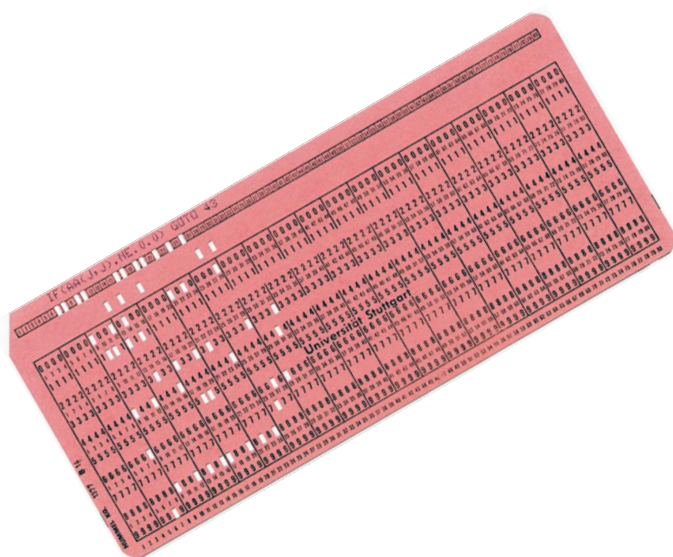


Materialidades da Literatura



Vol. 6.1 (2018)
Electronic Literature: Affiliations

Editors:
Rui Torres
Manuel Portela

(Ghosts of) Generative Literature in Italy between Past, Present and Future

Roberta Iadevaia

INTERNATIONAL UNIVERSITY OF LANGUAGES AND MEDIA, ITALY

ABSTRACT

This paper focuses on Italian literary works based on generative practices, from the first combinatorial examples up to the most recent developments related to the use of AI systems. A comparative approach is used in order to highlight themes, tools, practices and methods of Italian authors.

KEYWORDS

generative literature; electronic literature; Italy.

RESUMO

Este artigo centra-se em obras literárias italianas baseadas em práticas gerativas, desde os primeiros exemplos combinatórios até aos desenvolvimentos mais recentes que recorrem a sistemas de IA. Usa-se uma abordagem comparativa para destacar temas, ferramentas, práticas e métodos de autores italianos.

PALAVRAS-CHAVE

literatura eletrónica; literatura gerativa; Itália.

This paper is part of a larger research project which aims to reconstruct the history of Italian electronic literature, with a specific attention to its relation to the international context. My purpose is to highlight its themes, tools, practices and methods. This analysis will focus on those literary works based on generative practices, from its first generative combinatorial examples up to its most recent developments.

Generative literature can be described as a subcategory of generative art, that is, art wholly or partly created with the use of an autonomous, generally not human system by virtue of processes created by the artist. Although generative “metatechnique” (Levine, 2010) does not strictly require the use of any machine in order to automatize its process, as Ward observed (Ward, 1999), this paper focuses on computer generated artworks that are algorithmically determined.

In the first part, the earliest examples of “computer assisted literature” created in Italy are analyzed, namely those created by Nanni Balestrini: *Tape Mark I* (1961), *Tape Mark II* (1963), *Tristano* (1966/2007) and *Tristanoil* (2012). A comparison between these works will be provided, also with respect to the “non-electronic” artistic production of the author, and to the coeval international generative experimentation. Such analysis will highlight some aspects which have been little investigated so far, such as the reception by the Italian audience, the relationship between Balestrini and technology, and the recent rediscovery of Balestrini’s works. In the second part, a comparison between the Italian and international context of the period known as “classical age” of electronic literature is provided. The analysis then focuses on Italian examples of automatic text generators. Finally, the third part considers Italian generative practices related to the use of AI systems.

I. “CIBERNETICA E FANTASMI”

Since 1952 — when Alan M. Turing and Christopher S. Strachey programmed *Love Letters*, the first text generation with the aid of an electronic calculator — numerous “computer poems”, as they were referred to by the title of the first anthology published in the USA (Bailey, 1973), have been created. Due to the limited possibilities offered by the mainframes of the time, those works are mainly generative combinatorial: i.e. predefined text fragments are entered

into the computer and combined according to algorithmic rules that ensure syntactic correctness. Summing up several studies made by Bootz (2006), the main characteristics of the combinatorial generators can be summarized as follows: the impossibility to create new textual material, the repetition of structures or expressions that occur in the same way in the generated text, the use of random numeric generators, and the inability to read intermediate states of the generative process. This kind of works, probably the only ones realized (at least in such a high quantity) up to the 1980s, is generally referred to as “computer-assisted literature,” since computer devices are considered as mere auxiliary tools and not as integral part of the work. The work itself is, indeed, identified only with the text produced by the device, which can be modified by the author. Such works usually rely on traditional media, such as books, to be published and distributed, thus altering the original peculiarities of the generative process.

In Italy, the first and only artist who created experiments of this kind was Nanni Balestrini who, in 1961, produced *Tape Mark I*, the first of four electronic works. Poet, novelist, visual artist, far left political militant, author of theatrical performances, radio plays, film screenings, poetic dance experiments, rap documentaries and festivals, and even bus tours performances, Balestrini was one of the leading exponents of the Italian “Neoavanguardia” (neo-avant-garde) movement, which he himself contributed to found. He was also the editor, with Alfredo Giuliani, of the famous anthology entitled *I Novissimi* (1961), which crucially contributed to the constitution of “Gruppo 63” (Group 63). In 1961 the first collection of poems named *Il sasso appeso* [*The Hanging Stone*] by Balestrini is published. Here, some of the key concepts of his poetics can be already acknowledged, such as: firstly, the construction of mobile structures, open to a plurality of meanings; secondly, the aesthetics of reuse and *détournement* of texts by adopting cutting and combinatorial techniques typical of the twentieth-century avant-garde movements; thirdly, language as the object of the poetry dissociated from its semantic value, that is employed in a non-instrumental way; fourthly, the repeated resort to “instructions for use”; fifthly, the appropriation of the phenomenology of mass media communication in order to demonstrate the mutual influence between individual and society that leads to the constitution of what Loreto (2014) called “una vivacissima epica elettronica.”¹

As Balestrini recalled in a personal interview, he first made experiments with sound at Studio di Fonologia Musicale della Rai (Rai Music Phonology Study) in Milan, founded in 1955 by his friend Luciano Berio, a pioneer of electronic music. Once acquainted with the Balestrinian idea of making text experimentation using computers, Berio himself contacted Alberto Nobis, IBM programmer and technician, responsible for the 7070 model installed at Cassa di Risparmio delle Province Lombarde in Milan. Nobis enthusiastically accepted the project suggested by the twenty-six-year-old poet, and so the first Italian “electronic

1 “A most vivid electronic epic.” My translation.

poem” was realized, *Tape Mark I*.² One possible result,³ along with a detailed explanation of the combinatorial process, was published in *Almanacco Letterario Bompiani* (*Bompiani Literary Almanac*) in 1962, a monographic number dedicated to the applications of electronic calculators to moral sciences and literature. Interestingly, the article written by Balestrini is placed in the middle of the volume by Bompiani, thus assuming, as Comai observes in his dissertation (1985), a rupture function between a first part made of scientific essays and a second part devoted to the cultural changes that had occurred over the centuries due to the growing importance of machines in human life.

<i>Testo</i>		
Codice di testa		Codice di coda
I (da <i>Diario di Hiroshima</i> di Michihito Hachiya)		
1/4	l'accecante / globo / di fuoco	2/3
1/2	si espande / rapidamente	3/4
2/3	trenta volte / piú luminoso / del sole	2/4
3/4	quando raggiunge / la stratosfera	1/2
1/3	la sommità / della nuvola	2/3
2/4	assume / la ben nota forma / di fungo	3/4
II (da <i>Il mistero dell'ascensore</i> di Paul Goldwin)		
1/4	la testa / premuta / sulla spalla	2/4
1/4	i capelli / tra le labbra	2/4
2/3	giacquero / immobili / senza parlare	2/3
3/4	finché non mosse / le dita / lentamente	1/3
3/4	cercando / di afferrare	1/2
III (da <i>Tao te King</i> , XVI, di Laotse)		
1/2	mentre la moltitudine / delle cose / accade	1/2
2/3	io contemplo / il loro ritorno	3/4
1/2	malgrado / che le cose / fioriscano	2/3
2/3	esse tornano / tutte / alla loro radice	1/4

Figure 1. *Tape Mark I*. Sources and Codes.

2 “Tape Mark” was a signal recorded on magnetic tapes used to delimit sections of data.

3 An English version of *Tape Mark I* is available online at: http://variantology.com/wp-content/uploads/2013/10/Balestrini-Nanni_Tape-Mark-I-Early-Machine-Poetry_Variantology-5.pdf. Accessed 27 June 2017.

TAPE MARK I

*La testa premuta sulla spalla, trenta volte
più luminoso del sole, io contemplo il loro ritorno
finché non mosse le dita lentamente e, mentre la moltitudine
delle cose accade, alla sommità della nuvola
esse tornano tutte, alla loro radice, e assumono
la ben nota forma di fungo cercando di afferrare.*

*I capelli tra le labbra, esse tornano tutte
alla loro radice, nell'acceccante globo di fuoco
io contemplo il loro ritorno, finché non muove le dita
lentamente, e malgrado che le cose fioriscano
assume la ben nota forma di fungo, cercando
di afferrare mentre la moltitudine delle cose accade.*

*Nell'acceccante globo di fuoco io contemplo
il loro ritorno quando raggiunge la stratosfera mentre la moltitudine
delle cose accade, la testa premuta
sulla spalla: trenta volte più luminose del sole
esse tornano tutte alla loro radice, i capelli
tra le labbra assumono la ben nota forma di fungo.*

*Giacquero immobili senza parlare, trenta volte
più luminosi del sole essi tornano tutti
alla loro radice, la testa premuta sulla spalla
assumono la ben nota forma di fungo cercando
di afferrare, e malgrado che le cose fioriscano
si espandono rapidamente, i capelli tra le labbra.*

*Mentre la moltitudine delle cose accade nell'acceccante
globo di fuoco, esse tornano tutte
alla loro radice, si espandono rapidamente, finché non mosse
le dita lentamente quando raggiunse la stratosfera
e giacque immobile senza parlare, trenta volte
più luminoso del sole, cercando di afferrare.*

*Io contemplo il loro ritorno, finché non mosse le dita
lentamente nell'acceccante globo di fuoco:
esse tornano tutte alla loro radice, i capelli
tra le labbra e trenta volte più luminosi del sole
giacquero immobili senza parlare, si espandono
rapidamente cercando di afferrare la sommità.*

Figure 4. *Tape Mark I.* [All the images related to *Tape Mark I* are taken from the ebook “Tape Mark I” published by GAMMM on its website under Creative Commons License. <http://gammm.org/wp-content/uploads/2007/02/nanni-balestrini.-tape-mark-1.pdf>]

In the Introduction, the poet recognizes his debt to the long and prestigious combinatorial tradition that has affected, and continues to affect, literature, painting, sculpture, architecture and music. The Introduction is followed by a description of the adopted combinatorial procedures: pre-existing linguistic materials — namely fragments extracted from *Hiroshima Diary* by Michihito Hachiya, *The Mystery of the Elevator* by Paul Goodwin, and *Tao Te King* by Lao Tse —

are decomposed into two or three metric units; these units are associated with a header code and a queue code indicating the possibility of syntactic links between two successive elements (Fig. 1), while the combination is performed by the computer by following four instructions in order to obtain a *sestina* (six stanzas of six verses) with each verse consisting of four metric units. The description is followed by a detailed report of the individual steps previously synthesized, accompanied by indications of the selected fragments, by the reproduction of the block diagram made by Nobis in the first phase of programming (Fig. 2), by an example of console sheet with the indication of the number of results obtained by computer processing, by an extract of the assembly result (third phase of the programming) and by an example of the continuous tape printing of the results obtained at the end of the processing phase (Fig. 3). The last of the seven pages that compose the article gives the “final result,” (Fig. 4) with the clarification that “non sono stati apportati che minimi interventi grammaticali e di punteggiatura, necessari a causa del numero limitato delle istruzioni impiegate nella elaborazione del testo.”⁴

It may be useful to suggest at least three observations from the reading of the article. The first one concerns the stylistic consistency of the essay written by Balestrini with respect to the others present in the *Almanac*, with whom it shares the same technical-disseminative register without any polemical intent. However, when he specifies that the calculator used to make poetry was “normalmente impegnato per lavorazioni bancarie (...),”⁵ it might be possible to recognize a certain “pride,” typical of experimental poets. The second remark that can be made refers to the consistency of the electronic experiment within the entire, previously synthesized, poetics developed by Balestrini: “electronic epic,” (Loreto, 2014) is not to be conceived in relation to the devices that are used, but rather as an “act of force” enacted by the poet. By appropriating the phenomenology of contemporary daily language, formulaic genres included, and by what Ottonieri described as “filosofia del Montaggio”⁶ (2006), the poet unveils the automatism of the language. In so doing the author undermines the daily language, while he infuses new life in it through a “un improvviso scattare di impreveduti accostamenti, di ritmi inconsueti, di involontarie metafore,”⁷ as Balestrini wrote in 1961 in his brief essay “Linguaggio e opposizione” [“Language and opposition”]. The third observation considers the relationship between *Tape Mark I* and generative combinatorial experimentations carried out in the same years outside Italy, in particular the aforementioned *Love Letters* (1952) created by Strachey using the programming manual and the random generator designed by Turing; *Stochastische Texte* (1959) by Lutz and Bense; *La machine à écrire* (1964) entirely realized by Baudot and *Autopoem No.1* (1966) by Stickel. All those works

4 “Only minimum grammatical and punctuation interventions have been made, due to the limited number of instructions used in the text processing.” My translation.

5 “(...) normally used in banking operations (...)” My translation.

6 “Philosophy of Editing.” My translation.

7 “A sudden snap of unpredictable combinations, unusual rhythms, involuntary metaphors.” My translation.

use punch tapes/teleprinter as input/output devices, but they employ different models of computers and diverse programming languages. Among the all above-quoted works, *Tape Mark I* is the only one realized in a bank and not in university or research institute. In addition, the literary sources, the non-automatic correction of generated text, predictions of possible future implementations and literary motivations made the Italian work closer to *Stochastische Texte*. However, the latter — generally considered the first example of “computer assisted literature” (Funkhouser, 2007; Kac 2007) — appears to be characterized by a greater complexity of algorithms and by an explicit adherence to the “Generative Aesthetics” theorized by Bense (Reichardt, 1971).

It is worth pointing out that, in all mentioned examples, the human being is always considered the true author of the work, while, paraphrasing Strachey and his renowned article “The ‘thinking’ machine” (1954), whenever a computer is seen as a thinking-machine, actually it is nothing more than a mere complicated trick. The main point is that computer “writes without comprehending what it says because it doesn’t know the meaning of the words (...)”⁸ (Baudot, 1964). Italo Calvino himself in his famous essay *Cibernetica e fantasmi* [*Cybernetics and Ghosts*] written in 1967 observes that the human component — the reader in this case — remains fundamental as the only device with a consciousness, and as a consequence also an unconsciousness (“ghosts”), able to enact the poetical shock which characterizes combinatorial works. However, generally speaking, machines are fearfully considered able to perform creative activities: emblematic in this regard is the famous anecdote of the French lawyer who proposed to imprison the computer containing the generator designed by Baudot as an offense to good habits (Lenoble, 1994). Similarly, in Italy, *Tape Mark I* immediately aroused great polemic reactions since it was seen as a sign of the advent of “machine civilization.” Hence, the literary aspects are almost completely neglected by critics to the benefit of more sensationalist and often sarcastic titles: “Bompiani ordina poesie a macchina. Il cervello elettronico entra nella storia della letteratura”⁹ (Zanetti, 1961); “Gli ingegneri del verso. Un calcolatore elettronico al posto dell'intelligenza del poeta”¹⁰ (Bo, 1962); “Abbiamo anche la macchina per comporre poesie”¹¹ (Pampaloni, 1962). Thus, the debate turns into confrontation between what Eco in 1964 will call “apocalyptic and integrated,” i.e. the defenders of the humanistic tradition (the majority) and the apologists of scientific and technological progress. The only openly praising article on *Tape Mark I* hitherto found was written by Balestrini himself in the daily newspaper “La provincia Pavese” on December 1961.

8 Translation taken from “1964: Baudot, La machine à écrire,” *Digital Poetry Overview*, August 21, 2008. <http://glia.ca/conu/digitalPoetics/prehistoric-blog/2008/08/21/1964-baudot-la-machine-a-ecrire/>. Accessed 29 June 2017.

9 “Bompiani orders poems by machine. Electronic brain enters into the history of literature.” My translation.

10 “Engineers of verse. An electronic calculator instead of poet’s intelligence.” My translation.

11 “We also have machines composing poems.” My translation.

In 1963, the collection *Come si agisce* [*How to Act*] is published. In addition to *Tape Mark I*, the volume also included *Tape Mark II*, the second electronic experimentation made by Balestrini once again at Cassa di Risparmio delle Province Lombarde. The effect of novelty diminished, reviews no longer had sensationalist titles. However, once again critics neglected literary analysis, but this time they were very disapproving about the poetics of Balestrini, given the coeval creation of Gruppo 63. Anyway *Tape Mark II* was particularly interesting for at least three reasons. Firstly, the fragments used for the combinatorial process are drawn from poems written by Balestrini himself, in particular the ones included in the collection. Secondly, on this occasion the poet does not make any change to the generated text. Thirdly, indications of the compositional method adopted in the making of *Tape Mark II* are contained in the Appendix of the volume called *Electronic Poetry*, which thus became a true poetic section. For the rest, *Tape Mark II* seems to respect only the first of the requirements of future works theorized by Balestrini in the *Almanac*, namely the selection of a longer text, which consists in this case in 90 syntagms, while the logic of processing is even more simplified. In fact, the 1200 instructions used in *Tape Mark I* are now reduced to 531. In particular, the constraint of combining elements of the same contiguous group is eliminated. In addition, the syntactic compatibility test is replaced by a rigid schema based on predetermined cyclic sequences with respect to the number of stanzas and to the position assumed by the syntagmas within them. These changes make *Tape Mark II* essentially a permutational system. The opening-part as published in *Come si agisce* is reproduced below (Fig.5).

2 - Da "Come si agisce", pp. 213-230

TAPE MARK II (parte iniziale)

AB

chi mancava da una parte all'altra si libra ad ali tese
aspettando che finisca l'aria da respirare facendo finta
le parole non dette nella bocca piena di sangue tutto tace
fino ai capelli appiccica alla pelle non capiterà mai più
lo sgombero della neve ora gialla ora verde nessuno voleva restare

attraversando bocconi la distanza esatta per farne a meno
la folla camminava adagio non capiterà mai più le dita immerse
nell'istante inatteso montaci sopra ora gialla ora verde
l'aria da respirare aspettando che finisca i passi necessari
fino ai capelli l'estate fu calda nelle nostre tenebre

tutto tace nella bocca piena di sangue lo sgombero della neve
su tutta la strada i passi necessari perché non entrino i leoni
si libra ad ali tese sull'erba fuori l'estate fu calda
non capiterà mai più la folla camminava adagio da una parte all'altra
l'aria da respirare facendo finta immobili giorni

ora gialla ora verde montaci sopra fino ai capelli
nessuno voleva restare da una parte all'altra il tendine è spezzato
per farne a meno sputa anche il miele facendo finta
i passi necessari su tutta la strada la distanza esatta
non capiterà mai più le dita immerse guardando bene

[...]

Figure 5. *Tape Mark II*. Reproduced with the permission of the author.

The third electronic work conceived by Balestrini appears to be more ambitious: in fact, it consisted of applying combinatorial procedures to a whole novel in order to have a huge number of copies all different from each other. Realizing what in an interview to Succi (2016) he calls “biolibri” (biobooks), the author intended to leave the dogma of an original, unique and definitive version of literary works — which he perceives as the equivalent of the standardized products of mass production — in order to conform “diversity” as it appears in nature. However, printing techniques at that time did not allow the project to be realized and Balestrini had to publish only a single version, which was published by Feltrinelli in 1966 with the title *Tristano* and with a Preface written by Umberto Eco. In 2007 Balestrini remembered that *Tristano* “suscitò l’interesse della critica per il suo aspetto sperimentale e provocatorio, che rimetteva in discussione le nozioni di personaggio e di trama, di tempo e di luogo.”¹² The desire of the author to make “tanti romanzi quanti sono i lettori”¹³ (as the blurbs of the first Italian edition of *Composition No.1* by Saporta claimed in 1967) has been accomplished only forty years later thanks to digital printing: indeed, in 2007 the publisher DeriveApprodi succeeds in publishing 2500 “unique” and numbered copies of *Tristano*. Those copies are really unique as for each of the ten chapters which compose the book, twenty of the thirty paragraphs of the book have been selected. Therefore, rather than presenting different combinations of the same textual content, each volume contains passages which are totally absent in other volumes.

In his fourth electronic work, *Tristanoil*, Balestrini experiments with a different medium: the video. Made in 2012 for the thirteenth edition of “Documenta” at Kassel, the work¹⁴ is introduced in Italy as “the longest film in the world” (Apicella, 2013). In fact, *Tristanoil* is potentially infinite as the software, designed by Vittorio Pellegrineschi, recycles 139 single-minute movies to get ten-minute chapters. The title refers to “Tristano” — either because it uses the same combinatorial mechanisms, or because it presents fragments of the novel written or read on the video by Balestrini — and to “oil,” the symbol of environmental devastation caused by human greediness. Even in this case, the poet fixes the content on an external medium, producing five thousand DVDs all different from each other.

It is possible to note a recent significant revival of *Tape Mark I*: for example, several interactive English remakes have been realized, including the one made by writer and visual artist Wayne Clements (visible online along with its source code¹⁵). In 2006, the Italian Online Gallery of Modern Art (GAMMM) published a scanned copy of the article included in *Bompiani Literary Almanac* of 1962¹⁶. In the

12 “[the book] raised the interest of criticism for its experimental and provocative aspect, which challenged the notions of characters and plot, time and place.” My translation.

13 “As many novels as readers.” My translation.

14 An extract of *Tristanoil* as it was presented at “Documenta” can be watched on Youtube at: <http://youtu.be/cEG5FjllMps>. Accessed June 27, 2017.

15 “Wayne Clements: A version of Tape Mark 1, by Nanni Balestrini.” <http://www.in-vacua.com/cgi-bin/tapemark.pl>. Accessed June 27, 2017.

16 “GAMMM Tape Mark I ebook.” <http://gammm.org/wp-content/uploads/2007/02/nanni-balestrini.-tape-mark-1.pdf>. Accessed June 27, 2017.

fall of 2014, the “Tape Mark I restoration project”¹⁷ started as part of a broader study on “prehistoric” software art jointly conducted by “MIAI–Museo Interattivo di Archeologia Informatica” (Interactive Museum of Computer Archeology) based in Calabria and “MusIF–Museo dell’Informatica Funzionante” (Working Computer Museum) in Sicily. Eventually, the studies that have been conducted since 2013 by Alessandro Mazzei and Andrea Valle, members of “CIRMA” (Interdepartmental Research Center on Multimedia and Audiovisual) at the University of Turin seem to be particularly relevant. In 2016 those studies converged in the essay *Combinatorics vs Grammar: archeology of computational poetry in Tape Mark I*, in which scholars analyze in detail the code used in *Tape Mark I* providing important clarifications about both features and technical and artistic motivations of the work.

Paradoxically, perplexities about “electronic literature” come from Balestrini himself. In fact, in a personal interview he admits to be deeply skeptical about that denomination, mainly for two reasons. The first reason is that such classification could move contents to the background for the benefit of a mere exaltation of the digital medium, with the added risk that some works could be made only because they are technically possible, and not by virtue of specific poetics. The second reason lies in the instrumental approach taken by Balestrini towards electronic devices used for literary purposes: while the term “electronic music” is acceptable for the poet, since in this context machines actually contribute to the creation of new sounds and thus allow really innovative experimentations, the same cannot be said about literature, a field where, according to Balestrini, machines are not enough for the birth of new genres. In demonstrating this thesis, he specifies that he has used calculators exclusively for their extraordinary rapidity and for the possibility of leaving wide margins to hazard. However, he clarifies that his works could have been made without devices, as evidenced, *inter alia*, by his “non-electronic” combinatorial works, as said before. Therefore, if Balestrini does not consider electronic devices to be autonomous media capable of contributing in a non-trivial way to the aesthetics of literary works — we are, as it has been pointed out above, fully in the perspective of “computer assisted literature” — the author remains the most decisive figure in the artistic process and his track is clearly recognizable. Indeed, it seems important to emphasize that the author selects the sources to run the algorithm; the author determines (if not materially, at least ideally) the instructions that the computer has to follow; the author chooses the results (even in the case of movies, as the DVDs of *Tristanoil* demonstrate) and it is always the author who modifies those results (this only occurred in *Tape Mark I* because, as said before, the sources in the other electronic works were of the author himself). In addition, as Eco remarks, “un tratto dello stile di Balestrini è che non mette del tutto

17 “Tape Mark I restoration project.” <http://www.youtube.com/watch?v=Y2atTXU63yk>. Accessed June 27, 2017.

a tacere i testi originali: i collage conservano alcune caratteristiche dell'interpretazione (del testo distrutto) realizzando quella che Jakobson chiamava una semiotica *smorzata*" (Eco, 2006)¹⁸. Such approach towards the role of the author will be heavily modified in the transition from "computer assisted literature" to the current concept of "electronic literature."

II. FANTASME D'ÉTERNITÉ

From the second half of the 1970s, the introduction of the microprocessor, more intuitive programming languages (mainly Basic and C) and more than anything else screens with WYSIWYG technology and with better graphic resolution for image and text animations together with sound, set the conditions for the dissemination of personal computers, symbolized by Apple II. All this technological improvement allowed the gradual passage from "computer aided" to "digital" literature in its modern sense: that is, literary forms which "use computer devices as stand-alone media and take advantage of one or more specific properties of this medium" (Boots 2006). Schematically, starting from the second half of the 1980s, three "genres" representative of the nascent electronic literature come to the fore: "automatic generative literature," thanks to the pioneering activity of Balpe in France; "animated literature," inaugurated by French-Hungarian poet Papp and "hypertextual literature" with the first novel created by American writer Michael Joyce. Consequently, the decade 1985-1995 is often referred to as the "classic age" of electronic literature (Hayles, 2007).

In the same years in Italy the spread of first personal computers and modems among self-managed community centers fosters the ideal integration between punk ethics and the newborn cyberpunk philosophy. Thus, a series of experiments emerges — i.e. Amateur Telematics Networks, Antagonistic Sites, Netstrikes, self-managed collective TVs, Hackmeetings — which could be defined as "social hacking," in accordance with the expression used by Bazzichelli (2006). The same critical and creative approach distinguishes coeval video experimentation and those works using the already hyper advertized VR environment designed by many artists, including Giacomo Verde, Studio Azzurro, Massimo Contrasto, Tommaso Tozzi, Federico Bucalossi, and Giovanotti Mondani Meccanici. According to preliminary reports, it seems that generative experiments realized during this period in Italy mainly concern music and computer graphics — with pioneering works by Pietro Grossi and Carlo Monastra — and design, with the first Artificial Intelligence software made by Celestino Soddu, which will be discussed later. On the same line, the first automatic text generators will be realized at the beginning of the new millennium.

¹⁸ "A trait of the style of Balestrini is that he does not completely silence original texts: his collages retain some characteristics of the interpretation (of destroyed texts) realizing what Jakobson called *dimmed* semiotics." My translation.

Balpe defines the automatic text generator as “un automate capable de produire en quantité psychologiquement illimitée des objets acceptables dans un domaine de communication antérieurement défini, c’est-à-dire reconnu comme domaine par une communauté de récepteurs”¹⁹ (Balpe, 1997). In a well-known statement made in 1994 Balpe asserts:

Ce qui m’intéresse dans la génération, ce n’est pas le texte qui s’affiche. Ce texte-là est un moment comme un autre, on s’en fout. (...) Ce qui m’intéresse, c’est cette capacité à produire à l’infini et à générer un univers que je ne suis pas capable de faire. C’est donc un autre substitut qui transmet une pensée qui dit. Peut-être est-ce un fantasme d’éternité.²⁰

Automatic generators, unlike combinatorial generators, focus on the mode of production (process) instead of its generated outcome (text). Another difference between the two writing procedures lies in the fact that, in line with the cybernetic project, automatic generation does not want to exhaust all possible combinations of a structure, but it wants to enact credible simulations of natural language. Generally speaking, the process is essentially endless since it handles syntax, as well as the semantics and the pragmatic of the linguistic code. Following several remarks made by Bootz in his essay “Un historique de la génération numérique de textes” (2009), it seems necessary to point out that the generated text is a *simulacrum*, since the generator cannot invent new texts or styles, but it can only imitate existing ones. In other words, it does not simulate the creative process, but only the creative product; therefore, as Bootz specifies, “il ne s’agit dès lors plus vraiment d’intelligence mais de performance.”²¹ If the purpose of automatic text generators lies in the constitution of an abstract text model, as Balpe claims, it is understandable that such a model is well suited to formulaic genres whose repetition of formulas allows the formalization of the modes of construction of the texts. Another important difference can be identified in the technological support used for the generated text, generally a screen, which makes it a “*Transitoire Observable*” (Bootz, 2006). In addition, the automatic generation process consists in a series of intermediate states, that the generator chooses at random among statistically possible multiple options. In so doing, it poses the condition for that “possible at each moment,” as Bootz reminds us (2012), which Paul Valéry felt to be truer than “the illusion of a single determination and imitator of reality.” Therefore, the author’s control over the writing process appears to be much more limited in automatic generators than in combinatorial ones. With this respect Balpe, unlike Balestrini, defines himself as a “meta-author,” a figure that “ne peut qu’abdiquer une des parties — importante

19 “An automaton able to produce a psychologically unlimited amount of acceptable objects in a previously established domain of communication, i.e. recognized as a domain by a community of receptors.” My translation.

20 “What interests me in the generation is not the text that appears. That text is a moment like any other, you do not care. (...) What interests me is this ability to produce infinitely and to generate a universe that I am not able to do. It is therefore another substitute that transmits a thought that it says. Perhaps it is a ghost of eternity.” My translation.

21 “This is not really intelligence, but performance.” My translation.

— des responsabilités que lui assignait jusque-là la tradition littéraire: il ne peut qu’être mis à distance du texte terminal dont il ne maîtrise pas toutes les composantes. (...) Il met une distance entre l’écriture et la subjectivité” (Balpe, 1997).²²

Returning to Italian automatic generators, probably the first thing that might surprise is the quantitative factor: a web search returns over one hundred thousand results 100,000 occurrences for the keywords “generatori automatici di testo” (“automatic text generators”). The second aspect concerns the approach: in almost all cases generators seem to be conceived as pure *divertissement*, that is, recreational devices without any literary potential, hence a vision closer to the word machine built in Lagado, as described by Swift, than to the one illustrated by Piccolomini in his treatise *Della sfera del mondo* [*The sphere of the world*]. Therefore, if the Balpian conception of “automaton” approaches the original Greek etymology (from *automatos*: “which act on its own will”), the Italian one is generally attributable to the modern meaning of the term which, paradoxically, translates itself into its exact opposite: “mechanic, which act without thinking.” It may be interesting to note that in 1983, when personal computers are spreading in Italy and they also earn the cover of *Time* (Fig.6), the Italian firm Sebino launches “Tubolario” (Fig.7), a tube composed of seven lines for nine columns and articulated in such a way that by rotating cylindrical rings, it is possible to compose 10 million phrases whose lexicon, depending on the choice of one of the three available tubes, may be related to love, sport or politics.

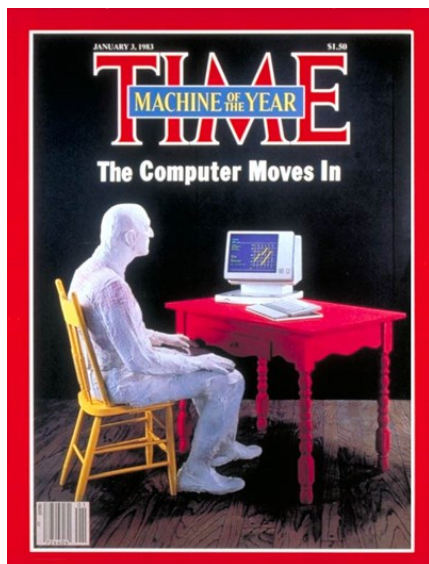


Figure 6. *Time* Cover (1983). Credits: Roberto Brosan. George Segal (Sculpture).

²² “[Meta-author] can only abdicate an important part of the responsibility that literary tradition has assigned to him, and that can only take the distance from the final text on which he could no longer handle all the components [...] [and] he puts a gap between writing and subjectivity.” My translation.



Figure 7. *Tubolario* (1983). [The image is taken from Marco Travaglini. “Il Tubolario, dissacrante gioco di parole degli anni ’80.” *Il Torinese*, 9 June 2016. www.iltorinese.it/il-tubolario-dissacrante-gioco-di-parole-degli-anni-80/.]

Out of production for years and almost completely forgotten, “Tubolario” has been recently rediscovered thanks to an interactive online remake.²³ In some forums²⁴ dedicated to “Tubolario” several users remember that “era semplicemente un gioco per ridere un pò e prendere in giro [...] certi discorsi roboanti che però nessuno capiva.”²⁵ The same ludic approach, as already said, features Italian automatic generators present on the web, in most cases designed with political and social satirical intent, a percentage that is well expressed by the collection realized from 2008 to 2012 on the *metilparaben* blog.²⁶ Among the 101 generators collected, 85 are related to political satire, 11 to social satire, 3 to religious satire, and one of them parodies the jargon of marketing. In particular, it is possible to note that the generators of political and social satire²⁷ seem to be characterized by contingency: namely they are concentrated on specific issues related to news or social events and designed in conjunction with such events. Another interesting example could be represented by the website *aVanvera*,²⁸ updated to November 2004, as it presents some of the main features of Italian

23 “Tubolario online.” <http://www.enricodalbosco.it/giochi/tubolario/index.php?stampa=1>. Accessed June 27, 2017.

24 “Tubolario online forum.” <http://teloricordimica.blogspot.it/2014/07/il-tubolario.html>. Accessed June 27, 2017.

25 “It was simply a game to laugh a bit and tease (...) some roaring talk that nobody understood.” My translation.

26 “Metilparaben blog.” <http://metilparaben.blogspot.com/search/label/generatore%20automatico>. Accessed June 27, 2017.

27 Among the numerous examples, we can remember: “Automatic Generator of Images for Expo 2015” <http://ecspo2015.altervista.org/>; “Automatic Generator of Posts by Salvini” <http://gensav.altervista.org/> and “Automatic Generator of Next Movie Screens by Sorrentino” <http://libernazione.it/generatore-automatico-di-scene-del-prossimo-film-di-sorrentino/>. Accessed June 27, 2017.

28 “aVanvera blog.” <http://pav.trippapergatti.it/index.html>. Accessed June 27, 2017.

automatic text generators: that is the variety of categories (in this case divided into horoscopes, announcements, poems, reviews, news, proverbs, tales and speeches); artistic and literary references (Surrealism, Dada, Oulipo); programming languages (mostly Javascript); but, before above all else, the satirical intent which rules the website from its title (“Nonsense”²⁹) and its subtitle (“Per chi non ha niente da dire, ma lo vuole dire bene”³⁰). Precisely the satiric intent undermines but, up to a certain point, gives dignity to the use of the automatic generator which seems to turn from a *divertissement* into a *simulacrum* of the trivialization of the natural language which has become “un parolaio senza senso in cui siamo immersi sommersi e bombardati.”³¹ This motivation seems quite similar to Balestrini’s.

Similar considerations can be made about *Polygen*, probably the most famous Italian text generator, available in free download on Github³² where *Polygen* openly defines itself as “a first effort towards satire in computer science.” The dedicated website,³³ last updated in 2009, is characterized by an approach that goes from serious to witty. Unlike *aVanvera*, it is possible to find a detailed description of how the generator works, followed by an explicit statement of intent: “Sebbene il Polygen sia (...) un programma abbastanza serio, in quale maniera più nobile potrebbe essere utilizzato se non come strumento di parodia di abitudini, stereotipi e trend di questa disgraziata epoca?”³⁴ Thus, once again automatic text generators seem to be privileged tools for revealing the alienation caused by society at the expense of human beings and their languages. As already noted, in most cases automatic generators are conceived as funny pastimes, unable to produce texts with some literary dignity. This aspect seems to be particularly emphasized in the case of poetry generators: in fact, in almost all of the examples analyzed, authors feel obliged to justify their artistic or literary tradition, as in the case of *Haiku Generator* by Cascina Macondo,³⁵ or stating that “una macchina non potrà MAI superare la creatività degli esseri umani.”³⁶ About his poetic generator, Gianelli,³⁷ a punk librarian, maintains that “spero di non offendere nessuno.”³⁸

Certainly, it is possible to find some exceptions. One of these may be identified in *Shakespeare*,³⁹ automatic essay, tales and poems generator made by Riccardo Francavilla. In this case, as it can be read on the homepage of the website,

29 My translation.

30 “For those who have nothing to say, but want to say it well.” My translation.

31 “(...) a meaningless windbag in which we are immersed, submerged and bombarded.” My translation. http://pav.trippapergatti.it/pages/about/02_genauto.html. Accessed June 27, 2017.

32 “Polygen on Github.” <http://github.com/Enucatl/polygen>. Accessed June 27, 2017.

33 “Polygen website.” <http://polygen.org/>. Accessed June 27, 2017.

34 “Although Polygen is (...) a fairly serious program, in what nobler way could it be used for if not as a tool for parodying habits, stereotypes and trends of this wretched era? (...) And casualty is perfect for this purpose thanks to its unpredictable and asemantic behavior.” My translation.

35 “Cascina Macondo Haiku Generator.” http://haiku.cascinamacondo.com/site/haiku_volo_capp.asp. Accessed June 27, 2017.

36 “ (...) a machine can NEVER overcome human creativity.” My translation. “Acrosticos.” <http://www.acrosticos.org/poesia-acrostici-automatico.php?acro=amore&final=ato&wlang=en>. Accessed June 27, 2017.

37 “Poems Generator by Gianelli”, source code available for free. <http://nicologianelli.blogspot.it/2009/11/generatore-di-poesie.html>. Accessed June 27, 2017.

38 “I hope not to offend anyone.” My translation. *Ibid.*

39 “Shakespeare.” <http://www.areafranca.com/tempn/shakespeare.asp>. Accessed June 27, 2017.

references to past Q/A programs — from *Eliza* by Weizenbaum to *Automatic Novel Writer* by Sheldon Klein — simply contextualize the work. No justifying intent seems to be present and even less sarcasm. *Shakespeare* stands out also for its interface, which allows to select genre (adventure, thriller, horror, poetry), setting (random, Italy, England, France, Germany, USA, South America), seasons, weather conditions and the end of the story (random, unexpected, expected, happy ending, dramatic) as well as the possibility to directly type the name of the partner of the protagonist and the name, the date of birth and the place of birth of the main character. Another exception could be found in *sibi*,⁴⁰ a generator created between 2011 and 2012 by Roberto Fassone providing over 50 billion possible combinations of instructions for the realization of a “work of art,” thus placing itself — along with projects such as *Ahhh... (esercito di 700 estathè)* [*Ahhh... army of 700 estathè*] and *P.S.P.S. (Pattern Strategie Processi Strutture)* [*P.S.P.S. Pattern Strategies Processes Structures*] — into a research aimed at “individuare le tecniche retoriche e procedurali che distinguono una gran parte di quello che noi chiamiamo opere d’arte contemporanea. Cosa sono le opere d’arte? Possiamo analizzarne il DNA, confrontarle e individuarne tratti comuni?” (Fassone, 2014)⁴¹. The *Automatic Scientific Review Generator* can be seen as another exception. Realized in 2016, by the “Machine Learning Lab” (MaLeLab) of the Department of Engineering and Architecture of the University of Trieste, and no longer available online, this is “un lavoro nato per gioco, con l'intento di provocare la comunità scientifica, ma anche di indagare le potenzialità di questa tecnica” (Basso, 2016)⁴². It seems possible to recognize some similarities between this last example and “SCigen,”⁴³ *Automatic Scientific Review Generator* realized in 2005 by MIT.

Obviously, this first reconstruction is partial and still underway, but it is possible to observe that some general features of these works seem to be specifically Italian. First, the often ludic and satiric, that is critical and provocative, intent. Second, the strong relationship between underground culture and technological experimentation. Third, the strong prejudice against the possibility to use digital devices for literary purposes.

III. GHOST IN THE SHELL

The overview of generative literary experiments designed in Italy does not seem to be particularly rich. For example, no events similar to “NaNoGenMo”⁴⁴ have been realized in Italy, neither its creator Darius Kazemi seems to be aware of the

40 “sibi.” <http://play.sibisibi.com/>. Accessed June 27, 2017.

41 “(...) identifying rhetorical and procedural techniques that distinguish a great part of what we call works of contemporary art. What are work of art? Can we analyze their DNA, can we compare them and identify their common traits?” My translation.

42 “a work created for fun, which aims to provoke scientific community but also to investigate the potential of this technique.” My translation.

43 “SCigen.” <http://pdos.csail.mit.edu/archive/scigen/>. Accessed June 27, 2017.

44 “NaNoGenMo.” <https://github.com/NaNoGenMo>. Accessed June 27, 2017.

Italian participants at the event that every November invites users to post on “Github” a 50k word novel. Likewise, there seems to be no examples of Italian Tweetbots made for literary purposes. The production of literary works realized through AI software seems to be equally limited. At the moment, one of the few examples is represented by *Il sogno di Eliza*⁴⁵ (The Dream of Eliza), a horror novel written by Angelo “Motor” Comino published in 2001 by the Italian publishing house Addictions. Cyberpunk enthusiast, Comino grew up in the underground *milieu* of Turin, ranging from sound design to scripts, from installations to interactive multimedia productions, from performances to collaborations with experimental theater. Among his most renowned projects, it is possible to cite *Orchestra Meccanica Marinetti* consisting of two percussionist robots playing “live” under the guidance of a performer. In the description of the project written for the International Generative Art Conference 2001, Comino states that *Il sogno di Eliza* arises from the question: “Is it possible for a computer to write a story?” The author justifies the use of software, whose list is indicated in the final part of the article, to write “à la cyberpunk.” However, paradoxically, Comino explicitly decided “to write a story where there are no computers — too easy otherwise,” but only a horror story “like thousand others you can find in a supermarket.” In 2002, *Eliza 2.0*,⁴⁶ a collaborative writing experiment developed in “Scrittura Mutante” [Mutant Writing] Workshop, was developed for secondary school students.

Other examples of the creative use of AI software can be found in the design field. In particular, one of the first to experiment with generative design in architecture was Celestino Soddu, who has realized and applied “Argenia” since 1986. As Soddu specifies on his website, “Argenia” is a neologism that indicates both the AI software used for generative 3D architecture and “the Art and Design approach to Artificial Genetic Codes. (...) Argenia is the possibility to design the DNA code of an IDEA to directly generate an endless sequence of unique, complex and unpredictable Architectures, Artworks, 3D town models and Objects.”⁴⁷ Besides, Soddu is the author of several architectural, art and design projects which can be seen online.⁴⁸ In addition, he is the Director of the “Generative Design Laboratory”⁴⁹ (GDLab), founded in 1997 at the Politecnico of Milan, and head of the annual International Generative Art Conference,⁵⁰ organized by GDLab since 1998, one of the most relevant meetings on generative approaches in the world. Besides being the first meeting about generative art, the Conference has also played a crucial role in the development of the field, inasmuch in its inaugural edition the term “Generative Art” (meaning “dynamic artwork-systems

45 “Il sogno di Eliza.” <http://www.ilsognodi-eliza.com>. Site not working.

46 “Eliza 2.0.” <http://www.trovarsirete.org/Scrittura.Mutante/Eliza2.0.htm>. Accessed June 27, 2017.

47 “Definition of ‘Argenia.’” <http://www.generativedesign.com/labelargenia.htm>. Accessed June 27, 2017.

48 “Celestino Soddu website.” <http://www.soddu.it/>. Accessed June 27, 2017.

49 “Generative Design Laboratory website.” <http://www.generativedesign.com/>. Accessed June 27, 2017.

50 “Generative Art Conference.” <http://www.generativeart.com/>. Accessed June 27, 2017.

able to generate multiple artwork-events”) was used for the first time (Soddu, 1999).

As has been noticed, since its first manifestations generative literature has aroused not a few concerns about the possibility of the existence of thinking machines, which are creative to the point of writing novels and poems. On the other hand, the possibility that a “ghost” (term used in *Ghost in the Shell*, a famous manga written by Masamune Shirow in 1989, as a synonym of “soul” or “individuality”) may appear in artificial systems when they overcome a certain degree of complexity, has been and continues to be a *topos* of science fiction. In recent years this *topos* is more and more widespread, mainly due to the development of AI. As well as an uncritical enthusiasm towards digital media could generate that “mere exaltation of the medium” mentioned by Balestrini, similarly the idea that literary works, with artistic dignity, could not be created by the encounter of computer science and literature seems a mere prejudice. Probably, an approach based on a critical understanding could be a useful way for trying to identify new poetics, ways of interaction and possible developments of what we currently name “electronic literature,” an approach which seems more than ever necessary in this age of ubiquitous media.

REFERENCES

- APICELLA, Arianna (22 March 2013). “Tristanoil, il film più lungo del mondo.” *Artribune*, www.artribune.com/report/2013/03/tristanoil-il-film-piu-lungo-del-mondo/. 27 June 2017.
- BAILEY, Richard W (1973). *Computer Poems*. Drummond Island, MI: Potagannissing Press.
- BALESTRINI, Nanni (1971). “Linguaggio e opposizione.” *I novissimi*. Ed. Alfredo Giuliani, and Nanni Balestrini. Milan: Edizioni del Verri.
- (27 December 1961). “Un esperimento di composizione poetica compiuto con elaboratore elettronico.” *La provincia pavese*.
- (1962). “Tape Mark I.” *Almanacco Letterario Bompiani*. Ed. Sergio Morando. Milan: V. Bompiani. 145-151
- (1963). “Tape Mark II.” *Come si agisce*. Milan: Feltrinelli. 213-230.
- (1966). *Tristano*. Milan: Feltrinelli.
- (2007). “Nota al testo.” *Tristano*. Milan: DeriveApprodi. 5-7.
- BALPE, Jean-Pierre (1994). “Débat.” *A:\LITTERATURE.Villeneuve d'Ascq: Mots-voir et Gerico-Circav*. Université de Lille 3. 36.
- (1997). “Méta-auteur.” *alire10/DOC(K)S*. Ed. Philippe Castellin, and Jean Torregrosa. Ajaccio. 96-98.
- BALPE, Jean-Pierre, and Jacopo Baboni-Schilingi (1997). “Génération automatique poésie-musique.” *Rencontres medias 1 (1996-1997)*. Ed. Jean-Pierre Balpe. Paris: BPI Centre Pompidou. 151
- BASSO, Giulia (21 October 2016). “I generatori automatici di testi fanno pensare i computer.” *Il Piccolo*. <http://ilpiccolo.gelocal.it/trieste/cronaca/2016/10/21/news/i-geneatori-automatici-di-testi-fanno-pensare-i-computer-1.14289216>. 27 June 2017.
- BAUDOT, Jean A. (1964). *La machine à écrire mis en marche et programmée par Jean A. Baudot*. Montréal: Les éditions du jour.
- BAZZICHELLI, Tatiana (2006). *Networking: La rete come arte*. Genoa: Costa&Nolan.
- BENSE, Max (1971). “Projekte generativer ästhetik.” *Cybernetics, art and ideas*. Ed. Jasia Reichardt. London: Studio Vista. www.computerkunst.org/Bense_Manifest.pdf. 27 June 2017.
- BO, Carlo (14 January 1962). “Gli ingegneri del verso. Un calcolatore elettronico al posto dell'intelligenza del poeta.” *L'Europeo*.

- BOOTZ, Philippe (December 2006). "Les Basiques: la littérature numérique." *Leonardo/Olats*.
www.olats.org/livresetudes/basiques/litteraturenumerique/basiquesLN.php. 27 June 2017.
- (September 2009). "Un historique de la génération numérique de textes." *International Colloquium Urbanités Littéraires/Cityscapes-Literary Escapes*. www.ieeff.org/f18bootz.pdf. 27 June 2017.
- (2012). "From OULIPO to Transitoire Observable." *Dichtung Digital* 41. www.dichtung-digital.org/2012/41/bootz/bootz.htm. 27 June 2017.
- CALVINO, Italo (1980). "Cibernetica e fantasmi. Appunti sulla narrativa come processo combinatorio." *Una pietra sopra*. Turin: Einaudi.
- COMAI, Adriano (1985). "Poesie elettroniche. L'esempio di Balestrini." MA Diss., University of Turin.
- COMINO, Angelo (December 2001). "The Eliza's Dream - Il sogno di Eliza." *Generative Art International Conference*, Milan. www.generativeart.com/on/cic/ga2001_PDF/comino.pdf. 27 June 2017.
- ECO, Umberto (1964). *Apocalittici e integrati: comunicazioni di massa e teorie della cultura di massa*. Milan: Bompiani.
- (2006). "Stele per Balestrini." *Nanni Balestrini. Con gli occhi del linguaggio*. AA.VV. Milan: DeriveApprodi. 31.
- FUNKHOUSER, Chris. T. (2007). *Prehistoric Digital Poetry: An Archaeology of Forms (1959- 1995)*. Tuscaloosa, AL: The University of Alabama Press.
- FASSONE, Roberto (27 May 2014). "P.S.P.S. (Processi Strutture Pattern Strategie)." *Abstract of the Lecture made at Accademia di Urbino*. www.accademiadiurbino.it/aabb/?p=3276. 27 June 2017.
- HAYLES, Katherine N. (2 January 2007). "Electronic Literature: What is it?" *Eliterature*. <http://eliterature.org/pad/elp.html>. 27 June 2017.
- KAC, Eduardo (2007). *Media Poetry: An International Anthology*. Bristol, UK: Intellect Press.
- LENOBLE, Michel (1994). "Entre évanescence et fixité: le statut de la littérature générée par ordinateur." *A:\LITTERATURE.Villeneuve d'Ascq: Mots-voir et Gerico-Circav*. Ed. Philippe Bootz. Université de Lille 3. 26-28.
- LEVINE, Jeremy (2010). "Pratica generativa. lo stato dell'arte." *Digimag* 57: 92. www.digicult.it/it/digimag/issue-057/generative-practice-the-state-of-the-art/. 22 June 2017.
- LORETO, Antonio (2014). "L'emendamento delle cose guaste. Balestrini etico ed epico a partire da Il sasso appeso." *L'Ulisse* 14: 27-60. www.lietocolle.com/cms/img_old/ulisse_14.pdf. 27 June 2017.
- MAZZEI Alessandro, and Andrea Valle (5 September 2016). "Combinatorics vs Grammar: Archeology of Computational Poetry in Tape Mark I." CC-INLG 2016 *Workshop on Computational Creativity in Natural Language Generation*, promoted by the Association for Computational Linguistics (ACL). Edinburgh, 5, 2016. <http://iris.unito.it/retrieve/handle/2318/1603816/240891/print-version.pdf>. 27 June 2017.
- OTTONIERI, Tommaso (2006). "Nanni Balestrini, una filosofia del montaggio." *Nanni Balestrini. Con gli occhi del linguaggio*, AA.VV. Milan: DeriveApprodi. 39-40.
- PAMPALONI, Geno (28 January 1962). "Abbiamo anche la macchina per comporre poesie." *Epoca*.
- PICCOLOMINI, Alessandro (1552). *Della Sfera del Mondo*. Venice: Nicolo de Bascarini.
- SAPORTA, Marc (1967). *Composizione n.1*. Rome: Fondazione Lerici.
- SODDU, Celestino (1999). *Generative Art*. Rome: Editrice Dedalo.
- STRACHEY, Christopher (13 October 1954). "The 'thinking' machine." *Encounter*. www.unz.org/Pub/Encounter-1954oct-00025. 27 June 2017.
- SUCCI, Stella (18 March 2016). "Le cronache di Nanni." *The Towner*. www.thetowner.com/it/le-cronache-di-nanni/. 27 June 2017.
- SWIFT, Jonathan. (1997). *I viaggi di Gulliver*. Milan: Feltrinelli.
- WARD, Adrian (1999). "Generative Art." *Eu-Genie Mailing List Welcome Page* <http://web.archive.org/web/20000901084825/http://www.generative.net/mailman/listinfo/eugene>. 27 June 2017.
- ZANETTI, Livio (10 December 1961). "Bompiani ordina poesie a macchina. Il cervello elettronico entra nella storia della letteratura." *L'Espresso*.