Literature Coded for Marked Quick Response

Zuzana Husárová, Bogumiła Suwara

ABSTRACT

This paper examines the phenomenon of Quick Response codes (QR) and Augmented Reality markers (AR) in the context of contemporary literature. QR codes and AR markers, both traditionally represented as squares containing smaller black-and-white squares, require that the user firstly scans or photographs these images through his or her smartphones, computers, tablets or other digital devices, after which the content can be read, e.g. within websites. Several literary pieces have been based either on the concept of QR codes and markers or have implemented them for a particular reason (ranging from inviting the reader to discovery, hinting towards unveiling the content, referring to the tendencies of using QR codes in contemporary message-delivering or even marketing). This paper will concentrate primarily on two works of Quick Response Literature or Augmented Reality Literature, one Slovak (Joseph Juhász's Urban Memoire*) and one American (Amaranth Borsuk and Brad Bouse's* Between Page and Screen*). These projects will be examined not only from the perspective of their formal attributes, but the poetics the works represent will also be analyzed in order to reveal their "real" "spirit/sprite."*

KEYWORDS
augmented reality, QR codes, codes, AR books, electronic literature, digital media

Introduction

> And if page is talking to screen from some archaic past,
> that implies to me that there's a narrative of progress in which page must eventually give over to screen.
> I feel like something would be lost if that were the case.
> Amaranth Borsuk[1]

The dynamics of the development of new media has given rise to a great deal of projects related to the future of reading technologies, transformations of the objects once called books, and other changes in the printing industry. Many commercially viable digital forms of literary and multimedia experience have emerged like children's interactive "touchy" books for tablets and smartphones that can be purchased in mobile platform markets such as "Apple stores." Many remediated fairy-tales offer the reader the experience of manipulation with objects on screen, making them into performative elements. The use of such interactive potential is no longer restricted to experimental and marginal forms, but is beginning to engage the general public. Literary stories designed for tablets (usually for younger readers) do not require the demanding interpretation which is often demanded when deciphering some conceptual works of electronic literature. Interactive stories for children have been commercially successful because they capture children's attention with multimedia and are easy to manipulate and interface with. They are a perfect example of what Andrew Darley describes as "a new culture of surface play."[2]

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1 Amaranth Borsuk, "Interview with Amaranth Borsuk by Zuzana Husárová," 3/4 26 (2012): 20.

2 Andrew Darley, *Visual Digital Culture: Surface play and spectacle in new media genres* (New York: Routledge, 2000), 192.

The sensuality and spectacle of the "surface" plays a dominant role in the works played on touch-screens. This experience of engagement with interactive books is symptomatic of contemporary tendencies in digital media. Easy manipulation, multisensory stimulation, multimedia form, intensive engagement define the users' relationship with digital entertainment technologies. The more users have played with the surface, the greater surface area they have created.

Quick Responses and Augmented Realities

In the last ten years QR codes have become a phenomenon for quickly processing information, e.g. connecting to a web link. These two-dimensional barcodes were invented in Tokyo and since 1994 have spread into many industries. Due to their easy implementation and small size, they have become a useful way to mediate information. They can be found almost anywhere: on billboards for marketing, at schools to share information, on city walls, on business cards, tickets, etc. to spread particular information. They are also present in paper form as stickers, on T-shirts, even on some gravestones or memorials to launch a late person's biography web page or a video.[3]

The development of Augmented Reality technologies has blurred the line between the "virtual" and the "real" by linking them on the digital device. AR technologies recognize the markers through a camera and project a video image along with an additional layer that the program has decoded from the marker. Thus the surface play covers also the "real." In the study of these "almighty" playful surfaces, approaches by Susan Sontag[4], Andrew Darley[5] and other theoreticians focusing on performativism and sensual engagement have proven to be useful tools. However, this digression from hermeneutic analysis recently has come into question. Roberto Simanowski demonstrates in his book *Digital Art and Meaning* the potential of a hermeneutic approach towards the analysis of digital artworks. He points out how the digital era has enabled the creation of a number of literary and performative works that due to the richness of interpretative possibilities must be read hermeneutically, i.e. to be encountered in "depth." As Simanowski points out, the reader's physical engagement "should not overwrite the cognitive interaction with the work but rather become part of it."[6] The interplay between the interaction and reading must be considered essential for the thorough understanding of a digital literary piece, whose meaning cannot be deciphered merely by analyzing the textual parts.

The important question here is: How to approach those works that intentionally use their codedness also in a semantic way? The reader sees a black-and-white square the pieces of which form visual patterns and must first be decoded in order to get to the act of reading. For this a digital device is needed, thus the dialogue between print and digital opens.

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3 See news articles by Susan Gilmore, "Living headstones' use technology to honor the dead," *Seattle Times* August 1st , 2011, accessed March 3rd, 2012, http://seattletimes.com/html/localnews/2015787265_quiring01m.html; Malcolm Brabant, "Denmark pioneers hi-tech graveyard memorials with QR code," *CNN News* September 2nd, 2012, accessed October 20th, 2012, http://www.bbc.co.uk/news/world-europe-19267930 and Trevor Mogg "Graveyard tech: QR codes to bring cemeteries alive," *Digital Trends*. September 3rd, 2012, accessed October 20th, 2012, http://www.digitaltrends.com/international/denmark-pioneers-hi-tech-graveyard-memorials-with-qr-code.

4 Susan Sontag, *Against Interpretation and Other Essays* (New York: Noonday Press, 1966).

5 Andrew Darley, *Visual Digital Culture: Surface play and spectacle in new media genres* (New York: Routledge. 2000).

6 Roberto Simanowski, *Digital art and meaning* (Minneapolis: University of Minnesota Press, 2011), 7.

For this paper, *media specific analysis,* an approach introduced by N. Katherine Hayles, will be used. Media specific analysis has been described as "a mode of critical attention which recognizes that all texts are instantiated and that the nature of the medium in which they are instantiated matters."[7] The medium in our case will be QR codes and AR codes, which will be examined in terms of how they are used in literary works. The aim of this paper is not to concentrate on the usage of textuality in the digital medium, nor on literary interpretation per se, but rather to study 2 different examples of artistic and poetic use of QR and AR codes, one Slovak and one American. It is perhaps too early to propose a typology of the usage of QR and AR codes in literary works; here we will merely attempt to point out the different ways QR and AR codes are used in the texts.

1. Differences in the use of QR and AR codes in literature

It is no surprise that in this era full of codes and coded elliptical messages, these modes have also been incorporated into the literary realm, e.g. "code poetry," which arose in the 1990s. One of the prevailing programming languages of code poems was Perl, thus works were termed Perl poetry. Some Perl poems are executable, meaning that the code will run after compilation on a computer, and some are non-executable, indicating that the text mimics the aesthetics of the code, but does not work as one. Many authors also have also rewritten existing poems into Perl Language, such as this example by Wayne Myers.

```
while ($leaves > 1) {
                $root = 1;
}
foreach($lyingdays{'myyouth'}) {
                sway($leaves, $flowers);
}
while ($i > $truth) {
                $i--;
}
sub sway {
                my ($leaves, $flowers) = @_;
                die unless $^O =~ /sun/i;
}
```

The above is a rewriting of the poem *The Coming Of Wisdom with Time* by William Butler Yeats:

Though leaves are many, the root is one;
Through all the lying days of my youth
I swayed my leaves and flowers in the sun;
Now I may wither into the truth

One author who continues to program executable Perl poems is Nick Montfort. Through his project the *ppg 256 series* (Perl Poetry Generators in 256 characters) Montfort has created various generative poems. The code of each of the seven series is displayed on

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7   N. Katherine Hayles, "Print Is Flat, Code Is Deep: The Importance of Media-Specific Analysis," *Poetics Today Spring 25* (2004): 67.

the website: http://nickm.com/poems/ppg256.html. However, the code is not displayed in the running poems.

All digital poetry is based on a specific code, but this code is usually hidden. The terms "code poetry" or "codeworks" refer to those works in which the scripting language is visible on the screen and creates the literary expression. According to Sondheim, a codework is "the computer stirring into the text, and the text stirring the computer."[8] In 2006, Sondheim distributed via <nettime>, a moderated mailing list for net criticism, a kind of manifesto for codeworks[9]. Adalaide Morris defines codeworks as a form in which "code or code elements seep onto a screen to be read not by an intelligent machine but by a human audience."[10] Sondheim outlines three different categories of codeworks:

> Works using the syntactical interplay of surface language, with reference to computer language and engagement. […] b. Works in which submerged code has modified the surface language—with the possible representation of the code as well. […] c. Works in which the submerged code is emergent content; these are both a deconstruction of the surface and of the dichotomy between the surface and the depth.[11]

Some outstanding examples of such writing described by Adalaide Morris include poems by Mez (Mary-Anne Breeze), John Cayley, Brian Lennon, Talan Memmott, Alan Sondheim, and Ted Warnell. "Codeworks" present code on-screen in a linguistic form. In works using AR codes and QR codes the situation is different: the codes are represented by a visual image. Their "code essence," represented by language and symbols used in the programming language, is transformed into visual form.

QR and AR codes have been created as a part of the creative literary work or in fact were the work itself. The AR journey poem 'Andromeda' by Caitlin Fisher is also a physical children's pop-up book that Fisher found and overlaid with AR markers. When the reader opens this book she finds various physical objects instead of pages. Reading the text requires showing the AR markers on the objects to a camera, after which layers of delayed voices narrate pieces of the story.

AR technology in the form of works that contain AR markers has emerged in the children's book market, e.g. *Rocks in my Socks*, *Fairyland Magic*, *Dinosaurs Alive*, *Book of Spells* and many others. In one such children's book, *The Search for WondLa* by Toni DiTerlizzi, several pages contain the symbol of a mirror, which when recognized by D'Fusion Software shows a moveable virtual 3D map of a fictional world. Another project created by D'Fusion Software is a French children's encyclopedia that contains several pages featuring AR called Dokeo Comment Ca Marche? Popar books, a branch of Popar toys, have implemented AR technology into physical objects for children to play with. Author David Salariya has thus far published the two children's books *What Lola Wants*, *Lola Gets and Tyrone the Clean 'o' Saurus* in a series of AR works called *Book*,

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8 Alan Sondheim, "Introduction: Codework," *American Book Review* 22 (2001), accessed 11th October, 2012. http://www.litline.org/ABR/issues/Volume22/Issue6/sondheim.pdf.

9 Sondheim, Alan, "What is Codework?," *Nettime* 19th 2012, accessed 11th May 2006. http://www.nettime.org/Lists-Archives/nettime-l-0605/msg00037.html.

10 Adelaide Morris, "New Media Poetics: As We May Think/ How to Write," in *New Media Poetics*, ed. Adalaide Morris, Thomas Swiss (Cambridge, US: The MIT Press, 2006), 29.

11 Alan Sondheim, "Introduction: Codework," *American Book Review* 22 (2001), accessed 11th October, 2012. http://www.litline.org/ABR/issues/Volume22/Issue6/sondheim.pdf.

Figure 1: Husárová-Borsuk. *Obsession Session* (last page), *Kloaka*, 2011.

Webcam, Action!. These books are about Tyrone and Lola, two characters who move along with a child's manipulation in the simulated 3D space on the screen.

WizQubes are cubes that when scanned by a webcam function as external controllers of reader's choices in the story. AR works have also been used in the school environment as textbooks.

2. QR to deliver multimediality

AR and QR codes have also been used in experimental literature. These codes can perform a number of functions in experimental literary works; in this paper three will be examined. Zuzana Husárová and Amaranth Borsuk have collaborated on the multilingual piece *Obsession Session*, which appeared in the Slovak print cultural journal *Kloaka*. The last page of the work consists of a square containing permutations of the words our, code, obsession, is. In the center of this square is a QR code. This code directs the readers to an audio sample in which Borsuk and Husárová read the entire poem, their voices accompanied by Slovak and American experimental music. Here the codes work to provide a different media element than is possible to deliver on the simple printed page.

3. QR to deliver context

Another example from Slovakia is a piece by József R. Juhász called *Urban mémoire* which consists of a white box (18.5 x 26.2 cm) covered with posters (47 x 67 cm) that are folded to fit in. When opening a cover, the reader finds 13 of these "poemposters," of which one poster titled Petrarca 2012 is composed solely of QR codes. *Urban mémoire* exists in three language versions: Hungarian, Slovak and English. The Hungarian version contains 13 posters, the other language versions only 12. The poster titled Hungarian Verse, which consists of a collage of slogans/marks from advertisement posters and under these on the page complete "verses" that feature these slogans, is only in the Hungarian version. The 12 poemposters can be divided into 8 visual poems posters,

Figure 2: Juhász, Urban mémoire. 2011, Box and a Poster (*Urban mémoire*)

3 photograph posters and the Petrarca 2012 poster. One of the photograph posters is titled Colorize Paganini; 2 posters show photographs of the author and Asian people. Each of the 12 posters contains 2 small QR codes in the lower left corner. The code on the left is informative, while the other brings the reader to an Index listing all the poems (like a "home" button). Since the QR code on the right always returns the reader to the Index registry, now we will only discuss the functions of the other QR codes. In this piece these QR codes have three different formal functions based on the types of posters.

3.1 QR codes to reference external websites

On the Petrarca 2012 poster there are altogether 46 codes, out of which 40 direct the reader to web sites dealing with the poems of the Italian Renaissance poet Francesco Petrarca (Petrarch in English), 2 QR codes have informative and index functions (as in all other posters), 4 QR codes on the top bring up an author's note in which Juhász describes how he "encoded the addresses of forty websites that contained poems of Petrarca. Since then, the clock has been ticking. Return from time to time to check when Francesco Petrarca finally disappears." 40 QR codes are visually organized into 4 main groups, a visual form which, based on the organization of codes into stanzas, could represent the Petrarchan sonnet structure abab abab cde cde. By asking readers to check whether or not Petrarca has disappeared, Juhász seems to be questioning the position
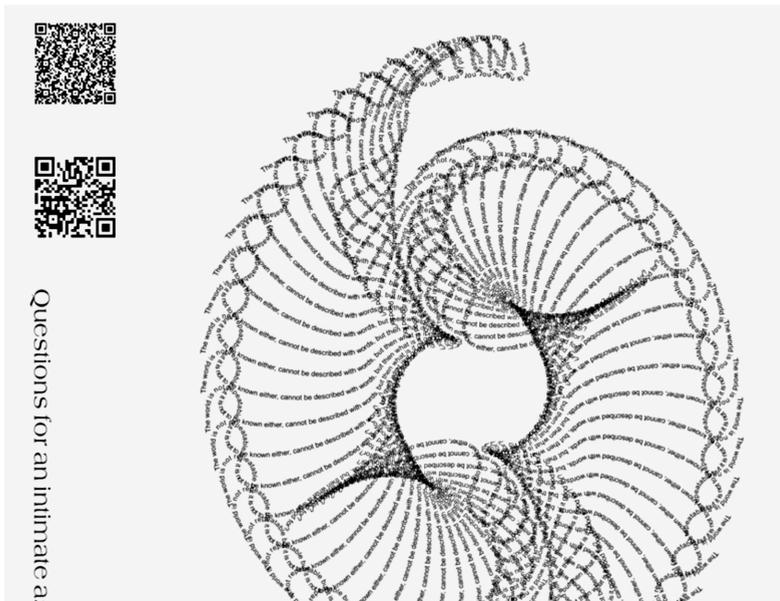
Figure 3: Juhász, *Urban mémoire*. 2011, screenshot from the webpage

of literature in the contemporary era. The reference to Petrarca could on the one hand imply that even in the era of codes and virtuality, the old sonnet form is still very much read and researched. On the other hand, the author could also be referring to the instability of the virtual environment – digital humanities and other initiatives have moved sonnets to Internet, but how long will the websites be in existence? "Petrarca's obliteration" – the text represented by the first upper QR code, thus questions both the work's literary reception and the digital medium itself.

In this context the term the "aesthetics of the ephemeral" by literary theoretician Alexandra Saemmer seems relevant. In her paper Aesthetics of surface, ephemeral, re-enchantment and mimetic approaches Saemmer describes the term as one which "consists in letting the work slowly decompose, as well as in accepting his changing forms and updates and in taking up the possibility of incidents and unexpected events."[12] Juhász' approach, which questions the presence and stability of the websites containing the sonnets, could be considered within these aesthetics. Unlike the projects in which digital authors do not update their works (usually on their own websites), Juhász appropriates the existing links as parts of his work. The "acceptance of changes and updates" that Saemmer indicates in her aesthetics of the ephemeral is in this part of *Urban mémoire* even radicalized. The discussed "acceptance of changes and updates" is generally connected with those authors who created their works. But since Juhász appropriated the links and is not their webmaster, he cannot interfere with these websites, so the concept of letting the work live its own life is very much present.

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12 Alexandra Saemmer, "Aesthetics of surface, ephemeral, re-enchantment and mimetic approaches in digital literature: How authors and readers deal with the potential instability of the electronic device," *Neoholicon* 36 (2009): 479.

3.2 QR codes to reference an author's website – poetic material

QR codes appearing on the visual poem posters redirect the reader to the plain text of the visual poem. Geometrical layouts of texts in three black and white poems ("History by DNA," "arcus symphoniae," "Questions for an intimate assignation I") are easy to read in their visual form. Here the QR codes do not bring extra information. They are however important for the reader to be able to "read" five other posters. Only a few letters are incorporated into the graphic form of the poems in color ("Thrill-Bull," "Time has come," "The psychogenetic mutation of x and y chromosomes after the third dose") and in black and white ("Butterfly-effect"). Thus the text triggered by QR codes works as an additional medium, as a text to provide an understanding of the visual material. Poster Dragontrap V2 shows a visual representation of a dragon formed by layers of words "falling." This poster can also be viewed through 3D glasses which highlight the sentence: "The words did not stop sounding once again/the stamen of the country on your throat." Here the author follows the tradition of visual kinetic poems – the meaning is formed by the understanding the textual as well as visual layers. There seems to be no clear connection between these kinetic poems–they might represent an individual thought (the personal becomes public), which makes them hard to decode for a reader.

3.3 QR codes to reference an author's website – multimedia material

QR codes on the photograph posters direct the reader to additional multimedia material on the author's website. The poster Colorize Paganini displays a photo of Juhász during a sound performance (with a violin, bow and transparent tubes around his body). The code directs the reader to information about this event (11. Nippon International Performance Art Festival – 2004, Taiwan) and a set of photos from the performance. The piece "Walking Opera" (looped electronic tones with a tone vocalized by an opera singer) is inserted as an audio file on this link.

A poster called Smoking Place displays a photograph in which Juhász sits on a chair in front of a table in an unidentified square surrounded by people. He is smoking inside a plastic bag tied around his head. The QR code also displays a set of photos taken during a series of performances of Smoking Place in different countries. The poster *Urban mémoire* (See Figure 2) shows faces of people with an URBAN MÉMOIRE sticker on their foreheads, plus 2 photos of Juhász and a photo of a panorama of skyscrapers in which the sticker on the author's fingers is positioned in the shot.

The QR code on this poster brings the reader to a link showing a video of this performance, a slideshow of photos from the poster, plus photos of various places where he has placed URBAN MÉMOIRE stickers. The video shows Juhász carrying a small black trolley with a box on which have been placed URBAN MÉMOIRE stickers. He continues around the town and places the stickers onto various objects. Finally, he goes to a site of ruined buildings where he methodically picks up several objects and puts them into his box.

This *Urban mémoire* video could be interpreted as dealing with memory and ways of remembering – on the one hand recalling important objects, places, and people that are important (as these are consciously "labelled" by individuals, Juhász labels them with the stickers, thus they become "memories"). On the other hand, the site of ruins could stand for the subconscious, an unordered, unkempt place from which "shards" of memories that once formed a solid basis are withdrawn.

Taken as a whole, *Urban mémoire* creates a "text" written in one's memory consisting of various thoughts and associations, fragmentary pieces that form memories

Figure 4: Juhász, *Urban mémoire*. 2011, screenshot from the webpage – video of the performance

connected with certain places (in Juhász's case it could be his travels in Asian countries). Memoirs are traditionally understood as argumentative pieces of writing in which the authors present ideas and opinions on a given subject. Memoirs can also mean souvenirs. Mémoire in French means "memory" and Juhász is playing with reader's expectations by using the French word. "Mémoires" is also the title of an artist's book employing the concepts of psychogeography and détournement described by Situationists Asger Jorn and Guy Debord in 1959. Maybe Juhász is referring to this work, one which is a founding text in psychogeography. Joseph Hart describes psychogeography as "a whole toy box full of playful, inventive strategies for exploring cities."[13] The discipline "includes just about anything that takes pedestrians off their predictable paths and jolts them into a new awareness of the urban landscape." The "whole toy box" becomes for Juhász a container into which he has folded and "posted" his memories. The work is thus a box or a mémoire/memory of situations, places and people that Juhász has encountered throughout his "cities explorations," and that may be difficult for the reader to interpret since she has not experienced them. His approach towards the exploration of the city and the creative acts shown by the multimedia material can also be understood as Situationist in its nature. The Situationist influence can be sensed in his approach towards the real experience in the environment, in his treatment of life as a creative experience.

Besides their distinctive formal functions, QR codes carry here a metaphorical meaning. If they represent codes written in one's mind that only individuals are able to decode (as opposed to codes for machines), then only the owners of that particular mind or memory have access to them. It can be said that the mind is coded all the time and a proper algorithm is necessary to decode it. By the use of QR codes, Juhász provides a means to learn about the contextual (and maybe also personal) information connected

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13 Joseph Hart, "A New Way of Walking," *UTNE Reader* July/August, 2004, accessed 3rd October, 2012, http://www.utne.com/2004-07-01/a-new-way-of-walking.aspx.

Figure 5: Borsuk-Bouse, *Between Page and Screen*

with a particular poster. With digital technology, this context can be interpreted, but one needs also to return to check the time when it disappears into "oblivion," much as Petrarca's fate is called into question. The box containing all the posters does not contain any information about the links between the posters – each poster seems to refer to a particular memory from the urban environment and connections between them are not clear. It is possible to change the order of seeing and reading of the posters at any time (they are not numbered) and thus the author might want to stress the unpredictability and associative nature of the memory. The format of the box enables the reshuffling of the folded posters and thus – unlike in bound book form – allows the reader to experience different orderings of the visual-textual content. Nevertheless, the semantic content of each poster might be difficult for the reader to sort out, since the posters seem to refer to the author's particular experiences. In Urban mémoire the recollections of a city are captured in a photo album consisting of textual, visual and multimedia material that are encoded both formally (QR codes) as well as cognitively (in the author's memory).

4. AR to deliver poetic communication

The augmented reality poetic book *Between Page and Screen* by Amaranth Borsuk and Brad Bouse presents a number of the new possibilities that publishing in the contemporary digital age can offer. Apart from the paratext, the book contains only minimalist visuals of black and white markers. If the reader follows the instructions: "To find the words, visit: www.betweenpageandscreen.com" and types in the webpage, she is asked to direct the book page to the video camera on her own computer, which decodes the markers. On the screen appears a combination of the "real world" that the camera captures (the

"real time" projection of the reader and her surroundings) and the decoded content of the markers. The book is created with the use of AR technology based on the program's decoding of the markers and subsequent display of their content on-screen. But in comparison with everyday encounters with QR codes and markers regularly used for marketing purposes, for instructing the user and for easy accessibility to the digital information, the function of the code in *Between Page and Screen* is purely artistic. The book's title refers to the interaction between page and screen that is on the one hand technological and on the other hand poetic. The technological interaction alludes to the process of obtaining information from the printed medium by means of the digital. However, the process of technological "communication" is not unidirectional. The marker printed on the page was created in a digital program, thus the content can be "wrapped" in the 2D visual symbol. In this way the technological path leads from the initial digital programming of the processes, to the printing of the digital symbols, to the final stage of program's recognition of the marker's shape and revelation of the coded sign on the screen. The poetic interaction between the two narrators/characters Page and Screen is not necessarily the result of technological possibilities, but is rather conceptually influenced by the technology. The decoded text offers a hybrid form of visual poems, conceptual poems and predominantly epistolary love narrative between the only two present: Page and Screen. The poetic form of the text thus belongs to a very traditional genre, yet transferred in this medium it offers a totally new way of being interpreted. Viewed from a media analysis point of view, the generic dialogue between the two entities can also be seen as a cross-media dialogue about intersections of print and digital cultures.

4.1 Cross-media Dialogue

Between Page and Screen consists of 16 pages to be read from the screen while the displayed texts create the illusion of a third space—a space neither on the page nor on the screen, but somewhere in between. AR technology does not create any other space; the camera merely decodes the code and reflects the decoded elements projected onto it. In this project, however, AR technology creates the effect of an additional layer on the screen; this enables the device to code and decode information where eyes just see black and white squares. The concept corresponds to a human reliance on machines—one cannot read the text unless the program interprets it. The reader alone is stuck in the communication between the code and the machine, unable to proceed without the help of the program. The whole concept of the book, i.e. the reader's inability to read the text, corresponds with posthuman theories and performative tendencies of digital technology.

The effect of seeing a projection of 3D space on a 2D screen with a special layer hovering above the book, brings new poetic as well as interpretational possibilities. The text is presented at a 90 degree angle with the book's projection, stemming from it, with the last line closest to the surface. In some cases, the text creates a kinetic layer, forming a circle, a prism, a moving line or dynamically self-rearranging anagrams. The texts follow the reader's movement of the book and dissipate when the page is turned or shifted out of camera's reach. The work follows a tradition of kinetic textuality that changes reader's preconceptions about textual material. The concept of kinetic poetry refers to two types of kinetics—the first, found often in futurist poems, is when through the arrangement of a text a feeling of movement is created, the second appears in moving images or digital media in which text can move based on the technological processes. The digital piece BPAS belongs (in contrast to Juhász's kinetic poems on posters) to the second type of kinetic poems—the words literally spin, jump, scatter, etc. Moreover, the whole work could be seen as a "technotext"—a term coined by N. Katherine Hayles.
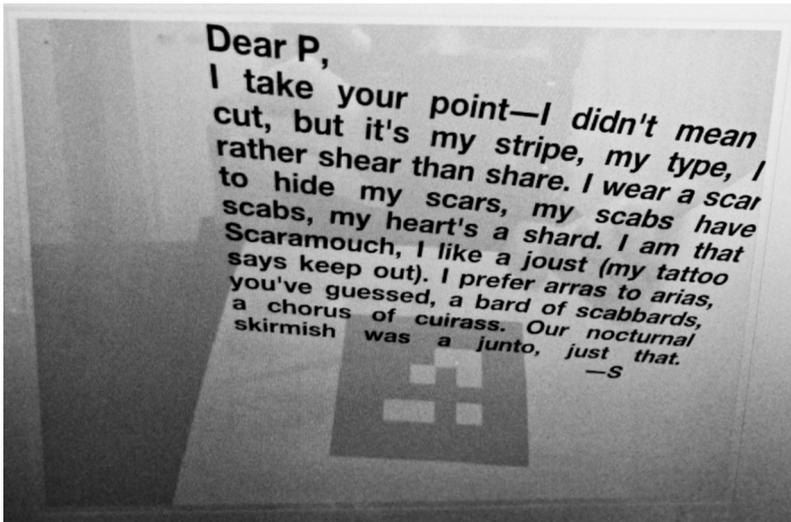
Figure 6: Borsuk-Bouse, *Between Page and Screen*, screenshot during reading

This American literary theoretician claims that "the physical form of the literary artefact always affects what the words and other semiotic components mean."[14] Hayles considers how physical and semiotic layers remain in constant relation to each other. By the term "technotext" she refers to those literary works in which the material and semantic layers appear in a substantial dialogue, whereas meaning is created by the continual interplay between these two layers: "When a literary work interrogates the inscription technology that produces it, it mobilizes reflexive loops between its imaginative world and the material apparatus embodying that creation as a physical presence."[15] BPAS interrogates not just one inscription technology, but two—print and digital—since it can only exist where both of them meet in the third, AR space. This third space where reality appears augmented is the space where the text becomes visible—AR "virtually materializes" the coded text on the screen. But apart from this virtual betweenness, there is also its counter-part, the physical betweenness. This is the space between the book and the screen–the space where, apart from the air, also the upper body of the reader, her head, fingers, shoulders and chin exist. The head, the receptive and cognitive area where reading happens, is where a message is analyzed and interpreted. Thus the elements appearing in the third spaces (in the virtual and in the physical) also constitute a specific relationship – that of the poetic communication between a digital text and a reader.

4.2 Poetic Betweenness

It's not that words exist prior to or independently from the world, but rather that we know the world through the words that initiate us into it. Just as we know words through the world in which we learned them. Poets actualize these potentialities: the worldness of

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14 N. Katherine Hayles, *Writing Machines* (Cambridge, US: The MIT Press, 2003), 25.

15 Hayles, *Writing Machines*, 25.

words, the wordness of the world. This is why poetry is not a matter of "understanding": one does not wish to stand under, and in that sense outside, but to move into, within; or perhaps move back and forth: under, inside, on top. Charles Bernstein[16]

The reader learns about the love narrative of two characters from the letters they send to each other. The first page provides a "letter" from P addressed to "Dear S." The last sentence reads "A pact: our story's spinto – no more esperanto" hints at their "peasant" (pleasant) time spent together yesterday on a patio. Their story, into which the reader enters in medias res, is from the first reading moment pacted into a *spinto*, a term which can be understood polysemantically. In Italian spinto means "pushed," but it is also used as a vocal term referring to a high operatic singing voice (soprano or tenor) that has both lyrical and dramatic qualities and can handle great musical climaxes at moderate intervals. The reader is from the first page exposed to the polysemy and language play which continue throughout the whole book. Both meanings have their relevance here. Page's letter contains also other foreign words (poco a poco, a patois, penetemento memento), so an Italian word does not seem strange in this context, multilinguality being an important element of the book. Thus another meaning, taken from music terminology, opens the gate into a more intimate and confidential sphere and promises a story with voices capable of climaxes at moderate intervals. This romantic reference lures the reader into a private sphere where a story of lovers could be expected. The fact that P mentions "no more esperanto" is also interesting. Esperanto is a synthetic language created to bridge gaps between speakers of different tongues; it is a linguistic code. Thus the pair wants to stop speaking in an artificial code – here bridging different media – and decide to reveal their thoughts to the reader.

The second page only confirms the language play with a "tickly" subject: a kinetic circle consisting of "spinpinintospinto" spins in front of the reader. The kinetics of the circle could thus be interpreted as an ongoing dynamics between P and S, their spinning, pinning and lyrical, dramatic qualities. It already becomes clear on the second page that, although the pages of the book are to be scanned separately and thus could evoke the idea of a multisequential work, they function as a part of the book and not as separate entities tied together. If the reader opened the book at this page and saw the moving circle of those letters, she would blatantly be reminded of the concept of kinetic poetry.

The work's format invokes the reading approach of linear writing, although the reader might be initially tempted (due to the cultural reference of QR codes, which usually represent one single piece of information), to approach the work at random. However, since the codes are printed in the book, the reader knows that they have been printed in a given sequence. From this it is obvious that the reader's presence in the era of digital information influences the ways of approaching the text. The information age offers another stimulus for linking form with semantics – you can enter the intimate space of dialogue only if you have the combination of "tools," i.e. media. The reader can enter their dialogue only if she has a "hold" of them. The text becomes readable only if she "owns" the media. Marie-Laure Ryan writes about two definitions of the term "medium" – a transmissive definition and a semiotic one. In the first, a medium is considered as a channel or system of communication, in the second a "material or technical means of artistic expression"[17] Regarding the readability of *BPAS*, one has to negotiate both

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16 Charles Bernstein, *Attack of the difficult poems: essays and inventions* (Chicago and London: University of Chicago Press, 2011), 89.

17 Marie-Laure Ryan. "Media and Narrative," in *Routledge Encyclopedia of Narrative Theory*, ed. David Herman et al. (London; New York: Routledge, 2005), 289.

definitions. If the reader did not possess the book or the screen (transmissive definition), the inability to read the content would be obvious; if she did not "own" the text (semiotic definition) – by placing the book so that it does not face the computer screen or by owning only one of the "tools" – the text also could not be read. By using the AR format, Borsuk and Bouse challenge the assumptions of "text in the book" predictability. Thus both definitions of medium seem in this context equally important.

In the third text, Page receives from Screen an answer which reveals aspects of its character. The reader learns that Screen would rather "shear than share" and the skirmish between them was a "junto." Screen is thus presented as less romantic and rather protective of its own territory. This seems at first quite paradoxical, bearing in mind the screen as an object. Screen as a device opens the "windows" to the digital world of possibilities for open works, networking, social media, collective authorship, while the narrator Screen does not want to lose its autonomy. As stated in the text (visually outlined to form a shield), the word "screen" comes from the Indo-European word root "(s)ker-," meaning "to shine." This brings to mind a number of militaristic terms relating to objects that glint in sunlight, sword and shield among them. Here it becomes obvious why Screen has to feel the need to protect itself and to fight for "space" – it stems from its very etymology. The text also comprises the etymology of the words Scaramouch, Scrimmage, Skirmish, the latter of which meaning to fight with a sword. In comparison with Screen's distanced nature ("I like partition"), Page rather tries to find common interests in their exchange of writings and sends a kiss for peace. "Let it lapse. Scabs can be peeled back." Scabs might here be referring to the fights between them or to the rivalry for the attention and likeability of users. Instead of wanting to proceed in fights, Page signs a PAX and the disagreement between them is resolved. Page takes on a more sensuous character, driven towards relation, as well as an older and more experienced entity. Screen's attitude is more jumpy and self-defensive, unsure of its own position and therefore feeling the urge to secure boundaries. During the whole book, the reader receives two different standpoints towards their relationship, which is another example of the work's polyvocality. Screen is rather cold, wearing a "scarf to hide my scars, my scabs have scabs, my heart's a shard." Screen's detachment stands in stark contrast to Page, whose "origin is to join, to stake a claim."

Borsuk engagingly defines qualities of the characters, which are not only based on the qualities of the media they "materialize" but also create distinctive fictional voices. While Page is described as in "flourish," Screen is presented as a predator desiring to hunt prey and digest it.

The visual poem – an image of a pig formed by a number of anagrams in various languages, with the only red word "Charcuterie" possibly refers in this context to Screen's taste in meat. From another point of view, the relation between the cutting of words and cutting of flesh/meat might be mentioned.

But as in many fairytales in which a beast turns into a lovely being when kissed, this story also follows a line of metamorphosis. Screen, sensing the end of their tale coming, says it will be "curt" and "curtail its tale." S writes that since they are running out of words, it regrets the fight and asks P not to "forget to write." The last poetic page contains the text "P.S. A co-script posthaste postface: there is no postscript. Sleep tight." This last text reminds readers that there is no final script, thus the conversation continues. And so we the readers should rest and sleep calmly without worries about any of the characters/media.

The epistolary form is interwoven with kinetic and visual poetry through language variations which call attention towards the polysemantic nature of the work. Five texts appear with dynamic or visual qualities, all of them drawing on a word mentioned in

the previous letter. Thus these "interludes," usually placed between alternating letters, have not only an entertaining, amusing function but also retrospectively stress a specific word, thus making the reader aware of its particular status in the given context.

The combination of epistolary form with the dynamically changing "flickering signifiers," as N. Katherine Hayles[18] has termed such digital words, links the historiocultural tradition of exchange of information and courtship with the contemporary trends of digital poetry. The technotextual character is apparent even in this context. The letters are juxtaposed by jumpy kinetics of multilingual language plays. The tradition of love letters is presented in a context that is unstable and ever-changing, thus even letters beckon to be re-read.

5. Conclusion

QR and AR codes have become part of literary expression, bringing the literary to our everyday occupations, to the world of transfers between the real-as-virtual and the virtual-as-real. QR and AR codes normally used for reduction of the space in information delivery have different functions in the works studied here. QR codes are not implemented into literature just to provide a coded link, they rather bring a different medium (audio, video) that is unavailable on the standard printed page. The other function of QR codes found in the work *Urban mémoire* is contextual– they provide extra information not stated on the posters. Authors of visual poems usually do not provide plain text references to their works. The fact that text is "QR encoded" could be perceived as an intention to show what stands behind visual poems. Juhász thus "unpacks" the abstractness of the poems, but still (due to the hidden connections between the posters) leaves a lot of space for the reader to "uncover" the meaning of the piece. The metaphor of memory could also be supported by the unbound format of the piece. There is no set sequentiality: thanks to the format of individual posters in the box every reader can "choose" what to look at/read first and what next. The piece is a mémoire written for the print medium, but one based on several digital media principles – codedness, multimediality, multisequentiality. The readers "open" and "unfold" a poster representing an association, a memory connected for the author with a specific place. The readers "set free" a dragon from its "dragontrap," in their reading process, the words referring to memories "did not stop sounding once again."

The process of a poem's realization through the reading process is present also in *Between Page and Screen,* however, in this piece it is also technologically determined. The reader receives merely a book with codes unless she also uses a computer with an installed camera. The betweenness – both technological and poetical – is a place of the poem's unfolding. The letters between the characters Page and Screen narrate a metaphor of both the qualities of the media and our human approach to them. The augmented quality of reality turns out to be not only a technological invention, but also a dimension devoted *to* the reader as well as created *for* the reader where the poetic dialogue opens between P and S and the reader intrudes into their world of virtual narrative.

Both works use codes to open an intimate narrative for the reader: in the case of *Urban mémoire* a fragmented "narration" of memories, in the case of *BPAS*, an epistolary story of a personal relationship. The reader does not feel like a peeping Tom – the stories

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18 N. Katherine Hayles, "Virtual Bodies and Flickering Signifiers," *October* 66 (1993): 69-91.

start evolving once she "opens" them. Maybe this mediated record of intimacy can be understood as related to the displayed personal stories on social networks. Maybe the uncovering of the personal is awarded to the reader once she "passes" the decoding test, similar to finding a treasure. It cannot be forgotten that literature and especially poetry has historically functioned as a mediator between the personal world of the author and the outside world. In the contemporary era of information space reduction, it is significant that, although the presented literary initiatives have found ways to minimalize space, the effect is not minimalized.

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Zuzana Husárová is a postdoctoral scholar and author teaching at Comenius University (SR) and Masaryk University (CZ) and an ex-Fulbright scholar at MIT, USA (2011). She is the author or co-author of experimental literature across various media, including with Ľubomír Panák the interactive literary pieces Enter: in' Wodies, I: *ttter, BA-Tale and Pulse. She is the author with Amalia Roxana Filip of the transmedia project *liminal* (visual poetry book and multimedia at *www.liminal.name*). Zuzana collaborates with four artists on the multimedia performance *Phenomena Research* (dance, music, visuals, digital poetry, spoken poetry). Web: http://zuz.husarova.net/

Bogumiła Suwara has engaged with theory of literary translation (O preklade bez prekladu, VEDA, 2003), literary comparatistics and Polish literary studies, specifically its position in the Slovak cultural environment. She has lectured at Matej Bel University (Banská Bystrica), Masaryk University (Brno) and Jagellonian University (Krakow). Bogumiła works as a literary researcher at the Institute of World Literature at the Slovak Academy of Sciences, where she supervises the grant "The Text on the Internet as a Phenomenon of Cultural (R)evolution" that was preceded by the grant "Literature in cyberspace."

Bogumiła Suwara and Zuzana Husárová co-edited the publication *V sieti strednej Európy*: *nielen o elektronickej literatúre:* (In Central European Network: not only about electronic literature:) published in Bratislava: SAP and Ústav svetovej literatúry in 2012.