

# The Text and the Line of Action: Re-conceiving Watching the Script

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**Abstract.** In this paper, we describe a recent evolution in thinking about our digital tool called Watching the Script (WtS), which was designed for actors, directors and theatre researchers. In its original conception, WtS was centred on the text. We conceived of text primarily as a material object; speeches were visualized as impenetrable integral units delineated typographically by speech-headings of characters speaking; movement in the stage view was linked to entire speeches, with only one action permitted per speech. Text was privileged and its virtual manifestation was a literal visualization of its material manifestation in print. In contrast, our new design re-conceives text as one of a set of material phenomena occurring in time and space that together express theatrical action. The system's new, navigable three-dimensional stage view accommodates a variety of phenomena linked directly to the line of action; the text, which is linked to the stage view only through the line of action, is as flexible and penetrable as other performance phenomena in the stage view. We also situate the interface within a set of specific sets and stages, consisting of 3D models of real spaces created to scale, so that the adoption of the tool involves an awareness of an actual setting rather than a single stylized space.

**Keywords:** *Watching the Script (WtS)*, representation of text, interface design, user interface, 3D modeling, theatre, performance studies, knowledge environment, material analysis

## First Principles

Our first prototype of Watching the Script was conceived primarily as a reading tool to enhance users' interactions with a theatrical text. The interface visualizes theatrical text in three ways, all of which are illustrated in Figure 1.

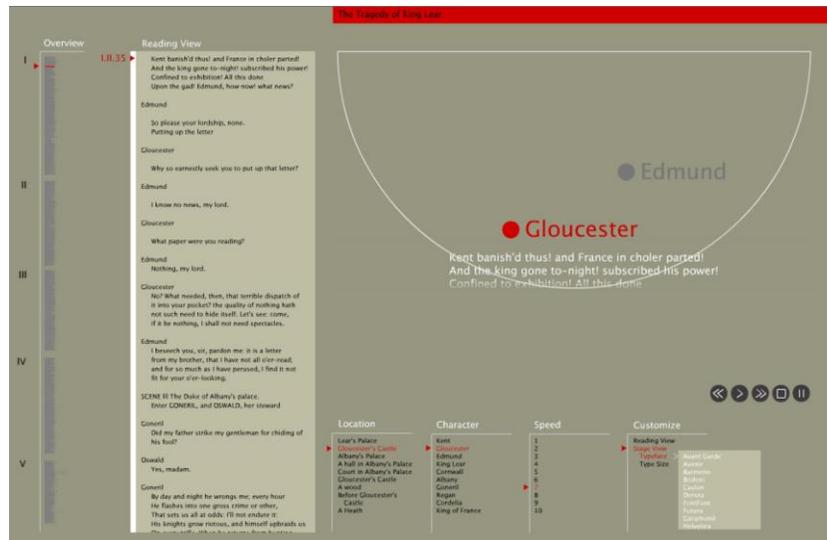


Figure 1. Our original text-centric design for Watching the Script.

The ‘Overview’ panel on the left side of the screen represents an entire theatrical document in a single microtext column (Ruecker et al. 2005). The Overview can be used to illustrate important structural patterns in the text at a glance. For example, each character’s lines can be rendered in a different colour to illustrate the relative importance of characters in terms of line-count, frequency of appearance, or presence in different parts of a play, or to reveal patterns in the co-occurrence of characters that might suggest the development of relationships over the play as a whole.

The ‘Reading View’ panel, second to left, shows portions of the text at a scale appropriate for reading; the context corresponds to what is currently visible on the primary ‘Stage View’ on the right.

The ‘Stage View’ separates the text into speeches and associates them with coloured dots representing the characters that deliver them. By liberating speeches from their typographical sequence and associating them instead with mobile character dots (movements are defined by directors using a separate interface), the Stage View focuses the user’s attention on even smaller units of text and emphasizes the relationship between text and speaker. In combination, the features of the Stage View create a visual argument (Galey and Ruecker 2009) that the speech – the coherent, discrete utterance of a single character, regardless of length – is the basic unit of a theatrical text. The Stage View provides a visual metaphor for the act of speaking in turns.

We envisioned two potential applications for this initial version of Watching the Script. The first was as an aid to students to help sort out the continuities of character and patterns of relationships in complex scenes. It might, for example, help a first-time reader of *Romeo and Juliet* sort out who is speaking to whom in the various conversations that take place during the Capulet ball at the end of the first act: Romeo and his friends converse, so do the Capulets’ servants, Capulet and Tybalt, Juliet and Romeo, Juliet and the Nurse. It might help sort out who is watching whom and who is eavesdropping on whom: Tybalt sees through Romeo’s disguise, the Nurse overhears Juliet and Romeo’s tryst. It might also help contextualize all these conversations by making the presence of all the non-speakers palpable: all these conversations take place in the context of an enormous, formal see-and-be seen party. By representing characters as dots and associating speeches with them, Watching the Script visualizes continuity of

character that is not apparent in the typographical arrangement of the Reading View or in a traditional print format.

The second application we envisioned was as a visual mnemonic for actors. In the same way that Classical orators associated parts of their orations with architectural or other structures in order to preserve their order (Yates 1966), we imagined that modern actors might use the movement patterns on our Stage View with the texts they needed to memorize from the Reading View. The Reading View would have the additional capability to excerpt the lines of an individual character, showing them as one actor's 'part', in imitation of the 'parts' handed out to medieval and Elizabethan actors for memorization before an extremely limited rehearsal period (Stern 2000). Both these mnemonic functions, like the system's educational application and all of its individual features, reinforce the premise that speeches of individual characters are the basic units of a theatrical text.

### **Print, Image, Theatre**

The premise that one discrete, continuous utterance of a single character (regardless of its length) is the basic unit of a theatrical text is fundamentally typographical (or we might equally say manuscript) in nature. It extrapolates the aesthetic structure of a theatrical text from its representation in print and manuscript reproductions: because the words on a page are separated by character names, the smallest unit of visual space is a complete utterance; because speeches are delineated by changes in names, speeches are ontologically defined by character; hence character utterances are the basic unit of a theatrical text.

Most digital visualizations of text – theatrical and non-theatrical – are similarly concerned with the arrangement of information in two-dimensional space. There seem to be three major strategies or streams of approach. First, and most common, is the ubiquitous digital analogy for print or manuscript most obviously represented by word processing software. This approach imitates the visual appearance of print or manuscript. Often the paper analogy is enhanced with navigational tools (such as hyperlinks or search functions), and sometimes non-print media are embedded into paper-analogue frames (Google Maps and You Tube are obvious examples; see also Sophie or Wysiwig Webbuilder); but these features are enhancements to print format rather than violations of it, operating like traditional tables of contents, indexes, figures, or annotations. Digital editions of theatrical works such as the *Internet Shakespeare Editions* (Best 2005) take advantage of these opportunities to illustrate textual variants, provide historical context, even present performance records from a range of productions. The simpler Reading View of Watching the Script also operates in this way: it divides a text into passages of manageable length on a readable scale, minimally interfering with the integrity of the text as a whole in order to make it more accessible to the reader.

The second approach to digital text visualization deconstructs and re-assembles texts to reveal patterns not visible within the confines of a single page or window and then communicates the emergent patterns metaphorically in the form of analogous graphs or images. This is essentially an analytic approach to text visualization, akin to producing concordances. Innovative visualizations often communicate these patterns in intuitive, challenging, and aesthetically pleasing ways (see the Mandala Browser and Synchronous Objects). But the analytic approach nonetheless maintains the analogy to print and manuscript formats. Like those formats, its essential paradigm is the arrangement of information in two-dimensional space. It deconstructs the arrangement of words on a two dimensional page and re-arranges the same words into new patterns in similar two dimensional spaces, patterns familiar from print and manuscript such as tables, figures, two-dimensional images, video embedded in frames, and

so on. And although the goal of re-arranging the original text is to offer an alternative representation of the same content, emphasizing patterns not readily discernable but nonetheless present in the original text, the result of the process is an entirely new text, often non-narrative or even non-syntactical in nature. In the process of remediating or revisualizing text, the analytic strategy destroys the text: print format, because it depends upon the arrangement of text in two-dimensional space to create meaning, cannot be so drastically reconfigured without casualty to meaning.

A notable example from a theatre-related discipline is Scriptgeist, film pre-production software which extracts lists of props, costumes, locations, and other technical details from scripts and re-assembles them into lists for distribution to various production departments. Watching the Script takes an analytic approach to visualization in its Overview panel, its features for associating character and colour, and its features for highlighting or excerpting certain kinds of text such as all text belonging to one character. While there are potential benefits to this approach for certain purposes, the casualties to meaning are especially apparent in this last case: if the actor playing Romeo has only his own lines to study, he doesn't know that he's speaking a sonnet, that this girl he's met at a party is instantaneously so close to him that they are communicating in rhythm, rhyme, and intricately-linked thought-patterns. Without this knowledge, what is there to distinguish this girl from the soon-forgotten Rosaline?

The third common approach to digital text visualization participates in the long tradition of literalizing images described in or suggested by a text. These visualizations illustrate textual elements ranging from isolated moments or events in a narrative (see, for example, the reconstructive drawing of the shield of Achilles posted with a translation of Homer's description from book 18 of the Iliad (Lahanas 2006) to symbolic or emblematic schemas synthesizing a variety of moments or ideas, visual 'confections'); to use Tufte's term, such as the title page to Hobbes' *Leviathan* (Tufte 1997); to animated maps showing the movements of characters or objects through two-dimensional space over time (see Homer's Trojan Theatre, others include the interactive York Cycle Simulator).

These, like concordances, are distortions, re-organizations or reductions of the text in one form or another. The literalization even of a well-described moment destroys the potential variety and flexibility of mental images that can be unique to each reader (can any drawing of Achilles' shield ever really match the splendour of Homer's description?). A confection synchronizes the sequential arrangement of a text; a confection representing the Iliad would deprive the reader of the defining sensation of the inexorable accumulation of horrific experiences over the course of a ten-year war, and an animated map reduces the those experiences – visitations from gods, violations of the bodies of heroes and all – to traffic patterns. We've used a work of epic poetry as our principal example here, but most software designed to assist in film pre-visualization or storyboarding operates in the same way: images representing shooting locations defined in the equivalent of stage directions, and sometimes also the arrangement of characters against these backgrounds, are organized in sequences analogous to the traditional storyboards used to plan the visual progression of a film. The Stage View in Watching the Script attempts a stylized literalization of textual images, in its visualization of characters moving around on the stage.

The limitation of our system's ability to visualize theatrical text is most obviously apparent here in its use of this last approach to visualization. A theatrical text is clearly intended to lead to a visualization of some kind, a material manifestation of something suggested by the text: it is intended to lead to a theatrical production. Our Stage View offers a rudimentary visual analogy for a stage production: it presents an aerial view of a stylized stage on which

dots representing characters move around. The problem is that the text we've used as our sample for the prototype never describes this stage, nor does it ever describe where the characters move on it. In fact, if we were to really offer a literalization of an image from *Romeo and Juliet*, we wouldn't get an image of a theatrical production at all. We'd get something more like Anthony Walker's 1754 engraving, *The Death of Juliet*, which literalizes not a stage production, but the image that the text produced in the mind of the artist (see Fig. 2).<sup>1</sup> Among other factors (such as the inclusion of details not in Shakespeare's text), the very high contrast in lighting in the image – the chiaroscuro effect – would have been almost impossible to produce using the stage technology available at this period in history. When Walker creates this image, he does not treat Shakespeare's text as a theatrical text; he treats it like other forms of prose or poetry, which are complete representations in themselves and can therefore lead to literal representations of themselves. *Romeo and Juliet* is not unique in this regard: no theatrical text describes the image it is intended to create, so it cannot be visualized literally; literalization alters the text at the ontological level.

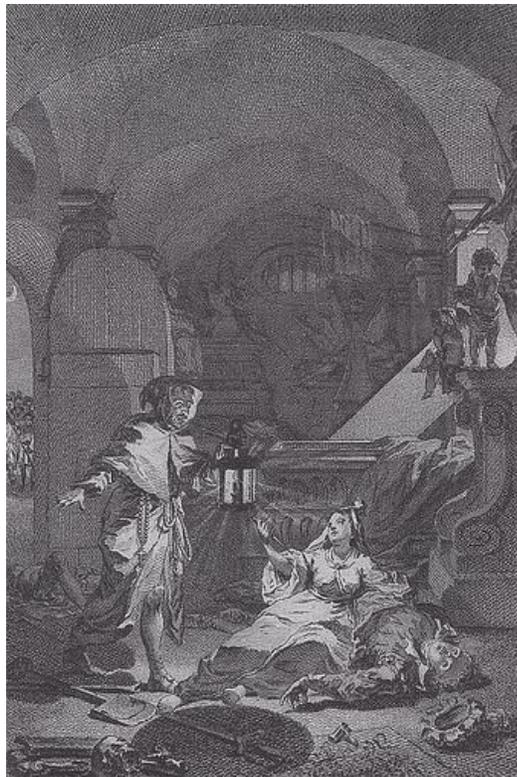


Figure 2. Anthony Walker's 1754 engraving, *The Death of Juliet*.

In fact, if we are interested in visualizing a text theatrically, none of the three most common approaches to digital text visualization is useful. Theatrical texts, unlike other kinds of texts, are incomplete by nature. A theatrical production always incorporates elements other than text. So the process of visualizing a production from a text does not involve selecting from, extracting, and rearranging textual elements in order to reveal hidden meanings, as

<sup>1</sup> For a helpful analysis of Walker's development of Shakespeare's imagery see Stuart Sillars, *The Illustrated Shakespeare, 1709-1875*. New York: Cambridge University Press, 2008.

concordancing does. It involves filling in, adding, and extending the existing fragmentary sequence of textual elements. And even in a proscenium arch theatre, a theatrical production does not arrange text in two dimensional space, so the print analogy is entirely irrelevant.

Consequently, although the textually-bound and analytically-oriented first iteration of Watching the Script might be useful to students reading complex scenes or to anyone memorizing passages, it does not represent theatrical text accurately. To create a digital visualization of theatrical text without misrepresenting it, we need a new methodology for moving from text to image, one which acknowledges our observations about the unique characteristics of theatrical text. To summarize these observations:

1. visualization (or materialization) is a required form of interaction with a theatrical text: it is the primary means of access to the text, not a secondary, additional, insightful or innovative approach;
2. visualization/materialization actualizes/completes – rather than dismantles or re-imagines – the work of the text; and as a consequence,
3. visualization/materialization tends to stabilize, limit, and seal an unstable text, rather than rendering a stable text permeable or flexible or freeing it from limitations; and lastly,
4. the methodologies for visualizing theatrical text are standardized, millennial-old, relatively widely-accepted, and do not depend on digital tools.

It should be acknowledged, however, that even this summary is reductive of a somewhat more complex situation. For one thing, there is seldom such a thing as a single canonical text to be materialized, but instead a text derived from editorial and performance traditions, often subject to editing again for the context of a particular production. It is equally true that a visualization does not necessitate a single form, but can instead allow multiple materializations, even simultaneously. It is also possible that visualization systems can incorporate hybrid forms of the analytic and theatrical perspectives.

However, given these caveats, we nonetheless recognize that to visualize theatrical text, we need a digital analogue for a familiar methodology rather than for an entity or set of entities. We do not need to represent the text, nor do we need to represent a complete work of theatre; instead, we need to illustrate the relationship between a text and the work of theatre it represents.

### **First Principles Revisited**

The basic unit of a theatrical work is not a speech but an action. According to Aristotle, tragedy is an “imitation of an action that is serious, complete, and of a certain magnitude” (Aristotle 1997). The key words in Aristotle’s definition are *imitation* and *action*. Even at the root of the Western theatrical tradition that we think of as textual or text-based, theorized first by Aristotle in the fourth century BCE, we acknowledge not words but action as the primary mode of theatrical expression. Aristotle says that action must be imitated, or as Richard Rose (2009) puts it, “theatre is action occurring in time and space”. Aristotle’s action is an immaterial aesthetic and philosophical construct that can express certain elements of human experience; this construct of experience can only be discerned by an audience when it is manifested in time and three-dimensional space. The events of the play (Aristotle’s plot), resulting from conflicts among its characters, are manifestations of a central, continuing action – a “line of action” as Rose puts it – that begins at the beginning of the play, climaxes somewhere in the middle, and concludes at the end. Action has continuity and structure, and the outcome of action is a change in the status quo of the world of the play. That change is in progress throughout the play; at any given moment in the play it is happening; so in a good play, one in which the action is in Aristotle’s terms complete, the change is inevitable.

In the Western text-based tradition, theatrical text is analyzed for action. Text records the movement of the play towards an inevitable future, the conclusion of the play. The text is not itself materialized; it is action that is materialized in time and space. The movement from text to theatrical materialization is not, as in other common text visualizations, a movement from an entity to a representation of that entity. Theatrical text is not an entity; on the contrary, it is a representation with a discernible organizing principle. That principle is the most basic, foundational structure of the work, the line of action. So the movement from text to materialization is a movement from limited representation to entity to full material expression of that entity (Rehm 2002).

Outside the textual tradition, a growing body of scholarly and professional work recognizes the line of action as the organizing principle for theatrical forms taking phenomena other than language as their primary material manifestation ((Dewar-Watson 2003; Mateas 2004; Fuchs 2007; Rose 2009). In theatre, organizing principles are future-generating modes of destiny; most choreographic and musical forms – ballet, folk dance, symphony, pop ballad, and so on – would not make that claim. If this extended application of Aristotle's theory is correct, it creates a situation in which all the materialized elements of theatrical production become candidates for centrality. We might as easily have a prop-based tradition or a costume-based tradition as a text-based tradition of theatre, as long as these elements of production were to express action in space over time. Theatre practitioners who hold this view refer to action-defining production elements as 'emphatic elements'; emphatic elements are the elements of production which bear the greatest semantic load in the manifestation theatrical action (Rose 2009).

### **Design**

Our new prototype of Watching the Script (Figure 3), completely redesigned and redeveloped, attempts to represent these changes in our thinking about the nature of theatrical text(s) and the purpose of our system as a tool for visualization.

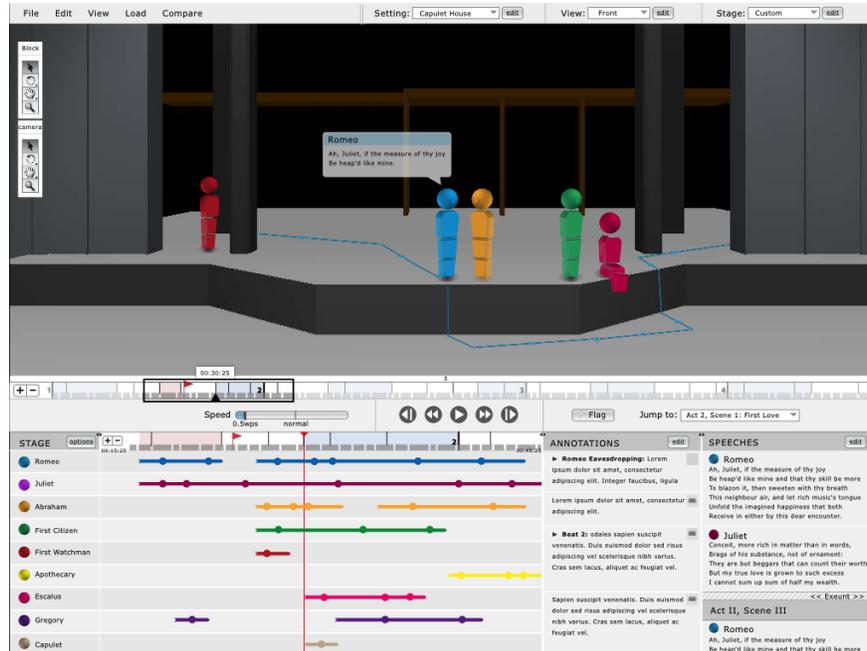


Figure 3: Our re-visualized 3D Watching the Script emphasizes the line of action rather than the text, and situates the characters on scale models of actual sets and stages.

The new version offers a centrally-placed visualization of a line of action in the form of a horizontal image analogous to a timeline or a number line. The line of action can be broken down by the user into smaller units of action, ranging in size from acts to scenes to French scenes (delineated by the entrance or exit of a character) to speeches to individual ‘beats’ of directorial action. The user defines divisions between units of action by associating them with words, stage directions, or intervals between words and stage directions in the Reading View; this method of defining the line of action allows users to visualize the process of analyzing a theatrical text for action. The verbal text in the Reading View could hypothetically be replaced by a musical score or a choreographic record, depending upon the emphatic element of any given theatrical work, so the system accommodates a variety of emphatic elements and theatrical traditions. Similarly, users could begin by moving visualizations of characters around in the Stage View and define the line of action based on these visual patterns.

Additional features in the Reading View of the new model shift primary ontological integrity to the line of action (once it is defined) rather than the now broadly-defined text. The text in the Reading View can be cut, augmented with stage business, expanded with textual additions; but any and all of these alterations are linked to (and hence metaphorically justified by) actions in the continuous line of action.

## Conclusion

Our revised Stage View attempts to visualize the materialization of a theatrical text in fuller and more concrete terms than our first model did. Instead of offering a map-like aerial view of hypothetical traffic-patterns, our new Stage View visualizes the movement of stylized ‘actors’ in three dimensional models of actual theatre buildings. Our initial model visualized the text from a perspective from which no audience member would ever experience it: it is very

rare for anyone to hang from the ceiling in a theatre.<sup>2</sup> An additional advantage of the new model is that it permits the user to move through three-dimensional space to view the stage or the audience from a variety of perspectives. So the system can represent the multiple perspectives of audience members in different parts of the theatre, a phenomenon that must be accounted for both in planning and in analyzing theatrical production.

## Works Cited

- Aristotle. *Aristotle's Poetics*. Trans. Whalley, George. Ed. Baxter, John. Montreal: McGill – Queen's UP, 1997. Print.
- Best, Michael. "About the Internet Shakespeare Editions." *Internet Shakespeare Editions*. University of Victoria. 2005. Web. <<http://internetshakespeare.uvic.ca/Foyer/about.html>>.
- Dewar-Watson, Sarah. "Shakespeare and Aristotle." *Literature Compass* 1.1 (2003): 1-9. Print.
- Fuchs, Elinor. "Waiting for recognition: an Aristotle for 'non-Aristotelian' drama." *Modern Drama* 50.4 (2007): 532-44. Print.
- Galey, Alan and Stan Ruecker. "Design as a Hermeneutic Process: Thinking Through Making from Book History to Critical Design." The Digital Humanities 2009 conference. University of Maryland. 22-25 June 2009. Address.
- Lahanas, Michael. "Hellenica." 2006. Web. <<http://www.mlahanas.de/Greeks/Mythology/AchillesShield.html>>.
- Mateas, Michael. "A preliminary poetics for interactive drama and games." *New Media as Story, Performance, and Game*. Ed. Noah Wardrip-Fruin and Pat Harrigan. Cambridge, MA: MIT, 2004. 19-33. Print.
- Rose, Richard. *Directing Intensive*. Tarragon Theatre. Toronto, Canada. February-March 2009. Unpublished DVD. Used with permission.
- Rehm, Rush. *The Play of Space: Spatial Transformation in Greek Tragedy*. Princeton, NJ: Princeton UP, 2002. Print.
- Ruecker, Stan, Eric Homich, and Stéfan Sinclair. "Multi-level Document Visualization." *Visible Language* 39.1 (2005): 33-41. Print.
- Tiffany Stern. *Rehearsal from Shakespeare to Sheridan*. Oxford: Clarendon, 2000. Print.
- Tufte, E.R. *Visual Explanations: Images and Quantities, Evidence and Narrative*. Cheshire, CT: Graphics, 1997. Print.
- Stelarc. "STELARC." 1994. Web. <<http://www.stelarc.va.com.au/arcx.html>>.
- Yates, Frances. *The Art of Memory*. Chicago: U of Chicago P, 1966. Print.

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<sup>2</sup> The Australian performance artist STELARC famously hung his own body from meat-hooks suspended from a ceiling, but his audience was looking up from below.