



Typography in Interactive Poetry: Gestures and Their Contributions to Reading Multiplicities

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Abstract. This study investigates the ways in which visual poems have expanded their creation and interpretation possibilities in digital environments. A significant poetic contribution of these media is the possibility of physical interferences by the reader, thus transforming the reader into an interactor. Another fundamental element for the materialization of electronic poetry (or e-poetry) is typography. Contrary to what occurs on paper, it is possible to interact, deform and transform the types that constitute poems in digital interfaces, which brings the novelty of inserting gestures as creative poetry potentialities. In order to explore these hypotheses, this article comprises two stages. In the first, we will establish a relation between the following poems: *lygia fingers* (1953), *dias dias dias* (1953), *Poemóbil vivavaia* (1974) and *cripto-cardiograma* (2003), all by Augusto de Campos, and the theory raised by Plaza [1] concerning the degrees of interpretation that influence interactivity. In the second stage, we will discuss the subjectivity of implicit gestures in digital poetry, based on two works: *Segundo Soneto Meio Barroco* (2000), by Alckmar Luiz dos Santos and Gilberto Prado, and *Between Page and Screen* (2012), by Amaranth Borsuk and Brad Bouse.

Keywords: Visual poetry · e-poetry · Typography · Design · Gesture and digital interaction

1 Introduction

The contribution of poetic structure experimentation to the development of typography is perceptible by observing the use of this graphic element throughout the twentieth century. This contribution is mainly associated with visual poetry, which, according to Menezes [2] (p. 14, our translation) “[...] refers to a poetic phenomenon of the twentieth century, which is the cross-linking of languages in direct consequence of the visual scenario of great cities and mass media.”

It was also in the twentieth century that typography was able to reach a large part of the masses, since, although the advent of the printing press in the west dates from 1456, its democratic ratification was the result of the late nineteenth-century industrial progress, which disseminated basic education and access to printed content.

This industrial fervor, along with the freshness provided by recent photographic inspiration, reverberated in the arts and literature, and paved the way for design to consolidate itself as an area of knowledge. Influenced by this technological and social enthusiasm, the poets of that period began to experience word materiality in page spaces.

Visual poems often disregard grammatical syntax in favor of word exploration as a visual resource, accentuating the material perception of letters and syllables by typographical experimentation, as well as the breaking down of the linear paradigm. These visual studies ‘exploded’ off-line and out-of-text typography.

At the end of the twentieth century, by virtue of the democratization of personal computers, we entered the digital age and, since then, with the consolidation and multiplication of digital platforms, new supports are evident, leading to poetry stratification. Neitzel and Bridon [3] (p. 121, our translation) point out that visual poetry represents a new path for poetic texts “[...] the union of words with the exploration of spaces, non-linearity, syntactic disorganization and, with this new aesthetic, electronic poetry was created”.

Digital or electronic poetry (also known as e-poetry) paved the way for further discussions concerning reader interaction with poems. We begin from the premise that the typographic form influences its visuality and the way we interpret poems, and that it also acts as a graphic element that allows the reader to establish different poem interpretations by inserting his/her own gestural subjectivities as he/she interacts with the poem.

Thus, this article aims to investigate the relation between four elements: the poem; the reader or the interactor; typography and digital devices. To understand the correlation between these elements, we begin with a reference research on interaction, gesture and typography, then applying this research to visual poems and e-poetry, such as: *lygia fingers* (1953), *dias dias dias* (1953), *Poemobile vivavaia* (1974), *cripto-cardiograma* (2003), *Segundo Soneto Meio Barroco* (2000) and *Between Page and Screen* (2012).

2 Typography and Gestures in Poetry

Digital poems can present interactive forms with relative ease. This interaction allows for the inclusion of the reader through gestural performances, where such movements provide new interpretations, since they insert all the subjectivities associated with gestures.

Flusser [4, 5] discusses gestures as a way of modeling abstract thinking. Since gestures include the individual subjectivities of each person, the intention of the gesture is imprecise and its actual intention is not possible to determine, as it may occur both consciously or unconsciously. According to Hall [6], among all human senses, the sensations experienced by touch are the most personal, and this characteristic is then reflected in its subjectivity.

McCullough [7] (p. 01) reports that “By pointing, by pushing and pulling, by picking up tools, we act as conduits through which we extend our will to the world. They also serve as conduits in the other direction: hands bring us knowledge of the

world.” For the author, gestures contribute both in humans being able to carry out their work and modifying the world around them, but also as a way of understanding this world.

Typography, on the other hand, can be defined as a set of visible symbols, containing orthographic and paragraphic characters [8]. This assembly can have its design conceived either by hand or by machine. However, it is essential that the character be prefabricated in a mechanical medium, independent of whether it is analog or digital, such as a typographical press, a printer or a prefabricated graphic on a computer [9].

The presence of the gesture within the typographic universe is not as evident as in calligraphy and lettering because, the hand movement in these forms of writing is perceptible in the strokes and drawings that make up the letter traces. It is important to emphasize that, although these handwritings are not considered typographies, both models, according to Esteves [10] (p. 23, our translation) “[...] have always served as a reference for the conception of typographic forms”.

Currently, due to the ease that digital media provide for the design of typographic forms, almost eliminating the technical limitations found in previous methods, typographic fonts are not uncommon and are based on lettering and calligraphy, reinforcing the importance of gestural procedures even today.

The typographic element has always been associated and confined to a static and, often linear, surface. Gesticulation occurs when pressing keyboard characters, either on a typewriter or using a text editor on the computer. Nevertheless, this gesture is not as expressive or subjective as the gesture of drawing with a pen, because the movement is mechanized.

In the typography used by designers, the gesture is not directly related to the final form of the letters. However, its applicability in the digital scope opens the possibility that this letter requires the gesture of the interactor after it is finished. It is important to understand how the gesture is present within the ephemeral context of electronic media.

Typography thrives in virtual environments not only as a form of content presentation, but also as an interactive object. The gesture is present in these virtual and participative environments, since, it allows for a more intuitive contact with the device as it is a primitive sense.

3 The Relation Between Degrees of Interpretation and the Work of Augusto de Campos

The ephemeral qualities of digital devices allow the reader to be inserted within poems through means of a wide range of interfaces that have expanded alongside the evolving technology used in electronic devices. These qualities foster discussions about user or reader interactions with the work. It is worth emphasizing that such discussions are not unique to the digital scene, since, even before the first computers, interaction signs between poems and reader were already noted.

In this sense, in the 1990s, Plaza [1] (p. 09, our translation) observed “... a shift from the restorative functions (the artist’s poetics) to the functions of receptor sensibility (aesthetic) [...]”, this transition was characterized by a mixture of poetic genres. According to Plaza, three degrees of interpretation related interaction levels are noted:

first-degree opening, second-degree opening and third-degree opening. For a better understanding of these degrees of interpretation, we relate them to Augusto de Campos' works. His works were chosen to exemplify Plaza's degrees of interpretation [1], as this poet, whose theoretical and creative trajectory, according to Antonio [11], is permeated by poetry, the arts and technologies, and has experimented with all three degrees of interpretation.

Augusto de Campos was considered one of the forerunners of concrete poetry in Brazil in the 1950s. He is also one of the authors of the concrete poetry manifesto, in which we find the following passage:

concrete poetry: tension of words-things in space-time. dynamic structure: multiplicity of concomitant movements. also in music - by definition, an art of time - space intervenes [...]; in the visual - spatial arts, by definition - time intervenes [...]. [12] (p. 89, our translation)

Due to the fact that concrete poetry has explored the graphic visuality of the word and typography, it fits in the proposed discussion of the presence of typography in interactive poetry.

3.1 First-Degree Opening

Let us turn our attention again to Plaza's [1] observations concerning degrees of interpretation. The first degree of interpretation is related to a passive participation of the reader or the spectator regarding the work of art, since he/she is only the view, with its subjectivities, that interferes in the work interpretation, i.e. because it is not a physical opening, the reader does not externalize his/her participation in the poem.

This means that the poet leaves room in his/her work so that the reader may insert his subjectivities to complete the work, without physically altering it, by means of interpretation ambiguities.

We observe these characteristics in several Augusto de Campos works, two of them visually similar: *dias dias dias* and *lygia fingers* (see Fig. 1), both published in 1953. According to Antonio [11], both poems explored the spacings within the white sheet. The colors applied to the linguistic symbols allow the reader to establish new relations between word meanings.

A single typography was used in both poems, the *sans serif* font named *Futura*. According to Menezes [2], this source was the most applied during the first phase of the concrete poetic movement, since it presents a clean design with both geometric and "rational" forms. Thus, typography was used along with several colors in *lygia fingers* and *dias dias dias*. The colors, typography and page layout are graphic elements explored in these poems in order to encourage the reader to make his/her own poetic journey within these works. These possibilities of reading path choices guaranteed the permutational characteristic of the works.

According to Plaza [1] (p. 12, our translation), interchangeability is implicit in the concrete movement work, as "the concrete poet sees the word in itself as a magnetic field of possibilities." The open matrix of many concrete poems permits several reading paths, both horizontal and vertical, allowing for the combinatorial and permutational [...] ". This feature still belongs to the first degree of interpretation.



Fig. 1. *dias dias dias* and *lygia fingers*. Source: [revistamododeusar.blogspot.com.br/2009/01/augusto-de-campos.html?view = magazine](http://revistamododeusar.blogspot.com.br/2009/01/augusto-de-campos.html?view=magazine), last accessed 2018/12/01.

In this sense, element interchangeability and support and typography characteristics provide new user interpretations for those elements, and the opening of new possibilities of interpretation is the first step towards interaction.

3.2 Second-Degree Opening

Contrary to the previous degree, in which contact occurs only through the possibility of different interpretations, the second degree of interpretation results in interactions through the insertion of the interactor’s body in the work, i.e. the reader physically participates in the work. Aquinas [13] (p. 93, our translation) reports that in this context “the dimension of action is, therefore, essential to participatory art by overcoming the binary opposition between the activity and passivity of the platonic spectator”.

Thus, paraphrasing Plaza [1], there is a dramatic confrontation between the artistic environment and the spectator, because the work of art is not closed in itself nor is it open only to interpretation ambiguity.

The work of art is dematerialized when human participation is added, i.e. it only materializes at the moment of physical contact with the spectator.

This degree of openness brings the possibility of the spectator to be inserted within the work, acting actively, as an interactor. It should be noted that this interactor does not interact directly with the poem typography, but with the surface to which it is confined to, as typography is a graphic element with strictly visual characteristics.

The work by Julio Plaza and Augusto de Campos, *Poemóviles*, was first published in 1974, comprising 12 poems grouped in book format.

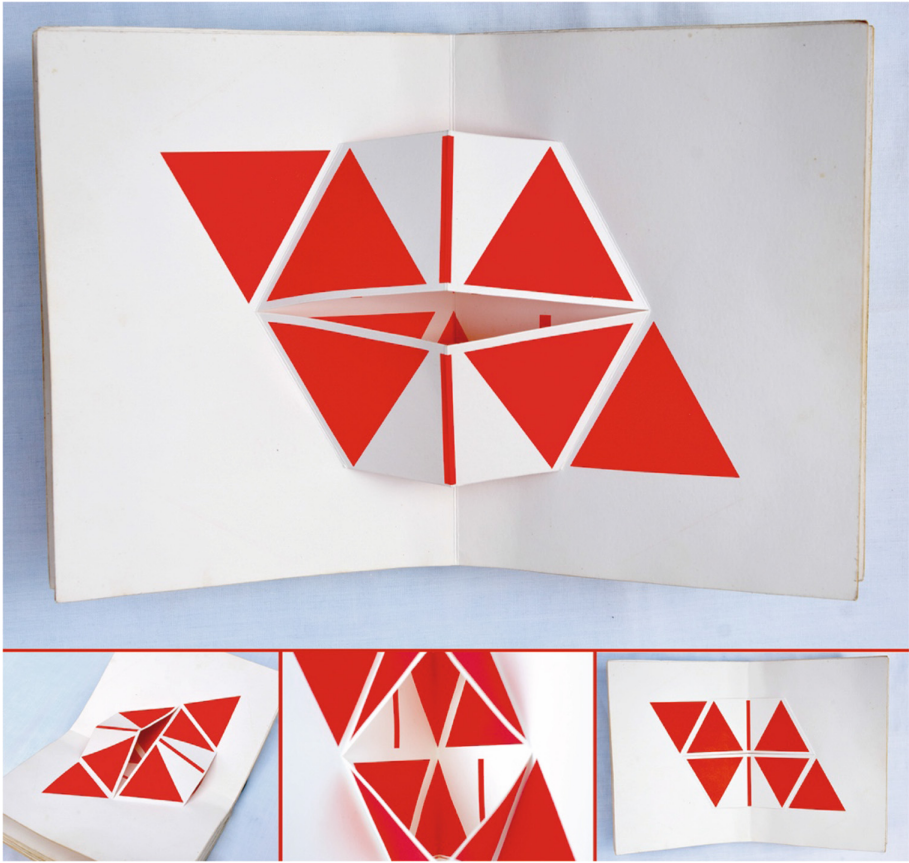


Fig. 2. *Poemobile vivavaia*. Source: CAMPOS, A., PLAZA, J.: *Poemobiles*. Brasiliense, São Paulo (1974).

The *Poemobiles* are like pop-ups, mounted from two printed, overlapping and half-folded pages. The top sheet receives extra folds and geometric cuts, allowing the shape to ‘jump’ from the paper when folded, resulting in a three-dimensional effect. The 12 poems share these characteristics, with differential linguistic and typographical content, as well as differential cutout formats and top-sheet folds.

By allowing reader participation, the poems must be opened so they can be read and interpreted. The opening angle and relative spatial position of the reader in front of the poem influence his/her perception of the work. According to Gasparetti (p. 90, our translation) “in it, we clearly see that the physicality of self-interpenetration interpenetrates the poem, presenting itself as a physical body, in such a way that the poem only exists because the book exists as an object.” This physicality makes the poem happen and the participation of the viewer becomes intrinsic to the work.

One of the *Poemobiles* is the *vivavaia* (see Fig. 2). In this work, all elements are printed in red, comprising two words “VAIA” and “VIVA”, both interspersed

according to the degree the page is opened. Observing *vivavaia*'s typography, we notice it is composed of simple geometric forms, a perfect equilateral triangle used as the character 'A'. The same triangle is inverted and becomes a 'V' and, because it has no internal counter-forms, its visual weight is high. The character 'I' is represented as a rectangle the same size as the other letters. The words 'VAIA' and 'VIVA' are located on the top sheet. Each word is positioned above the other, with the 'I' characters aligned above the fold, located in the center of the page. In this sheet, a cut is noted between the words and the folds, and the folds are aligned with the sides of the letters 'A' and 'V', represented by triangles. The words 'IVA' and 'VAI' are visible in the lower sheet by opening the top sheet, positioned one above the other so that the 'V' of the word 'VAIA' above completes the 'IVA', forming the word 'VIVA', and the 'A' of the upper 'VIVA' alongside the 'VAI', originates 'VAIA'.

The employed typography in the poem *vivavaia* drives the message, because it is in synchrony with the sheet folds. The typographic character composed of geometric forms makes it possible to read the poem's message both in the conventional position and when rotated 180°. Another feature of this geometric character, coupled with the folds, is the possibility of interpolation between words in the upper and lower layers.

According to Gasparetti [14] (pp. 94–95), the interaction with the *Poemobiles* allows “the play proposed by the work and provokes a movement of freedom that surpasses any kind of rule, because it invites the reader to change, play, read and re-create the work in an articulate and performative way [...]”. We perceive how typography can influence and be influenced by how the users interact with the poem, as its readability can be altered by interactor movement.

3.3 Third-Degree Opening

The third and final degree of interpretation occurs in digital media. This virtual space allows for real time dynamic responses, which open the way for interaction. In this sense, Plaza [1], when focusing on the work of art, ends up sketching a meaning for digital space interaction, which could easily be assigned to digital poems or e-poems:

An interactive work of art is a latent space susceptible to all sonic, visual and textual extensions. The scheduled scenario can be modified in real time or depending on the response of the operators. Interactivity is not only a technical and functional convenience; it involves the spectator physically, psychologically and sensibly in a transformation practice. [1] (p. 20, our translation).

The author recognizes the insertion of an active agent such as a computer program. The relationship between person and machine changes the pattern of traditional communication. The dynamic active agent characteristics transform the way people relate to objects and amongst themselves.

Another author who describes the relationship between humans and digital interaction is the communication teacher Primo [15]. To Primo, digital space interactions can be divided into two niches: the first, characterized by 'mutual interactions', and the second, by 'reactive interactions'. The difference between both categories is given by the ability of both interacting parties to be influenced by each other.

‘Reactive interaction’ can be observed in most computer systems that make use of multimedia resources. Multimedia features include buttons, hypermediatic links, menus, animations and graphics, and give feedback to the poem reader. When system interactions occur through these graphical elements, the system is reactive, since all animations, substitutions and word explosions were previously planned by the programmer who conceived of the program, and respond to interactor perturbations.

As Primo [15] (p. 114, our translation) postulates, ‘mutual interactions’ are characterized by the mutual influence between all those involved in communication, and are characteristic of human communication, due to the fact that our individual subjectivities are added to the conversation when we communicate with other people.

In this case, the purpose of the interaction is not defined; it is malleable and independent of prior planning. Thus, although computers have evolved to the point of having sensors capable of interpreting the world and human beings, this interpretation is the result of parameters established in their matrix code.

According to Antonio [11], the associations between poetry, multimedia and hypermedia allow the development of interactive poems. Interactive poems also allow reader users to interfere in poem structure by building new narratives for themselves. In this way, the digital poems that will be listed in this article can be classified within ‘reactive interactions’.

Let us return to the work of Augusto de Campos by observing the poem *cripto-cardiograma* (see Fig. 3), from 2003. This poem is composed of a heart formed by several pictograms. These hearts are accompanied by a red stripe located on the left side of the screen, with several characters arranged in alphabetical order superimposed on this stripe. Existing pictograms represent love or love relationships, such as hearts, daggers, flowers and dice (love game).

A corresponding character exists for each pictogram in the poem and, to interact with the application, the interactor must drag the characters and position them above one of the pictograms. If the character corresponds to the pictogram, the graphic symbol is replaced by the verbal symbol and a pulsating sound is triggered. As equivalences are discovered, the poem is ‘decrypted’ and verses are formed.

After all the characters are discovered, the poem verses are visible and an animation and a sound are created, both similar to a beating heart. The poem verses mention the word heart, represented in several languages.

The poem interaction occurs through the gesture of dragging the character through the screen making the multimedia elements mediators between the interactor and the program. The poem, however, is only capable of performing what has been specified in its array code, and if the user wants to perform any operation that does not conform to this specification, he/she will not obtain any results.

However, despite displaying this predetermined characteristic, the digital space allows for the possibility of significant interactions due to its ephemeral quality. This ephemerality enables the materialization of any graphic format in real time and allows for different readings of the poem itself.

The ephemerality of computer images allows for gesture and physical interactions in digital space interactions but, unlike manipulation with physical objects, digital interaction occurs indirectly, through interfaces and a mediator.

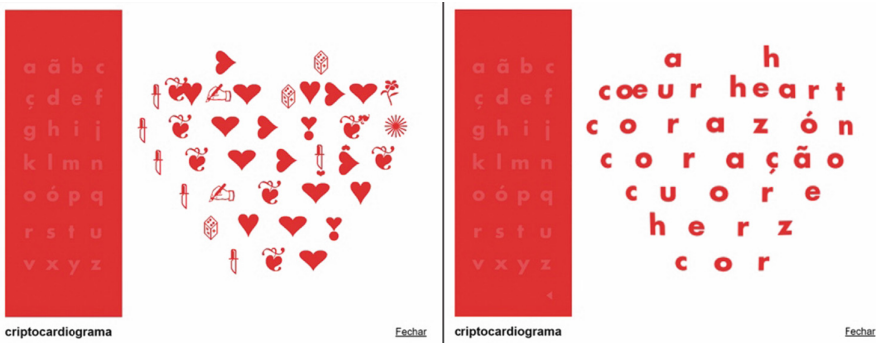


Fig. 3. *criptocardiograma*. Source: <http://www2.uol.com.br/augustodecampos/criptocardiograma.htm>, last accessed 2018/12/02 (Color figure online).

4 Digital and Gestural Poetry

Digital media allows for the dynamic union between textual and imagery elements. This characteristic permits the manipulation of typographic elements that are materialized on the screen, which, in turn, comprises a new way of interpreting poems, because, besides the inscription of the reader’s view, this environment inserts gestures into the work. On this issue, Santos [16] reports:

Habituating this space of various visualities, the reader can then witness and perceive the installation of the verbal in/as images. We have, in this case, the confrontation of a space of perceptions (not only visual) to which the reader’s body and even gestures are called and exposed to the gestuality of words. In this way, it is the very visibility that opens (itself) (in) spaces and times for the verbal, allowing to inscribe a semantization in each image movement, in each icon displacement, in every reader interaction with the keyboard and mouse. [16] (p. 82, our translation).

In this way, the author considers interaction and multimedia as resources that allow new organizations of meaning. Interactive poems designed to accept and include user input are also available. Often, this type of poem is conceived and only comes to fruition when it receives user interference. As Antonio [11] postulates, when interacting, the reader has the potential to be a co-author of the work.

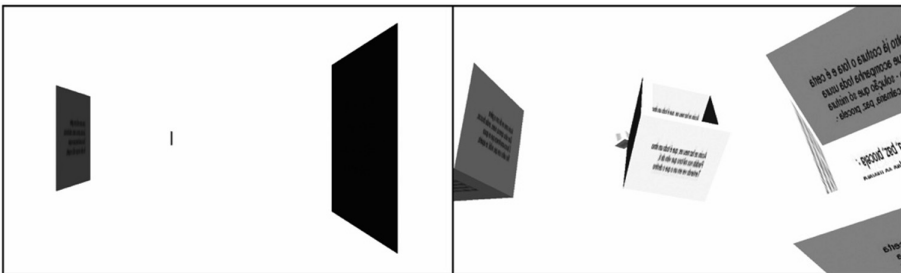


Fig. 4. *Segundo Soneto Meio Barroco*. Source: SANTOS, A., PRADO, G.: *Segundo Soneto Meio Barroco*. Brasiliense, São Paulo (2000).

According to Santos [16] (p. 82, our translation), the confrontation of the perception space occurs in digital space. This space is not only visual, but also counts on the gestural interferences of the reader. “In this way, it is the very visibility that (opens) spaces and times for the verbal, allowing for the inscription of a semantization in each image movement, in each icon displacement [...]”. This movement occurs throughout the reader’s interaction with the digital interfaces.

It is obvious that typography is an element of great importance in digital poems since, in addition to adding graphical and visual contours to the text, as noted during the avant-gardes of the twentieth century, it allows for poem materialization, in a way that favors word interactions.

This interaction clearly occupies the third degree of interpretation, since it is favored by electronic and digital media, but also covers both the first and second degrees proposed by Plaza [1]. In the case of typography present in digital poetry, the second degree of interpretation appears even more proprietarily, because digital environments allow for reader actions to directly influence typographic characters, and not only the support to which the letters are confined. To clarify such concepts, we will observe two poems: *Segundo Soneto Meio Barroco* (2000) and *Between Page and Screen* (2012).

4.1 Segundo Soneto Meio Barroco

The poem *Segundo Soneto Meio Barroco* (see Fig. 4) was published in 2000 by Alckmar Luiz dos Santos and Gilberto Prado. This work was developed in Virtual Reality Modeling Language (VRML). It is a digital poem that allows the reader to move between stanzas by means of the simulation of a three-dimensional environment.

The poem consists of four stanzas, each attached to a cube. Each of the four cubes has five closed sides, while the sixth is open, so that the five inner sides are visible, with the same stanza attached to each side (see Fig. 5). In three of the five faces, the poem obeys the conventional sense of reading in the West, with lines written from left to right. In the other two, however, the text is inverted: written from right to left.

On the outside of the cube, the same stanza is also visible on each side and its senses follow the opposite of the inner facets, i.e., if the inner face of the text is inverted, it will be in the usual position on the outer side. When the cube is manipulated using the mouse, another stanza of the same poem is heard, repeated every time the reader interacts with the object.

The poem also allows the interactor to move between the four cubes that appear to be at different distances, simulating the depth of the physical environments. This movement is performed through the keyboard arrows (◀▲▼▶).

The typography used in this poem is a *sans serif* with bitmap characteristics. However, despite being interactive, it still behaves as if it were attached to a support, because it is fixed to the faces of the cube and the interaction occurs with the object.

4.2 Between Page and Screen

The book *Between Page and Screen* (see Fig. 6), created by artists Amaranth Borsuk and Brad Bouse was originally published in 2012. This work does not resemble a digital book or e-paper. Instead, it is a hybrid graphic project, which lies on the frontier



Fig. 5. Verses of the *Segundo Soneto Meio Barroco*. Source: SANTOS, A., PRADO, G.: *Segundo Soneto Meio Barroco*. Brasiliense, São Paulo (2000).

between the physical and digital. According to Borsuk and Bouse [17], the poem themes correspond to a series of enigmatic letters between two lovers struggling to map their relationship between the screen or the page.

The project consists of a physical book and a web application. The format is an 18×18 cm book and finishes as a booklet, comprising 22 pages. Inside are 16 engravings, slightly different from each other, measuring 4×4 cm, one centered on each page. All resemble a bar code known as a QR code. The web application is located on the website www.betweenpageandscreen.com. According to the authors, the project uses *ActionScript* as the base source code.

To interact with the work, it is necessary to have a camera attached to the device. The operation occurs through image capture, where the interactor must position the picture in front of the device camera. As the images are processed by the system, it recognizes the implicit code in the picture. The recognition of this QR code, in turn,

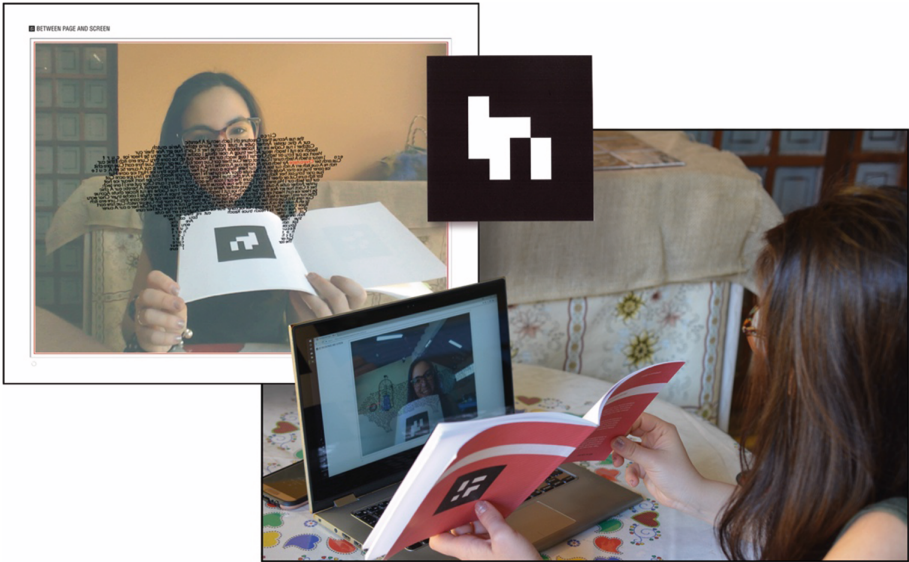


Fig. 6. *Between Page and Screen* book images. Source: <https://www.betweenpageand screen.com/>, last accessed 2018/12/01.

causes small texts to appear on the screen, which intertwine with the projected image of the interactor. Although it is a virtual object, the sensation is of holding the text with your hands (see Fig. 6). According to Borsuk and Bouse [17], *Between Page and Screen* is a “[...] augmented reality project only accessible to the reader who has both the physical object and the device necessary to read”.

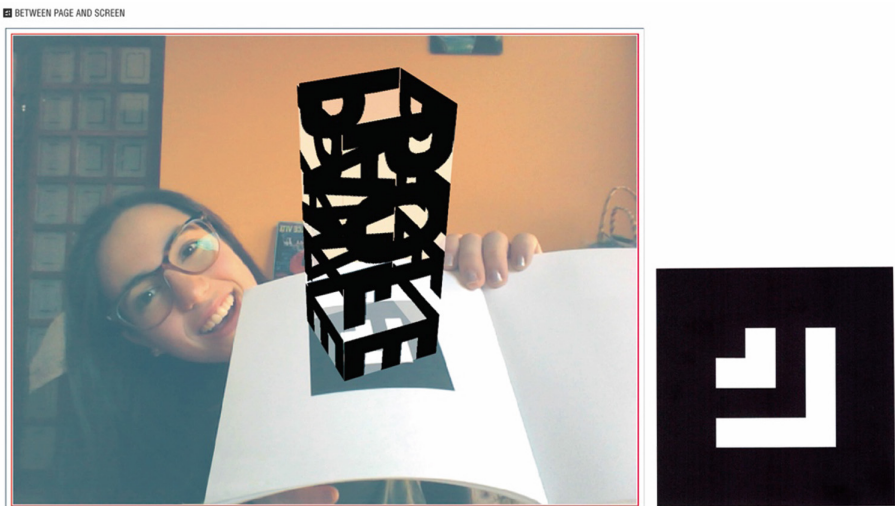


Fig. 7. Interaction with the sixth poem of the book *Between Page and Screen*. Source: <https://www.betweenpageand screen.com/>, last accessed 2018/12/01.

Most of the poems present themselves as a block of text, not necessarily rectangular, as certain poems present forms other than rectangles, such as the shape of a pig. Even if it is a text block, the reader can manipulate it. As the angle of the printed image changes, the virtual text changes position, similar to what happens when we observe a hologram. Thus, two QR codes of this book were chosen for observation and description.

The first is the sixth poem (see Fig. 7), without considering the cover poem. In it, besides the movement generated by the manipulation of the angle of the QR code, an implicit movement added by the system is noted. This movement occurs in order to simulate a ‘horizontal’ 3D rotation and, as the angle changes, the circular motion accompanies it. The poem is composed of a parallelepiped with a word arranged vertically on each side, containing four letters: ‘POLE’, ‘PALE’, ‘PAWL’ and ‘PEEL’, who revolve around the base of the parallelepiped.

The second highlighted poem is the eleventh (see Fig. 8), which, unlike the others in this book, is initially composed of a single word that changes in a certain space of time, forming new words. The words are: ‘A’, ‘PAGAN’, ‘AGENT’, ‘PET’, ‘GEANT’, ‘PEAT’, ‘PANT’, ‘GENT’, ‘EAT’, ‘GEAN’, ‘PEA’, ‘AN’, ‘AGE’, ‘GANT’, ‘GET’, ‘GEAT’, ‘PENT’, ‘PAGE’, ‘PEN’, ‘A’, ‘PAEAN’, ‘PAGEANT’ and ‘PAN’. Like other poems, it can also change its angle according to manipulation of the printed figure.

■ BETWEEN PAGE AND SCREEN

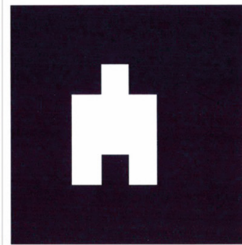
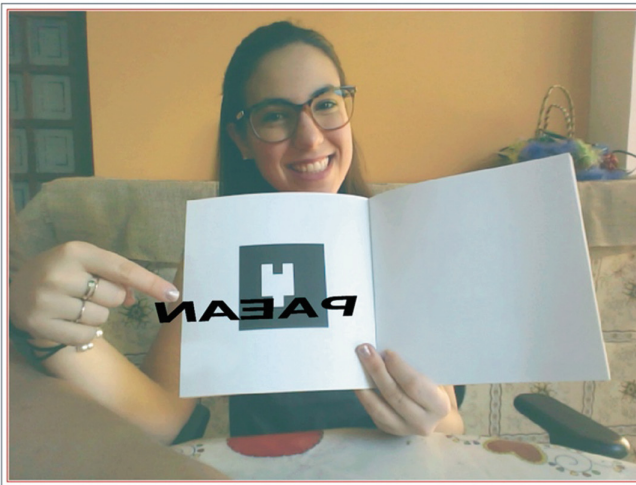


Fig. 8. Interaction with the eleventh poem of the book *Between Page and Screen*. Source: <https://www.betweenpageandscreen.com/>, last accessed 2018/12/01.

The typographies present in the project is subject to changes relative to the presented angles, since they may be altered by simulating a top view or a mirrored character, for example. A *sans serif* font with similar characteristics to the grotesque or neo-grotesque category is employed in all examined poems. One of the most apparent aspects of this type of source is the use of heavy strokes.

5 Discussion

In the first part of this article, we discuss the question of the degrees of interpretation elaborated by Plaza [1]. To elucidate the author's concepts, we chose four poems by Augusto de Campos. The poems *days days days* and *lygia fingers* comprise the first degree, both presenting typographically similar characteristics. They present colors and spacings that allow for interpretation multiplicities, both due to the graphic aspects implicit in the poems and the interchangeability proposed by the word divisions.

These characteristics can be observed in Menezes's reflection [2] (p. 31, our translation) on the two poems: "[...] language is broken by fragmented words, a mixture of sounds from different languages, mainly sounds that resemble African or indigenous languages." According to the author, this type of poem was the most radical at the time.

Concerning the second degree of interpretation, we presented *vivavaia*, belonging to the work *Poemóviles*, where the question of support materiality is noted. This materiality implies in reading possibilities, as the piece opens or unfolds for the reader, displaying hidden words. In this sense, the entire poem allows for new experiments.

Although the typography present in *vivavaia* is fixed to the support, this support allows for manipulation, thanks to its pop-up characteristics. Due to the typographic spectator character being exposed as basic geometric forms (triangles and rectangles), the word can be rotated and still preserve its verbal meaning. Such structure manipulations allow for great interpretation variability.

In the third and last degree of interpretation, the poem chosen to transcend the concepts elaborated by Plaza [1] was *criptocardiograma*. This poem was concretized in the digital space, where it is clear that the interaction occurs with the character and not with the support, as noted in *vivavaia*. The ability to drag the letters around with the mouse and swap them with the pictograms is an intrinsic feature of the digital space.

In the second part of the article, we delve into electronic and digital poetry, with the intention of better understanding how poetry is favored by reader's action, present as gestures, and observe how the use of typography occurs in this scenario. Two poems were selected for these observations, *Segundo Soneto Meio Barroco* and *Between Page and Screen*.

In *Segundo Soneto Meio Barroco* the authors used the stanzas attached to the cubes, and the interaction with the cubes also approaches the manipulation of the physical object. The typography presents itself in a conservative manner, because it is confined to the verses that compose the stanzas.

The interactions presented in the poem represent 'reactive interactions', since they are provided by multimedia resources and the reader can only relate to the system in a previously planned manner, both by rotating the cube using the mouse and traversing the 3D environment using the keyboard.

In *Between Page and Screen*, the interaction does not only occur in the digital media, since the poem is printed in code and must be scanned to reveal its message. Instead of a mouse, keyboard, or piece of hardware, this interaction is carried out through an unconventional object for virtual environments, i.e. a physical book, and its manipulation allows the reader to explore the text from a variety of angles as he/she

manipulates the book. Although it is a differentiated interface, this form of interaction fits into ‘reactive interactions’.

Typographical interaction in this project occurs not only through visual simulation, but also through the gestural sensation of typographic characters, since it is possible to manipulate the typographic object with the book, distorting the angle, as long as the on-screen program recognizes the symbol printed on the pages.

Thus, typography in the digital poem space may contain aspects that enable interactions with the reader-interactor, graphic, visual and gestural. In this sense, the action does not occur in function of the support, but as a function of the character itself.

6 Final Considerations

It is clear that the third degree of interpretation incorporates the first two, as the presence of the first two in e-poetry is evident. When we observe the employed typography, we perceive that it allows for differential interpretations through visual qualities, and also conclude that this characteristic was very well explored by the visual poets of the twentieth century.

Digital and interactive poems incorporate the second degree of interpretation much more proprietarily than paper, due to their polyvalent qualities and interface flexibility that can be added to digital environments, contributing to reader experiences.

Thus, digital environments open the possibility of interacting in different ways, as observed in the projects presented herein: interactions take place both in *Segundo Soneto Meio Barroco* and *Between Page and Screen* through a personal computer and are carried out mainly by hand - in the former, using the mouse and keyboard, and the latter, by means of a book.

It is evident that this type of computer interaction allows for physical interactions with the poems, that digital poems contemplate the other degrees of interpretation suggested by Plaza [1] and that gestures, being subjective, interfere in the ways we interpret poems.

As observed in the projects presented herein, digital poetry or e-poetry opens the possibility of the existence of a gestural relationship between the reader-interactor and typography, without the latter having to be attached to the support. In fact, this interaction is a differentiated form of language that allows us to add movement and include the reader’s participation in the work, enabling new meanings for the millennial art of poetry.

References

1. Plaza, J.: Arte e interatividade: autor-obra-re-cepção. ARS (São Paulo) **1**(2), 09–29 (2003). São Paulo
2. Menezes, P.: Roteiro de leitura: poesia concreta e visual. Editora Ática, São Paulo (1998)
3. Neitzel, A., Bridon, J.: Poesia digital: reflexões em curso. Literatura y Lingüística, n. 27, pp. 111–134 (2012)
4. Flusser, V.: Gestos: fenomenología y comunicación. Herder, Barcelona (1994)

5. Flusser, V.: Gestos, 1ª edn. Anna Blu-me, São Paulo (2014)
6. Hall, E.: La dimension oculta: En-foque antropológico del uso del espacio. Instituto de Estudios de Administracion Local, Madrid (1973)
7. McCullough, M.: Abstracting Craft: The Practiced Digital Hand. MIT Press, Massachusetts (1998)
8. Farias, P.: Tipografia digital. O impac-to das novas tecnologias. 4a (edn.) Edi-tora 2AB, Rio de Janeiro (2013)
9. Noordzij, G.: O Traço: teoria da escrita. Editora Blucher, São Paulo (2013)
10. Esteves, R.: O design brasileiro de tipos di-gitais: a configuração de um campo profissional. Blucher, São Paulo (2010)
11. Antonio, J.: Poesia digital: teoria, histó-ria e Antologias. CD-ROM. Editora Navegar, São Paulo (2010)
12. Campos, A., Pignatari, D., Campos, H.: Plano-piloto para poesia concreta. In: Bandeira J., Barros L.(Orgs). Poesia concreta: o projeto verbivocovisual, pp. 89–92. Editora Artemeios, São Paulo (2008)
13. Aquino, R.: Arte participativa, mediação cul-tural e praticas colaborativas: perspectivas para uma curadoria expandida. *REPERTÓRIO* **19**(27), 90–103 (2016)
14. Gasparetti, A.: Poemóbiles: leituras em jogo [master's thesis]. Pontificia Universidade Católica de São Paulo, São Paulo (SP) (2012)
15. Primo, A.: Interação mediada por computador: comunicação, cibercultura, cognição. Editora Sulina, Porto Ale-gre (2007)
16. Santos, A.: Leituras de nós no cibe-respaço e literature. Itaú Cultural, São Paulo (2003)
17. Borsuk, A., Bouse, B.: Between Page and Screen. www.be-tweenpageandscreen.com/about. Accessed 12 Nov 2018