
Hypertext: An Electronic Innovation or Just Another Kind of Nonlinear Textuality?

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Abstract

The article deals with the notion of hypertext and its essential characteristics with regards to the disputable question of its ultimate possibility only within the domain of electronic/computer literature. The basic concepts of nonlinear textuality are analyzed in order to provide a basis for perceiving the hypertextual principle of organization in many printed, non-electronic texts. The purpose of the discussion is to make a claim that hypertext is essentially an electronic variant of nonlinear textuality, which has a long-standing historical tradition in the world's literary heritage.

Key words: *hypertext, electronic/computer literature, nonlinear textuality, cybertext, ergodic literature.*

In contemporary culture and literature, hypertext has become a certain symbol of the postindustrial epoch, new media, new ways of reading and writing, and, ultimately of new literacy, generated by the advent of computerized, electronic technology. Intellectual production and consumption, just like language itself, are “being stretched by cables and condensed by monitors” (Hale, 1996, p. 9). The depth and dimension of the change in the nature of knowledge brought about by technology and the altered social relationship between people can be best characterized by what Harasim (2000) calls a “paradigm shift” and a “knowledge revolution”. In 2003, Andriessen, Baker and Suthers suggested an evolutionary perspective, which claimed that a new “knowledge age” had replaced the “information age” in the contemporary history of learning and technologies.

Among other landmarks of this new techno-socio-cultural stratum, hypertext definitely stands out as a complex, intricate phenomenon, which defines and serves new ways of knowledge creation and distribution. It also puts into a new perspective the aesthetic principles of a literary text and the relationship between writer and reader, because with hypertext, the conceptual systems founded upon ideas of center, margin, hierarchy, and linearity no longer work and are replaced with those of multilinearity, nodes, links, and networks. This paradigm shift “marks a revolution in human thought” and “has profound implications for literature, education, and politics” (Landow, 1997). But is hypertext an essentially new and unprecedented phenomenon, pertinent only to computer and electronic medium, or is it possible to perceive the same concept being applied in a printed narrative? This article looks into the basic principles of hypertext, analyzes the notions of linearity and nonlinearity, and attempts to dispute the uniqueness of electronic texts through comparing them to some literary texts of the printed format.

In its most generalized way, hypertext is a specific text structure, comprising textual and/or multimedia (visual, sound, animation etc.) blocks, connected by electronic links and characterized by the essentially

open textuality. Principles of hypertext are widely exploited by electronic dictionaries, encyclopedias, and other reference literature, existing on the Internet or on the electronic recordable devices (CD-Rom, DVD, etc.). Basically, any webpage is a hypertext with multiple points of entry and, also, a composite, where text is mixed up with images, some of which can be hyperlinks. Some differences between text and hypertext are self-evident: one is printed, for instance, the other is digital, appearing on a computer screen. However, the crucial difference lies in the principle of linearity, typical for most genres of written discourse in the form of printed texts, but essentially nonexistent in electronic ones. Boardman (2005) compares the linear structures of text and hypertext in the following way:

Traditional narratives are basically linear: there may be more than one line of development (as in the various storylines of a soap opera) but the plots follow the line and are heading (eventually) for some kind of conclusion. In contrast, a better way of imagining hypertext discourse would be to think of it resembling one of those spider diagrams that we all have been taught to use for planning essays. A [web] page can be connected [with no particular hierarchy or apparent linearity] to ten other pages, using hyperlinks, and then each of those ten pages can be connected to ten others, either on the same site or another site maybe thousands of miles away (distance is not important on the Web) (p. 15).

Since there are multiple points of entry, which then lead to the multiple points of exit (resolution, completion), a traditional, linear narrative is lacking in hypertext. In other words, Boardman notes that “we have a problem with hypertext because in a real sense the narrative is never finished, and there are more ways of navigating the available paths than a reader can pursue in a lifetime” (p. 14). For many, this kind of structure defines hypertext as an exclusively electronic product and its existence is considered as possible only within the electronic medium.

Meanwhile, if viewed from a broad cultural-historical perspective, hypertext is a much more complex phenomenon than just an electronic text. Baranov (1997) believes that it is possible to perceive hypertext as a whole subculture, which has its own prophet (Vannevar Bush), founding fathers (James Joyce, Vladimir Nabokov, Samuel Beckett), gurus (Theodore H. Nelson and Jacques Derrida), saints (Mikhail Bakhtin, Michel Foucault, Roland Barthes), a Bible (*The End of Books* by Robert Coover), and cult attributes (memex, lexia, link, net)” (p. 204). This list will not be complete without a groundbreaking artifact, the first electronic novel *Afternoon* by Michael Joyce (1990), which manifested the appearance of fiction on the computerized landscape. It was soon followed by *Hegirascope* and *Victory Garden* by Stuart Moulthrop, *Grammatron* by Mark Amerika and many others. A similarly broad perspective on hypertext is presented by Landow (1997), who believes hypertext to be a product of a paradigm shift and a remarkable convergence of literary theory and computing: “When designers of computer software examine the pages of *Glas* or *Of Grammatology*, they encounter a digitalized, hypertextual Derrida; and when literary theorists examine *Literary Machines*, they encounter a deconstructionist or poststructuralist Nelson. These shocks of recognition can occur because over the past several decades literary theory and computer hypertext, apparently unconnected areas of inquiry, have increasingly converged” (p. 2).

The emergence of Web 2.0 technologies has brought a new dimension to the subculture of hypertext, which further challenges orthodox ideas about the creation and dissemination of knowledge. Franklin and Van Harmelen (2007) remark: “In Web 2.0 everyday users of the web use the web as a platform to generate, re-purpose, and consume shared content. With Web 2.0 data sharing the web also becomes a platform for social software that enables groups of users to socialize, collaborate, and work with each other” (p. 4). The converged culture of literary hypertext has fully embraced the opportunities of the Internet, particularly its specially-designated-for-literary-production writing systems (*Storyspace*, *Eastgate System*, etc.). With the Net, hypertext offers literary criticism theorists, as well as writers, a unique laboratory to test the most critical aspects of literary theory, “particularly those concerning textuality, narrative, and the roles or functions of reader and writer” (Landow, 1997, p. 2).

A further look into the nature of hypertext reveals even more complexity and heterogeneity of the notion, which in terms of literary theory allow it to have various interpretations. On the one hand, Robert Coover in his series of essays on computer novels and computer literature, as well as in his hypertext manifesto *End of Books* (1992) views hypertext and hypertext literature as no less than a techno-cultural liberating revolution, which has finally brought an end to the traditional novel, “which took centerstage at the same time the industrial mercantile democracies arose - Hegel called it ‘the epic of the middle class world’ — is perceived by its would-be executioners as being the virulent carrier of patriarchal, colonial, canonical, proprietary, hierarchical, and authoritarian values of the past which is no longer with us” (p. 11). Coover was among the first to realize that thanks to computer technologies and the advent of hypertext the “power of the line” was shattered, as the line “in fact does not exist unless one invents and implants it” (ibid.). According to him, this leads to a radical change in the ways fiction is written, published, read and criticized, as, unlike printed text with its one-way movement of page-turning, hypertext is an interactive and polyvocal technology, giving preference to plurality of discourse (Coover, 1993). Ultimately, hypertext for Coover is a new arena, which is “indeed an exciting, provocative, if frequently frustrating medium for the creation of new narratives, a potentially revolutionary space, empowered, exactly as advertized, to transform the very art of fiction” (Coover, 1992, p. 24).

In a similar fashion, Michael Joyce, the author of the first hypertext novel *Afternoon*, praises hypertext fiction for awakening the activism of a reader: “Constructive hypertexts require a capability to act: to create, to change and to recover particular encounters within the developing body of knowledge. These encounters ... are maintained as versions, i.e., trails, paths, webs, notebooks, etc.; but they are versions of what they are becoming, a structure for what does not yet exist” (1995, p. 42).

On the other hand, literary hypertext being, currently, indeed an absolute manifestation of open nonlinear textuality, does not completely exclude realization of hypertextual principles in other textual, non-electronic formats, characterized by structural nonlinearity. The most evident support for this assumption is found in modern literature, which exploits the aesthetic principle of disorientation and “broken”, nonlinear narrative. Thus, Michaelovic (1999), considers novels by Pavic to be an example of hyperfiction, while Coover himself regarded the creative innovations of such novelists like Stern, James Joyce, Queneau, Cortázar, Calvino and others as “countless counter-strategies to the line’s power” (1992, p. 11).

Furthermore, Espen J. Aarseth (1997), who has suggested the most comprehensive up-to-date study of nonlinearity both in its chronological development and from the point of view of its status in the contemporary narratology, traces down hypertextual strategy in much earlier literary texts. In his research, Aarseth operates with the concept of “cybertext”, which unlike hypertext does not limit itself to the study of computer-driven (or ‘electronic’) textuality, which would be, in his opinion an arbitrary and unhistorical limitation. His concept of cybertext “focuses on the mechanical organization of the text, by positing the intricacies of the medium as an integral part of the literary exchange. However, it also centers attention on the consumer, or user, of the text, as a more integrated figure than even reader-response theorists would claim” (p. 1).

In his campaign for the study of cybertextuality from this perspective, Aarseth views cybertext as a machine for the production of variety of expression, which should not be confused with the ambiguity of meaning and literary ambivalence. Similar to the forking paths of hypertext, in reading cybertext “you are constantly reminded of inaccessible strategies and paths not taken, voices not heard. Each decision will make some parts of the text more, and others less, accessible, and you may never know the exact results of your choices; that is, exactly what you missed” (p. 3). Such an approach allows the researcher to believe that nonlinear textuality has been practiced as long as linear writing, and can be observed, for instance, in the religious wall inscriptions of the temples in ancient Egypt, which were two-dimensional or three-dimensional, following the symbolic architectural layout. As another example of ancient and very well-

known instances of cybertext Aarseth suggests the Chinese text of oracular wisdom *I Ching* (1122–770 b.c.), which is also known as the *Book of Changes* and as the textual structure which inspired G. W. von Leibniz, who developed the binary mathematics used by today's digital computers. This book, composed by several authors, is made up of sixty-four symbols, or hexagrams, which are the binary combinations of six whole or broken ("changing") lines. After certain manipulations according to a randomizing principle, the texts of two hexagrams are combined, producing one out of 4,096 possible texts.

These kinds of nonlinear texts comprise what Aarseth calls "ergodic" literature,¹ with which nontrivial effort is required to allow the reader to traverse the text. To some extent, like in hypertext reading, during the cybertextual process, "the user will have effectuated a semiotic sequence, and this selective movement is a work of physical construction that the various concepts of 'reading' do not account for" (p. 1). The researcher perceives nonlinear text as an object of verbal communication rather than a fixed continuity of words and sentences, and, in this object, the continuity of the latter in the process of reading can change depending on the form, structure and mechanism of the text. It is this perspective on nonlinear fiction, which allows Aarseth to register cybertextuality even in ancient narrative artifacts.

But Aarseth, with his original concept of cybertext, was not the first one who envisioned hypertextuality in printed literary narrative. He followed in the steps of Jacques Derrida, who, with his deconstruction theory, offered the earliest skepticism of linguistic stability and structurality. Derrida's philosophy managed to embrace and conceptualize all new, emerging cultural phenomena, especially those innovations in the 20th century fiction, which displayed nonlinearity, dynamics, lack of frame, option for multiple combinations, and so on. Derrida was essentially the first one who subjected to criticism the basic notion of text and who introduced such fundamental hypertextual notions as *link (liaisons)*, *web (toile)*, *network (réseau)*, and *interwoven (s'y tissent)* much in advance of the advent of electronic hypertext. From the position of deconstructivism he emphasized textual openness, intertextuality, and the irrelevance of distinction between the inside and the outside of a particular text. Text, for him, is no longer a finished model or product, but a particle, subject to "disengagement and citational graft which belongs to the structure of every mark, spoken and written, and which constitutes every mark in writing before and outside of every horizon of semiolinguistic communication" (*Signature*, p. 185, quoted in Ulmer, 1985, pp. 58–59). This citability and separability, crucial for hypertext, is present, according to Derrida, in any text and thanks to it, the text "can break with any given context, engendering an infinity of new contexts in a manner which is absolutely illimitable" (*ibid.*).

Another essential feature of hypertext is its lack of beginning and end. As Nelson, one of the originators of hypertext, emphasizes: "There is no Final Word. There can be no final version, no last thought. There is always a new view, a new idea, a reinterpretation. And literature, which we propose to electronify, is a system for preserving continuity in the face of this fact" (Nelson, 1981, p. 48). However, in support of our claim that hypertext is not an absolutely novel artifact, it should be noted that for the Russian scholar Mikhail Bakhtin no text is "the whole", a finished entity, it is always a relationship. In many ways, his conception of textuality anticipates hypertext, as for Bakhtin, the whole can never be finalized and set aside; when a whole is realized, it is by definition already open to change (Landow, 1997, p. 79).

Thus, Landow, in his study of hypertext, emphasizes that though the older conventional notions of completion and a finished product have been shattered by hypertext, it had already been perceived in narratology by Derrida and Bakhtin. What one may take for a definition of hypertext in the following quote, is actually Derrida's (1979) concept of textuality per se:

[A form of textuality that goes beyond print] forces us to extend ... the dominant notion of a 'text,' [so that it] is henceforth no longer a finished corpus of writing, some content enclosed in a book or its

1 From the Greek words *ergon* and *hodos*, meaning «work» and «path».

margins but a differential network, a fabric of traces referring endlessly to something other than itself, to other differential traces. (pp. 83–84)

This concept of openness and interconnectivity, which made Derrida and Bakhtin the “gurus” and “saints” of electronic hypertext and laid the philosophic foundation for cybernetic discoveries and innovations by Bush and Nelson, can easily be applied to quite a few literary texts which have appeared in traditional printed format. It applies to all novels which Aarseth would qualify as ergodic literature, from Appollinaire’s *Calligrams* (1966), to Raymond Queneau’s *Cent Mille Millions de Poèmes* (1961), to Marc Saporta’s *Composition No. 1, Roman* (1962), a novel with pages like a deck of cards, to be shuffled and read in any sequence, to Milorad Pavic’s *Landscape Painted with Tea* (1990) and *Dictionary of the Khazars: A Lexicon Novel in 100,000 Words* (1988), as well as many others. Essentially, even before hypertext came into existence, there formed a whole school of writers who within the format of the traditional printed literature had experimented with nonlinear narrative, creating such literary genres as “text-within-text”, “text-labyrinth”, “text-crossword puzzle”, and “text-dictionary”. Thus, the use of the latter model by a modern Canadian writer Douglas Coupland in his cult novel *Generation X: Tales for an Accelerated Culture* (1991) allowed us to perceive certain hypertextuality in the compositional structure of the book (Averianova, 2010).

For the sake of one more indispensable argument in favor of our postulate that hypertextuality is just another kind of nonlinear narrative we must take a closer look at *Dictionary of the Khazars* by the Serbian writer Pavic. It is a novel presented as a reconstruction of three long-lost dictionaries — Jewish, Muslim and Christian — that recorded the lexicon relating to the events surrounding the ninth-century “Khazar polemics”. The book, which was published more than half a decade prior to the appearance of the first electronic hypertext novels, such as *Afternoon* by M. Joyce (1990), *Hegirascope* by S. Moulthrop (1995) and others, became a unique, in its significance, attempt to have a different look at the poetic essence of literary narrative. The novel turned out to be so extraordinary and so exceedingly beyond the boundaries of traditional narrative technique that some immediately recognized in the book the systematic principles of electronic arrangement of information proper to hypertext. Naturally enough, among those were the author of fundamental critical essays on hypertextual theory Robert Coover and the writer of the first electronic hypertext novel Michael Joyce. Immediately in the wake of the release of *Dictionary of the Khazars* in New York, Joyce tried to establish a personal contact with the writer of novel-dictionary, while Coover in his canonic article *He Thinks the Way We Dream* (1988) calls *Dictionary* “a hypertext novel.” He states that “there is a tension in narrative, as in life, between the sensation of time as a linear experience, one thing following sequentially (causally or not) upon another, and time as a patterning of interrelated experiences reflected upon as though it had a geography and could be mapped” (p. 15). As for Pavic himself, Coover compares him to an enthusiastic rider among the pursuers of a dream of the new generation, who create a new type of a book “coverless, interactive, and expandable” (ibid.). In a similar vein, a Croatian researcher of Pavic literary activity Mikhailovic considers his novels, together with those by Appollinaire, Queneau and Saporta, to be true manifestations of the hypertextual principle of text organization. Mikhailovic ascertains: “Literary models created in the texts by Pavic are so diverse and rich that they involuntarily provoke a question: do we really need hyperliterature if there are already narratives beyond the realm of computer-generated texts which far exceed the latter both in content and meaning?” (1999, p. 56).

Thus, there seem to be two different contrasting views on hypertext and its place in literary narratology. On the one hand, Coover, Landow and others consider hypertext as a unique invention and a sole property of electronic medium. On the other hand, those like Mikhailovic, tend to perceive it as a computer-generated variant of nonlinear open narrative. A certain theoretical consensus between these opposite views can be achieved, in our opinion, with the help of four pragmatic categories of nonlinearity, which were suggest-

ed by Aarseth: 1) a simple nonlinear text where textons² are static and are revealed to the user of the text; 2) fragmented nonlinear text (hypertext) which can be navigated by leaps across the links between textons; 3) a determinate cybertext in which the order of textons can be predicted, like in some adventure games, where the same response to the same situation will always produce the same results; and 4) indeterminate texts, in which textons are random, unpredictable, and can even be lacking links, like in story generators. Any kind of ergodic literature, which initiates such a manner of reading when a reader/user has to realize a semiotic sequence of reading and exercise certain energy of selective navigation and physical reconstruction of the text, falls within this typology. Especially noteworthy is the following conclusion, which Aarseth (1997) comes to:

Cybertext, then, is not a “new”, “revolutionary” form of text, with capabilities only made possible through the invention of the digital computer. Neither is it a radical break with old-fashioned textuality, although it would be easy to make it appear so. Cybertext is a *perspective* on all forms of textuality, a way to expand the scope of literary studies to include phenomena that today are perceived as outside of, or marginalized by, the field of literature. (p. 18)

The explicatory power of Aarseth’s typology provides a new perspective on the essence of hypertext and its perception as a unique product of digital technologies. Moreover, it offers a pluralistic approach, which overcomes the technological determinism of hypertext enthusiasts. Unlike Landow, who believes that hypertext truly threatens literature and its institutions, as we know them, we would rather side with those, who, like Aarseth, consider that hypertext fiction has deduced the rules of hypertextual narrative from earlier literature involving the removal of linearity, a dominant principle of form. Landow believes that hypertext is a product of its epoch and in future will inevitably replace earlier, historically relevant but eventually becoming obsolete forms of “quasi hypertextuality”: “Descendants, after all, offer continuity with the past but only at the cost of replacing it” (1997, p. 183). In our opinion, it is not hypertext that offers a new lens for perception of literature and helps to reveal something previously unnoticed or unnoticeable. Rather, it is a broad comprehensive view of nonlinearity in its multiple manifestations that allows an objective analysis of existing artifacts still capable of providing a gateway to a different and unexpected literary future.

References

- Aarseth, E. J. *Cybertext: Perspectives on Ergodic Literature*. — Baltimore: The Johns Hopkins Univ. Press, 1997.
- Andriessen, J., Baker, M. and Suthers, D. (2003). Argumentation, computer support, and the educational contexts of confronting cognitions. In Andriessen, J., Baker, M. and Suthers, D. (Eds.), *Arguing to learn: Confronting conditions in computer-supported collaborative learning environments*. Dordrecht, The Netherlands: Kluwer Academic Publishers, pp. 1–25.
- Averianova, I. (2010). The Role of Marginalia in Douglas Coupland’s *Generation X: Tales for an Accelerated Culture* (2008). *NUCB Journal of Language, Culture and Communication*, 11(2), pp. 1–6.
- Varanov, O. (1997). Гипертекстовая субкультура. *Знамя*, 7, pp. 202–205.
- Boardman, M. (2005). *The language of websites*. London: Routledge.
- Coover, R. (1993). Hyperfiction: Novels for the Computer. *New York Times Book Review*, August 29, 1993, pp. 8–10.

² A basic component of textuality, or information presented in strings of signs as they appear in the text, similar to what in hypertext is called lexia.

- Coover, R. (1992). The End of Books. *New York Times Book Review*, June 21, 1992, pp. 1–11, pp. 24–25.
- Coover, R. (1988). He Thinks the Way We Dream. *New York Times Book Review*, November 20, 1988, p. 15.
- Derrida, J. (1979). Living On. In Bloom, H. et al. (Eds.), *Deconstruction and Criticism*. London: Routledge and Kegan Paul, pp. 75–176.
- Franklin, T. and Van Harmelen, M. (2007). *Web 2.0 for learning and teaching in higher education*. London: The Observatory of Borderless Higher Education. Retrieved November 23, 2012, from <http://www.obhe.ac.uk/resources-new/pdf/651.Pdf>.
- Harasim, L. (2000). Shift happens: Online education as a new paradigm in learning. *The Internet and Higher Education* 3(1–2), pp. 41–61.
- Hale, C. (Ed.) (1996). *Wired style. Principles of English usage in the digital age*. San Francisco, Ca: HardWired.
- Joyce, M. (1995). *Of two minds. Hypertext pedagogy and poetics*. Ann Arbor, MI: University of Michigan Press.
- Landow, P. G. Hypertext 2.0. *Hypertext: The Convergence of Contemporary Critical Theory and Technology*. Baltimore, London: The John Hopkins University Press, 1997.
- Mikhailovic, Y. (1999). Павич та гіпербелетристика. *Незалежний культурологічний часопис "І"*, 15, pp. 51–59.
- Nelson, T. H. (1981). *Literary Machines*. Swarthmore, Pa.: Self-published.
- Ulmer, G. L. (1985). *Applied grammatology: Post(e)-pedagogy from Jacques Derrida to Joseph Beuys*. Baltimore: Johns Hopkins University Press.