

Computational Literature

("Reading Code", MLA Convention, Philadelphia 2006)

What is literature, from a semiotic perspective, and in the overall context of the arts? It is language art, and thus intermedia art by definition: sound art in its phonetic dimension, in meter and rhyme, onomatopoeia and scat singing. Since the early 20th century, sound poetry radically explores this dimension of language. Literature is visual art in its writing, not only in calligraphy and pattern poetry, but, as Jacques Derrida argues in the "Grammatology", as a primordial structure of language. Literature is performance art in the act of the reading, declamation, telling, or rapping. And of course, it is a semantic art in that what it tells, in the referents or signifiers of its sounds, visuals and performances. But none these properly describe that language and literature can also computational, not just through external technology, but by their own operational semantics, when in other words texts contain executable instruction codes. Electronic computers, with their programming language, merely expose this fact and make it a mass cultural phenomenon, but we can go back as far as to old Greek poetry for examples of computational writing.

Yet I would like to begin with a contemporary example:

Date: Tue, 14 Jan 2003 21:47:42 +1100
From: mez <netwurker@HOTKEY.NET.AU>
To: WRYTING-L@LISTSERV.UTORONTO.CA
Subject: Re: OPPO.S[able].I.T[humbs]ION!!

Hello Arch.E.typal T[Claims of the n]ext W[h]orl.d
------(mo.dueling 1.1)-----

N.terr.ing the net.wurk---
::du n.OT enter _here_ with fal[low]se genera.tiffs + pathways poking
va.Kant [c]littoral tomb[+age].
::re.peat[bogging] + b d.[on the l]am.ned.
::yr p[non-E-]lastic hollow play.jar.[*]istic[tock] met[riculation.s]hods
sit badly in yr vetoed m[-c]outh.

Pr[t]inting---
::spamnation. .r[l]u[re]ins. .all.

Exe.cut[up]able statements---
::do knot a p.arse.r .make.
::reti.cu[t]la[ss]te. yr. text.je[l]lied[wells .awe. .r[b]ust.

R[l]un[ge]ning the pro.gram[mar]---
::re.a[vataresque]ct[ors]actrestles] + provoke @ yr response per[b]il[e].
::con.Seed.quenches r 2 b [s|w]allowed.
::big boots make filth k.arm[N limb.ic cyst.M]a.

This text was written by the Australian Internet artist and poet mez (Mary Anne Breeze), sent out to a number of arts-related mailing lists in January 2003, and is an example of what she refers to as her "netwurks" in her self-made language "mezangelle", a contraction of among others "mez", "mangle" and "elle", the French word for "she". The text declares itself a computer program called "mo.dueling", modelling and duelling, with the version number 1.1. It reads, to quickly sum it up, as a poetically rewritten protocol of an Internet chat session. "Modelling", "module" and "dueling" map the parameters of an environment in which humans and computer programs interact through language, an "archteypical text world" which, by the virtue of the codes it consists of, is textual and physical, technological and sexual at the same time: it is a whore world, it is both "literal" and "clitoral", and consists of "exe.cut[up]able statements", that is: program code that is "cut-up" in the tradition of William S. Burroughs.

The text describes a techno imaginary that permeates communication, language, identity. It is a fantastic literature of the Internet, but unlike cyberpunk science fiction, it does not just describe its imaginary, but lets it invade and remodel its very language.

This language obviously borrows from wildcards, Boolean and regular search expression as they are commonly used in computer databases and Internet search engines. For a literary audience, there is a clear correspondence to Lewis Carroll's and James Joyce's portmanteau words. But before investigating this link, I would first like to reconstruct how mezangelle resembles a program code that, from a single input instruction, generates multiple different texts as its output. Beyond polysemy, mezangelle syntactically encodes permutations and variations into the text. The line "R[un]g[e]ning the pro.gram[mar]" for example expands into:

running the program
lungening the program
running the programmer
lungening the programmer
running the grammar
lunging the grammar

Almost four centuries earlier, in 1632, Robert Burton records in the "Anatomy of Melancholy" how poets "vary a verse a thousand ways with Putean, so torturing his wits, or as Rainnerus of Luneburg, 2150 times in his *Porteus Poeticus*, or Scaliger, *Chrysolithus*, *Cleppisius* and others". He refers to an entire genre of 17th century poetry that systematically permutes the words of a single verse. "Putean" stands for the French Jesuit Erycius Puteanus (Enrique Dupuy) who, in 1621, printed 1022 word permutations of a praise of the Virgin Mary on 50 book pages:

TOT TIBI SVNT DOTES, VIRGO, QVOT SIDERA CAELO.
Tot tibi sunt dotes, caelo quot sidera, Virgo.
Tot tibi sunt dotes, quot caelo sidera, Virgo.
Tot tibi sunt dotes, quot, Virgo, sidera caelo.
Tot tibi sunt Virgo dotes, quot sidera caelo.
Tot tibi sunt Virgo, caelo quot sidera, dotes.
Tot tibi sunt Virgo, quot caelo sidera, dotes.
...

What mezangelle notes as compressed source code, is written here as its expansion. The imaginary is religious instead of techno-cultural, but no less ecstatic as a loss of individual identity. Such algorithmic permutations had been defined and canonized in 1562 as "Proteic verse" in the poetics of the humanist scholar Julius Caesar Scaliger, but had multiple predecessor reaching back to a permutational anthem to the God Pan written by the Greek Hellenist poet Kastorion of Soloi. The Chinese *I Ching* is the best-known example of an ancient non-European computational text. Outside a literary tradition in the more narrow sense, language computation existed in ancient Asian and Greek gematria whose computation of letters as numbers was later systematized, along with word and letter permutations, in the Jewish kabbalah, and taken up by Ramon Lull and Lullists like Giordano Bruno.

In the late 17th century, the German poet, Lullist and mystic Quirinus Kuhlmann wrote a whole permutational sonnet, sketched a machine that would automate its permutations, and envisioned a device that would algorithmically generate all existing and potential books of the world. In 1726, Jonathan Swift mocked, like Burton before him, such Lullist visions in *Gulliver's travel to the Grand Academy of Lagado*. In the early 20th century, Jorge Luis Borges reflected upon them in his speculative fiction of the "Library of Babel".

All these fictions and imaginations extrapolate a structural dimension of literature: That, next to its sound, visual, performative and semantic texture, it also has a computational structure. Sonnets with their strict numerical laws and proportions of meter, rhyme, lines and stanzas are a more mainstream example.^{[1]{1}} In algorithmic texts, those apparent formalisms render them fantastic literature: utopias of the total text, phantasms of the self-destroying text, imaginations of language as a contagious virus.

Which brings us back to mezangelle and hybrid words: "'Twas brillig and the slithy toves / Did gyre and gimble in the wabe" is the famous beginning of Lewis Carroll's "Jabberwocky" poem. Humpty Dumpty explains the word "slithy" to Alice as a "portmanteau", "two meaning packed up into one word". Carroll had published the poem in 1855, before the Alice novels, under his real name and identity of the Oxford mathematician Charles Dodgson. In logical terms, "slithy" is an "and" operator if considered a hybrid word and an "or" operator in its discrete elements. This logic had been coined in George Boole's "Laws of Thought" in 1854, one year before Dodgson/Carroll wrote the poem. In 1927, the engineer Claude Shannon invented binary information processing and computing by mapping Boole's logic on to the design of electronic circuits. James Joyce, who neither knew Boole, nor Shannon, extended Carroll's portmanteau words into the poetics of the "Finnegans Wake" in 1939. The first page evokes the "humptyhillhead of himself promptly [...] in quest of his tumptytumtoes". Nine years later, Shannon in turn referred to the novel in his "Mathematical Theory of Communication", praising its "compression of semantic content". From the papal "urbi et orbi", the pope's annual prayer for the city of Rome and the rest of the world, Joyce forged the portmanteau word "urbanorb" in the fourth chapter of the third book of "Finnegans Wake". This word was taken up by Marshall McLuhan and transformed into "Global Village" in 1962. According to his biographer Donald Theall, McLuhan considered Joyce's novel his "textbook" and its combination of "orality, tactility, simultaneity and synaesthesia" the blueprint of a new "techno-poetic language".

In mez' mezangelle, portmanteau language has become techno-poetic indeed. It is not only para-computational, but actually a cultural reflection of computing, a writing less indebted to Carroll or Joyce than pop-culturally distilled from tech slang and hybrid human and machine communication in the Internet, including among others the popular use of Boolean operators and logic in databases and programming languages. It follows that Carroll, Joyce, Shannon, McLuhan, and mez are actors in a crisscross discursive field of partial appropriations and reinventions. It is a reception history that is a messy - or mezangelled - portmanteau in itself, materially inscribed into hybrid words, and thus a fantastic realism of computational imagination.

With few exceptions, the computational virulence of language has not been on the map of literary theory. An early exception, again, is Derrida whose "Grammatology" also covers the "cybernetic program" - that is, computer programs - as part of what he calls the "field of writing". But he still only identifies it as part of the graphetic dimension of language. As writing, Derrida argues, the computer program is just as "historico-metaphysical" as for example notions of soul, life, value, choice, memory". This is a stab against cybernetics, and it remains a valid critique of all techno-determinist media theories that declare the medium the message and technology the replacement of the human subject in history. Writing like mez' "net.wurks" tells, the medium of computational symbols, of the imaginary of those symbols, not as clean binarism, but messed up with gender, sexuality, politics, and desire.

Florian Cramer

29/12/2006

Footnotes:

{1} greber:wortwebstuehle