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Digital Scholarly Editions as Interfaces

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Abstracts and Programme

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#dseai16

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I. Abstracts

1. Readability, Reliability, Navigation

The navigation of Digital Scholarly Editions – A corpus study

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This paper examines the present state of landing pages and how Digital Scholarly Editions (DSE) 'label' their navigational elements. The landing page, especially the main/global navigation and search facilities, constitute the main access point to the website's information and guide the user through the content. Information Architecture (IA) introduced the concept of 'labeling systems'. This is particularly relevant to the field of DSE, due to DSE's high information density and the resulting difficulty in designing effective navigation facilities.

Pierazzo notes the lack of user-oriented studies in Digital Editing. Regardless of this gap in research, we can still examine existing DSEs to show how editors have tried to structure their content and create appropriate navigational tools to support users to access it. Thus, Sahle's annotated catalogue of Digital Scholarly Editions provides an ideal source to investigate the current state of Digital Editing.

Using this annotated catalogue of DSEs as a basis, this study compiles a corpus of landing pages and follows a mixed-method approach to data analysis. In particular, the HTML-Code is taken into account and enriched in such a way as to allow quantitative analysis of navigational elements. By undertaking a 'distant reading' of source code resulting in quantification of the data accompanied by qualitative analysis of landing pages, the study specifically aims to address the following questions: How do editors and designers rely on web conventions in designing their navigational facilities? With an eye to IA's contributions to web design, this study poses the question how DSEs 'label' their content via their navigational systems? Which terms are used frequently to label menu items? Do DSEs rely on established web-conventions? To which extent do DSEs draw on 'traditional' navigational elements of printed Scholarly Editions, such as table of contents and indices?

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Digital Scholarly Editions and the Affordances of Reliability

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Increasing the effectiveness of the individual's use of his basic capabilities is a problem in redesigning the changeable parts of a system...To redesign a structure, we must learn as much as we can of what is known about the basic materials and components as they are utilized within the structure; beyond that we must learn how to view, to measure, to analyze, and to evaluate in terms of the functional whole and its purpose.

Douglas C. Engelbart, 1962

When serious work to produce scholarly editions in an interactive digital environment was in its early stages, C. M. Sperberg-McQueen addressed the Modern Language Association on the subject of "Textual Criticism and the Text Encoding Initiative." His remarks on that occasion have bearing on the subject matter of the present Symposium's goal of redressing the relative paucity of research devoted to what might be called "the user's side of the edition." Sperberg-McQueen's views, as articulated in this 1994 address, are representative of the dominant thinking of the time. "Distinguish firmly," he urged his audience, "between the intellectual requirements of the edition and the requirements for convenient distribution and use of the edition." And again, "create the edition in a software- and hardware-independent notation.

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Derive platform-specific versions of that archival form for distribution when and as necessary. *Never confuse the edition with the temporary forms it takes for distribution and use...*" (my italics).

However necessary, and even salutary, the foregoing view of how the scholarly edition was to be ported into a digital environment might have been at the time, the sharp divorce that it posits between the *scholar's* work on an edition and the "temporary forms" that appear almost as an afterthought associated with its "convenient" distribution has had a telling impact on the development of a form that some say has been more admired than used by its intended audience. Indeed, one can imagine fewer challenges of more importance to be addressed in this time of widespread interest in the "digital humanities" than the question of why so many scholars are still ambivalent toward the use of digital editions of the seminal documents of the humanistic disciplines. It is time that we take steps of remedy this situation by recognizing that interface development entails a level of intellectual challenge comparable to that of the encoding of texts – and that mastery to this challenge is worthy of classification as scholarship.

My paper will focus on several important meanings of the word "interface" in this Symposium's title. On the one hand, we can think of interface as a species of graphical design, a means of bodying forth the otherwise inaccessible patterns of bits and bytes in which the contents of the "edition proper" is delivered to its audience. I shall argue and provide special examples to illustrate that if the twenty-plus years that have passed since Sperberg-McQueen's off-handed comments about convenient delivery systems have taught us anything, it is:

(1) That interfaces of a graphical sort have had – and in many cases still to retain – effortful features (scrolling, for example) that run counter to the intensely attention-demanding reading/rumination process that is at the core of any critical reading.

(2) That thoughtful design of the sort suggested in the quotation that opens this proposal is not the product of accident or of the unreflective adoption of ill-suited, "canned" forms of digital presentation. On the contrary, we are beginning to learn that *effective* forms of presentation suited to what are often the circuitous workings of a scholarly consciousness can be designed in such fashion as to minimize superfluous or conflicting demands on a reader's attention while concurrently offering quick and easily-achieved navigation to matters that have been held in shadow so to speak the moment that a reader might want to consult them (near-instant access to underlying TEI encoding without the labor of having to match up the encoded text with the text ordinarily displayed can serve as one example of what is meant here). Such artful, "non-restrictive" attention-management design fostering the ability of "withdrawal from some things in order to deal effectively with others" (to call on Williams James's definition of attention) can make our readerly engagement with a DSE at least as effective as our engagement with a printed SE.

(3) (building on the last point) We are learning that a digital interface offers us the opportunity to craft cognitive affordances that surpass those offered by the printed SE. Such affordances arise out of the mobility of text and image within the digital environment coupled with the processing power and speed that computers can bring to bear on their analysis. These points will be brought home through examples that I will offer of DSE affordances of my own design that enable readers to come to grips with the details of specific instantiations of medieval texts preserved in manuscript form and their relationships to the manuscript traditions in which they participate.

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Navigating Readability and Reliability in Digital Documentary Editions: The Case of Mark Twain's Notebooks

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When evolutions in scholarly editorial policy occur simultaneously with evolutions in digital editing, what is an editor to do? Put another way, when "digitizing" a completed print book with a different editorial policy, is one obliged to "re-edit" the text so it conforms to a project's current editing standards, retain the historical edition verbatim, or make a compromised policy that borrows from the original policy and the current one? How do these choices affect the expectations inherent in designing a scholarly edition for the web that was originally only in print?

These questions arose from a task currently underway at the Mark Twain Papers & Project at UC-Berkeley on Mark Twain's notebooks. The goal is to digitize all of Mark Twain's notebooks, as well as to publish e-texts (encoded in TEI-XML) of the scholarly edition of Mark Twain's notebooks (published in three volumes by the University of California Press in 1975 and 1979) paired with the recently-scanned journal page images. This will be published at marktwainproject.org. However, the printed editions were executed according to some editorial principles that are no longer in use by the Project: for example, some journals and some sections of journals were not transcribed, because the general editor at the time deemed them unreadable and/or uninteresting, and some words and passages were excised and relegated to the textual notes in the back-matter. Another later notebook was not included (as it had not yet been discovered). In the 1970s, the editors' primary concern was to make the most information available in a readable format. With the advent of digital editing, scholarly editors have more tools to represent a text faithfully; there is more interest in reliability than readability. Reliability here is synonymous with "faithfully" (to use Tanselle's term), in that the editor presents the documents as closely to the original as possible. In the case of documentary editions, it is preferable to see a facsimile of the original (however messy) and understand it in terms of its material and textual contexts, whereas former print editions of notebooks and journals (whether intentionally or not) nearly took on the pretensions of a literary work— something one could read through and understand holistically. This topic also raises some larger questions about the goals of documentary editing in the context of digital interfaces. How has the notion of readability changed in scholarly editing? What is the preferred "format" for digital documentary editing: an exact representation of the documents with attendant facsimiles, or a pragmatic transcription that makes the documents more readable? How can encoding practices change the reader's engagement with a digital edition?

My presentation will show some puzzles of the work-in-progress on Mark Twain's journals, what decisions we have made, and what compromises have been effected in order to complete the project. One example is the notorious "river notebook," which consists of Mark Twain's notes while he trained as a river pilot in 1857 (and it is truly nearly illegible). This notebook was not fully transcribed and given only cursory treatment in an essay in Volume 1 of the print edition. Other examples will include notebooks with pages out of order, and notebooks with a lot of shorthand writing (which makes transliteration an aspect of the editing process). Mark Twain's notebooks show how readability in documentary editing takes on new meanings in the digital sphere.

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2. Visualization, Typography and Design I

Interfacing literary genesis: a digital museum exhibition of Raymond Brulez' *Sheherazade*

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"A further challenge is to determine how designing and prototyping, as keystones of the experimental tradition within the digital humanities, should relate to the archival and historical strengths of textual scholarship" (Alan Galey, 2010).

This paper will discuss the process and outcomes of an experimental interface design of the Brulez-project, which is being conducted at the University of Antwerp in conjunction with local partners. One of the objectives of the Brulez-project is to create a digital exhibition interface within the permanent exhibition space of the AMVC Letterenhuis Museum in Antwerp. This exhibition will showcase the manuscripts and typescripts of Sheherazade (1932), a collection of stories by Belgian modernist writer Raymond Brulez. Additional objectives of this project are to help bridge a gap between the academic world, the GLAM sector and the creative design sector in Antwerp; to demonstrate what might come from collaboration between different parties with an interest in cultural heritage.

We hope to open up the discussion on interfaces mentioned by Del Turco (2011, §80) by presenting literary heritage in a way that is meaningful for an audience of museum visitors. We follow the definition of "interface" quite literally and take it as "a point where two systems, subjects, organizations meet and interact" (OED). In our case the interaction takes place between several players: researchers of the University of Antwerp, the literary museum holding the material and providing an exhibition space, a web-design company engaged to develop the interface, and finally the user. The digital exhibition will offer a duality of access: (1) the physical space of the museum made available on a fixed touch user interface, and (2) as a publicly accessible website. As such, the experimental interface offers insights into who its users can be, as well as into the physical and digital environments in which they engage with this type of content.

The content, a large and diverse set of documentary material, provides numerous opportunities to visualise the process of writing. Brulez worked in the 'Golden Age of the Literary Manuscript' (Callu 1993, 65): a time when many literary writers preserved their material and their notes because they themselves were interested in their creative processes. The interface aims to

guide users through the multimedia content of the Sheherazade exhibition, specifically illustrating the origins and development of this collection of stories. Often, in practice, this creative invention is showcased in genetic editions. These types of editions follow the "genetic orientation to text" and focus on "creative invention" of works of art (Shillingsburg and Van Hulle 2015, 36). What we intend to do in this project, however, is not producing a digital genetic edition per se, but to showcase the creative writing process. Following the idiosyncrasies of Brulez' writing process, it presents the user with a number of "genetic paths" that we identify within the manuscript material of Sheherazade.

With regard to the design we take some inspiration from Stan Ruecker et al's rich prospect browsing principles, slightly adapting those principles to fit the purposes of our interface. Ruecker suggests that the primary page should offer a "meaningful representation" of all the content made available by the interface; users should be offered various controls to reorganise and mark content; and each item of content should link to more data (Ruecker 2011, 4-5). Therefore, this digital exhibition of Sheherazade may also link with the literary museum that offers online access to their catalogue comprising the complete avant-texte of Sheherazade. As such, our digital exhibition would provide a first access point and introduction into that online collection and its broader contexts.

By developing a small-scale exhibition that highlights the genesis of Sheherazade and utilising some of the results of a recent user study on tablet user interfaces for digital editions (Kelly 2015), we intend to let the users interact with the material and provide them with a basic understanding of the fascinating and recognizable concept of literary genesis. Each writing stage is illustrated using multimodal content, including facsimiles of the manuscripts, pictures, links to his library books, music score of the opera that inspired his work, an voice over by Brulez' daughter, etc. As a result, we have a chance to experiment with innovative digital methods and develop a small but very concrete exhibition as a showcase of literary genesis.

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Visualising processes of text composition and revision across document borders

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One requirement for digital genetic editing is to concatenate the record of text variation from a serial progression of documents. At each document border, the evidence for composition and revision is typically mixed: partly readable (and thus transcribable) from the materially extant documents, partly inferable only through critical assessment of the results of machine collation of document texts. Reading, transcribing, collating, and collation assessment needs to be carried out in a constant interplay of digital automation and human (=critically intelligent) intervention. This constitutes the operative core of text-critical editing in the digital environment. The editorial assessments and decisions are modelled into the digital data through mark-up, data-bank disposition of the genetically differentiated text data, or similar. From out of the genetically structured data, in turn, are generated the visualisations to present the editorial perspectives that comprehensively represent the edition. Our conference contribution will exemplify first inroads into interfacing a digitally born genetic edition (instanced by Virginia Woolf, "Sketch of the Past" [1939-40; unfinished and fragmentary]). In addition, it will demonstrate that cross-document visualisation can be equally effected for 'earlier-generation' genetically digitised source material (instanced from the inherited digital record of the critical and synoptic (book) edition [1984]of James Joyce's Ulysses).

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More than a pretty picture: network visualisation as an interface for Digital Scholarly Editions

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The aim of this paper is to present a network graph-based digital interface that exposes the underlying networks of the Letters of 1916 corpus. In doing so, this paper argues that visualisation should be considered as more than a "pretty" addition to the scholarly edition, or as a one-off case study carried

out using the edition data. Rather it should be treated as a fundamental component of the edition: as a tool for exploring the corpus at various levels of granularity.

This paper will argue that a network is the most appropriate metaphor for considering a heterogeneous and disparate corpus such as the Letters of 1916. The act of normalizing metadata (people and places in particular) creates myriad connections within the corpus that do not fit neatly into a hierarchical structure based on a collection of text-bearing documents, instead cutting across levels. This is particularly significant in the case of letters, for which senders and recipients and locations acquire a heightened relevance as "actors" in communicative acts, one that is external to the documents themselves. A typical edition that simply displays each document separately (and, perhaps, constructing index pages of letters written by a given individual) relegates these aspects to metadata tied to each letter, hiding the underlying connections from the user. Creating an edition that equally foregrounds the "non-textual" elements demands additional work. Traditionally, commentaries or other forms of apparatus could provide some of the contextual information, written in prose in a way most obviously adapted to the print edition. In the context of a digital edition, however, using visualisation tools to represent the complexity of the network model to users is another, perhaps more suitable, option.

In Digital Humanities, visualisations have typically been treated as "work" carried out on an already-established textual corpus, particularly with the aim of providing higher-level perspectives (what Franco Moretti describes as "distant reading" and Matthew Jockers as "macroanalysis"). This paper suggests a different use-case: that visualisations may be built directly into the digital edition, to expose the complexity of the underlying model directly to users and facilitate exploration at multiple levels.

This paper will deal with the technical aspects of building an interface that is interactive and malleable for the user, and yet rigorously "scholarly" in the way that we would expect from an edition. At the same time, it will explore questions arising from this conceptual model and its presentation: Where should the line between a linear text and a network of meta-textual data be drawn, both conceptually and from the perspective of the user; and what are the limits on the inferences that can be drawn from using such an interface?

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3. Visualisation, Typography and Design II

Bridging the Gap: Exploring Interaction Metaphors To Facilitate Alternative Reading Modalities in Digital Scholarly Editions

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The Digital Scholarly Edition sits at an intriguing cross-section within the academic landscape. While its analogue counterpart, the Scholarly Edition, is primarily written for a fairly specialised audience, the Digital Scholarly Edition is, by the nature of its distribution model, open to the general public. For the first time in the history of Scholarly Editing, these editions—once of interest to a fairly small subset of academics—are now available to everyone, both within and outside of traditional academia, as the internet provides them with a free (or in some cases, low cost) access model. In addition, while the Digital Scholarly Edition has adopted many metaphors from the traditional analogue Scholarly Edition (such as the footnote, index, and table of contents), these metaphors are often implemented in a literal fashion without concern for how they can evolve in a digital space. One example of this literal implementation can be seen with the placement of footnotes at the bottom of the web page, as opposed to a hyperlinked, modal popup, which lends itself to a more fluid digital interaction. Other metaphors, born digital and familiar to a digital audience, may be eschewed due either to their perceived complexity of implementation or a need to adhere to more traditional metaphors to raise the scholarly profile of the work. But as Johanna Drucker notes, "the challenge is to break the literalism of representational strategies and engage with innovations in interpretative and inferential modes that augment human cognition" (Drucker 2014, 71).

In addition to these challenges, editors of Digital Scholarly Editions must contend with the shifting demographic of the "reader" and the shift in reading skills which has accompanied the digital revolution. As Katherine Hayles notes, "[close] reading skills (as measured by the ability to identify themes, draw inferences, etc.) have been declining in junior high, high school, college, and even graduate schools [for the past twenty years]" (Hayles 2012, 56). While traditional close reading techniques will always thrive, alternative methods of reading, such as "hyper-reading", defined as "reader-directed, screen-based, computer-assisted" reading, are considered to be on the rise amongst consumers of digital content (Hayles 2012, 56-61). As these reading methods lend themselves to different interactions, consideration should be

given to how content might be tailored to accommodate these alternative reading modalities.

With the shift in how content is consumed digitally—in conjunction with the widely expanding audience —it has become imperative to understand and embrace new metaphors with regard to the user interaction of the content of the Digital Scholarly Edition. The challenge, however, lies in ensuring that the content is consumable not only by a scholarly audience in a manner which adheres to accepted standards and practices, but also by a wider, more generalised audience which may rely on such editions for both pleasure reading and as research tools.

This paper will explore the interaction metaphors which derive directly from their analogue counterparts within Scholarly Editing. Drawing on the work of noted experts in the field of Interaction Design and Information Architecture, such as Jeff Johnson, Donald Norman, and Ben Shneiderman, additional interaction techniques will be discussed in an effort to support alternative modes of reaching, such as hyper, radial, and distant reading, as discussed by Katherine Hayles, Jerome McGann, and Franco Moretti. By exploring these new interactions, a blended approach of the traditional interaction metaphors with metaphors which allow for new modes of reading will be advocated in order to support the forward momentum of the Digital Scholarly Edition and digital scholarship as a whole.

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Typography as interface - typographic design of text visualization for Digital Scholarly Editions

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The objective of the paper is to present and discuss opportunities offered by typography of text visualizations understood as an interface of Digital Scholarly Editions. It is meant to stress a role of typography as a core and vital component of text visualization.

Typography may be broadly understood as an activity of shaping visual characteristics of written language, taking into account issues of language, content and rhetoric of the message, production, dissemination, and consumption contexts in multimodal information environment. It is aimed at facilitating reading and understanding written language, which are derivative of a reader's goals.

Sinclair (2003) points to the problem of cognitive gap between working with data derived from text and working with text itself as main obstacle in broader utilization of the computer based analytic methods by literary researchers. "The tools [text-analysis tools] banish the text, that with which the literary critic is the most familiar." (Sinclair 2003, 178). His question is how to incorporate new methods of analysis, while still keep a process of working with text unchanged as in traditional text analysis. Ruecker et al. (2005) recognizes so-called "humanities" text visualization. It is characterized by use of texts in a way that keeps a strong visual link to the original material and provide information in context. It goes along the lines with interface design paradigm stressing the advantages of direct manipulation of objects of study within an interface.

Text visualization takes advantage of capacity of the human visual perception system augmented by the use of computer systems in handling large volumes of information (Card et al. 1999). In general, it embraces a wide spectrum of strategies for presenting information through verbal, pictorial, schematic modes of graphic language in computer-mediated environment.

Within this context typographic design of text visualizations can play a crucial role in a process of working with text. The proper use of typographic attributes can facilitate reading of the information in a more direct manner, without translation to other abstract graphical forms. The operations of text

analysis can directly influence the form of the text, and the emergent visual appearance of that text can cue the reader to features of interest.

Also a control given to a humanities researcher over arrangement, configuration, and transformation of typographic attributes could serve as a useful tool in the process of literary interpretational work and help in articulation of new perspectives on textual material. Waller (2015) points to changing roles of a writer (an originator of the message) and a reader, and relates them to emerging types of layout in digital environment.

The paper aims to discuss how typography can take part in shaping the experience of DSE users based mostly on examples of prototypes and designs related to scholarly interfaces realized within the INKE project (Blandford et al. 2012).

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4. How to program the interface

Critical Editions and the Data Model as Interface

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Critical editions are some of the most complex texts that exist, and digital critical editions only increase that complexity. We are faced with a hard problem when we try to represent digital critical editions on the web: the semantic poverty of HTML. Most HTML elements have very specific semantics that make them unlikely to apply to our use case, and the small remainder have very little meaning, only default displays. We can characterize these elements, at least in terms of their appearance, using the class attribute along with an accompanying CSS stylesheet. But there is no general way to explicitly mark a line of verse as such, for example. If we want our HTML structure to constitute a data model, we will have to add some sort of formal definition saying that, e.g., <p class="line"> indicates a line of verse. This is an achievable, but very large goal, and one that has already been done in the form of the Text Encoding Initiative Guidelines.

TEI has what HTML lacks, a (mostly) very well-considered and mature set of semantic tags for encoding texts. It lacks what HTML has, however, in the form of rules for how to display and interact with its elements in a web browser. It is typical, in TEI workflows, to mark up your text and then to transform it via XSLT into whatever forms you need to support your digital publication, generally HTML or PDF. This flow is very useful where multiple outputs are desired. In converting TEI to HTML, however, we tend to throw away all of the semantic distinctions in the markup in favor of typographic distinctions in the display. The markup has a data model, but it carries over to the online version only in a semantically lossy conversion to visual markup.

The solution is obvious, although it was impractical or impossible until recent advances in browser technology: we need to be able to keep and use the semantics of TEI while styling and adding functionality to the document in the same ways we do HTML. Probably the most successful solution to date is the use of an in-browser XSLT transformation to wrap the TEI document in an HTML envelope, making it able to be decorated using standard CSS, which TEI Boilerplate (http://dcl.ils.indiana.edu/teibp/) does. This paper proposes an approach inspired by TEI Boilerplate (and which repurposes a lot of its CSS), namely the conversion of TEI into HTML Custom Elements (https://www.w3.org/TR/custom-elements/). This solution uses a simple, 1::1 transformation of TEI into HTML, by registering modified TEI elements with the browser. This is a "bleeding edge" feature that isn't universally

implemented, but it renders even in browsers which don't yet support Custom Elements, because browsers are built to handle all manner of terrible, incorrect, messy HTML and because Javascript polyfills can add features that browsers don't support natively.

This presentation will focus on work being done by the Digital Latin Library (http://digitallatin.org/) to develop TEI-based critical editions of Latin texts from all periods. The apparatus is marked up using TEI's "parallel segmentation" method, which has been able to model variation at any structural level since the 2.9.1 release (see http://www.tei-c.org/release/doc/tei-p5-doc/readme-2.9.1.html). A very simple (and reversible) XSLT transformation converts these documents into HTML with Custom Elements. CSS and Javascript are used to display the text and add functions to it. The TEI data model for the apparatus permits functions that directly leverage it, such as allowing the reader to choose different readings and see how they affect the text. This works by simply changing the data model (swapping a TEI <rdg> for a <lem>, for example) and allowing that change to be automatically re-rendered in the browser. By pushing the data model to the surface in this way, we enable readers to interact directly with it, manipulate it, and use the results. A demo version is available at http://digitallatin.github.io/viewer/editio-2.0.html.

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Between innovation and conservation: the narrow path of UI design for the DSE

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When the first critical editions appeared as Digital Scholarly Editions, they adopted the traditional printed editions model: the layout was typically based on multiple rectangular frames arranged in an HTML page, within which all the edition data - the main text, the critical apparatus, possibly textual notes, glossaries, etc. - would find its place in a very ordered manner.

This approach, which is still used in some editions, has been criticized because while it still allows the user to take advantage of hypertext capabilities in a Web- or HTML-based edition, it is based on an inflexible layout which results in unacceptable limitations with regard to the methods of presenting and querying the textual material. Which is why, from a certain moment, digital editors have strayed from this model to explore new concepts and new forms of User Interface applied to DSEs. This has led to the introduction and use of a new layout, new graphical widgets, new navigation methods, etc.

One consequence of this search for more effective approaches, however, is the fact that all (or most) of today's DSEs are highly experimental, because the general layout of the UI and the solutions provided for the same tasks (browsing/navigating the text, the critical apparatus, the notes etc.) differ from edition to edition. This means that while "traditional layout" editions allow for a certain degree of uniformity even if the edited texts may vary (because of language, historical periods, types of textual tradition etc.), "innovative layout" editions may be compared more to software programs than to books in digital form when it comes to their UI layout, and as for every program it is necessary to learn how it works. A book doesn't need any accompanying instructions, and to some degree this is also true for "traditional layout" editions, but the great variability that is typical of the more recent DSEs requires some adjusting and, in some cases, reading the aforementioned instructions when available.

Therefore, when it comes to User Interface and ease of use, modern DSEs suffer from several drawbacks:

- this lack of homogeneity means that the learning curve is higher in some cases, sometimes even frustrating for the less experienced user;

- it can also happen that an excellent content is made less usable by an inadequate UI: not all design choices enable the user to access and browse the edition data in an effective way;

- a further problem concerns editions which offer digitized images of the manuscript(s) and/or the full text of all witnesses: when the material to be managed increases beyond a certain threshold, navigation of the edition data becomes tricky, and UI design and implementation is the critical problem to solve;

- on the editor's side, almost every project heavily customizes the final edition UI: this not only adds to the "UI fragmentation" problem, but also makes it difficult if not impossible to set common standards and share the available publication tools among different projects.

All of these considerations have been at the heart of the design phase necessary for the development of EVT (Edition Visualization Technology) 2.0: the current version (EVT 1.0) of this tool aimed at easy publishing of TEI XML-based editions, in fact, only supports diplomatic transcriptions linked to the corresponding manuscript images. EVT 2.0 will fully support critical editions encoded according to the TEI parallel segmentation method: to reach this goal a completely new approach, based on the AngularJS framework and the MVC (Model View Controller) architectural pattern, was necessary because the old architecture, relying on XSLT 2.0 transformations to convert the XML data in a web edition, wasn't flexible enough to meet all the UI and navigation needs that critical editions require.

Although we do not claim to have solved this problem once and for all, of course, we believe that the UI layout and solutions we devised for EVT 2.0 are both effective in the short term, for all the projects that will adopt EVT, and a significant contribution to the theoretical discussion revolving around the very concept of DSE.

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Digital Scholarly Editions as API Consuming Applications: lessons and examples from the *Sentences Commentary Text Archive* and *LombardPress*

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In response to the call for papers, I would like to address directly the following two questions:

> *Can we conceptualize machines as users? How can we include application programming interfaces (APIs) in the discussion on DSEs as interfaces?*

> *Plurality in representation is a core feature of DSE. How do interfaces realize this plurality? Do we need different interfaces for different target audiences (i.e. scholars, digital humanists, students, public)?*

The very way in which we often speak about digital scholarly editions (DSE) as an alternative or rival to traditional print editions presupposes a parallelism between print and digital editions. This binary pushes us to think about the digital edition as just another reading environment where the text and presentation are tightly fused. But this conception recreates the very problem that the digital revolution should be solving, namely the construction and

reconstruction of data silos. Such thinking creates significant obstacles to an editorial approach that can support both the automatic production of traditional print books and the constant experimentation, reuse, and interconnectivity that should be hallmarks of the digital reading environment.

In the proposed presentation, I plan to discuss and demonstrate the benefits of rigorously separating the components of a DSE into client applications that consume data, a separate archive that stores and organizes that data, and a DSE API that multiple clients and applications can use to display that organized data.

As part of my presentation, I would like to demonstrate how I have achieved some of these possibilities in my own client application (LombardPress, http://lombardpress.org/web). This client consumes multiple APIs to efficiently display a complex corpus of critical editions. LombardPress relies on a metadata archive I've developed (the Sentences Commentary Text Archive, http://scta.info)[1] which organizes the various components required for truly comprehensive and transparent critical editions of medieval Sentences commentaries. This metadata is accessed via a simple public API. This same client is also able to access images of the relevant manuscripts scattered throughout world libraries via the IIIF API (http://iiif.io).

Key benefits that result from this separation of concerns include:

- The potential for the display of interconnected data collected from the decentralized and distributed sources. (See for example: http://lombardpress.org/placing-medieval-texts-within-a-critical-corpus/)

- The display of corpus connections to external datasets via LinkedData.

- The ability to quickly and efficiently build viewing applications that display the same data at various levels of abstraction. (See http://miradorlab.scta.info and http://stats.scta.info.)

- The possibility of providing stable IDs for resources at a granular level in the midst of the creation of experimental and ephemeral DSE viewers.

- The ability to automatically produce traditional print critical editions from the same source text. (See for example: http://lombardpress.org/print/)

Once the benefits of conceiving of the DSE as an API consuming client are clear, our focus should expand from a narrow concern with reading environments alone to include the data models and APIs that make the rapid construction of various reading environments possible.

1Please see my recent article in the *Digital Humanities Quarterly* which provides a basic overview of the idea of a metadata archive: http://www.digitalhumanities.org/dhq/vol/10/1/000231/000231.html

As a way to move this conversation forward, I would like to describe the work I'm doing with the group designing the Distributed Text Service API (DTS)—designed to be the successor to the Canonical Text Service (CTS) API currently used by Perseus and the Homer Multitext Project. Likewise, I would like to provide an overview of my work with the IIIF community and discuss how this important API fits into the construction of digital scholarly editions.

Finally, I would also like to present my own attempts to construct a flexible data model that can accurately describe the components of critical editions of diverse genres of texts at an extremely granular level. The idea is that a sufficiently robust data model would organize all the necessary information needed by a consuming client. This organized data would then be distributed via the IIIF API and emerging DTS API. Please see my working attempts to describe this data model at https://github.com/jeffreycwitt/scta-ontology.

5. Theoretical implications

Post-Human Texts? Reflections on Reading and Processing Digital Editions

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The intrusion of the digital within the realm of scholarly production has a deeply destabilizing effect. The stability of the printed page is replaced by the dynamic fluidity of the electronic screen of digital media. This screen does not preserve a rudimentary permanence but renders content that is constantly recreated through communication with databases or web services. While the printed book offers a reliable persistence, in which elements from the same edition do not differ (only personal notes and annotations can change the surface of a printed text), reading in the internet provides for the reader an own space of experience that can greatly differ from that of another reader. Some literary scholars recognize this feature of digital space as a problem and emphasize the importance of electronic formats such as Adobe's Portable Document Format (PDF) that simulate the static structure of the printed page within the realm of the digital. The fear of those humanists is that the liquidity of the digital undermines citability and the possibility of intersubjective scholarly work.

This anxiety is not simply an unsubstantial paranoia, but formats such as the XML-markup of the Text Encoding Initiative (TEI) attempt to bring scholarly standards into the 21st century. However, what these formats distinguishes from print editions is that TEI editions do not present texts for the immediate consumption by human beings – although they are (kind of) human readable, they are texts primarily designed for data processing through computers. TEI offers a format that can be read by humans, but it does not provide the interface through which most users will interact with these texts. Many editions offer a synoptic view that juxtaposes facsimile, transcription and TEI-Encoding. This is very helpful for gaining insight into the encoding practices of the specific edition; however, it is rather unlikely that a scholarly investigation will depart from the XML-encoded text. The XML-encoded text does not receive its meaning through a human reading but through digital processing.

In my presentation, I want to highlight this nature of the digital text. I intend to show that the philological center of modern editions, the TEI object, is not designed for human consumption, but rather constitutes a posthuman nucleus that interfaces much more easily with other operative systems and only in a mediated way with the human sensibility.

The structure and functionality of these texts obeys its own laws, and points to the insight of the German philosopher Sybille Krämer that the functionality of writing does not end with the linear storage and retrieval of data, but that writing provides a complex mode of data processing. TEI editions can be described, along Krämer's philosophical inquiries into the operational features of writing systems, as functional systems that transcend the previous standards and functions of literary scholarship.

Thus, the design of interfaces does not simply consist in a visual representation of the XML file, but in an extensive reflection on the operational functions of this data object. This includes features such as automatically generated registers and indexes, links to topographical or biographical data, or the embedding of other media content. However, this does not end with constructing a research environment for human readers but also has to include non-human actors. This means that digital editions also have to conceptualize how they interface with crawlers, search engines, library catalogs, harvesting protocols etc.. In face of computer-based scholarly methods such as „distant reading" interface-design does not only consist of man-machine interaction, but also has to model machine-machine communication.

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Why Interfaces Do Not and Should Not Matter for Scholarly Digital Editions

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In the course of more than twenty years of making scholarly editions in digital form, which gives me a reasonable claim to have been instrumental in the making of more such editions than any other person, I have learnt one lesson. It is this: that the obsession common to scholarly editors with crafting an interface for their digital editions is a mistake. It is not just a mistake: it is an error which damages the utility of the editions they create and which fosters a misconception about the nature of a scholarly edition.

Francesco Rico, the editor of Don Quixote among many others, has noted the oxymoron in the term "scholarly edition" (2006). In so far as an edition is scholarly, it is intended for research and not for reading. In so far as it is an edition, it is meant for reading and not for research. Traditionally, indeed, printed scholarly texts, bristling with apparatus and introductions, have been made and used by specialists only. Others may quarry these repositories of knowledge and make "reader's editions" out of them, or interrogate them for the histories they reveal. Traditionally too, professional publishers were involved: thus the immense number of student texts spun out of (for example) the many Oxford editions, or the versions of the Gospels derived from the great Münster editions. Here was a separation of concerns: scholars researched the text; publishers shaped it for reading. But publishers of editions have gone missing in the digital world. Scholars have stepped, all too eagerly, into their place, prompted first by the notion that to know the text well means to know how to disseminate it, and second by the deceptive ease of online publication.

The results are not pretty. The old saw, that the lawyer who represents himself has a fool for a client, is also true of editors and their editions. The strength of the commercial publication process is that the editor whose priority is his or her own research is confronted by a publisher whose priority is finding readers who will be motivated to pay for what they use. Without this creative tension, the interface to a digital edition may become a vanity publication, very satisfying to its creators but lacking crucial functionality. The recent burst of "digital documentary editions", typically with highly elaborate interfaces presenting the transcription of each page, exemplify this. These show the individual pages with great elaboration, but fail to satisfy the simplest need of any user: to show, for example, how the online Shelley-Godwin archive edition presents the text of chapter 9 of the 1818 edition of Mary Shelley's Frankenstein (which itself corresponds to chapter 17 of the 1831 edition). One can find this text in the online Shelley-Godwin archive by a search

(http://shelleygodwinarchive.org/sc/oxford/ms_abinger/c57/#/p66/search/f :text|q:the being finished), where one discovers that this text was indeed labelled "Chap. 9th" by the author. This edition reduces this labelling to simple text, so casting upon the reader the need to do the editor's work of identifying the fundamental divisions of the text – even though the author has clearly labelled this division. As with so many of these "digital documentary editions", the desire of the editors to present each page as beautifully as possible has led them to neglect a fundamental readerly need.

In my view, this mistake reflects a deeper misconception: that the value of a scholarly edition is intimately bound to its interface. It is not. The value of a real scholarly edition, one built on thorough research of the history of the work, in all its documents and manifestations, is the research itself and what it reveals. This research is independent of any one interface. Its materials are transcriptions, collations, analyses, explanations. As with traditional print editions, these materials might be quarried by others to make any number of reading texts. Or they might be used by others as a base for further research, or might be reconfigured within a specialist edition for a specialist edition. Yet the usual configuration of current digital editions, which seal up the materials within a specialist interface and disable their reuse (often with accompanying draconian copyright declarations, as with the Jane Austen Manuscripts archive (http://www.janeausten.ac.uk/edition/citation-policy.html), forbids exactly this. As a fundamental first principle: scholarly editions should make the base materials of their edition (principally transcriptions) available to all, free of restrictions (Robinson 2015). Free of restrictions means also free of the "non-commercial" restriction which far too many scholars want to attach to their work (Möller 2005). We should welcome any commercial publisher who wants to make money by distributing what we have done. A thriving community of scholarly digital editions should mirror the internet as a whole, with a mix of commercial and free-to-all materials, reused in ways beyond the imagination of their original creators.

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What Are You Trying to Say? The Interface as an Integral Element of Argument

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We contend here that user interfaces are a language through which arguments are made. As such they reflect the interpretations of the materials they are supposed to represent. They also reflect the politics and motives of their designers. However, interface development is generally treated as a piece of design independent from the interpretative thrust of the actual content, and thus considered to lie well within the domains of engineering, interaction design, and aesthetics. These are considered essential to communicate content to the user, but they are also usually considered neutral and non-interfering, as being explicitly divorced from the argument. Thus when we are building interfaces we generally fail to account for the argumentative aspect of the user interface that we provide.

The idea that an edition is a theory (and thus an argument) has been around for decades (Cerquiglini 1989; Shillingsburg 2013), but in practice this insight has not had much overt influence on how editions are presented, particularly in paper form. Perhaps the greatest innovation of the digital space is that it gives us a tangible means to express our argument and theory in entirely new forms. And yet the language of this expression through user interface has barely begun its development.

Artifacts, editions among them, can accommodate politics (Woolgar & Cooper 1999), though it might be more precise to say that the creators of artifacts have or are influenced by ethics, politics, motivation, and rationale. These aspects can be reflected in artifacts and may thus impact the context of these artifacts, that is: users—although, of course, that impact need not necessarily match with the intent of the creators. Digital editions are driven through code, which itself has a certain agency that may amplify that impact (Van Zundert 2016). Just like the edition itself, the computer code used to produce a digital edition can be read as an integral expression of the edition's argument. Thus interfaces as integral coded parts of the digital scholarly edition affect and are affected by this argument.

Far from being neutral information channels, then, interfaces are a kind of lens: they represent a certain non-neutral perspective on a model. Just as there is not a single data format that will be able to satisfy all use requirements (Vitali 2016), it is hard to imagine that there can be one neutral

satisfying interface for a scholarly edition, even when a shared underlying model is used. While a particular group of scholars may agree, for example, on a graph-based model as a good representation of text, the interface preferences of each will be an expression of what they individually intend to do—what argument they intend to make—with that model. For instance, the presence of an interactive collation tool is linked to the argument that the collation is a changeable thing, or a matter of interpretation for the scholar-user. Should the text be read, and examined, in the form of a graph? Such an interface relates to the argument that a graph model is essential to understand the nature of the text. Yet another form may incorporate Jupyter and D3 notebook views for scholars to use and tweak as they will, which stresses a meta-argument: that the editor's own argument belongs solidly in the constitution of the data and access to that, and has no place interfering in the user experience.

Thus the possible interfaces for a scholarly edition differ, sometimes radically, even though they are all expressions of the same underlying model. Nevertheless as soon as we consider our requirements for an interface to the edition, the user requirements and certainly their aesthetics start to differ, and even conflict. And they justifiably should as these conflicts in our view represent various possible arguments about the text. As a consequence we advocate in this paper, not for a set of guidelines or requirements for digital scholarly editions or their interfaces, but rather that editors explicitly consider the semiotic significance of any interface element they provide—to reflect on what aspect of the argument it express, and how that is adding, or perhaps subtracting, from the argument they want to make.

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Evaluating the use of digital scholarly editions: a focus group.

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Digital editions are becoming more and more important for the work of scholars in many fields of the Humanities. Yet, not much is known on how the end users benefit from Digital Editions in contrast to paper editions, what kind of Digital Editions are the most useful and how Digital Editions can be systematically improved. To answer these questions, we collected qualitative data, through a hybrid focus group with humanities graduate students participants. Open task scenarios were designed to explore accessibility and navigability of three models of interfaces of scholarly editions. Our key result is that while Digital Editions are seen as useful, leveraging that usefulness can be difficult from both a conceptual and technical perspective.

The use of digital scholarly editions is, so far, an underrepresented research area. While there are many reports on user-studies for a variety of digital and physical resources—for example, library, information science, and digital archives —we found only just a few matching our topic of scholarly digital editions. However, even cursory inspection of the subject matter reveals that not all digital editions are ideal in their usability—especially considering the high standard young users have, having grown up using professional software from giants like Apple, Microsoft and Google; which, despite what many frustrated users may think have all undergone extensive user testing and subsequent changes to the user interface.

From watching what users do in the interaction with resources, we can gain important information to influence development and implementation; on the other hand, little empirical information has been provided for the field of scholarly editing. We are engaging with studying the use of digital scholarly editions, by watching what specialists users do in interaction with different online editions.

To investigate this matter further, we conduct a competitor analysis with different users to provide insight into behaviour—and differences in behaviour, prompted by different design choices—in an attempt to substantiate a usability assessment. For this analysis, we chose samples from different well-designed digital scholarly editions, designed tasks specific to these editions, confronted humanities specialists with these tasks, and

analysed quality of use in relation to efficiency and effectiveness. The details of this experiment and its results are the main subject of my talk.

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6. User oriented approaches I

User Interface Design and Evaluation in the Context of Digital Humanities and Decision Support Systems

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Digital humanities initiatives play an important role in making cultural heritage collections accessible to the global community of researchers and general public for the first time. Further work is needed to provide useful and usable tools to support users in working with those digital contents in virtual environments. The CULTURA project (2011-2014), a European FP7 project in the field of cultural heritage and digital libraries, developed a corpus-agnostic research environment integrating innovative services that guide, assist, and empower a broad spectrum of users in their interaction with cultural artefacts. The individual services offer powerful and novel functions in the areas of normalisation and entity extraction, the derived models of the content allow visualisation and rich personalisation of content, as well as sophisticated search and browsing functionalities, and annotation and collaboration features. Two collections were used for testing and deploying the CULTURA system, the 1641 Depositions collection (witness testimonies about experiences of the 1641 Irish rebellion) and the archive of the Patavinian Scientific Images (images and texts on botany, astrology, and medicine elicited from ancient manuscripts).

For investigating the quality and benefit of the CULTURA system and its user interface an evaluation framework was developed, which explicitly considered the evaluation questions specific to the objectives of this research environment. This framework served as a common ground for trialling the CULTURA environment with a wide user spectrum, including the interested

public, students, and experts in the field. Based on the consideration of the interactions and relations between user, collection contents, and the CULTURA system, the main evaluation variables have been defined. In particular, usability, user acceptance, content usefulness, visualisation quality, personalisation quality, and performance have been identified as main qualities to evaluate. The results obtained from several evaluations with the different collections and user groups indicated a generally positive view of the CULTURA environment. Qualitative feedback gathered from users provided useful suggestions for future improvements of the research environment.

The development of the CULTURA system was characterised by continuous engagement and involvement of users. Although the overall tenor of CULTUA evaluation outcomes was definitely positive and valuable information for further refinement could be collected, the question arises, which additional measures can be taken, in order to further enhance the user interface of digital humanities research environments. Apart from pursuing approaches of participatory design, we believe that user interface and system design need to be based on a thorough understanding of the tasks and goals of future users and on a careful consideration of relevant psychological aspects in the context of these tasks. In particular, aspects of human cognitive processing, users' knowledge and competence, as well as other person characteristics are considered to play an important role in users' interaction with and perception of a system.

In the scope of the S-HELP project (2014-2017), a European FP7 project in the field of health care and decision support systems, we elaborated a psychological framework on effective cognitive processing and user interface design. This framework takes into account psychological factors of human perception and information processing. Based on this foundation a set of design principles was derived, which were incorporated in the design and development of a decision support system for emergency management. The overall idea of the psychological framework and the general design principles constitute a generic approach of modelling human-computer interaction and are therefore considered to have great potential to support the design of user interfaces and system features in the context of digital libraries and digital scholarly editions, as well. In detail, these principles are based on aspects of human information processing, Gestalt psychology of perceptual organisation (e.g. similarity principle, proximity principle), as well as personal knowledge and competence modelling. The principles recommend, for example, to visually group related information, to minimise the need for data transformation by the user, or to avoid ambiguity in information presentation. These design principles are meant to guide the design of data-driven user interfaces with the aim of improving the interaction with system features and/or understanding of information. Initial empirical studies suggest the effectiveness of incorporating such principles in interface design on users' task performance and subjective perception, and further studies aim at identifying broader evidence for the usefulness and benefit of this kind of approach for user interface design and evaluation.

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How close can we get to the reader? Co-creation as a valid approach to developing interfaces for scholarly editions?

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In this talk, Jan-Erik Stange, research associate at the Urban Complexity Lab at the University of Applied Sciences Potsdam will share insights about the lab's experience with co-creational methods in different humanities projects focusing on the design of interfaces for archives, libraries and cultural

collections and reflect on how these might be applied to the design of interfaces for digital scholarly editions.

In traditional user-centered design processes the user needs and goals are usually identified by conducting qualitative interviews or focus groups. The results of these studies are then assessed and different user groups with different goals and needs with respect to the planned software are identified. Personas, representative characters for these different groups, are developed with their particular usage scenarios that serve as a template for the software design process. Later in the course of the development users are usually involved again to test software prototypes of different sophistication with them and get valuable feedback on the current status of the design. This is a well-established method that has proven valuable time and again.

However, in the recent past in the design research community other methods for a stronger engagement of users in the design process have been proposed that afford the opportunity to get even closer to users' needs and goals.

Different terms have been used for these newer ways of integrating the user into the design process. The term that has been used for the longest time refers to these processes as participatory design, while newer research usually summarizes these activities under the notion of co-creation or co-design (Sanders et al 2008). As these terms imply, the idea is to include users in the creation or design of new products or services. Popular activities that are considered co-creational are, for example, cultural probes (Gaver et al 1999), co-creation workshops or shadowing (Quinlan 2008).

While shadowing and cultural probes are often a first step to get to know users by closely observing their activities for a set period of time (shadowing) or asking them to record their thoughts and feelings with a set of tools (camera, diaries, postcards etc.) provided by the designers (cultural probes), co-creation workshops intend to bring together all stakeholders in a product development process to get insights about their perspectives and sketching out ideas for the planned product collaboratively. Stakeholders are not limited to the designers and users, but include business owners or researchers as well, for example.

While the value of these methods has been demonstrated in business contexts and co-creation techniques are an important mainstay of many design agencies, there are fewer examples of successful application in science and humanities.

In our experience at the Urban Complexity Lab, we found that especially the application of co-creation workshops can be an important step to develop a common language between humanists, designers and developers and establish a fruitful collaboration over the whole course of a project, enabling a research process that is less technology-driven but also formed by the ideas and needs of the humanists who are the future users of the software applications to be developed.

This talk aims to create an awareness for the viability of co-creation methods for the development of user interfaces in humanities in general and for digital scholarly edition interfaces specifically and proposes them as a promising alternative to the traditional user-centered design methods.

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Design as part of the plan: sustainability in digital editing projects

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This paper aims to discuss where we currently stand as regards design planning in digital scholarly editing, from a project development perspective.

In the last two decades a huge number of digital scholarly editing projects have been developed by introducing and challenging different concepts, methods, workflows, tools and techniques to the textual scholarship community. Although the majority of digital scholarly editions have been typically bound to a project-based logic, very few of them succeed to be developed and operate within a solid project management and product development framework.

Within such an understanding of digital editing projects, usually discussions and decisions regarding (interface) design, functionality and user needs come (if ever) as a final and mere presentational step. In addition, little time, budget and space for experimentation is often left for design *per se* while

the repertoire of possible designing choices or solutions might be further limited due to the technologies used at several previous parts of the process. Such a behaviour, we claim, often has the result of limiting digital editing projects to the sheltered boundaries of the known environment, when it could potentially enhance the value of the final product and help it move towards a dynamic development framework such as the commercial world of web publishing and communication.

The dynamic development framework was borrowed from the software development industry, when it was first mentioned in the '60s and established in the '80s as the *Agile Methodology*. Project Managers adopted it in order to support a more flexible approach and allow for faults to be discovered early in the process and ensure a more successful and functional final product. Agile is very much in vogue now, whilst the waterfall model has been widely abandoned in project management and product development procedures.

We propose that by adopting an agile-oriented workflow in our digital scholarly editing projects we could succeed to implement a robust and flexible design strategy for our digital editions: discussions towards design specifications normally will arise from the very beginning through a medium/technology agnostic approach, succeeding thus to focus on what actually the audience needs/wants to do with the resource, through an iterative development process based on MoSCoW prioritisation. Such an undertaking, liberates the digital editing activity and its outcomes from technological dependencies/changes, facilitates its (future) repurpose for different audiences/uses while ensuring its viability in the long term. Furthermore, in an agile workflow there is plenty room for experimentation, testing, customization and users' feedback plays also a vital role in the whole process.

Due to the interdisciplinary nature of Digital Humanities projects, this approach allows for a better understanding of all roles involved and helps building a common vocabulary where all parties can fully contribute to the success of such research. Technology should eliminate barriers (not be one), act as enhancer and facilitator and be shaped by the content, rather than box it with limitations. Furthermore, the interaction ultimately generated by users is an important outcome that could move the research forward and become part of a constant evolution (eg. interaction generating data to be included then in the project itself, whether for subsequent phases or for results evaluation).

We will support our proposal by introducing the KDL workflow for digital editing projects, that includes both the project management and the development sides and we will discuss where and how UX comes into action and sets the foundations for generating well designed products where the protagonists are users and their interaction with data.

KDL workflow

KDL has adopted the DSDM Agile methodology and, although not suitable for every project, it has proven effective for all the ones we considered viable.

The workflow is a tailored version of the approach mentioned above and identifies the various phases we use to keep a project healthy and on track:

- Pre-project: determine whether a proposal is of interest to the lab.

- Feasibility: analyse requirements at a high-level to check whether it's cost effective.

- Foundation: expand the requirements, define the roles of the people involved and start planning the first increment.

- Evolutionary development: develop iteratively and build incrementally, with constant communication between the parties involved, making sure the development is user centred and content driven. This phase also allows for adjustments, should the focus of the project shift slightly (which accounts for natural change, rather than pretend it doesn't happen).

- Deployment: at the end of every increment test the 'product' and, depending on the status of the project, make a partial or complete product available. Also, consider any issues arisen and manage it to improve the following increments.

- Post-project: work in collaboration with project partners to assess if the desired benefits are met (measure success).

Flexibility and collaboration are keys for this approach to be successful.

Information architecture and design in the workflow

By adopting the workflow above we allow for the design to form early, and often in parallel, with the development and both aspects to be shaped based on the needs defined together by the project team and the development team.

Although Digital Humanities projects might share similarities, each one of them is different. By focussing on the core data of the specific project, we are able to define the information architecture accordingly and every iteration should confirm the evolving product is satisfying the requirements.

Digital Scholarly Editions are ultimately a product aiming for interaction with the intended users, adding value to and enabling research itself. We think that the proposed approach achieves the final objective of producing a tool to present the data and the discussion emerged from the research in all their richness being at the same time well received by the end user.

All the above is not to state that a single approach works for every project, on the contrary, we think that the workflow should be tailored around a project's needs and all parties involved should have a common objective in order for the project to be successful.

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7. User oriented approaches II

"Correspondances" – Digital Scholarly Editions of Letters as Interfaces

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The creation of digital scholarly editions (DSEs) of letters increased during the last years for good reason: scholarly editions of letters benefit – like no other type of scholarly editions – from the new possibilities which arise with the DSEs. They are an example "par excellence" for the fundamental changes in scholarly editing caused by the usage of "Graphical User Interfaces" (GUI) and "Application Programming Interfaces" (API). The reason for this is firstly, that letters have some characteristic features, which strongly suggest the usage of digital methods and interfaces for their scholarly edition. Secondly, scholarly editions of letters are often not read in a linear way, but rather selectively and in "multi-dimensional" ways. Therefore, the shift from the "reader" to the "user", evoked by digital interfaces, meets the demands of a scholarly edition of letters.

The GUI of a DSE, for example, simplifies and enhances the access to the edited letters. Although indexes of names, keywords etc. were already important in printed scholarly editions of letters, certain features of indexes are now used as a main entry point (e.g. on the start pages) of DSEs of letters[1] - together with different filters and faceted search options. With the help of these new features provided via the user interface, the amount of (often textually heterogenous) letters can be limited to a subset relevant for the researcher. Such ways of access to a DSE of letters may also be implemented on the level of a single letter, for instance by listing all entities mentioned in the respective document (persons, publications etc.) in a side column.[2] Thus, the user is led straightly to the text passage relevant for him or her. Therefore, the interfaces of DSEs highly meet the requirements of a scholarly edition of letters. Furthermore, new ways of access to the letters are provided by special visualisations of the edited correspondence. For example, letters could be visualized with regard to the relations among them on a time-filtered

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1 E.g. https://www.briefedition.alfred-escher.ch/briefe/
2 E.g. http://burckhardtsource.org/letter/965?semantic, the editors labeled this "view" as "semantic edition" in contrast to a "philological version". See also http://weber-gesamtausgabe.de/de/A002068/Korrespondenz/A040382

map or in a social network.[3] The visualisations do not create new knowledge, but enable new perspectives and questions on the edited correspondence.[4]

Furthermore, not only the possibilities of access are enhanced but the amount of information presented in DSEs is increased, as well. In contrast to printed scholarly editions, DSEs can present digital facsimiles of the manuscripts.[5] Therefore the letter can be not only investigated as a text, but also as a material object (used paper, spatial distribution of text in a page etc.). The material character of a letter was usually intended by the sender and recognized by the addressee. Before the DSE the materiality of letters could only be examined on the original manuscript.[6]

In addition, the DSE can present the context of a letter in a better way than printed scholarly editions were able to. For example, the (edited or known) context of a correspondence can be graphically displayed with every single letter.[7] Furthermore, also those letters can be referenced from single letters, which were edited in a different scholarly edition. Thus, the DSE can open up the wider communication background of a single letter to a researcher.[8]

Besides this, the example of DSEs of letters shows that an editor should not only design the GUI features carefully, but also the APIs. As already mentioned above, letters always point beyond themselves - regarding their heterogenous content and their belonging to a larger correspondence network. In both cases the (reasonable) limitation of a single DSE of letters is by far exceeded. With the help of APIs (and central web services, like correspSearch[9]) it is now possible to cross these limits and connect multiple single scholarly editions with one another. For this purpose, it is necessary to pay attention to the careful creation of metadata and to their provision via standardized and open APIs (like BEACON files[10] or CMI files[11]).[12]

APIs and related web services like correspSearch offer the possibility to solve some conceptual problems which were discussed in the "Gutenberg Age" for a long time. Examples for such discussions are the selection of the letters to be edited or the handling of already edited letters. With the help of APIs, web services and a corresponding implementation within the respective GUI, letters edited and published somewhere else can be integrated in the DSE. Furthermore, providing metadata across projects and publications enables research on larger correspondence networks.

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3   Like the software "nodegoat" does, see http://nodegoat.net/; nodegoat was developed especially for correspondence projects.

4   See e.g. Biehl et al. 2015.

5   E.g. http://tei.ibi.hu-berlin.de/berliner-intellektuelle/manuscript?Brief001ChamissoandeLaFoye+de#1

6   Cf. Wiethölter et al. 2010.

7   E.g. https://www.briefedition.alfred-escher.ch/briefe/B1182/

8   E.g. http://schleiermacher-in-berlin.bbaw.de/briefe/detail.xql?id=prov1152 (cf. the feature "Briefnetz erkunden" in the top right corner)

9   http://correspsearch.net

10 See https://meta.wikimedia.org/wiki/Dynamic_links_to_external_resources

11 https://github.com/TEI-Correspondence-SIG/CMIF

12 See Strobel 2014 and Stadler 2014.

This paper will point out the features of interfaces (both GUIs and APIs) and discuss how they may solve specific conceptual and theoretical problems of the scholarly edition of letters. Furthermore, the paper will provide some perspectives on the further development of interfaces in DSEs of letters.

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Encoding and Designing for the Swift Poems Project

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We at the Lafayette College Libraries aim to detail our work on a digital scholarly edition for the Swift Poems Project (SPP)[1]. This Project, led by Professor Emeritus of English James Woolley of Lafayette College, and Associate Professor of English Stephen Karian at the University of Missouri, has as its objectives the aggregation, transcription, and critical annotation of the poetic works of Jonathan Swift. Beginning in 1987, the SPP, using the DOS-based word-processing software called Nota Bene, has amassed more than 6500 digital transcripts of Swift's poems as they stand in eighteenth-century

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1 http://digital.lafayette.edu/collections/spp

printed and manuscript sources. In 2012, the National Endowment for the Humanities awarded the SPP a Scholarly Editions Grant to prepare a digital archival edition to support the SPP's forthcoming printed edition, Cambridge Works of Jonathan Swift (Cambridge University Press)[2]. For the purposes of developing this digital edition, Lafayette College's Digital Scholarship Services (DSS) department has automated the encoding of all SPP transcriptions into a TEI-P5 schema. We intend to preserve these resources within the institution's digital object repository, on top of which we are developing an interactive user interface (UI) for the digital edition. For this project, James Griffin has been the primary application designer.

As Professors Woolley and Karian aim to derive the genetic relationships between textual variants for related poems, DSS has sought to design and integrate a collation engine into the digital edition's user interface. More specifically, our collation engine generates the Levenshtein distance[3] between keywords and lines for any set of variant texts analyzed, then renders a heatmap visualization of these distances and extracts keywords for the analysis using a number of different tokenization algorithms.

Throughout the processes of encoding, designing, and implementing the required interface components, Professor Woolley and James have worked in a highly-collaborative manner during weekly iterative feedback sessions. This presentation aims to outline our process of data cleaning, quality assurance, and design and implementation of an information architecture to support automated encoding into the TEI-P5 schema. Further, it also aims to explicitly outline how these methods influenced the design specifications identified for the web application underlying this digital scholarly edition, how the principles of user experience design for the UI intersected with the aforementioned encoding process, and the points of both success and failure which emerged throughout the life cycle of this project. Finally, it aims to briefly outline where precisely the repository integration could potentially provide a set of web application programming interfaces (API's) for more extensive discovery of these TEI-encoded resources (particularly, with reference to the exposure of relationships between textual entities as linked data on the World Wide Web).

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The Editor in the Interface. Guiding the User through Texts and Images.

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In discussions of the interoperability and reusability of today's Digital Scholarly Editions, the interface is often viewed as the user's worst enemy (e.g. Robinson 2013). This sentiment goes back at least to the year 2003, when Peter Robinson published his influential paper: 'Where We Are with Electronic Scholarly Editions, And Where We Want To Be'. In that paper, Robinson made a plea for editors to put their data on the internet 'in a manner that allows it to be appropriated by others, augmented, corrected, infinitely reshaped' (paragraph 37). In this respect, it can be more useful to offer an API (Application Programming Interface) for the edition than to offer a single, fixed interface around the materials, because it makes it easier for programmers and developers to reuse and repurpose the edition's data. And indeed, it is important to keep in mind that while the interface allows the user to interact with the data through the tools that it offers, to a certain extent it also inevitably limits this interaction through the tools that it doesn't. For those who want to use the edition's data for their own research, and query it in new, unforeseen ways, the edition's interface will often act as a barrier rather than as a gateway between the user and the data. Nevertheless, this approach to scholarly editing betrays a certain bias towards what may be called the edition's 'meta-users' -- users who will want to reappropriate the edition's data -- and this may not be the audience the edition is trying to reach.

If we regard the (Digital) Scholarly Edition not just as a text, but as an argument about that text (Eggert 2013), then the primary audience for the edition will rather be the scholars the edition is trying to persuade. This

means that the users the editor will want to cater to first, will not be 'meta-users' but rather what may be called 'advanced users' -- (textual) scholars who already have some degree of familiarity with the material (or similar materials). These users are especially interested in learning more about the content of, and links between, the edition's individual documents, and about the implications of the editor's interpretation of those materials for our broader understanding of the text. For those users, who will not necessarily know how to deal with raw data or an API, the interface will be a friend rather than an enemy: a means of interacting with the edition's materials, and of assessing the editor's interpretation of those materials. This is where the design and interface become such important aspects of the edition. In many ways, the interface has become the Digital Scholarly Edition's new paratext: not exactly part of the edited text itself, it still has an undeniable impact on the way the user reads and understands the edition. This turns the interface into an important place for the editor to convey her views on the material.

After examining how the interface may convey the editor's interpretation of her source materials, this paper will argue that the quality of the edition's digital facsimiles is as important an aspect of the edition's interface as the quality of their transcriptions. If we agree that the editor's accountability is more important than her so-called 'objectivity' -- if this is indeed something that can be achieved in the first place (Pierazzo 2015, 7), the user will need to trust that the edition's facsimiles are as accurate and qualitative as the transcriptions she is comparing those images to. And it is exactly in the interface that these two aspects of the edition meet.

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8. Poster Session

Designing a graphical user interface for digital scholarly edition of Freising Manuscripts

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The Freising manuscripts (Brižinski spomeniki) are the first recorded occurrence of the Slovenian language, written closely before the year 1000. The Institute Of Slovenian Literature and Literary Sciences of the Research Centre of the Slovenian Academy of Sciences and Arts (ZRC SAZU) has published, in 2007, a digital scholarly edition following the TEI XML guidelines, which is published on the eZISS (Digital critical editions of Slovenian literature) project website (http://nl.ijs.si/e-zrc). The static HTML presentation serves a basic purpose to showcase the information, different transcriptions, facsimile images, sound recordings, and scholarly commentaries. However, the current website of the Freising manuscripts (and similarly the whole eZISS project) is visually outdated and very difficult to navigate. To address this issue, we have been exploring new, modern ways of interacting with the TEI XML edition.

By analyzing existing digital scholarly editions (in the TEI standard) produced by prominent research institutions worldwide we have identified a common problem: the end user has trouble navigating and finding content on the sites that present TEI XML sources. This is especially problematic because the content on these websites is typically structured in a complex, nested way. Another visible flaw is incompatibility of these websites with mobile screen devices, which creates an unappealing user experience. Overall, the websites mediating TEI documents haven't been upgraded in years, many of the sites appear dated and some links just don't work. In this paper we will present the problems that we have encountered when designing a friendlier, technologically up-to-date user interface for the Freising manuscripts website.

The first major issue that we tackled was the site's navigation. To solve the problem we had to figure out the existing web of links and subpages that the current presentation site holds and then we had to organize the content in new, clearly defined and related groups that are presented to the user in a structured way. We have turned to the original source files (scholarly edition

in XML) and built a presentation system that facilitates an easy approach to all the information in the electronic edition. We implemented a solution with menus, because we wanted the user not to become disoriented when choosing to view (only) selected contents. In addition, any scrolling action is indicated with an animation, the pages hold visual and graphic representations of where extra content is located, and the location within the site-map is always shown which tells the user exactly what he or she is currently viewing.

We used the principles of graphic design and user interface design to show information on screens of different devices as a visually coherent system. The selection and use of typographies of different sizes, the selection of an adequate colour scheme, the spatial arrangement of content, use of grid systems, formal consistency of all graphical elements, hints about interaction, these are the building blocks of a well-designed, meaningful and intuitive interface.

We have developed an interface-system that facilitates the comparison between several representations, transcriptions and translations of Freising manuscripts, since this is the primary use of the elements of this scholarly edition. We have proposed viewing options for predefined user groups, such as a non-scholarly user that would like to see the visual appearance of the documents and listen to the (reconstructed) sound of Slovene language from the 10th century, or the use in curricula that juxtaposes the critical transcription with the transcription in contemporary Slovene. By ticking the checkboxes for different transcriptions and translations the scholarly user can activate as many parallel presentations as necessary for research purposes. We have tested several arrangements of parallel content presentation and argued for the best solutions.

With the project we will hopefully be able to present this very important cultural information in a more organized and attractive way, useful for scholarly and general audiences, while also proposing a solution for any similar TEI XML electronic editions.

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Thinking About Users and Their Interfaces: The Case of Fonte Gaia Bib

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Launched in 2009 by the Pierre Mendés-France, the Stendhal University and the CADIST Language, Literature and Italian Civilisation of the University library of Grenoble, Fonte Gaia[1] is a French-Italian project. It aims to gather French and Italian researchers in a network of exchanges and debates about the Italian studies in the digital era. It is composed by a blog (FGBlog[2]) and a digital library (FGBib[3]). These embodiments are technically independent, but they share the same scientific goal: allowing the italianists to be both readers and authors of the contents they access, whether it be through the writing of blog's posts or the enrichment of the contents of the digital library.

FGBib is a 2.0 scientific digital library. Its development is based on a partnership between researchers and librarians and aims to become a reference digital library for the whole community of the Italian studies. For that purpose, it will offer digitized and harvested books, digital scholarly editions, enriched and commented by the users, as well as a digital catalogue and digital exhibitions. The diversity of the contents reflects the diversity of the targeted public of FGBib, i.e. a mixture of lay and specialist public. To allow its public(s) to interact with the content in innovative ways, FGBib wants to develop collaborative and SLE services, which are not very common in the landscape of the digital libraries.

Therefore, the user is at the heart of the reflections of FGBib, which brings general questions about human-machine interactions: what kind of infrastructure do we have to build? How do we involve the users? Who are the final users: is it us, someone like us, or non-academic people? At the beginning of any project, we believe we know the needs of the users, but how can we know what they really want? Is it up to the developers to offer services to the users (top-down) or to the users to ask for services (bottom-up)?

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1 *Fonte Gaia* project's presentation : http://fontegaia.hypotheses.org/projet-fonte-gaia-2
All URLs have been accessed on 29 June 2016.
2 *Fonte Gaia Blog* : http://fontegaia.hypotheses.org/
3 *Fonte Gaia Bib* presentation : http://fontegaia.hypotheses.org/fg-bib

These questions, and particularly the last two, lead the development of FGBib and have determined the use of a user studies approach for the project. FGBib has the specificity to have, before its launch, already a strong core of stakeholders, embodied by the readers of FGBlog and the partners of the project. The goal is then to lean on these potential users and then to enlarge to other communities. To do so, an online questionnaire has been distributed via the blog and on the social media channels of the project to target the readers and the partners, as well as on French, Italian and English DH mailing lists and through librarians' networks. The users' profiles, sketched by the questionnaire, will be completed by interviews, focus groups and usability tests using the first version of FGBib as a benchmark. All the gathered data will allow us to define different profiles of users and to elaborate new tools that will be submitted to the judgement of a panel of users.

Through its digital library, the Fonte Gaia project is then also an open space of reflection and experimentation, as illustrated by the organisation of the first Fonte Gaia workshop by Elena Pierazzo on December 2015. Called "Digital editions interfaces: technologies, researchers and users", this workshop gathered the people in charge of digital editions projects from Grenoble, Lyon, Paris and London, as well as librarians and developers, to think about the links between users and interfaces, and to produce a first state of the art. The result of all these discussions have been recorded in a white paper[4] and feed the Fonte Gaia project as a starting point of all the reflections.

This poster will introduce the FGBib digital library and the way it develops new services in partnership with users to build a useful and usable interface.

References

- Deegan, Marilyn, and Willard McCarty, eds. 2012. *Collaborative research in the digital humanities: a volume in honour of Harold Short, on the occasion of his 65th birthday and his retirement, september 2010*. Ashgate. Farnham.

- Dobreva, Milena, Andy O'Dwyer, and Pierluigi Feliciati, eds. 2012. *User studies for digital library development*. London: Facet Publishing.

- George, Carole A. 2008. *User-Centred Library Websites. Usability Evaluation Methods*. Oxford: Chandos Publishing.

- Papy, Fabrice, ed. 2007. *Usages et Pratiques dans les Bibliothèques Numériques.* Paris: Hermès science publications.

- Ridge, Mia. 2014. *Crowdsourcing Our Cultural Heritage*. Farnham, Surrey: Ashgate.

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4   "Fonte Gaia, un espace ouvert de réflexions : retour sur l'atelier du 4 décembre 2015", *FGBlog*, http://fontegaia.hypotheses.org/1765.

II. Programme Schedule

Day 1: Friday, 23.09.2016

09.00   Welcome

Keynote

9.30   Dot Porter, University of Pennsylvania
            What is an Edition anyway? A critical examination of Digital
            Editions since 2002

10.30   Coffee break

Session 1: Readability, Reliability, Navigation

11.00   Ingo Börner, University of Vienna
            The navigation of Digital Scholarly Editions - A corpus study

11.30   Eugene W. Lyman, Independent Scholar
            Digital Scholarly Editions and the Affordances of Reliability

12.00   Christopher M. Ohge, University of California,
            Berkeley
            Navigating Readability and Reliability in Digital Documentary
            Editions: The Case of Mark Twain's Notebooks

12.30   Lunch break

Session 2: Visualisation, Typography and Design I

14.30   Elli Bleeker and Aodhán Kelly, University of Antwerp
            Interfacing literary genesis: a digital museum exhibition of
            Raymond Brulez' Sheherazade

15.00   Hans Walter Gabler, Ludwig Maximilian University of

Munich, and Joshua Schäuble, University of Passau

Visualising processes of text composition and revision across document borders

15.30 Richard Hadden, Maynooth University

More than a pretty picture: network visualisation as an interface for Digital Scholarly Editions

16.00 Coffee break

Session 3: Visualisation, Typography and Design II

16.30 Shane A. McGarry, Maynooth University

Bridging the Gap: Exploring Interaction Metaphors That Facilitate Alternative Reading Modalities in Digital Scholarly Editions

17.00 Piotr Michura, Academy of Fine Arts in Krakow

Typography as interface – typographic design of text visualization for Digital Scholarly Editions

Keynote

18.00 Stan Ruecker, IIT Institute of Design

Task-Based Design for Digital Scholarly Editions

19:15 Reception

Day 2: Saturday, 24.09.2016

Session 4: How to program the interface

9.00   **Hugh Cayless, Duke University Libraries**
Critical Editions and the Data Model as Interface

9.30   **Chiara Di Pietro, University of Pisa, and Roberto Rosselli Del Turco, University of Turin**
Between innovation and conservation: the narrow path of UI design for the Digital Scholarly Edition

10.00   **Jeffrey C. Witt, Loyola University Maryland**
Digital Scholarly Editions as API Consuming Applications

10.30   Coffee break

Session 5: Theoretical implications

11.00   **Arndt Niebisch, University of Vienna**
Post-Human Texts? Reflections on Reading and Processing Digital Editions

11.30   **Peter Robinson, University of Saskatchewan**
Why Interfaces Do Not and Should Not Matter for Scholarly Digital Editions

12.00   **Tara Andrews, University of Vienna, and Joris van Zundert, Huygens Institute for the History of The Netherlands**
What Are You Trying to Say? The Interface as an Integral Element of Argument

12.30   **Federico Caria, University of Rome La Sapienza, and Brigitte Mathiak, Cologne University**
Evaluating digital scholarly editions: a focus group

Poster session

12.30   Alen Ajanović, Pija Balaban and Narvika Bovcon, University of Ljubljana
Designing a graphical user interface for digital scholarly edition of Freising Manuscripts

Elina Leblanc, Grenoble-Alpes University
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Lunch break

Session 6: User oriented approaches I

14.30   Christina M. Steiner, Alexander Nussbaumer, Eva-C. Hillemann and Dietrich Albert, Graz University of Technology
User Interface Design and Evaluation in the Context of Digital Humanities and Decision Support Systems

15.00   Jan Erik Stange, University of Applied Sciences Potsdam
How close can we get to the reader? Co-creation as a valid approach to developing interfaces for scholarly editions?

15.30   Ginestra Ferraro, King's College London, and Anna Maria Sichani, Huygens ING
Design as part of the plan: sustainability in digital editing projects

16.00   Coffee break

Session 7: User oriented approaches II

16.30   Stefan Dumont, Berlin-Brandenburgische
           Akademie der Wissenschaften
           "Correspondances" – Digital Scholarly Editions of Letters as
           Interfaces

17.00   James R. Griffin III, Lafayette College
           Encoding and Designing for the Swift Poems Project

17.30   Wout Dillen, University of Borås
           The Editor in the Interface. Guiding the User through Texts
           and Images

18.00   Closing

Organization

Local organizers and programme committee:

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