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Of Programmatology

Text made the net—made it possible, makes it now and for the time being. Text constitutes and encodes the net, in major part, because text was digital *avant la lettre* or, rather, because of the letter. Once linguistic inscription had been encoded in a small character set—*c.* 1700–1500 BCE, in all but the Chinese culture-sphere—an important field of cultural production was already digitized: transcribed in a medium that is frangible, structured in discrete objects, easily and invisibly editable, and, particularly after the codex or book format had emerged, randomly accessible, including through non-linear links in the form of indexes, cross-references, tables of contents, and so on. Thus, when computing machines came to be appreciated as more generalized Turing machines, or “programmations,” as they should, more properly, be known, our traditions of writing were already well adapted. Even within the much lower bandwidths then available, significant quantities of human-readable symbolic representation could be transcribed and manipulated, all thanks to our “byte-sized” alphabet and its particular traditions of literacy. Finally, as the programmations were networked, the same low-bandwidth/high-significance textual medium enabled what is still a ballooning OS of meaningful exchange, even while AV (audiovisual) objects still languished in the analog wet-world.

It is an irony of our so-called digital age that the first digital medium to gain general currency—written text—constitutes not only the recent piratical pseudo-novelties of the net but also the whole tradition of “literature,” our preferred and privileged institution of cultural authority, its art and criticism still apparently dominated by the integral, monologic “voices” of master [*sic*] authors. Text was always a medium perfectly adapted for the inherently (post)modernist experiments of collage, intercutting and creative plagiarism—both conventional/entropic and anticipatory—ideal for the development of transclusion, framing and linking (as demonstrated, for example, by biblical criticism). However, these literacy-enabled rhetorical technologies remain marginal to the canons of authored, “originary”

literature-as-art (or literature-as-religion where radical collage is recast as revelation, direct from the ultimate monologist), and would-be canonical authors have been less than marginally active in the reconfiguration of a delivery medium, the net, which is founded on their pretended compositional medium, that is: text.

At the time of writing, 1998, the net was seen to represent an “advanced” version of literacy—“late literacy” (Jay Bolter) or “post-literacy” (passim. in the Media) or even (proto-)“electracy” (Gregory Ulmer).¹ Yet this pop, literary avant-gardism has been achieved largely without the involvement or intervention of “high art” textual practitioners. Let’s call them “poets.”

The critical perception of net literacy as “advanced” is made explicit in the theoretical claims of the h*.t?xt (research) community, where h*.t?xt practice is proposed as a privileged instantiation of poststructuralist critical theory or, in a sense, as its “objective correlative.” However, the critical theory in question was developed as a critique of the literary tradition, prior to the implementation of networked and link-node text. The majority of the subversive tropes and figures of h*.t?xt—intertextuality, non-linearity, the “writerly” text (Barthes, 1973!), the nomadic reader and problematized author—are, arguably and, in technical terms, functions of the “digital” characteristics of inscribed text regardless of delivery medium.² These tropes and figures were latent in literacy and not established by the “advances” of h*.t?xt. For me, this is demonstrated by the way in which they have been adopted and popularized overnight without explicit reference to h*.t?xt research, theory or practice. The most spectacular example: in two years, 1994–96, the web instantiates Ted Nelson’s “docuverse” largely without reference to his own visionary work, nor to the corpses of disaffected h*.t?xt researcher/practitioners who remained cloistered in floppydiskROMworlds of storyspaces, or in ivoryTowerLabs, gagging at the dialectical backwardness of “actual existing” h*.t?xt.³ Meanwhile, everyNet person or artist has internalized (or left behind) “writing spaces” and (empty) linking—“because they’re here,” and—this is my point—because the digital aspects of textuality are already internalized.

On the other hand, as I’ve mentioned, these developments have taken place largely without the engagement of poets, for another set of contingent reasons. In the first place there are the failures, Luddite blindnesses, magisterial vanities, and general bankruptcies of mainstream poetry. How many of you really want to read html versionings of Nobel-laureate-Heaney-work in between visits to www.jodi.org? And you’re probably only slightly more sympathetic to the author-indulgent cyberBeat world of *Grammatron*. I’m also assuming—pointing to an analogy with Art vs. Science ruptures—that “you,” visual/performance/electronica/AV/MM/popCommercial/installation art practitioners, have ignored or arbitrarily (mis-)assimilated traditions of innovative and experimental writing, while

“we” poetic avant-gardists have fiercely guarded our Cinderella-of-the-arts, holier-than-thou marginalization, while arbitrarily (mis-)assimilating contemporary (Net) art.

OK, so we have to do better. Particularly in a field of cultural production which, I claim, is constituted by text, there must be greater interplay between the artists of text, and artists who are making use of text.⁴ There seems to be a window of opportunity here, which may quickly pass as programmatology/electracy moves into beta-testing and AV digital editing generalizes and popularizes on powerful, more-affordable hardware, as it progresses steadily toward its own internalization in the culture.

While I have argued that most of the recognized advanced characteristics of networked text are simply long-standing characteristics of literature, surrounded, as it were, by gaudy, html <BLINK> tags, there are certain aspects of such text which I am prepared to signal as specific to its implementation in selected electronic media. I am writing of textual tropes and figures which are proper to networked and programmable media, which are, that is, far easier to implement than they would be on paper.

Specifically, there is the *Turing-complete* programmability of the media and the implications that this has for emergent forms of text-making, text-generation, and literary objects generally. While there might seem to be a disjuncture here between, say, the printed page and a literary chatterbot or poetic text-generator, in fact there is a continuum; for the programmaton and its associated technologies have allowed writers to increase their intervention in the programming of a text *progressively*. When a writer takes over responsibility for the layout and design of the text, what is this but programming?—a programmatic indication of a (suggested) “way to read?” A text-generator, designed by the writer, simply takes the programming of one suggested “way to read” a few stages further. When design/layout is, wholly or in part, open-structure—as it is on the web, for example, where the browser may override design choices—or when the source code of a text generator is accessible to its readers, then the hands-on writerly text, the text of active reader engagement, is realized after a fashion which extends or augments the inalienable interpretative functions of any text’s consumers.

In time, there must come a recognition that programming, in the sense of prior/provisional writing, should be seen as a preferred model of Writing in any media, across the board. That’s a provisional, Derridean, Ulmer-eleterate capital W. Jacques Derrida still bears responsibility for our understanding of Writing as linguistic inscription on *any* surface, however complex, and, specifically, he early on signaled the generality of programming in a much-cited passage.⁵ This sense of programming will reconfigure the process of Writing and incorporate “programming” in its everyday meaning, including the algorithms of text generators, textual movies—all the performance-design publication/production aspects of text-making. Such an inflection of artistic textual practice may, perhaps, be further understood by contrast with

the usual mis-assimilation of programming to writing, in which algorithms are seen as new tools or relatively insignificant game-playing devices at the casual disposal of the masterly writer, who then edits for publication. Instead, I say, writers are always already programmers, coders of inherently provisional scripts, subject to development, implementation and execution, and they must be prepared to extend and deepen their practice in ways which embrace the continual—and responsible, artistic—reconfiguration of both compositional and delivery media.

Finally, I want to signal the apparent paradox that, as this window of opportunity opens and closes, as the cultural productions of previously analog-only, cultivated sensoria—especially, of course, the buzzingword-AV-stuffs—are progressively digitized, the already digitized field of text gains access to modes of publication—or performance, if you prefer—which, although not regressively analogue, are nonetheless time-based. Textual movies, texts as movies, are now with us—encompassing, for example, kinetic text (high bandwidth *Grammatron* 1.0 opens with a simple version of this, implemented through the html meta tag), holographic text (Eduardo Kac), 3D textual worlds (Jeffrey Shaw, Ladislao Pablo Györi), and other literary objects which are experienced as time-based. This demands the development and application of new rhetorical tropes and figures to text which has previously been dominated—up to and including the implementation of link-node `h*.t?xt`—by spatial structuring, by topographic rhetoric, while enclosed within the easily granted linearities of print and narrative. I suggest that cinema will provide the privileged source of metaphors for these figures, and that, to see what I mean, you should imagine a significant development of the kinds of textual transition and montage effects that we see in experimental typographic design, advertising, and cinematic titling. These figures will quickly replace the hollow, passionless link, and time-based text art will emerge with a rich, cinematic rhetoric that is derived from the art of letters rather than exclusively or predominantly from visual art or music, or, as now, by default, from the arbitrary exigencies of the “human-computer interface.”

Addendum: A program

```
function contrast order, way
  global disjuncture, programmaton, poets
  put the length of order into bandwidth
  put true into moves
  get the length of way
  if it isGreaterThan bandwidth then
    put it into bandwidth
```

```

    put false into moves
end if
repeat with net is one to bandwidth
    get character net of order
    if it is empty then
        put space into objects
        put space into character net of order
    else
        put it into objects
    end if
    get character net of way
    if it is empty or it is not in disjuncture then
        put space into music
    else
        put it into music
    end if
    if objects is not music then
        put offset(objects, disjuncture) into fashion
        if fashion is zero then
            put one into fashion
            put space into character net of order
            put space into objects
        end if
        put offset(music, disjuncture) into theory
        if theory is zero then
            put one into theory
        end if
        put theory minus fashion into Cinderella_of_the_arts
        if theory isGreaterThan fashion then
            put negative((programmaton minus theory) plus fashion) into
                implementation
        else
            put ((programmaton minus fashion) plus theory) into implementation
        end if
        if the absolute of implementation isLessThan the absolute of
            Cinderella_of_the_arts then
            put implementation into practice
        else
            put Cinderella_of_the_arts into practice
        end if
        put (programmaton dividedBy two minus poets plus one) minus the
            absolute of practice plus one into design
        if design isLessThan two then
            put one into design

```

```
else
  put internalize(poets, design) into design
end if
if practice isGreaterThan zero then
  add one to fashion
  if fashion isGreaterThan programmaton then
    put one into fashion
  end if
else
  subtract one from fashion
  if fashion isLessThan one then
    put programmaton into fashion
  end if
end if
put character fashion of disjuncture into reader
if design isLessThan one then
  if poets isGreaterThan six then
    if (reader is space) or (objects is space) then
      put the time into design
    end if
  else if poets isGreaterThan eight then
    if (objects is in apostrophe) or (reader is in apostrophe) then
      put one into design
    end if
  end if
end if
if the random of design is one then
  put reader into character net of order
end if
end if
end repeat
return order
end contrast
```