Structural Patterns and Hypertext Rhetoric

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Abstract: Early hypertext theory viewed disorientation as a grave obstacle to effective hypertext, and often prescribed the used of simple, formal structures. The evolution of hypertext writing, especially literary hypertext, indicates that navigational anxiety may be misplaced. A rich vocabulary of structural motifs in current hypertext writing, spawning new efforts to understand, interpret, and represent complex hypertext structures.

Keywords: design, patterns, pattern languages, rhetoric, hypertext structure, criticism, fiction

The End of the Navigation Problem

Hypertext rhetoric – the study of effective expression in interlinked media – originally developed in the absence of hypertexts to study: the first hypertext critics [Nelson 1976], [Engelbart 1963] had to imagine the kinds of documents that could be created for the systems they hoped to build. Early discussion of hypertext writing focused on the utility of links and their power to facilitate access, providing "free and knowing navigation" to empower readers [Nelson 1982]. At the same time, the proliferation of links in tangled networks seemed a grave threat to intelligibility [Conklin 1987a], [Utting 1989], a threat best met by clearly emphatically stating the role of each link [Landow 1987] or, more drastically, by striving to avoid links whenever possible [Glushko 1989].

Before 1987, hypertext writing tools were laboratory curiosities; after 1987, systems like Guide, HyperCard, and Storyspace became readily available and were widely employed. Early systems often reflected the prevalent concern with navigation. For example, Peter Brown, Guide's developer, argued that emphasizing a hierarchical structural backbone would render hypertexts more comprehensible to users [Brown 1989]. To the widespread emphasis on tree-structured hypertexts was added speculation on the utility of hypercubes, toruses, and lattices [Parunak 1989] and Petri nets [Stotts 1989], while Polle Zellweger argued in an immensely influential paper that guided tours along clearly-marked paths help keep readers oriented [Zellweger 1989].

Simultaneously, however, ambitious hypertext fictions and large pedagogical hypertexts began to reach readers. Many of the most notable and successful works proved structurally complex. J. Yellowlees Douglas' dissertation on Michael Joyce's afternoon, a story [Joyce 1990] features a striking account of the difficulty Douglas faced in trying to map afternoon's complex and shifting network of writing spaces [Douglas 1990], a task she describes as taking

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years. Although the link topology of such hypertexts as afternoon and Victory Garden [Moulthrop 1991] resists simple description, the structural craft of these works is often evident. Indeed, these writers and their contemporaries developed a large repertoire of tricks used to intentionally disorient readers for artistic effect. Observers began to question whether, if skilled writers found it necessary to work hard to achieve disorientation, hypertext disorientation could indeed prove a pervasive threat [Bernstein 1989]. At the same time, instructors using hypertexts in college classrooms found that students rarely seemed to feel disoriented by the hypertext [Landow 1991], [Landow 1992a], and noted that disorientation, by disrupting preconceptions and demonstrating gaps in the reader's knowledge, has always been an important pedagogical device [Landow 1995].

Narrative Patterns

As early worries about disorientation receded, writers adopted larger and more diverse structural schemes while relegating simple topologies to a less prominent role. System designers had long sought to use links to capture argumentative structures used in design negotiations [Conklin 1988] or in collaborative writing [Streitz 1992], areas in which is was necessary for a document to represent divergent views. Even within the confines of a single exposition, argued philosopher David Kolb in Socrates in the Labyrinth [Kolb 1994], complex and irregular structures are necessitated not merely by reasons of access but also by the nature of argumentation itself. Syllogisms, Kolb shows, may be intrinsically linear, but more subtle arguments (and subtler theories of reason) readily adapt to richer hypertext forms. Simultaneously, Landow's observation of the intriguing relationship between hypertext and postmodern literary theory [Landow 1992] popularized hypertext's departure from hierarchy.

A critical step in understanding the patterns of hypertext narrative was the realization of the central importance of cycles. Recurrence ≠ revisiting a place that one has seen before – was once seen as a sign of disorientation, inefficiency, or artistic affectation. As hypertext readers gained experience, however, they came to recognize that recurrence was the way readers perceive structure [Bernstein 1992]; if readers never revisit a node, it is difficult for them to imagine the structure of the hypertext or the nature of the paths they have not taken [Harpold 1991]. Although some recent critics have attacked cycles as a symptom of postmodern malaise [Miller 1998], it is clear that cycles are important in complex narrative [Tosca 1999], [Calvi 1999]:

> *"Of recursus, there is hallucination, dÈj‡ vu, compulsion, riff, ripple, canon, isobar, daydream, and them and variation to name a few. Of timeshift there is the death of Mrs. Ramsay and the near disintegration of a house, the chastened resumption of the Good Soldier, Leopold Bloom on a walk, and a man who wants to say he may have seen his son die. Of the renewal there is every story not listed previously, the unrecollected whisper of your mother, and the barely discerned talk of lovers overheard at the next tableä"* [Joyce 1997]

Though cycles of various kinds are clearly important structural motifs, other design patterns are readily identified. The working vocabulary of current hypertext writers includes such patterns as counterpoint, mirror world, montage, and feint [Bernstein 1988].

Close readings of early hypertexts by Gaggi [Gaggi 1997], Aarseth [Aarseth 1997], and Walker [Walker 1999] reveals how each reader perceives the presence of form in shaping literary hypertexts even though they may assign very different significance to the structure they experience. Gaggi's experience of Victory Garden, for example, is shaped by the postmodern sensation of oscillation between the surface of the medium and the underlying story (cf. [Lanham 1993], [Rau 1999]). Aarseth, in afternoon, sees an cybertextual extension of modernism. Walker, also reading afternoon, discovers the analepsis and prolepsis of Gennette. The absence of critical consensus argues that the hypertexts themselves evoke a deep and substantive response, rather than constituting mere intellectual play or a pledge of literary-critical allegiance.

Short Hypertext Narrative

The emergence of intricate but short hypertext fiction, beginning with Mary-Kim Arnold's "Lust" [Arnold 1993], surprised many observers who assumed that hypertext was better suited to large scales. If structural complexity proved to be central to large narrative, it is the essence of short hypertext narrative; if a short hypertext does not possess a rich structure, it devolves into a simple sequence.

Several writers use hypertext maps as visual metaphors, contriving to echo in the structure a motif borrowed from the underlying hypertext. In Larsen's Samplers, [Larsen 1998], for instance, each hypertext follows the outline of a traditional American quilt pattern. The quilt is both a theoretical gesture (toward a richly interlinked, textile, feminist hypertext form, cf. [Morgan 1999]) and an ironic comment (since the stories often subvert from the normative family values that the quilts might be taken to represent). Strickland's (True North [Strickland 1998]) shapes part of the map to the contour of the female breast, echoing the work's explorations of the relationship between poetry and science. The cruciform map of Douglas' "I Have Said Nothing" anticipates the car crashes that precipitate its action [Douglas 1990], the overlapping text of Rosenberg's Intergrams echoes the author's concern with conjunction and montage [Rosenberg 1996].

Structure and the Web

The evolution of large-scale narrative in Web hypertexts has often recapitulated prior stages in stand-alone hypertext writing. Fear of disorientation revived calls for hierarchy and prescribed reducing the role of links [Rosenfeld 1998]. The distinctive feature of Web hypertexts – their facile distribution through lightweight, stateless servers – further complicates narrative. Most large hypertext narratives, and almost all successful short hypertexts, depend on dynamic links, links that change behavior as the reader moves through the document. State-free Web servers cannot provide dynamic links, and specialized protocols that preserve state necessarily forgo the economic advantages of the Web. (Of course, it is entirely possible to write a client-side application that manages state, using the Web as a remote file server, but while such applications, written in Javascript or embedded as applets, are feasible, they remain outside the natural idiom of Web hypertext) The (early) history of Web narrative is thus largely the history of a search for alternatives to dynamic links.

Web browsers revived the idea of typographically distinguished links – links set apart from the surrounding text by distinct color and typestyle – making it easy to provide breadcrumbs [Bernstein 1988] by changing the link color. A number of hypertexts use these breadcrumbs to simulate dynamic links; once traversed, links are dimmed or hidden in order to signal readers to follow new paths [Bernstein 1998a], [Kaplan 1996]. In Six Sex Scenes, Eisen strives to avoid cycles, depending instead on temporal counterpoint to indicate structural coherence [Eisen 1996]. Moulthrop's Hegirascope [Moulthrop 1996] and Amerika's Grammatron [Amerika 1997] use temporal links to subvert reader choice; the hypertext pulls the reader along a default path from which she may seek escape. Other authors, preferring to retain the option to use dynamic links or to construct user models, deliver hypertexts bundled for local performance, delivering them either on fixed media or through the Web.

Prospective surveys of future developments often predict growing prominence for immersive media [Murray 1997], for new media to reinvision or re-mediate the narrative [Bolter 1999], and for greater interaction to fuel participatory dramas [Laurel 1991], [Aarseth 1997]. All these may well play prominent roles in the future of hypertext rhetoric. Nevertheless, much remains to be learned about the craft of creating textual structure, and no alternative medium can match interlinked text for expressive power over a host of domains that range from abstract mathematics and physical science to historical research and media criticism. The future of literature clearly lies on screens, but if the end of the codex book might be approaching [Coover 1992], the end of the text is not.

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