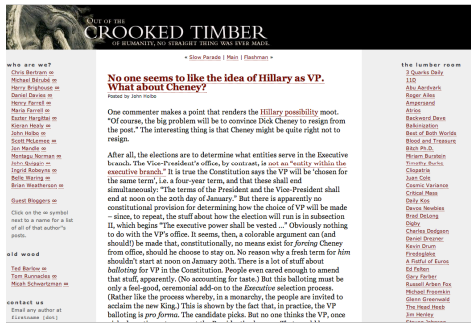


Figure 3. The *Crooked Timber* blog page with a few single-step links.

For a more detailed example, a *Crooked Timber* blog post ([3], 1/8/08, the follow-up to an earlier post about Hilary Clinton) ran 454 words and contained 3 links. The post had garnered 32 comments on that day. The comments totaled 3501 words, an average of 101 words per comment. There were no links in the comments (except back to the text) but the post itself linked to the 510 word earlier *Crooked Timber* post on the same subject. That post had garnered 80 comments, in 6715 words, an average of 83 words per comment, again with no links in the comments except back to the text. The other links from the 1/8/08 post were to a 2553 word, 4 link analysis of Vice-President Cheney's claim that his office was immune from certain kinds of oversight, and a 4956 word *Wikipedia* article on the vice presidency, with many links elsewhere in *Wikipedia*.

These blog posts and the items they link to averaged from a low of 77 to a high of 454 words per link, with most well above 200 words per link. The link paths are all short, with

each step a complete rhetorical move, usually amplification or agreement/disagreement.

Wikipedia and the *Victorian Web* were constructed using lists of disparate and related topics. Links were created by diverse authors, with more editorial organization on the *Victorian Web*. Blog entries and comments typically involve one author commenting on a topic or an opinion by another author. Each node is a more or less complete expression of a topical exposition or a rhetorical or argumentative move. So it is not so surprising that the link patterns in these texts emphasize one-step moves. This tends to put equal structural emphasis on all nodes, with degrees of importance being decided more by the reader's interest than by the presence of "centers" in the sense Hollis described above.

2.2 Multi-step Link Patterns

On the other hand, Michael Joyce's literary hypertext novella *afternoon* [8] averages 48 words per node (25664 words in 538 nodes). Story arc progression and rhetorical gestures extend over many links. *Woe*, a Storyspace hypertext from the same period [6], averages 76 words per node (9562 words in 125 nodes), and *Ime Pass*, an intertextual hypertext incorporating and forcing into linked mutual comment several works by different women authors, including *Woe*, averages 81 words per node (21313 words in 262 nodes). [5] A selection of student hypertexts from the early 1990's (in classes I taught at Bates College and George Landow taught at Brown University) averaged from 19 to 77 words per node and 6 to 37 words per link.

My expository hypertext *Socrates in the Labyrinth* [9] contains 25,331 words in 613 nodes, averaging 41 words per node, with 731 links, on average one every 38 words. The set of smaller hypertext essays published with *Socrates* range in size from 2700 to 7500 words. The highest average number of words per node is 66; the lowest is 21. The average of words per link ranges from a high of 110 to a low of 24. My recent *Sprawling Places* Web hypertext averages a longer 230 words per node, but its 35 words per link is in line with the older Storyspace texts.

In these and similar texts, the linking patterns are usually complex, with fewer rhetorical or argumentative or literary effects produced by single link transitions. For example, one region of my essay *Hypertext as Subversive*, quoted above, includes patterns of links that keep cycling the reader to a list of tactics for using the affordances of digital media to resist letting the reader slide along in a too easy flow. The list, however, is slightly varied each time it is encountered. A similar pattern elsewhere in the essay returns repeatedly to differently skewed versions of a paragraph from another author's essay that I am criticizing.

In the Web version of *Sprawling Places* [12], discussed further below, much of the text is organized in a tree structure with linked outlines, but this is surrounded by a cloud of narratives and linked by complex patterns meant to abruptly juxtapose different kinds of discourse. One 2000 word fictional dialogue is broken into twelve nodes linked so that pieces of the dialogue will be encountered from different directions at different times, with links from the pieces to each other but also to elsewhere in the text. Such an elaborate pattern of links

is rare on the Web, though similar effects may be encountered there accidentally.

3. SO, FORGET COMPLEX LINKING?

3.1 Single-step Links Are Everywhere

An overwhelming majority of argumentative and expository texts on the web are either print-like complete essays, or single-step linked mini-essays. These seem to serve their function well, judging from the way the form has spread.

Given the prevalence and effectiveness of the linked mini-essay form of non-fiction hypertext, is the ideal of complex linking obsolete? Does it make sense to continue to urge the ideal of ever more multiple nodes and lengthy link patterns for expository and argumentative texts? Should complex multi-step link gestures and multi-node rhetorical moves be left to literary authors? Maybe *Socrates*-style texts should be pinioned within a net of mini-essays that gather up and revisit the arguments that were carefully scattered and multi-linked in the original version?

In fact, one might argue that the linked mini-essay style of *Wikipedia* and the *Victorian Web* is closer to what Vannevar Bush envisioned for stops along Memex trails, which are described as joining bits of information together. It might also be possible to argue that the mini-essay style is closer to what Ted Nelson intended. It is true that the Web presentation is too print-like to fit his ideal.

But very clearly, if screens were going to be everywhere and if storage was cheap, then The four walls of paper are like a prison because every idea wants to spring out in all directions - everything is connected with everything else, sometimes more than others. . . . the point was to be able to have a medium that would record all the connections and all the structures and all the thoughts that paper could not. . . . Since the computer could hold any structure in any form, this was the way to go. [19]

Nelsonian hypertext would not have a neat tree-structure such as the *Victorian Web* possesses, and Nelson's ideal [18] would include more kinds of texts than *Wikipedia*. Nevertheless, Nelson's emphasis on association, which is usually a one-step link, might put him closer to the single-step links found in the mini-essay style than to the multi-step link style of the hypertexts written in a style that was born more from literary experiments than from information concerns, and was only later appropriated for argumentative texts.

Multi-step link patterns might, however, be closer to the kind of enhancement of our cognitive powers that Doug Englebart imagined [3]. In his famous demonstration lecture we see him seeking to make complex arguments visible in their structure. By providing ways to link small nodes in graphical two-dimensional ways, and allowing spaces for self-reflection and meta-commentary, Englebart was enabling more kinds of link patterns than sequences of single-step pages.

3.2 One Complex Text and its Readers

There are few argumentative hypertexts with complex link patterns out in the wild rather than confined to disks. One such is my *Sprawling Places* project [12], mentioned above, a Web site that overlaps a book version with the same title. The

hypertext version is larger than the book and contains a larger variety of kinds of writing, linked in complex multi-step patterns. (In [11] I discuss the textual effects of writing the book and hypertext versions at the same time.)

The site has been fully functional since the fall of 2007; the book version was published in January of 2008. There has been a small increase in the number of visitors to the site since the book was published, but the book publication is too recent for its references to the site to have spread very widely.

The site is large and complex. It contains 144,054 words in 627 nodes, and more than a thousand images, all linked in complex ways. Diane Greco said, "David Kolb has a website, *Sprawling Places*, where I might happily lose myself for days." [4] But the evidence shows that most visitors to the site do not stay long.

Using Google Analytics, I derived some information about the site's readers. In the period from November 2007 through March 2008, the site received 6867 separate visitors. After book version came out in January, during February and March the site had 3028 unique visitors, from forty to sixty a day. Most of them, however, come from image search engines and stay only briefly, visiting one or two pages. (With its identifying photo captions the site provides plenty of fodder for Google Images and its kin.) Another large fraction come from text search engines pursuing various architectural or urban topics. Two to six visitors a day come directly to the site by clicking a bookmark or by typing its URL themselves. Presumably they are the readers who stay longer on the site.

A few visitors become repeat readers. Fifty-seven visitors have returned to the site three times or more. Four have returned more than nine times. (One has returned over twenty-six times, but that is probably me checking items on the site.)

While eighty-five percent of the visitors see only one or two pages, some read more. Since November, fifty visitors have stayed to read more than twenty pages, thirty-eight visitors have read from fifteen to twenty pages, and eighty-one have read ten to fifteen pages. A hundred and fifty eight visitors stayed on the site for ten minutes or more, while thirty-one stayed for thirty minutes or more.

That is good news but, given the size of the site, perhaps not so encouraging, although the site is diverse enough that there are fairly distinct areas that could be approached on their own, for instance the discussion of Disneyland, or of Frank Lloyd Wright's Broadacre City proposals. (These show up high on the list of search terms that brought visitors to the site.)

It is fair to say, then, that as to the complex link patterns on the site, some, but only a few, readers have had the chance to encounter them.

The site mixes complex text links with two sets of navigation links. A typical page contains links in the text that lead on to other text pages; these can involve the reader in complex link patterns. In addition pages contain menus of navigation links in the left-hand column, which lead to other different areas of the large text. Below the text are automatically generated links to nearby nodes on the spatial map in the Tinderbox file that stands behind the HTML. I arranged the map so that these links go to other nodes within the current area of discussion.



Figure 4. A typical page of the Sprawling Places web site, showing text links, navigation sidebar, and, below the text, automatically generated links to nearby items in the discussion.

The Google Analytics overlay on the site displays which links on each page have been clicked on. Examining the results reveals that the presence of the navigation links reduces the incentive to follow text links. On a typical page more of the navigation links than the text links will have been followed, though both are used.

Unfortunately, while the standard Google Analytics overlay will show which links on a page have been clicked and how often, it does not trace users from one page to another, so there is not much evidence about following complex paths. There is a feature which will track author defined "goals" and "funnels" (movement from a chosen first page to a goal such as a shopping cart), but this seems difficult to adapt to complex link structures that may involve loops and branchings.

The evidence shows that navigation links are used more than text links. This suggests that readers will follow complex link paths but prefer single-step navigation links.

4. THE USES OF COMPLEXITY

So should we conclude that the ideal of complexly linked argumentative hypertexts is a mistake, that multi-step link patterns should be left to literary texts?

Is the complexly linked hypertext form really practical today for extra-literary hypertexts, given the predominance and general success of single-step linked mini-essays? One crucial question here is whether (and when) the complexities of the mode of hypertext presentation could be doing anything essential. It would be misleading to claim that all exposition and argument could and should be presented simply and linearly. Often that is the best way, but, as *Socrates* argues, sometimes complex hypertext presentations would increase self-awareness, make important contextual connections, and present concepts and rhetorical gestures that refuse to be straightforward and single-ply.

Arguments often seem a series of one step moves, often like an upside down tree with various lines converging on a conclusion. But the most strictly structured argument is embedded in less formally structured activities and contexts, which give it meaning and purpose, and support its first principles. Even the most linear argumentation tends to surround itself with supplements: footnotes, introductions, marginalia, parentheses, instructions on how to read and interpret the argument and how to apply it to real life contexts.

Hypertext can make this all more explicit and available for self-reflection and criticism. Thinking things out and making arguments should include awareness of the argument's presuppositions, its context, its ties to other arguments, the options it is foreclosing, and the limitations of the language in which it is being expressed. Hypertext can link to nodes that keep those kinds of awareness active and present them without interrupting the statement of the argument itself.

Here is an example of an argumentative move that requires a patterning of multiple links:

Can hypertext display, for instance, the process of first putting up an idea as independent or immediately given, then showing how it is involved in complex relations that qualify its independence and constitute a larger unity that both keeps and overcomes the seeming independence of the first stages? Though not a linear argument, this process demands links that do multiple duty and should be traversed from a beginning. For the reader to intercept only a part of this movement would be to see as independent something that is not. To leave the first links behind would be to miss an aspect of the larger unit. To lose the movement in a cloud of links would be to diffuse the investigation into comments that presuppose too much independence in the individual moments of the discourse. (from *Socrates In the Labyrinth*)

There are more kinds of discursive moves than the single-step moves of an assertion, giving backing, offering alternatives, contesting a question, or expanding a topic. Moves that might require more than a single-step link might include undermining a duality, raising questions about criteria, using ironic parody, or showing internal tensions within a set of concepts. And there may be new kinds of rhetorical moves possible in hypertext that could take advantage of more expansive and self-reflective linking and complex text-plus-graphics.

Still, even if we grant that a complex hypertext can be more than a perverse rearrangement of arguments that should be presented more simply, it remains true that there are few such hypertexts. Could it be that there are only a few areas of content that lend themselves to the more complex style, perhaps certain kinds of philosophical reflection in epistemology and ontology, and key areas of political and literary theory? While these areas might encourage more complex forms of writing, is there no reason to think that arguments about, say, an upcoming election or a change in a corporation's policy might also benefit at times from more complex hypertext treatments?

Is it significant that arguments conducted through linked blog posts and comments sometimes degenerate into shouting matches? Does the mini-essay multiple-author format with its simpler links tend to reinforce a quick thrust and parry style that avoids complex and carefully qualified views that need to be presented and examined self-consciously from many angles?

5. THE REVENGE OF THE PAGE

If there is a legitimate place for complex hypertexts, what can we say about the dominance of the linked mini-essay with single-step link patterns? Reader preferences seem set on the simpler patterns. There are a variety of causes that might be cited.

Reading habits have not developed in the directions that hypertext pioneers hoped for. The Web rewards most easily the quick search-click-locate-grab for information, and the abrupt "he said, I say," or blasé surfing. Complex texts may just be too hard to read, especially with the pressures on readers surfing the web. The fragmentary data from the *Sprawling Places* site suggests that this is so.

As with reading, so with writing. It is not easy to write hypertext that involves multi-step link patterns. Doing so imposes a difficult kind of discipline than that of the mini-essay, which is itself a useful discipline on a medium that can tend to expand flabbily in all directions through vague associations and easy shocks of the new.

Also, the printed and Web "page" has an enduring metaphorical and software power. Habits developed for books and magazines get transferred, so the new medium stays close to the older conventions.

Yet the influence of other media, while strong, is not a sufficient explanation, since there are notable exceptions to the page metaphor even when using web browsers. With YouTube and Bloggingheads the page is becoming a window.



Figure 5. Bloggingheads.tv

But Bloggingheads, innovative as it is, maintains a two-box A-versus-not-A style when analyzing issues, where there should be many more voices and alternatives. This is not just a question of adding more heads, but of allowing mutual qualification and linkage that could be best expressed in a complex hypertext, not as a series of solo mini-essays or one-on-one back-and-forths. And it would be good if such hypertext made visible its own process of genesis and revision, so that the tentativeness and fragility of thought could be preserved rather than frozen

5.1 Nodes and Links as a Problem

While it is true that habits from older media continue to influence readers, there is a further cause. The prevalence of the mini-essay style of hypertext may be significantly caused by the underlying granularity of node-and-link hypertext itself. Linked text is, after all, separate chunks of text connected by links. This can encourage writing and reading nodes as

separate topics with links to related topics. This one-thing-at-a-time writing and reading is reinforced when presentation systems have one item replace another visually on the screen.

The impact of a one-topic-after-another sequence of chunks of text is reinforced by the way that in a Web browser linked content usually replaces the previous content. While it is possible to have a link open in a separate window to the side, this is not frequent, and when separate windows do open they usually overlap the original. Often these windows are made larger by including browser mechanisms of navigation and controls.

In an attempt to counter this effect, I experimented with making the individual nodes very brief, so that is clear they do not stand on their own. This works best in a multi-window environment such as Storyspace where links can open small nodes in windows next to one another. The tactic is weak on the Web where typical browser behavior replaces the text with the new text, and where short nodes look like they are wasting window space.

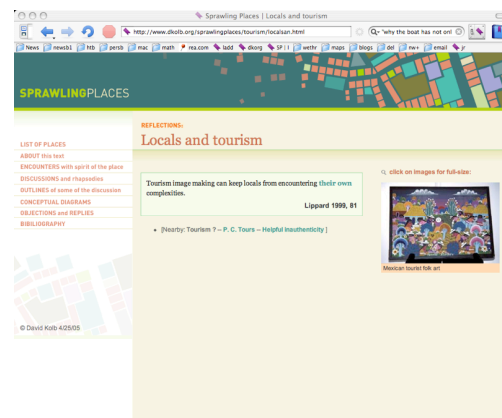


Figure 6. A short node on a web page.

5.2 More than Links Are Needed

Besides the influence of habits derived from prior media, and the inherent difficulty of complex texts, one of the causes of the lack of complex node-and-link hypertext lies in the chunky quality of nodes themselves. So more than links may be needed to make complex textual maneuvers more available.

Following up on the above mention of multiple windows, one example of what could be added is spatial montage.

It is difficult enough to arrange collage on a single browser page, and harder to make a montage of multiple windows where nodes are juxtaposed and qualify each other. But montage opens up the spatial dimension so that following a link may change the spatiality of what is perceived as well as its content. This provides a further dimension in which complex relations can be expressed.

Programs such as VKB, Storyspace, and Tinderbox allow spatial montage of small text boxes on their maps, but these do not provide enough room to display entire multi-sentence texts in each box. Storyspace and Tinderbox hypertexts allow links to open multiple author-positioned text windows that

can gradually create a complex montage of short texts relating to one another.

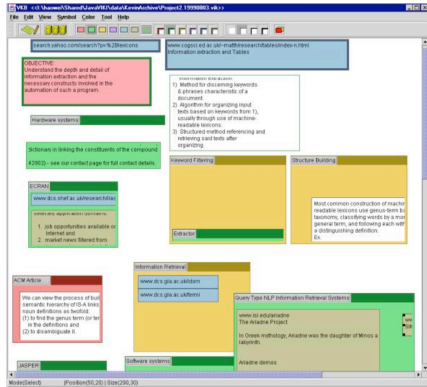


Figure 7. Spatial montage of text nodes in VKB.

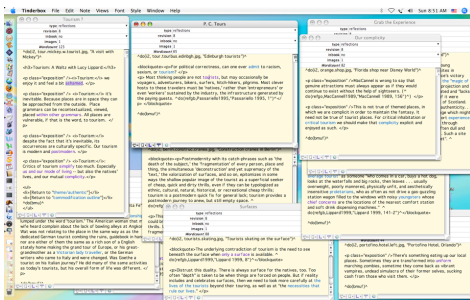


Figure 8. Spatial montage of mutually commenting text windows in Storyspace/Tinderbox.

Such maneuvers are difficult (though not impossible) to transfer to the Web. Graphic manipulations of multiple windows could enhance the presentation of exposition and argument on the Web.

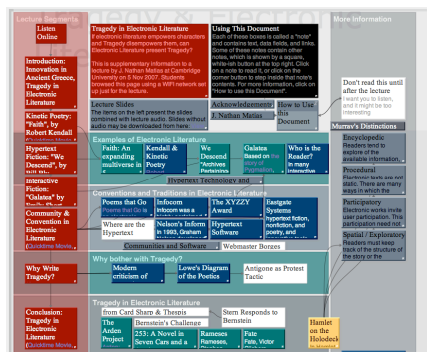


Figure 9. An active Tinderbox map of a lecture [16], transferred to the Web using Javascript.

5.3 New Tools and New Skills

If there are problems with how node-and-link hypertext itself might reinforce the dominance of the page metaphor, perhaps other kinds of hypertext (stretchtext, Nelsonian multi-texts, spatial hypertext) may be less likely to support a one-finished-item-at-a-time mode of reading and writing. Spatial

hypertext, as above, offers ways to relate text and images in non-linear ways and to manipulate even pure text to take advantage of both spatial relations and hypertext links.

New possibilities of spatial and graphic dialogue and mutual qualification are becoming available as broadband connections and more graphically capable computers allow exposition and argument to develop within richer environments than a blank page and a single window.

More complex texts require new skills of writers and readers. Reading complex literary or argumentative structures has never been an easy skill to learn, whether in print or hypertext forms. The texts demand both a sense of detail and a vision of the whole, seeing how what is happening in this bit relates to the others and to the emerging whole (or self-conscious non-whole).

The Web in its infancy has not yet taught such reading and writing skills. On the other hand, the Web does increasingly teach the reading of images and mixed media, and this may lead to new and more effective text reading. Similar skills can also be developed by those online games that combine long story arcs with attention to local detail. The difficulties of reading and writing complex texts may decrease as the graphical and attention habits of readers change.

A related challenge will be to develop tools for multi-author dialogue that can get beyond the one-step link and the presentation of back-and-forth pages. So far, complex link patterns have mostly been set up by single authors in control of a large text. This is likely to continue, but there may be ways, again involving montage and graphics, for mutual discussion to progress in new ways.

Lectures and meetings in virtual worlds (such as Second Life) are another approach, but one still too much modeled on the spatiality and temporality of "real world" meetings. They could be developed into a mode of presentation that was more complex spatially and graphically as well as textually rich. There is, for instance, Layer Tennis. [14]

Two artists (or two small teams of artists) will swap a file back and forth in real-time, adding to and embellishing the work. Each artist gets fifteen minutes to complete a 'volley' and then we post that to the site. A third participant, a writer, provides play-by-play commentary on the action, as it happens. [14]

We might imagine a textual development of this process, where words and sentences are used as well as images, combining some elements of a debate, some of a poetry slam, in a structure that is already self-reflexive and includes meta-commentary. The result would grow in complexity that would challenge both readers and writers. Such new modes of writing could create new communities of readers.

6. CONCLUSIONS AND POSSIBILITIES

There is a chance that the dominance of the mini-essay will be challenged by habits of reading and writing influenced by gaming and by the ability to deal better with images, the mutual interactions of text and images, and longer more complex texts.

There are several large-scale practical issues here that can become confused with one another. One is the issue I have

been pursuing, namely, the page versus the net of complexly related nodes.

Another issue is the way that both the linked mini-essay and the complex-link forms of hypertext stand together in opposing the sound-bite-and-slogan mode of public discourse, since both hypertext styles resist facile summaries. Though the mini-essay form can produce shouting matches, for the most part it does not cater to the kind of reader who wants to be titillated by conflict but not challenged as to beliefs or values.

A third related issue is the relation of any specialist argumentation or literary creation to public discourse.

In theory hypertext should provide tools that can help with these practical issues by bringing different kinds of discourse to bear on one another. In practice this is seldom done yet, and the mini-essay style, while it can be very helpful in assembling specialist and literary discourses, as in the *Victorian Web* and *Wikipedia*, is less useful for relating these to other kinds of discussions.

But the experience of the Web as it grows and changes may well increasingly break the isolation of different kinds of discourses from one another and encourage complex mixed kinds of writing. Purposeful hypertext with complex linking can do this well. A willingness to write and read complex link sequences together with spatial combinations of text and images can bring things together in unexpected ways that go beyond one-step developments. Greater graphical sophistication and more elaborated skills of attention could help hypertext turn a new page toward one of its old ideals.

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8. REFERENCES

- [1] Bernstein, Mark. 1998. Patterns of Hypertext. Proceedings of Hypertext 98, 21-29. DOI= <http://www.eastgate.com/patterns/Patterns.html>
- [2] Engelbart, Douglas. Bootstrap Institute. DOI= <http://www.bootstrap.org/>
- [3] Crooked Timber. DOI= <http://www.crookedtimber.org>
- [4] Greco, D. Old Whinges. DOI= <http://home.earthlink.net/~dianegreco/oldwhinges.html>
- [5] Guyer, Carol, and Martha Petry. 1991. *Izme Pass. Writing on the Edge 2(2)*. Watertown: Eastgate Systems.
- [6] Guyer, Carol. *Woe*. 1991. *Writing on the Edge 2(2)*. Watertown: Eastgate Systems.
- [7] Hollis, J. D. 2006. "Centers in Hypertext." November 7, 2006. DOI= <http://buttondowndesign.com>
- [8] Joyce, M. 1990. *afternoon, a story*. Watertown: Eastgate Systems.
- [9] Kolb, D. 1995. *Socrates in the Labyrinth*. Watertown: Eastgate Systems.
- [10] Kolb, D. 2000. "Hypertext as Subversive." *Culture Machine 2*. DOI= http://culturemachine.tees.ac.uk/Cmach/Backissues/j002/Articles/art_kolb/Introduction_143.html
- [11] Kolb, D. 2004. "Twin Media: Hypertext Structure Under Pressure," Proceedings of the 2004 ACM Hypertext Conference. DOI=<http://www.dkolb.org/twin.media.ht04/covershe.html>
- [12] Kolb, D. 2008. *Sprawling Places*. Book version: Athens, GA: University of Georgia Press. Hypertext version: DOI= <http://www.dkolb.org/sprawlingplaces>
- [13] Landow, G. *The Victorian Web*. DOI= <http://www.victorianweb.org>
- [14] Layer Tennis. DOI= <http://layertennis.com/index.php>
- [15] Leiter, Brian. Various Blogs. DOI= <http://leiterreports.typepad.com/>, <http://www.leiterlegalphilosophy.typepad.com/>, <http://www.brianleiternietzsche.blogspot.com/>
- [16] Matias, J. Nathan. 2007. *Tragedy in Electronic Literature*. DOI= <http://www.natematias.com/cam/trag-elit/>
- [17] McCardle, Megan. Blog. DOI=<http://meganmcardle.theatlantic.com/>
- [18] Nelson, Ted. 1987. *Computer Lib / Dream Machines*. Redmond: Microsoft Press.
- [19] Nelson, Ted. 2001. "Visionary Lays Into the Web." BBC, October 8, 2001. DOI= <http://news.bbc.co.uk/2/hi/science/nature/1581891.stm>
- [20] Wikipedia, DOI= <http://www.wikipedia.org>
- [21] Yglesias, Matt. Blog. DOI= <http://matthewyglesias.theatlantic.com/>