5.6. Experimental music and the reprogramming of apparatuses

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Abstract

This paper aims to discuss the perception that an underground music scene could be articulated around experimental lutherie, hacking and bending practices, related to a network of contemporary musicians and sound artists in Brazil. A scene, thus, emerges not from a shared aesthetic as usually happens in terms of a musical genre, but a shared interest in continuous experimentation in building and modifying musical instruments, computer music systems and networks, and sound tools in general. Somewhat central to this association of artists and musicians is the notion of music and sound making as a collective and improvisational practice, in which participation plays a key role, and where the creative approach encapsulates a social agenda. It also should be noted that such musical and sound practices occupy standard performance spaces such as theatres and music venues, as well as art galleries, squats, open public spaces, and its participants usually stem from workshops and courses on abilities such as hardware hacking, circuit bending and creative coding, which also suggests a shared interest in exploring hidden possibilities both in traditional instruments and within electronic gadgets. The author examines different approaches that constitute this practice, based on concept of apparatus as described by Flusser (2000), and particularly the notion of programming and re programming of such apparatuses, which in turn relate to the concepts of lock-in according to Lanier (2010) and reprogramming according to Bourriaud (2002).

Keywords: apparatus, experimental music, hacking, DIY

Experimental music and the reprogramming of apparatuses

Don Buchla addresses a crowded room inside the Music Department building at the University of São Paulo discussing his career's accomplishments and failures, as well as his unique and somewhat maverick approach to music technology[2]. Everyone watches in awe as the inventor gives his personal account of milestones in the history of electronic music and its instruments, while making reference to iconic characters on first-name terms. The audience is quite diverse, comprised as expected of graduate and undergraduate students, but also of musicians of different styles without academic bonds, synthesizer enthusiasts and a few amateur synth builders. And even though Buchla is known to have composed some music and played in a vast number of performances over his life, people are here to see Buchla the innovator, the man behind the gear, which makes one wonder if ever a room full of violinists gathered to see a luthier tell the history of his life and instruments.

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[1] University of São Paulo, Brazil.
[2] Buchla's visit to the music department at USP took place on June, 13th, 2011.

Over the course of a weekend, a group of people gathers in the workshops and meeting rooms of the Pompéia unit of SESC[3] and at the nearby music venue Serralheria (http://escapeserralheria.org/) – both located in the west side of São Paulo City – sharing their time between debates, short courses and performances as part of an event called **Ciclo Hack**[4], organized by Giuliano Obici. Guest speakers and performers include hackers standing at different points of the software / hardware spectrum – such as digital artists Jarbas Jácome (http://jarbasjacome.wordpress.com/) and Jeraman (http://jeraman.info/), the Gambiólogos[5] hardware-hacking collective and "voltage artisan" Glerm Soares (http://glerm.devolts.org/) - and discussions range from the relative ease of building a cracklebox[6] or mantaining hacklabs active, to ambitious projects such as developing programming languages entirely based on Inca mathematics.

Inside a nondescript room, which in former times could have been a residential dining room as well as an office space overlooking a small porch, a crowd of about fifty people is gathered to watch as trio of musicians run through their set[7]. All three brandish different versions of the same instrument, from which they coax a variety of electronic sounds: the Gatorra, a hybrid instrument that is part drum machine, part DIY synthesizer, played in standing position as one would play an electric guitar – hence its name deriving from the portuguese word *guitarra*. In the middle of the trio stands Antônio Carlos Correia de Moura, a.k.a. Tony da Gatorra, an electronic technician residing in Esteio[8], and the inventor and so far sole builder of the Gatorra. Most of his live performances consist of his own protest songs performed solo or together with other Gatorra enthusiasts[9] to audiences which tend to be fifty-percent ardent fans shouting the lyrics to old favourites such as "Meu Nome é Tony" and "Assassino", fifty-percent people staring in amazement having no idea what exactly is going on. The evening ends with a brand new Gatorra being auctioned and sold to a member of the crowd.

The sonic and musical examples heard on the three occasions mentioned above bear little resemblance to one another, except perhaps to a listener lacking the will to perceive these are very different uses of electronic resources for making sound. Should we pay attention to the attendants instead, some familiar faces begin to be noticed, discussions appear to be quite

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[3] SESC stands for Social Service of the Commerce, a non-profit organization aimed at providing leisure, entertainment, educational and sports facilities for the employees in the commerce, services and tourism sectors and their families, as well as the local community (http://www.sescsp.org.br/en/sobre-o-sesc/quem-somos/). Since the 1980s the SESC network in the city of São Paulo is known to be an important sponsor of underground and alternative music scenes.

[4] "Ciclo Hack" and "Noite Hack" took place on the 9th and 10th of July, 2011.(http://giulianobici.blogspot.com.br/2011/07/ciclo-hack.html).

[5] "Gambiólogos" would translate somewhat like "hackologists", a word coined from Gambiarra, a term in Portuguese meaning a hack or a bend in an electric installation that is used to describe any makeshift solution to practical problems, and the logos suffix.(http://www.gambiologia.net/blog/).

[6] The cracklebox is an electronic instrument originally created by dutch composer and performer Michael Waisvisz (2004).

[7] This performance took place at the Casa do Mancha venue (https://www.facebook.com/casadomancha), in August, 25th, 2013.

[8] A small town in the sprawls around Porto Alegre, capital of Brazil's southernmost state, Rio Grande do Sul.

[9] At the time of writing, Tony da Gatorra is working on Gatorras number 18 and 19, plus additional Mini-gatorras and Batucadores, a portable drum machine (http://tonydagatorra.blogspot.com.br/). Previous models have been purchased by amateurs as well as professional musicians such as Franz Ferdinand's Nick McCarthy, and CSS' Lovefoxxx. On the performance mentioned in this paper, Tony was backed up by Lulina (http://www.lulina.com.br/) and Anvil FX (https://www.youtube.com/user/anvilfx666).

similar, and maybe someone will make the effort to advertise an upcoming event for like-minded people or addressing similar topics. But the common thread linking such events is hard to pin down as a musical genre, style or even a fad. It seems equally inconclusive to try and impose the notion of a shared aesthetic project, either by analysing the end results – whether it's musical, visual or multimediatic material – or the discourse put forward by its creators.

Instead, we might want to look at the people and their tools, listen to what they're talking about and to the sounds they're making, discover where it is that they hang out. Knowing that there's not just a single way of perceiving such coincidences, I will suggest that it might be possible to look at these common points as indicators of a different sort of music scene, one that gravitates around a shared interest in the making and modifying of musical / sonic tools rather than around a specific genre of music or musical attitude. A deeper discussion about what constitutes a musical instrument and in which way a musical "instrument" is or differentiates from a musical "tool" lies beyond the scope of this paper, and I believe it will suffice for the case in hand to embrace a very broad understanding of the term "instrument".

Grouping around musical instruments is usually associated with the idea of musicians' guilds and unions, that since time immemorial have acted as chancellors of which tools are proper for music-making, and what are the correct manners in which they should be employed to such ends, amongst other things (Godlovitch, 1998, p.68-69; Théberge, 1997, p. 20-21). Also, musicians guilds have for a long time been responsible for organizing access to knowledge and training for music theory and specific instruments (Théberge, 1997, p. 132). In the last few decades, groups of musicians have also gathered and communicated based on the "user group" format, focusing on certain tools such as digital instruments and music software in a similar manner of computer users and other groups (Théberge, 1997, p. 69; 139) associated with DIY activity. In any case – be it the National Guild of Piano Teachers, your regular Musician's Union, or the local chapter of the Ableton Live User Group – gathering in these formats have a direct relationship either with the professional aspects of a musician's job, or with a specific tool and the features it encompasses.

On the other hand, this hypothetical scene is somehow "un-professional", in that its main concerns are not so much related to how a given instrument will help to forward one's presence in the marketplace, what amount of theory a practitioner is expected to know in order do properly do a job, or which of the instrument projects has more 'bang for the buck'. In a similar manner to circuit-bending and hardware-hacking circles, there's a strong emphasis in sharing information and knowledge, and the organization of courses and workshops seems to be as important a part of the scene as the organization of concerts.

The mention of circuit-bending and hardware-hacking comes in handy as a way of introducing the people involved, by means of mapping out an intersection between more established backgrounds. In terms of musical education, a fair number of participants has formal training in music to some extent, practicing a variety of popular – or perhaps highly unpopular – music genres, sometimes dabbling into traditional, contemporary or experimental concert music setups. People classifying themselves as "non-musicians" also feel comfortable to join in at concerts, workshops and jam sessions feeling that this is an inviting environment to pursue sonic investigations, an opening partially related to a noticeable participation of free

improvisers[10]. There's also a strong presence of people involved with academic research, but not to the extent that this could be considered the offspring of academic activity.

And, as expected, there are many participants who fit in more than one description, given that it's a scene where people are expected to wear many hats, as in jazz or death metal guitarrists who live coder but also tinker with analogue electronics and Arduino-laced *intonarumori*[11].

If the crowd that suggests the existence of this scene can be found at an intersection between several better-known, longer-established cultural groups, the places that host such intersection can be seen as intersections themselves. Different spaces host such activities, with different degrees of institutional affiliation. The aforementioned SESC network is a regular home to concerts, workshops and longer-term courses, which helps interfacing with a more diverse audience[12]. On a weekly basis there are performances in independent venues that also host regular courses and visual arts shows, such as Ibrasotope (http://ibrasotope.com.br/), Instituto Volusiano (http://www.institutovolusiano.blogspot.com.br/), Epicentro Cultural (http://www.epicentrocultural.com/epicentro/), and Trackertower (http://trackers.cx/). Together with Casa do Mancha and Serralharia, other venues such as Espaço Cultural Walden (https://pt-br.facebook.com/esp.cult.walden) and Puxadinho da Praça (https://pt-br.facebook.com/puxadinho.dapraca) are keen to open the doors for performances based around custom-built instruments.

Apparatuses and technological lock-in

Théberge (1997) outlines a process through which the relationship of the musician with its tools becomes one of increasing consumption of technology, more and more intertwined at each successive wave of innovations. Writing at a time posterior to the MIDI protocol introduction in 1984, Théberge points out that this paradigm shift is accentuated during the 1980s and 1990s as digital technology accomplishments are filtered into the marketplace and digital synthesizers, sequencers and workstations become more accessible, but that a longer history of musical instrument marketing should be taken into account to fully understand the complex interplay between musicians, instrument makers and media: "the conventional dividing line between production and consumption has thus become increasingly blurred [as] musicians have increasingly become *consumers* of technology" (Théberge, 1997, p. 4).

This is one of the reasons, for instance, behind the user group phenomenon witnessed clearly from the 1980s onward, but also connected with the analog synthesizer culture beginning in the 1960s in which the exchange of technical information between owners of specific pieces of hardware – and later, software – becomes an integral part of a *modus operandi* and a regular habit of a predominantly white, male and middle-class crowd. Théberge (1997, p. 140) posits that the user group is "not simply a means of exchanging

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[10] The "Orquestra Errante" free-improv group is an example of a local ensemble of improvisers that occasionally counts with the participation of players of unconventional instruments – either acoustic, electronic, or hybrid – as well as live coders, for instance (https://myspace.com/orquestraerrante).

[11] Intonarumori are noise instruments conceived and built by the italian artist Luigi Russolo in the 1910s, as a means to bring to life the ideas manifested in his essay "The art of noises" (Russolo, (1913) In: Cox, C., Warner, D. (2004)).

[12] At the time of writing, for instance, live-coding artist André Damião is running workshops on electroacoustic music and live-coding for children (http://www.sescsp.org.br/aulas/32612 MUSICA+ELETROACUSTICA+PARA+CRIANCAS).

technical information; rather, they might be a means by which consumers develop alternative definitions of their needs and new forms of satisfaction from their relationship to commodities and other consumers". This technical aspect of making music, not in terms of acquiring and developing instrumental technique by means of practice and repetition, but in terms of acquiring cognitive knowledge of how to operate such and such equipment has a significant impact on one's sense of musical style and language.

Overlapping with this period, the gradual sophistication of the electronics and microchip technology since the 1970s slowly helps to transform the electronic musical instrument in a product akin to a musical black box, in the terminology employed by Flusser (2000). This metaphor of the black box – a contraption which can only be understood in terms of input and output, but whose inner workings are shrouded in mystery – is employed to describe the concept of the apparatus, considering its embodiment in the photographic camera as a starting point.

What is key to understanding the concept of the apparatus and how it connects with music technology has to do with its *programming*, in that the possibilities contained in a given apparatus are previously determined by the shaping of its program, which could be described as a preset array of possibilities embedded in the apparatus in its conception, or "computational thinking flowing into hardware" (Flusser, 2000, p. 31). As such, the apparatus and its program are "part of a culture, consequently this culture is recognizable in them" (Flusser, 2000, p. 22).

The side effects of a given apparatus' programming could be related to technological lock-in, described by Lanier (2010) in relation to software as a process that causes designs to "get frozen into place" (Lanier, 2010, p. 7). Both Théberge (1997, p. 127) and Lanier (2010, p. 11) use the MIDI protocol as an example of how technology is able to crystallise a specific philosophy or political view in a way that will later impact not only its employment, but the very perception of reality of its user – or as is the case, his or her notions about music and music making.

Reprogramming

Fernandez (2013, p. 51) suggests that the instigation behind practices such as circuit-bending or hardware hacking could be seen as attempts to shed some light inside the Flusserian black box, eventually discussing that a black box is opened or enlightened only to reveal a multitude of other black boxes inside. However, the idea that experimental approaches in building musical instruments could be understood as a contemporary reaction to technological lock-ins seems worthwhile of investigation by other perspectives, one of which could be the concept of *reprogramming*.

Bourriaud (2005) employs the term reprogramming to describe the praxis observable in a generation of artists in activity during the 1990s, whose work seems to "respond to the proliferating chaos of global culture, which is characterized by an increase in the supply of works" (Bourriaud, 2005, p. 13). In the same manner that a DJ and a programmer have the "task of selecting cultural objects and inserting them into a new context" (Bourriaud, 2005, p. 13), artists reprogram previous works of art as well as cultural goods and references, aiming to "inscribe the work of art within a network of signs and significations" (Bourriaud, 2005, p. 14) rather than conceiving of the work of art as an autonomous entity. This represents a shift

from the idea of working with raw materials to the idea of working with data, information (Bourriaud, 2005, p. 15).

The term seems applicable to the activity being discussed, in that the practitioners seldom build their instruments starting from raw materials in the way that a conventional luthier would start a project with planks of wood or metal alloys. In its simplest form, this instrument building starts from reprogramming cultural objects both in terms of tangible, fabricated goods and of intangible source material, in the sense that the diagrams for an electronic circuit or program code are also cultural objects.

Although it is not being assumed that the notion of program that constitute a given apparatus' programming in Flusser bears a theoretical relationship to that which makes reprogramming possible according to Bourriaud, the mere coincidence in the choice of words by the two authors was enough suggest an approach to this investigation. Instead of trying to unveil the mysteries of the apparatus as a black box – being confronted with other apparatuses nesting inside each other in the manner of Russian dolls (Lima, 2013, p. 122) – practices of experimental lutherie can be understood as attempts to reprogram technical content.

Taking stock

This paper proposes that the idea of reprogramming is a useful tool to describe and understand the activities of a number of different people dealing with a broad spectrum of techniques related to sound making and instrument building. It also suggests that the interaction between these people could be understood in terms of a musical scene, albeit one that germinates from similar activities and interests rather than aesthetic identities or perhaps a specific location. This approach is rooted in the conclusions of a research work (Lima, 2013) and integrates the beginning of another research that aims to investigate the complex network of connections between some of the artists mentioned, the techniques they employ and the audience they reach.

Instruments like the Gatorra and the Toscolão (http://vimeo.com/303234) indeed can be seen as the results of reprogramming different contents in different levels – from the very concept of guitars, to start with, to the circuitry that each instrument employs – and not only technical sources, making it clearer that there really is no use in differentiating "technical" objects and content from "cultural" objects and content. To a certain extent, one could say that there's also a political attitude permeating the scene, not in terms of subscribing to established political views, but in terms of believing in the empowerment of the layman as an artist in potential, and in the idea that sharing and participation are integral to music-making. These are aspects that often surface on the work of the artists who lend themselves to this sort of activity, and help to draw themselves closer according to a few points in common: not their sound or their music *per se*, but an attitude towards music-making that encompasses the very choice of how their musical instruments will be structured.

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