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Assignment Three: Part IV

When N. Katherine Hayles discusses computational practice, she points toward a reflexive, multi-dimensional relationship between the human and computer that conjures images of her posthuman. Computing is no longer simply punching on a keypad, but rather becomes "a powerful way to reveal to us the implications of our contemporary situation, creating revelations that both work within and beneath conscious thought" (Hayles 157). Particularly in the medium of electronic literature, computational practice "is revalued into a performance" drawing on "the full complexity our human natures require, including the rationality of the conscious mind, the embodied response that joins cognition and emotion, and the technological nonconscious that operates through sedimented routines of habitual actions, gestures, and postures" (Hayles 157). We can see Hayles' computational practice at work through the process of reading John Cayley's *Translation*, Brian Stefans' *Star Wars One Letter at a Time*, and William Poundstone's *Project for Tachistoscope*.

In John Cayley's 2004 project *Translation*, readers are able to "explore the analogy between the discreteness of binary code and the discrete nature of alphabetic languages" (Hayles 145).With text in English, French, and German, the author experiments with "ambient-time based poetics" in a format that "may be easier to watch or look at than to read" (Cayley). As a user, I would have to agree with this advice, since my facility with either French or German text would not permit accurate or timely translation. Instead, I chose to view the text as the author suggested, not accounting for meaning, necessarily, but watching for "lower-level similarities" that work on the level of "phonemes and morphemes" (Hayles 146).

For a QuickTime application purportedly designed for viewing rather than reading, however, *Translation* moves incredibly slowly. I noticed letters scattered throughout columns on the screen, filling in to create words and sentences one letter at a time, in a fashion that had my mind racing, trying to guess each word with its missing letters in a Wheel of Fortune-type haste. I would guess, sometimes incorrectly, and wait periods of multiple seconds for the next set of letters to appear and either confirm or replace my initial expectations. This game, of course, was easiest played in English-language sections of text. Cayley's vision, however, had less to do with a reader's comprehension of meaning in texts, but with the idea that "if a user watches these long enough while also taking in the transliteral morphs, she will gain an intuitive understanding of the algorithm" that underlies the movement of text (Hayles 147).

Cayley's slow-moving text, however, performs the function of "exploring the relation between alphabetic language and the transformation it undergoes when represented through the layers of interlinked computer code" (Hayles 146). In his work, "Cayley has focused on the ways in which our intuitive knowledge of letter forms can define space and inflect time" (Hayles 151). The timing is an important element, for it serves as a "visual representation both of graphemic/phonemic relationships between the source and target texts and, through the speed at which a given letter sequence morphs, of the philological distance between the two texts" (Hayles 146). However slow-moving the translations may be, "they are coordinated with tonal changes in the ambient music" which provides "another sensory input through which the algorithm can be grasped" (Hayles 147).

Cayley's emphasis on the algorithm as opposed to literal reading represents a fundamental shift in computational practice as it relates to reading. Now non-linear and no longer reliant on a full working vocabulary, language is thought to be intuited rather than read letter-for-letter. "Cayley's transliteral morphs… reflect their phonemic and morphemic relations to one another," which privileges the relational aspect of language over that of precision and clearly defined meaning (Hayles 146).In the same way that print culture gave rise to expanding vocabularies and precise meaning through the creation of new words, electronic media appears to again rely on context, which includes the speed of the algorithm and the relation of phonemes and morphemes across language to convey meaning (Ong).

Brian Stefans' *Star Wars, One Letter at a Time*, however, realigns with the print tradition of letter-by-letter visual representation of words that must correlate with a specialized vocabulary. The author's intention to "save the universe from boredom one letter at a time," however, met challenges during my interaction with the text (Stefans). In the introduction to this work, readers are informed that *Star Wars* "does not require any action from the user" and while *Translations* moves at a very slow pace, *Star Wars* seems to move at light-speed (Stefans). Print reading practices involve scanning techniques whereby a common word can be viewed in its entirety and interpreted based on its overall shape. Practiced readers do not phonetically sound out the word "the" letter-by-letter each time it appears. Throughout *Star Wars*, however, readers are forced to read one letter at a time once more, at a dizzying pace that makes it nearly impossible to properly combine each letter to form a coherent word, much less a meaningful sentence.

Hayles explains, however, that the frustrations users experience while interacting with electronic literature serve an important purpose in relating technology with our everyday lives. She writes, "404 errors… are not simply irritations but rather flashes of revelation,… minute abysses puncturing… the illusion that the human life-world remains unchanged by its integration with intelligent machines" (Hayles 136-7). Thus, the frustrations that come from reading *Star Wars, One Letter at a Time* are glimpses of the degree to which our lives—and indeed our reading—coevolves with the technologies available to us. And the code underlying the *Star Wars* experiment serves a similar purpose, and is "is essential for the computer-mediated communication of contemporary narratives; …code is an infectious agent transforming, mutating, and perhaps even fatally distorting narrative so that it can no longer be read and recognized as such" (Hayles 137).

The trouble reading *Star Wars* and later *Project for Tachistoscope*, however, can be partially attributed to the author/designer's decisions to run the projects without requiring tactile user manipulation. Hayles explains that "conscious knowledge lends itself to analysis, introspection, ratiocination, and written expression; bodily knowledge is directly tied in with the limbic system and the viscera… with complex feedback loops operating through hormonal and endocrine secretions that activate emotions and feelings" (Hayles 133-4). When the body is disengaged from the work of manipulating electronic text, the reflexive feedback loops that could have run through a user's hands to the machine and vice versa are truncated. The user fails to relate any "sedimented embodied experiences" with reading of the text beyond the experience of sitting motionless visually absorbing movement on-screen (Hayles 135). Hayles shares that "my body knows things my mind has forgotten or never realized; my mind knows things that my body has not (yet) incorporated," but when electronic literature fails to require active bodily engaged from the user, this important semiotic technology uniting "feelings with ratiocination, body with mind" falls shorts of its promise and possibilities (134, 138).

To be fair, however, we cannot say that works like William Poundstone's *Project for Tachistoscope* fail to engage the user's body. In the decision to engage "a Flash implementation" employed by "an algorithm that does not allow the user to adjust the timing or intervene in the narrative's progression" Poundstone does risk disengaging the body (Hayles 142). In lieu of physical motion, however, Poundstone requires user's complete attention as they are assaulted with words and images that move at a frantic pace. Hayles notes that "as the kinds and amounts of sensory inputs proliferate, the effect for verbally oriented users is to induce anxiety about being able to follow the narrative while also straining to put together all the other discordant signifiers" (140-1). So while the self-paced program requires very little kinesthetic movement, the visual acuity required for engaging the text renders the body engaged throughout the reading process. The speed of movement, in its sheer incomprehensibility, "enacts the borderland in which machine and human cognition cooperate to evoke the meanings that the user imparts to the narrative, but these meanings themselves demonstrate that human consciousness is not the only actor in the process" (Hayles 142-3).

Poundstone's abyss characterizes Hayles' vision of computational practice as experience in electronic literature, for "the abyss may be taken to signify not only those modes of human cognition below consciousness, but also the machine operations that take place below the levels accessible to the user and even to the programmer" (Hayles 143). The abyss, like computational practice, serves to "open channels of communication between consciousness and levels of perception below conscious awareness" (Hayles 142). The resulting dynamic forged by new conceptions of computational practice

"becomes a partner in the coevolving dynamics through which artists and programmers, users and players, continue to explore and experience the intermediating dynamics that let us understand who we have been, who we are, and who we might become" (Hayles 157). Answering questions of human purpose has always been the work of great literature, and electronic literature engages these questions through exploration of human agency in the digital age.

Works Cited

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