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Ana Marques da Silva & Sandra Bettencourt

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Writing–reading devices: intermediations

Ana Marques da Silva¹ · Sandra Bettencourt¹

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Abstract Exploring the widening of literary practices, and demystifying boundaries in genres, sensory modalities, reading/writing processes and devices, this paper analyses two types of crossovers and intermediations: distributed authorship in the writing of digital generative literature, and the feedback loops between the screen and the book in contemporary experimental works. Nick Montfort and Marc Saporta's works are analysed as enactive systems that emerge from the intersections between different modes of production and perception, highlighting the ways in which writing and reading strategies are reconfigured in contemporary experiences with literary forms and theoretical frameworks.

Keywords Digital literature · Intermediation · Device · Authorship · Screen and book

Exploring the widening of literary practices and demystifying boundaries in genres, sensory modalities, reading/writing processes and devices, it is our intention to reflect on the transformations and reimaginings of literature promoted by digital environments and its ways of production, circulation and reception. This paper intends to contribute to the ongoing discussion on transliterature by presenting two distinct, although intertwined, examples of intersections, crossovers and intermediations:

✉ Ana Marques da Silva
ana.marques.silva@gmail.com

Sandra Bettencourt
sandra.bettencourt.pinto@gmail.com

¹ Department of Languages, Literatures and Cultures, Faculty of Arts, University of Coimbra, Largo da Porta Férrea, 3004-530 Coimbra, Portugal

- Distributed authorship in the writing of digital generative literature: starting from the standpoint of authorship, this article considers the distribution of agency and cognition in digital writing practices, highlighting the autopoietic condition of generative textual systems,
- The feedback loops between the screen and the book in a contemporary experimental novel: the book form is considered as a complex system and device, emerging from the feedback loops between analogue and digital processes, and producing new re-imaginings of the novel in a post-digital context.

The works analysed in this article are considered as enactive systems that emerge from the intersections between different modes of production and perception, highlighting the ways in which writing and reading strategies are reconfigured in contemporary experiences with literary forms and theoretical frameworks.

Distributing authorship: “Taroko Gorge” remixed

Context

“Taroko Gorge” is a digital poem and a textual generator written by Nick Montfort (2009a, b) that has given rise to a series of remixes by different authors. This work and its remixes enable us to reflect on some of the questions raised by generative poetics in what concerns the notion of the author. Generative literature reformulates the poetics of authorship since it emerges from the collaboration between the author(s) and an autonomous system: the author writes a program which generates a dynamic form. Thus, central to generative literature and to writing on the web is the notion of distributed authorship (Montfort 2003; Biggs 2010; Howe and Braxton 2009), which we will discuss from two different perspectives: on the one hand, authorship is shared between several authors who remix code circulating on the web, and also between communities of readers who operate as autonomous generative systems; on the other hand, by recognizing the work of the ‘machine’ and its processes, the author’s ingenuity is relativized by the engines that process the input, while authorship is deferred, and cognition distributed, through the human–machine intermediations (Hayles 2008). The cyborgian author of a generative work thus emerges from this multiplicity of agents participating in the generation of a series of textual tissues and processes. Through the analysis of Nick Montfort’s poetry generator “Taroko Gorge” and its relationship with some of its remixes, we question the notion of the author as a unique and autonomous voice.

Formal constraints, restrictions and boundaries are generative: they allow for a given system to develop according to a set of rules that articulate its inner dynamics. In the field of poetry, we find examples of particularly productive formal structures, such as sonnets, haikus and many other poetic forms. The association between the formal constraints of poetry and those of programming results in experiments, with language and with computational processes that are generative both linguistically and computationally.

“Taroko Gorge” (2009) is one example of the generative potential of such programmable works. It is a combinatorial text that consists of a limited set of words that are permuted according to a specific set of rules. Although the programmed vocabulary is limited, the output that results from the iteration of the permutation process corresponds to a much vaster number of instantiations, vast enough to be unreadable in its totality, creating the illusion of an infinite text. This multiplication of possibilities happens because it lies on a generative process: the simple permutation of a given number of elements (for instance the number of letters in the abecedarium) originates a much larger number of combinations (for instance all the words a human can create). This is to say that combinatorial processes are in themselves generative. But besides this aspect, intrinsic to the poem’s formality, another aspect, this one external, makes this small poetry generator a truly generative machine: it has given rise to a vast and rich set of remixes by dozens of other authors.

Despite being a closed system, with limited combinations and textual variations, “Taroko Gorge’s” remixes transform this closed system in an open one, evolving indeterminately in time. Hence, in its simplicity, “Taroko Gorge” allows us to reflect on generativity in two different ways: on the one hand, it enables an understanding of the generative possibilities and limitations of a simple combinatorial system; on the other hand, it demonstrates the ways in which such a basic system may evolve, not through its permutations, but from the adaptations enacted by the remixes. These transformations are not contained in the original program, but result from the program’s cultural situation, or environment.

Remixing the poem

As Scott Rettberg (2012) already noted, as “Taroko Gorge” scrolls down the screen, it may at first seem like a simple animated nature poem. But after a while, the reader understands that it is, instead, a never-ending text generated on the fly by a machine. This machine, which is a computer program, relentlessly produces iterations in a regular pace, recombining in loops all the poem’s words, producing a new text each time the web page is opened. The gap between the reader’s immediate expectations regarding a text that invokes the meditative experience of a natural environment and the acknowledgment that the text was written by an algorithm may in itself be considered as an element of estrangement in this work. Another element worth considering is the endless nature of the poem: it constantly produces language, indifferent to the fact that it will never be completely read.

A poetry generator is an autonomous system, programmed to generate a poetic form: once conceived and written by a human hand, it operates more or less independently. The authorial voice is present in the conception of an idea and also in the instructions that inscribe that idea in the material realm. A generative text is thus a process and not a finished object, and it is language as much as it is the code articulating it. To create a poetry generator, the author’s writing unfolds into verbal and computational languages, demanding a double translation: thought is translated and reified via the symbolic and material articulation of two different sign systems, synthesizing and codifying the author’s intentions. The author’s writing is thus

aimed at different readers and requires different reading protocols: code is primarily written to be read by a machine, although high level languages are also human readable: they are intuitively understandable precisely because they are a *language*, they are syntactical, self-referential, and their symbols include verbal language and invoke verbal relationships.

In what concerns “Taroko Gorge’s” formal aspects, this poetry generator refers to the landscape and to the act of wondering through the Taroko Gorge National Park, in Taiwan. It is composed of three different kinds of verses organized according to three different aspects: ‘path’, ‘site’, and ‘cave’, suggesting a road, a sightseeing spot or a tunnel along the gorge, each with a certain pace, referring to a different kind of experience of this natural landscape which is formally transposed into the poem’s code structure. As Nick Montfort explains, “I sought to show that just as poets have written poems about the natural world as they looked upon it, one could also write a poetry generator about the natural world on the particular site.” (Montfort 2012; Montfort et al. 2012).

Soon after Montfort published “Taroko Gorge” in his website, Scott Rettberg appropriated the code and changed the poem. The result is a new text, called “Tokyo Garage”. While Montfort’s poem is composed of descriptions of a natural environment, “Tokyo Garage” depicts Rettberg’s imagination of a distant urban environment. Rettberg set out to transform Montfort’s program, replacing the vocabulary from a pristine natural set into an overcrowded and chaotic city.

The practice of sharing and collectively building is central in the collaborative culture that characterizes programming milieus. In a context where writers are also becoming programmers, these practices seem to underscore the influence of such cultures in the literary field. Following Rettberg, J. R. Carpenter (2010a, b) presented “Gorge” and “Whisper Wire”, and in 2011 many new remixes appeared,¹ including Andrew Plotkin’s “Argot Ogre, OK!”, a meta-remix (or a remix of all the previous remixes) which presents the code side by side with the text in the screen, calling the reader’s attention to this invisible² but essential part of the text. In contrast with previous remixes, which simply changed the word list (the paradigmatic axis) while leaving the original sentence structure (the syntagmatic axis) intact, Plotkin’s remix changes the code, creating a new program that recombines the word-lists of the previous remixes while also changing the stanza schema. Leonardo Flores (2012) presented his “TransmoGrify”, which consists in combining “Taroko Gorge” with almost two dozen remixes by other authors. Flores’ remix also takes the practice of remixing as its theme, invoking a notion of community and of shared work and apprenticeship through appropriation, reinvention and collaboration. “Taroko Gorge” kept on being reinvented as an introduction to creative programming and generative textuality, for example in classes on digital media and literature (Clark et al. 2015, 136).

All the different poems that resulted from the different remixes of Montfort’s work refer to the original text through their titles, indicating both an affiliation and a tribute.

¹ Such as those by Talan Memmott, Eric Snodgrass, Mark Sample, Maria Engberg, Flourish Kink or Kathy Inman Berens, among many others.

² To make the code visible in a web page, one simply has to select “View page source” with a right-click of the mouse on the browser.

If, on the one hand, these remixes are appropriations of the code written by Montfort, on the other hand they are its extensions, mutating it into new forms. In this sense, “Taroko Gorge” is a never-ending text in two different ways: not only because it is programmed to loop and recombine its elements indefinitely, but also because it keeps being remixed, re-written and multiplied by readers, turned into writers.

Both the availability and the self-evident character of Montfort’s program encourage its readers to change the code, producing new poems. If an author makes a piece of code available, it makes sense that he encourages the conversations other writers establish with it, enriching it through re-invention. Code thus seems to be as dialogical as language. This dialogical propensity results from the material conditions that characterize digital objects: these conditions emerge, at least, from the intra-textual sphere (the simplicity of the code), as well as from the sphere of the medium (the web, where the poem and its code are inscribed), and the sphere of the social (the collaborative culture that characterizes programming cultures).

The creative impact of this poetry generator can also be understood as an example of the generative condition of code, which not only makes something operate, generating an action, but is also re-used and re-combined in order to create new programs, feeding on existing scripts shared online. We may, in this sense, consider “Taroko Gorge” as an ensemble of texts, or as a mother text and all its different derivatives. As dislocations of a previous text, these remixes are examples of the way in which literature feeds itself through the creative reinvention of models, establishing intertextual and dialogical relationships between different texts and voices, including writers and readers.

These remixes are the product of an appropriation that is of course welcomed but, as Montfort notes, “it would be even better” to go further, transforming the code instead of simply changing the words in the variables, in order to generate different programs, and not only different texts, thus augmenting the productive potential of this poetry generator:

I would be delighted, of course, to see many more remixes of “Taroko Gorge.” But it would be even better if (...) ten other programs are written that work in completely different ways to generate poems, and if each of these are themselves remixed ten times (Montfort 2012; Montfort et al. 2012).

Montfort’s statement highlights the relevance of appropriating and remixing scripts found elsewhere, diluted in a community, and stresses the importance of coding cultures in writing in programmable media. Mixing and altering, composing and decomposing—here lies much of the beauty of code: its tendency to be a kind of writing distributed through communities of producers, assembled and disassembled in a continuous conversation and generating, at each iteration, a singular expression.

Close reading the code enables its understanding: confronting the code with its output clarifies the interconnections between texton and scripton (Aarseth 1997). The understanding of the ways in which coding procedures reflect an intention is thus related with an understanding of the organization and structure of the poem. But what is a generative poem, or how can we use the word *poem* to refer to a virtually infinite text produced by a machine? If the poem is to be understood as the virtual whole of all the potential textual instantiations, then it is unreadable. But if

the poem, as a process, is contained in the instructions, then reading a poem implies reading those instructions. And while the textual output of an automatic generator is unbound, the code behind it is not. In this sense, the code is more readable than the textual output.

And what kind of reading strategies does a generative poem produce? Both textons and scriptons are integral parts of a digital text and of digital writing and, as we have just seen, the text demands to be read in its ensemble. Understanding something about the process that generates the poem thus contributes to the reader's textual experience. And although a generative text does not imply a complete reading, it requires enough attention to the textual behavior in order to experience the poem both as a mechanism and a series of textual instances. A relevant factor concerning the reading of a text whose output is potentially unlimited is the fact that the reader, to assume that s/he has read the text, must decide which textual instances (which samples) are significant to capture the core significance and affect of the textual whole. In order to do so, the reader establishes comparisons and draws conclusions from the patterns s/he finds, inferring the whole from its parts.

Given that the random function brings unpredictability to the text, a reading act based on the discovery of textual patterns (both with the objective of understanding the text's mechanisms and with the objective of deciding when a text has been read) creates an interpretative arc that is constantly forwarding into the future, since the reader anticipates the coming text based on the past and actual text (Shoenbeck 2013). The process of reading is thus based on discovering, through repetition and feedback, the rules that underlie the language flow. We may then argue that the reading strategies enacted by a generative text have acquired a trait that is specific of algorithmic reading modalities, namely the search for patterns: the reader "scans" the text in order to infer the program, and/or reads the program in order to deduce its output. Reading a generative text thus seems to diverge from a hermeneutic tradition based on the privilege of meaning, turning instead towards a perspective informed by the formal and functional materialities of the text.

We may consider a generative text to be procedural in three different aspects: in the act of writing the algorithm (the conception and coding of the text), in the algorithm's processes (the text generation), and in reading act (the way the reader looks for the ontology of the text). The first belongs to the dimension of the author, the second to the dimension of the text, and the third to the dimension of the reader.

Besides the distribution of the author's position through coders and readers, one must also consider the deferring of the authorial input through the computational processes that materialize the author's idea in the form of an executable program—the text generator—. Indeed, if computation is a material process, then we must consider the material conditions that define the generator's performances in order to understand the nature of its place and impact on the text. When a generator reads its instructions and organizes data, it is treating that data in an analytic manner: it identifies signs, the morphology and syntactic positions of those signs, and it calculates outputs. A program is thus an analytic tool that organizes and generates data. If we consider these operations as sub-cognitive (Hayles 2008), and computational processes as non-conscious cognizers, then we must consider the question of cognitive distribution.

Indeed, between the author and the reader there are many different non-conscious cognizers at work, decoding and transcoding data that will be processed, outputted and received in the form of a text. The various non-conscious cognitive performances involved in the processing and displaying of an output are themselves distributed and interconnected through the tasks they perform, according to specific protocols that link different layers of software, in a network of interchained processes. Their actions constitute a flow of data that oscillates between states, from readable signs to electric current variation. This means that the cognitive processes at play are material and also that they are emergent, not rooted in a specific place but permanently flowing from one material state to the next.

Similarly, the author is distributed and emergent, it is not a totality, nor a fixed and stable network of actors, but an ensemble of (human) intentions and (machinic) processes, in a flow between different positions and states. Hence, a network of cognitive and sub-cognitive processes, of human and artificial agents, of digital and analogue materialities, participates in the ontology of the generative text.

To conclude, we may say that “Taroko Gorge” operates in the following way: an author generates a program that generates a text; the text generates readers who generate readings; some of the readers also generate remixes, which generate more remixes. This chain could go on more or less indefinitely, given the ecology of the text, or its cultural/environmental situation. Hence, what started out as a small poetry generator ended up as a bigger generative system, distributed through a multiplicity of authors, a system that is composed of many different texts and one that has the potential to generate many different programs.

“Taroko Gorge” and its remixes make us aware of the distributed and disseminated condition of authorship in generative textuality, an authorship made of a heterogeneous and complex tissue composed of communities of authors, programmers, programs, platforms, and readers who share code on the web and who operate as generative systems. The author of a generative text is thus a hybrid body of human and synthetic writers and readers. “Taroko Gorge’s” remixes and the collaborative culture from which they stem are examples of the disturbance of the authorial status in generative literature, as they multiply, de-center and dilute the author’s voice through a kind of communitarian, collaborative and cyborgian writing.

Reading the screen, reading the book: Visual Edition’s *Composition No. 1*

Context

Saporta’s *Composition No. 1*, is an experimental novel, published in 1962 by Éditions du Seuil,³ composed of one hundred and fifty loose unnumbered pages, delivered to its readers in a containing box. This ‘novel-in-a-box’ doesn’t present

³ *Composition No. 1* was translated into English by Richard Howard and published in the USA by Simon and Schuster in 1963.

any reading order guidance, requiring randomization processes in order to be read: there isn't any beginning or ending, or first and last pages, neither any kind of chapter organization. Such material composition enables several reading paths: as many as the chances of recombination between each textual unit (the page). That is, *Composition No. 1* embodies a "randomly-non linear" narrative structure (Eske-linen 2012, 140).

Thus, the novel presents itself as a metamorphic experience by performing its own retelling, making any reading repetition impossible, or at least highly improbable. *Composition No. 1* not only challenges the way a novel is read, but also traditional conceptual and epistemological notions of the novel device and interface *par excellence*: the codex. This is further explored with the new edition by the London-based book publisher Visual Editions in 2011. Two different media and interfaces compose this *reimagination* of the novel: the printed book and the ebook as an iPad application. The print edition is materially identical to the original French and English prior editions: it keeps the concept of a novel in a box, with its loose unnumbered pages. However, each alphabetic text is now accompanied on the verso side of the folio by computationally generated visual compositions that recombine the totality of the words in the novel. These compositions are authored by Salvador Plascencia⁴ who also signs the diagram presented in the print edition which, ironically, illustrates the anatomy of a traditional codex and its common elements: cover, spine, verso, recto and page number. With this illustration, Bakhtin's and Moretti's observations that the novel is the genre most committed to the codex, but also that it is flexible to contemporary reconfigurations, earns a more provocative and enriching dimension: it is also capable of transformation, as is evident in this double edition:

Of all the major genres only the novel is younger than writing and the book: it alone is organically receptive to new forms of mute perception, that is, to reading. (Bakhtin 1981, 3)

Redefined the sense of reality, the meaning of individual existence, the perception of time and of language. (...) the novel becomes the first truly planetary form: a phoenix always ready to take flight in a new direction, and to find the right language for the next generation of readers (Moretti 2006, ix).

The experimentation with the form of the book and the novel is also promoted by the writing and reading models inscribed in *Composition No. 1*, which are so many times identified as specific to electronic literature: randomization, non-linearity and recursivity. Saporta's novel is, thus, an example that the printed book is a flexible medium and an interface that supports many material, semiotic and modal possibilities. It, thus, exposes a hypermedial quality that frustrates a radical ontological-epistemic schism between print and electronic literature, or analog and digital books and novels. In this context, it is important to consider the notion of interface as a significant materiality of literature. Interface is a keyword mostly associated with digital media and electronic devices. I propose a reflection on the

⁴ Salvador Plascencia is the author of another printed experimental novel, *The People of Paper* published in 2005 by McSweeney's.

notion of interface as a significant concept for contemporary print literature, which albeit not electronic is definitely digital since it is produced, published and disseminated by digital media and software. Since “[m]eaning is experienced as the result of feedback between sequences of signifiers and their mode of material inscription” (Portela 2013, 235) we can notice that the joint edition as print book and iPad application promotes a comparative approach between paper and screen as meaningful interfaces, transversed by remediations and intermedial processes. At the same time, and because we are facing feedback processes, such exercises relate to a reflection on literary interfaces, which we argue must be extended to the post-digital context.

The novel machinations

Any attempt to describe *Composition No. 1*'s plot proves to be a complex task and deeply involved in the reading paths traced by the reader. Thus, the most operative strategy is to point out the events that can be considered stable within this dynamic and random universe. These are hypertextual nodes which guide the reading paths through the topographic scattering and that allow a certain level of recognition of narrative progression. These nodes are identified mainly through (1) the characters; (2) the time of the narrative: always in the present, which prevents temporal idiosyncrasies; (3) through the time–space of the action: in Paris during the Nazi occupation; (4) and through narrative events. However, the reading patterns result from the choices and acceptance of the rules of the game by the reader. The dice are cast and recast.

One of the most distinguishing aspects of the reconceptualization of *Composition No. 1* by the Visual Editions is the absence of the introductory note by Marc Saporta, replaced by the brief preface of Tom Uglow, the creative director in Google's Creative Lab. In the original edition, the novel is introduced by the words of the author that offer some reading instructions (Saporta 1961, 2014). The reading guide is replaced by videos made available on the publisher's website (“Composition No. 1”, 2014) addressing, instead, the visual presentation and material composition of the printed book. In the teaser (“Composition No. 1 by Marc Saporta”, 2011), we can see a reader on a park bench, immersed in the reading of the novel establishing a traditional ergonomic relationship with the book. The reader holds the box with both hands, as he would hold a codex with traditional bookbinding, replicating the reading models that the work itself challenges. The estrangement does not arise, thus, from the materiality of the book or the perception of the reader, but is introduced by external factors such as the wind that triggers the randomness of the page order.

This presentation is antagonized by the anatomy of the novel offered by Plascencia within the box as book, promoting a reflection about the possibilities of the novel and the book. It also stresses the exercise of memory that any narrative requires. Thus, the consciousness and the materialization of memory mechanisms are emphasized (as the erasure of Saporta's guidelines radicalize the mnemonic performance inherent in reading processes), intensifying the abstract nature of the novel, in which the reader's memory is essential for the construction of the

algorithmic, or iterative and recursive, text: a narrative constructed out of a database logic that, according to Lev Manovich (2008), characterizes new media narratives. The operability and readability of *Composition No. 1* depend on an extranoematic mnemonic performance and on an awareness of the mechanisms of the book form and narrative content, which are, as we have been observing, interdependent.

In the electronic application, the randomization processes are present from the start, since the cover can also be read in several ways: by touch, the letters that make it up are combinable in a plethora of new compositions, increasing the possibility of permutation and text instability. However, in this first encounter with the novel the reader experiences a frustration of reading that governs such processes. Although they can be moved, the letters are not fixed but floating at the anti-gravity space of the cover: even if the reader interacts and intervenes in the text he experiences a lesser control over the text. The reader understands the ruling logic and realizes how to interact with it, but he cannot crystallize its composition. This conceptualized cover, or initial electronic page (a homepage), is the radicalization of the experimentation with book mechanisms implied on the printed work, here performed by multimedia and multimodal interaction through visual, audio and haptic elements.

In order to read the electronic novel we find several points of access: “Credits”, “Printed Edition,” “Explore” and “Begin”. The strangeness in relation to the printed book starts right in the credits where we find information about the copyright, previous editions and translations (something that is common to any printed edition), but also credits on programming and sound. Still under the classical model of the page, through the metadata we realize that the object has a different operation of the traditional book and calls agents traditionally alien to textual publication: the programmer and sound engineer. Moving to another hyperlink, “Explore,” we find a visual composition of Salvador Plascencia, similar to that of the print edition, which is introduced by the following message: “a disruptive typographic artwork, using the book’s entire text, created with bespoke software”.

This single visual composition can be explored through zoom effects, this being the only form of intervention in the visual text. The composition generated by specific software produces relief effects, shadows and light, i.e. a topography of the inscription of the letters in digital surface. The shape of all minimum units that constitute the text is displayed, but this provision does not allow variation or permutation such as the cover or the pages of the novel. Curiously, the reader’s level of intervention is minimized in the electronic form when compared to the print medium, which can recombine and visually compare different compositions.

This loss of control is also evident in the reading of the narrative. The screen randomly displays the excerpts in a continuous movement. In order to read the text the reader must select it by touching and pressing the screen. By the time the reader fails to touch the screen, the random loop starts again without a chance to return to the previous reading point. This handling condition hinders the full reading of the novel, since the permanence of the page depends on tapping the screen, promoting a fluid text with multiple beginnings but without endings, making impossible any kind of reading inscription in the written page, such as notes, comments, or underlining. The intensification of the page paradigm is manifest in the print edition. The text

works as a procedure of data retrieval and management within the limits of the page while defined by it: the novel as a database of combinable pages. This paradigm is also manifest in the electronic form: the emulation of the printed page exposes the limitations and possibilities of electronic materiality.

Interfacing the novel

A feedback loop circle between analog and digital materialities is always in motion in *Composition No. 1*'s double edition, presenting us with the tension between print and electronic pages: the text's stability and instability; its linearity and ambiguity; its multimodality and unimodality; and its different layers of interaction. We experience a complex and a critical exercise on practices and methods traditionally associated with both print and electronic textual mediations and interfaces. The print conceptualization prefigures the electronic screen, either by design—the concept of a box in which narratives unfold in a non sequential way; the visual compositions and book instructions by Plascencia—, or by replacing Saporta's introduction by Tom Uglow's. We realize that even the print edition is produced digitally by digital tools, as in the case of generated visual compositions in each page.

Both print and electronic versions claim the electronic screen as a central and productive device. The electronic text allows us to automatically perceive the complexity that is already inherent in the printing device. In other words, the idea of multiple pages randomly combinable is computationally translated into a textual kinetics that becomes readable by touch. The randomization that occurs on the screen is metaphorically and physically parallel to that occurring in the box. However, it does not imitate the print edition but finds a equivalent digital procedure: an automated generative text. So, both instantiations inform each other: the electronic remediation prospectively creates a specific compositional strategy (kinetics, digital algorithmic text, bespoke software) informed by the previous print mechanism, while, at the same time, it retrospectively conveys a renewed gaze and reading of the complex topology of the loose-page box, calling attention to the print book as an important literary machine.

Thus, in *Composition No. 1*, the notion of the book emerges as a powerful interface. The screen and the printed pages are reinscribed as complex literary interfaces, within a complex network of literary surfaces that integrate different technologies and materialities while transcoding different models and media. The book, print or electronic, highlight its specific protocols of communication between different operators, or agents (writer and reader, but we could expand to other literary actors as the editor and the publisher), through the translation, transduction, or transmediation of several languages and formats: the manuscript (analog system) that is typewritten (electronic system) or, in a more contemporary praxis, that is processed by digital software.

Also, Bertelsen and Pold (2004) argue that “an interface is basically a layered structure with layers of code where the top layers are progressively oriented towards the human while the bottom layers address the machine”; and Alexander Galloway defends that an interface is “is always a process or a translation” (2012). Both authors highlight the procedural effect and the human–machine interaction that an

interface requires and promotes. Also here, *Composition No. 1*, as a printed book and electronic application, is suited to be understood as an interface: it is computationally composed, inscribing such digital traces in the translated alphabetic and visual text that embodies a flow of communication between the machine and the human. This embodiment requires a subject of agency that, in this sense, cannot be understood only as a user or a reader (a executor of predetermined “tasks”) but as a subjective agent (cognoscent and sensorial) of a space of action. Thus, the book and app are not only ways of access to the text but interfaces of reading and cognitive activities.

The recent years saw an emergence of critical discourses on the ubiquity and naturalization of digital interfaces. Nonetheless, we must not forget that printed books are also extremely ubiquitous and naturalized, to the extent of informing many digital reading and writing interfaces and incorporating them as well. Lori Emerson (2014) reminds us that the interface works in paradoxical ways: it grants us access to information while hiding its mechanisms, following a logic of transparency based in obscure proceedings. Emerson advocates an insurgent praxis able of demystifying such ‘magical interfaces’ through an exhibition of their difficulty and opacity, ‘buried’ in their multiple layers.

Visual Edition’s twofold edition explores and experiments with graphical properties of the book, bringing the reader closer to the literary artifact in different ways, revealing while obfuscating print and electronic mechanisms. As an interface, the iPad app is based on a user-friendly logic: it does not require computer-programming knowledge, although programming is at the core of its mechanism. The reader reads the text, as he follows the procedures, but in reality he doesn’t know them: he is not able to access the programming language and intervene in a deeper level of the text. On the other hand, in the print edition there is nothing that prevents the reader from “hacking” the text, to intervene at a deeper level, since he has the tools and the knowledge that enables him to scratch, cut, annotate and comment on the textual surface. The novel, as a print and electronic work, promotes an estrangement of the textual instantiations through the experience of the different interfacial affordances.

This estrangement of naturalized digital media is at the core of post-digitality, since it allows the recognition of the modes of production as producers of difference, raising awareness to the presence of the interface. In an over technological culture, post-digitality recognizes an exhaustion of digital assumptions and consequently looks forward to alternatives that ensure a technological relevance, in order to contribute to new possibilities for future cultural productions. In this sense, we argue that a reflection on the interface as ideological and significant discursive agent should be considered within the post-digital context.

Emerson’s argument that interfaces need to be deconstructed in order to present their mechanisms and possibilities of intervention by its users is close to the post-digital principle: that of reinventing the technological medium— analog and digital technologies that retroactively reconfigure the way we approach cultural objects and how we perceived, which, in the words of Florian Cramer “dismiss the notion of the computer to the universal machine, and the notion of digital computational devices as all-purpose medium” (Cramer 2014). In the case of *Composition No. 1* this

happens precisely in the relationship between the two interfaces that mediate different reading experiences of the novel, materializing that notion that nor the computer (or computational devices as the iPad) nor the book are self-sufficient and universal, they feed on each other to generate different outputs. The screen interface works in a transparent, intuitive way, even though the application is a kind of “black box”: impenetrable and inoperable. But the editorial strategy adopted by Visual Editions allows the print version—a kind of “transparent box” that sets out the mechanisms and does not prevent the intervention—to inform the electronic text, and vice versa, in a material feedback loop of the novel.

Visual Editions brings together both analog and digital technologies in a contemporary reimagining of literary objects. This publishing strategy, which includes the adoption of different materialities, is greatly involved in post-digital practices. Thus, *Composition No. 1* can be perceived as a post-digital technotext, in the sense that Katherine Hayles defines technotexts as “literary works that strengthen, foreground, and thematize the connections between themselves as material artifacts and the imaginative realm of verbal/semiotic signifiers they instantiate” (Hayles and Burdick 2002, 25). Technotextuality stimulates intermediation processes to promote models of distributed cognitive processes between object and reader in fluid combinatorial mechanisms, between the inscribed “memories” of the technological object, the machinic book and the reader. These intermediations are recombined in a post-digital aesthetic that destabilizes digital and analog concepts and crossovers.

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