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Abstract

In the last decade, much digital humanities research involved databases. Digital technology allowed not only for expansion of concordances, but also, and more importantly, for new types of tagged, hyperlinked, and radiant texts. Databases changed the experience of reading. My research also involves a database, but I now realize that the consequence of building this peculiar database has led to what I believe is the next major aspect of research on the experience of reading: simulation. The reading machines on my website (www.readies.org) allude to Bob Carlton Brown's machine proposed, in one iteration, in the late 1920s and early 1930s. He called the texts prepared for the machine "readies". This project led to a realization that one could simulate reading situations and experiences usually only described. So, the Brown machine simulation becomes a prototype for a series of simulations on other reading situations both in the past and potential futures.

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The INKE Research Group comprises over 35 researchers (and their research assistants and postdoctoral fellows) at more than 20 universities in Canada, England, the United States, and Ireland, and across 20 partners in the public and private sectors. INKE is a large-scale, long-term, interdisciplinary project to study the future of books and reading, supported by the Social Sciences and Humanities Research Council of Canada as well as contributions from participating universities and partners, and bringing together activities associated with book history and textual scholarship; user experience studies; interface design; and prototyping of digital reading environments.

In the last decade and currently, much digital humanities research involves databases. Digital technology allows not only for expansion of concordances, but also, and more importantly, for new types of tagged, hyperlinked, and radiant texts. Databases changed the experience of reading.

My research also involves a database, but the consequence of building this peculiar database led to an investigation of the next major aspect of research on the experience of reading: simulation.

We usually associate electronic simulations with physical activities like driving, flying, or guitar playing. We also associate simulations with social systems, urban planning, or athletic activity, and products like Wii and Sims suggest a visceral interaction with databases of information.

The reading machines on my website (www.readies.org) allude to Bob Carlton Brown's machine proposed, in one iteration, in the late 1920s and early 1930s. He called the texts prepared for the machine "readies." The texts running through the machines on this website include some of the readies produced for Brown's machine by modernist poets and writers.

The Reading Machine



This electronic project began as a mere supplement for my publications, including a critical edition of Brown's book *The Readies* (1930) about his reading machine. Work on the project led first to a way to think about databases, interfaces, and mechanized procedures as alternatives to the dominant processing technologies and procedures, and later to a realization that one could simulate reading situations and experiences usually only described in print publications. So, the Brown machine simulation becomes a prototype for

a series of simulations on other reading situations both in the past and potential futures. The use and creation of databases in the humanities has become synonymous with what academics call digital humanities.

The simulation project that began with research on Bob Brown's *The Readies* (1930) includes plans for an electronic reading machine and strategies for preparing the eye for mechanized reading. There are instructions for preparing texts as readies and detailed quantitative explanations about the invention and mechanisms involved in this peculiar machine. In the spirit of avant-garde manifestos, Brown writes with enthusiastic hyperbole about the machine's potential to change how we read and learn. The consequences of his research on reading seem prescient in light of text messaging with abbreviated language, electronic text readers, and even online books like this edition. In 1930, beaming out printed text over radio waves or televised images had a science fiction quality or, for the avant-garde, a fanciful art-stunt feel. Brown's practical plans and consequences for his reading machine were about seventy years ahead of their time.

His machine was a substitute for the book as a distribution mechanism. One would take rolls of texts, similar to micro-film spools, and slip it into a slot in the machine. Then, the reader sets the "speed regulator, turns on the electric current and the whole 100,000, 200,000, 300,000, or million words spill out" before the reader's eyes. Unlike microfilm, the text would roll out in "one continuous line of type" (Brown, 1930, p. 29). Magnifying glass, spools of one line of type, electric current, controls, and regulators seem both quaint and futuristic. Using his machine, "microscopic type on a movable tape run[s] beneath a slot equipped with a magnifying glass and [is] brought up to life size before the reader's birdlike eye" (Brown, 1930, p. 13) and "at the speed of the day" (Brown, 1930, p. 37).

The printed form of the readies in book form used punctuation marks as visual analogies. For movement we see em-dashes (—) that also, by definition, indicate that the sentence was interrupted or cut short. These created a "cinemovietone" shorthand system. The old uses of punctuation, like periods to mark the end of a sentence, disappear. Reading becomes more akin to watching a continuous series of flickering frames of images become a movie.

The context of his literary and artistic tastes and writings make it easy for even the best critics, and sometimes Brown himself, to think of the project only in terms of the modernist revolution of the word and a "stab in the dark at writing modernly" (Brown, 1930, p. 44). Instead, the readies function as a printed analogy for what reading will feel and look like "spinning past the eye out of a word-machine" (Brown, 1930, p. 44). The readies, with em-dashes on a printed page are, for Brown, a "crude" attempt to simulate motion.

To better illuminate this important moment in literary history, and to avoid the problem that Brown identifies as using printed analogies to crudely simulate movement, we set out to produce an online simulation of Brown's machine, www.readies.org, with the same mechanisms built in an electronic simulation.

The initial goal and intention was simply to make the works published as readies accessible and available; the works were composed by the most important literary and

artistic figures of the avant-garde in the late 1920s and early 1930s. So the project was simply a database of the collection.

When our production team began, we thought the project would take one week to implement one example of a reading machine; instead it took 52 weeks, a dozen iterations of the machine-simulations, and hundreds of hours preparing the readies for the machines the production team were able to produce.

Michael North, one of the leading authorities on modernist literature and Bob Brown's work, suggested, in terms of my simulation project, that the computer was the machine; hence we did not need to draw a picture of a machine in the machine. The machine should scroll the text. Finally, unlike Simon Morris, the British publisher and artist with whom I had consulted about the machine a few years ago, North thought I should model my machine closely on Brown's readies and machine. Morris thought the machine we built should look to Brown for inspiration, but should not be modelled closely on the readies. N. Katherine Hayles, a leading scholar of electronic literature, asked me: "Did Bob Brown build the reading machine or just imagine it?" My answer was that the evidence of the works he produced for a reading machine and his patent proposals for the machine make the answer ambiguous. Was it analogous to a ticker-tape machine or a microfilm machine? There is evidence for both, and perhaps some combination of the two types of reading machines. This also makes building an actual machine a challenge – perhaps an impossible challenge – a challenge of making a representation, an analogy, a metaphor for a provocation meant to unsettle our facile received ideas about reading.

In *Radiant Textuality: Literature after the World Wide Web*, Jerome McGann (2001) states that "if certain features of the new information technologies have overtaken us – for instance, the recent and massive turn to word processing – more advanced developments generate suspicion" (p. 53).

In a special issue of PMLA on databases in the humanities, Peter Stallybrass (2007) writes:

[I]f database has been an incitement to the use of archive, it has changed our relation to the ownership of knowledge. One of the most radical aspects of database is its power to separate knowledge from academic prestige and from its attendant regime of intellectual property. Scholarship, as traditionally conceived, has maintained its prestige partly through its privileged relation to the protection and retrieval of scarce resources. Now, however, millions of people who cannot or do not want to go to the archives are accessing them in digital form. And digital information has profoundly undermined an academic elite's control over the circulation of knowledge. (p. 1581)

The databases "will also reveal the extent to which the gatekeepers are themselves trespassers who do, perhaps unconsciously, what Shakespeare deliberately and shamelessly did in the construction of his poems and plays. He appropriated for his

own use what he read or heard, as can readily be seen in his most famous soliloquy” (p. 1582), and Stallybrass goes on to list many variants of “to be or not to be” – for about 25 years before *Hamlet* appears. These are listed as follows:

- 1573 Ralph Lever: “to be or not to bée” (p. 67)
- 1584 Dudley Fenner: “to bee or not to be” (p. C1)
- 1588 Abraham Fraunce: “to bée, or not to bée” (p. 86)
- 1596 William Perkins: “to be or not to be” (p. 4)
- 1601 John Deacon: “to be, or not to be” (p. 46)
- 1603 Robert Rollock: “to be or not to be” (*Treatise* pp. 177–78)
- 1604 Henoeh Clapham: “to be, or not to be” (A2v)

As Mary Carruthers (2000) argues:

Having “inventory” is a requirement for “invention.” Not only does this statement assume that one cannot create (“invent”) without a memory store (“inventory”) to invent from and with, but it also assumes that one’s memory-store is effectively “inventoried,” that its matters are in readily-recovered “locations.” (p. 12)

Carruthers (2000) goes on to indicate that the scholastic tradition taught students to organize “one’s reading as a database. In this pedagogy, reading is a technology of inventorying information to make it reusable” (p. 12).

The shift from database to simulation begins in thinking about the “invent-ory,” since the use of the inventory is not originality, but rather a simulation of invention and discovery. One might argue that there is never a base-line invention, but rather more fertile inventories and less. Regardless, one needs to run a simulation with the inventory to produce the simulation. Put another way, in *Radiant Textuality* Jerome McGann (2001) argues that “the general field of humanities education and scholarship will not take the use of digital technology seriously until one demonstrates how its tools improve the ways we explore and explain aesthetic works—until, that is, they expand our interpretational procedures” (p. xii). The expansion of interpretational procedures to include simulated reading experiences allows for students to conceive ideas “all at once” in simulation rather than only “relying on step-by-step sequential processes that auditory learning styles favor” (p. 106). He asserts that the inclusion of both processes advances comprehensive learning. McGann “stresses that learning to interpret literature through visual methods is a skill of increasing importance in a world where images have the capacity to dominate and direct human behavior” (p. 106), and I would simply substitute the word “simulation” in place of “visual,” as our culture has now moved beyond the image to the simulation as a major form of cultural transmission.

McGann calls for a move “beyond conceptual analysis into the kinds of knowledge involved in performative operations—a practice of everyday imaginative life” (2001, p. 106). His discussion seems to borrow from Bob Brown’s: “[Texts] are not containers of meaning or data, but sets of rules (algorithms) for generating themselves: for

discovering, organizing, and utilizing meanings and data” (McGann, 2001, p. 138). In the same *PMLA*, McGann (2007) argues that:

No database can function without a user interface, and in the case of cultural materials the interface is an especially crucial element of these kinds of digital instruments. Interface embeds, implicitly and explicitly, many kinds of hierarchical and narrativized organizations. Indeed, the database—any database—represents an initial critical analysis of the content materials, and while its structure is not narrativized, it is severely constrained and organized. The free play offered to the user of such environments is at least as much a function of interface design as it is of its data structure. (p. 1589)

Again, what he describes moves close to the notion of a simulation. If *database* is a base onto which we put things that are given (data), then simulation involves imitating, pretending, and building models. The database sets the stage for simulations, but without thinking of the new role of the humanities as a ground for simulations of creative genius, invention, and discovery. The inventory is available every time we log on, and simply takes a few clicks to set the data in motion as a simulation.

When Bob Brown published his proposal for a reading machine, he had been thinking about it for nearly 20 years. He thought of the reading machine as a tool to inventory all literary and non-literary texts. What he did not fully realize is that he also suggested one could simulate an unfamiliar reading practice (one that might have worked to increase the rate of reading or frustrate it).

The reading machine set in motion the next great stage of humanities research: using simulations (of reading) to study alternative reading practices — past, future, or imagined.

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