

Visions of Reading

An exhibition opened recently at the Visual Research Center at Dundee Contemporary Arts, concurrent with a conference capping a UK Arts and Humanities Research Council project "Poetry Beyond Text: Vision, Text, and Cognition" led by Professor Andrew Roberts. The project was an interdisciplinary investigation using psychological, critical, and creative methods to study how readers respond to the visual aspects of poetry. It involved researchers in English and Comparative Literature, Fine Art, and Psychology.

Technology was harnessed both in the scientific research and in the literary works commissioned for the exhibition. Literature researchers at the University of Kent at Canterbury and the University of Dundee worked with cognitive psychologists using eye-tracking software to better discern how people visually engage with concrete poetry. The "heat maps" and other visualizations they produced of the reading process show where people focused reading attention. While there are limitations to this method—observing how people look at the texts they engage does not necessarily offer an understanding of how they comprehend—it does offer a glimpse of how that process begins. The question of how the visual elements supplement or compete with attention to poetry and narrative, are brought to the fore in considering contemporary digital poetry, which often offers multiple semiotic registers of signification. Does a picture enhance or occlude the reader's experience of a poem? Does the movement of text distract from words on the screen or invite a new kind of engagement? Does all the linking and clicking and touching and moving involved in a work of e-lit pull us out of immersion or does it offer new models of engagement that are more significantly embodied for all their mediation? Although the project did not conduct scientific experiments using digital poems, the same eye-tracking experiments used to study readers' reaction to concrete poetry might offer some insights into the general question of how we read images, spaces, and words in juxtaposition.

A number of presenters at the conference elucidated way that white space and typography were used by concrete and visual poets to for instance represent the passage of time, or the sense of motion, within the confines of a static page. Anna Katharina Schaffner, a principal

investigator of the project, described how the use of visual space in twentieth century concrete poetry differs in a fundamental way from that of prose:

In linearly arranged prose and poetry, space externalizes the structural organisation of thought: it frames, imposes hierarchies, introduces breaks and creates rhythmic sequences and semantic groupings. In visual and concrete poetry, however . . . the white space of the page is turned into an integral conceptual component of the poem, into a signifying field.

Schaffner and her fellow researchers wanted more empirical answers to questions than could be answered with conventional literary methodologies: whether readers "read or view" concrete poems, whether they track from left to read, as in a text printed in traditional rows of typography, or otherwise, and whether or not empty space is itself attentively registered.

While the team in Canterbury conducted eye-tracking of students reading concrete poetry, the team in Dundee studied readers' interactions with poems juxtaposed with photographs and how different readers move in space when looking at books and reading from texts on the wall. This research into the postures of reading seems particularly promising—University of Dundee cognitive psychologist Martin Fischer reported that people seemed physically "drawn to" some texts and "repelled" by others. Another researcher recounted research that revealed that the closer readers hold their hands to text on a screen, the greater their comprehension and faster their reaction time to what they read. For all the theoretical writing that has been done around the topic of embodiment, it is refreshing to hear of research that is literally about how the reader's body itself can be read in interaction with the text.

The exhibition explored a number of different modalities of the relationship between image and text in hybrid works including artists' books, digital poetry, poetry with photography, prints, and text films. A number of new works were commissioned for the exhibition that played with form in innovative ways. Two new digital works were commissioned for the exhibition: John Cayley and Daniel C. Howe's *The Readers Project* and Simon Biggs's and Mark Shovman's *Tower*.

The Readers Project is "a collection of distributed, performative, quasi-autonomous poetic 'readers'—active, procedural entities with distinct reading behaviors and strategies." In other words, the readers are not human, but computational agents that visualize a process of reading and represent it in the artwork. Each of the reader agents have different behaviors ranging from the "simple reader" that moves through the typographic space in roughly the way that we would expect a Western human to read a page of text from left to right, to the "perigram reader" that focuses not only on the words from left to right but also those above and below the word in focus, to a "mesostic reader" that sees a page of typographic space as offering an opportunity to spell out particular words within its desired vocabulary, to a "grammatical lookahead reader" that learns something about the grammatical structure of the text it as it reads and makes guesses at words that might follow on that basis.

The human reader at DCA experienced the work on a wall-mounted screen. The operations of the reading agents were represented in two different ways—by a highlighted portion of the text that represented the reader's attention, and through an iPad tethered to the main display that represented the program's focus by showing the individual word that had drawn the program's focus at the given time. The human reader's experience of the work is not limited to the operations of the agents, but also reading the texts the system moves through, in this case "misSpeltLandings" and "poeticCaption"—both of which are also meditations on the process of reading in typographic space. "poeticCaption" contemplates shifts of attention literally: "Having written, by convention, in our own field of writing as cultural practice, to the right, tending downwards, but then, what's this? A frequent periodic, instantaneous teleportation of reader attention to some arbitrary left-most edge-of-the-abyss having there set the next world-breaking instance of orature for and in me, in you, in our readers." The other piece that flows through the system, "misSpeltLandings," deals with reading metaphorically, as a process of swimming through, across, and yet never quite reaching the other far shore.

Biggs's interactive installation *Tower*, at the HIVE lab at Aberthay University, explores another sort of immersion—not metaphorical but physical. The text here is not an object to be explored by either the reader

or the computer, but an interactive environment in which the reader and an audience both have active roles. Two large rear-projection screens dominate the HIVE room. Chairs lined the walls, for viewers to observe as a "reader" puts on a virtual reality helmet and engaged with the work. Once the work was booted up, nothing happened until the reader began speaking. At that point, speech-to-text recognition software began to parse the utterances of this focal reader/performer, and a tower began to form on the screens: on one screen it was represented as a 3D spiral and another offered a fixed 2D perspective of the spiral forming from above. The spiral was composed of two layers of language—a thin line of red words that were the program's best guess of the words the reader spoke, and beneath that a thicker jittery layer of white language including words that seemed to be in conversation with the words spoken by the reader.

The view of the piece from inside the VR helmet was more perceptually mind-bending. Wearing the helmet, your view of the environment was radically altered—you could no longer see the other people in the room or even your own body. Instead, you had access to a small rectangular window to the world of the work itself in 3D. Within it, as you spoke words, you could see them appear to emerge directly in front of you, as materializing from your own mouth. As you looked up, you saw the white words floating down from a giant sphere. When you looked down, you saw that as you spoke them, the words were building a literal tower of "babble" beneath you circumvolving into a disorienting abyss.

Computationally, in addition to the voice-to-speech recognition and the various forms of text visualization involved, *Tower* also "reads" the words the focal reader speaks and uses them to read other texts. The words in white that shadowed the words spoken were actually pulled from a corpus consisting of *Ulysses* by James Joyce and Homer's *Odyssey*. Each time the reader speaks the system searches those texts and delivers fragments from them that begin with the spoken word. The result is a semantically rich experience, if a not entirely coherent one. *Tower* was successful as an artwork that uses language as a compositional material. It is also a platform for "potential literature." That is to say, each reader's experience of the work will be radically different depending which words that reader says. It would also be a trivial matter for the programmers to swap out the two corpus texts. How different might the work feel, for instance, if the texts in the corpus were all from Dr. Seuss? Kafka?

Both the works in the exhibition and scientific research of the project encourage us to "read reading" in new ways using the technologies at our disposal—on the one hand using technology to understand the relationship of our bodies to the cognitive process of reading, and on the other to create literary artworks that are themselves "reading machines" and enable us to consider the modes of perception involved in reading from new angles.

Poetry Beyond Text

<http://www.poetrybeyondtext.org/>

The Readers Project by John Cayley and Daniel C. Howe

<http://thereadersproject.org/index.php>

Tower by Simon Biggs with Mark Shovman

<http://www.littlepig.org.uk/tower/index.htm>