The Digital Play Book: An Environment for Interacting with Play Scripts

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Based on a consideration of the vast majority of electronic texts currently available (especially on the Internet), it would be easy to conclude that electronic texts are merely digital counterparts to print-based texts, albeit in a much more convenient format for indexing (as Google does) and interlinking (as HTML – the common formatting language of the web – allows). Such a conclusion would be a natural and justified perception of how electronic texts are generally represented, but – we would argue – these representations lamentably belie the potential of electronic texts for other types of rich processing and display. Underlying this potential is the fundamental nature of all that is digital, that is, all that is stored as a collection of discreet units of information (bits) and therefore infinitely reconfigurable and modifiable.

For the last few years, we have been experimenting with various mechanisms for exploiting some of the "affordances" (potential capabilities) of certain types of electronic text used by humanities scholars. Many of these experiments have sought to marry our combined expertise in visual design and text analysis with particular attention to the more playful aspects of texts. (Our desire is to create tools that may be useful but also appealing, engaging and sometimes just plain fun.)

Digital Play Book

One such project is our Digital Play Book (formerly called Watching the Script), a computer-based environment for interacting with play scripts (see http://digitalplaybook. humviz.org/). Our interest in working with plays stems not so much from any direct involvement with theatre scholarship and production as from a recognition that play scripts offer a promising opportunity to demonstrate some of the compelling advantages of electronic texts over static, printed texts. In particular, we wanted to explore some of the possibilities of what we call kinetic text: text in movement. Plays seem an ideal choice for experimenting with kinetic representations, since the textual script is arguably only

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a precursor to an embodied, spatially choreographed production (in contrast to other literary genres, where the text itself is the final work).

Although still images of the interface fail to communicate the dynamic essence of the Digital Play Book, Figure 1, The Digital Playbook Environment for *Romeo and Juliet*, serves to illustrate some of the key components of the environment. There is a large square on the right that represents very schematically the stage; this is where characters are shown in motion (when appropriate) while the text of their speeches scrolls by at a configurable speed. The column immediately to the left of the stage also shows the speeches, but we wanted to have the texts legible "onstage" as well so that the eye of the reader/user was saved the inconvenience of jumping unnaturally from the text to the moving representations of the characters. The interface also has an overview column that represents the entire play (or as much as can fit on the screen), where every speech is colour-coded according to the character. This view provides several interesting possibilities for exploring macroscopic features of the text (global features rather than elements only visible at the textual level).

Designing Text: The Schematic View

It is worth mentioning some of the genesis and evolution of the project, as each stage reveals important design issues for the usability and utility of the Digital Play Book.

First, some of the initial sketches for the interface sought to depict a much more realistic environment where, for instance, the stage would closely resemble the Globe Theatre or other familiar spaces. Similarly, we toyed with the idea of using icons or avatars to represent the characters and even of allowing some animation of gestures and other bodily movements (like kneeling). This approach had previously been adopted by the Scenario project (2004), which provided users with a realistic representation of the Globe, with small figures in period costume that could be moved to various locations. However, during consultations with our visual communication designers, we realized that, in our case, realism could be an unnecessary distraction and even constraint, since our emphasis in this project was on the kinetic text. We therefore opted for a highly stylized version of the stage.

Our next phase involved experiments with an interface that would allow readers to access online XML files and dynamically locate portions of them in scrolling sections
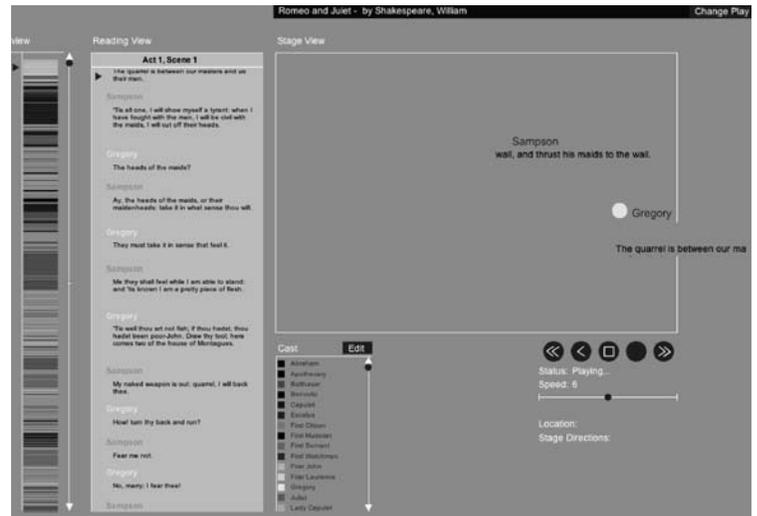

Figure 1: The Digital Playbook environment for *Romeo and Juliet*
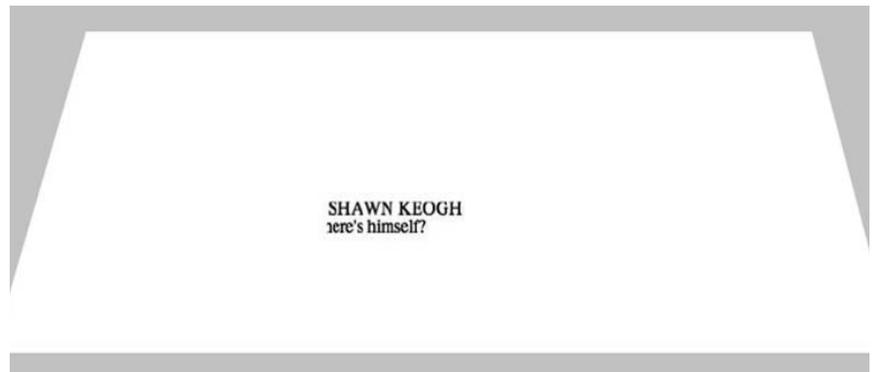*Graphic Design by Sandra Gabriele*

Figure 2: An early iteration of the Watching the Script environment attempted to represent an actual stage.
Illustration Stéfan Sinclair

placed on a stage. This version of the interface was simple in the extreme but still angled, in an attempt to suggest an actual stage (see Figure 2). Although it had the virtue of simplicity, it was not a compelling environment.

Our design team once more came to the rescue, suggesting the addition of some colour and of an overhead perspective that made the movement on stage simpler both to define and to understand. In our next iteration, shown in Figure 3, we attempted to differentiate the four quadrants of the stage while simultaneously providing multiple levels of text view – play, act and scene.

Finally, we turned control of the interface design completely over to the visual communication designers, who consolidated the use of colour, added a set of appropriate tools for manipulating the display and adjusted the relative weights of the text columns. The constant dialogue between designer and programmer continues, however, as we plan next to consolidate the colour palette used to indicate characters, arrange details of text alignment and movement and provide
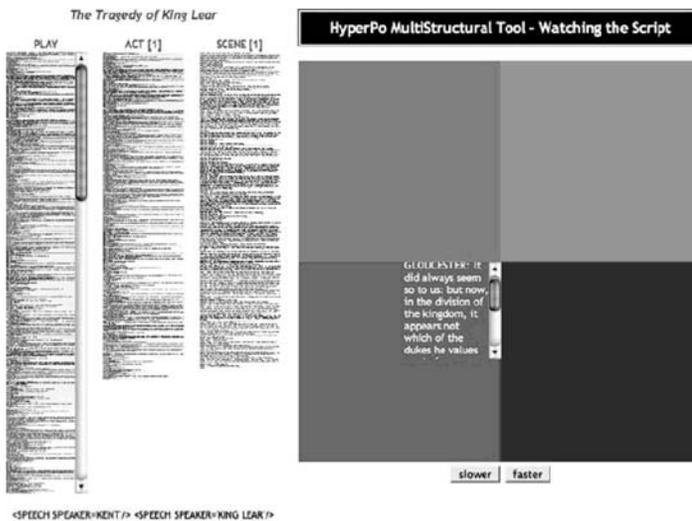
Figure 3: HyperPo Multistructural Tool for *The Tragedy of King Lear*
Graphic Design by Stan Ruecker

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an additional control that will allow users to see at a glance the lines spoken at each of the locations used at different points in the play. For example, which speeches take place in the city square versus the throne room?

Uses

We have identified four potential user groups for this prototype:

1   students reading plays
2   actors learning lines
3   directors or students experimenting with blocking
4   instructors demonstrating different possibilities (without the explicitness of video)

From a design perspective, each of these groups and their associated tasks involves the consideration of sub-tasks, some of which are shared between groups, while others require customization for a particular purpose. For example, students reading plays are typically interested in continuous text that is somehow connected with explanatory notes and other textual apparatus. Actors learning lines, on the other hand, need to see the discontinuous pieces of the script that contain the lines they want to learn, as well as the sections that serve as cues. Directors interested in double-casting will want to be able to identify simultaneously the lines associated with different pairs of characters. For both directors and instructors, the location of the audience is crucial.

Future Directions

The Digital Play Book is a national (Canadian) interdisciplinary project, with participating researchers spanning five disciplines at three universities . This collaborative approach allows us not only to involve a range of experts in planning and designing the system but also gives us the resources to carry out more than one research task at a time. We are currently reconsidering design details and improving the prototype, while simultaneously planning both the protocol and schedule of usability studies, the results of which will inform further improvements to the system.

Our first usability study will collect measures of performance and preference for one of our three initial scenarios: actors learning their lines. We will have online versions of three kinds of text – a plain html representation of the static script, our prototype Digital Play Book, showing the kinetic text and blocking, and a DVD performance, with the subtitles turned on. After a brief introduction to the technologies, each participant will be asked to learn three different sets of lines for the same scene and character, one for each of the technologies. To avoid possible order effects, we will vary the order of the technologies. With this method, we can measure how long it takes the participants to successfully memorize their lines using each of the strategies. In a post-study interview and questionnaire, we can obtain indications of preference. Finally, by providing all of the texts on a computer screen, we will be able to record interactions showing the details of each participant's use of the different technologies. How often, for instance, was it necessary in each case to rewind the lines and play them again? Were there obvious points in the process where any of the systems failed or demonstrated some clear inadequacy. Finally, are there indications, during the process, of the state of mind of the participants regarding the task?

In order to carry out a comparable usability portion of the study with directors and student directors, the system will require some further refinement . To give an example of an area that requires improvement, we currently provide only one fixed stage design, using a proscenium arch. However, one of the immediate and compelling challenges for the director is to consider blocking in terms of the various lines of sight from the perspective of the different locations in the audience. Most contemporary productions involve thrust stages, although aisles and theatre in the round are also frequently used. Proscenium stages are less common. A proscenium design, therefore, unrealistically limits the system, and it will be possible to redesign the interface to accommodate a wider range of stage formats.

Also related to blocking is the provision of an interface view that will allow directors to see at a glance where particular arrangements of characters onstage are going to result in one character's occluding another for certain portions

of the audience. Depending on the possible locations of the audience, this problem becomes more or less complex, and in some stages (such as theatre in the round), there are inevitably audience members who are not going to be able to see the actor's faces or who may find one character standing in front of another. Learning to adjust the blocking to accommodate these factors is part of the training of a student director, and our system needs to support that learning.

Plays seem an ideal choice for experimenting with kinetic representations.

Another useful pedagogical tool is the ability to provide simultaneous comparisons of different stagings so that students begin to understand the kinds of directorial decisions that are necessary. For example, in the first scene of *Romeo and Juliet*, the Montagues enter from one door and the Capulets another, visually reinforcing their antagonism. When the prince enters to intervene, the director has the opportunity to adjust the audience perception in any number of ways, to indicate whether the prince is strictly neutral or inclines to one side or another. For instance, does the prince enter through one of the two doors or does he make his entrance somehow into the middle?

Two additions to the prototype can help to enhance its usefulness for this kind of instruction. If we can provide instructors with a mechanism both for storing and annotating variant blockings, these can be used either in a classroom setting or by students working independently to consider the possibilities and what the various decisions imply. Similarly, a system of this kind would allow students to create and annotate experimental blockings that could be turned in as assignments for evaluation by the instructor. By saying to the student, in effect, that no actor walks onstage until the student tells her or him where to stand, we should be able to encourage a new level of engagement with the script.

Finally, we are also looking at the possibility of repurposing the system to accommodate another form of character movement, namely sports plays. By adapting various features to an environment involving little or no text but which nonetheless retains a strong sense of unity and sequence, we may be able to create a new kind of prototype for use by athletes, coaches, and sports fans.

Works Cited

"Scenario." *Internet Shakespeare Editions*. University of Victoria and Insight Media. 2004. 26 Apr. 2006 <http://ise.uvic.ca/Annex/ShakespeareSuite/scenario.html>.

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