

Digital Incunables:

Versionality and Versatility in Digital Scholarly Editions

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The physical medium signifies. Any document type within any medium offers a semiotic setting of its own, a particular *document architecture* [1]. Every transmission of a literary work affects its text [2] due to the particular media used and the choices made by the individual transmitter. Certain features of the textual work that can be expressed within the new architecture and its web of signs are preserved, while others are treated as noise, obscuring the essential text signals. This certainly holds true for the current transition of text: with each digitisation certain particulars of both the work and the tool are emphasised at the expense of others, and there is always some collision between different document architectures [3].

Furthermore, as any McLuhan student knows, a new media form poses as the old medium by imitating its very form. Any bibliological study will tell how the first printed books, known as the incunables, well into the 16th century tried to fit a previous medial expression into the economy of the new, and thereby did their best to pose as handwritten, illuminated manuscripts [4].

Such collisions and transitions have, to some extent, been studied within disciplines such as book history, editorial theory, textual criticism, and analytical and historical bibliography. One would therefore welcome more intense cooperative efforts between the currently "sexy" market of electronic publishing and the perhaps not-so-sexy competence of the latter disciplines.

Classic scholarly editions

Now, the changes brought about by transitions are doubly evident in the realm of *scholarly critical editing of literary works*.

This academic field aims at transposing the edited work to new audiences, generations, textual carriers, and presentational displays. And in the specific case of ancient works, scholarly editors have had plentiful reason to consider metamedial perspectives, as these works have been represented in different architectural media settings through the centuries.

The editors of classics are furthermore faced with truly *virtual* works. The originals are long since lost, and editors are left with the derivative traces of medieval copies, all typically diverging from one another. The genealogical editors are hard put to tell which copies are more "faithful" to a presumed original text, and which are not. A classical work is thus normally extant not as a unitary work, but as a complex mass of versions [5]. The editors need to account for this versionality and degree of variance, and have been struggling to fit the

fruits of their diachronous labour into one synchronous media architecture: the codex book, thereby producing what has come to be labelled the *scholarly, critical edition* (SE).

The SE, with its complex mass of interrelated, multi-layered and diversified textual material, is certainly one of the more outstanding metatextual tools print culture has brought about. Throughout the centuries, classicists have developed theories and tools for establishing the relationships between the different work manuscripts, with the final purpose of conjecturing what its ancient author really wrote. These tools are conjoined in the printed SE and include such ingenious innovations as stemmata, concordances, varying indexes, hierarchical text structuring, foot- and endnotes and other internal or external referential systems, commentaries, glossae, and various apparatuses.

More importantly, the SE is constrained by the printed codex book's limitations, the prime effect of which is the necessity to display the work in the form of one primary base text. Admittedly, there are examples of SE:s structured so as to display more than one full version of the edited work. Parallel editions display at least two. What is thus gained in versional abundance is however lost in manageability. And there are even further rivals to the universional SE, displaying varying architectural solutions: synoptic, variorum, or genetic editions. Infamously difficult to work with - not to mention reading from - these exceptional types illustrate the very limitations of print media and pinpoint the need for renewed medial forms for the SE. Typically, the SE however centralises its display of the edited work around one chosen or eclectically constructed version, known as the base text or the copy-text. The other, heterodox versions of the work are then literally brought down from the enlightened body text and placed in the printed page's cellar, the catacombs of the SE, namely in the labyrinthine variant apparatuses. Thus buried, the noise of dissonant works becomes barely audible. The average printed edition of an ancient work exhibits a nice and clean base text, indicating harmony and cosmos, where a more thorough investigation, exerting severe textual criticism, would detect dissonance and chaos.

In this way, the printed SE tries to break its 2D bonds and represent the 3D qualities of the classical work. In theory, the SE spans from the uniform work (as manifested in the particular base text) to the multiform work (as manifested in the different versions). Due to the mere economy of the codex book, the printed SE however serves uniformity better than multiformity. In addition to its privileging of one particular work version, the functionality of the variant apparatus is a chimaera. Apparatuses (notoriously laborious, if not downright impossible to read and understand to users outside the minimal circle of the immediate specialist core) are originally designed to support the potential reconstruction by the reader of the base text's rival versions, thereby compensating for the spatial limitations of the book. However, anyone having dealt more than briefly with the typical variant apparatus of a SE of a classical work will probably agree that it normally fails in this.

Scholarly editing reconsidered

Now, the facts of book history shouldn't blind us to the potentials of scholarly editing as such. The sovereign hegemony of the printed codex book as a vehicle for SE:s, and its subsequent, almost cathedral status in the consecrative procedures of literary life, has perhaps refrained us from asking such fundamentals as: What *is* scholarly editing, its function, aims and purposes? When and why is a particular work considered ripe for scholarly editing? Where, if ever, is the line between *a* SE and *the* SE? What is the time-span of a SE, and which is its intended

audience? What are the possible forms of the edited work of art [6]? What are the possible media forms at hand for the production of a SE?

Each and every one of these basic questions are quite legitimate, and should be addressed from time to time by anyone contemplating the act of scholarly editing as a subjective and historically contextualised approach. The last decades have witnessed a revived discussion in editorial theory, addressing many of these questions, in particular the last one: what are the appropriate tools and media forms for the SE construction? The hegemonic and almost ossified form of the print codex SE is thus challenged.

The reason for this is threesome:

Firstly, a frustration concerning the way codex books seriously constrain what can and can't be done in critical editorial practice [7]. Because of its physical economy, the printed SE can address only one particular editorial strategy, and is therefore useful primarily to one particular user group. Where there is a need for new editions, either because the current printed SE has turned obsolete for various reasons, or because it is difficult or perhaps impossible to use for certain target audiences, new printed SE:s have to be manufactured - at significant costs to producers (editors, publishers, departments) as well as consumers (readers, libraries, the general public). Needless to say, printed SE:s as well exhibit quite meagre opportunities for multi- or hypermediality, thereby supporting various presentations of and perspectives on the work from different kinds of media in a rather poor way.

Secondly, alternative notions as to what way literary works should be presented in SE:s at all. Genetic criticism is such a notion, where interest lies in focusing on and presenting literary works as evolving processes during significant periods of time, as progressive results of either monoauthorial labour or collaborative efforts, where the author is but one (albeit important) agent. Subscribers to this view can quite understandably regard as rather trivial (or perhaps even a waste of time) the traditional printed SE with its frozen image of the way a dynamic multi-agented work happened to look like at a certain chosen moment in time [8]. As well, various sociological approaches are interested in synchronised views of the work's varying historical public displays.

Thirdly and foremost, however, the promises brought about by computer networks and digital media. Let us briefly consider some important document qualities that are now enhanced by recent information technology.

Digitalics

- Digital documents are immaterial and therefore logically defined, rather than material and therefore physically defined [9].

Consequently, the management of large masses of text and images by e.g. search facilities is considerably improved. As well, digital texts, no longer absolutely fixed to their carriers, are transportable between carriers, machines, environments and file formats.

- Digital documents are seemingly dynamic and kinetic.

Hence the manifestation forms of the document are variable and malleable with each user,

implying interactivity. Depending on certain user input, the output of a document will differ.

- All digitally represented art and communication forms are based on the same binary sequences. This facilitates media integrated storage and presentation of works, and radically improves e.g. image processing.
- Wide area computer networks (WAN:s) fundamentally alter the logistics of document distribution.

Rather than the printed world's pre-manufacturing of a fixed number of identical copies distributed by producers to would-be consumers, WAN:s support the manufacturing of one set of files made available on a particular hard disk, to which the consumers teleconnect in order to copy the documents by themselves. The responsibility of copying and distributing documents has thus largely shifted from producer to consumer.

- The general markup languages make way for a separation of form and content.

As well, vast amounts of malleable and searchable metainformation can be attached to the text in separate markup layers. Due to the growing number of sophisticated DTD:s, the level and sheer amount of potential metainformation is increasing. Also, depending on the markup technique used, a particular text can be matched to several different layers exhibiting different levels of markup, depending on the user's needs and interests.

- Digital documents are to an increasing degree characterized by fragmentation.

An expression of this is the splitting of documents into segments with varying functions. Even in the case of a simple web page, we are faced with a divorce of the unified document into at least three textual layers, each of which is editable at minimal level: the binary layer, the syntactic layer of marked up text along with its markup tags, and finally the presentational layer of temporarily displayed text at the screen or at a laser printed page. The ongoing style sheet implementation as well as XML development seems to speed up this fragmenting process.

Another aspect of this fragmentation is of course hypertext. While this is a feature not at all alien to printed media [10], it is certainly much enhanced by digital media. Hypertextuality is a quality specific to document architecture, enabling the multisequential structuring and reading of text through various interconnected document layers.

Some of these inherent qualities of digital media seem to rhyme quite well with those of editing processes and of the edited classical works themselves. There has been much talk of the obvious benefits of digital editions, such as search facilities, but in addition new problems appear, basically due to new architectural conditions of the new media environments. Let us have a look at some frequently addressed arguments in favour of digital editions, and consider a few subsequent problems.

Drowning by versions

The previously noted virtual, fluctuating state of the classical works harmonises with the fluid dynamics of immaterial digital text as well as by the altered document distribution logistics of the web. A further perspective of this is that digital editions, unconditioned by the spatial constraints of print media, can offer the user not one but several, or in fact all versions of the work. At least in theory, this seems to support a transition from universional to universal editions, where collating and stemmatic software offers the user multi- or even omniversional access and comparison.

Does this imply the death of the omnipotent critical editor, as suggested by e.g. Ross (1996) or O'Donnell [11]? Not quite. The editor's authoritative control in the printed SE isn't necessarily of a tyrannical nature. Conversely, the much spoken-of hypermedia database exhibiting all versions of a work, enabling the user to choose freely between them and to construct his or her "own" version or edition, presupposes a most highly competent user, and puts a rather heavy burden on him or her. Rather, this kind of ultra-eclectic archive can result in the user feeling disoriented and even lost in hyperspace. Where printed SE:s tend to bury rival versions deep down in the variant apparatuses, the document architecture of extreme hypertext SE:s, consequential to the very nature of digitally realised hypertext, threatens to bury the user deep among the mass of potential virtuality. A solution to this problem might be the formulation by the editor(s) of several distinct Ariadne threads through the textual labyrinths. A SE is intended to fulfil two perhaps contradictory user demands: a) the clear, economical, selective guiding through the textual mass in such a way that the user can benefit from the editor's insights and competent judgement, and b) the broadest possible presentation of the textual material, enabling the user to choose different paths and variants than has the editor. Print SE:s have adequately satisfied only the first demand, and in practice left the second one as an unfulfilled ideal. Digital SE:s so far try to satisfy both, but there is a grave risk of the second being fulfilled at the expense of the first.

Literary material prone to the web?

The ancient works are presumably copyleft and legally free to digitise and distribute over the web. In reality however, particular SE:s might be protected as such by copyright. Consequently, current SE:s published on the web often deploy editorial results whose copyright have expired, i.e. at least 70 years old, a fact that might work detrimental to the quality and relevance of the edition. Again, this might be less detrimental to editions of classical works, for which there are even 19th century editions still considered as relevant and workable, if not downright standard.

Furthermore, the classics might arguably be regarded as a perfected literary epoch: concluded, analysable, and controllable. This talks in favour of the construction of long-term archives and editions. Attempts so far have proven fruitful [12] for complex stylistic and authorial analyses across hundreds of thousands of documents.

The immaterial quality of digital texts and the distribution logistics of WAN:s favour digital management of the medieval witnesses. The original manuscripts, fragile and withering, are more often than not hidden in private archives and libraries, quite unattainable to most researchers and interested readers. Moreover, digital image management has indeed itself offered new and unexpected fields of research for paleographers and manuscriptologists (and has admittedly brought severe quality assessment problems to the world of editing).

From universional to universal?

Classical literature is subject to an immense amount of comments, exegeses, and other secondary literature, not to mention the overwhelming numbers of various editions of the works themselves in varying media forms. Each classical work exhibits a highly interlaced network of intra- and extratextual relations. The need for nonsequential (i.e. using search aids) and multisequential work with the texts, for the easy comparison of versions, for comprehensive text searches and swift cross-referencing within and across works is obvious, and cries out for the web's automatic hypertextuality [13]. As well, classical works historically represented in varying media forms seem to need the very multi- and hypermediality digital environments support. Also, classical philology has produced huge and bulky printed tools, difficult and expensive to obtain, awkward to use. These aids have rapidly been the object of digitisation, and several are available as databases over the web [14], thus connectable to future editions and archives. Again, however, such development entails the risk of the user drowning within the mass of varying resources. The future editor will therefore have to supplement his or her traditional skills with the organising of resources through e.g. navigational and linking aids; i.e. information management tasks traditionally associated with librarians and other information architects [15]. Simultaneously, such organisation efforts must already in their initial phases be in coordination to those of other editors and projects, in order to meet scholarly community requirements of synchronised formatting, archiving, display, retrieval, and distribution of documents. Where they are not, readers will not fully enjoy the surplus of web media, but rather end up with stand-alone resources analogous to those at the traditional bookshelf.

The inclusive feature has occasionally caused authors to envision future digital editions as containing literally everything ever written, printed and said of an edited work or a particular author [16]. At the end of the day, such "omnieditions" would annihilate any need for further editions of the particular work, since every edition one might wish for would be a possible output from the archive. Sweet as such visions may be, it still is probably quite impossible to express, retrieve and digitise "everything". And again - each and every digitisation is the result of subjective interpretations made by those responsible for the digitisation. This kind of vision however implies the possibility of "neutral" digitisation untouched by the hand of time or context.

Of utmost interest in this respect is of course the huge architectural potential of inter- or intradocument linking by either hypertext or transclusion. The ability to "write and store once, transclude and instantiate ubiquitously" suggests radically new organising principles for digital SE:s, where an "edition" might better be defined as a purely logical (or even social) document concept, as consisting of bundles of binary digits, temporarily conjoined by agreements.

Ideal versatile, extensible editions

Finally, it goes perhaps without saying that markup techniques are paving the way for highly specialised, flexible, and customizable SE:s. Instead of the printed SE's typographic, acoustic markup, the digital SE uses the electric markup of searchable and editable tags. Overall, digital media might support the construction of cumulative, changeable, and collaborative long-term archives [17], where print media offer static, yet temporary ad hoc-editions. A DBMS archive allowing for varying layers of sophisticated markup can simultaneously accommodate several editorial strategies and aims. Bad news to print fetishists? Not

necessarily. There is no need why a digital archive couldn't result in a frozen print edition as an out product. The important difference is that a print edition from such a digital archive is *one potential* bi-product, not *the final* end product. The complexity of such envisioned archives allows one to rather imagine many possible edition types, be it reading, student, diplomatic, variorum, modernised, genealogical, multiple, or critical ones. But again, this is very much an ideal state of affairs. In reality, the particular strategy, type and architecture of a SE are seldom randomly chosen, but are motivated by and vary according to the particular textual state of the edited work at hand. Electronic publishing doesn't really annihilate this relationship, and it is therefore perhaps vain to look for one particular ideal structure for digital editions. Rather, their architecture might in the same way need to be in harmony with the particular qualities and needs of the edited work.

Where have all the classicists gone?

Considering such harmony as implied above, one would have expected to see a number of "classical" SE:s by now, using digital hypertext and web distribution. But there is as of yet a conspicuous lack of such projects. There are a number of impressive digital SE projects of modern or early modern or even medieval works [18]. But for the classics? There are indeed some notable database resources (apart from those previously mentioned, *Patrologia Latina* or the *Perseus* and *Romulus* Projects are worth mentioning), but as concerns digital SE:s of particular classical works, addressing the problem of versionality at least in part through the means of hypertextuality, the supply is scarce.

There are obvious reasons for this: shortages of time, resources, and competence. The making of any SE, not least a digital one, is a costly business, and will probably only be justified where it offers its users a surplus value the printed SE can't. Given the fact that print and digital media each support different ways of managing text, it might be reasonable to imagine future SE:s being distributed using both media simultaneously, supplementing each other, with a clear division of editorial labour between the two.

Another reason for this conspicuous lack is the varying degrees of meritocratic prestige of print and digital media. Further reasons include: copyright restrictions; presumed illucrativity and consequential difficulty in finding financial support; authenticity, security, and long-time preservation uncertainties; as of yet severely primitive software for storing, presenting, encoding, and displaying the kind of complexity inherent in classical works. Finally, both the construction and the usage of existing digital SE:s need probably be thoroughly evaluated.

Digital incunables

What does exist, if we take a look at actual digital SE:s using hypertext, is a bundle of diverging phenomena with little more in common than the umbrella label of "hypertext edition". Digital editing is yet considerably experimental and immature, and perhaps it is too early to attempt any typology of digital SE:s, even for classical works. What has been produced in the name of hypertext editions so far, are either a) *digitisations* (digital reproductions of printed SE:s, strictly continuing the latter's architecture and structure [19]), b) *hybrid SE:s*, where part of the edition is available on the web, part in printed book form, or c) *digital SE:s*, all published in digital form. To date, however, the digital SE:s are very much constructed as though they were print based, trying to imitate the architecture and the subsequent status of print editions. They are, in other words, digital incunables.

Editorial theory is in a constant state of mutual influence with its tools, in this case the media it deploys for displaying its resulting SE. Assuredly, digital media are fostering new architectures for SE:s in the form of e.g. hypermedia archives, various DBMS:s and virtual collections, which in turn will necessitate new theoretical perspectives and ideas. Current digital editions are largely defined by the immanent architectural and structural qualities of existing environments, be it the sophisticated particulars of proprietary markup and software or the open architecture of various Internet protocols. To what extent strategic decisions rooted in editorial theory conversely will generate software development and programming practices is yet to be seen. At the end of the day, the digital edition is the resulting trade-off between ideal theory - what is wished for - and real practice - what can be accomplished. As of yet, there is a significant gap between the two.

Notes

[1] More on this concept in Dahlström & Gunnarsson, 1999.

[2] In particular if by text is implied not only the linguistic text expressed in linear sequences of alphanumeric characters along with interpunction, but also the accidental textual particulars expressed in typography and other details.

[3] Consider e.g. web novices who mistake the "back" button of the web browser for the "back" button inherent in the particular web document viewed. Consider also the confusion when imposing traditional bibliographic systems on web distributed documents: from where, e.g., is a reference title to be quoted? Bibliographic practice frequently chooses as reference title the phrase that visually predominates the screen. Normally, however, this is defined by the markup architecture as a heading, <H1>, whereas the markup title (the <TITLE> element) has to settle for the tiny upper bar of the screen, if present at all.

[4] At times even beyond the pragmatically justified: there are elements in printed incunables with no function at all other than to mimic the scribal practices of manuscripts (cf. however Smith, 1994).

[5] Versionality is of course a natural ingredient in any textual production, regardless of media, time or genre, and is normally regarded as irrelevant and redundant noise. There are however areas (such as genetic criticism) where versionality turns interesting, and where it is considered relevant to preserve extant versions. To editors of classical works, the versions even turn crucial, as they are all we have left of the works.

[6] At least in principle, the edited work might represent other art and media forms than literary text. Imagine a scholarly, critical edition of, say, Dylan's *The Basement Tapes*, Welles' *Citizen Kane*, or Picasso's *Guernica*. Or, broadening literary editing to digital media, what will the scholarly, critical edition of Michael Joyce's hypertext novel *afternoon: a story* look like? While to my knowledge no attempts have yet been made to accomplish digital SE:s of originally digital works, Hohm's 1993 hypercard re-edition of the Canadian poet bp Nichol's posthumous work *First Screening* (kinetic poems originally composed in BASIC for Apple II) points to some interesting new problems (Nichols, 1993 ; briefly discussed in Kendall, 1998).

[7] To textual critic Jerome McGann, this is basically because printed SE:s "deploy a book form to study another book form" (McGann, 1997).

[8] Normally one of three moments: 1) the original authorial manuscript version, 2) the first published version, 3) the final authorial version (the so-called *Ausgabe letzter Hand*).

[9] Granted, works on the web depend on hard disks and other material carriers for their storage. The texts however constantly *oscillate* between different carriers and various manifested forms, creating a highly complex document flow including immense numbers of more or less temporary versions, even within singular readings.

- [10] A fact that, following the initial "hyperhype", has been increasingly addressed, e.g. by Aarseth (1997), Pang (1998), or Svedjedal (2000, esp. p. 56).
- [11] "If editors can be reduced to a set of programming instructions, then it ought to be possible, in an electronic edition, to automate the manipulations necessary to produce various kinds of critical texts" (O'Donnell, 1998).
- [12] See e.g. McCarthy, 1996.
- [13] In passing, one should not overtheorize the relation between inclusive hypertextuality and editorial theory emphasizing the dissonant multiversionality of works. There might indeed lure a fallacy equivalent to the deceptive analogy occasionally made between postmodern intertextuality and document hypertextuality.
- [14] Concordances, grammars, various dictionaries and other referential works, e.g. *Thesaurus Linguae Graecae* and Liddell & Scott's Greek Dictionary.
- [15] Even further skills particular to digital media will be needed, such as programming, digital image management, and awareness of current development in markup techniques, protocols, and software innovations. This might suggest that future editorial competence will be fragmented into separate diversified skills that can only adequately be performed by a collegiate staff rather than by the universal "lone ranger" editor à la Housman.
- [16] Shakespeare scholar Marder, e.g., envisioned "everything necessary" to be archived in "a constantly updated Shakespeare data bank," and "all the relevant information (...) retrievable on command", culminating in a "universal, up-to-date, constantly improving, eclectic "edition" of Shakespeare" (Marder, 1982, p. 29, quoted in Siemens, 1998, n. 33). He then hoped for: "a project to *computerize all that is known* about Shakespeare's life, times, and work ..." (ibid.) [my ital.]. Siemens (1998, § 12) seems to agree: "we might conceive of a hypertextual edition that includes nearly everything of value relating specifically to Shakespeare".
- [17] Even the re-construction of long since scattered collections through virtually composed digital archives, as has been accomplished in British Library's *International Dunhuang Project* (<http://idp.bl.uk>).
- [18] Among the most notable and impressive editorial projects in digital form so far is the 1996 CD edition (published by Cambridge University Press) of Chaucer's *The Wife of Bath's Prologue*.
- [19] Looking beyond the days of joyful experimentation, this kind of print SE digitisations can certainly be put to question. Given the costs of digitising, are they really financially justified? If so, to what extent should their print based architecture (e.g. comments, annotations, footnotes, apparatus) be preserved in the digital version?

References

(URL:s checked May 2000)

Aarseth, Espen (1997), *Cybertext: Perspectives on Ergodic Literature*. Baltimore: Johns Hopkins Univ. Press.

Dahlström, Mats & Gunnarsson, Mikael (1999), "DA Draws a Circle : On Document Architecture and Its Relation to LIS Education and Research". *Information Research*. Vol. 5 : 2.

<URL: <http://www.shef.ac.uk/~is/publications/infres/paper70.html>>

Kendall, Robert (1998), "The Hypertexts of Yesteryear". *SIGLINK Newsletter*. Vol. 7 : 1/2.

<URL: http://www.wordcircuits.com/comment/htlit_3.htm>

Marder, Louis (1982), "Thoughts on a 'Definitive' Edition of Shakespeare: Is it Possible?" *The Shakespeare Newsletter* 32: 27, 29.

McCarty, Willard (1996), "Finding Implicit Patterns in Ovid's *Metamorphoses* with TACT". *Computers in the Humanities Working Papers*. Toronto: Centre for Computing in the Humanities, Univ. of Toronto.

<URL: <http://www.chass.utoronto.ca:8080/epc/chwp/mccarty/>>

McGann, Jerome J. (1997), "The Rationale of Hypertext". In: Kathryn Sutherland (ed.), *Electronic Text : Investigations in Method and Theory*. Oxford: Clarendon. PP. 19-46

<URL: <http://jefferson.village.virginia.edu/public/jjm2f/rationale.html>> (preprint)

Nichols, bp (1993), *First Screening*. Ed. J.B. Hohm. Red Deer College Press. 1 diskette.

O'Donnell, Daniel P. (1998), "Editorial Method". In: *The Electronic Caedmon's Hymn*. Lethbridge: University of Lethbridge. Dept of English.

<URL: <http://home.uleth.ca/~daniel.odonnell/caedmon-job.htm>>

Pang, Alex Soojung-Kim (1998), "Hypertext, the Next Generation : A Review and Research Agenda". *First Monday*. Vol. 3 : 11.

<URL: http://www.firstmonday.dk/issues/issue3_11/pang/index.htm>

Ross, Charles L. (1996), "The Electronic Text and the Death of the Critical Edition". In: Richard Finneran (ed.), *The Literary Text in the Digital Age*. Ann Arbor: Univ. of Michigan Press. PP. 225-231

Siemens, Raymond G. (1998), "Disparate Structures, Electronic and Otherwise : Conceptions of Textual Organisation in the Electronic Medium, with Reference to Editions of Shakespeare and the Internet". In: Michael Best (ed.): *The Internet Shakespeare : Opportunities in a New Medium (Early Modern Literary Studies 3.3 / Special Issue Series 2 [1998])*.

<URL: <http://purl.oclc.org/emls/03-3/siemshak.html>>

Smith, Margaret (1994), "The Design Relationship between the Manuscript and the Incunable". In: Robin Myers & Michael Harris (eds), *The Millennium of the Book*. Winchester and New Castle, Delaware: St Paul's Bibliographies and Oak Knoll. PP. 23-43.

Svedjedal, Johan (2000), *The Literary Web : Literature and Publishing in the Age of Digital Production. A Study in the Sociology of Literature*. Stockholm: Kungl. Biblioteket.