

Towards a History of Electronic Literature

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Abstract: In her article "Towards a History of Electronic Literature" Urszula Pawlicka investigates the development of theoretical frameworks of and for the study of electronic literature. Pawlicka's objective is show how electronic literature developed and posits that the field underwent to date three transitional phases including several sub-phases where certain aspects and perspectives overlapped. She argues that by distinguishing developments in different phases we can see that electronic literature moved from text to technotext, from text as decoding meaning to text as a process of information and information system, from an interpretation to experience, from visual perception to performativity, from close reading to hyper reading, and several others. The most relevant aspect of the development of electronic literature to date is the attention paid to both theoretical and applied aspects of the background technical base of digitality, namely coding and its importance just the same as the content of electronic literature. Pawlicka suggests that future forms of electronic (digital) literature include aspects of collaborative programming, new media and digital literacy, the development of literary laboratories, the continuation of transdisciplinary projects, and macro and systemic studies of and in digitality.

Urszula PAWLICKA

Towards a History of Electronic Literature

A history of electronic literature can assist scholarship and the teaching of literature because "literary history makes evident diachronically the great and extremely complex connections between periods in time" (Pope xvii). Owing to the structures and practice of new media, the development of electronic literature from its inception as computer literature to web-based literature has aspects different from printed literature. That a history of electronic literature is not only relevant, but that it is necessary can be seen in the work of digital humanities scholars such as Alice Bell, N. Katherine Hayles, George P. Landow, Lev Manovich, or Marie-Laure Ryan who in many instances refer to aspects of the history of electronic literature ("electronic" literature is also termed at times as "digital" literature). At the same time, electronic literature is changing as a consequence of the development of technology and its uses more rapidly than print literature did. Further, the creation and consumption of electronic literature and its history and thus its teaching are developing towards an important perspective in education as for example several studies in the American Comparative Literature Association's 2014-2015 *Report on the State of the Discipline of Comparative Literature* <<http://stateofthediscipline.acla.org>> suggest.

In the following I describe transitional phases of electronic literature I perceive to be relevant. I should note that perhaps the most important aspect in the development of electronic literature is its transdisciplinarity and the possibility of interactive creation and participation. This is the result from the fact that the history of electronic literature is at the same time the history of digital technologies and hence I posit that if scholars of literature intend to describe electronic literature in an appropriate way, they need to embed it in the context of digital technologies. This perspective is to avoid the situation of the history of print literature where it is only in the last few decades that such fields as the history of the book including printing technology or empirical readership studies have become fields of study and thus enhance our knowledge of literature and its history. In the study at hand I discuss one of the main elements of any history of literature, namely theory construction and I posit that with regard to theories of electronic literature we can distinguish between several phases of transition. I designate as the first phase of electronic theory construction the time of "computer literature," the time when texts were generated on the computer prior to the appearance of the world wide web in 1994 (for pre-web scholarship about computer literature see, e.g., Balpe; Bolter; Finger; Vuillemin and Lenoble). In the first phase of theories of electronic literature I single out two studies which in my opinion are seminal: George P. Landow's 1992 *Hypertext: The Convergence of Contemporary Critical Theory and Technology* and Espen J. Aarseth's *Cybertext: Perspectives on Ergodic Literature* (although the book was published after the appearance of the world wide web in 1994, Aarseth analyzes matters prior to the web).

The second phase of the theory of electronic literature is broad and complex and stretches to 2008. To elucidate these complexities, I suggest that several sub-phases occurred and occur between 1994 and today and I do this in order to distinguish, for example, between Aarseth's study and those by John Cayley and Rita Raley who were the first to consider "text" and "code," namely the computer codes which underlie the presentation of text, image, sound, and animation. This sub-phase is perhaps best elucidated in Hayles's 2005 *My Mother Was a Computer* in which she summarized Aarseth's ideas and replaced the notion of "cybertext" with the category of "technotext" in order to determine new directions in scholarship. Further, Hayles applied the term "intermediation" to consider differences and relationships between language and code, print text and digital text, human cognition, and the machine. In addition, the second phase broadened the meaning of electronic literature by incorporating new categories whereby theorists departed from traditional literary theory in analyses of electronic literature and we can observe the development of the following areas and categories: kinesthetic, haptic, and proprioceptive experience of digital text (see, e.g., Angel and Gibbs), body interpreted as code (see Hansen), new types of performativity in reading literature (see, e.g., Fernández-Vara), collaborative programming (see, e.g., Montfort), conceptual code work and curating electronic literature as an opposition to the anthologizing of literature (see, e.g., Grigar, "Why Curating?"). I posit that the end of the second phase of theories of electronic literature is represented by Hayles's 2007 *Electronic*

Literature: New Horizons for the Literary, in which she summarizes the most important previous theories. While the second phase of theories of electronic literature is particularly complex, we can observe tendencies which are clearly different from the first phase.

The begin of the third phase of transition in theories of electronic literature is Dene Grigar's 2009 article "Electronic Literature: *Where Is It?*" because she asked questions less about the content of electronic literature than about its place in the academic community and, more broadly, in digital humanities. Grigar's study and the questions she asked conflicts with approaches which dominated the second phase. Further, I posit that the third phase represents a transition to what we call today "digital humanities" (for a bibliography of the field see Tötösy de Zepetnek, "Bibliography"). However, with regard to the arrival of the third phase, also critical code studies are relevant and here Mark C. Marino's 2006 article is important. Although the study appeared in 2006, some issues have appeared in the second phase as promising research perspectives, but it is in the third phase of transition that they came to play an important role. A good example of this process is the arrival aforementioned critical code studies which by now is an academic subfield of software studies and digital humanities and it includes the "interpretation of computer code, program architecture, and documentation within a socio-historical context" (Marino

<<http://www.electronicbookreview.com/thread/electropoetics/codology>>; see also Fuller; Pressman, *Digital*, "Electronic"). It is significant to highlight that the third phase of transition is connected to the development of new technologies leading to such advances in digitality as the increasing deployment and use of text and image on handheld devices (where also interart creation occurs as in text, image, moving image, and sound). For example, according to Paul Levinson, the iPhone—launched in 2007—started a new phase in the history of new media, namely the development of mobile devices which affect, among others, social media. In consequence, new technology and its impact especially on the level of social practices—including electronic literature—underline the reason why theoretical frameworks are developed and discussed. In sum, this understanding of new media and its impact underscores the close relationship of the technical with issues of theory construction.

Next, I discuss situations where we can observe contact and overlap of particular notions and ideas between said three phases of transition between theories. My first locus of a particular situation of contact and development is what I term as the "echo of postmodernism" and I begin from this point because postmodernism had a particular impact on the formation of theories of electronic literature. In retrospect, we can observe the shift from the domination of postmodern theory and departing from it to the reinterpretation of that theory. For example, in his 1992 *Hypertext*, Landow argued that hypertextuality is a part and a continuation of postmodern theory and suggested that the work of Roland Barthes and Jacques Derrida represented hypertextuality in particular and that Julia Kristeva's intertextualism, Mikhail Bakhtin's multivocality, and Jean Baudrillard's theory of *simulacra* are in many ways also examples of hypertextuality. Landow captured theoretical and methodological tools from postmodern theory to elaborate on electronic textuality, its structure, and a way of its reading including such concepts and practices as multilinearity, multisequential reading, the labyrinth, lexia, nomadism (Beiguelman), and palimpsest. Interestingly, Jay David Bolter, in his 1991 *Writing Space: Computers, Hypertext, and the Remediation of Print*, argued that hypertextuality includes poststructural conceptions of the open text. Further, in 1997 Aarseth published her *Cybertext* and coined a new category and methodological tools to investigate the electronic text as a cultural and literary phenomenon. It is at this point that we can observe a moving away from postmodern theory which emphasized text detached from medium. Aarseth challenged us to rethink text in its format of electronic textuality and the role of machines. It is no accident that the term cybertext is created by merging two words: cybernetic and text in order to demonstrate the specifics of a new textuality. Aarseth postulated that text cannot anymore be detached from its medium, namely the machine that shapes text and determines its structure, function, and operations (21).

It is worthwhile to mention that cybertext is not limited to electronic text per se, but as Aarseth stated "cybertext is a 'perspective' on all forms of textuality" (18). Viewed in this way, in my opinion the term cybertext seems to be inadequate. Therefore, Hayles's technotext seems to be more appropriate for describing mutual influences between text and its medium. In turn, in 1997 Ryan argued for a re-thinking of reading in the electronic age and thus anticipated the importance of the potentialities of the electronic text. Although Ryan disagreed with Aarseth who made operations (i.e., the aspect of

cybernetics) more important than narrative (i.e., the literary aspect), she also demonstrated the turning from postmodern theory to theoretical frameworks in the context of technologies. Thus, while Aarseth concentrated more on the semiotics of text and computer, Ryan elaborated on the narrative of electronic literature and combined literary theory by taking the term "virtual reality" with cybernetic theory: "While the concept of the virtual dates back to the Middle Ages and scholastic philosophy, it has acquired a narrow technical meaning in computer science. The concept of 'virtual machine' refers to the fact that users do not interact with the computer on the level of machine language—that is, with instructions coded in zeroes and ones—but in a higher-level language which must be translated into instructions the actual machine can understand. Through a metonymic transfer, 'virtual' has come to describe not just certain constructs used in computer science but the entire field of electronic technology and many or most of its uses" ("Virtuality" 121; Ryan later developed her notions further, for example in her 2003 *Narrative as Virtual Reality*). The second phase of transition in the history of theories of electronic literature is, in addition to such fields as the study of code, characterized by the description of electronic poetics and this occurred in various fields of study, for example the influential work of Manovich who developed concepts for a new media language and Hayles who analyzed features and characteristics of electronic literature.

As I mention above, the third phase of electronic literature challenges theorists of postmodernity to reread its ideas and this is a good example of the contact and overlap between transitional phases of theoretical construction. Marsha Kinder's introduction to *Transmedia Frictions* is a good example when she re-reads Barthes's *S/Z* in order to elucidate his thought in the context of today's digitality. Kinder demonstrates that Barthes turned from linguistic inquiries toward textual meanings and the production of meaning thus moving from structuralism to poststructuralism. Contrary to Landow's idea that poststructuralism concentrates only on text and the materiality of the text, Kinder argues that Barthes's aim was to move literary theory from linguistic, rhetorical, and grammar inquiries toward sociology and ideological implications. Therefore, Kinder calls theorists of electronic literature to pay attention to sociological instead of structural matter and their problematics. By concentrating on critical contexts, theorists departed from cyberstructuralist approach toward taxonomadism, which means according to Talan Memott that there is no universal new media poetic, but there is the poetic model appropriate for individual pieces of work. While in the first phases researchers sought to build new media poetic, in the third phase they prove that digital work eludes any categorization as a result of its transdisciplinary nature and technological advancement. To put in a different way, we can consider the poetic model only in separate ways as it is created in response to individual pieces of work. Consequently, theorists attempt to abolish the borders between genres of electronic literature and suggest the use of different umbrella designations such as taxonomadism (Memott), nomadic poems (Beiguelman), recombinant poetics (Seaman), creative cannibalism (Funkhouser, "Le(s) Mange"), etc.

Another transitional sub-phase in theories of electronic literature is that of the semiotic approach. While in the first phase of electronic literature theorists concentrated on the comparison between the print text and the electronic text—based on Landow's and Bolter's notions—I suggest that the semiotic approach when applied to electronic literature aimed to point out the differences between these two forms of text whereby the main distinction was connected to the visual aspect of the text. Thus, aspects of visibility, spatialization, and interaction were the basic elements in semiotic analyses of electronic literature. Bolter's assumption that the computer is "a new writing system and provides us with a new kind of book" (224) moved toward the conclusion that computer literacy is semiotic. Further, Bolter claimed that perceptions of the electronic text occur through a by-product of *semios*: "A narrative text is above all a texture of sign, and through signs it invites the reader into an imagined world" (228). Visibility and signs were also stressed by Michael Joyce who considered hypertext as a visual form and symbolic structure which can be "combined and manipulated by anyone having access to them" (19).

In the second phase of theories of electronic literature, the object of work was enriched by new elements such as sound and animation. Multimedia, multilayers, and polisemioticss challenged theorists to take new perspectives on the electronic text. This development lead to questions about the text itself, the consideration of the role of computers, and thus the relationship between text and machine. This point brings me to Aarseth's theory where she explains that the digital semiotic text consists of three elements: operator, medium, and verbal sign (20). This semiotic triangle is a significant moment

in the history of electronic literature, because it proves gradual departure from text and verbal signs toward a focus on the operator (human and machine). The interest in verbal signs has been partially replaced by considerations of other elements such as sound, animation, movement and above all, code. The first elaboration about code in the context of history of theories took place in Hayles's publication *My Mother Was a Computer* in which she investigated moving from speech, represented by Saussure's thought, through writing in Derrida's sense, to code, which according to Aarseth "exceeds both writing and speech" (41). In sum, code is a partner of speech and writing enabling computing and programming of the world. The computer is not taken as a context for media archeology, but as a "universal semiotic machine" (Cramer <http://www.dvara.net/hk/combinatory_poetry.pdf>; see also Cramer, "Post-Digital"). I should like to mention that in addition to semiotics as a "platform," as it were, that is influential among theories of electronic literature, there is also the study of rhetoric which is gaining influence in computer literacy with regard to education, citizenship, etc. (perhaps the designation of "digital literacy" would be appropriate) (see e.g., Rutten and Vandermeersch <<http://docs.lib.purdue.edu/clcweb/vol15/iss3/>>).

The above argumentation for a different view of the electronic text suggests that the third phase of theories of electronic literature would be with focus on the importance of code in the creation of the electronic text. For example, Cayley's idea was to pay attention to the function of code, its meaning, and the relationship between the inner layer of text and the surface of text: "code and language require distinct strategies of reading" and thus she argued for the necessity to develop code studies (<<http://www.electronicbookreview.com/thread/electropoetics/literal>>; see also Schreibman and Hanlon). Consequently, in the third phase of theories of electronic literature scholars and artists concentrate on developing codes because "the computer code ... is entangled with all aspects of culture and memory" (Berry 5). Based on David M. Berry's consideration about digital humanities and the role of code, we can agree that understanding culture can take place through digital technology and this illustrated by the work, among others, by historians who were the first to engage the computer to digitize texts. Hence, understanding culture means understanding code. Thus it seems understandable that we witness the development of electronic literature from text as a static object consisting of blocks of text (lexia) and links to text as a process or event. While in the first phase electronic texts were built by static blocks of text including images and interaction (limited to selection of path), in the second phase, electronic literature became more multi-modal, multilayered, performative, and polisemiotic. Electronic texts are not considered as objects which include only visual and verbal components (see Bolter 25), but as events, processes, and to machines to organize matter and time: "digital characteristics imply that the poem ceases to exist as self-contained object and instead become a process, in which the time of production, appropriate for print text, is replaced by the time of performance" (Hayles, "The Time" 181). New ways of describing electronic texts is related to the investigation of the inner layer of text and to analyze its mechanism. Thus, electronic literature moves from the traditional meaning of writing and reading toward the programming of text, performative reading, and the interactive creation of meaning. Following in this direction, we can track various categories beyond process and event to describe the electronic text as negotiation instead of communication (Funkhouser, *Pre-historic*) or as *perplexia* (Memmott) associated with participating in the activities of dynamic information structure (see Morris 17; see also Gutierrez, Marino, Gervás, Borràs Castanyer), instrumental text instead of textual instrument about various interpretation replaced by the idea of actively engaging in creation and manipulation of text (see Wardrip-Fruin).

Based on above considerations, I posit that with regard to the third phase we cannot talk about interpretation and the reading of electronic texts, but that we should turn to the study of its performativity. Drawing on Adelaide Morris's ideas, this turn is from object to event in which the "digital image is not just activated but also augmented, amplified, and filtered by the user's body" (17). Morris demonstrates how "readerly" reading is replaced by the physical performative experience of the electronic text (Morris takes her notions from Mark B.N. Hansen's *New Philosophy for New Media* and Carrie Noland's *Digital Gestures*, both of whom open new perspectives and stimulate inquiries about relationships between processes of information, the digital text, and the user's body). The explanation of their theories is beyond the scope of my discussion here; nevertheless, it may be instructive to point to the most important categories and research perspectives including the embodiment of new media (haptic, kinesthetic, and proprioceptive capacities), affective as the center of the body-brain achieve-

ment of making sense of digital images and digital poems as gestures which refer to physical movements of the body in space (see Noland), and the aesthetic experience of what it generates in electronic literature (see Ricardo; Simanowski). It seems to be understandable that the growing meaning of code work, collaborative work, and the idea of "do-it-yourself" led to enhancing the social and political context, as well as the growing number of immersive, kinesthetic, and sensual works which led to the development of considerations about bodily and sensual interactions.

My next observation about the sub-phases in theories of electronic literature is about the medium and materiality of the electronic text: from transparent digital medium and immaterialization of the electronic text to the strengthening of the significance of medium and materialization of digital text. The first feature, transparent digital medium and immaterialization of electronic text, was apparent in the first phase in which theorists concentrated on textuality instead of the importance of the medium. Texts on the screen seem to be devoid of materiality. Essentially, we cannot touch and smell it like a traditional book and thus we cannot talk about its fixed structure. The text without materiality seems to be intangible and virtual. After Aarseth's notions, it is comprehensible that a medium is not transparent, but is the significant part of the work shaping its structure and meaning. Uncovering the inner layer of text led to a new question about materialization of text. Paying attention on the artistic book also contributed to stimulation a question about the significance of medium. Thus, in the third phase above considerations moved on the one hand toward the enhancing of the importance of medium and on the other hand toward the strengthening of the meaning of interface.

The emphasis of the role of medium contributes to the discussion about materialization of the digital text. Materiality is considered as the level of what occurs in the machine (calculation as a material process) and at the level of what occurs in the interaction with the user (the system acts on the user and is acted by the user) (see, e.g., Bouchardon, <<http://elmcip.net/critical-writing/aesthetics-materiality-electronic-literature>>; Bouchardon and López-Varela <<http://dx.doi.org/10.7771/1481-4374.1793>>; see also Tötösy de Zepetnek, *Digital Humanities*; Tötösy de Zepetnek, López-Varela, Saussy, Mieszkowski <<http://docs.lib.purdue.edu/clcweb/vol13/iss3/>>). Following Bouchardon, we can assume that the digital text shifted from the aesthetic use of the written language to the aesthetics of materiality (i.e., the materiality of the text, that of the interface, and that of the medium). Importantly, it is argued that that the electronic text does not immaterialize the text; on the contrary, it focuses our attention to the materialization of text through the enhancing of the role of medium. However, I should like to note that efforts to preserve electronic literature in the 1980s and 1990s failed in many instances because of obsolete media and computer programs (on the importance of preservation and archiving see, e.g., Brito; Liu, Durand, Montfort, Proffitt, Quin, Réty, Wardrip-Fruin; Paul; Zimmermann).

The next transitional phase is that of the aesthetic as in visual aesthetics, the aesthetics of event, and critical aesthetics. Assuming that in the first phase focus was on visual aspects of electronic literature displayed on the computer screen, it seems understandable that the issue of aesthetics was limited to the visual aspects of the electronic text and this was done by differentiating between the electronic text and the printed text. In the second phase, in turn, theorists elaborated different kinds of aesthetics directing attention toward the creation of aesthetic texts by the machine. It seems to be clear that this viewpoint was the consequence of the idea of technotext and digital poetics: "the aesthetics of digital poetry are an extension of modernist techniques" (Funkhouser, *Prehistoric* 24). Important is that between the three phases in the history of theories of electronic literature there have been and continue to be several perspectives of aesthetics including the aesthetics of event (Hayles), the aesthetics of noise (Engberg), the aesthetics of frustration (Bootz), the aesthetics of glitch (Goriunova and Shulgin), and the aesthetics of code (Raley). While glitch is the sign of dysfunctional machines, the aesthetics of code, in turn, is the sign of open source.

While aesthetics in the second phase were associated with the structure and formation of text by the machine, in the third phase digital aesthetics are understood as the embodiment of critical considerations of artistic, social, and political issues. Therefore, although theorists depart from aesthetics toward the role of the machine, the user's interaction, and the experience of digital work, they point out that aesthetics is replaced by critical a media aesthetics defined by Chris Funkhouser as follows: "a critique of media aesthetics implies that the creation and reception of word, image, an object are

now complicit with new media but must be examined in a rational rather than an instrumental perspective" (*New Directions* viii).

The last transitional phase I discuss is the question of tools for electronic literature. We know that the obsolescence of media is associated with changes in tools and programs used in the creation of digital works. The first phase taking place and before the appearance of the world wide web in 1994, was dominated by the publisher Eastgate and its program Storyspace which is why Hayles called this time that of the "Storyspace School" when important hypertexts such as Joyce's *afternoon, a story*, Shelly Jackson's *Patchwork Girl*, Stuart Moulthrop's *Victory Garden* were published by Eastgate. As Jill Walker Rettberg writes, "with the advent of the web, new authoring and distribution channels opened up, and this hub gradually lost its dominance. The transition from this relatively centralized and explicit community to the networked communities and scattered individuals of the Web is an interesting one to explore" (<<http://www.dichtung-digital.org/2012/41/walker-rettberg/walker-rettberg.htm>>). The appearance of the world wide web ended the domination of the software Storyspace and similar programs and allowed to the access to and development of new tools to create digital works. Authors used available and ready programs to their work including such software as by Macromedia (now Adobe), Dreamweaver, basic html, etc. Further, while the second phase was the time of the world wide web, the third phase enhances the role of coding and the use of handheld devices which facilitate the creation and consumption of creative "texts" ("text" is an umbrella term here including text proper, image, sound, etc.). Although at software has been a necessary tool for artists, in the third phase we also have "crowd programming."

In conclusion, the above "periodization" of theories of electronic literature understood as "phases" of development assists us to locate electronic literature within literary history. By distinguishing developments in different phases we can see that electronic literature moved from text to technotext, from text as decoding meaning to text as a process of information and information system, from an interpretation to experience, from visual perception to performativity, from close reading to hyper reading, and several others. The most relevant aspect of the development of electronic literature to date is the attention paid to both theoretical and applied aspects of the background technical base of digitality, namely coding and its importance just the same as the content of electronic literature. Future forms of electronic (digital) literature are an open question; however, I suggest say that areas and fields where digitality would develop include aspects of collaborative programming, new media and digital literacy, the development of literary laboratories, and the continuation of transdisciplinary projects. Further fields we can expect to develop include macro and systemic studies of and in digitality (see, e.g., Jockers; Schmidt; Tötösy de Zepetnek, *About Systemic*)

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