

Adriana de Souza e Silva

[silvaad@ucla.edu](mailto:silvaad@ucla.edu)

Escola de Comunicação / Universidade Federal do Rio de Janeiro (UFRJ)

Department of Design | Media Arts / University of California, Los Angeles (UCLA)

Fabian Winkler

[fwinkler@hfg-karlsruhe.de](mailto:fwinkler@hfg-karlsruhe.de)

Department of Design | Media Arts / University of California, Los Angeles (UCLA)

## database

### abstract

This paper is a theoretical essay on the installation **database. database**. **database. database** is an electronic reading device that deals with the inversed functionality of three technologies: a printer, a video-camera and a database. Consequently, it raises issues about the erasure of text, the act of reading in real time (i.e., listening to a printed text), and physical databases. We challenge the idea of databases as non-linear and digital structures, and printers as output devices as well as information recorders. The installation deals with the opposition between presence vs. absence, recording vs. erasing, memory vs. forgetfulness, present vs. continuous time, and reading vs. listening. These concepts are connected with the idea of present time as a time that is always passing by. ✕

### resumo

Este artigo é um ensaio teórico sobre a instalação **database. database**. **database. database** é um aparelho eletrônico de leitura que trabalha com a inversão da funcionalidade de três tecnologias digitais: uma impressora, uma câmera de vídeo e um banco de dados. Conseqüentemente, o trabalho levanta questões sobre o apagamento do texto, o ato de leitura em tempo real (isto é, ouvir a leitura de um texto impresso), e bancos de dados físicos. Desafiamos a idéia do banco de dados como estrutura digital e não linear, além da impressora como equipamento de saída e de armazenamento de informação. A instalação trabalha com oposições entre presença e ausência, gravação e apagamento, memória e esquecimento, presente e tempo contínuo, ler e ouvir. Estes conceitos estão conectados à idéia do presente como um tempo que está sempre passando. ✕

<picture0>

## 1. database

**database** is an installation that consists of four main interfaces:

1. A printer, with a video-camera attached to the printer head. While the printer prints, it also films.
2. A projector connected to the video-camera, which projects what the camera “reads” onto the wall.
3. Paper sheets completely filled with text, which function as physical databases.
4. A computer screen displaying a blank virtual page.

The initial screen interface is a white background. As soon as the user starts to move the mouse over parts of the screen the underlying elements become visible. These elements are either black rectangles or keywords from the database. When the user moves away from the selected elements, either the words or the black rectangles fade away to white. However, when the user clicks on a black rectangle it remains black. After clicking a keyword, it is replaced by a black rectangle that stays, thus erasing the corresponding word.

After a few clicks, the screen is filled with black rectangles that are used as commands for the printer to navigate the camera. The printer prints on the pre-printed page (physical database). Nevertheless, instead of printing, it erases (covers) the words that the user previously viewed on the screen. Simultaneously, the camera reads different words and projects them onto the wall. These words are antonyms of the words formerly seen on the computer screen. However, they are not exact antonyms. For instance, the user can read “perpetually” on the screen and “too fast” on the wall; or even “promise” on the screen and “past” on the wall. This happens because the computer screen is actually accessing a database of quotes that is on the paper. The quotes are from authors in Literature and Philosophy who have written about the topics we are dealing with: erasure and recording, presence and absence, actual and virtual, writing and oral.

## 2. Behind the database

The concept of this project emerged from three main ideas.

- The physical database on a sheet of paper. Physical databases, which use paper as support, are set against digital databases, which use computers as support.
- The printer that reads while it prints. With the video camera, the printer — generally an output device — turns an input/output device. Furthermore, the video camera only allows the reading of text in real time.
- The erasure in the process of reading. The erasure of the text (i.e., covering the text with black ink) modifies the database, creating new meanings from the original text.

Our aim is to question the traditional meaning of computer interfaces. We achieved this by inverting their basic functionality.

### 2.1. Databases and Interfaces

<picture 1>

Databases are the expression of our contemporary culture. According to Lev Manovich, they are the very representation of our world, which also “appears to us as an endless and unstructured collection of images, texts, and other data records” (Manovich, 2001). It is interesting to think about databases as cultural forms, because their structure is based on fragmentation and non-linearity, which are strong concepts that help us to understand the environment in which we live.

If our lives are organized in a database-like structure, how do we access this database? That is, how can we narrate our lives? Extending the idea to the digital world, where computers can be viewed as database-machines, it is still more important to ask: how do we access data in computers? Computers have frequently been analyzed as story-telling machines (Murray, 1999), meaning devices composed of large amounts of data, connected through meaningful associations.

In questioning the traditional separation between narratives and databases, our installation creates a database that is already a narrative. It is structured in a linear way (and not in categories, as usual), but can only be accessed in a random way. On the sheet of paper, there are quotes in a linear text. However, the user only has access to it through the computer screen.

In **database**, each interface (screen/printer, printer/video-camera and paper) is a different layer of meaning that allows the user to access data from different perspectives. For example, if the user sees one word on the screen, she reads its opposite on the wall, thus creating a tension between what is read on the computer screen and what is expected to be read on the projection.

Another important opposition is the tension between physical and digital databases. By placing our database on a sheet of paper, we are inverting the common significance of databases as digital structures and looking back to the predecessors of today's databases: libraries and encyclopedias. But, unlike libraries and encyclopedias, which structure their data in a hierarchical tree-like way, our database is linear — it is narrative.

## 2.2. A printer that reads

As long as there is a video-camera attached to the printer head, the printer also functions as a reading device. Consequently, instead of being exclusively used as an output device, it also works as an input device, similar to a scanner, but it does not store digital information. A scanner is an electronic device that reads and records information, digitizing analog documents. Generally a printer acts in the opposite way: it prints digital documents and records them on paper, creating analog files. Hence, it withdraws information from the computer — from the virtual realm to the physical world.

**database's** printer works with two basic oppositions:

1. The printer does not print text, but covers it.
2. The printer (or the camera) reads, but does not record.

Therefore, the existence of the text is ephemeral, because it disappears in seconds — as soon as the printer goes to another line of text.

Here we have the basic and most archaic opposition between reading and writing, or in another perspective, between speaking and writing. Writing was invented as a way of recording information. With the emergence of writing, it became possible to freeze ideas and words for later access. In this context, the interface used (that is, the physical support used to write on) was critical for the permanence of writing. For example, books made of parchment were much more durable than other ones, which used papyrus as support. The more durable the interface, the longer the information remained. In opposition to spoken words, which are ephemeral and exist only at the very moment they are spoken, writing has an “infinite” duration (depending on the interface upon which it is inscribed). Therefore, writing deals with time differently than speech does.

This issue becomes clear when we look towards the era before the invention of writing, that is, to oral cultures and their relationship with time. In oral cultures, all knowledge was transmitted by means of speech and story telling. Consequently, stories had to be repeated many times in order to be remembered. The connection between time, speech and memory is critical to the development of our work. Pierre Lévy (Lévy, 1993) shows how memory has evolved from the oral period (where story telling determined society), passing through the writing period (where there was a linear understanding of time) to the digital age (where we have a “hypertextual” memory, that is, memory by association). In the oral period, time was circular and knowledge was transmitted by telling stories. It is important to stress the dual role of narrators and storytellers: they were the ones who transmitted and stored knowledge (information) as well as the ones who interpreted this information.

When writing emerged, this relationship was destroyed, creating two separate instances: information storage devices (walls, clay tokens, papyrus) and people who read and interpreted information. Also, writing began to function as a memory device, to the point that writing became a substitution for memorization. Henceforth, information could be organized in a different way, leading to a more linear thinking, because stories no longer required repetition. The linear reading not only changed our way of thinking, but also transformed the way people conceptualized time — from a circular to a linear time.

Many authors tried to challenge this linear organization of time by creating structures that dealt with multiple and simultaneous times. Leibniz, in the 17<sup>th</sup> Century, writes about the concept of the virtual in philosophy, creating the theory of impossible worlds and divergence of series (Leibniz, 1934). In the tale “The Garden of Forking Paths” (Borges, 1962), Jorge Luis Borges radicalizes Leibniz’ theory. Instead of accepting the existence of one linear series of worlds, he constructs a model where all possibilities are actualized. Representing the world as a labyrinth in which one must choose a direction at each bifurcation, he suggests a forking in time, though not in space. Hypertexts are often compared to labyrinths, due to their bifurcated and non-linear structure.

The digital context has again transformed our way of reading: from a linear to a connected model. Therefore, telling a story assumes a different significance, because order is no longer determined by the author, but by the user, who decides which links to follow. This means that the role of the author (that is, the storyteller) has shifted. In contrast to the modern author, who writes a story from the beginning to the end, the hypertextual author is one who stores information that can be accessed (“read”) in a variety of ways. Similarities between this practice and the construction of a database are NOT coincidental.

Since the emergence of writing culture a new role was developed, that of the listener, in opposition to the narrator. According to Italo Calvino (Calvino, 1981) the listener is forced to follow the rhythm of the narrator, because she cannot really hold the text in her hands. In **database**, the video-camera plays the role of the one who narrates. It reads the text and projects it onto a wall. And the user is only able to read the words at the very moment they are projected. Thus a real time reading is created, which is analogous to what happens when someone listens to a narrator. **database** combines the concreteness of a written text with the (immateriality) rhythm of an oral storytelling.

Hence, through **database** we want to call attention to the process of reading or more precisely to the process of listening to a written text. The main role of text has always been to conserve spoken language and make it available for further access. Nevertheless, in **database**, instead of permanence, there is ephemerality. The piece emphasizes the spoken over the written, the fleeting nature of language over the recording of information. The act of listening, crucial to oral traditions, occurs in real time. By

real time we mean the present, the moment, as opposed to past and future, and the duration of time. The present is a moment always slipping in two different directions: the past and the future.

Due to the ephemerality of the present, humans live in all times, but the present. It is the capacity of desiring that makes the human being withdraws from the present and projects into the future. To desire is to want something that is located somewhere in the future. The ability to perceive the future also turns humans into the only animals that are aware of their death. According to Foucault (Foucault, 1970), humans are finite beings and other animals are infinite and immortal because they are not aware that they are going to die. Consequently, they live in the eternal present, since time does not matter.

Knowing ourselves finite is essential to our survival as humans. It implies an awareness of death, the ability to believe and desire, and the construction of a life in the future. If we did not have one of these three elements in our lives, life would be insupportable. That is what Borges addresses in the first tale of the *Aleph*, “The Immortal” (Borges, 1962). The writer tells the story of a man in search of the City of Immortals. On his way, he finds a tribe of troglodytes, men who cannot speak, who do not sleep and who eat just enough to keep alive. They live in an eternal catatonic state, moving as little as possible, or not moving at all. The author, feeling a compassion for the poor troglodytes, decides to teach one of them how to speak. One day, however, he discovers that this man is none other than the Greek poet Homer, who is actually an immortal. Henceforth, everything is clarified: the Immortals for whom he was searching are in fact the troglodytes. But how are we to believe that a tribe of such disgusting creatures has exactly what everyone on Earth seems to desire: immortality? Borges explains that “to be immortal is commonplace; except for man, all creatures are immortal, for they are ignorant of death; what is divine, terrible, incomprehensible, is to **know** that one is immortal” (Borges, 1962). Having the awareness of one’s immortality implies that time no longer matters, because time becomes constant, absolute, infinite. Hence all immortals live in the present: an eternal present, without past or future. Consequently, they do not desire, because desiring is only possible if you know that time is dynamic. Desire is localized in the future, and the Immortals have just the present.

Borges also describes the Immortals as motionless beings consumed by thought, petrified by their infinite memory. As a result, the Immortals are in an eternal deeply disturbed state of mind, because they cannot forget. They cannot erase the information they have received during their lengthy existence.

The erasure of information (in our case, the covering of text) is another characteristic of the installation:

### 2.3. Erasing the writing — time and memory devices

In **database**, the same interface the user chooses to read the text (the black rectangles on the computer screen) is printed over the already printed page, “erasing” it. When the user finally holds the paper sheet, she can read everything except for what she has previously read on the screen. This process emphasizes the necessity of reading in real time: as one reads a word on the screen, it is quickly erased from the paper.

It is possible to think about erasure from two different perspectives: the physical erasure of writing and the erasure of memory (regarding both writing and memory as ways of storing information). The first case is well exemplified by the palimpsest. Generally, the palimpsest was created by three steps: writing, erasing and writing again. Nevertheless, in our installation, the last two processes are merged together, because the acts of erasing and writing over are the same — so that erasure is rewriting.

The second case is shown by Daniel Dennett, in *Kinds of Minds* (Dennett, 1996). Dennett says that what makes our brain more powerful than the brain of other animals is our capacity to extend our thought into the environment that surrounds us. Of all the mind tools we acquire in the course of furnishing our brains from the stockpiles of culture, none are more important than words — first spoken, and then written. In this sense, writing was created as a way of extending our memory, and consequently, as a way of not forgetting (or erasing) information.

However, Jacques Derrida (Derrida, 1976) affirms that writing is also forgetting. According to him, to write is to free our memory from the task of remembering. Hence, it is the act of exteriorizing memory — erasing from memory and writing on paper — that sets it free in order to receive and to record more information. Whereas memory has generally a positive value, an infinite memory is something negative. The accumulation of infinite memories is almost insupportable and mortals must forget in order to continue to live — or even to think.

We end up with Borges again, back to “The Immortal”. What constitutes us as humans is the possibility of living in two distinct times: future (by means of desire) and past (by means of memory). The Immortals live in the present, which is a time that does not exist for any human — for it is already gone. Furthermore, as they can remember everything and carry all their memories with them, remembering is also intolerable. During their infinite lives, they have the opportunity to do everything, to think about everything, to go everywhere. What means that if they can be anything, in fact, they are not. The radicalization of the presence is the complete absence.

**database**, therefore, emphasizes the idea of present as a time that is always passing by. “Forcing” the user to follow the rhythm of the printer, it creates an uncomfortable situation where the user in vain tries to stop time (present) in order to read what is being projected onto the wall. This condition is exactly what creates the awareness of the absence of time. ✕

picture 0 – the installation setup: the monitor, the printer and the projection screen.

picture 1 – ~~database~~'s printer with the just printed database. Black rectangles erase parts of the linear database, changing its meaning.

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