The Library of Babel

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THE LIBRARY OF BABEL

by

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THE LIBRARY OF BABEL

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Western Michigan University, 2021

*The Library of Babel* is an installation that allows users to search through a sea of sonic and visual representations of alphabetical symbols and punctuation that are encompassed in an infinite textual library. Users peer through the various walls, shelves, and volumes of the library, searching for whatever they wish - be it meaning, sense within the chaos, or audiovisual euphony. The default sounds for symbols can be replaced by recordings that the user creates on location, allowing the user to provide their own sonic reconstructions of the Library’s contents. *The Library of Babel* breaks language into its constituent parts, leading users to examine how they interpret and construct meaning from text.
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Jared Tubbs
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EXECUTION AND PHILOSOPHY

Introduction

The Library of Babel is an installation where individual pages of the libraryofbabel.info website are downloaded and put on display through computer screens. The text that these pages contain can then be “read” by the installation - meaning that it sequentially pronounces every letter of the page through speakers. Participants are then able to customize certain audiovisual aspects of the installation: they can change the font of the text on display; they can record their own sounds for each letter to replace the default pronunciations; they can select certain characters to turn on and off various effects on the pronunciation’s audio.

Inspiration

The Library of Babel installation is named after a 1941 short story of the same name written by Jorge Louis Borges. In his work, Borges describes a virtually infinite library made of six-sided rooms:

The universe (which others call the Library) is composed of an indefinite and perhaps infinite number of hexagonal galleries, with vast air shafts between, surrounded by very low railings. From any of the hexagons one can see, interminably, the upper and lower floors. The distribution of the galleries is invariable. Twenty shelves, five long shelves per side, cover all the sides except two; their height, which is the distance from floor to ceiling, scarcely exceeds that of a normal bookcase.

Later in the story, the contents of the shelves are given more detail:

… each shelf contains thirty-five books of uniform format; each book is of four hundred and ten pages; each page, of forty lines, each line, of some eighty letters

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which are black in color. There are also letters on the spine of each book; these letters do not indicate or prefigure what the pages will say.2

Jonathan Basile, a Ph.D. Candidate in Comparative Literature at Emory University, has created an internet-based interpretation of this Library. This web site follows the organizational structure of Borges’ work, allowing visitors to type in alphanumeric codes for specific galleries and select their desired wall, shelf, book, and page within. The location of these books and their contents are permanent - visitors can return to the exact same web page that holds information for a specific page of a book and find the same ordering of symbols that was observed in their first encounter. It is this virtual library that the Library of Babel installation draws from, referencing its books and bringing them into sonic reality.

Execution

My installation is managed using a program (titled “LoB”) that I created using the programming language Max 8 available from Cycling ‘74. The program displays contents from pages of Basile’s website on a computer screen and sequentially “reads” the contents, playing a sound file that pronounces each individual letter through speakers. The web address of individual pages in Basile’s site is determined by the following formula:

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2 Ibid., 52.
By following this formula and replacing the highlighted portions of the address with selections made within the program, LoB allows visitors to specify the exact gallery, wall, shelf, book, and page they want to draw from, or choose to have a page randomly selected for them. The program then downloads the source code for that page and parses it for the text that is shown on the website, displaying it within LoB. This is done by taking lines 21-61 of the page’s HTML code and filtering out symbols that are given for headings and formatting.
Figure 2. Lines 21-61 of page source code

Figure 3. LoB program display
After selecting their page, there are additional layers of interaction and customization within my LoB program that visitors can partake in. One of the quickest means of customization is a drop-down menu that changes the display font for the page’s text, with fifteen options including Times New Roman, Comic Sans, and Wingdings. Visitors are also able to record their own sounds and assign a custom pronunciation for each letter, replacing LoB’s default pronunciations. My program accomplishes this playback of newly recorded sounds by saving the

files into a specific folder with names indicating the letter that the sound is associated with. For example, when a visitor records a new sound for the letter “a” it is saved into a folder titled “cyovoice1” under the filename of “cyo_a1.wav.” When the custom voice mode is activated through toggling a button on the screen, LoB is programmed to play files from the “cyovoice1” folder instead of the default. In order to allow time for these newly recorded pronunciations to take place, my program allows participants to alter the “reading” speed by designating how many letters should be read per second.

The LoB program also has a feature which allows activation and deactivation of different audio effects (such as amplitude and frequency modulation, transposition, and grain delay) to be mapped to specific letters. When an effect is mapped to a letter, the effect will turn on upon LoB “reading” the letter in the displayed text, and will turn off when that letter appears again. For example, if one were to map the frequency modulation effect to the letter “n” in the example given earlier, the first letter of $nk$ would turn the effect on, and it would be present in every letter read by the program until the next occurrence of the letter (near the end of $xv$) turns the effect off. The current version of LoB has four of these effects that can be mapped, as well as the plain pronunciation itself.

As the program reads through the text, there are multiple audio files that function to maintain a sonically interesting environment in moments of less activity in the installation, as well as to channel the mystic, ancient ambience of the library. The audio files contain sounds that primarily take place in the higher and lower ends of our hearing, leaving space for the middle frequencies that LoB’s readings (and recordings of the human voice) take up. For these background sounds, I was inspired by Borges’ description of the Library of Babel as an ancient
structure full of librarians searching through it. The result of this inspiration is a fixed media track that contains hushed whispers and sporadic thumping of books being closed in the distance, as well as a bass-heavy, breathy synthesized sound that is reminiscent of slabs of stone scraping against each other - almost as if the Library itself was shifting. The whispers and scraping slabs are looped at slightly different pitch levels for each instance, and the thumping of books are randomly played at different probabilities, leading for multiple instances of the LoB program to have different forms of the fixed media background.

Library of Babel as Installation

In the process of making a creative work inspired by Borges’ idea, I quickly came to the conclusion that the most fitting execution of the work would be in the form of an installation. By taking this form, more liberty is given to the project’s length and spacialization. I believe that this liberty is extremely important given the Library’s description as an expansive world (even called the Universe in Borges’ story) in which entire tribes of librarians are lost in their search for meaning and understanding. The installation form, with its multiple iterations, allows multiple visitors to search its contents throughout the installation space, with no inherent temporal limitations that would accompany this concept in the form of a musical work for the concert hall.

There are multiple versions of the installation depending on the kind of presentation opportunity. One version faithfully recreates the hexagonal gallery of the library, except that the bookshelves taking up four of the six walls are replaced with projected screens. Each of the four walls has its own computer functioning as its own station where visitors can record custom sounds for letters and map letters to effects. Another version of the hexagonal gallery is run
entirely through one computer, with a version of the LoB program containing four separate iterations and functioning as the central recording station for personalized sounds. This version of LoB includes a subsystem that allows visitors to select which wall they would like their sounds to apply to, in compensation for having one station control everything.

Finally, the patch may also be used by computers within a computer lab, allowing for as many instances of the patch as there are computers for a much larger aggregation of pages being read and unique sounds being recorded.

In both non-computer lab setups, speakers are placed on the left and right sides of the screens created by the projectors. These speakers play the fixed media files and page text from their assigned station, creating personalized instances of the LoB program in four different areas of the space. This creates an installation that not only recreates physical details of a room from
Borges’ library, but also mimics and sonifies its interactive nature through allowing multiple visitors to function as librarians in the same room, searching through its contents. What the computer lab version of the installation lacks in physical recreation of Borges’ library, however, it makes up for in intensifying the amount of iterations and spacialization of the different sounds of the library. Instead of placing speakers on the walls, this version uses each individual computer’s speakers for playing the fixed media and reading of page text, meaning that the amount of individual instances of these sounds is limited only to the amount of visitors and computers within the computer lab.

Philosophy

In my installation, I continue many of the questions and lines of thought that Borges included in his short story. One of the most immediate questions prompted by the library is that of the search for meaning: in a virtually infinite library where the majority of what can be found seems random, is there meaning? If so, how does one begin searching for it? I find that this answer can be approached in multiple ways: some may select gallery codes as well as wall, shelf, book, and page numbers that hold some kind of significance to them and attempt to parse this selection’s contents; others may have a page randomly chosen for them, using this instance of chance as a starting point; some may start with one book and repeatedly turn the page until some coherence is found, and begin from there; others still may create a kind of code for each symbol in the page, translating it into something else. These are just a few possible approaches, and many will shift between these methods, mix them together, or create entirely new ones. The search within the library draws a parallel with the search for meaning outside of the installation -
should you take what you’re immediately given? Should you create an independent, personal meaning in order to decode what happens around you? I have found that this line of questioning carries forward into an examination of semiotics - is this meaning that is being sought after preexistent, and if so, how was it made? If not, is it made in the process of searching for it - and once again, how does this occur?

Near the end of Borges’ short story, the fictional archivist who functions as the author of the work touches on the variability of language, and asks if their writing is comprehensible to the reader:

An $n$ number of possible languages use the same vocabulary; in some of them, the symbol library allows the correct definition a ubiquitous and lasting system of hexagonal galleries, but library is bread or pyramid or anything else, and these seven words which define it have another value. You who read me, are You sure of understanding my language?4

Words with identical symbols can hold different meanings depending on those who read them, and individual experiences can morph the undertones beneath literal definitions of shared language. My installation reflects these inevitable differences through the individual customizations of sight and sound that are available to participants. Simple changes such as those of text font allows for slight reinterpretation of a page’s characters, and allowing the visitor to record their own sounds into specific characters allows for a direct and personal reinterpretation,

even if the difference is as simple as hearing their own voice pronounce the characters. These opportunities for reinterpretation allow visitors to refine and articulate the inherent differences in their understanding of these symbols, or even explore entirely new (or at least, new to those exploring) audiovisual perspectives by experimenting with different font and sound pairings.

These matters of interpretation are given another layer of complexity when visitors experiment with mapping the toggling of effects to different characters. In assigning additional sonic effects to letters being read, hierarchical relationships are created between them. When these assigned letters are read and their effects are activated, the rest of the page’s text is affected, with its characters becoming perceptually associated with the mapped symbol. This continues until the assigned letter is once again read, which turns the effect off and creates a closing bracket to this sonic grouping. This organization can be simple when one effect is being toggled, creating sonic structures similar to sentences (which may also be observed in the Library with its use of periods and commas), but quickly grows more complex as the five available parameters are mapped to different characters, with nested effects turning on and off in the midst of each other.

In addition to these considerations taking place within my installation, the external aspects of the installation itself prompts reflection on the amount and nature of information available to users in the Digital Age. In *The Library of Babel*, books are no longer the central figures, having been replaced with computers that can hold substantially more information. The concept of a library with infinite information is much closer to reality than it was in the time of Borges’ work, but it has taken its shape in the form of the Internet rather than a physical place. This is especially evident in the version of this installation that takes place within a computer lab
- the computers have become the library, and the chaotic sea of information that is the Internet is open for interpretation and meaning-making.

Conclusion

*The Library of Babel* draws inspiration and material from Borges’ short story and its offspring - specifically, Jonathan Basile’s website, libraryofbabel.info. By downloading text from Basile’s web site, this installation allows users to read the text of any page in a realized Library, as well as having the text read out to them. Users can attempt to create meaning and relationships in seas of seemingly meaningless and random text by searching through books, changing fonts, and recording their own sounds to replace default pronunciations of the letters. This search through the Library welcomes contemplation of meaning and meaning-making, hierarchical structures of language, and the near-infinite information provided to us in the Digital Age by the Internet.
WORKS CITED
