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Hypertext theory and narrative

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Introduction

The title of this essay may at first glance seem strange. The linkage of a computer based technology with a theory of narrative might seem incongruous; however, hypertext and what George Landow has called the 'convergence of critical theory and technology' has stimulated interest in new theories and problematics of the text and of narrative. Interest in studying the textual implications of hypertext systems has grown almost as rapidly as these systems themselves. It is not an overstatement to say that of all the technological developments of the twentieth century, the emergence of hypertext and the internet has been the most widely studied. The interdisciplinary nature of this work is perhaps its most notable feature and there is a need to see hypertext not merely as a technological phenomenon but as a system which has deep implications for many 'communications' disciplines. There have been a few pioneers whose interdisciplinary work on hypertext predates the emergence of the World Wide Web (the most famous of hypertext systems) and whose work I will outline below.

The question most often asked when starting a discussion on hypertext is the most obvious one, namely, 'What is hypertext?' I will therefore introduce a few definitions. Ted Nelson defines hypertext as:

Nonsequential writing – text that branches and allows choices to the reader, best read at an interactive screen...a series of text chunks connected by links which offer the reader different pathways. (Nelson,1981)

The key terms here is 'interactive', for it is in this sense that hypertext differs fundamentally from linear texts. The traditional text is written and read sequentially without interaction from the reader, the text is fixed and unchangeable. George Landow suggests the textual implications of this by borrowing from Barthes and giving the following definition:

Hypertext... denotes text composed of blocks of text [called] lexia and the electronic links which connect them. (Landow,1994)

Landow's brief definition however leaves out another essential element which distinguishes the hypertext from the text – the role of the reader. Nancy Kaplan provides a fuller definition:

Hypertexts: multiple structurations within a textual domain. Imagine a story... that changes each time one reads it. Such documents consist of chunks of textual material (words, video clips, sound segments or the like), and sets of connections leading from one chunk or node to other chunks. The resulting structures offer readers multiple trajectories through the textual domain... Each choice of direction a reader makes in her encounter with the emerging text, in effect, produces that text. The existing examples of this form, especially the fictions, are so densely linked, offer so many permutations of the text, that the 'authors' cannot know in advance or control with any degree of certainty what 'version' of the story a reader will construct as she proceeds. (Kaplan,1994)

The role of the reader is therefore to construct the text through the act of reading. Of course this is an activity which a reader must undertake when reading any (not just a hypertext) text, the distinction arises from the fact that the text which is finally arrived at is unknown in advance to either writer or reader. So fundamental is this transformation that many hypertext theorists have argued that hypertext marks the 'death of the author'. In this essay I will give a brief introduction to the origins and development of hypertext as a technology and the parallel and dependent expansion of hypertext theories.

Hypertext Origins

Historically hypertext (although not called that) was envisaged in 1945 by the then director of US war research, Vannavar Bush. In his essay, 'As we may think', which was written before the advent of digital computers, Bush called for information-retrieval machines (which he called the memex, after MEMory EXtension) to help scholars and engineers sort through the growing mountain of research papers and other printed materials. According to Bush, the main problem lay with what he called 'the matter of selection' or information retrieval. The volume of information being so great as to prevent its proper reception:

Our ineptitude in getting at the record is largely caused by the artificiality of systems of indexing. When data of any sort are placed in storage, they are filed alphabetically or numerically, and information is found (when it is) by tracing it down from subclass to subclass. It can be in only one place, unless duplicates are used; one has to have rules as to which path will locate it, and the rules are cumbersome. Having found one item, moreover, one has to emerge from the system and re-enter on a new path. (Bush, 1945)

Bush had realised that his memex would require not only changes in the way in which texts were written but also in how they were read. Bush's analysis of the implications of this new technology acknowledged that while the memex was essentially encyclopaedic the pattern of links followed by the reader, which he called a trail, would lead to something like a story. He used the example of how he would, hypothetically, follow a series of links to items concerning the history, physics and acculturation of bow technologies and thus build 'a trail of his interest'. This trail of interest could be recorded and replayed later either to himself or to others. The categorization inherent in encyclopaedic systems was easily overcome in the memex where it was possible to explore the full complexity of knowledge systems. Ted Nelson, who coined the term 'hypertext' in 1965, points out:

there is nothing wrong with categorization. It is, however, by its nature transient: category systems have a half-life, and categorizations begin to look fairly stupid after a few years. (Nelson, 1981)

Bush was to comment: 'The human mind does not work that way' but by association. With one fact or idea 'in its grasp,' the mind 'snaps instantly to the next that is suggested by the association of thoughts, in accordance with some intricate web of trails carried by the cells of the brain'.

By the time Nelson had coined this new term 'hypertext' the digital computer had evolved to a large extent into the machine which is still in use today. Information could be displayed on Visual Display Units (VDUs) and keyboards could be used to navigate a cursor on screen. The principle of random access to information databases had also evolved and so all the elements of Bush's memex had fallen into place. In 1967 a group of researchers in America led by Andries van Dam developed a system known as HES (Hypertext Editing System). This system had many of the features which are recognisable in hypertext systems of today. The system allowed users to jump from text

node to text node and even allowed for the inclusion of images. Furthermore the system allowed users to create their own links within the hypermedia database and so readers could, for the first time directly interact with the text and leave their mark on it. It was, however, the advent of the personal computer which gave hypertext a more widespread acceptance. The older hypertext systems were based on mainframe computers, access to which was limited and from which there was no facility to link with other hypertext databases. The personal computer allowed small hypertext databases to be distributed on floppy disk. By the mid 1980s there were a number of authoring tools available for personal computers – such as Intermedia, Storyspace and in 1987 Apple's HyperCard. The possibilities of hypertext fictions began to be explored by writers such as Michael Joyce (whose hypertext fiction *Afternoon* was published in 1987) and theorists such as Jay Bolter and Stuart Moulthrop. While this work was going on the internet was growing quietly. The development in the late 1960s of TCP/IP networks and their subsequent adoption as the de facto wide area network protocol allowed academics to exchange data using reliable though aesthetically unsophisticated methods such as e-mail and file transfer protocol (FTP). However researchers in the European Particle Physics laboratories (CERN) developed simple software to allow computers to exchange hypertext documents using TCP/IP networks. The result was Hypertext Markup Language (HTML) and the associated network protocol Hypertext Transfer Protocol (HTTP). HTTP allowed 'server' computers to store documents which had cross referencing instructions embedded which referenced other documents on the same or on other HTTP servers. The result was that 'client' computers which had suitable 'browser' software could access multiple documents anywhere on the internet and could follow (and create) links between these documents. This system (called the World Wide Web) was to radically change the way in which information was delivered. Rather than requiring that all the information required to explain a given text was self-contained in that one text the text could contain links to other texts (or lexia) which would contain the needed information.

The significance of the World Wide Web is that it has introduced a large audience to hypertext who would otherwise be quite unaware of its existence or potential. This audience seems to have accepted the peculiarities of non-sequential writing in a way which has puzzled many theorists. The new position of the reader seems natural to those who have been exposed to hypertext for even a short while. This affinity of the reader to the hypertext then begs the question of where the new text fits in theories of readership and narrative.

Hypertext Theories

George Landow makes no distinction between the terms 'hypertext' and 'hypermedia'. Hypermedia lexia or nodes may also incorporate visual and auditory elements such as graphics, pictures, video and sound – and may in fact contain no text at all. In fact Landow uses the terms hypertext and hypermedia interchangeably. While both these definitions acknowledge the role of electronics in the practice of hypertext there seems to be no intrinsically 'electronic' aspects to hypertext. Gunnar Liestøl has pointed to Wittgenstein's efforts to order his writings in non-linear and associatively linked webs using nothing more than a scrapbook. An encyclopaedia with cross references may be read as a non-electronic hypertext, however the effort to which the reader must go to read it would prove exhausting. Partly for this reason it has been seen as useful to apply older theories of the text to hypertexts and to treat hypermedia primarily as a text which, as with other texts, is read and interpreted on a level which is disengaged from its technology.

Efforts have been made recently to construct broad literary theories around hypertext. Espen Aarseth has argued for a general theory of the text which would encompass both sequential and non-sequential writing (Aarseth, 1994). However Landow is more specific about this and contends that hypertext is more usefully seen as a testbed for modern theories of the text. The problematics of the text are manifold in hypertext which by its nature fragments and distorts both the reading and the writing of

the text. Any traditional literary and narrative theories are going to be severely strained by the hypertext. Indeed Landow, Nancy Kaplan, and Espen Aarseth contend that the very practice of literary criticism is under attack from the phenomena of hypertext and Landow even argues for criticism to become hypertextual – a practice taken up by himself and others (notably Jay Bolter and Kaplan) whose presence is as much felt on the World Wide Web as in print media.

Taking up Roland Barthes' and Paul Ricoeur's broad assertions about the importance and central significance of narrative to the text and applying it to hypertext would at first glance seem to be a dangerous methodology. Certainly it must be argued that theorists such as Barthes and Ricoeur did not have hypertext in mind when discussing intertextuality or the historical narrative in their respective cases. Nevertheless they are acknowledging that there is more to narrative than that bounded by the linear text. Indeed the study of narratives has until recently been predominantly the study of texts, texts which are firstly conceived as artifacts – that is to say that narratives lie in the past and as such are static and immutable save in their interpretation. The historical assumptions about the text and its solidity has determined suitable methodologies for analyzing the text. Literary and film theorists have brought to bear the tools of analysis on texts which if problematic in their interpretation were at least reassuring in their repeatability and intransigent structure. In other words the textual structure was examinable directly (from an observable text) whereas hypertext structure is determined primarily by the reader. Hypertext has challenged theorists to not only engage in an examination of this new type of text but to re-examine traditional concepts of how the text is received in light of hypertext's phenomenology.

Given the origins of hypertext in the physical sciences and in scientific scholarship it is perhaps not surprising that the social sciences and specifically a discipline of hypertext theory has been slow to develop. However the field is rich with challenging areas which present challenges and problematics for many 'traditional' areas of study. Perhaps chief amongst these is the role of the reader in the hypertext and from this the role of narrative construction by the reader. Given that hypertext presents no definite form it is tempting to say that it has little narrative possibility. As Bolter writes:

The new medium [hypertext] reifies the metaphor of reader response, for the reader participates in the making of the text as a sequence of words. Even if the author has written all the words, the reader must call them up and determine the order of presentation by the choices made or the commands issued. There is no single univocal text apart from the reader; the author writes a set of potential texts, from which the reader chooses. (Bolter, 1991)

Bolter is pointing to the fundamental shift away from the author as the primary generator of meaning towards a different (albeit unclear) relationship between author, reader and text.

If the hypertext requires that the text be written not as a singular linear and author ordered 'line of thought' but as a web of associatively linked nodes then the act of reading must necessarily be of a different order. It is not however only Bush who realized that the processes of human thought were not followed by traditional texts which are by their nature static, singular and physically isolated. Barthes (1990) also has commented on the utopian ideal of the 'writerly text'. Following from Barthes, James Tarling has outlined the strong association between Barthes' idealized text and the hypertext. For Barthes the meanings found in the text are not established solely by the author but by the text and its associated links – by what he called their 'systematic mark' (Barthes, 1977:146), and so reading and writing are unified into the single 'practice of the symbol itself' (Barthes, 1977:142).

Barthes' implication of the reader in the generation of meaning is not a radical one but his conception of the 'writerly text' as having amplified meaning is of course one

which appeals to hypertext theorists. In *S/Z*, Barthes describes the ideal text as 'a galaxy of signifiers, not a structure of signifieds... we gain access to it by several entrances, none of which can be authoritatively declared to be the main one.' (Barthes,1990:5). This of course closely corresponds to the idea of the node or *lexia* in hypertext. So then we are left with a new conception of the text in which a large measure of the authority and univocality of the text is removed from the author and to a greater or lesser extent given to the reader and readers. Thus the text ceases to be uni-vocal and becomes multi-vocal with each new reading. Barthes of course was primarily thinking of intertextuality as an interpretive force which would help achieve this writerly function but the technology of hypertext has gone a step further and has allowed the structural formation of the text by the reader. For Barthes and Derrida, intertextuality was a step towards the destruction of the 'author', and the transformation of the role of the reader from one of passive consumption to active interpretation, since the text is experienced only in an 'activity of production' (Barthes,1977a: 157). The reader must confront the text, must negotiate her way around the web of potential readings, must in essence rewrite the text. The essence of the hypertext is similarly to confront the reader with multi-vocal readings and forces the reader to reappraise the text from multiple semantic and structural standpoints. Landow et al. have shown that hypertext demands new systems of both writing and reading. However given the centrality of the author in traditional concepts of narrativity where then is the narrative?

Narrative Confronted

As I mentioned earlier hypertext theory has forced a redefinition of the text, in terms of its status, its author and its reader. However, it could be, as Lyotard has argued, that the redefinition of the text in postmodern terms marks the death of narrative. He says 'lamenting the loss of meaning in postmodernity boils down to mourning the fact that knowledge is no longer principally narrative' (Lyotard,1984:26). Such a view, which Landow and Robert Coover (quoted in Landow,1994: 104) take issue with, is however decidedly one of technological determinism. For to argue, as Lyotard does, that technology 'has always been in conflict with narratives' is to ignore what in fact may be a broader set of narrative possibilities which technologies of hypertext present.

Landow points to the apparent contravention of *emplotment* central to Aristotle's notions of narrative which hypertext presents. Aristotle in the seventh chapter of *Poetics* stresses the importance of beginning and end in the 'well-formed plot'. He says 'a well-constructed Plot, therefore cannot either begin or end at any point one likes; beginning and end in it must be of the forms just described'. Taking on this point it is difficult enough to present a case that hypertext can embody Plot, at least in the sense which Aristotle meant, much less that it can be beautiful. However Gunnar Liestøl argues convincingly that such a rigid approach to narrative formation is itself a reflection of the primacy given to the writer in linear texts. Liestøl points to the operations of rhetorics in his re-examination of hypertext narratives. Ancient rhetoric sets out the steps which a speaker should make before making a speech. The first of these steps is *inventio*, this being the point at which the speaker will decide on what elements will be used to discuss his topic. Liestøl characterises this as 'discovery' not as 'invention'. In other words the act of gathering material is not in itself a narrative act. The narrative is potential in the positioning of the elements. It is this positioning of elements or *dispositio* which allows the speaker to generate meaning for his speech.

What Liestøl (1994), Michalak & Coney (1993) and Landow are arguing for is a conception of narrative as being potential within the text. In linear narrative the potential is discovered by the author who, in the act of *dispositio*, orders the *lexia* at his disposal to a meta-narrative of his own choosing. For Aristotle this was a prerequisite for the beautifully formed plot. However if we are to seriously challenge such a notion and to make room for the writerly text then room must also be made for the reader to discover narrative to carry out the act of *dispositio* and in this way to discover potential narratives within the body of what would otherwise be discrete *lexia*.

The notion of potential narratives is not new; Ricoeur has argued for a conception of life as emplotment, after the event, of potential narratives. Ricoeur makes this case:

We can now attack the paradox we are considering here: stories are recounted, life is lived. An unbridgeable gap seems to separate fiction and life. To cross this gap, the terms of the paradox must be thoroughly revised... My thesis is here that the process of composition, of configuration, is not completed in the text but in the reader and, under this condition, makes possible the reconfiguration of life by narrative... The act of reading thus becomes the critical moment of the entire analysis. On it rests the narrative's capacity to transfigure the experience of the reader. (Ricoeur,1988:48)

Ricoeur's drawing of parallels between the experience of life and the writing of personal narratives is a useful approach to take to the potentialities of hypertext narratives. The 'reconfiguration of life by narrative' is similar to the reconfiguration or more properly the emplotment of the hypertext in the act of reading. However this throws up yet another problematic for the text.

Fictional Narratives

Ricoeur's central thesis is one which places narrative at the heart of an understanding of life. He states:

It follows that narrative fiction, is an irreducible dimension of self understanding. If it is true that fiction is only completed in life and that life can be understood only through the stories that we tell about it, then an examined life, in the sense of the word as we have borrowed it from Socrates, is a life recounted. (Ricoeur,1988:57)

For Ricoeur, the fictional narrative provides abstracted or exemplary models of life, templates for navigation in potential real life narratives. For in fiction narrative can take on explicit moral and ethical positions. It would seem that it is this aspect of fictional narrative which cannot be embodied in hypertext, even in hypertext fiction. The narrative being devoid of moral guidance can only follow a morally meaningless sequence without beginning or end to frame itself and thus give it meaning. It quickly becomes clear that hypertext may have sequence and meaning but at some point the moral function of narrative is stripped away. It is true that on the local or micro level the linking of lexia throws authorial responsibility on the hypertext author – but thereafter the reader becomes the 'author of her own destiny'.

The situation becomes yet more problematic when we consider that hypertext systems allow individual readers to generate their own links between lexia. In a system like the WWW the cacophony of the authorial voices, of the 'docuverse' text, with what may be millions of authors throws the narrative function more and more onto the reader.

In conclusion I believe that it is useful to see hypertext as a new type of textuality, one which exists not in opposition to traditional narrative texts but rather one which can circumvent the limits which the technologies of print, video and film place on the text. As Barthes has pointed out, the writerly text is an opportunity to reapproach the text in ways which remove the artificial centrality which the individual text achieves in its reading. Hypertext de-centres, or more properly continuously re-centres, the text and in this way blurs the boundaries of the individual (printed) text and places it within the context of a wider intertextual discourse. This should not in fact strike us as being a very radical departure from traditional reading especially in scholarly texts. The scholarly texts, it could be argued, with their use of footnote and citation is a form of pseudo intertextuality or hypertextuality crying out for hypertext discourse. The scholarly text reaches out and alludes to the textual discourse in which it is located

while still bounded by the physical limits of print technology. Hypertext simple allows for the extension of citation and footnote into the body of the texts to which they refer. What is lost, rhetorically, is the continuity and closure of argument. What hypertext does offer us is new possibilities to explore potential narratives and to challenge the concepts of author and reader in ways which have not been possible with sequential writing.

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