



## Computer-mediated Texts and Textuality: Theory and Practice

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**Abstract.** The majority of humanities computing projects within the discipline of literature have been conceived more as digital libraries than monographs which utilise the medium as a site of interpretation. The impetus to conceive electronic research in this way comes from the underlying philosophy of texts and textuality implicit in SGML and its instantiation for the humanities, the TEI, which was conceived as “a markup system intended for representing already existing literary texts”. This article explores the most common theories used to conceive electronic research in literature, such as hypertext theory, OCHO (Ordered Hierarchy of Content Objects), and Jerome J. McGann’s “noninformational” forms of textuality. It also argues that as our understanding of electronic texts and textuality deepens, and as advances in technology progresses, other theories, such as Reception Theory and Versioning, may well be adapted to serve as a theoretical basis for conceiving research more akin to an electronic monograph than a digital library.

**Key words:** electronic texts, literary criticism, reception theory, versioning

Intertwining is not generally acknowledged – people keep pretending they can make things hierarchical, categorizable and sequential when they can’t. Everything is deeply intertwined.

Ted Nelson, *Dream Machines* (1973)

The proliferation of personal computers in the 1980s, the establishment of the HTML and World Wide Web in the early 1990s, and the development of software which made it possible to integrate other media with text provided the basis for a flowering of Humanities Computing in the 1990s. Many early humanities computing projects were conceived in Hypertext Markup Language (HTML) utilising Hypertext Theory as a theoretical basis. Concurrently, a handful of humanities computing projects, many of which did not come to fruition until late in the decade, were encoded in Standard Generalised Markup Language (SGML) following the *Text Encoding Initiative (TEI) Guidelines*. The *TEI Guidelines* embody a view of textuality most eloquently expressed by Alan Renear and his colleagues at Brown University, and is based on an understanding of texts as an ordered hierarchy of content objects (OCHO). This view of textuality has not been without its critics, such as Mark Olsen and Jerome McGann. Nevertheless, few alternatives have been

proposed. Recent advances in encoding machine-readable text, however, particularly the development of Extensible Markup Language (XML) which conjoins some of the best features of HTML and SGML, has created an environment in which the best of both of these models might be combined with more traditional literary theories, such as Reception Theory and Versioning, to create more self-consciously interpretative works, the equivalent of electronic monographs, which will be explored in the closing sections of this article.

From the late 1980s to the mid-1990s, many digital resources in the field of literature were conceived more as digital libraries than research projects that utilised the medium as a site of interpretation. The impetus to conceive research this way comes directly from the underlying philosophy implicit in SGML and its instantiation for the humanities, the TEI, which was conceived as “a markup system intended for representing already existing literary texts” (Renear, 1997, p. 120). This, coupled with the computer’s strength at storing large amounts of data, created an environment that favoured the creation of large textual archives. The creation of these kinds of editions did, of course, not begin with the advent of the personal computer. Multi-volume works collecting an author’s corpus or an anthology of texts based on theme has been the pursuit of textual scholars since the mid-nineteenth century. What is different about the current environment is that the release from the spatial restrictions of the codex form has profoundly changed the focus of the textual scholar’s work. Rather than publishing a single text with apparatus which has been synthesised and summarised to accommodate the codex’s spatial limitations, textual scholars working on editions which are published electronically have tended to create rather large assemblages of textual and non-textual lexia, presented to readers with as little traditional editorial intervention as possible. Kathryn Sutherland, in the introduction to *Electronic Text: Investigations in Method and Theory* sees this transition as part of a larger societal phenomenon:

There is the threatening possibility that in its display of instantly accessible and multiply manipulable data, the computer screen will deliver information from the constraints of understanding. Herein lies the great challenge of the electronic environment to those expert divisions of knowledge established in the Western world in the course of the nineteenth century as the best means of advancing learning in a productivity-based industrial society. And if the computer merely displays information to a post-productive society, what might this imply for our ability to generate new as opposed to retrieving and recycling old knowledge? Is there a real danger that the scholar-worker, toiling for years in the remote regions of the library stacks in the hope of becoming expert in one small field, will be transformed by the computer into the technician, the nerdy navigator able to locate, transfer, and appropriate at an ever faster rate expert entries from larger sets of information that he/she no longer needs or desires to understand? May it even be the case that the real subject of enquiry will shift to

the growing array of skills required to master the electronic environment itself? (1997, p. 10)

In the rôle of assembler of electronic texts, the literary scholar has become on the one hand, the literary-librarian, building a library or the more commonly termed *archive* of multimedia objects, and on the other hand, the literary-encoder grappling with a logic more amenable to programmers than literary scholars. In this new role, the scholar is transformed into a hybrid literary-librarian/literary-encoder whose goal is to create an edition that surmounts limitations imposed by print-based publication.

Many early encoding projects were conceived in HTML utilising hypertext theory as the basis for computer-mediated texts. Critics, writing in the late 1980s and early 1990s, saw the possibilities afforded by HTML as the realisation of theories by Barthes, Foucault, Bakhtin and Derrida who wrote of textual openness, nonlinearity and intertextuality using terms like link (*liaisons*), web (*toile*), network (*réseau*), and interwoven (*s'y tissent*) long before the advent of the World Wide Web (Landow, 1997, p. 33). Indeed, many first-generation electronic editions conceived in Hypertext Markup Language (HTML) were viewed by their creators as embodiments post-structuralist theory in which readers could navigate between inter or intra-textual lexia, engage in multisequential reading, and where archive creators could produce an *assemblage*, a print collage in which different threads or different lines of sense would force the structure to separate, while concurrently, different threads would bind other lines of sense together (Landow, 1997, p. 35). In reality, however, hypertext archives are extremely rigid. While giving the appearance of embodying post-structuralist theory, they force readers into tightly controlled hyperlinked paths created by the editor. Without these links, however, and the limited metainformation scheme afforded by HTML, the only option available to users is to navigate via directory structure, or in more sophisticated hypertext archives which facilitate searching across documents, by keyword search.

In contrast to HTML, many scholars chose to create computer-mediated texts following the *TEI Guidelines* Document Type Definition in SGML. Alan Renear and his colleagues at Brown University have articulated the view of textuality implicit in and codified by TEI as:

1. **real**: they have properties independent of our interests in them and our theories about them;
2. **abstract**: the objects which constitute texts are abstract, not material, objects;
3. **intentional**: texts are, necessarily, the product of mental acts;
4. **hierarchical**: the structure of texts is fundamentally hierarchical;
5. **linguistic**: texts are linguistic objects; rendition features are not parts of texts, and therefore not proper locations for textual meaning (Hockey *et al.*, 1999).<sup>1</sup>

This theory, which views text as ordered hierarchies of content objects (OCHOs), or “informational structures” (such as sections, chapters, paragraphs, lists, quotes, etc.), has been revised several times since it was first published in the late 1980s. In its latest instantiation, while reaffirming that texts conform to

a broadly hierarchical model, they acknowledge that there exists some practical problems when applying this thesis to machine readable text, such as the problem of overlapping hierarchies. To a some extent, the *Guidelines* also make provision for capturing the semantic codes of legacy text, while making limited allowances for “the “subjective” and “interpretative” nature of text encoding” (Renear, 1993). This understanding of digital textuality, which views texts as discrete objects which broadly conform to a uniform hierarchical model, informs the majority of literary resources encoded according to the *TEI Guidelines*. These discretely-encoded texts are often part of a larger corpus which can be searched simultaneously, and which may also have embedded in them hypertextual features, such as linked images, annotation or other scholarly apparatus. The function and purpose of these resources has been, first and foremost, to provide access: access to out of print texts (such as *The Women Writer’s Project*, the *CELT Project: The Corpus of Electronic Texts*, *Victorian Women Writers Project*, *American Verse Project*) to distributed manuscript material (such as the *North American Slave Narratives*, *The Canterbury Tales Project*, the *Piers Plowman Electronic Archive*) to textual material integrated with non-textual, and/or to providing access to a variety of objects never before collected in one place (*The Blake Archive*, *Uncle Tom’s Cabin and American Culture*).

Jerome McGann’s background as a textual scholar led him to reject the TEI’s theoretical basis which treats cultural texts as “informational structures”. McGann argues that the OCHO model disregards the very real and complex “ordered ambivalence” at the semantic and graphic levels of cultural texts (McGann). While McGann acknowledges that “most of our textual archive is hierarchically organized” (Hockey *et al.*, 1999), he provides the example of poetry as a type of text which is not organized semantically “in a determinate hierarchy”:

TEI and SGML markup, therefore, while reasonably adequate vehicles for expository and informational texts, fails to render those features of poetic text that are most salient for its makers and users. Poetical texts are recursive structures built out of complex networks of repetition and variation. No poem can exist without systems of “overlapping structures”, and the more developed the poetical text, the more complex are those systems of recursion. So it is that in a poetic field no unit can be assumed to be self-identical. The logic of the poem is only frameable in some kind of paradoxical articulation such as: “a equals a if and only if a does not equal a”. (Hockey *et al.*, 1999)

Not only can the encoding of complex texts not be satisfactorily interpreted through a straightforward hierarchical model, he rejects point five of the OCHO thesis which views texts as linguistic objects in which the graphic format of text does not participate in the production of textual signification. Johanna Drucker, McGann’s co-investigator, eloquently argues for an integrative encoding of cultural artefacts: “a table of contents is not a simple notation lying on a thin sheet in the front matter, but is a means of dividing the sculptural form of the book into a

set of discreet spaces, each demarcated in relation to that original point of spatial reference, and located relationally within the whole" (McGann).

McGann's research highlights aspects of textual signification which many literary scholars regard as essential. Although Renear *et al.*, argue the OCHO model only concerns itself with "the internal coherence" of text encoding, which while not being "theory-free", is "not *especially* subjective or interpretative" (emphasis theirs; Renear *et al.*, 1993), as McGann and Drucker demonstrate, the very act of parsing a legacy text into its constituent parts – section divisions, paragraphs, appendices, table of contents – constitutes an epistemological understanding the relationship of those parts which creates textual signification reflected through and by text encoding. When viewed this way, the act of encoding and assemblage becomes, not as Sutherland fears, a recycling of old knowledge, but a reconfiguration which advances knowledge through a discourse realisable only within an electronic environment. Models will be needed which not only address the behaviour of lexia (as hypertext theory does), theories of encoding discrete textual objects (as OCHO does), but which address the principles which govern the reconfiguration of objects. The theory which has governed early electronic archives, such as *The Blake Archive*, the *CELT Project*, and *The Women Writer's Project*, has been that of the digital library, i.e. creating a virtual collection of previously published texts based on a theory of collection appropriate to the particular archive. The success and of these early models, and the inherent bias in the *TEI Guidelines* which favours the encoding of previously typeset (as opposed to manuscript) text, has resulted in too little consideration of how smaller, highly interpretative electronic resources might be represented – the equivalent, for example, of an electronic monograph. These monographs will need theories which not only frame principles of encoding and assemblage, but within which arguments are developed. Two such theories which especially lend themselves to richer expression in a digital environment than could be achieved in codex form, are Reception Theory and Versioning.

Versioning is a relatively new development in the area of textual criticism. Since the end of the Second World War, the basic theory under which most textual critics operated was to provide readers with a text that most closely mirrored authorial intention. This philosophy of editing produced texts which, by and large, never existed in the author's lifetime. They were eclectic texts: the editor, armed with his intimate of knowledge of the author and the work, assumed the role of author-surrogate to create a text which mirrored final authorial intention. To do this the editor swept away corruption, which had entered the work through the publication process by well-meaning editors, compositors, family members, heirs, etc. He also swept away any ambiguity left by the author herself. Thus, in the case of narrative, choosing a section from the copy text, a chapter from the first English edition, a sentence from the second American edition, and a few lines from the original manuscript, that elusive but canonical authorial intention could be restored. In the case of poetry, editors creating collected editions were forced (due by and large

to the economic constraints of publishing in codex form) to not only to select one published version of a text over another, but to create an ordering which often never existed in the author's lifetime. New editions inevitably created more versions, and more versions created the need for more editing (Robinson, 1996, p. 104). This seemingly never-ending cycle created its own dichotomies. Although the goal of eclectic editing was to create the "ideal" text as the author and only the author intended (leaving aside the question of *when* the author intended it), the *ideal* text was the creation of the editor adjudicating on various textual states each carrying its own validity.

By the mid-1980s, however, this approach to textual editing began to lose favour with a new generation of textual critics, such as Jerome McGann and Peter Shillingsburg who viewed the text as a product, not of corruption, but of social interaction between any number of agents: author, editor, publisher, compositor, scribe, translator. It also acknowledged that authorial intention was a fluid concept, particularly in the case of poetry. It is thus possible to have not only several "definitive" versions of any one work which represented the wishes of the poet at a particular point in time, but to allow authorial ambiguity, such as Emily Dickinson's, who left in many of her poems alternative readings of particular words and lines.

If representing the definitive version of a published text was difficult, representing the writing process in published format was even more complicated. Publishing facsimile versions of all but the most canonical of texts has been prohibitive in terms of cost and copyright. Most editions, therefore, represent the creative process through a single printed text augmented by apparatus. It is thus possible to see that the theoretical stance to present anything but a single text representing someone's final intention (which was more likely than not the editor's) was a product as much of the *medium* as of concurrent theoretical modes, such as New Criticism.

The term "versioning" did not have much currency in Anglo-American textual editing until the mid 1980s. The idea was first introduced to Anglo-American readers in 1975 through Hans Zeller's article "A New Approach to the Critical Constitution of Literary Texts" in which Zeller introduced the German concept of *Fassung* (version) arguing for a theory of editing in which different versions of text were presented in their entirety as opposed to the prevalent eclectic model. This was advocated not simply to "avoid an overflow of variants in the textual apparatus" but to better demonstrate the changing authorial conception of the work (Zeller, 1975, p. 238).

In his 1987 collection of essays, *Romantic Texts and Contexts*, Donald H. Reiman, without referring to Zeller's previously published article, introduced the term as part of a plea to textual scholars to engage less in restorative (eclectic or ideal) editing and more in the production of discreet versions of works. Like Zeller, Reiman advocated the reproduction of primary texts so that readers could take on the role traditionally held by editors in that they would themselves provide the

mediation between different textual states. When these textual states “exhibit quite distinct ideologies, aesthetic perspectives, or rhetorical strategies, the alternative to ‘editing’, as conventionally understood” Reiman termed “versioning” (1987, p. 169). Versioning was not promoted as the successor to eclectic editing, but as an alternative in cases in which it was desirable to provide readers with “the complete texts of two or more different stages of a literary work, each of which can be read as an integral whole, [rather] than to chop all but one version into small pieces and then mix and sprinkle these dismembered fragments at the bottoms of pages, or shuffle them at the back of the book as tables of ‘variants’ or ‘collations’” (1987, p. 170).

Thus the strength of an electronic edition may not be in its ability to allow users to skip from one lexia to another, but in its spatial richness to overcome the limitations of the codex form to present, not only works in progress, but the richness and ambiguity of authorial intention. By conceiving an electronic resource so that the integrity of differing states of a work are preserved, readers are not only empowered, but compelled “to compare texts in order to formulate their own sense of the work’s historical constitution(s)” (Machan, 1995, p. 303).

While several projects use versioning as the, or one of the methodological basis for conceiving their editions, *The Canterbury Tales Project* and *The Piers Plowman Electronic Archive*, to name but two, there still exists substantial obstacles to representing multiple witnesses in electronic form. Indeed, many of the issues discussed above which made the codex an unsuitable presentation strategy, have not been resolved for the electronic medium. Editors of electronic resources are often forced to privilege one presentational strategy over another. This is especially true for editions created in HTML which lock texts into one physical representation. And while *The Text Encoding Initiative Guidelines* provide for more robust encoding features, two of the least developed, and possibly least utilised tag sets of the TEI are “Critical Apparatus” and “Transcriptions of Primary Sources”. The latter’s introduction states that

this chapter focuses in its current state primarily upon problems associated with the transcription of manuscript material; problems of codicology and problems peculiar to early printed materials are not treated. Many of the recommendations presented here may – mutatis mutandis – apply to printed matter, but a great deal of work remains to be done in these areas, and the encoder will need to take even more individual responsibility than usual in applying the recommendations of this chapter in these contexts. (p. 529)

Substantial work needs to be done in this area to break down the very considerable technological and theoretical barriers for scholars wishing to utilise the TEI to create multiple presentations of texts. This is particularly true for individual scholars who do not have the benefit of the financial and technical resources available to larger projects which are often associated with humanities computing centres. The challenge that exists for those working with SGML, or more particularly with XML which promises even greater robustness in presenta-

tional and linking schemes, is to find a suitable means of encoding, representing and presenting authorial ambiguity, various witnesses of texts, and apparatus in which, in Robinson's words, "the necessity of showing the texts we edit from one distance and from one distance alone" (1996, p. 107) is relinquished in favour of editions in which no witness is privileged over another.

Privileging witnesses, on the other hand, is the prerogative of the creator of a reception theory archive. Reception Theory seeks to "situate literature in the larger continuum of events" (Holub, 1995, p. 322). It provides present-day readers with a snapshot of a text's history across time, and demonstrates how previous generations of reader-response have gone into shaping our conception of the work. It also seeks to make available to present-day audiences the historical, psychological, social and/or semantic codes of the work as it was received at some point in the past. Thus the various interpretations of the text by previous generations of readers, from its initial reception to the present, form a chain of understanding (Holub, 1995, p. 322). If a work's meaning is thus created in the interaction between text and reader, electronic editions have the potential to create a tripartition in which present-day readers overhear the dialogue created between past readers and the text.

One of the ways in which electronic editions mediate that dialogue is in the construction of a resource across time providing readers with access to objects that would have been unthinkable only a generation ago. In the case of a reception theory edition of WB Yeats's poetry, not only does the editor have the spatial freedom to include various witnesses of individual texts displayed in parallel form, she no longer has to content herself with providing one or two black and white reproductions of the covers of the first Cuala Press editions of Yeats's early poetry to demonstrate the semantic codes embedded in those texts. In an electronic archive, it is possible to include full colour reproductions of these books in their entirety, in addition to the Macmillan editions, which, as a standard trade publications, are stripped of these codes. Furthermore, as the early reception of these poems was influenced by other objects of the Arts and Crafts movement in Ireland and England, images of these objects (prints, paintings, wallpaper, pottery) could be digitised to create a lexia of non-textual meaning. In an archive of this sort, the editor walks a fine line between creating "an undifferentiated collection of data" (Machan, 1995, p. 307) and hardwiring the lexia so tightly that only one reading of the work is possible. There are, however, alternatives in which a tightly conceived web is created through which the editor offers various readings which are made available through resortings via metainformation. This has been done with limited success in SGML, by and large due to the presentational difficulties of Dynaweb, one of the few Web-based SGML document delivery systems. As more electronic editions are conceived in XML, however, much richer presentational and database alternatives will become available. These richer environments will provide opportunities for editors to become, not the nerdy navigators that Sutherland fears, but information mediators:



Writers [creating digital resources] may feel tempted to forego the difficult analysis that linear writing requires and throw the decision of what is important and what to know first onto the user. Users expect the writer to lead them through the jungle of information. They do not like be controlled or manipulated, but they do expect the writer to blaze a trail for them. . . . Putting a million facts online in an intricately linked structure is not communication. (Horton, 1994, p. 160)

Communicating the past to the present is above all, the purpose of a reception theory archive. One way this communication may be mediated is through modernisation of authorities. The argument for modernisation of, for example, a Renaissance text, is that modernisation allows present-day readers to somehow “become” more like their seventeenth century predecessors in that the text, read in modernised form, imitates the reading experience of the first audience (Shillingsburg, 1996, p. 10). On the other hand, a present-day audience reading an old spelling edition is also reading the text in the way his predecessors did not. A twenty-first century reader sitting down to *Beowulf* in the original is not seeing the same thing that his literate tenth-century predecessor did. Moreover, a twenty-first century reader reading Seamus Heaney’s new translation is not reading the same thing as his Edwardian predecessor did when reading William Morris and A.J. Wyatt’s 1910 translation. The tension for the editor of such editions has traditionally been to decide “whether the attempt to see the work as it was first seen should be given over to the pleasures of seeing the work as it has become, from where we stand, as we have become.” (Shillingsburg, 1996, p. 10) Freed from the spatial limitations of the codex in which it was realistically possible to present only two parallel texts (augmented by apparatus), an electronic reception theory edition has the ability not only to provide readers with the old spelling version and a modernisation, but to create a reconstruction of text’s instantiations over time. Readers, depending on their needs and interests, could then select the views they wish to see: the old spelling version only, and/or any number of modernised versions (eighteenth, nineteenth or twentieth century). Viewed in this way, the “edition” itself, the text bound up with its critical apparatus, becomes a temporal artefact reflecting both the prehistory of the most contemporary instantiation of the work, and a post-history of previous instantiations.

An electronic edition also provides a vehicle for accessing the ways in which past readers realised aesthetic interpretations of texts if those readers left a record of that experience. That trail can be textual (articles, letters, diaries or creative rewritings of the original work), or it can involve other media (visual and/or audio). These acts of interpretation, as commonly implemented in HTML, are presented to readers as blocks of text to linked relevant primary sources, whatever the media. Yet, this model of editorial intervention not only carries with it vestiges of the main argument/footnote relationship of the codex, raising issues of centrality and periphery, but as argued previously, too easily becomes “an undifferentiated collection of data”.

In future, the role of the literary scholar may not be the literary-librarian, nor will it be the “nerdy navigator”, but the encoder-assembler, conceiving and interpreting much more modest digital resources – the electronic equivalent of the novella, chapbook or monograph. The individual “toiling for years in the remote regions of the library stacks in the hope of becoming expert in one small field” might disseminate her knowledge in the form of the electronic monograph, a small (by today’s standards) highly interpretative/encoded resource. Our ways of responding to that reading can only be imagined: might review articles consist of a re-encoding of the original work? or might it involve a re-configuration, assembling pieces of the vast digital library at our fingertips to counter a particular argument? The creation of electronic editions in future may have as their centre encoding schemes which combine the most salient features of hypertext theory, OCHO, and subjective and/or interpretative readings of texts, to more richly capture the work’s metaphysics and epistemology (Renear, 1993), semantics and graphics (McGann).

### Note

<sup>1</sup> For more information on the position articulated by Renear and others see articles by DeRose and Renear in the References section.

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