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La sinfonía de Babel [Babel's Symphony]

Introduction

In this article I am planning to expose the different steps of a creative process that resulted in the design and development of a musical piece. My goals will be:

- To briefly analyze two pieces of other authors that influenced my work.
- To expose and describe how some specific results of this research were used in the new piece.
- To explain in detail the content, structure and performance of my piece.

Two master pieces of two influential artists were used for creating a sound installation I called “La Sinfonía de Babel” [Babel’s Symphony]. One of these two pieces is “Sinfonia” [Symphony] by the Italian music composer Luciano Berio (particularly the third movement), the other is the short story called “La librería de Babel” [The Library of Babel] by the Argentinian writer Jorge Luis Borges.

Both pieces use slightly different the idea of producing a new artistic work by combining preexisting art creations. As we will see, Berio creates the third movement of “Sinfonia” essentially by using the phenomena of musical collage (combine fragments of music by other composers) plus a layer of his own writing. Borges on the other hand, creates a fantastic story where an old habitant of an mysterious library that contains all the books, in all languages from all authors (and more) describes how is the life inside this place, what he has seen during his existence, and what has been discovered about the library during the past years.

The first step towards the realization of my own work was to analyze the similitudes and differences of Berio and Borges’ pieces, trying to answer the questions: How this two works can be related? What makes them similar, what makes them different? How the narrative found during the listening and reading can be reapplied into a new piece? The

second phase begun when I started collecting specific analytical bibliography that allowed me to decompose the two works and get to the roots of their structures. Finally, the last section of this creative process was to develop my own work.

In the follow paragraphs I will expose what I found crucial in Berio and Borges' pieces that I inspired my work.

Luciano Berio – Sinfonia

Luciano Berio (1925-2003) in 1968 composed one of his masterpieces: "Sinfonia". Particularly the 3rd movement of this work is composed as a musical collage, where the musical and literary quotation of older works is structural for the final piece (Bellusci, 2008).

We won't analyze the literary content of the piece, as a general overview I will quote what Berio writes about it: *"The main text for the third section consists of fragments from Samuel Beckett's The Unnamable, which, in turn, generate a large number of 'daily life' references and quotations."* (Berio, 2014).

Musically speaking, the combination of his music material gives as result an imaginary travel through the occidental music history from Bach to Berio (Bellusci, 2008). On top of the main musical citation (the *Scherzo* of Mahler's *Second Symphony*) we can find musical extracts from other composer like Bach, Beethoven, Brahms, Mahler, Debussy, Ravel, Strauss, Stravinsky, Schoenberg, Berg, Stockhausen, Boulez and even from Berio himself (Plaza, 2013), among others. By doing this *"Berio uses the superimposition of anachronistic musical styles which co-exist in the same work and create a hybrid language"* (Plaza, 2013).

To illustrate with examples how this quotations function inside the piece, I will share few images from a complete analysis made by Michael Hicks (Hicks, 1982, 1982):

IN RUHIG FLIESSENDER BEWEGUNG

Mahler:
Fourth Symphony
opening
measures

Debussy:
La Mer,
mvt. 2,
"Jeux de
Vagues"
opening mea-
sures

Schoenberg:
Fünf Orchester-
stücke, mvt. 4,
"Peripetie"
mm. 2-3

Mahler:
Fourth
Symphony

Debussy: "Jeux de
Vagues"

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Fig. 1 Berio, *Sinfonia* 3rd movement, measures 1 to 10.
Analysis by Michael Hicks.

Mahler:
Second
Symphony,
mvt. 3

Berg: Violin
Concerto, mvt. 2
m.6; mvt. 1
mm. 169-170

(Mahler's
Second)

Brahms:
Violin
Concerto,
mvt. 2
mm. 48-49

Fig. 2 Berio, Sinfonia 3rd movement, measures 59 to 69.
Analysis by Michael Hicks.

As it can be seen, the vertical axis of the score assembles fragments of music of many composers at the same time, the amount of quotations sounding together changes related to time, giving us a musical texture in permanent mutation, build in the addition of layers of existing musical experts.

Jorge Luis Borges – La biblioteca de Babel

Jorge Luis Borges (1899 – 1986) wrote in 1941 “La biblioteca de Babel” [The Library of Babel], a short story part of a collection called “Ficciones” [Fictions]. In this piece in particular, he basically describes an enormous imaginary library, where the books inside contain all the possible combination of 25 symbols (the period, the comma, the space and the twenty-two letter of the alphabet) (Hendricks, 2009). The result is that this library is total; it contains every book that can be written, in any language (Fresán, 2007). The layout of the library is methodically arranged in hexagonal rooms that contain a fixed number of books in a fixed number of shelves.

The amount of hexagonal rooms that make the entire library is a mystery, Borges stances this in the very first sentence of the story by saying *“The universe (which others call the Library) is composed of an indefinite and perhaps infinite number of hexagonal galleries...”* (Borges, 1962). However, Borges describes in detail how the layout of each room is arranged: *“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”* (Borges. 1962), and later he specifies how many books are placed in these shelves, in each room, as follows: *“There are five shelves for each of the hexagon's walls; each shelf contains thirty-two books of uniform format [...]”* (Borges 1962).

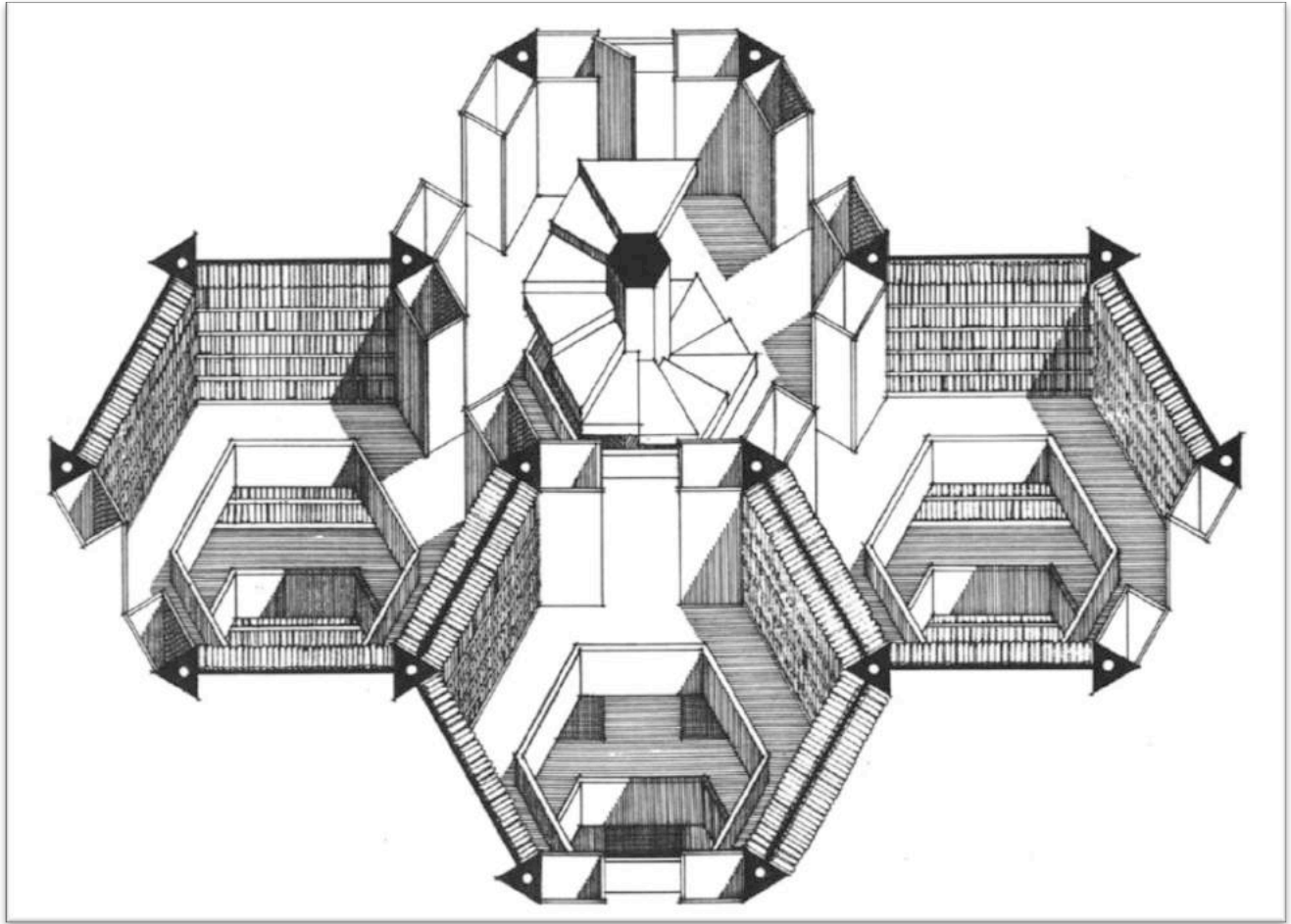
To find out the exact number of books that are placed in all shelves, in each one of the library rooms, is a matter of doing some logic thinking and the corresponding mathematical operations:

1. The galleries are hexagonal, which means they have six walls¹.
2. As quoted, Borges says that the shelves cover all the walls except two, this means that just four walls over six has books, the other two do not have walls, they are open areas to connect with the other rooms and spaces of the library (see Fig 3).
3. In each one of this four walls there are twenty shelves in total (five shelves per each of the four walls).
4. Each one of these shelves contains thirty-two books.
5. If we multiply thirty-two (books) times five (shelves) we can find out how many books are placed in one wall (a hundred sixty).
6. By multiplying a hundred sixty (books) times four (walls with books per hexagonal room) we know exactly how many books are stored in each hexagonal room (six-hundred forty).

Architecturally speaking, Antonio Toca Fernández propose a graphic layout that, no completely accurate² but close enough, help us to imagine how the library would look like (Toca, 2009):

¹ The English translation mention six “sides”, the word “sides” in my opinion is not correct, Borges in the original Spanish version writes “muros” which means “walls” not “sides”. In Spanish “sides” is “lados”.

² I said that the drawing is not completely accurate because on the northern walls of the draw (left and right) six shelves can be counted instead of five (the rest shows five). Besides this little inaccuracy, the general layout is illuminating.



*Fig.3 Three connected hexagonal rooms of the library of Babel.
Drawing by Antonio Toca Fernández*

Nicolás Arnáez – La sinfonía de Babel [Babel’s Symphony]

Inspirational flow

The first connection I found between the analyzed pieces was noticing they use the principle of collection and collage in different but related manners: While Berio composes a musical piece by collecting and mixing fragments of existing music (plus a layer of his own writing), Borges describes a place made out of all the literary pieces ever exists. My next

thought was the following: if Borges' library would be made out of music instead of books, the sonic result could be something on the lines of Berio's Sinfonia 3rd movement.

The following logical step was to analyze the pieces and gather further information, which results are exposed above. The project was started, inspired in Borges' library and Berio's Sinfonia, was my idea to represent in a sound installation, an imaginary library where instead of all books what is collected is all music: by using the detailed physical description of the library of Babel I would mount one imaginary hexagonal room of an imaginary sound archival. Inside this room would be four speakers (representing Borges' four walls) reproducing the amount of musical pieces equivalent to Borges' amount of books (160 in each one), where the sounding result would express the same musical collage idea that Berio's uses on his Sinfonia, but taken to the extreme.

At this point, I find important to mention that my sound installation does not try to be a representation nor an imitation of the mentioned works, it is just inspired by them. Because of this, the outcome, the artistic approach, the storyline development and the potential narrative plot implications are different in content, meaning and sense.

Structural level

Following, I will expose the constructive area of my composition: Four speakers are situated inside a room, each speaker plays a hundred sixty musical pieces, at the same time (this is controlled by a computer that runs a Max 7 patch). All hundred sixty pieces are related in content (one speaker plays just romantic piano music, other orchestral music from the XIX and XX century, the other the complete collection of the latin jazz player Michel Camilo and

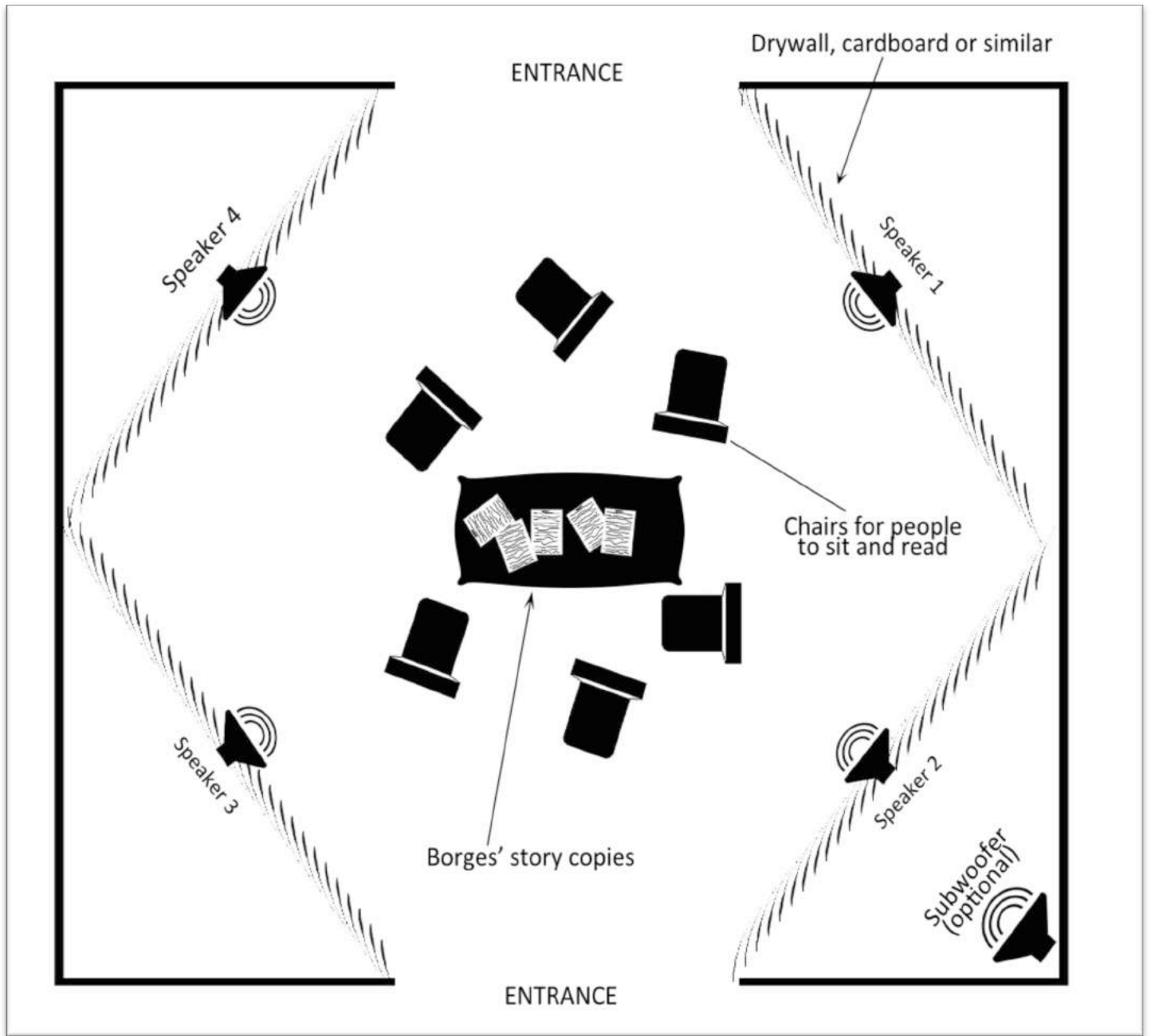
the fourth Renaissance vocal music). Each speaker represents one of the four walls of Borges' hexagonal rooms, each piece represents each book placed on the shelves.

The main idea of my library is to store music (not scores, no recordings, just music), according to my understanding music needs time to be generated, then, to store music I do not see another solution than create a library of sounding music permanently over time. For reaching this goal all the hundred sixty tracks in each speaker are perpetually looped.

A permanent, almost infinite vertical relationship between pieces in each speaker is then generated, which result is a sonic texture in permanent evolution, in permanent movement. This textural phenomenon of permanent aural evolution also occurs in the big picture, amid the four speakers. Thinking further, the sound installation represents one room of many: imaginarily there are almost infinite hexagons attached one to the other, which extends the sonorous textural phenomena to an unimaginable scale.

Technical requirements

Regarding to the environment that Babel's Symphony necessities to be performed, a room is needed to place four speakers (a fifth speaker is recommended, a subwoofer that plays the bottom end frequency of all four speakers, this is a technical detail but not mandatory). The speakers must be sounding all the time without any interruption. Ideally the room has two entrances. Another feature that should be added is the modification of the space from what it is to a hexagon by using drywall, cardboard, curtains or similar. Once finished, each speaker in one of the four walls should be placed, leaving the entrances free as it is shown in Fig. 4.



*Fig.4 La sinfonía de Babel
room layout*

Somewhere in the middle, at least five copies of Borges short story should be available to be read by auditors, the inscription shown in Fig 5 must be added at the end. Also, spread all over the room there will be chairs, couches (or similar) where people can sit down and read.

La sinfonía de Babel
[Babel's Symphony]
Sound Installation
Nicolás Amáez – 2014

The piece you are experiencing now is inspired on Borges' short story you just read: "The Library of Babel" (1941). This sound installation is a representation of one hexagonal room of an imaginary library like the one in the story, but where instead of storing "all books [...], the interpolations of every book in all books, all books in all languages" it stores all music. The sonic result you are listening right now is inspired on Luciano Berio "Sinfonia" (1968), III movement.

The fundamental law of Borges' library is that "all the books [...] are made up of the same elements: the period, the comma, the twenty-two letters of the alphabet", giving us "all the possible combinations of the twenty-odd orthographical symbols". In this sounding library, the music you are hearing is the result of the use of three elements: pitches, rhythms and instruments, to be more explicit, the music stored is the outcome of all possible combinations of the twelve notes (from C to B in their different registers), nine rhythmic values (from double whole note to 128th note) by using different musical instruments combinations.

This room is organized similarly to the one in Babel, the only difference is the content and the storage medium: as told, instead of books we store sounding music, instead of walls we use speakers, instead of shelves we use electricity. Then, the five shelves per each one of the four walls are transformed in four electronic speakers, instead of thirty-two books per shelf (a hundred and sixty per wall) we have hundred and sixty sounding musical pieces. The Babel library is hexagonal, but two sides are doors, this give us a total of four walls with shelves that hold books, which makes this very room you are now a place that stores six-hundred forty sounding musical pieces.

Finally: in Babel, there is a hidden order behind this almost infinite place. Librarians dedicated their life to understand it; some of the Pilgrims went mad or found the dead "urged by the vain intention of finding their Vindication", the Inquisitors looked for years in between the books trying to find the true. Now, do you dare to be one of them in this installation?, can you predict the organization of this sounding hexagon?, can you tell how the music in each speaker is organized?....

Fig.5 La sinfonía de Babel.
Written part

Summary

As it can be seen, “La sinfonía de Babel” is inspired and related (but not imitating) “Sinfonia” by Berio, and “La biblioteca de Babel” by Borges. It is based in the phenomena of using pieces of others to build a new piece; actually, it is interesting to note that Berio’s Sinfonia is inside Babel’s Symphony, and this writing is stored somewhere in the The Library of Babel.

Bibliography

- Bellusci, Miguel. *Luciano Berio Sinfonía, III Mov.* University National of Cuyo. Mendoza: Argentina (2008).
- Berio, Luciano. *Sinfonia: for eight voices and orchestra.* Universal Edition. London (1969). [Score].
- Berio, Luciano. *Sinfonia (author's note).* Centro Studi Luciano Berio. Webpage consulted on December 16, 2014. Link: <http://www.lucianoberio.org/node/1494?1683069894=1> (2014).
- Borges, Jorge Luis. *Ficciones.* Trans. Anthony Kerrigan, pag. 79-88. Grove. New York (1962).
- Fresán Javier. *De la Biblioteca de Babel a los números normales.* Revista TK, number 19. Asociación Navarra de Bibliotecarios. Pamplona: Spain (2007).
- Hendricks, Steven & Walter, Brian L. *Critical Reading in the Library of Babel.* The Evergreen State Collage. Olympia: Washington (2009).
- Hicks, Michel. *Text, Music, and Meaning in the Third Movement of Luciano Berio's Sinfonia.* Perspectives of New Music, volume 20, number 1/2, pag. 199-224. Perspectives of New Music. Seattle (1981 -1982).
- Plaza, Eduardo F. *Differance and Intertextuality in the Third Movement of Luciano Berio's Sinfonia.* Charlex Omar López publisher. Venezuela (2013).
- Toca Fernández, Antonio. *La biblioteca de Babel: Una modesta propuesta.* Revista Casa del Tiempo, volume III number 24, pag. 77-80. Universidad Autónoma Metropolitana. Mexico (2009).