

## BETWEEN MARKUP AND DELIVERY; Or Tomorrow's Electronic Text Today

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"Technologies are not mere means to ends; they also shape worlds." ~ Andrew Feenberg, *Transforming Technology: A Critical Theory Revisited* (2nd ed. of *The Critical Theory of Technology*, 2002), p. 124.

The Orlando Project has created an electronic history of women's writing in English from its beginnings to the twentieth century. The delivery of its intensively tagged materials poses unique challenges to the design of a web site, given the prevailing wisdom on web usability. The complexity of the project's SGML tagging schemas for the intellectual content of the project's materials answers the need for electronic material to make its semantic content more accessible to search and retrieval, and potentially gives users considerable freedom to determine their way through the textbase. However, this very complexity may be daunting for its user community, which will be primarily composed of literary scholars. This discussion outlines the strategies the Orlando Project adopted for meeting this challenge, providing a snapshot from 2002 when

the project was in the midst of intensive thinking about the overall design of its delivery system.<sup>2</sup>

The project has employed Standard Generalized Markup Language (SGML) to create a scholarly history of women's writing in the British Isles, producing what John Unsworth calls "originally digital scholarship" that encodes both its formal and intellectual properties. A typical Orlando document includes tags serving a range of ends. There are tags for Divs and titles (for instance, <Div0>, <Div1>, <Div2> and <title>), which would be familiar to users of the Text Encoding Initiative Document Type Definition. There are also tags and attributes having to do with the properties of texts or modes of textual production or with crucial aspects of a writer's life and career. These include: attitudes to writing; birth; collaborative authorship; earnings; intertextuality; marriage; mode of education; occupation; pseudonym; theme or topic; type of press; and travel. (This sample comprises around 5% of the entire tag set.) These tags are unique to the project's specialized Document Type Definitions (DTDs), which took several years to devise, implement, test, and revise.

The Orlando Project is thus a test case of what kinds of secondary scholarly resources can be created using the tools that have proven so fruitful for primary textual editions.

Orlando addresses the need to make the semantic context and content of information more accessible to search and retrieval by electronic agents. The difficulty faced with retrieval of electronic materials generally is aptly described by the University of Guelph's chief librarian Michael Ridley, adapting Paul Saffo's metaphor of the "electronic piñata": one has potential access to a great quantity of goodies, but in attempts to get at them, one is blindfolded and has recourse only to blunt tools. Success means getting showered with more than one can reasonably deal with.<sup>3</sup> Orlando, alternatively, is like a humungous box of chocolates. It will provide one of those keys to tell you what you get from each section in the box. However, the sheer volume and diversity of chocolates in this case becomes a problem: the diagram itself is too large and complex, and its format too novel, to be comprehended immediately, not to mention the fact that the shapes and contents of these chocolates are unfamiliar to the consumer. This delectable textbase mapped out in SGML is largely composed of author-centred accounts, in relatively full contextual prose: these are the *petits recits* – sadly not *petits fours* – that Alan Liu has identified as typical of new literary history.<sup>4</sup> But these are *not* very "petit" in terms of the usual secondary material available for web use by students and scholars. Some of the larger files in raw SGML exceed 150K, the size of a lengthy essay, they are densely interrelated and interlinked, and the complexity of the tagging that structures them comprises a formidable challenge to the design of a delivery system.

Together the project's DTDs comprise a complex knowledge representation unique to Orlando; indeed, given the methodological debates and lack of

standardized vocabulary in our field it could not but be unique. It takes new research assistants over a hundred hours (some in face-to-face training) to become familiar enough to begin to write in it, and longer to become truly proficient. These are highly motivated users with dedicated time for this purpose, undoubtedly a contrast to most users we shall have. One of our graduate students, Paul Dyck, reflected on the problem this complexity poses for user accessibility:

To me ... these dtds employ a grammatical system that is complicated and nuanced, even if it is hierarchical and structurally simple.... I think of it as another dimension to the writing, a second rhetorical layer.... My hunch is that the ultimate worthwhileness of our tagging depends on how well we can build our understanding of it into the tools our users will use to access our material. I think that the problems we encounter are evidence that we are using the tagging system to describe important things – the tools will have to translate this language that we have learned to the reader, who doesn't know it. (E-mail to the author)

Between markup and delivery, in other words, comes the process of trying to communicate a complex system of knowledge representation so that the uninitiated will be able to make use of it. This would be a sufficiently daunting prospect quite apart from the current understanding about what constitutes web usability.

## Usability

There is considerable consensus about what makes a website 'usable.' Users personify impatience: web page text should be short and snappy so the message doesn't get lost or the user bored enough to click away from the site. The discourse of marketing dominates usability advice books, including those promulgated by guru Jakob Nielsen, who advises "Be succinct. Write no more than 50 percent of the text you would have used to cover the same material in a print publication. Write for scannability" (*Designing*, 101). This is hardly encouraging to a group of scholars who turned to electronic text to answer the call for more diverse and contextualized literary historical narratives.<sup>5</sup>

Little usability work has focused on scholarly sites, despite a professed recognition of heterogeneity in the web community. We need studies that will try to assess the differences between the practices of web users who are searching for products or the weather, and those of academic users using web-based research tools. Nielsen, in the context of a discussion of e-learning, perceives significant differences flowing from scholarly or pedagogical purpose, to the extent that keeping it short may run counter to a site's fundamental aims. His conclusion, however, is highly ironic, in that he turns to print media as the solution: "I think

a book is useful if you have large amount of information. It is never going to work online” (“Jakob Nielsen on e-learning”). This seems to me unwarrantedly pessimistic. Nielsen himself observes elsewhere that in his studies only about 10 percent of users ever scrolled, *except* for “users who had arrived at a destination page with an article that they found interesting or important to their work.”<sup>6</sup>

Web pages are used in particular ways as a result of complex interactions among the material conditions of users, the state of technology, the design and content of web sites, and the larger discursive and institutional frameworks within which an encounter with the web takes place. As John Seely Brown and Paul Duguid argue, social networks and practices surrounding encounters with new technologies or ideas have greater impact on the outcome than “objective” value (156 and *passim*). Current prescriptions for usability have emerged from a historically specific moment – the e-commerce boom (and bust) – and their very embeddedness in market ideology seems to narrow their outlook. Brown and Duguid’s more extensive historical analysis leads them to regard technological interactions as more malleable and subject to intervention than usability analysts.

I don’t mean to suggest that changing web user practices is a straightforward or trivial matter. Indeed, analysis such as Brown and Duguid’s suggests that social transformation, broadly conceived, might be required to effect a major shift. However, their conclusions also suggest that different investments in technology and different user communities can lead to quite diverse technological cultures. It seems to me pertinent to ask to what extent current wisdom regarding web usability applies to scholarly sites. By no means do I discount usability study wholesale, but as we have worked from markup towards delivery on Orlando we are increasingly aware of a tension between striving for apparent simplicity and user-friendliness, on the one hand, and reducing user choices and critical awareness on the other. My argument here is that scholarly projects working towards web delivery of their material should conceive of their work as a cultural intervention, an attempt to develop forms by which scholarly prose and deliberation, the attempt to foster *knowledge* rather than deliver packets of *information*, can be more hospitably housed on the Web. Scholars should not passively accept prevailing views of the limitations of web pages or of users, at least not without testing them, particularly since in a pedagogical context we have some control over the environments in which engagement with our materials takes place. We know from other situations that frustration in some contexts prompts critical thought. So, as John Zuern has argued:

Insofar as the material of history, like the materials of most humanities and social science disciplines, presents interpretive challenges, it resists the transparency and univocality that are the stated goals of most information designers focusing on commercial projects. A great deal of the information analyzed in these fields tends to resist schematization in different ways, and this very resistance to schematization drives our enquiry and encourages

the production of knowledge. Any assessment of the “usability” of a data display that is intended as a teaching tool must account not only for the ease and speed of the reader’s access to the information ... but also for the potentially productive effects of the resource’s necessary failure to present the information “immediately” and “objectively.” (9)

The production of digital materials for students and scholars in the humanities then may turn out to involve different design rhetorics and generic conventions than market-driven production.

Generic expectations of web sites are of course generated by users’ previous experience of other sites. Sadly, despite predictions to the contrary, the web has not lent itself to radically innovative design. As many have observed, the print paradigm is remarkably persistent in electronic publishing, and notwithstanding the capacity of computers and their powerful linking mechanisms, the texts that we – and particularly we humanists – read online are often comfortably similar to those we read on processed trees. This makes good sense: they must be legible to a community deeply invested in the technology of the book and relatively inexperienced in the technology of electronic knowledge representation. Our work with a group of pilot users on the Orlando Project in 1999 found that the expectations of our anticipated core users were defined quite narrowly by their previous experience of the web.

The challenge, in a nutshell, is this: how to deliver a new mode of organizing and delivering electronic text so that students and scholars will be *lured*, slowly but surely, into using the more complex aspects of the Orlando Project’s textbase? The remainder of this paper will provide an overview of the project’s delivery strategy.

We anticipate six major stages in the Orlando Project’s progress towards delivery:

- 1) *Internal expectations*: General expectations of what we wanted the tagging to be able to accomplish were there from the start of the project in 1995 among the core team members. As we developed the DTDs, we had “blue sky” discussions about what we might be able to do with the tagging. However, we were aware even then that the technological possibilities and constraints associated with the kind of markup we were devising were moving targets. It therefore seemed futile to get too specific about delivery plans at that stage. Given the speed with which the technologies of electronic storage, delivery, and representation have been changing, this assumption has been borne out. For instance, the advent of XML(Extensible Markup Language)-capable Internet browsers, which looked uncertain when the project was developing the DTDs and beginning to think about its delivery system, has made delivery over the web feasible in a way that we could not count upon

initially. So many of the team's expectations for delivery were left implicit, and this had the important positive effect of freeing the development of the DTDs from being driven by technology-specific ends.

- 2) *Pilot Users Group and preliminary mock-ups*: Early in our considerations about how we might deliver our materials, we set up a small group of users from our anticipated user communities and showed them some mockups of a delivery system in order to get some early feedback. As mentioned above, this process suggested that users are largely constrained by their experience of existing technological tools such as search engines. Again, this makes delivery expectations something of a moving target, to the extent that scholars are becoming more technologically literate, and their experience of technology is broadening as more crucial research tools go electronic.
- 3) *Design and implementation of Delivery System 1.0*: Once the DTDs were stable and a critical mass of completed documents had been produced, the team turned in earnest to the task of producing a delivery system. This is a collaboration of the literary team, a computer scientist, a private web consultant, a graphic designer with expertise in literary studies, an in-house systems analyst, and a library and information science specialist. This, the stage at which the project is working at the time this paper is being written, is an intensive process of coordinating diverse expectations and ideas about the delivery system with technical requirements and limitations, design desiderata, and the inevitable constraints of time and money. The aim is to achieve a delivery system that, while it cannot fully plumb the potential of our rich tag set, offers users effective access to the textbase material in ways that convey its power and further potential.
- 4) *Pilot Testing*: The first version of the delivery system will be tested with a limited group of users to gain feedback as a basis for further refinement.<sup>7</sup>
- 5) *Further refinement*: Based on the results of user testing and further specifications from the project team members to expand on the capability of the delivery system, we will produce a revised and expanded version.
- 6) *Public release*: Planned for early 2006, this will be imminent or accomplished by the time this essay is in print.

**Figure 1**  
Sketch of Orlando  
Project home page.



As is clear from the outline above, this discussion describes work very much in progress (and because it is in progress the illustrations here show some variation in design). As far as implementation goes, the project has achieved basic functionality in the display of the core material in the textbase, and the hyperlinking of our “core” tags. Design is proceeding in tandem with the implementation, so style sheets are still under development. Some of what this paper discusses is sketchwork towards delivery that remains to be debated by the team as a whole. This is the context for the following discussion of major components of the delivery system.

## Home Page and Entry Points

The home page has two navigational axes. The vertical one on the left provides basic information about the project. The horizontal panel is persistent and provides a prospect of all the major ways of accessing the textbase, which we call “entry points.” These are offered for directed users who are coming to the project to seek particular types of material or answer particular questions. The remainder of the home page offers a browse feature which will take users immediately into project materials. This is an automatically generated set of links to our materials, designed to engage less directed users and prevent the page from being static. These will change regularly.

Each entry point has an explanatory gloss that appears as a rollover when the cursor hovers over the option. In the sketch provided here, the “People” entry point rollover is revealed – “Find people by name, historical period, occupation,



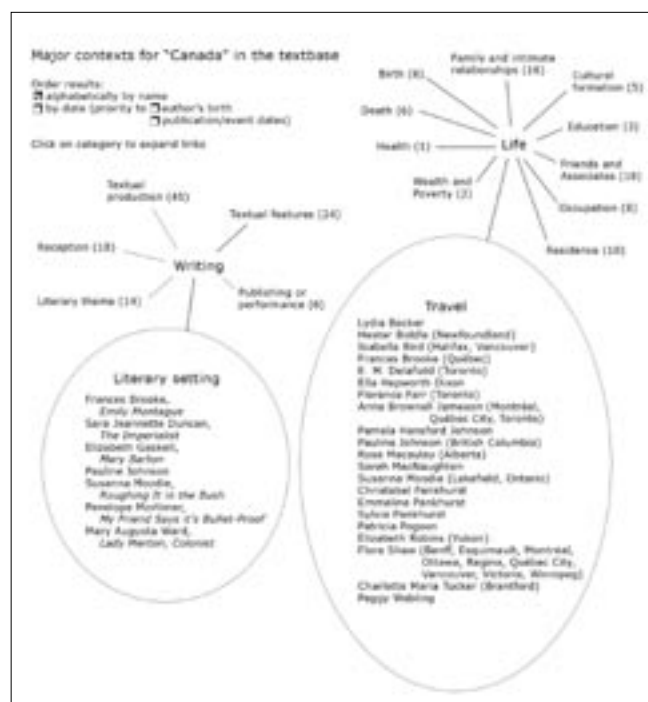


Figure 3  
Hyperlink organization.

organizational links, or intertextual relations”; “Identities and Politics – Focus on cultural and political issues”; “My Orlando – Search on a special day, such as a birth date, or on other points of personal interest.” This last is a bid to interest general or non-academic users.

The entry points are thus conceived to begin educating the user, through a variety of approaches, about the extent to which inquiry into the textbase can be approached by various means, and start familiarizing her with some of the concepts embedded in the tagging.

### Tag-Sensitive Hyperlinking and Searching

The organization of hyperlinks will further familiarize users with the structure of the DTDs, in a way that will help educate them towards constructing their own searches based on the tag set. All tagged names, dates, places, titles of texts, organizations, and topic entries are automatically hyperlinked. This produces a densely interlinked body of text, but the disadvantage is that, with frequently occurring terms, the multiplication of links threatens to become unmanageable

and the question of what the target of any particular link ought to be becomes unanswerable. In our project, the conceptual tags in the DTDs enable us to meet these challenges: we use them to categorize the hyperlinks, provide users with a sense of the different contexts in which the links occur, and in the process provide another way in which users will become familiar with the tagset.

A user who clicks on a hyperlink will be taken to a page that exploits the tagging to provide selected contexts – which vary depending on the tag that is the basis of the hyperlink – for the link’s occurrence throughout the textbase. The user can then make a more informed choice about which link to follow. Figure 3 is a preliminary representation of how the hyperlinks associated with “Canada” might be organized. The user sees the contexts in which the term occurs, and the number of “hits,” and can expand any of the categories to access the links themselves. Again, this provides a sense of the conceptual structure – the tagging – of the underlying documents, without requiring that a user actively employ the tagset, and in this sketch of a possible layout for representing the hyperlinks the tagset structure is laid out spatially.

However, it’s not just a matter of alerting users to the searching and indexing power of the tag set. As Paul Dyck suggested, the Orlando tagging functions as a complex layer of metadata that exists in dialogic relation to the semantic content of the prose that is tagged. Orlando’s tagging is where much of the literary historical work of the project is embedded, from the design of the markup to its interpretation and application in the process of collaborative authorship. If users employ that tagging to plumb the textbase according to their own interests and create their own experiences of literary history, then that work will have borne fruit. Even if they never go so far as to construct an actual search, the use of the tags to organize the hyperlinks means users will employ the markup scheme to navigate the textbase in ways that serve their own purposes; in the process they will become aware of the principles according to which the textbase has been constructed. An ideal user, however, will engage critically with both the markup scheme itself and its application at particular points in the textbase.

I’d like to demonstrate here the difference that critical engagement with the tag set will make, in the context of the representation of identity categories. This was a fraught issue for us in DTD design, and we’ve reflected on the implications of our “cultural formation” tag set elsewhere. In brief, we contend that a multicultural society requires complex and historicized means of understanding how cultural categories function, and this portion of our tag set attempts to represent those categories in an intellectually responsible way that makes it clear that they are historically variable and contested.<sup>9</sup>

Of course, as this context makes clear, categories are not neutral. As Geoffrey C. Bowker and Susan Leigh Star have argued, “Classifications are powerful technologies. Embedded in working infrastructures they become

relatively invisible without losing any of that power.... [C]lassifications should be recognized as the significant site of political and ethical work that they are” (319). A hypertext link is such an act of classification. Two of the criticisms levelled at hypertext have been the opacity of linking criteria and the extent to which links are predetermined by the author/programmer. Orlando’s links will be entirely automated: there are no manual links in the core textbase materials. Hyperlinks are instead generated for all multiple instances of identical names, places, text titles, organizations, and dates, and clicking on a link will have predictable results in terms of destination. One of the great strengths of SGML or XML is that the classificatory scheme is explicit rather than tacit; the structuring of knowledge performed by the markup thus becomes more susceptible to inquiry, understanding, and critique.

Bowker and Star’s argument about classification points up the importance of making the structural principles governing search and delivery as clear as possible. As collaborators in a feminist project working in a field in which literary categorizations have often served women writers badly, we have no desire to present this history and its intellectual structures as value-free or politically disinterested. On the contrary, we want at least a portion of our users to engage with the layer of knowledge representation that is interleaved with and inextricable from the prose we provide. In the interaction, the dialogic relationship between these two layers of signification is the project’s contribution to a new form of literary history.

In short, there is a difference between reading, as a result of a search on the word “Jew” in cultural formation tags of women writers, the following two pieces of text:

Mina Loy was born to an English Evangelical Christian mother and a Hungarian Jewish father.

Mina Loy was born to an <NATIONALITY>English</NATIONALITY>  
<DENOMINATION>Evangelical Christian</DENOMINATION>  
mother and a <NATIONALITY>Hungarian</NATIONALITY>  
<ETHNICITY FORBEAR=‘FATHER’ SELF-DEFINED=‘SELFYES’>  
Jewish</ETHNICITY> father.

The second passage makes, through the categorical function of the tagging and the semantic content of the attributes, several further assertions beyond the prose, including one about Loy’s stance on her heritage. The tagging becomes more interesting still if one realizes that alternate tags might have been invoked in this context. Yet the appearance of raw XML is going to be off-putting and cryptic to most users, no matter how well documented the system might be. So we are aiming to provide for users a sort of “context view” that steers away from presenting users with raw tagged text and yet indicates the presence of the tags

THE ORLANDO PROJECT search on “Jewish” in the context “cultural identities and formation” and “Lives of British women writers”	
22 results	
Charlotte Dacre b. c. 1782 profile	Charlotte Dacre was a teenager when her parents divorced; presumably she was brought up in <b>Judaism</b> until this event; probably she completed her upbringing as an Anglican. She must have been to a greater or lesser extent an outsider in English society, not only because of her Sephardic <b>Jewish</b> Portuguese heritage but because of her father’s highly visible but anomalous character: a Londoner but an ex-street-child and boxer, author of inflammatory political pamphlets, privy to the money secrets of
Grace Aguilar 1816-1847 profile	Both of Grace Aguilar’s parents were presumably white and of <b>Jewish</b> descent; her family belonged to the middle class.  Her father’s family was from Spain and her mother’s family was from Portugal. GA was English by birth, and she was full of praise for her country as a land of tolerance and freedom: “England offers a rest and home of perfect freedom to the exile and oppressed . . .” Much of her writing about Jews served to counter the claims of those such as Thomas Carlyle, who argued that <b>Jews</b> could not be fully loyal to any country except Zion.  GA’s writings treat in detail the <b>Jewish</b> faith to which she strongly adhered, and she often focuses on the persecution and
Amy Levy 1861-1889 profile	Amy Levy was an upper-middle-class Jew from a family which had been English for over a century, though they travelled the world for career purposes more freely than most English people. They thought of themselves as wholly assimilated, and seem to have practised the <b>Jewish</b> religion only sketchily. They occasionally attended the Reform synagogue in Upper Berkeley Street; the children visited Christian churches with their governess.  AL early developed strong erotic attachments to women. She wrote of these openly, but may or may not have expressed them physically.  Being <b>Jewish</b> must have posed problems for AL, problems which seem to have been exacerbated by struggles with an internalised

**Figure 4**  
Context-sensitive  
representation of  
tagged text.

and their relationships to one another within the context of particular portions of the textbase. Figure 4 indicates how a subset of the results produced by a search on “Jewish” in cultural formation might appear.

A close reading of the tagging process over a range of documents reveals a debate, embedded collaboratively in the tagging by a succession of authors, about the tension among Jewish women writers in Britain between shifting notions of Jewishness as racial category, ethnicity, heritage, and nationality.

At times during work on the Orlando Project I have sometimes wondered if our arguments that Orlando would – or *could* – encode its intellectual priorities could be realized. As we move towards delivery, however, it seems that the attempt to do so has taken us, and the electronic textbase we have produced, in directions we can only begin to comprehend at this point in the process. Once the textbase has reached its first phase of completion, we will be able to analyze the implementation of the tag set to consider what our application of SGML has enabled and what it has blocked. But it is clear that the literary history that Orlando is producing is being written in the tagging in some fascinating ways.

The challenge of the delivery system is to allow this added dimension of the text to be accessible to searchers and legible to readers without it becoming overwhelming. To what extent we can do that will be revealed by the impending dialogue between the initial version of Orlando's delivery system and our first group of users.

### Coda (May 2005)

As this volume goes to press, we have completed user testing and the Orlando delivery system 1.0 is in place. Publication is imminent, and the distance between these early ideas and the final product that resulted from the process outlined above, as well as their proximity, will be evident in the first release. Here is a brief summary of developments most relevant to this paper.

Our user testing confirmed one of the central arguments of this paper: that the Orlando Project faces a major challenge in presenting its encoded materials to users, since its complex functionality runs counter to the "click and go" model of web usability. Yet the common demand for more user help and documentation suggested, most encouragingly, that some users are willing to take time to learn how to use the system. Our revisions to the delivery system focused on speeding up query time, providing easier ways to get started, improving user help, and clarifying and streamlining the interface without sacrificing functionality or user choice.

For instance, revisions to the home page (earlier version included here as Fig. 1) include the provision of an overview of "How Orlando Works" and "Quick Tips for New Users," as well as a "Quick Start" option. The latter offers four quick searches: by name, chronology content, text only, or tag content search. In keeping with the strategy outlined in this paper, the system offers these quick searches and uses them to draw the user towards greater complexity. Initiating one of these searches moves the user to one of the three entry points we had the resources to develop fully—People, Chronologies, or Tag Search (formerly Full Text Search)—and displays the results of their query on that screen. The user's quick search terms are displayed in the relevant sections of that entry point's standard search panel, so users are invited to consider how they might refine or revise their search in light of the other options available. However, the Quick Start option has given them access to project materials without first requiring them to grapple with the whole range of possibilities offered by the entry point.

We have further streamlined the interface by reusing screen elements and screen formats as much as possible, so that knowledge of how to use one entry point will be transferable to other entry points. For example, the "Limit by Date" panel visible in Fig. 2 appears (in a revised form) in the same location on

the search panels for each of the entry points. User testing confirmed the desire for carry-over from one entry point to another. For instance, since the People entry point provided a picklist of names, the expectation was that it would be available in the other entry points. The delivery system provides this kind of continuity where possible, and where it does not conflict with the need to keep screens unambiguous and uncluttered.

The biggest design challenge we faced, given the complex functionality of the textbase, was to make visually clear the relationship between the different sections of a search screen: what particular features will do, which features are optional, which mandatory, and which mutually exclusive. Providing effective help and documentation is clearly crucial: users differ on what form of help is most effective but are unanimous in wanting more and wanting it to address various levels of user expertise. User testing also made clear the divergent desires of our two major user communities: literary users tended to want more straightforward access to the textual materials, and computing-oriented users were interested in greater user control and flexibility, such as allowing direct modification of query syntax.

Other changes include the move to a more tabular format for the links screens than is shown in Figure 3. This is a result of factors including the need to meet diverse browser and accessibility requirements, and the decision to design an interface that will work on end-user systems that are less than state-of-the-art. We have also, throughout this process, regularly come up against constraints resulting from undertaking interface development of a dynamic and technically complex XML textbase with relatively slender resources. The first release of the Orlando Project will demonstrate just the beginnings of what might be done with the markup. That in itself underscores the experimentality of the project and the contribution it will make to shifting our sense of what is possible in the electronic representation of humanities scholarship.

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- 3 Saffo popularized the metaphor of the electronic piñata in 1992 in describing the relationship between a thinning paper crust and an electronic core in the shift from paper as storage medium to interface. Ridley's use of the metaphor in his promotion of the Ontario Digital Library initiative emphasized instead the need for better tools to deal with the contents of the piñata.
- 4 Rather fittingly, this phrase from an early draft of "The Future Literary" which was published on the web, is now a "ghost", having vanished from the published versions (to date—the work is deferred but still in progress) of this meditation on the "creative destruction" associated with electronic cultural criticism and new forms of literary history. See also "Speaking of History: Toward an Alliance of New Humanities and New Arts (With a Prolegomenon on the Future Literary)" in *The Laws of Cool*.
- 5 For background on the Orlando Project, see the project's web site at [www.ualberta.ca/orlando/](http://www.ualberta.ca/orlando/); plus [www.epas.utoronto.ca:8080/epc/chwp/orlando/](http://www.epas.utoronto.ca:8080/epc/chwp/orlando/); Susan Brown and Patricia Clements, with Isobel Grundy, Terry Butler, Susan Hockey, Sue Fisher, Kathryn Carter, Kathryn Harvey, and Jeanne Wood, "Tag Team: Computing, Collaborators, and the History of Women's Writing in the British Isles." *Technologising the Humanities/ Humanitising the Technologies. Special issue of Computing in the Humanities Working Papers*, ed. R. G. Siemens and William Winder. *Text/Technology* 8 (1998): 37–52; "SGML and the Orlando Project: Descriptive Markup for an Electronic History of Women's Writing." *Computers and the Humanities* 31 (1998): 271–85.
- 6 Neilsen, *Designing* 112. His studies were of early web users, and his point about scrolling applies most specifically to navigation pages. While the computer mouse and windows environment were relatively established by this point, it would be interesting to investigate whether greater familiarity with the interface and technology, and the introduction of scroll wheels, has had an impact on resistance to scrolling in the interim.
- 7 User testing took place in 2004 and 2005.
- 8 *Plumb Design Visual Thesaurus: Desktop Edition 2.0*. 2003. [thesaurus.plumbdesign.com/index.html](http://thesaurus.plumbdesign.com/index.html)
- 9 Cf. Susan Brown and Patricia Clements, with Isobel Grundy, Terry Butler, Susan Hockey, Sue Fisher, Kathryn Carter, Kathryn Harvey, and Jeanne Wood. "Tag Team: Computing, Collaborators, and the History of Women's Writing in the British Isles." *Technologising the Humanities/ Humanitising the Technologies. Special issue of Computing in the Humanities Working Papers*, Ed. R. G. Siemens and William Winder. *Text/Technology* 8 (1998): 37–52. [www.epas.utoronto.ca:8080/epc/chwp/orlando/](http://www.epas.utoronto.ca:8080/epc/chwp/orlando/); Orlando Project. "Diverse Encoding and Encoding Diversity: Conceptual Markup on the Orlando Project." Three papers entitled "The Hard and the Soft: Encoding Literary History," "Risking E-Race-Sure/Erasure: Encoding Cultural Formations," and "The Anxiety of Encoding: Intertextuality and Feminist Literary History." Digital Resources for the Humanities Conference. School of African and Oriental Studies, London U. London. 9 July 2001.

## Notes

- 1 Other members of the team participating in this stage of the delivery process, all at the University of Alberta, are: Rebecca Cameron and Jane Haslett, postdoctoral fellows, Sharon Farnel, textbase manager, and Jeffery Antoniuk, systems analyst. Web consultant Roland Penner and graphic designer Stan Ruecker have also made significant contributions. I would like to thank Mark McCutcheon, a doctoral student at the University of Guelph, for assistance in the preparation of this paper for publication.
- 2 The temporal present of this discussion is thus 2002, the moment of the Mind Technologies conference, and also that at which the project had turned its attention from an initial focus on markup, production, and the development of systems to support to those activities, to the formulation of an overall strategy for delivery and a set of concrete specifications for the online publication of the project. Technical work towards delivery was well underway at this stage, we had had intensive discussion of the overall design of the system, and were in the midst of developing our specifications. Of the figures provided, figures 3 and 4 are preliminary sketches from 2002; figures 1 and 2 are more advanced sketches produced later from concepts developed in 2002.

