

Antiabecedarian Desires: Odd Narratology and Digital Textuality

*Deseos anti-alfabéticos: narratologías extrañas y
textualidades digitales*

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Abstract

Writing systems break temporal barriers and enable the sharing of knowledge and its preservation. As if they were living organisms, the narratological structures that conform textual communication are made up of replicative ordering principles and coding forms whose roots can be traced back to a Semitic proto-alphabetic script. However, literary history also includes many examples that, like viruses, have sought to disrupt the body of alphabetic textuality. This paper looks briefly at three fundamental artists, James Joyce, Jorge Luis Borges, William Burroughs, and at some contemporary pieces of electronic literature. Their questioning of ABC ordering patterns anticipates the debate on the importance or not of linear structures in representation systems.

Key Words

Alphabetic Writing - Borges - Burroughs - Joyce - Electronic Literature - Non-linear Structures.

Resumen

Los sistemas de escritura rompen barreras temporales y permiten compartir conocimiento y preservarlo. Como si fuesen organismos vivos, las estructuras narratológicas que conforman la comunicación textual crecen a partir de principios de orden y formas de codificación cuyas raíces retroceden hasta un proto-alfabeto de origen semítico. Sin embargo, la historia literaria incluye muchos ejemplos que, cual virus, han buscado quebrantar el cuerpo de la textualidad alfabética. Este ensayo estudia tres artistas fundamentales, James Joyce, Jorge Luis Borges, William Burroughs, junto con varias obras contemporáneas de literatura electrónica. Todos ellos ponen en cuestión los principios organizativos alfabéticos y anticipan el debate sobre la importancia o no de las estructuras lineales en los sistemas de representación.



Palabras clave

Escritura alfabética - Borges - Burroughs - Joyce - Literatura Electrónica - Estructuras no lineales.

1. Introduction: alphabetic writing

As early as the 4th millennium BCE, writing systems like Mesopotamian cuneiforms and Egyptian hieroglyphs contained traces of alphabetic properties. Hieroglyphs, for instance, were used as logograms (ideograms denoting an object pictorially), phonograms (representing sounds), and determinatives (providing clues to meaning) (Davies 1990: 102 – 105). In all these ancient forms of writing, vowels were mostly unwritten, and a single consonant represented an entire word, the number of consonants varied depending on the language. The Aramaic alphabet, which evolved from the Phoenician *ABGDE* order in the 7th-century BCE as the official script of the Persian Empire, appears to be the ancestor of nearly all modern alphabets.

Vowels were introduced in place of the Phoenician consonants not needed in Greek speech (McCarter 1974: 62). Because the Greeks had no glottal stop or ‘h’, the Phoenician letter ‘alep became ‘alpha, standing for the vowel /‘a/ rather than the consonant /ʔ/. Variant vowel sounds (short and long) emerged depending on the Greek dialect (Robinson 1995: 170). Phoenician writing moved from right to left. Some Egyptian texts and archaic Greek used the ‘boustrophedon’ technique (βουστροφηδόν, from from βοῦς, bous, “ox” and στροφή, strophē, “turn”; that is, turning like oxen in ploughing), a kind of bi-directional text. Hellenistic Greek was written from left to right, later giving rise to old Italic and Roman alphabets, as well as eastern variants such as Cyrillic and Armenian. The introduction of new writing formats were frequently the cause of changes in graphical form and writing.

The Phoenician glottal consonant ‘alep became the first vowel. Its name derived from the Semitic word for “ox”, based on a hieroglyph that depicts an ox’s head  and referring to the constellation of Taurus, shaped as a bull’s head, and prominent in the northern hemisphere in the winter during the Early Bronze Age. It marked the location of the Sun during the spring equinox (Leo “The Lion” marked summer solstice). For these cultures, the sun and the bull came to symbolize masculinity. In Egyptian hieroglyphs, aleph, is rendered as two half-rings opening to the left , similar to the Middle English character ȝ Yogh and the representation of the numeral 3 (Schneider 2003: 187-199).

Ugaritic ʔ 'alpu > Syriac 𐤀 'Ālap Phoenician 𐤀 'ālep > Hebrew א 'ālef > Arabic
ا 'alif > Greek Α Alpha > Latin A > Cyrillic А азү > Gothic/Rune Aza

In Arabic and Hebrew the root 'ālep makes reference to “tamed” or “trained” animals (Wehr 1994: 28–29). In its Gothic rune rendering *Aza*, it designates a branch of a birch tree, generally connected to Odin, the god of the Germanic tradition, who gave writing skills to people in the form of the material used for writing, the bark of the birch tree. The tree also figures prominently in the biblical tradition connected to forbidden knowledge and sin. In the Indo-European tradition, counting up to three, the first odd prime number and ‘divine proportion’ for Pythagoras and his followers (it appears also as part of the ‘Oum’ ॐ symbol of the primal gods in Vedic cultures), introduces a ritual alphabetic sequence corresponding also to the concept of ‘tree’ and ‘middle’. Counting up to three completed a line of homogeneous objects; the fourth element resumed a new sequence integrating both variation and circularity within the line.

The *axis mundi*, the tree pillar suspended in a trilogy between past (roots), trunk (present) and future (branches), connects the human world with the underworld or inferno and the upper regions or heaven (Grimm 1844: 756–760). The association of this arithmetic symbol with the mythopoeic motives of the world tree may have been relevant for the construction of the concept of world in Indo-European culture. Thus, in Indo-European culture, the world seems to be thought as the space with a sacred centre/middle that functions as a generative principle of nomination represented in various language forms (alphabetic, numerical) and cultural topics. By means of a metonymic principle the tree/middle represents the entire world/space becoming both centre and margins of the entire whole. The tree is both a sign of cultivation and the wood used to build human settlements/communities, functioning as a mytho-foundational sign, posing a complex amalgamation of index, icon and symbol, according to the sign categories introduced by the Harvard pragmatist Charles S. Peirce (1955). Odin was also the god of thunder and lighting and his name was associated to a pointing finger or index, as it appears in some of the frescos of the Sistine Chapel.

In the Jewish theological treatise *Sefer Yetzirah* (*The Book of Formation or Emanations*), the 22 letters of the aleph-bet most often are referred as “foundation letters”

because it was through the letters that the universe was created (Kaplan 1990: 26). The letter Aleph appears in relation to the origin of the universe and number 1, the primordial one that contains all numbers. In Midrashic literature (stories used to explain the *Torah*), the Aleph is praised for its humility in not being the first letter to start the sacred book, which begins with the second letter Bet ב (house). Instead, the Aleph starts the narration of the Ten Commandments. Its glottal origins assimilated it to air, one of the substances of the universe, to the acts of breathing and blowing, and to the essence of the soul, recalling God's breathing into the first man, Adam, to inject spirit into earthly matter (Adam was made of sand). The Aleph also appears in God's name (Ehyeh Asher Ehyeh יהיה רשא יהיה) and represents the oneness of God, made up of the tiny letter Yodh in its upper part (/i:/ small and often overlooked by scribes thus representing the hidden and ineffable aspects of God) and Waw Y (/o/), meaning "and" and "hook", thought to connect God's presence in the world. Yodh and Waw appear in the *tetragrammaton*, commonly transliterated into Latin letters as YHWH, the sacred name of God that cannot be pronounced. In Jewish mythology, the Aleph was carved onto the forehead of the golem which ultimately brought it to life, as reflected in Borges' "El Golem".


2. Codes and alphabets

In mathematics, aleph numbers denote the cardinality (or size) of infinite sets. Indeed, the process of modelling is the basis for the creation of alphabetic writing. Sumerian cuneiform tablets served as a matrix to generate Hittite and Phoenician writings and those, in turn, were adapted to create the Greek alphabet. Some of the letters, such as the Aleph, "even retain an element of the pictograph, in this case the drawing of a bull's head (𐤀) now upside down" (Healy 1991: 35). In *Picture Theory*, W.J.T. Mitchell defines the imagetext as a mutually antagonistic struggle between the word and image to convey meaning. Jerome McGann also demonstrated that words function as a "visible language" that can convey meaning both discursively and pictorially, and operate as aesthetic and artistic objects themselves. This also occurs in early examples of concrete poetry and in many works by the 20th-century avant-gardes (see Fernández Castrillo 2013). Egyptian hieroglyphics were possibly the first examples of such combinations of icon/index/symbol in the word/image relationship.

The Greek were the first to organize sounds in a linear array as consecutive phonetic elements, including consonants and vowels and allocating a special sign to each of them. Julia Kristeva writes that “We as subjects belonging to a cultural zone in which writing is phonetic and literally reproduces phonetic language, find it is difficult to imagine that a type of language – writing – could have existed and still exists today for many people that functions independently of the spoken chain, a type of language that is consequently not linear (as is emission of voices), but spatial, and so registers a mechanism of differences where each mark’s value depends upon its place in the traced whole” (1989: 26). The modelling or ABC principle is also responsible, for example, of the correspondence between letters and numbers present in Greek works such as Homer’s *Iliad*, whose 24 songs were numbered in accordance with the number of letters in the Greek alphabet.

In general, writing –and alphabetic writing in particular– is a semiotic system with two planes; a syntagmatic sequence of signs arranged in a linear structure that yields a particular reading or content, and a paradigmatic correlation of graphs or forms characterized by their position with respect to each other in the system. In this sense, alphabetic writing is a code and self-reflexively a text which encodes this code, much like their contemporary digital algorithmic counterparts. However, one important difference is that ancient writing was considered sacred. This was so not just because its reading was reserved to the selected few, but also because early writing examples, such as hieroglyphs, were carved on religious monuments, frequently related to burial ceremonies and the afterlife, and to the hermetic tradition and occultism (the term hieroglyph in Greek means hiero=sacred, glyph=carved) (see Davis 1990: 82).

The sequence of signs generating a text in ABC writing had ritual cultural values attached to it. This was based on repetition and modulation to help memorialization in ancient cultures which relied mostly on oral transmission of knowledge. Being a code presented as a text, where each letter had a particular name/value and entered linear collocations (syntax) and associations (semantic), messages were generated on the basis of the cultural tradition and the particular materiality in which each alphabet developed (on this see Valeryano-

vich and Ivanov 1994-1995). The French philosopher of language Jacques Derrida noted how in certain cultures, particularly in those developing from the biblical tradition, the 'word' becomes a sacred instrument that makes actual the presence of God. God's words in the *Book of Revelation* "I am Alpha and Omega" (1.8) follow this ritualistic pattern with the group ΑΩ containing the first and the last letter of the Greek alphabet. It embodies the sign/signature of God, his name made flesh in the form of ΣΥΘΧΙ (meaning 'fish' in Greek), anagram for "Jesus Christ Son of God Savior" (Ιησους Χριστος Θηου Υιος Σωτηρ) .

In Plato's dialogue "Timeus" the elements of the world are also associated to the letters of the Universe. "It is necessary to consider, what was the nature of fire, water, air and the earth before the birth of heaven and what were they then. By now nobody explained their origin, but we call them elements and consider them to be elements [στοιχεῖον] of the Universe as if we knew what the fire was and what was the rest, but it seemed clear to each at least a little an intelligent man in mind that there is no ground to compare it with some type of syllables." (Plato 2007:531) The word στοιχεῖον has several meanings. It refers to a shadow (related to Plato's conception of the world as a shadow from the superior world of Ideas); it also points to the term 'letter' as a sign of a number, and also as first element. The letter χ functions in the middle of στοιχεῖον as *axis mundi*, in between a combination of two pairs of four letters (the basic elements of the living world were four; fire, water, air and earth), and thus being the center of a group of three components (number three being the spiritual number). Plato's connection with the Pythagorean tradition of numerical symbols, music and harmony is explicit in his description of God's creation of the world:

First of all, he took away one part of the whole [1], and then he separated a second part which was double the first [2], and then he took away a third part which was half as much again as the second and three times as much as the first [3], and then he took a fourth part which was twice as much as the second [4], and a fifth part which was three times the third [9], and a sixth part which was eight times the first [8], and a seventh part which was twenty-seven times the first [27]. After this he filled up the double intervals [i.e. between 1,

2, 4, 8] and the triple [i.e. between 1, 3, 9, 27] cutting off yet other portions from the mixture and placing them in the intervals, so that in each interval there were two kinds of means, the one exceeding and exceeded by equal parts of its extremes [as for example 1, $4/3$, 2, in which the mean $4/3$ is one-third of 1 more than 1, and one-third of 2 less than 2], the other being that kind of mean which exceeds and is exceeded by an equal number. Where there were intervals of $3/2$ and of $4/3$ and of $9/8$, made by the connecting terms in the former intervals, he filled up all the intervals of $4/3$ with the interval of $9/8$, leaving a fraction over; and the interval which this fraction expressed was in the ratio of 256 to 243. And thus the whole mixture out of which he cut these portions was all exhausted by him. This entire compound he divided lengthways into two parts, which he joined to one another at the centre like the letter χ , and bent them into a circular form, connecting them with themselves and each other at the point opposite to their original meeting-point; and, comprehending them in a uniform revolution upon the same axis, he made the one the outer and the other the inner circle. Now the motion of the outer circle he called the motion of the same, and the motion of the inner circle the motion of the other or diverse. (Plato 2007:531)

The encoding of sounds in classical music follows similar patterns (the earliest forms were found in a Sumerian cuneiform tablet from about 2000 BCE, composed of harmonies of thirds; see Kilmer 1971), modelled both in speech sequences and rhythms that imitated other natural sounds. The repetition of these patterns gradually assimilated them into the cultural unconscious making them part of various other forms of cultural representation (geometrical figures used as basic patterns for drawing and painting also follow the ABC model). Aside the Pythagorean tradition, with their five-pointed star symbol enclosed in a pentagon (where each diagonal is divided by the intersecting line into two unequal parts and the ratio of the larger section to the smaller one is an irrational number with an infinite non-repeating decimal part), and Zenon de Elea's paradoxes on the infinite divisibility of the world, one of the best known examples of the emergence of the concept of the continuum are Fibonacci sequences (see Singh 1936).

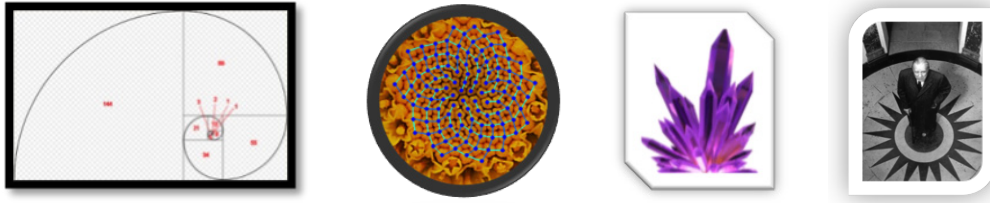


Fig. 1: Fibonacci infinite sequence of natural numbers. **Fig.2:** Chamomile head showing the arrangement in Fibonacci numbers. **Fig. 3:** crystal. **Fig. 4:** Borges. Images in the public domain.

The golden mean Φ , as it is called, has been applied in diverse situations in art (Giotto, Seurat, Mondrian, Dali), architecture (Ernst Neufert and Le Corbusier) and music (Debussy, Bartok, and Xenakis) (Livio 2002). Periodic functions and ratios are central to rhythmic patterns and visual compositional structures. Western music patterns, for instance, follow basic structures like AABB or AABA, where A and B represent musical phrases. Most patterns follow ABC sequences as well as permutations of these. Some of Fibonacci paradoxes were popularized by the British Reverend and logician Charles Lutwidge Dodgson (Lewis Carroll) in *Alice in Wonderland* (1865).

3. Planetary Joyce

The seeds of James Joyce's preoccupation with history, time and order are first planted in his second novel, *Ulysses*, serialized from 1914 and published in book form in 1922. Joyce presents two different inquiries by means of his two protagonists, Stephen Daedalus and Leopold Bloom. Stephen approaches the problem of time from the perspective of philosophy. Bloom contemplates it from the scientific point of view. The most explicit reference to the topic occurs in the second last episode of the *Ulysses*. In Episode 17, also known as Ithaca, Bloom and Stephen arrive back in Bloom's house after a drinking session and a visit to one of Dublin's brothels. They engage in conversation over a cup of coffee. It is in this episode that many of the apparently incidental details that Joyce has distributed throughout the narrative combine, and the reader is able to fill previous gaps and missing information. The reader learns the ages of the protagonists and about their educational careers, about their readings, their temperaments, and their interests. More

importantly, about their remembrances of the main episodes in their lives, such as the suicide of Bloom's father or the death of his son. The narrator, a mixture of Bloom and Stephen's personalities with more of Bloom's, explains how Stephen is more worried about "the accumulation of the past" and "the traditional figure of hypostasis", while Bloom thinks of the "predestination of a future" and "the ecstasy of catastrophe." (*Ulysses* 1986: 565).

Thus, the reader finally discovers that Bloom's thoughts on geometry, algebra and cosmology are a consequence of his interest in those fields, documented by the list of the books on his bookcase, offered in the episode, and which are also in relation to his past as a freemason. Many of his assertions speak directly of the relationship between cause and effect, but instead of the Newtonian belief where every action is related to an equal and opposite reaction, Bloom's speech contains the idea that minute differences in the initial conditions of a dynamic system may lead to vast differences over time, a principle which was nicknamed "butterfly effect" by the meteorologist Edward Lorenz.

If causes cannot be distinguished from their effects, the flow of time becomes frozen into the presentness of contextual space, which is what occurs in this episode. Thus, Bloom's efforts to find in Stephen a substitute for his dead son are described as "counterproposals advanced, accepted, modified, declined, restated..." which were "rendered problematic for Bloom" by "the irreparability of the past" and "the imprevisibility of the future" (1986: 571). On his part, Stephen's philosophical mind proceeds by affirming his significance as a conscious rational animal proceeding syllogistically from the known to the unknown and a conscious rational reagent between a micro- and a macrocosm ineluctably constructed upon the incertitude of the void." (1986: 572)

Another example of Joyce's attempt to represent the spatiotemporal continuum is provided when Bloom and Stephen are pressed by the need to evacuate in the back garden. They look at the starlit sky and interrogate themselves once more over the word "parallax" and the parallactic drift of so called fixed stars, "in reality ever moving from immeasurably remote eons to infinitely remote futures in comparison with which the years, threescore and ten, of allotted human life formed a

parenthesis of infinitesimal brevity.” (1986: 573). Bloom’s conclusion after calculations and meditations on the various features of constellations is that

[...] it was not a heaventree, not a heavengrot, not a heavenbeast, not a heavenman; that is was a Utopia, there being no known method from the known to the unknown: an infinity, renderable equally finite by the suppositions probable opposition of one or more bodies equally of the same and of different magnitudes: a mobility of illusory forms immobilised in space, remobilised in air: a past which possibly had ceased to exist as a present before its future spectators had entered actual present existence. (1986: 575)

The narrator adds that “he” (one gathers the pronoun refers to Bloom but it is interesting that he reaches the same position from which Stephen had initially departed) was “more convinced of the aesthetic value of the spectacle.” (1986: 576) In this episode, Bloom/Stephen/Joyce reach a point where the question “Similarity?” (1986: 577) is posed. The answer is that “the trajectories of their, first sequent, then simultaneous, urinations were dissimilar.” (1986: 577) When they finally take leave “one of the other, in separation” (1986: 578), “the lines of their valedictory arms, meeting at any point and forming any angle less than the sum of two right angles” (1986: 578) (echoes from John Donne’s poem *Valediction Forbidding Mourning*). Stephen and Bloom seem to be united but yet apart, like the legs of a compass. Their differences complement each other and provide the complete picture.

Back in the house, Bloom assesses his own situation as a cuckold husband (the episode provides many hints of the presence of his wife’s lover in the house) and considers the pros and cons of suicide “change of state”, of departure “change of place”, and of return, for he sees himself as a “binomial...entity and nonentity”, “Everyman” and “Noman” (1986: 598). He muses on an irrational return, “an unsatisfactory equation between an exodus and return in time through reversible space and an exodus and return in space through irreversible time” (1986: 599), and finally decides to follow the law of minimum energy and take no action.

A paper by Thomas Jackson Rice offered a case for Joyce's cybernetic plot in the *Ulysses* by exploring the role of messengers in the story. Rice points out that events that may have been purely accidental at the moment of their occurrence, viewed in retrospective through the prism of memory seem to have been fully deterministic. (1994: 1) Contemplated with the eye in the future, events contain both potentiality and unpredictability. This complex paradox is captured by Joyce in the fluctuating identities of his characters and their connection to himself as author: "every life is many days, day after day. We walk through ourselves, meeting robbers, ghosts, giants, old men, young men, wives, widows, brothers-in-love. But always meeting ourselves" (*Ulysses* 1986: 175).

Joyce took seventeen years to write his final novel, *Finnegans Wake*, published in 1939, two years before his death. Identifying himself with the émigré experience, he uses a language based on English to which he adds suffixes and prefixes in many other languages in order to create multilingual puns and multiple associations (also called portmanteau words in French because of their portable ability to carry meaning across). Owing to his expansive linguistic experiments, the extremely diverse literary allusions, and the complexity of the plot, which moves in concentric circles and uses a multiple points of view with stream of consciousness and free associations, *Finnegans Wake* remains a very difficult book, largely unread.

The title of the *Wake*, as it is frequently known by Joyce scholars, alludes to the popular Irish ballad where Tim Finnegan, a builder who has died in a falling accident, resurrects after some drops of whisky fall on his coffin. The novel starts exactly from where Joyce had left *Ulysses*: at the point where the contingent becomes planetary. Set once more in Dublin because, as he said to Arthur Power, "if I can get to the heart of Dublin I can get to the heart of all the cities of the world" (cited in Ellmann 1959: 505), Joyce wanted to map himself as Everyman, as young artist/son/Stephen and as adult/father/Bloom, and to tell not only the history of English literature, as he had done in the Oxen in the Sun episode in the *Ulysses*, but the entire world history captured in one single story. That is, to capture the many within the one. The only way to achieve this was by fracturing linear narrative structures and ABC principles.

Finnegans Wake ballad, like Eliot's *Wasteland*, refers to resurrection myths found in ancient fertility religions and their contemporary trace in masonic rituals. The fact that Tim Finnegan is a builder forces associations with Ibsen's play *The Masterbuilder*, an author much admired by Joyce. The protagonist of the *Wake* is a "myther rector and maximost bridgesmaker," "building supra building pon the banks for the livers by the Soangso," (*Finnegans Wake*, 4.27-28), "a waalworth of a skyerscape of most eyeful hoyth entowerly" (4.35-36)

In order to break the ABC logic that dominates human waking states, Joyce starts from the principle of symmetry, found in unconscious states of mind such as dreaming. Unconscious states are marked by constant flux and transformation within a preferring of sameness, that is, multiplicity within the one, as in fractal geometry. On the other hand, conscious states of mind which arise from the unconscious level, register ego-functioning and are open to differences or 'asymmetries' (Matte Blanco 1988). Overlapping repetitions of categories at several levels express in the *Wake* a kind of relativistic fusion of different spaces and times in a timespace continuum that precludes the use of formal logic and language: "The teak coffin, Pughglasspanelfitted, feets to the east, was to turn in later, and pitly partly near the porpus, materially affecting the cause" (1.4.76)

The fractal structure of the *Wake* appears, for example, in the typological characterization, where each character embodies multiple historical and fictional selves: "Mister Typus, Mistress Tope and all the little tytopies" (*FW* 20.13). The book is the story of a family, told during the course of one night in which the father, Mr. Porter, owner of a tavern in Dublin, dreams. If *Ulysses* takes place during the course of a single day, *Finnegans Wake* is its corresponding night. Divided in four parts, the first consisting of eight episodes, the second and third of four episodes and the fourth of a single episode. The surface level of *Finnegans Wake* is the story of Mr. Porter, a middle-aged man of Protestant Scandinavian stock, and his wife Anna Livia. Like the Blooms in the *Ulysses*, the Porters are émigrés. They have a pretty daughter, named Isobel/Izzy, and two sons, Kevin and Jerry. Mr. Porter is dreaming at night, and all through the book we hear the tap-tap tapping of a branch at his window (in *Ulysses* there was a corresponding tap-tap of a blind man coinciding with Bloom's and Stephen's itineraries). Mr. Porter's dream, which is

shared with the reader, encompasses the whole of human history, a kind of collective unconsciousness in which all religions, mythologies and languages are represented and fused: “But abide Zeit’s summonserving, rise afterfall [...] the hoarder hidden propaguting his plutorpopular progeniem of pots and pans and pokers and puns from biddenland to boughtenland, the spearway fore the spoorway.” (78.07).

In the second level of his dream, Mr. Porter metamorphoses into Humphrey Chimpden Earwicker HCE, a mixture of guilty human, mammal (chimp) and insect (earwig). His wife is Anna Livia Plurabelle ALP. HCE (“Here Comes Everybody” or “Haveth Childers Everywhere”, “Human Conger Eel” among many other denominations; History of Christian Era? Perhaps?) wants to be accepted by the Irish people as a political representative, but an incident in Phoenix Park precipitates his downfall and he unjustly accused and imprisoned following the spread uncertain rumours. HCE becomes many different personages, famous for their Fall, “dized and dazed by the lumpty thumpty of our interloopings, fell clocksure off my ballast” (550-551).

In the third iteration of the fractal, Joyce hints at mythological and historical associations derived from the cast of characters by using the cyclic vision of history presented by Giambattista Vico’s *Scienza Nuova* (1725). Joyce includes four main cycles: the mythic-theological, the heroic-aristocratic, the human-democratic, and the chaotic *ricorso* or return that “brings us by a commodius vicus of recirculation back to [the beginning]” (3.02). Vico’s division of time into three periods and the *Scienza Nuova* provided a parallel to the new scientific concept of time with its coordinates consisting of three dimensions of space and one of time: “facing one way to another way and this way on that way, from severalled their fourdimman-sions” (367.26-27) The turn of the cycle was heralded by the thunderous voice of God, which accompanied a Fall that precipitates the rise of a new circle: “Calling all downs. Calling all down to dayne. Array! Surrection! Eirewecker to the world blydyn world.” (593.03)

Vico had argued that “at the same time that the divine character of Jove took shape—the first human thought in the gentile world—articulate language began to develop by way of onomatopoeia, through which we still find children happily ex-

pressing themselves” so that “Human words were formed next from interjections, which are sounds articulated under the impetus of violent passions” (1976: 150). According to Vico, the first word is “pa” (father), a kind of “divine title” carried by “the strong men in the family state, from a natural ambition of human pride.” (1976: 150)

Thus, in order to open up new worlds for telling, Joyce needs to break up the primal matter of words; to fracture the ABC principle “for the very purpose of subsequent recombination” (614.34-35), and fuse “Nichtian glossery which purveys aprioric roots for aposteriorious tongues” (83.10-11) in order to show “how every word will be bound over to carry three score and ten toptypical readings throughout the book of Doublends Jined” (20.13-16) To make the sound of thunder explicit, Joyce coined a word made with 100 letters, supposedly from words in various languages.

Bababadalgharaghtaka minarronkonnbrownntonnerronnntonthunntrovarrhounawns
kawntoohooordenenthurnuk

Figure 5: (3.15-16)

Following Vico, the Fall is marked by the translation of a thunderclap into language. Joyce’s word starts with “Bab” probably referring to ‘babel’, in Sumerian *Bab-ilim*, meaning ‘Gate of the Deity’, as well as Arabic باب. *bāb*, meaning gate, gateway, and also grandfather and father in other languages such as Armenian. *Aba* refers to Hebrew אב (*ab*) or father (it comes from an assumed root אבה *aba*). (*ab*) also occurs in meanings other than that of a biological parent. Sometimes it’s used to indicate the lord of a community (Isaiah 22:21), an elder (Kings 2:12), or an ancestor (Genesis 10:21), indicating a position of authority such as a counsellor (Genesis 45:8) or a prophet (Kings 6:21). Thus, it refers to the reproduction of power by means of voice or speech. The father is, thus, the lawmaker. Interestingly, these terms are followed by *ada* אדה, which in Hebrew means ‘to go on’ and ‘pass by’, but also means ‘ornament’ and ‘menstruation’. Lamech the First’s wife, Adah, is the second woman mentioned in the Bible after Eve (Genesis 4:18). “Hara” הרה (*hara*) means to be with child, to be preg-

nant. “Mina” मीना is a feminine name that means ‘fish’ in Sanskrit. “Arron” is a variant of “Aaron” (Moses’ elder brother) and derives it from the Hebrew word אֶרֶן (*har*) meaning mountain, hill and sometimes used as metaphor for a large group of people.

The number three is present at the beginning of the thunderword series in the symmetric Bababa. The names of the characters are compiled in the three initials HCE and ALP and exist at the same time in four structural levels. There are many other associations with number four that I am unable to mention here because of lack of space. Similarly, number 1 has the capacity to change into 2, so that Isobel/Izzy has a split personality, and the twins Shem and Shaun are one and opposites. Shem is associated with temporality while Shaun typifies the spatial approach, an opposition which also takes the form of an elm and a stone (not just in relation to Einstein –Stein=stone in German). “on the hike from Elmstree to Stene,” preceded by “it was mutualiter foretold of him by a timekiller to his spacemaker” (247.01-04).

In a dream, time becomes undifferentiated and therefore unimportant, so in *Finnegans Wake* the various zones of reality mix on a kind of supra-temporal level: “Then’s now with now’s then in tense continuant” (598.28-29) and “auctual futule preteriting unstant” (143.07-08) combine so that “between me rassociations in the postleadeny past and mi disconnections with aplompervious futules” (348.05-06). The only significant date in HCE’s version of history is 1132 A.D. and its significance is entirely symbolic: 11 stands for the *ricorso* after counting up to ten. 32 feet per second is the rate of acceleration of all falling bodies. ALP has 111 children, that is, 100 plus the *ricorso*. The interpenetration of spationtemporal levels is expressed in the *Wake* in the merging word formations and a persistent shifting of the recurrent motifs where characters and events are “everintermutuomergent” (55.11-12) in an endless process of creation and annihilation which is in “constant of fluxion” (297.29), and in an “undivided reawlity” (292.31) where the “one who deeper thinks will always bear in the bacbuccus of his mind that this downright there you are and there it is is only all in his eye. Why? Because [...] every person, place and thing in the chaosmos of Alle [...] was moving and changing every part of the time.”(118.5-23)

Anticipating contemporary digital tools that enable active interaction with text units, Joyce invites his readers to participate “Qui quae quot at Quinnigan’s Quake! Stump! His producers, are they not his consumers?” (496.36-497.02). Donald Theall was one of the first critics to recognize Joyce’s work as pioneering the artistic exploration of two sets of differences – orality/literacy and print/[tele] electric media. For Theall “the *Wake* dramatizes the necessary deconstruction and reconstruction of language in a world where multi-semantic grammars and rhetorics, combined with entirely new modes for organizing and transmitting information and knowledge, eventually would impose a variety of new, highly specialized roles on speech, print and writing” (1992: 3). The dreamworld of the *Wake* envelops the reader within an aural sphere, accompanied by kinetic and gestural components that arise from the effects of rhythm and intonation realized through the visual act of reading. Vico had speculated that human communication begins with gestures, a natural script or originary writing. In Part I.5 of the *Wake*, traces the development of human communication starting from manuscripts and “the proiform graph is a polyhedron of all scripture” (*FW* 107.8 cited Theall 1992, 6). One of the most important quotes in the book functions as a sort of ‘claybook’ with a secret code that requires more than alphabetic knowledge in order to be solved: “(Stoop) if you are abecedminded, to this claybook, what curios of signs (please stoop), in this allaphbed! Can you rede (since We and Thou had it out already) its world?” (18.17-19).

4. Babelian visions in Borges

Argentinian writer Jorge Luis Borges published “The Aleph” in 1945, a story that was later collected in *The Aleph and Other Stories* (1949). The title makes reference to mathematician Georg Cantor’s use of the Hebrew letter Aleph \aleph to denote transfinite sets. The Aramaic phrase “Abracadabra” (‘I create as I speak’; Kushner 1998: 11) starts also from the Aleph \aleph as a way to remember the magical powers of the alphabet by pronouncing its first letters (*Ab* Father, *Ben* Son, *Ruach A Cadsch* Holy Spirit). In its bi-dimensional form it took the form of a pyramid or a triangle that served as amulet (see Vollmer 1916). In its tri-dimensional representation it became the Aleph described by Borges.

A - B - R - A - C - A - D - A - B - R - A
 A - B - R - A - C - A - D - A - B - R
 A - B - R - A - C - A - D - A - B
 A - B - R - A - C - A - D - A
 A - B - R - A - C - A - D
 A - B - R - A - C - A
 A - B - R - A - C
 A - B - R - A
 A - B - R
 A - B
 A

The Aleph is the first letter, a point from which the alphabet and the entire universe emerges. Borges reflects on the permutations of the alphabet that allow a fixed number of letters to create an entire library shaped in the form of a sphere whose exact centre is an hexagon containing, in turn, a sequence of spheres, resembling a mathematic manifold where three dimensions are realized by mapping the self-intersection of two dimensions. The story also refers to Gottfried Wilhelm Leibniz's *Monadology* (1714), where he attempts to surpass René Descartes' dualist conception by conceptualizing a model that registers the initial cause (the one) and the plurality and infinity (the many) in the universe. Each monad or part contains the entire universe, hence infinitely many copies of the universe.

Borges' description of the world contained within the Aleph oscillates between abstract and concrete references. The author appears as a character in the story, mourning the recent death of a woman, Beatriz Viterbo, whom he loved. He stops by the house of her family to pay his respects, and continues to visit the family over time. He gets to know her first cousin, Carlos Argentino Daneri, a mediocre poet with a huge ego, who is spending his life writing an epic poem that tells the complex story of the world with minute detail. Daneri explains that in the cellar of the house there is a magic artefact, the Aleph, that inspires his writing. Borges thinks that Daneri is mad but wants to see the Aleph for himself.

I arrive now at the ineffable core of my story. And here begins my despair as a writer. All language is a set of symbols whose use among its speakers assumes a shared past. How, then, can I translate into words the limitless Aleph, which my floundering mind can scarcely encompass? Mystics, faced with the same problem, fall back on symbols: to signify the godhead, one Persian speaks of a bird that somehow is all birds; Alanus de Insulis, of a sphere whose center is everywhere and circumference is nowhere; Ezekiel, of a four-faced angel who at one and the same time moves east and west, north and south. (Not in vain do I recall these inconceivable analogies; they bear some relation to the Aleph.) [...] What my eyes beheld was simultaneous, but what I shall now write down will be successive, because language is successive. Nonetheless, I'll try to recollect what I can. On the back part of the step, toward the right, I saw a small iridescent sphere of almost unbearable brilliance. At first I thought it was revolving; then I realised that this movement was an illusion created by the dizzying world it bounded. The Aleph's diameter was probably little more than an inch, but all space was there, actual and undiminished. Each thing (a mirror's face, let us say) was infinite things, since I distinctly saw it from every angle of the universe. [...] I saw the Aleph from every point and angle, and in the Aleph I saw the earth and in the earth the Aleph and in the Aleph the earth (n/p)

His descent into the cellar where the Aleph is hidden resembles Dante Alighieri's in his *Divine Comedy*. Dante's name is recalled in the name of the poet in the story, Daneri's ("Dan" from Dante and "eri" from Alighieri). Beatriz' name also takes her name from Dante's muse. In a postscript to the story, Borges explains that Daneri's house was ultimately demolished, but that Daneri himself won second place in the Argentine National Prize for Literature.

Like James Joyce's work, Borges' short stories continue a process of dislocation of alphabetic linear structures; a process aimed at presenting complex networked forms of textual organization beyond the linear alphabetic principle of writing in print. These forms question traditional narrative constructions present in Guten-

berg mobile types, and anticipate the hypertextual formats and forms of automatic writing, some of them already explored by Surrealism and Futurism, and present in certain software programs in today's digital world. The metaphor of the labyrinth, which Borges uses in his story *The Library of Babel*" (1941), illustrates the complex reticular forms of textuality that emerge from the break of ABC principles. The labyrinth conveys the idea of nomadism and search. The maze is a meta-representation, simultaneously a four dimensional continuum contained in the three dimensions of space where time is frozen.

The technique of 'cut-up' developed by American Beat Generation writer William Burroughs, helped introduce other principles of disorder within traditionally ordered textual units. Like the pleasure promised by solving the enigma at the end of the maze, they enabled new forms of reading that thrived in disorientation and problem solving, a postmodern way of reasoning that seems to take special delight in nomad thinking and in the possibilities that chance events introduce in communicative situations, even at the risk of losing the grasp of the main thread of the storyline, distracted by the marginal and expansive commentaries.

5. Burroughs and Viral E-Lit

Although in 1994 Douglas Rushkoff claimed that cultural assumptions spread like a virus through media, the same idea applied to language comes from William S. Burroughs' book *The Electronic Revolution*. This essay collection was published in 1970 and takes the title from its part two which concerns alphabetic non-pictorial languages and compares them to virus contagion. Burroughs explains that "the word has not been recognised as a virus because it has achieved a state of stable symbiosis with the host," and argues that the recording of words and the use of cut-up techniques in news broadcasting can lead to false presentation of events and audience manipulation. Burroughs indicates that "The word of course is one of the most powerful instruments of control as exercised by the newspapers and images as well, there are both words and images in newspapers ... now if you start cutting these up and rearranging them you are breaking down the control system." (1989: 29)

Burroughs employs several techniques that aim at disrupting pre-established and institutionalized forms of communication in an attempt to expose methods of media domination used in advertising and commercial culture. His final goal is to draw attention to the relation between forms of communication and habits of consumption. “The basic operation of recording pictures, more pictures and playback can be carried out by anyone with a recorder and a camera. Any number can play. Millions of people could nullify the control system which those who are behind Watergate and Nixon are attempting to impose.” (1970: n/p) Thus, his purpose is to disrupt bourgeois culture: “Cut-ups on the tape recorder can be used as a weapon [...] the control of the mass media depends on laying down lines of association. When the lines are cut the associational connections are broken, so stir in new stories, TV plays, stock market quotations, adverts and put the altered mutter line out in the streets.”(1970: n/p)

In the summer of 1959 in Paris, Burroughs shared a flat called ‘Beat Hotel’ on the *Rive Gauche* with his friend and mentor artist Brion Gysin (see Leysler 2010). Gysin developed a ‘cut-up’ technique – a new form of writing whereby text and image fragments are intuitively pieced together to form open associative narrative structures that could be read backwards, forwards. Gysin cut newspaper articles into sections and rearranged them at random. The experiment resulted in *Minutes To Go*, a piece created by Gysin and Burroughs in 1960 (see <http://briongysin.com/>). Similar experiments had been introduced by French poet Arthur Rimbaud and by Surrealists and Dadaist artists such as Andre Breton and Tristan Tzara. As Burroughs explained: “I follow the channels opened by the rearrangement of the text. This is the most important function of cut-up. I may take a page, cut it up and get a whole new idea for straight narrative, and not use any of the cut-up material at all, or I may use a sentence or two out of the actual cut-up [...] It’s not unconscious at all: it’s a very objective operation. (Burroughs 1989: 29) Cutting and rearranging words introduces new dimensions into writing phenomena, enabling the introduction of complex forms of kinaesthetic variation and questioning the role of the author as the ‘cut-up’ uses other people’s texts.

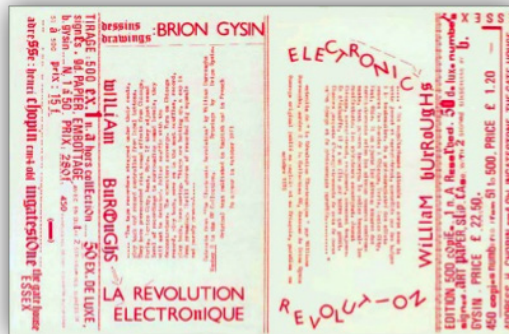


Figure 6: Original announcement of the release of *The Electronic Revolution*, designed by Brion Gysin, printed in red on a sheet of white paper, in both English and French.

The start of *The Electronic Revolution* brings us back to the Aleph and alphabetic writing only to subvert it: “In the beginning was the word and the word was god and has remained one of the mysteries ever since. The word was God and the word was flesh we are told. In the beginning of what exactly was this beginning word? In the beginning of *written* history.” (n/p) The repetition of terms in this paragraph draws attention to the complex reading forms required to understand, however partially, works such as Joyce’s *Finnegans Wake* or Borges’ “The Aleph”. In fluid kinaesthetic texts meaning is not gathered from orderly linear structures. Rather, it derives from the repetitions and from the resonances echoing from these. The first part of *The Electronic Revolution*, “The Feedback from Watergate to the Garden of Eden,” turns to the semantic theories of Alfred Korzybski. The sentence above uses Korzybski’s words and de-semantizes them. Burroughs then goes on to define the written word as a virus that made the spoken word possible. Like alphabetic writing, exemplified in the symbol of the Aleph, viruses are immortal and spread by symbiotically parasitizing living organisms and sometimes destroying them. Here is a passage from the text:

I suggest that the spoken word, as we know it, came after the written word. (...) we may forget that a written word is an image and that written words are images in sequence that is to say moving pictures. (...) My basis theory is that the written word was literally a virus that made the spoken word possible. Doktor Kurt Unruh von Steinplatz has

put forward an interesting theory as to the origins and history of this word virus. He postulates that the word was a virus of what he calls biologic mutation effecting a biologic change in its host which was then genetically conveyed. One reason that apes cannot talk is because the structure of their inner throats is simply not designed to formulate words. He postulates that alteration in inner throat structure were occasioned by a virus illness. (n/p)

The networked complex textuality that emerges from Burroughs' multimodal cut-ups is made of text, images and sounds. It breaks traditional art divisions and, like hypermedia, branches out in multiple directions no longer solely textual. Burroughs and Gysin's cut-ups spread by viral cultural and media contagion, as many of today's software applications. Like viruses, the algorithms present in computational codes replicate by non-linear processes of 'drift'¹ and replication, inserting multiple copies of themselves in computer programs and data files. In 1990, Edward Rybicki defined viruses as "organisms at the edge of life" because, although they lack biological characteristics such as cell structure, they carry genetic material, reproduce and evolve from pieces of DNA that can move between cells. Many contemporary software applications replicate like viruses and maintain human beings in a permanent state of emergency, forever connected to facebook or wassup.

Several pieces of electronic literature have made use of the viral metaphor. Jim Andrews' *Stir Fry Texts* (1999-2004) combines quotes from various sources that integrate and shift as the interactor views them, creating new refractions on the original ideas. Nanette Wylde's *Storyland* (2002) generates unique stories that are always patterned upon the same syntax. Similarly, Dan Shiovitz's *Bad Machine* (1998-2003) presents a surface of text that blends English with structures and tropes from programming languages, database queries and reports, error messages, and other forms of machine communication.

Dreamaphage (2003-4), like other works by the Australian artist Jason Nelson, fuses considerations between biology and technology. The opening screen brings us to a hospital setting and a surreal atmosphere of distorted sounds that

evoke the experience of fever, illness and dreams. Five unnamed patients have contracted a fatal virus that reproduces itself inside its host's dreams. This dream infection seems to have raised the IQ of one of the patients, while in another "the dream seems to have taken over most of the memory." Readers/users may interact with *Dreamaphage* by changing the orientation of the geometric shapes on the background, click on the medical reports, and move the mouse vertically (Y-axis) and horizontally (X-axis) affecting the number of people who are infected. Some

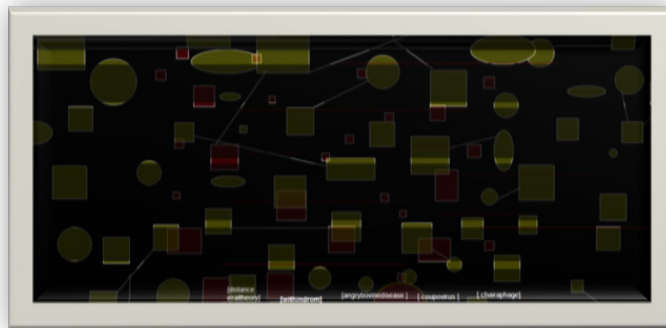


Figure 7: Dreamaphage (2003-4)

aspects of the work are no longer operational because they rely in outdated software versions. These functional silences are paradoxical in a work that deals with virus proliferation. They help emphasize the importance of the material host in the harbouring and spread of the viral strain.

In Melinda Rackham and Damien Everett's *Carrier (becoming symborg)* (1999), the reader/user engages with the hepatitis C virus, named sHe, an intelligent viral agent living on the edge of gender, text and life, mind and matter. Interaction with sHe helps the reader/user become a 'symborg', an entity where the boundaries between human / machine / species dissolve. The term carrier also 'carries' associations to many different types of entities that function in trans-media processes, from chemical catalysts to the 'vahana' or vehicles –mostly animals- that transport the diverse avatars (reincarnations) of Hindu gods and goddesses.

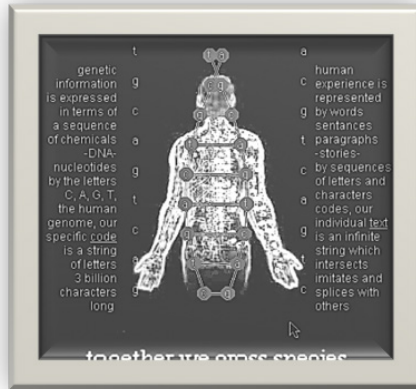


Figure 8: *Carrier (becoming symborg) (1999)*

These last two works show similar concerns to those discussed by N. Katherine Hayles in *How We Became Posthuman* (1999), namely that information/knowledge cannot be treated as a disembodied entity, and that there exists an interactive dynamics between cognition, knowledge representation and memory with the material substrates that help support, carry and transfer these processes across space and time. Human memories are not only moved by linear conscious reason and abstract disembodied language. Unconscious and deeply emotional states, like those that enrich the lives of artists, carry memories in complex viral-dream-like replicative patterns, virtually simulated yet embodied and enmeshed in the specificity of concrete time and place. No wonder the world of art is full of antiabecedarian desires.

Notes

- [1] The term 'virus' comes from Latin meaning an agent that can cause infectious disease. Viruses undergo a process called antigenic drift where individual bases in the DNA or RNA mutate to other bases. Thus, they spread by means of metabolic contagion of a host cell, producing multiple copies of themselves in a process that follows the following steps: attachment, penetration, uncoating and replication.

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