Chapter 3: Seis8s

Abstract

This chapter discusses Seis8s, a computer language that allows real-time interaction with digital audio and localized musical knowledge, particularly of Latin American music. Seis8s runs on the web and was implemented with Haskell, Reflex-DOM, and WebDirt. Seis8s is also an art piece that invites to reflect on how culture gets embedded into these technologies.

Introduction

This chapter discusses Seis8s, a web-based computer language that allows real-time interaction with digital audio and localized musical knowledge. Seis8s is particularly oriented towards Latin Dance Music, where commands and their resulting sounds revolve around instruments, such as teclado (i.e. a keyboard), bajo (i.e. a bass guitar), güira (i.e. a percussion whose sound resembles one of a shaker), and congas (i.e. drums characteristic of Cuban music). Seis8s commands also revolve around nouns that convey actions connected to those instruments, for example, acompañamiento (accompaniment), ritmo (rhythm), punteo (picking), and tumbao (i.e. rhythmic pattern).

Seis8s draws from Live Coding, a practice where audiovisual outputs are performed live using code and where sharing the performer's screen is strongly encouraged (Collins et al., 2003; Nilson, 2007). This way, Seis8s is meant for the performer and the audience not only to experience the music but also the code that is displayed on the screen. The latter to help connect the users (i.e. performer and audience) with other cultural layers influencing computer-music languages, like natural language. Seis8s explores the following possibilities: 1) a computer-music language to be derived from Spanish; 2) to appeal to an imagined community in/from Latin America; and 3) to explore cultural, political, economic, and historical commonalities of that imagined community. Seis8s can be accessed here: https://estuary.mcmaster.ca/ and http://luisnavarrodelangel.net/seis8s.

```
tempo 100;
compás "partido";
acordes [re m, fa, la];

punteo [3a, 5a] [3, 4, 1 1.5 2 2.5] $ sample 3 $ cumbia acordeón;
acompañamiento (2 4) $ vol 0.75 $ cumbia teclado;
tumbao [1a 3a 4a] [1 3 4] $ sample 4 $ cumbia bajo;
ritmo [1 2 2.5 3 4 4.5] $ paneo 1 $ cumbia guira;
marcha (p t p a a) (1 2 3 4 4.5) $ paneo 0 $ cumbia congas;
```

Figure 1: A snippet of code from Seis8s

Motivation

My motivation comes from my experience using and teaching with computer-music languages. For example, in 2015, working at an elementary school in Mexico City, I encouraged children to explore music creation through the well known children-oriented music language Sonic Pi (Aaron, 2016). Sonic Pi was first implemented in 2013 with the aim of teaching computer programming and computer music to children in the UK. This way, Sonic Pi developed into a great ecosystem that in addition to the software, it included lesson plans inviting the students to discover the "artistic aspects of the software" (p. 175).

However, in the process of my teaching, cultural mismatches came up, for example, Sonic Pi used alphabet letters to program music notes (i.e. C, D, E, F, G, A, B) as opposed to syllables (i.e. do, re, mi, fa, sol, la, si). Letters are often taught in Anglophone music and syllables are often taught in Hispanophone music. Another mismatch was that although this language advertised the potential to create within various genres, it really seemed to favor Electronic Dance Music, through inbuilt preset sounds and synthesizers reminding this genre.

My motivation comes from my experience using and teaching computer-music languages. For example, in 2015, working at an elementary school in Mexico City, I encouraged children to explore music creation through the well-known children-oriented music language Sonic Pi. Sonic Pi was first implemented in 2013 with the aim of teaching computer programming and computer music to children in the UK. This way, Sonic Pi developed into an ecosystem that in addition to the software, it included lesson plans inviting the students to discover

the "artistic aspects of the software" (p. 175). I have experienced similar things as an artist using these technologies. For example, although English is my second language, I remember having difficulty when trying to understand the meaning of some commands from the well-known computer-music language SuperCollider. One command I remember was `yield`, which allows suspending a procedure or routine. The confusion lay in that I could not find a translation that made sense in relation to computing or sound. The dictionary describes it as a verb connected to processes of cultivation, production, and investment; and to the action of demanding and surrendering something (Merriam-Webster, nd). It was years later that I was able to infer that `yield` in SuperCollider, was potentially connected to the expression "to yield the right of way". An expression related to the act of stopping or slowing down in driving intersections, and often said this way in Anglophone countries.

Seis8s, however, is not a project about translating commands from English into Spanish. Rather it is about exploring textual and aural meaning from computer-music languages and from a Latin American perspective. Early work on this includes my collaboration with the Mexican audiovisual collective RGGTRN, where between 2016-2019 I used SuperCollider to create pieces alluding to the popular music of this region. Chichiricha, for example, is a piece based on "Cuban descarga" [1], which allows the performer to program live a percussion solo using samples resembling the ones used by a timbalero. Another piece is Cacharpo, made in collaboration with media artist David Ogborn (Del Angel and Ogborn, 2017). This is an automated live coding system that among many things, explores how melody and rhythm can evoke music styles related to Mexican cumbia and electronic cumbia.

Early work also involved detaching from my personal experience and looking into other cultural dimensions the community was interested in. For example, in 2018, RGGTRN and I co-organized a series of workshops where people in Colombia, Perú, and Ecuador came to design mini-computer music languages based on their own cultural context (Del Angel et al., 2019). In these workshops, two interesting exercises came out: *La Calle*, by sound artist

[1] Cuban descarga is a mode of improvisation over rhythmic and harmonic ostinatos.

Ivanka Cotrina, is a mini-language based on the slang from working-class neighborhoods in Lima, Perú; and, *Sucixxx*, by DJs and performers Chakala, Maria Juana, Carolina Velasco, and Daniela Moreno, is a mini-language borrowing from trans-feminism and where the textual interface is a re-appropriation misogynistic reggaeton lyrics. The interesting aspect lies in that these exercises provided an example of "intelligible ideology critiques of both live coding practice and the specificity of the artist-programmer"[2] (p.1).

This way, Seis8s is a project that intends to add to current investigations on the the semiotic aspects of computer-music languages and computer-music technologies, in general (see McCartney, 1994; Sterne and Rodgers, 2011; Rodgers, 2012; Cox and McLean, 2012; Ogborn et al., 2015; Rodgers, 2016). The latter by exploring, both conceptually and practically, the creation of a Spanish-derived textual interface that connects meaning not only with functionality but with shared cultural dimensions of people in/from Hispanoamerica.

```
\begin{singlespacing}

(
r = Routine { arg inval;
    inval.postln; // Post the value passed in when started.
    5.do { arg i;
        inval = (i + 10).yield;
        inval.postln; // Post the value passed in when resumed.
    }
}
)
(
5.do {
    r.value("hello routine").postln; // Post the value that the Routine yields.
}
)
\end{singlespacing}
```

Figure 2: A SuperCollider code using the command `yield` ("Routine", nd)

[2]The artist programmers are "end-user programmers, in that they create software not for others to use as tools, but as a means to realise their own work" (McLean, 2011, p. 14)

Background

Programming languages, live coding, and Mexican post-modernity

Between 2010 and 2013, I made an apprenticeship at *Centro Multimedia* located at the Mexican National Centre for the Arts (Cenart). There, I was involved on an an initiative interested in exploring the artistic possibilities of Live Coding and Free-Libre/Open Source Software. I was one of many artists involved through teaching workshops, and participating in audiovisual performances, among other things. The overall initiative helped Cenart train a community of audiovisual performers who have now spread out to various parts of Mexico and abroad.

Cenart, located in Mexico City, was founded in 1994 by the Mexican Council of Culture and Arts with the aim of teaching art and promoting interdiscipline in this realm (López, 2020). Historian Pilar Maseda (2005), explains that at the moment of Cenart's foundation, several sociopolitical aspects were happening in Mexico, for example, a shift to a more neoliberal and globalized society. Something that influenced the arts in Mexico, for example through the incorporation of the post-modernist thought in governmental cultural policies.

Centro Multimedia was certainly a reflection of these sociopolitical moments. At this center, for example, one could find different *ateliers*, each one oriented toward very specific digital media, namely audio, moving image, digital graphics, interactive systems, and virtual reality. This center, altogether had a strong commitment to researching the application of information technologies to artistic processes. And it also had a strong preference over its tools, namely ones ascribing to Free-Libre/Open Source Software (FLOSS).

One story of particular interest is the adoption of SuperCollider as the key tool of the *audio atelier* in the early 2000s. The adoption of this tool makes sense for many reasons, starting with the fact that SuperCollider was open source. Unconsciously, perhaps, SuperCollider also represented a more post-modern way of programming, closer to that of the computer engineer who works with text-based languages – as opposed to visual programming tools

like MAX/MSP. But overall, perhaps the appeal was SuperCollider's heavy emphasis on the concept of *real-time* programming.

Real-time programming was fundamental for the *audio atelier* to pursue the practice of *live coding*. Research on live coding enabled Centro Multimedia to organize weekly audio-visual performances open to the general public, which was often invited to participate as well. Live coding was also significant as it strongly suggested a distinction between the *tape sound-artist* – in vogue in Mexico since the 1960s– and the *artist-programmer* (McLean, 2011). One of the key differences being the former being planned ahead versus the latter who was expected to be "fully" improvisational and ephemeral. This distinction was also perceived to be generational, with younger people subscribing to live coding.

During this time, the music produced at Centro Multimedia was very aligned to the Western art music tradition, through genres drawing from Electroacoustic, Noise and Serial Music. As a matter of fact, during my stay there, I believed that this type of music was an aesthetic characteristic of SuperCollider and live coding. Perhaps it was not until /Vivo*/, an international festival organized by Centro Multimedia in 2012, where the so called *Algorave music* was introduced to the general public at this institution. That is, a type of music drawn from genres usually heard at *raves*, for example, Techno music. The introduction of Algorave music in someways legitimized the explorations of other Western traditions, namely popular music at Centro Multimedia.

Perhaps the strong emphasis on the Western art music tradition was connected to the cultural policy mentioned at the beginning of this section. That is, Cenart's institutional desire for a "refined" post-modernism which Maseda (2005) describes as coming from an "elitist" and "outdated" understanding of fine arts (para. 7). The latter is exemplified in different ways, for example, by Cenart's incorporation of certain national schools like the School of Classical Dance and the proscription of others like the School of Design.

Maseda also points out this cultural policy was disconnected from *national art* as well, for example, by not incorporating the National School of Folkloric Dance nor the School

of Crafts. It is common sense to then infer that this cultural policy extended into Centro Multimedia, through the research schemata that did not include more *national* post-modern music formations happening a couple of decades ago, for example, *tecnocumbia*, *Nortech*, or *Latin rock*, all of which rely heavily on synthesized sounds.

By 2013, when I stopped frequenting Centro Multimedia, the music-computer language TidalCycles was getting strong in various parts of Mexico City and in Latin America more generally. This language was more *economic* allowing the possibility to produce complex musical expressions with fewer lines than SuperCollider. My perception is that the appropriations of this language from the people in this region still sound often aligned to the Western art music tradition. Few exceptions that I have encountered from 2013 until 2022 include the live coders Rafrobeat (Colombia) and Sireñoras (Argentina) who perform cumbia music with TidalCycles.

The point of this brief recount is not to judge the artistic practice or musical taste of the people involved in the live coding scene in Latin America, but perhaps leave to further reflection why the strong emphasis on the Western art musical lineage? And, what have been the implications of leaving unexplored other musical formations through programming languages and live coding?

Implementation

Seis8s is a computer language that allows real-time interaction with digital audio and localized musical knowledge, particularly towards Latin Dance Music. Seis8s is zero-installation and runs in the web-based platform for collaborative live coding, Estuary (Ogborn et al., 2017). It also runs as a web application at my personal website. Seis8s was implemented with Haskell, a strongly-typed, functional, general-purpose programming language that has been used in computer music (see Drape 2015; Hudak 2015; Hudak Wadler 2007; Quick Hudak 2013) and live coding projects (e.g. McLean 2014; McLean and Wiggins, 2011; Murphy 2016a; Murphy

2016b). Basing Seis8s off of Haskell facilitated incorporating it into the Estuary platform –also written in Haskell– thus allowing Seis8s to be used collaboratively. Haskell also made it easy for me to explore different notational possibilities through a variety of parsing libraries –i.e. libraries that allow translating high-level code into into low-level machine language (Mogensen, 2009).

As a web application, Seis8s uses GHCJS and the Reflex Platform to translate Haskell code into JavaScript code to allow user interactivity, for example, the generation of real-time sound. For this, Seis8s uses the JavaScript library WebDirt (Ogborn and Beverley, 2016), which allows playing and modifying sampled sounds on the web and which was originally developed for a web-version of Alex McLean's live coding language TidalCycles (McLean, 2014).

Lexicon

Seis8s revolves around keywords or commands that relate to Latin dance music –also known as urban Latin music or Latin popular music. This is a 20th-century derivation of musics "based on Afro-Cuban rhythms, as developed and performed throughout the Hispanic Caribbean basis and its diaspora" and which is "designed for accompanying social dancing" (Manuel, 1998, p. 127). It include musics like "Dominican merengue", "Puerto Rican bomba", New York Salsa, and "Colombian cumbia", to mention a few (p. 127).

The first category of commands from Seis8s revolve around the instrumentation of these musics, which incorporate instruments from European cultures –e.g. "string, woodwind, brass, and keyboard melodic instruments"; African cultures –e.g. congas, güira, and marimba; and Indigenous cultures – e.g. flutes like the "Andean quena" (Béhague, nd, para. 2, 8). At the moment of writing, Seis8s has the following instruments: `acordeón`, `teclado` (keyboard), `bajo` (bass guitar), `güira` (i.e. a percussion scraper), `jamblock` (i.e. a wood-sound percussion), and `congas` (i.e. drums characteristic of Cuban music).

The second category of commands makes reference to the styles mentioned above. At the

```
acordeón; teclado; bajo; güira; jamblock; congas
```

Figure 3: A snippet of code of the instruments available in Seis8s

moment of writing there is one preset style that is accessed through the command `cumbia`. This command gives access to a set of rhythmic and melodic patterns that correspond to the instruments above and which allude to Mexican types of cumbia, such as "cumbia sonidera", "tecnocumbia", and "digital cumbia". Future styles will include other types of cumbia as well as the incorporation of salsa and reggaeton styles.

```
cumbia teclado; cumbia bajo; cumbia güira; cumbia congas; cumbia jamblock
```

Figure 4: A snippet of code where the style `cumbia` is applied to a set of instruments available in Seis8s

The third category of commands revolve around nouns that convey actions connected to those styles and instruments. These commands also relate to terminology used colloquially by musicians playing some of these musics. At the moment of writing, these include `punteo` (picking), `acompañamiento` (accompaniment), `tumbao` (i.e. rhythmic and melodic pattern for the keyboard, the bass, and the congas), `marcha` (i.e. rhythm for the congas), and `ritmo` (rhythm).

```
marcha (p t p a a) (1 2 3 4 4.5) $ cumbia congas;
```

Figure 5: The marcha command for the congas

There are also less idiomatic commands such as `volumen` and `paneo` that modify, more generally, the quality of the sounds. Finally, it includes the command `sample`, from which different sound variations of these instruments can be accessed. Future commands will include ones related to sound effects to be applied to the instruments.

```
sample 3 $ volumen 0.75 $ paneo 1 $ acordeón;
```

Figure 6: Commands that modify the sound quality of Seis8s' instruments

Finally, the fourth category relates to global modifications to be applied to the group of instruments. At the moment of writing these include the commands `acordes` (chords), `compás` (measure or bar), and `tempo`.

```
tempo 100;
acordes [re m, fa, la];
compás "partido";

punteo [3a, 5a] [3, 4, 1 1.5 2 2.5] $ sample 3 $ cumbia acordeón;
acompañamiento (2 4) $ vol 0.75 $ cumbia teclado;
tumbao [1a 3a 4a] [1 3 4] $ sample 4 $ cumbia bajo;
ritmo ([1 1.5 2 2.5 3 3.5 4 4.5]) $ paneo 1 $ cumbia guira;
marcha (p t p a a) (1 2 3 4 4.5) $ paneo 0 $ cumbia congas;
```

Figure 7: Using the four types of commands in Seis8s

Syntax

The parsing library that Seis8s uses is called Haskellish (Ogborn, 2019). This is a "[a] library for parsing miniature and esoteric languages that are similar to Haskell" (para. 1). This way, Seis8s inherits, in a very general way, the Haskell way of forming valid instructions, particularly the application of functions which is done from right to left. It also inherits the use of parentheses and of the '$' symbol, which as punctuation marks separate the functions from each other – the '$' sign is equivalent to parentheses. Finally, Seis8s uses the semicolon to separate expressions – i.e. structures formed from concatenated commands.

In Seis8s the basic unit is the instrument, to which commands can be added to the left to modify it, for example: `acompañamiento (2 4) $ teclado`. Using a parenthesis or a '$' sign, more commands can be added to continue the modification of the instrument, for example: `volumen 1 ((acompañamiento (2 4)) teclado)`, or, `volumen 1 $ acompañamiento (2 4) teclado`.

Semantics

In Seis8s, there are intrinsic and extrinsic relations among their commands. The intrinsic relations are particularly visible in the global commands, whereas the extrinsic are visible in

the action commands.

Intrinsic relationships and global commands

This relationship is established by Seis8s' instruments, each of which represents a layer to the overall music – which could be seen representing a composition or an ensemble. Some global aspects of this music can be (re)defined as follows.

tempo and compás

The command `tempo` establishes the speed at which the music –or ensemble– will play. This command is very common in computer-music languages. The tempo can be set in beats per minute. The command `compás`, which translates to "measure" or "bar", allows modifying the time signature in Seis8s' music. At the moment of writing there are two available values for `compás`, namely, `4/4` and `2/2` –also available as `partido`. The default argument is `partido` which translates to "cut" or "cut time". This is a time signature usually used in music that is festive and rapid, such as marches, as well as some forms of Latin dance music such as Salsa, Merengue, and Cumbia.

```
tempo 120;
compás "2/2";
```

Figure 8: Seis8s' `tempo` and `compás` commands

Armonía

Harmonies and melodies in Latin dance music are usually created with the twelve-tone system borrowed from Western music. In Seis8s, the harmony of the ensemble can be changed with the command `armonía`, affecting all the instruments at once. Chord names –either in syllables or letters– can be input as parameters to this command. At the moment of writing chords with the following qualities are available: major, major7, minor, minor7, fifth, dominant, suspended –sus2 and sus4, augmented, diminished, diminished7, and semi-diminished.

```
armonía [do m, re sdim, sol M, fa m];
```

Figure 9: A chord progression of C minor, D semi-diminished, G major, and F minor written with syllables
.

Extrinsic relationships and action commands

The commands that convey actions to Seis8s' *virtual* instruments relate to actions usually done to their *real-world* equivalents. In Seis8s, this means that some `action` commands will work only over some instruments. For example, `tumbao` will have an effect over `teclado`, `bajo`, and `congas`, but not over `güira`, or `jamblock`. This is because, in Latin dance music, the rhythmic patterns of the güira and jamblock are not colloquially expressed as tumbaos. Rather, a tumbao makes reference to the melodic and rhythmic line that the keyboard, the conga, and/or the bass play within an ensemble – usually of salsa or cumbia music (Ochoa, Pérez and Ochoa, 2017, 17).

Bass tumbaos

The specificity of `action` commands, like `tumbao`, are also connected to the styles of music played. In the case of a salsa bass guitar, for example, the tumbao is often construed from the first and fifth intervals of the chord in turn. They are also played in a syncopated form (Mauleón, 1993, p. 106). And, in cumbia, the bass tumbao is construed from the first, third, and fifth intervals of the chord. And, in its basic form, there is no syncopation.

```
tempo 100;
compás "partido";
acordes [do m];
tumbao [1a 5a (1a 1), 5a  1a] [1 2.5 4, 2.5 4] $ sample 4 $ bajo;
```

Figure 10: A salsa tumbao written with traditional notation (top) and with Seis8s (bottom) (Mauleón, p. 106)

```
tempo 100;
compás "partido";
acordes [la];
tumbao [1a 3a 5a, 1a 3a 5a] [1 3 4, 1 3 4] $ bajo;
```

Figure 11: A cumbia tumbao written with traditional notation (top) and with Seis8s (bottom) (Martin, n.d.)

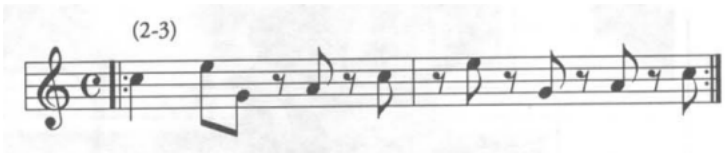
In Seis8s, these relationships are reflected through the tumbao presets which can be used along with the style commands. At the moment of writing, there are four presets available which represent rhythmic and melodic variations of the basic cumbia tumbao.

```
acordes [re, la];
tumbao 1 $ cumbia bajo;
```

Figure 12: Preset 1 of a cumbia bass tumbao

Piano tumbaos

Tumbaos in the piano are also identified as *montunos*, describing a "syncopated piano vamp [that] provide strong support for the melodic instruments and/or vocalists in an ensemble" (Mauleón, 1993, p. 118). Other musics like cumbia does not have distinct tumbaos or montunos as they often borrow them from Salsa.




```
tempo 104;
acordes [do];
compás "partido";
punteo [1a 3a (5a (-1)) (6a (-1)) 1a, 3a (5a (-1)) (6a (-1)) 1a]
       [1 2 2.5 3.5 4.5, 1.5 2.5 3.5 4.5] $ teclado;
```

Figure 13: A salsa tumbao written with traditional notation (above) and with Seis8s (below) (Martin, n.d.)

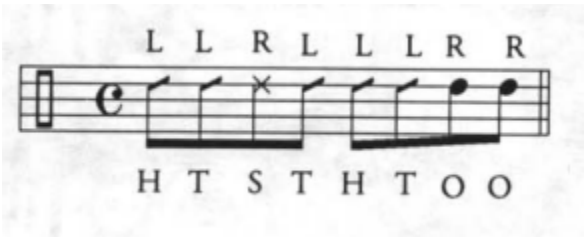
Similarly to bass tumbaos, piano/keyboard tumbaos can be used along with the style commands. At the moment of writing, there are four presets available for the cumbia style.

```
acordes [do];
tumbao 2 $ cumbia teclado;
```

Figure 14: Preset #2 for a cumbia keyboard tumbao

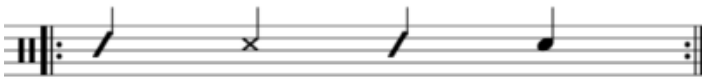
Conga tumbaos

Tumbaos in the congas are also distinct in many of these musics. In Cuban music, for example, a tumbao is "an eigth-note, one measure pattern which accents beat 2 with a slap and beats 4 and 4+ with open tones; the other notes are produces by a 'heel-toe' pattern of the opposing hand, also referred to as marcha ('march')" (Mauleón, 1993, p. 66). In cumbia, the basic conga tumbao is a quarter note, one measure pattern which accents beats two and four with a either a slap or an open tone. In Seis8s, the user can select how the congas are hit with the hands. Here, the parameters for `tumbao` are `p` which stands for palma (palm/heel-toe hit), `t` for tapado (muted/slap hit), and `a` for abierto (open hit).




```
tempo 90;
compás "partido";
tumbao [p p t p p p a a] [1 1.5 2 2.5 3 3.5 4 4.5] $ congas
```

Figure 15: A salsa tumbao in the congas (Mauleón, 1993, p. 66)



```
tempo 90;
compás "partido";
tumbao [p a p a] [1 2 3 4] $ congas
```

Figure 16: A cumbia tumbao in the congas

```
tumbao [p (t a) p (t a)] [1 2 3 4] $ congas;
```

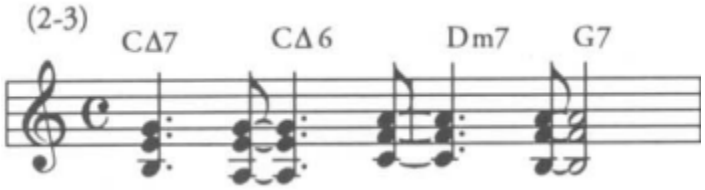
Figure 17: A conga pattern in Seis8s, where the first and third hits produce a sound of the quinto drum and where the second and fourth sounds are a tumbadora (t) drum

It is also possible to select which drum of the congas to be played.

Finally, conga tumbaos can be used along with the style commands. At the moment of writing, there are four presets available for the cumbia style.

Acompañamientos

An acompañamiento which translates to *accompaniment* makes reference blocks of notes or chords that provide harmonic and rhythmic support to melodic instruments and which are played "over the chord progression" (Mauleón, 1993, p. 147). Instruments that provide this type of accompaniment in Latin dance music are often plucked instruments and keyboards. At the moment of writing, accompaniments for the keyboard are available.




```
tempo 90;
compás "partido";
acordes [do maj7 do maj, re m7 sol dom7];

acompañamiento [1 2.5 4.5, 2.5] $ teclado;
```

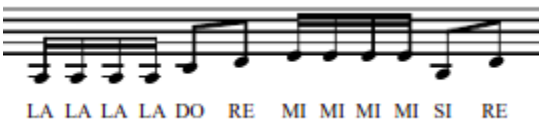
Figure 18: A salsa accompaniment in the keyboard (top) and in Seis8s (bottom) (Mauleón, 1993, p. 147)

```
tempo 90;
compás "partido";
acordes [la];
acompañamiento (2 4) $ teclado;
```

Figure 19: A cumbia accompaniment in the keyboard (top) and in Seis8s (bottom) (Ávila and Madariaga, 2009, p. 34)

Punteos

Punteos, which translates to *picking*, refers to the melody and/or melodic solos in Latin music. This technique is not particular to Latin music, as one can find them in rock and jazz music for example. In genres like Cuban music, punteos often refer to the melodies made by the player of a plucked instrument such as the *tres cubano*. In other musics such as Mexican cumbia, punteo is also often used to describe the principal melodies made by the keyboard player. The scales used for punteos vary but one that is common in cumbia is the pentatonic scale.




```
tempo 95;
acordes [la m, mi m];
compas "partido";

punteo [(1a (-1)) (1a (-1)) (1a (-1)) (1a (-1)) (2M (-1)) (4a (-1)), 1a 1a 1a 1a (5a (-1)) (7a (-1))]
[1 1.5 2 2.5 3 4, 1 1.5 2 2.5 3 4] $
cumbia acordeon;
```

Figure 20: A punteo fragment from the cumbia "Los Pajaritos" (cite) in traditional notation (top) and in Seis8s (bottom)

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Seis8s as Text and as a Cultural Object

Connecting Seis8s with the discussion about post-modernism and SuperCollider, one could argue that Seis8s further fall into a post-modern category. First, it still focuses on a text-based way of programming, a practice that has grown becoming a matter of *digital literacy* worldwide. Secondly, it still complies with Free-Libre/Open Source Software (FLOSS) as it is available on Github for further appropriation. But perhaps more importantly, it does not require the user to install it, something that seems to align with the early 2000s orientation towards making FLOSS more accessible to the non-expert. For example, through festivals like FLISOL[3] oriented to helping users to install this type of software on their computers.

Furthermore, Seis8s is ready and networked by default as it is available through the worldwide interconnection of computers called the internet. Finally, it inherits the expectation of the user to be an *artist-programmer* rather than a tape sound artist. Moreover, as described in the previous sections, its syntax and sound engine borrow from the –perhaps, live coding tool par excellence– TidalCycles. The latter makes Seis8s meant for the audience to experience the music it produces and to read the code to gain access to the performer's mind.

It is currently a matter of debate whether the audience really reads the code at live coding performances. However, the code in Seis8s is in fact made for it to be read and potentially invoke shared experiences within the users and audiences from Latin America. The latter, following Georgina Born's assertion that music "conjures up and animates imagined communities ... based on musical and other identifications" (2011, p. 378). Identifications such as the Spanish language, used in almost two-thirds of the countries located in what is known as Latin America and the Caribbean.

So far, Seis8s' linguistic aspect has been conceptualized by myself in its majority, making it obvious to deduct that Seis8s' language constructs are, however, drawn from Mexican

[3]Festival Latinoamericano de Instalación de Software Libre / Latin American festival for software installation

Spanish, particularly from Mexico City. This could imply many things, such as that, perhaps, Seis8s' commands are close to the "neutral" Spanish mentioned in the previous chapter; where although vocabulary and accents are not specific to any particular country, there is noticeable influence from the Spanish spoken in Mexico City.

From a different perspective, Seis8s commands such as `tumbao` and `punteo` respond to how musicians in places like the U.S, Cuba, and Mexico speak about music like salsa and cumbia. How accurate is this terminology, though? Well, I learned some of this musical terminology during my undergraduate studies in Mexico, and more recently, from Youtube videos, as well as Salsa and Cumbia textbooks. In this regard, my knowledge has been mediated, and thus potentially reflects a dated or inaccurate state of this music.

Georgina Born also describes "how metaphors for music combine and cohere into wider discursive formations" (p. 377). Seis8s also plays with these metaphors through the *style commands*, particularly the `cumbia` command. Cumbia, originally from Colombia, works nowadays as a generic rhythm adapted by different cultures in the countries of the region and beyond. The concept of cumbia music alludes to a syncretism among the musics of the African, the Indigenous, and the Spanish inhabitants of Latin America and the Caribbean.

Anthropologist Darío Arboleda (2019) describes this as a mythology of origin which originated with the colonization of these region. In the 20th-century, these ideologies developed into multicultural, nationalistic, eugenic projects which encouraged Latin American people from Spanish-speaking countries, to embrace the European aspect of their cultures as the more valuable resulting in the non-inclusion of African and Indigenous inhabitants into the broader nation project. The repercussions of the latter can be seen in Mexico, for example, where the Black population has only been recognized until recent years in the census of population (Quiroga, 2021).

As a metaphor for the African-Indigenous-Spanish nation, the cumbia command might also neglect other complex migratory processes within Latin America, such as the ones from Arab and Chinese people between the 18th and 20th centuries (Menéndez Paredes, 2009;

Oropeza, 2016). And, it is in this way, that Born also points out that music refracts "the hierarchical and stratified relations of class and age, race and ethnicity, gender and sexuality" (378). Talking in regards to gender and sexuality, cumbia has also been identified at times to issues of androcentrism and where popular music at large has been identified as a conveyor of gendered metaphors through the lyrics, melodies, and harmonies (see Aparicio, 2012; Castilla, 2014; Whiteley, 2013).

The latter is a complex topic that has been also studied at large and which has different nuances. For example, through a series of interviews, Semán and Vila (2011) mention how women appropriate cumbia songs where the lyrics are androcentric and/or sexist. Their analysis also puts cumbia in relation to Hip-hop and Rap where complex and contradictory analyses happen as these genres revolve not only around gender but also skin color and social class.

Conclusion and further work

This chapter discussed Seis8s, a web-based software that interfaces with localized musical knowledge from Latin dance music through text-based programming and concepts of digital audio. An initial analysis of Seis8s reveals that it has a strong orientation toward a post-modern way of thinking about sound and music in Latin America, particularly in Mexico. This is evident in Seis8s' influence from the uses given to software like SuperCollider in this region. Seis8s also has a good amount of influence from the globalization of information technologies, particularly the readiness and networked aspect of them. The latter, more absorbed and normalized after spending six years working around live coding technologies like TidalCycles and Estuary.

Initial experiments in Seis8s include the creation of musical patterns drawn from Salsa and Cumbia music. Styles often forgotten in computer music and live coding practice –according to the author of this chapter. These musics are, however, currently being explored from

parallel perspectives, for example, through software like "Fruity Loops, Reason, ProTools and Ableton" (Márquez, 2016, p. 55). The latter, giving birth to more recent variations such as "electronic cumbia, cumbiatrónica ... nu-cumbia" or simply "digital cumbia", "referring to .. the innovative crossing between cumbia and electronic music" (55).

Seis8s is also guided by a strong ideology of syncretism that converges with histories of colonization in Latin America and the Caribbean. It also seems to pair at times with musical nationalistic ideologies which often disregard the cultures of Indigenous, Black, Chinese, and Arab people inhabiting the region. Further work on this matter, will include inviting people from these Latin America and the Caribbean to provide their own reading on Seis8s. As well as inviting them to include music styles that represent better them.

Further development in Seis8s includes creating other style commands to access preset patterns. The next style will most likely be Salsa, with the patterns exemplified in the implementation section. It will also include developing more efficient ways of handling the melodies through the `punteo` command. This as they proved to create very long lists that hinder the *real-time* emphasis of Seis8s. Finally, a broader discussion on harmonies and voicings would be interesting to have.

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