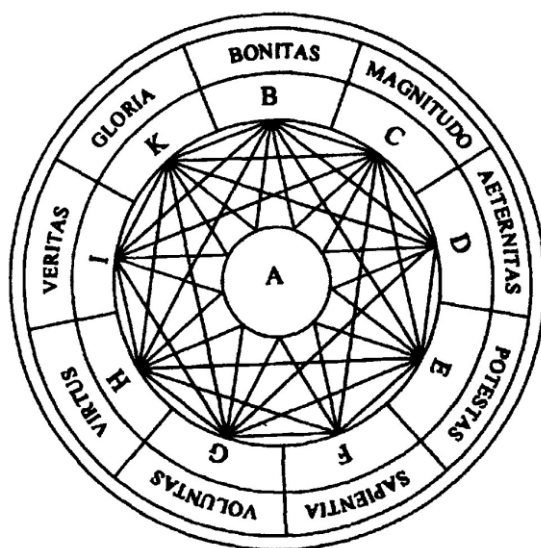


An Eternal Engine¹

Writing of Ramon Llull's 'thinking machines', Borges suggests playfully that we change the contents, the concepts these machines manipulate, designated by the terms on their rotating wheels. These wheels turn to create new combinations and so spell out propositions such as, 'Angels are wise'.



But, according to Borges, Llull's medieval expressions are no longer serviceable. He suggests, therefore, the preoccupations of Llull's machine might be modernised along the following lines:

“We now know that the concepts of goodness, greatness, wisdom, power, and glory are incapable of engendering an appreciable revelation. We (who are basically no less naïve than Llull) would load the machine differently, no doubt with the words Entropy, Time, Electrons, Potential Energy, Fourth Dimension, Relativity, Protons, Einstein. Or with Surplus Value, Proletariat, Capitalism, Class Struggle, Dialectical Materialism, Engels.” (Borges, 1999, p. 157).

¹ This paper's title, like that of *Infernal Thunder* (Clements, 2006) published in *a minima 19*, is taken from Milton's *Paradise Lost*, Book II: "...to meet the noise of his eternal engine he shall hear Infernal thunder". A version of this paper was presented at 'New Network Theory', a conference at The Institute of Network Cultures, University of Amsterdam, 28th to 30th June 2007.

In Borges's revision, it is only the words that are modernised, not the machine itself. Nor is our understanding of what this machine is fundamentally challenged. Like Llull's, Borges's would continue to produce unpredictable, but highly determinate, sentences. These machines of Llull and Borges, whatever their component concepts, are essentially random sentence generators, where the syntax is fixed and choices are made from a prepared list.

Such machines are the subject (probably) of Swift's famous parody writing machine from *Gulliver's Travels*:

"It was Twenty Foot square, placed in the Middle of the Room. The Superficies was composed of several Bits of Wood, about the Bigness of a Dye, but some larger than others. They were all linked together by slender Wires. These Bits of Wood were covered on every Square with Paper pasted on them, and on these Papers were written all the Words of their Language, in their several Moods, Tenses, and Declensions, but without any Order".²

These machines comprise fixed rules and random utterances, astronomically large, but not infinite, combinations.

Florian Cramer (2005) correctly identifies the limitations and the contradictions of these machines and other randomising contrivances: they produce chance combinations, but they are not themselves random. Their structure and construction, in fact, is fixed. "The strict separation of static instructions and contingent data contradicts the assumption of a 'chance operation'. This is the paradox of all aleatory art, including concrete poetry and the music of John Cage." (Cramer, p.103).

The **old writing machine** was, in computer-speak, 'stand alone', being a non-networked

² "The Professor then desired me to observe, for he was going to set his Engine at work. The Pupils at his Command took each of them hold of an Iron Handle, whereof there were Forty fixed round the Edges of the Frame, and giving them a sudden Turn, the whole disposition of the Words was entirely changed. He then commanded Six and Thirty of the Lads to read the several Lines softly as they appeared upon the Frame; and where they found Three or Four Words together that might make Part of a Sentence, they dictated to the Four remaining Boys who were Scribes. This Work was repeated Three or Four Times, and at every Turn the Engine was so contrived that the Words shifted into new Places, as the square Bits of Wood moved upside down." Swift (1963) pp. 175-176.

machine. Thus insular, its data was as fixed as its rules. But the networked **new writing machine** may receive inputs that are not preordained. And its rules are not fixed. These are differences that prompt a rethinking of the contemporary writing machine.

One of the compensations of determinateness and insularity is efficiency: Lull's machine has, within its own terms, no waste. Because its vocabulary and syntax are predetermined, it produces no redundancy. It is impossible that his machine would say '*God is a herring*', which is theologically incorrect, or '*herring God a is*', which is wrong, at least by most English users' standards, for other reasons. Both senseless and ill-formed remarks are forbidden.

The new writing machine is a networked machine. Its rules are fluid, as are its data. One of the problems of indeterminateness is redundancy. That is to say, whilst Lull's machine may be relied on not to produce statements its author might not approve of, the same cannot be said of the new writing machine. (What this means in practice is that the writings of this machine may be a site of contestation. This is because of the extreme unpredictability of possible inputs and output statements and disagreements as to their worth). While the old writing machine could emit a large but not infinite number of remarks, the new writing machine is as indeterminate in structure as it is potentially (at least) infinite in production.

What I am suggesting therefore is a rethinking of writing on the Internet as a development of the writing machine – a development in both the form of the machine and the data it may use. It is the fact of the computer, and the networked computer specifically, that enables this change.

The new writing machine is reconfigurable. (Speaking of digital computers in general) Niels Finnemann (1999) states, "rules can be changed, modified, suspended or ascribed new functions...influenced by any component part of the system or according to new inputs whether intended or not" (Finnemann, p. 22). This flexibility extends to any writing

machine that is simulated by a computer. Such a flexibility is logical, however, not actual. It is prevented in reality by restrictions both practical (for instance the deliberate obfuscation of code) and legal (the licensing of proprietary software for example). This constitutes one significant difference between open source/open content projects, such as Wikipedia, and other non-open source software.

Wikipedia, and its sister projects, can be thought of as writing machines, but they are not the only writing machines functioning on the Internet. They are, however, some of the more interesting; this interest devolves from their constitution as open content (anyone may contribute) and open source (the code is published and may be developed and functions thus changed).

The old writing machine was human authored. But once created, it was unaltered by human usage. Nor did it depend, as a logical machine, upon its environment. It was impervious to outside influence. But the new machines depend upon their networked status for continuance.

Many consequences flow from these dictums. In the new writing machine the human and the mechanical interpenetrate. The new writing machine is in fact *cyborg*: part human, part machine. In most circumstances, however, there are severe limitations on permissible human inputs, and the relationship is thus unequal.

These new machines still depend, as does Lull's (and Borges's revisions), on the ancient method of employing fixed structures and variable inputs we observed above. This technique of text generation is known as a template, or substitution, system and predates both Lull and the modern computer. Janet Murray (1997) describes this system in her discussion of computerised narrative. Her discussion is derived in turn from Alfred Lord's work on folk literature, *The Singer of Tales*. A substitution system may be thought of as a stock of formulas into which may be substituted chosen elements. Lord argued that poets in the oral tradition used these formulas as an aid to composition.

“Early attempts at computer-based literature tried to use similar methods of simple substitution” (Murray, p. 189). An example is Margaret Masterman’s *Computerized Haiku*, circa 1968³. *Computerized Haiku* uses a frame into which words are substituted. (Words in brackets are fixed. The others are chosen from prepared lists):

[ALL] THIN [IN THE] MIST,
[I] TRACE BLACK BIRDS [IN THE] DAWN.
WHIRR! [THE] CRANE [HAS] PASSED.

Despite subsequent developments, such methods continue to be a stock in trade of online writing machines (the output of which is seldom dignified with the designation Literature), which are by and large diligent robots, the type that manage our form-filling adventures. We can input a name, password, email address and, of course the machine will write a reproof if these are not legitimate. This is often more or less the extent of the transaction.

Not so, however, with wikis where there is of course a greater freedom to contribute. It is this liberty that for the most part wiki ‘vandalism’ exploits. Vandalism (but also permissible contributions) treats pages as templates into which material may be substituted:

Blanking: “Removing all or significant parts of pages’ content without any reason, or replacing entire pages with nonsense.”

Page lengthening: “Adding very large...amounts of bad-faith content”.

Spam: “adding or continuing to add external links to non-notable or irrelevant sites”.

Silly vandalism: “Adding profanity, graffiti, random characters, or other nonsense to pages”.

³ See Clements (2004).

Sneaky vandalism: “This can include adding plausible misinformation to articles”.⁴

And so on. The prominence of words such as ‘adding’, ‘replacing’ and ‘removing’ here makes the point quite well: pages are used as templates for the addition (or subtraction) of content. The guidance on non-destructive activity makes the same case: “Adding large amounts of good-faith content is not vandalism”. Motives differ, methods not.

The new writing machine may produce large amounts of redundancy. The greater the liberty allowed, the greater the potential redundancy, which may in turn be dealt with by invoking privileges allowed for by the flexibility of rules Finnemann characterises. Rules can be created, and changed, and suspended.

An example of rule suspension is the Wikipedian use of ‘page protection’, a rule that suspends the more fundamental wiki rule that any page may be edited, allowing only administrators to edit the specified page.

To return to Borges, our understanding of the writing machine requires not merely a revision of the notion of its contents but also of its structure. This prompts a consequent development of our theory of the machine. The discussion of Literature, with familiar genres of narrative and poetry and so on, has in some degree distracted from an exponential growth in the number of these machines and their evolution as of kind. The advent of the computer, the networked computer, has meant the multiplication of the writing machine. No longer a mystical anomaly, these machines are now functional and ubiquitous.ⁱ

⁴ See http://en.wikipedia.org/wiki/Wikipedia:Vandalism#Types_of_vandalism for these, and more.

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Wayne Clements

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