

From Real Tombs to Digital Memorials: An Exploratory Study in Multicultural Elements for Communication

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Abstract. This research is based on a semiotic analysis of tombs and tombstones in order to discuss elements that might be useful for software design, especially of digital memorials. In this research, Saussurean semiotics was considered.

Keywords: Digital memorials · Semiotics · Multicultural · Cemeteries · Tombstone

1 Introduction

The design of digital artifacts is aided by the use of real-world metaphors, so that elements from different cultures influence the characteristics of those software products. Some web applications have been developed to pay homage to deceased people; they are called digital memorials [2, 12, 19] and they bear some resemblance to physical memorials, which are tributes to specific individuals or groups. Likewise, cemeteries (with their tombs and tombstones) are places where corpses are buried and homages are paid.

By observing tombstones, memorials and cemeteries in various countries, one notices how differently built those tributes are in terms of content and expression. Besides, the objects visitors bring to those spaces, such as flowers and candles, vary from one culture to another, which shows distinct interactive patterns between the living and the dead, and between the living about the dead. Considering this scenario, it is clear that the most famous digital memorials in the web do not meet such cultural diversity.

In HCI, many researches have been carried out focusing on the impact of cultural factors in HCI design and on the support to developing multicultural interfaces and systems [15, 16, 18, 22]. But the study of digital memorials design and development is still new, unexplored and challenging. Therefore, the research project this paper is a part of is aimed at analyzing to what extent can the project of digital memorials allow different settings in terms of expression and content, through the use of diverse semiotic elements, so as to meet users' multiculturalism.

To do so, it is first necessary to adopt a clear and specific perspective towards the concept of culture. In consistency to the semiotic approach of the project, we herein adopt the definition of culture from interpretive or symbolic anthropology, according to Geertz [7], to whom culture is built as a web of significance in which human beings are interwoven and by means of which they are built. Thus, different cultural systems are different sets of meanings shared by a group of people, expressed by different signs. Differently from a universalist approach to culture, more common in HCI [9], cultural analysis is understood in our project as an interpretative process, looking for meanings.

In this initial stage of the process, we carried out a qualitative exploratory case study to better understand the design features of real-world artifacts, by observing photos of tombs and tombstones. Our goal is to identify preliminary interpretative elements by analyzing verbal and non-verbal signs used to describe the dead in those objects. In this stage of the research, Saussurean semiotics was considered [20]. Our intention is that these elements serve as conceptual scaffolds for future studies about the design and evaluation of digital memorials, where it may be possible to identify patterns and communicational paradigms for this domain.

2 Theoretical Background

Digital memorials are increasing in terms of popularity [13], possibly due to the new relationships they enable towards death, the dead and mourners, or maybe due to the fact they can be accessed from anywhere in the world, which differs sharply from the locative nature of physical memorials. Some digital memorials also permit that people leave virtual flowers, candles or even virtual prayers for the dead [13].

Lopes et al. [13] discuss recommendations for the design of software programs for digital memorials. The recommendations are divided into: a. modeling social network elements; b. allowing to pay homage to the deceased; and c. warranting cultural diversity. Based on practical recommendations for the design of digital memorials, prototypes were developed to discuss and improve the proposed recommendations.

However, a challenge upon designing such systems is the need to meet users' different expectations, built through cultural practices, toward death, which is a taboo issue that can even limit software engineers' capacities to find better design solutions to handle death and mortality [14].

For example, in the real world, diverse cultures build tombs with different shapes, sizes and colors, which are features that do not have mere functional reasons, but also semiotic ones [21]. A tomb has a certain size not only for a corpse to fit in it, but also to represent certain ideas of grandeur or unimportance, depending on the social role the deceased played in that society. Also, funerary art is very common in cemeteries of

certain cultures [4]. That social practice of visiting cemeteries for aesthetical/cultural appreciation is called necro-tourism. The graveyards that attract most tourists in the world¹ are located in the USA, France, Italy, Czech Republic and Argentina.

Tombstones are also funerary architectural elements of semiotic relevance, as they convey a message from family and/or friends to other visitors of the cemetery, depicting the deceased and paying homage to him or her. Like tombs and funerary art, tombstones also vary a lot from culture to culture, both in terms of what it is said about the deceased (the content of the message) and how it is said (the expression of the message), by means of verbal and non-verbal signs, like colors, shapes and images.

A semiotic approach proves useful to analyze those data in tombstones, as it provides the analyst with conceptual tools to understand representations and meaning-making through signs, irrespective of their domain. Semiotics warrants scientific and systematic lenses for the analysis of signs of all sorts, whether they are visual, verbal, musical etc., so as to capture the processes through which they convey meaning [12]. As every culture is a sign system [11], understanding how meanings are conveyed within every culture and across different cultures allows us to design interfaces which meet different cultural codes, especially when it comes to controversial and taboo issues, such as death and bereavement.

The twentieth century saw the rise of different semiotic schools, and Computer Science, especially Human-Computer Interaction, has incorporated semiotic concepts, especially those from Peirce's [17], Jakobson's [10] and Eco's [5] semiotics, which serve as theoretical tools to understand how meaning is produced in computer interfaces through signs. The research herein carried out, aimed at analyzing the design of tombstones, uses concepts from Saussure's semiotics [20] to describe those objects, as detailed in the methodology section. Our intention is to elicit semiotic features from tombstones so we can apply them to the design of digital memorials in future research.

Saussurean semiotics relies on a bipartite definition of sign, according to Hjelmslev [8], composed of a signifier (an acoustic image, or the expression plane,) and a signified (a concept, or the content plane), which are two faces of the same entity, arbitrarily bound. That means the concept of death (signified) and the color black (signifier) are arbitrarily connected in Brazilian culture, for example, so this color is often used in funerals. However, there is nothing in the color itself that relates to death. The relation between a signifier and its signified is socially constructed.

3 Methodology

Considering the aforementioned concepts, we carried out a semiotic analysis according to the method proposed by Roland Barthes [1], who determined that the first step of a semiotic analysis consists in determining the sample of materials to be analyzed. As we are here conducting an exploratory research, so as to elicit semiotic elements from tombstones for further applications in digital memorials, we decided to make a contrastive analysis of three tombstones, from different countries: Mário de Andrade's, in

¹ <http://goo.gl/gsxaDX>.

Cemitério da Consolação (São Paulo, Brazil); Sarah John's, in the Hollywood Forever Cemetery (Los Angeles, USA); and Edith Piaf's, in the Père Lachaise Cemetery (Paris, France). These tombstones were chosen because they belong to famous deceased people, which might lead their communities to make a more refined use of semiotic symbols to pay homage to their death. Besides, we chose tombstones of people who died in the middle of the twentieth century. We decided to restrict our sample to such a period of time, so that we could compare tombstones from societies with fairly similar technological development in the Western world, so as to reduce the amount of extrinsic variables.

After deciding on the sample, the tombstones photographed were analyzed in the light of Saussurean semiotics [20]. Then, for each photo we mapped out its denotative level, describing its semiotic manifest features in syntagmatic and paradigmatic relations. Then, we outlined possible connotative relations some signs might evoke. In addition to that, we compared the semiotic structures of the three photos in order to identify recurrent patterns in the relation between signifiers and signifieds. Notice that, although Saussurean semiotics was developed with a view to verbal language, it can be used to analyze any kind of signs, since human interpretation of all signs can only occur mediated by language. Therefore, if the objects herein under analysis are not linguistic themselves, the understanding we can make out of them can only be mediated by words, and are therefore semiotically constrained.

4 Analyses and Discussions

In this section, we analyze each tombstone in terms of content and expression (signified and signifier, respectively) and then we proceed to a contrastive analysis between them.

The Brazilian tombstone (Fig. 1) belongs to the modernist writer Mario de Andrade, who participated in the renovation of literary language and forms in the beginning of the twentieth century in Brazil. The author is buried in one of the most traditional cemeteries of the country: Cemitério da Consolação.

Despite his fame, Mário de Andrade's tombstone has no original elements that refer to his contributions to Brazilian literature and arts. All it says is his name, birth date (marked by the symbol of a star) and death date (marked by the symbol of a cross). This is by far the most common template for tombstones in the country, although most contain the deceased's photo. The only original symbol of grandeur in this tomb is the material it is made of (black granite), along with the material the inscription letters are made of (brass). In Brazilian society, both materials connote respect and lordliness.

The non-verbal signs of the star and the cross also have second-level meanings, as each of them has a collateral signified besides indicating birth and death, respectively. The cross is traditionally associated with death in Brazilian society, irrespective of the deceased person's religion, through a metonymic relation with Jesus Christ's death on a cross. However, when placed upon a tombstone, that sign might convey a second-level meaning: the idea that, after death, Mário de Andrade Soul's might go to Heaven, like Christ's soul did, according to biblical discourse.

Moreover, if the cross has a highly conventional meaning in Brazilian societies, the same does not apply to stars, especially in the context of cemeteries. There is no social



Fig. 1. Mário de Andrade's tombstone. (Source: Maciel, C., 2015)



Fig. 2. Sarah John's tombstone (Source: Maciel, C., 2015).

convention establishing a regular connotation for the sign of a star as a signifier for birth. Nevertheless, due to the linguistic value property, that sign gains meaning in contrast with the cross. If on a tombstone there are two dates and one of them represents the death date, the other one, irrespective of other non-verbal signs, must represent the birth date. Obvious as it may seem, such fact suggests that the representation of death is much more conventionalized in that society through the sign of a cross, so any other sign, in opposition to the cross, would assume the meaning of birth, even if a zero-sign (or no sign) were used before the first date.

In the bottom left corner of the tomb, one can also see a modern device to provide cemetery visitors with information about the deceased: QR-code tags integrated with MemoriAll software². According to Cann [3], “QR codes transfer the dead from the cemetery to the realm of the living by giving the living a connection to the deceased that can be accessed anywhere”.

Figure 2 shows Sarah John's tombstone, in the Hollywood Forever Cemetery, where some celebrities from the entertainment industry are buried. In terms of content transmitted by verbal signs, the template of this tombstone is far more open than the previous one: besides the deceased person's name and death date, it describes her job, skills, likes and even her last words. Curiously, it does not show her birth date, although this feature is commonly explicit in North-American tombstones. If we transpose that to digital memorials, it might suggest that the birth date field should not necessarily be filled in by a user building a memorial to a beloved deceased person. On the other hand, the death date should be compulsory, as it is part of the proof someone is really dead (and there is no need to prove someone dead was once born).

As to non-verbal signs, one notices the syntagmatic relation between two Jewish symbols on her tombstone: the seven-branched Menorah (the icon of a candelabrum on the top left corner) and the Star of David; both connotatively state her belonging to the Jew community, even after death. Her identity is also reinforced in the tombstone through a full-body photo, which overlaps meanings with the verbal message, like in the words “gorgeous” and “beautiful”, which repeat (and emphasize) signifieds depicted by the photo.

² <http://www.memoriall.com.br/0020X#.VxFm0dIrkUk>.

Considering the non-verbal signs, we can also notice a paradigmatic relation between the Star of David in Fig. 2 and the cross in Fig. 3. These signs play homologous semiotic roles in their tombstones, as both mark death dates.



Fig. 3. Piaf's tombstone (Source: Maciel, C., 2014)

The design of this tombstone also foresees visitors' intention to leave material homages and mementos to the deceased in the brass vases attached to the stone for such purpose. Notice these vases are permanent elements and one of them contains an artificial flower, which also integrates the non-verbal elements of the tombstone.

Figure 3 shows Edith Piaf's tombstone, in the Père Lachaise Cemetery, the most famous graveyard in this country. Piaf was a famous singer of the *chanson française* genre, and her tomb is frequently adorned by mementos left by visitors, such as flowers or even a shawl, as can be seen in Fig. 3 adorning a vase on her tomb.

In terms of verbal elements, this tombstone differs from the others by showing not only the name she was worldwide renown after (Edith Piaf), but also as Madame Laboukas, which was her husband's surname. That suggests people may want tombstones not only to show the deceased's civil names, but also more affectionate terms, such as nicknames, pseudonyms or references to family and friends.

Besides, it is common in France to find tombstones that show full birth and death dates, but there are also those where only the years of birth and death are written. This also suggests the need to make the statement of birth and death dates more flexible in digital memorials.

As to non-verbal signs, this tombstone is made of the same materials (granite and copper) as the one in Fig. 1, again conveying meanings of grandeur and lordliness. In addition to that, one cannot disregard the syntagmatic relations between this tombstone and other architectural features on the tomb whereupon it lays. On Piaf's tomb, there is a big image of Jesus on the Cross, which ascribes the signified of Christianity to the deceased, and indirectly compares the holiness of her destiny to that of Christ's, in heaven, according to biblical discourse. The vase on the tomb, with Edith Piaf's initials carved, is also in a syntagmatic relation with her name on the tombstone, so that it is to Piaf that any flower therein is destined, similarly to the role the little attached vases played in the tombstone of Fig. 3.

A brief comparative analysis of these tombstones points out that tombstones, rather than mere pragmatic function, that is, to state who is buried in that grave, play refined semiotic roles, by allowing the bereaved to express condolences and affectionate feelings for the deceased. Small as the present sample may be, it shows the homages paid to the dead through tombstones is built by a careful sign display, both in terms of content and expression, and digital memorial systems should allow the same.

To begin with, a digital memorial should not present a single way of representing a deceased person's identity, and should have as little compulsory fields to fill in as

possible. Issues related to different levels of privacy exposure are relevant to the design of digital memorials, along with the possibility to express different sides of public, familiar or artistic life, through varied signs. Due to the taboos and soft spots concerning death and mourning in different societies, some might want a photo of the deceased person to be available in the memorial; some might not. Likewise, if the field name should be necessarily filled in upon the creation of such a memorial, there should be another field for alternative names, nicknames, pseudonyms etc., as many people are known among their beloved ones by names which are not in civil registers.

This analysis also showed that people might want to add personal information about the deceased, such as likes, personal traits, job and skills. In pragmatic terms, those pieces of information cannot be considered homage to the deceased; instead, they are data about the dead person which are made available for those who had not known him or her. Thus, digital memorials must be designed not only with a view to paying homages, but also to fighting against oblivion, which requires passing information about the dead to people who had not met him or her in life.

Finally, the direct relation between death and religious culture emerges as a conceptual category. The possibility to express (or not) the deceased person's religion, as well as the possibility for mourners to pay homage to the dead through the meaning web of their culture, seem to be important issues in the design of digital memorials. The recommendations by Lopes et al. [13] include religion-related issues.

These analyses also show that the expression of birth and death dates is subject to variation. Although the death date (or year) was found in the three tombstones herein analyzed, the same does not apply to the birth date. The format of displaying these dates (whether in full or just by saying the year) was also variable, which might be considered upon designing digital memorials.

Rather than a merely verbal message, tombstones were also clad with non-verbal signs and surrounded by mementos left by people who visited those tombs. As one can choose the material a tombstone is made of, the font and size the message will be written in, the shape of the stone, symbols that should be added to it etc., digital memorials should allow for similar customization of the interface, as well model the possibility of people virtually performing interactions with the deceased, similar to those of people who visit cemeteries, like lighting candles, leaving flowers, polishing the tombstone, leaving unexpected gifts or praying.

5 Final Remarks

Creating digital memorials automatically based on data from existing profiles, like some social networks have done [6], bypasses the lack of management of the deceased user's profile. However, such automatic processes, like Facebook does, mixes information about the dead and homages paid to the dead, which are clearly separate in physical world memorial and funeral practices, like what is permanently written in a tombstone and the ephemeral discourses people may leave on a tomb, like flowers, paper-based messages or other mementos.

Such elements, along with funerary art in different countries, show habits and beliefs that should be further studied to support the design of spaces in the digital

world. For example, how can one incorporate in design that in some Eastern countries stones are placed over tombs as homage? Would that be equivalent to posting the photo of a stone in the deceased person's profile or should this element be modeled within the system?

Finally, and considering the futures advances of this research, encompassing the analyses of cemeteries from other cultures (as well as other semiotic perspectives), we intend to propose requirements for software production in this area. Those recommendations are also expected to permit the customization of settings in such systems to better address users' memorial practices, which are currently carried out in cemeteries through tombstones.

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