

# A DANCEABLE SHOWER OF BULLETS:

SOUND MORPHOLOGIES, CONCRESCENCE AND NEUROSIS IN THE GENESIS OF AN EDM BEAT

— FEATURE ARTICLE —

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## ABSTRACT

The processes that lead from *volt-mix* to *tamborzão*, two *bases* (beats) of *funk carioca* (funk from the greater Rio de Janeiro city), are analysed with reference to Pierre Schaeffer's *typo-morphology of sonic objects* (1966). Such transformations are viewed as instances of Gilbert Simondon's *concretization* (1958). They are synchronous with changes in the geopolitics and human geography of *bailes funk* (funk dances). As the volt-mix morphs into the *tamborzão*, the epicentre of these events moves from clubs in the suburbs and periphery to favelas, and *funkeiros* (funksters) become subjected to tensions arising from control of their spaces by rival factions of illicit substance retailers. These shifts coincide with the rise of a human character, the *neurótico* (neurotic), and with the collective feeling of *neurose* (neurosis) associated with circulating in those territories.

KEYWORDS: electronic dance music analysis; sound morphology; anthropology of sound

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## INTRODUCTION

In “Song Structure and Social Structure”, Alan Lomax (1962: 425) hypothesized that “when a distinctive and consistent musical style lives in a culture or runs through several cultures, one can posit the existence of a distinctive set of emotional needs or drives that are somehow satisfied or evoked by this music”. In “Sound Structure as Social Structure”, Steven Feld built on Lomax’s work to pioneer “a qualitative and intensive comparative sociomusicology without unsituated laminations of variously collected and historically ungrounded materials” (Feld 1984: 385). For Feld, Lomax’s questions should be sorted out with “the thorough, long-term, historically and ethnographically situated case study” (ibid.), which he located “in a larger comparative framework for the sociomusical analysis of classless and egalitarian societies” (Feld 1984: 383). The present article results from fieldwork on *funk carioca* conducted in a class-based and inegalitarian society from 2005 to date. It focuses on one component of the musical production, the *base* (henceforth beat), which is analysed with reference to Pierre Schaeffer’s *solfège* of sonic objects, as suggested by Alistair Riddell in 1996.<sup>1, 2, 3</sup> After sketching elementary production techniques, I examine the processes whereby, in the course of the 1990s, a 1988 LA electro track gives rise to an Afro-Brazilian beat in the greater Rio de Janeiro city. Previous research (e.g. Mattos 2006, 2012; Caceres, Ferrari and Palombini 2014; Gulate 2014) shows that this process is concomitant with the emergence of an identity trend, which I situate in its geopolitical context, revealing analogies between the synchronous transformations of sonority and society. In conclusion, I venture hypotheses on the meaning of this analogy.

In another paper we have sketched the sound morphologies of three beats of *funk carioca*, the first Brazilian genre of electronic dance music, each of which associated with one decade of this music: *volt-mix* (1990s), *tamborzão* (2000–2009) and *beatbox* (2010s) (Caceres, Ferrari and Palombini 2014). We have observed that the passage from *volt-mix* to *tamborzão* entails a reduction of activity in the upper region of the beat texture, whereas that from *tamborzão* to *beatbox* results in losses in the lower region. Furthermore, we have shown that such reductions are synchronous with a generally accepted narrative concerning the geopolitics of the *bailes* (henceforth dances): these events started in clubs of the greater Rio de Janeiro city suburbs and periphery in the 1980s; they were expelled from there in the second half of the 1990s; and they found their home in the favelas from 2000 to 2008, at which point perversely devised public security policies started to uproot them (for a case study see Facina and Palombini 2017).<sup>4</sup> The eviction of funk dances from clubs to favelas coincides with the passage from *volt-mix* to *tamborzão*, and with losses in the upper region of the tessitura. Their eradication from favelas coincides with the passage from *tamborzão* to *beatbox*, and with losses in the lower region of the tessitura. The diachronic morphology of beats thus links *funk carioca* to a well-known trope in the historiography of samba: the oppositional pair *morro/asfalto*, in which *morro* (hill) designates the hillsides where the poor build their homes—and, by metonym, the poor themselves—whilst *asfalto* (asphalt) refers to the urban areas with regular public services where the middle and upper classes

generally live. Perhaps because in the meantime the number of favelas on flat surfaces has increased and suchlike favelas have played a significant role in the development of the genre, the historiography of *funk carioca* replaces *morro* with *favela* to engender the *favela/asfalto* oppositional pair.

## BEATS

In *funk carioca* of the 1990s, a beat is generally an instrumental version, usually on the B-side of imported singles, as used in rhythmic counterpoint to vocal expression, be it *rima na hora* (improvised rhyme) or pre-composed rap. The technical proceedings of Brazilian DJs of the 1990s have not been compiled. Musical productions in deferred time evince variation and derivation of beats by combination of segments from imported tracks and by interpolation or superposition of elements from Afro-Brazilian recordings. Although common sense repeats that *funk carioca* derives from Miami bass, the most popular instrumental track of the period, the “808 Beatapella Mix” on the B-side of DJ Battery Brain’s *8 Volt Mix*, is an obscure representative of Los Angeles electro that DJ Nazz (Carlos Machado) discovered in the US and distributed in Rio. The “808 Beatapella Mix” has often been used in the form of a four-bar loop, with splash added to the last snare drum of the cycle and the subsequent hi-hat removed (fig. 1).

The figure displays two systems of musical notation for a four-bar loop. Each system consists of four staves. The top staff represents the closed hi-hat, showing a steady eighth-note pattern. The middle staff represents the voltage oscillation, featuring a sequence of eighth notes followed by rests and eighth notes. The bottom two staves represent the bass drum and snare drum, with the snare drum having a splash on the final beat of the second measure. The notation is in common time (C) and uses a grand staff format.

FIGURE 1. THE VOLT-MIX LOOP: ON THE LOWER LINES, BASS DRUM, AND SNARE DRUM; ON THE MIDDLE LINE, VOLTAGE OSCILLATION; ON THE TOP LINE, CLOSED HI-HAT. TRANSCRIBED BY LUCAS FERRARI.<sup>5</sup>

The volt-mix texture characterizes itself by the range of its tessitura, from lower low (bass drum on the lowest line) to medium (snare drum on the second line) and upper high (closed hi-hat on the fourth line). Notated in semiquavers on the third line, a rebound in the form of double clicks cyclically crosses the medium from end to end, thus linking upper-low and lower-high registers (fig. 2). This musical figure was obtained by connecting the trigger output of the drum machine to the audio input of the recording console, as done by The Masterdon Committee in “Funkbox Party” in 1983 and by The Egyptian Lover in “Egypt, Egypt” in 1984.<sup>6</sup> And because the sonorities of the TR-808 are purposefully hyper-real, rebounds of voltage do not strike a discordant note among pre-programmed sounds.<sup>7</sup>

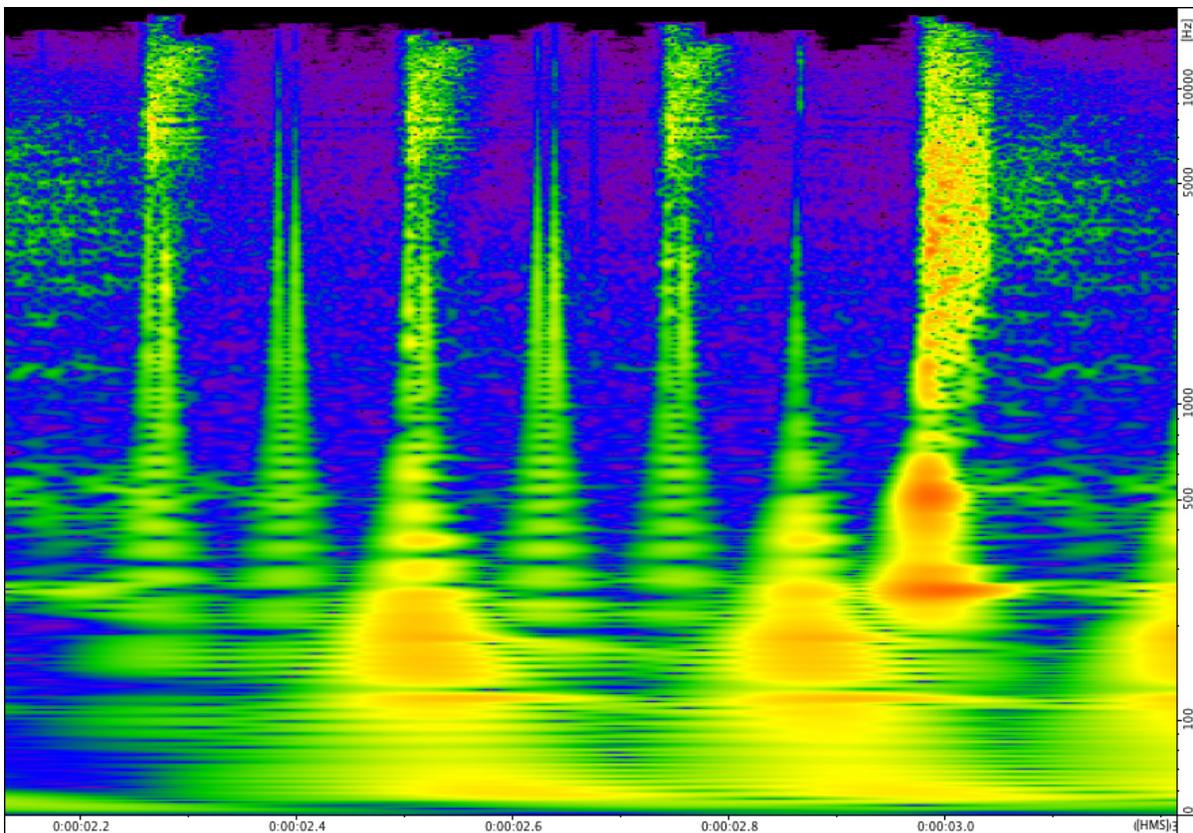


FIGURE 2. THE VOLT-MIX LOOP. SPECTROGRAM OF THE FIVE DOUBLE ATTACKS OF VOLTAGE OSCILLATION TERMINATING ON A SINGLE ATTACK. ODD-NUMBERED ATTACKS COINCIDE WITH CLOSED HI-HAT; THE THIRD AND THE SIXTH ATTACKS COINCIDE WITH BASS DRUM.

Interline spacing confers transparency to the texture. Clearness of contours follows from the different densities of each line; from their different degrees of *originality*; from their different *masses* and *factures*—each line evocative of percussion on skin, percussion on skin with added rattle of metal wires, and percussion on metal.<sup>8, 9, 10</sup> Pierre Schaeffer’s *solfège of the sonic object* expounds the notion of *perceptual field*:

. . . a first quality of the field of perception is to be able to compare two objects, discovering in them a single property. A second one is to be capable of ordering these values. A third is to manage to fix the degrees of this scale with greater or lesser accuracy (Schaeffer 1966: 383).

He propounds three such fields: a *perceptual field of pitches*, a *perceptual field of durations* and a *perceptual field of intensities*. We shall concern ourselves exclusively with the *sites* and *calibres* of *complex masses* in the perceptual field of pitches.<sup>11</sup> The site of a mass in the field of pitches is the place in which this mass is located in the tessitura according to *ordinal*, relative scales.<sup>12</sup> Its calibre is the area that this mass occupies therein: at one extreme, white noise spans the entire field; at the other, the sine wave occupies one point in there. Between one extreme and the other, we find different noise bands. Figure 3 represents the approximate sites and calibres of snare drum, closed hi-hat, bass drum and voltage oscillation as well as three planes.

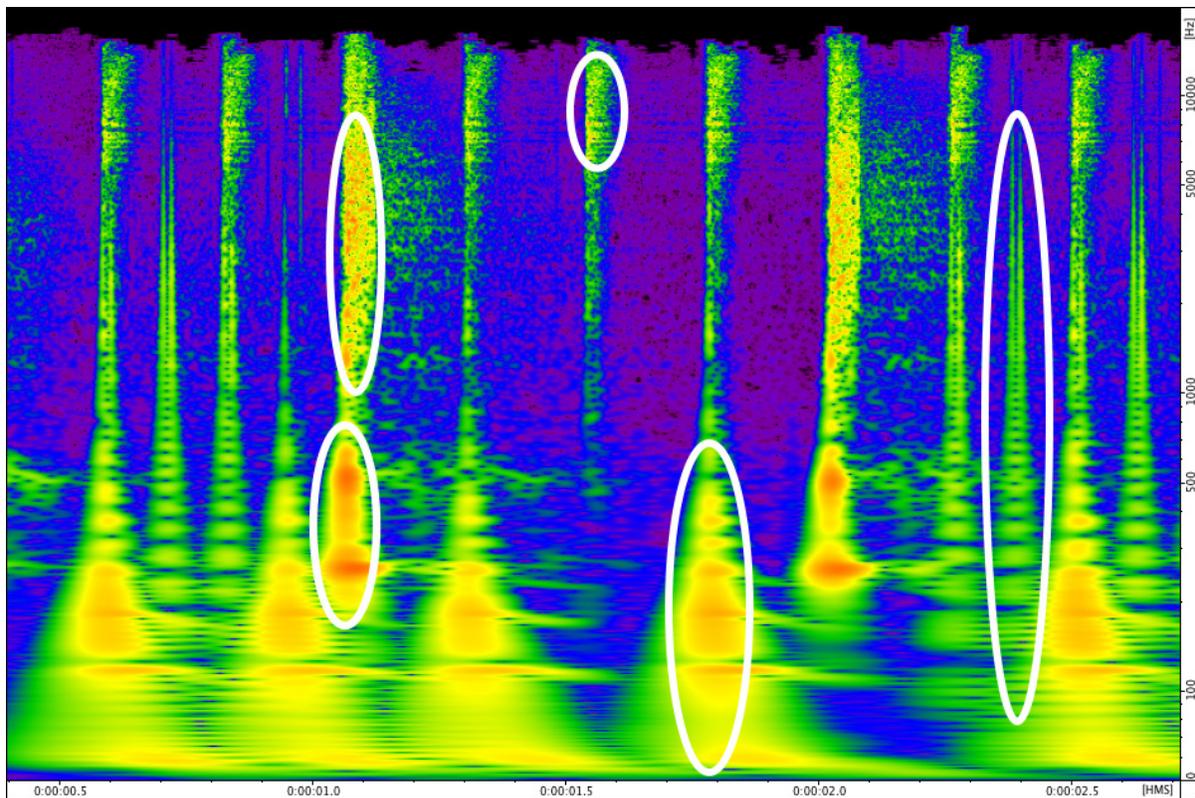


FIGURE 3. THE VOLT-MIX LOOP. REPRESENTATION OF SITES AND CALIBRES OF: SNARE DRUM, WITH ATTACK IN THE LOWER MEDIUM FOLLOWED BY GRANULAR RESONANCE IN THE MIDDLE AND UPPER MEDIUM; CLOSED HI-HAT IN THE UPPER HIGH; BASS DRUM IN THE LOW; AND VOLTAGE OSCILLATION, SWEEPING THE MEDIUM REGISTER FROM END TO END. ALSO REPRESENTED ARE THREE PLANES: BASS DRUM AND SNARE DRUM IN THE FOREFRONT (RED AND ORANGE); VOLTAGE OSCILLATION IN THE BACKGROUND (GREEN); CLOSED HI-HAT IN BETWEEN (YELLOW AND GREEN).

## MONTAGE

Amongst the range of *funk carioca* subgenres the word *montagem* (henceforth montage) characterizes the autonomy of the producer-DJ in the selection and combination of heterogeneous sound materials, especially voice recordings, which they organize in fragmentary and repetitive ways. In the European avant-garde of the post-war years, Schaeffer's "Étude pathétique", from his *Cinq études de bruits* (1990), may be considered a precursor (Schaeffer 1950: 42–43). On the other side of the Atlantic, Farley Jackmaster Funk explored the fragmentation and repetition of his name in the track "Farley Farley", released in 1985. In the early 1990s, *funk carioca* would turn such procedures into a subgenre in its own right. Early montages were created on the Tonos Audio Center Control IC-3, manufactured by Empresa Brasileira de Equipamentos Eletrônicos (Embrasom), later replaced by the Gemini PDM-7008 and Gemini PDM-7024. The latter offered five memory slots with the capability to store up to twenty-four seconds of sound distributed among two two-second slots, two four-second slots and one twelve-second slot. Also in use was the Gemini DS-1224, equally with twenty-four seconds of storage.

A conversation between Afro-diasporic cultures is audible in early instrumental montages that include recordings of *berimbau*—a Brazilian gourd-resonated musical bow with ancestors in Africa. Among the simpler productions, available from the Early Berimbau Montages playlist, "Berimbau Volt" starts with a *berimbau* that continues after the entrance of the "808 Beatpella Mix". "Berimbau São Bento" employs the same formula but uses a two-bar volt-mix loop instead. Somewhat more complex, "Berimbau Pipo's", named after the Equipe Pipo's (Pipo's Sound System), begins with a superimposition of *berimbau* on a loop extracted from the percapella mix of the single "Bleeding Heart" by the Los Angeles duo Bardeux; the "808 Beatpella Mix" enters; the combination of *berimbau* and Bardeux continues throughout; the beatpella ceases, prepares its re-entrance, and the ensemble carries on. Probably due to its Afro-Latin feeling, early *berimbau* montages developed a taste for the Bardeux loop, as shown by "Berimbau agitado I", "Berimbau agitado II" and "Berimbau Studio Rap". All these montages pertain to the earlier half of the 1990s and have been rescued by DJ Daydanic from MDs that once belonged to the Cash Box and A Muralha sound systems.

In 1993 DJ Mamut created "Contexto 2", now known as "Jack Matador", released on the LP *Pipo's 2: o encontro da massa* in 1994. "Jack Matador" acquired pop status in the underground and engendered countless responses in the form of newer tracks, thus establishing the reputation of the subgenre (Essinger 2005: 110–13). Also in 1994 the fourth *Beats, funks e raps* album, produced by DJs Grandmaster Raphael and Amazing Clay, presented DJs Alessandro and Cabide's "Macumba Lelé": an *atabaque* beat starts; the *berimbau* develops figurations; the "808 Beatpella Mix" enters; the *atabaque* varies. The term *atabaque* is popularly used for *candomblé*-sounding skinned barrel-drums in general. It designates herein a variety of loops that converge towards the *tamborzão*. On the origin of the instrument, Spirito Santo states:

I have little doubt about the *atabaque* not being African. Neither is it Brazilian. I do however like to use its context—epoch, making, origins—to allude to losses of know-how and of access to materials by force of slavery: they have led to the use of casks as drum shells in ports of the American colonies. Because casks and the craft of cooperage are directly linked to the packing and transportation of goods by ship, it is easy to imagine a relationship between the maritime trade in American colonies and the use of casks as drum shells: people of the African diaspora working in harbours. Nevertheless, the form of that which we call *atabaque* is ostensibly Brazilian. It appears clearly in Bahia in association with *candomblé*, as iconography demonstrates. Other places are Uruguay, with her *candombe* drums, and Cuba, where the congas display an unsurpassable level of craftsmanship. They all belong to the same family. It is a history that organology recounts.<sup>13</sup>

Thus, the characteristically Latino *atabaque* sound frequently heard in African-American productions since disco provides a sonic link between DJ cultures of the Northern and Southern hemispheres.

### MELÔS AND RAPS

The “Bleeding Heart” radio edit, on the B-side of the homonymous single, became locally known as “Melô da princesinha”, which roughly translates as “The Little Princess Melody”, though a *melô* is not exactly a melody.<sup>14</sup> The term alludes to a triple procedure that lies at the root of *funk carioca* and consists in: (a) providing English lyrics with sound-alike, humorously homophone Portuguese words; (b) naming those tracks as the “*melô* of such and such”; (c) using instrumental versions as beats for traditional melodies or pop tunes to which new lyrics are supplied. MC D’Eddy’s “Rap do Pirão” was certainly not the first rap, but when it won the Clube Mauá competition in 1992, Grandmaster Raphael recorded that performance live and started to broadcast it.<sup>15</sup> The following year he included “Rap do Pirão” in the first *Beats, funks e raps* LP. “Rap do Pirão” triggered the age of raps, which would last until 1998, when DJ Luciano Oliveira released an obscure old-styled rap whose production hinted at the new decade.

### TAMBORZÃO

We do not know when Raça Rubro-Negra, a traditional association of Flamengo Football Club supporters, adopted a version of “Rap do Pirão” as one of their anthems. This music is now sung at entrance gates and on bleacher seats to the accompaniment of instrumental ensembles similar to those of *baterias de escolas de samba* (henceforth samba school drum units). Since exchanges between stadium shouts and funk dances logically predate the birth of the musical genre, football must have played an as yet uninvestigated role in the genesis of *funk carioca*. The same may be said of samba schools: in Rio, the personae of the football fan, of the samba school drummer and of the funkster frequently overlap. Mestre Jorjão is a well-known *mestre de bateria* (henceforth master of drums) whose apprenticeship took



In order to establish sites and calibres of masses of the *tamborzão* with some degree of precision we have had to reconstruct its lines one by one on an R-8 MK-II (figs. 6–8).

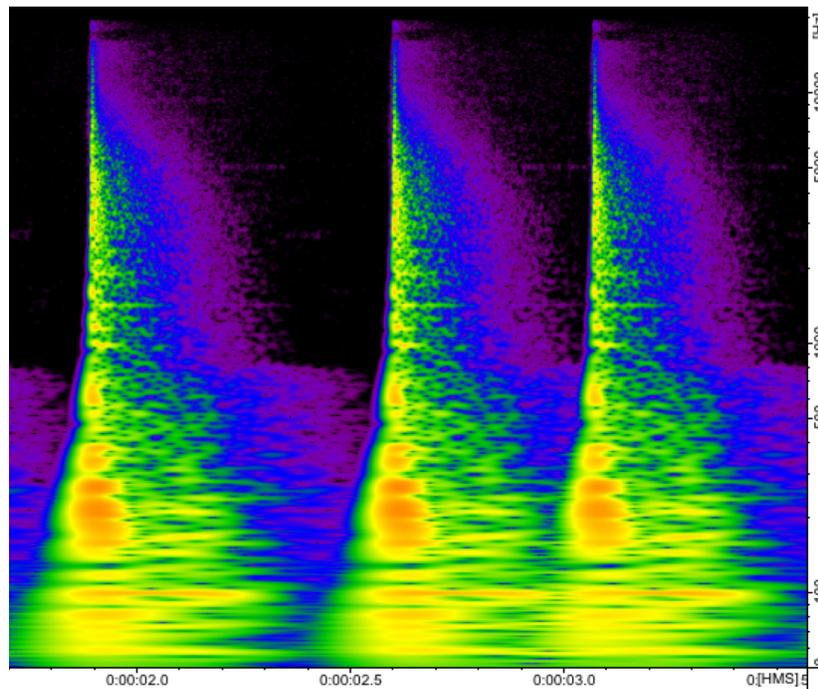


FIGURE 6. *TAMBORZÃO*: THE THREE AMBO-KICK ATTACKS.

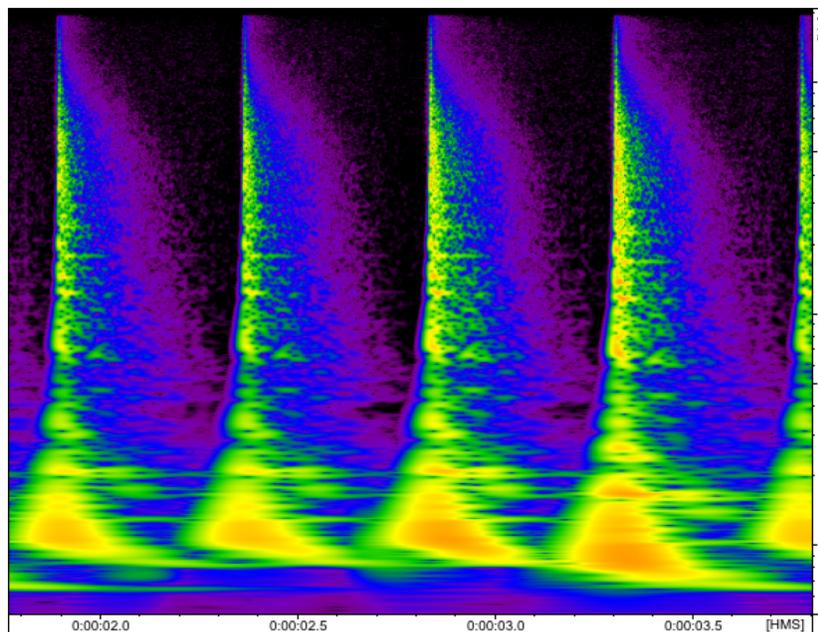


FIGURE 7. *TAMBORZÃO*: THE THREE ATTACK-TOM-2 ATTACKS FOLLOWED BY ONE ATTACK-TOM-1 ATTACK.

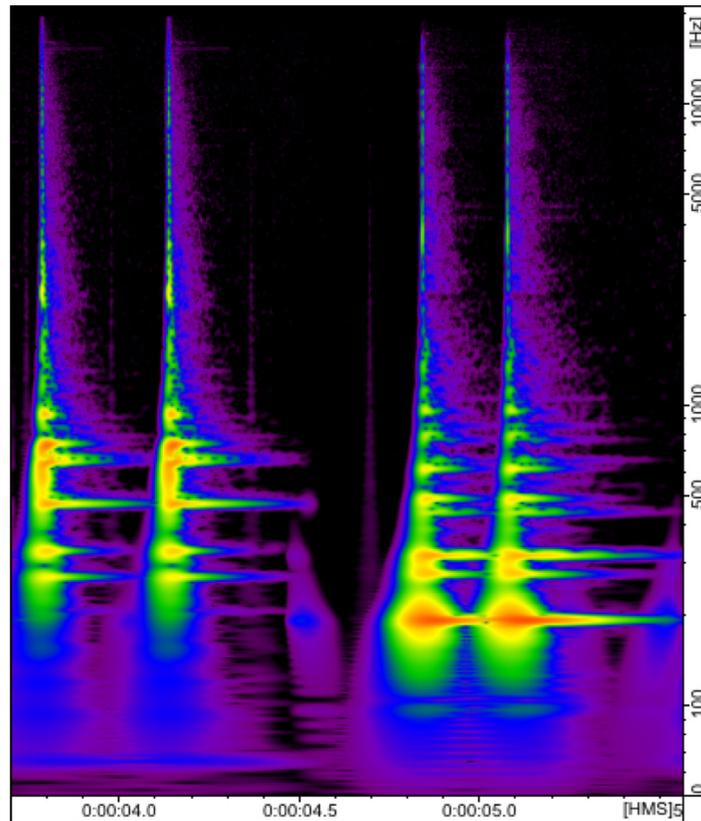


FIGURE 8. *TAMBORZÃO*: THE TWO SLAP-HIGH-CONGA ATTACKS FOLLOWED BY TWO OPEN-LOW-CONGA ATTACKS.

Having isolated these objects, we were then able to locate their sites and calibres in the overall texture (fig. 9).

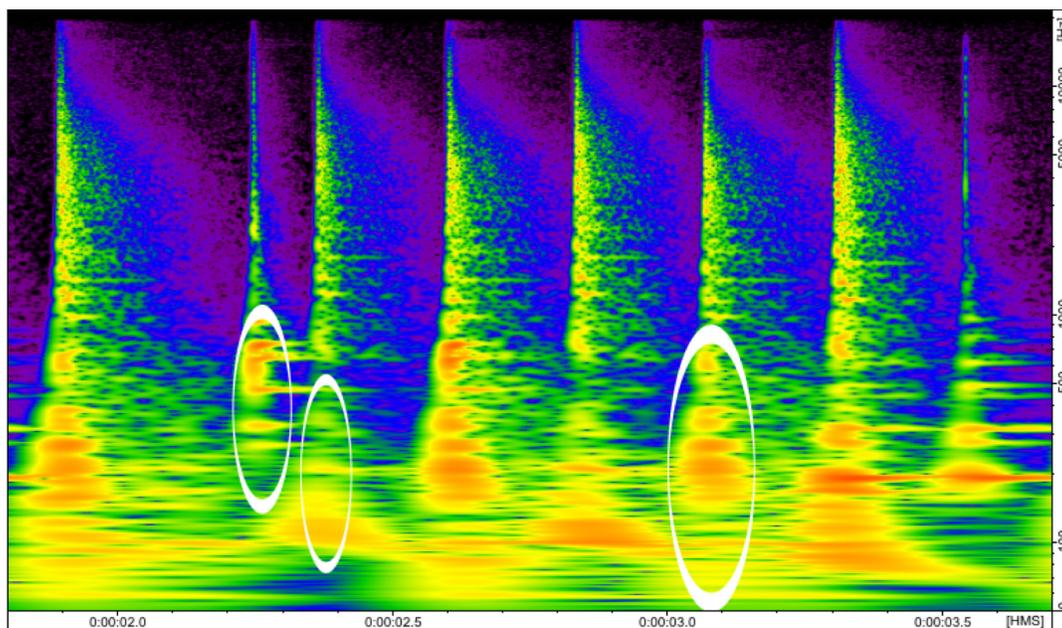


FIGURE 9. *TAMBORZÃO*: THE RELATIVE SITES AND CALIBRES OF SLAP HIGH CONGA, ATTACK TOM 2 AND AMBO KICK IN THE LOOP TEXTURE.

## COMPARED MORPHOLOGIES

By focusing our attention on different spans of duration we shall find *sonic objects* at three levels of complexity (Schaeffer 1966). Let us take loops for hyper-objects and segment them into macro-objects, or cycles of the loop, and then further segment these cycles into micro-objects, or *notes*. Notes are “*formed* sounds with *fixed mass*, meaning sounds whose matter answers to the criterion of homogeneity, except for their dynamics” (Schaeffer 1966: 529). *Formed sounds* share the characteristic of “presenting good form, that is to say, of being fused together by an undeniable unity of facture, which corresponds to an optimal time of memorization for the ear” (Schaeffer 1966: 443).

### VOLT-MIX MICRO-OBJECTS

Volt-mix notes were produced on a Roland TR-808 Rhythm Composer. This drum machine was manufactured from 1980 to 1983 and offers sixteen on-board sounds that stylize acoustic percussions by means of analogue synthesis. The volt-mix loop uses three classes of such notes and ascribes each class to one of three lines: bass drum, snare drum and closed hi-hat, all of which follow the attack/resonance model. Instead of relying on pre-sets, a fourth line resorts to the technical device described under “Beats”, resulting in a series of six *impulsions*, or abrupt attacks without resonance. Impulsions may seem “elementary in structure, although their details, if time-stretched, could prove very complex (which the ear cannot grasp when duration is too short)” (Schaeffer 1966: 438). Figure 2 shows that five of these impulsions consist of two attacks separated by so short a time gap that the ear is incapable of identifying *iterations* as such.

These pre-sets paraphrase the effects of beater and sticks hitting in various ways differently sized sounding-bodies made of different materials: metal for hi-hat; skin for bass drum and snare drum. Although bass drum and snare drum exhibit similar sounding-bodies of different sizes, their resonators vary: bass drum has an open resonator; snare drum has a resonating head; hi-hat integrates resonator and sounding-body into each of its cymbals. These factors account for differences of sound matter between the less transient component of attack/resonance classes, and such differences manifest themselves through the signature criterion of *grain*.<sup>18</sup> Bass drum shows no grain—unless by grain we mean the shaking of windows and walls. Snare drum obtains an iterative resonant grain as soon as its resonant head enters into vibration and into contact with metal wires. Closed hit-hat displays a resonance grain to which an iteration grain adds itself as a result of an interaction between cymbals.

This heterogeneous and yet coherent ensemble of *characters* allows for the ingenious interplay of *values* to which the volt-mix texture owes much of its appeal.<sup>19</sup> The lower the site of the note, the longer it resonates, but bass drum, the lowest and longest one, lacks granulation and appears at the comparatively moderate rate of four notes per bar; snare drum, in the medium, with medium duration, is coarsely granular and appears at the low rate of two notes per bar; hi-hat, the highest and shortest one, is finely granular and appears at the high rate of eight notes per bar.

### TAMBORZÃO MICRO-OBJECTS

*Tamborzão* notes originate from the Roland R-8 MK-II Human Rhythm Composer. This digital drum machine was released in 1992 and offers two hundred on-board samples of sounds from acoustic instruments, from analogue and digital equipment (CR-78, TR-808, TB-303, TR-909) and from other sources. The *tamborzão* loop distributes samples of five acoustic instruments into three lines: ambo kick; attack tom 1 and attack tom 2; slap high conga and open low conga. All of these notes follow the attack/resonance model, but differently from the volt-mix, whose lines individually taken are all flat, the *tamborzão* presents internal variations of site and intensity in the middle line, and of site, duration and *harmonic timbre* in the upmost line.<sup>20</sup> Nevertheless, the dynamic of the middle line is not perceived as such but rather as a feature of the cell. This happens because, in addition to the rhythmic uneventfulness of the line of tom-toms, *tamborzão* notes show similarities of facture, mass and duration, and the line of tom-toms is all the more prone to fade into the background since it is sited in the middle (and closer to the external lines than snare drum is close to bass drum or to hi-hat in the volt-mix). On the other hand, differences between slap high conga and open low conga tie together characteristics of site, duration and harmonic timbre in such a way that the listener is likely to ascribe this interplay of variations to a performer's repertoire of articulations.

### VOLT-MIX AND TAMBORZÃO MACRO-OBJECTS

Both loops may be designated as *pedals* of *cells*, or  $P_K$ , each  $K$  corresponding to one cycle of the loop (Schaeffer 1966: 459).<sup>21, 22</sup> To establish a distinction between a volt-mix  $K$  and a *tamborzão*  $K$  we shall resort to two other types: *threads* ( $T$ ) and *accumulations* ( $A$ ). Threads are “complex or harmonic packets of elementary  $N$  or  $X$  objects tied in a bundle” or “slowly evolving fusions of sounds” (Schaeffer 1966: 450, 457).<sup>23</sup> An accumulation is a “profuse reiteration of brief elements, all relatively similar” (Schaeffer 1966: 439). By assimilating the volt-mix  $K$  to a  $T$  and the *tamborzão*  $K$  to an  $A$  we are implying that each of these pedals may be taken as a  $P_T$  or a  $P_A$  respectively. Since both loops consist exclusively of notes  $X$ , a volt-mix  $K$  would be a  $T_X$  and a *tamborzão*  $K$  would be an  $A_X$ .

### VOLT-MIX AND TAMBORZÃO IDENTITIES

The volt-mix cell distributes each of its three attack/resonance classes among three lines spaciouly sited across the field of pitches, from lower low to upper high, while a line of impulsions spans the medium from end to end, thus basting both extremes. The *tamborzão* cell distributes each of its three attack/resonance classes among three lines compacted between lower low and upper medium, above which the attack transients of all notes take up the field of pitches. Were the ear capable of isolating this zone we should discern in there the disembodied synthesis of the rhythmic pattern through an ensemble of unresonated attacks.

The volt-mix delineates its rhythmic identity through the bass-drum/snare-drum pattern. It receives its name and signature from voltage oscillation, whether this line is perceived

as a series of impulses or as integrated into an *allure*, or regular oscillation. This figure unfolds in time between the second snare and the first snare of the subsequent bar and it may be considered a hyperbole of the attack/resonance model. The *tamborzão* delineates its rhythmic identity by means of the ambo-kick/tom-toms pattern, approximately in the same region as the bass-drum/snare-drum pattern of the volt-mix. Its signature feature is the line of congas, not least because it is the most clearly discernable one.

An isolated volt-mix line is likely to evoke its original pattern; an isolated *tamborzão* line will not do so. The paradox of the *tamborzão* is that it uses samples of an Afro-Pan-American ensemble to suggest the Afro-Brazilianness of *candomblé* drumming.

#### RHYTHMIC DERIVATION

The *tamborzão* kick drum duplicates all but the second bass drum beat of the volt-mix, which it replaces with its first slap high conga beat.<sup>24</sup> The second slap high conga beat of the *tamborzão* turns up in the place where the third bass drum beat of the volt-mix would be (and where the second kick drum beat of the *tamborzão* actually is). The two open low conga beats of the *tamborzão* fulfil a double role: the first one takes the place of the second snare drum beat of the volt-mix; their ensemble replaces, with augmentation, the anacrusis of voltage oscillation. The second tom-tom beat of the *tamborzão* appears where the first snare drum beat of the volt-mix would be.

#### ONTOLOGY

The volt-mix is either the beatapella mix of DJ Battery Brain's single or a loop extracted therefrom, in the role of beat for *melôs*, montages and raps. We remain uncertain about the authorship of the *tamborzão*: individual, according to some; collective, according to others; individual with collective contributions, according to others yet. In a 2006 video-interview, DJ Cabide relates:

Then I did that montage, 'A Gota', it came out and sound systems immediately started to copy it. I said: 'no, the *tambor* is the West Rio *tambor* that Luciano has created.' I used it. People began to ask me: 'where is that *tamborzão* from?' 'That *tamborzão* is the West Rio *tamborzão* made by Luciano'. It was the beginning of funk. Everybody started to copy it, to put it into the music, and the evolution began to evolve, to evolve, to evolve until we got to the present-day *tamborzão* (Ivanovici 2006).<sup>25</sup>

Is the *tamborzão* a specific loop or a variety of loops characterizing "the evolution of evolution"? If the latter is correct, as Cabide seems to suggest, at what point does an *atabaque* become a *tamborzão*? And at what point does a *tamborzão* turn into a *tambor*?<sup>26</sup> Gilbert Simondon explains in *Du mode d'existence des objets techniques*:

Instead of starting from the individuality of the technical object or even from its specificity, which is rather unstable, so as to try to define the laws of its genesis within the framework of that individuality and that specificity, we would do better to reverse

the problem. It is starting from the criteria of its genesis that we may define the individuality and specificity of the technical object. The individual technical object is not such and such a thing, something given *hic et nunc*, but something that has a genesis. The unity of the technical object, its individuality and specificity are the characters of consistency and convergence of its genesis. The genesis of the technical object is part of its being. The technical object is that which is not anterior to its becoming but which is present at each stage of this becoming; the technical object is a unit of becoming. The petrol engine is not this or that engine given in time and space, but rather the fact that there is a sequence, a continuity that extends from the first engines to those we know, which are still in evolution. On this account, just as in the case of phylogenetic sequences, any particular stage of evolution contains within itself structures and dynamic systems that are at the basis of any evolution of forms. The technical being evolves by convergence and by adaptation to itself; it is unified from within according to a principle of internal resonance. The automobile engine of the present day is not a descendant of the 1910 engine simply because the 1910 engine was the one which our ancestors built. Nor is it a descendent of the latter because of greater improvement in relation to use. Indeed, for certain uses a 1910 engine is superior to a 1956 engine. For example, it can withstand a high degree of heating without seizing or leaking, because it is constructed with a considerably greater degree of looseness and without fragile alloys such as white metal; it is also more autonomous, because of its magneto ignition. Old engines still function on fishing boats without breaking down after being taken over from worn-out cars. It is through an internal examination of the regimes of causality, and of forms in as much as such forms are adapted to those regimes of causality that the present-day car-engine is defined as posterior to the 1910 engine. In a modern engine, each critical piece is so connected with the rest by reciprocal exchanges of energy that it cannot be other than it is. The shape of cylinder, the shape and size of the valves and the shape of the piston are all part of a same system in which a multitude of reciprocal causalities exist. . . . It could be said that the modern engine is a concrete one whereas the old engine was abstract. In the old engine each element comes into play at a certain moment in the cycle and then it is supposed to have no effect on the other elements; the different parts of the engine are like individuals who would work each in his turn without ever knowing one another (Simondon 1958: 19–21).

Simondon designates this process with the term *concrétude*, translatable as *concretization* or *concrecence*. We only need to replace the words “piece” and “element” with “line” to understand concretization at work in the beat. The line of tom-toms, the simplest one, takes on a triple function: to keep up the pulse, as the hi-hat does in the volt-mix; to amalgamate external lines, as voltage oscillation does in the volt-mix; to provide the beat with a dynamic profile, which the volt-mix lacks. The line of congas takes up the anacrusic function and the signature function of voltage oscillation.

## GEOPOLITICS AND HUMAN GEOGRAPHY

The history of *funk carioca*, however young, is rife with myths. Has it actually consisted in one exodus after the other? Doubtless, there were funk dances in the favelas during the 1990s; there were funk dances in suburban and peripheral clubs in the following decade; and there have been funk dances in favelas and in suburban and peripheral clubs in the 2010s. Still, between the second half of the 1990s and the earlier half of the subsequent decade the epicentre of funk dances moves away from clubs in the *asfalto* and from samba school headquarters in favelas towards sports facilities, football pitches, streets and open spaces in favelas. The following quotation from DJ Byano, who led one of the main favela dances, Baile da Chatuba, in its heyday, between 2005 and 2010, shows the effects of public security policies on the dances in the 2010s:

All of a sudden I start to miss the days when you had a whole menu of community dances to enjoy on weekends. I was happy and I didn't know it. I've played in over thirty favelas and hills of Rio de Janeiro. I miss it. There were more hits, more MCs. Where are they? What's happened? Apart from those in Chatuba, where I live, my favourite dances were Mangueira, Jacaré, Caratê and 15th Street in Cidade de Deus, Mangueirinha, Corte 8, Dick and Furk Mendes. These were the favelas where I loved to work. You could choose: 'I'm going to Nova Holanda today: Shall I go to Mangueira or to Jacaré tomorrow? Shall I ring my bro in Rocinha to go to São Carlos? Or shall I lead my train to Chatuba or Vidigal? Or should I ring up that babe who lives in Grota to enjoy their Saturday dance before I go to Fazendinha or Arará on Sunday? Is the Chapadão dance taking off?' Time passes, things change. The majority of these people are now married. They have their kids and family. Others have travelled and no longer live in Rio. The government has face-lifted some communities and has oppressed culture in the favelas of Rio by requiring so many documents that a lot of people do not even know from where to start. In reality what keeps funk going now are *chopadas* and miserable *pago-funks* where playboys become DJs and the cultureless play at 140 BPM for little parties in favela outskirts. That auntie who used to sell drinks in a tent has sold her trailer. The small bar has closed down. That grandpa who used to rent his *laje* as a *camarote* has sold his home. That auntie's hairdresser shop that used to be crowded from Friday to Sunday no longer exists. The community earns no extra money. That uncle who would arrive from work and set up his bar for the weekend dance... But where is it? Though luck: ten years ago you were happy without even knowing it. I've lived all that, I've enjoyed it and I've spread happiness. I would go by *kombi* or by bus, and happy I was! If one day my kids ask me what the best job in my life was I shall reply: to have done the best dance of the Rio de Janeiro state, and to have brought happiness to the best favelas of Rio. Today? I don't know. I only hear gunshots (Fagundes 2016).<sup>27</sup>

In a 2011 video-interview DJ Grandmaster Raphael contrasts the mores of 1990s dances with those of the decade that Byano so misses:

In those days (viz. the 1990s) there was a somewhat more conscious talk: writing lyrics such as ‘do not fight in the dances’, ‘say no to violence’, all that. MCs used to sing these lyrics. By contrast, fights erupted all the time in the dances. Unfortunately, today you have this *putaria* thing in most of the dances. Some DJs even find it dandy: ‘I am The King of Putaria.’ The discourse isn’t right; the text is no good. By contrast, the dances are completely peaceful. You can see that the girls just want to swing their hips, people just want to make eyes at each other, to enjoy the party, to dance to the music, to drink, to have fun. What now? (Grandmaster Raphael 2011).<sup>28</sup>

The balance of the volt-mix participated in ritualized fights and in tributes to peace. The propulsive impetus of the *tamborzão* participated in mating rituals and in chants of war. In a 2006 encounter with DJ Luciano, Cabide describes how the new beat was initially received:

You did that vignette, ‘Novos ritmos, novas galeras’. Indeed, you did that *tamborzão*. The boss heard it and said: ‘this drum... this is the real funk drum. Let’s change funk!’ . . . The MCs themselves went: ‘Put that *tamborzão*, put that neurotic *tamborzão*, put the *tamborzão*!’—which we actually called *batuque*. It was the *batuque*, not the *tamborzão*. The MCs went on: ‘Put that neurotic *tamborzão*!’ (Ivanovici 2006).<sup>29</sup>

In her 2006 dissertation Carla Mattos studied *the neurotic* and *neurosis* as native categories amongst 1990s funksters who participated in *fight dances*.<sup>30</sup> She explains:

Conflict and ‘violence’ had integrative power in the cohabitation of rival crews, but this manner of experiencing rivalry is modified in the context of factions, as observed in two situations. In the first one, we note that, in the ‘corridors’, some young men—the ‘neurotic’ ones—start to distinguish themselves in connection with cultural references from the faction, which idealized armed ‘war’ against the enemy, or *alemão*, imposing a new moral of the ‘manly subject’, no longer valued for his physical power and disposition to fight. The second occurs in the context of ‘war’ between factions in the favelas, a context called ‘neurotic rhythm’ (Mattos 2006), when a new ideal of ‘peaceful’ and ‘leisurely’ social cohabitation in the community and in the dances comes to bear differently on perceptions of risk/danger, on circulation strategies and on practices of identification and (self-)regulation of conducts vis-à-vis local violent criminality (Mattos 2012: 655).

The *pede a paz* of the *asfalto* dances is re-signified in this context. In the favela, ‘peace’ becomes synonymous with ‘leisure’, and funk dances become the counter-neurotic time-space in which everybody may coexist in ‘tranquillity’. The category ‘without neurosis’ expresses the idealization of a non-conflicting social space where it is necessary to adopt a peaceful conduct called *blindão* (blindage). The construction of this environment ‘without neurosis’ requires: (a) regulation of the conducts of the *valente* (brave); (b) elimination of the *alemão* (enemy) from social coexistence; (c) the difficult negotiation of the *arrego*, that is, the payment of bribes to police officers, in this case, to guarantee the realization of the illegal dances (Mattos 2012: 659).<sup>31</sup>

One of Mattos's interviewees was Charles. If his memory served him well, the creation of *tamborzão* coincided with a mythical episode in the history of the crews.

A-Side and B-Side practically didn't exist any longer, because Lucas was A-Side and Cidade Alta was A-Side, but Cidade Alta was Comando Vermelho (Red Command) and Lucas was Terceiro Comando (Third Command), a rival faction. Then the neuroses of Cidade Alta were already starting: not to fight against Lucas, but against us from Nova Holanda. This happened all the time in the dances. And we kept fighting. In fact, we didn't understand anything: I would be beaten by the kids from Lucas and people from Cidade Alta would see us being beaten and they would do nothing about it. They would come to the Nova Holanda dances and I would go to the Cidade Alta dances. And they would shake hands with me. I didn't understand anything: 'Fuck, these kids are pure *alemão*, they're A-Side, they beat us and then they come up to shake hands!' That's when the traffic started to intervene in the fight dances. This influence dates from 1998 onwards. We no longer had the liberty to declare what we wanted to be. It had to be their choice, without freedom. And that's how it went until the end of corridor dances.

I remember that the guys from Nova Holanda went to Cidade Alta with people from Kelson, which was Comando Vermelho and also B-Side and used to fight together with Nova Holanda and Parque União. This crew went to Cidade Alta with a representative of the dances who actually represented Comando Vermelho. He said that if people from Cidade Alta ever fought against people from Nova Holanda again they would take bullets. The guys would send bullets on them as soon as they left the dance. That's when the separation happened, when the dances began to die because bonds of friendship started to be severed, and this begun to bear on a lot of things. The neurosis started: 'if I go there, shall I be picked up by the guys?' That was the beginning of neurosis: we could no longer frequent each other's areas and so our trajectory ended. I remember that at the time of the *arrastão* it was A-Side and B-Side together, all the guys, everybody invading the beach. After that some beaches became more restricted, even more so than they already were. For instance, Arpoador, in Posto 8, became something mad due to these fights between factions in the dances, because when A-Side and B-Side didn't represent factions, but crews, everybody could frequent Posto 8. Vila do Pinheiro frequented Posto 8. Ever since Comando Vermelho took charge of the dances, we started to evict people from Pinheiro, people from Lucas, and Posto 8 became Comando Vermelho only (Mattos 2012: 669–70).<sup>32</sup>

In an unpublished manuscript, Marcelo Gularte presents another version of this story, one that, essentially, confirms it:

— A geezer from the Lowland told me that the corridor started to take shape in 1992 in the Grêmio de Raiz da Serra, since not many people used to go there yet. That was with the Super Tropicália sound system. The dances were divided into crews of

group A and crews of group B. Zezinho created this thing and he put security staff to intervene in the fights—Milico said.

— That may be true, but this division also existed in 1992 in the Furacão dances, apart from the fact that it was not called A-Side and B-side, but *amigo* (friend) and *alemão*. I've participated in the beginning of the corridor in the Império. Before that, there were the crowds. The guys would come in huge crowds, meet face to face and put up a fight—I said (Gularte 2014: 778).<sup>33</sup>

— Naldinho said to us that he's been told about a meeting on that faction thing. The deal was between the leaders of the Nova Holanda, Parque União, Kelson and Cidade Alta crews with a 'representative' of Comando Vermelho. It was a meeting to sort out the 'Cidade Alta neurosis'. B-Side will become Comando Vermelho now and A-Side will become Terceiro Comando. Sides will change. It will be damn confusion. This won't even exist anymore because of faction (Gularte 2014: 1039–40).

For the sake of precision, Gularte has contested Charles's narrative in a comment to a Facebook post: "Parada de Lucas never was A-Side but always B-Side". He explains:

Cidade Alta was A-side; Parada de Lucas was B-Side. These favelas are quite close to each other, separated by Avenida Brasil. Nova Holanda also was B-Side and very imposing in the Chaparral, in Bonsucesso, because they used to walk to the dances in huge crowds. Chaparral is a dance that started in 1995 or 1996 and finished in 1999, when the dances were interdicted (Palombini 2015).<sup>34</sup>

From 2000 to 2010 approximately, the *tamborzão* brings neutralized neurosis into play at favela dances, whose time it regulates with the help of bullets, whether sampled, as in MC Sabrina's recording of "Diretoria", by MC Primo, produced by DJ Junior da Provi (2005), or real, as in MC Gil do Andaraí's recording of "Ao vivo na Nova Holanda" (2005). As for the following decade, Grandmaster Raphael observes:

I see beatbox and *tamborzão* as one and the same. It's a mixture because no one can define the *tamborzão*. It's a mixture of everything: it's got samba with *candomblé* with... It's a fairly complicated thing. And beatbox is the same (Raphael and Palombini 2014).

The becoming *tamborzão* pursues its course in the becoming beatbox, even if, for the favelas, only gunshots have remained.

## SIGNIFICATION OF BEAT MORPHING

To grasp the meaning of the intriguing fact that, for three decades, losses of frequency bands of paradigmatic *funk carioca* beats have coincided with losses of *baile* territories we need to take manifold factors into account. The beat is but one element of musical production and, as DJs perfect their techniques, so increases their ability not only to manipulate ready-made beats but also to add new elements to them such as *viradas* (drum fills) and *pontos* (riffs). We have seen the role this instrumental apprenticeship has played in the emergence of a

characteristically Afro-Brazilian beat. Effectively, those losses afford room for manoeuvre in the lower and higher regions, a capability that will be crucial in the 2010s, when the dances come under attack at the epicentre of musical creativity—the favela. *Funk carioca* then opens itself to hybridizations with other genres thus conquering new audiences and spaces. Beat morphing is therefore a sonic manifestation of the survival nature of *funk carioca* culture (Moraes et al. 2019). *Tamborzão* marks the rise not only of an ensemble of personality traits, but also of a fiercely provocative attitude vis-à-vis the asphalt. That which we have termed concretion, an inherent characteristic of the mode of being of the beat as a technical object, manifests cohesion not exclusively as a morphological trait, but also as a yearned-for social feature and an antidote to chaos (Novaes and Palombini 2019).

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#### NOTES

- 1 A *base* (beat) is the local version of the *beat* or *break beat* of African-American hip-hop; on hip-hop beats and break beats see Rose (1994: 73–4) and Katz (2012: 14).
- 2 Excerpts from *Traité des objets musicaux* are given in the author's translation. For an English translation of the book, see Schaeffer (2017). Except for the Gilbert Simondon quote, which draws on Melamphy's version to a large extent, all foreign language citations are given in the author's translations, with original italics.
- 3 "Although Schaeffer's efforts resulted in a great many words, some music and lingering epigones, the only people who, I think, have come close to practicing what he was getting at are today's DJs. The reason is that they are the only *musicians* exposed to the intense process of mixing and considering sound on a routine and often context critical level" (Riddell 1996).
- 4 *Bailes* (dances) are events in which *funk carioca* is played, sung and danced by DJs, MCs and *funkeiros* (henceforth funksters).
- 5 Even if it is highly unlikely that either the volt-mix or the *tamborzão* has been conceived in 2/2 time, we have used this measure signature throughout as a common denominator between the volt-mix 4/4 and the 2/4 in which Brazilian popular music has traditionally been written.
- 6 This trigger output allowed the TR-808 to control other devices before the MIDI era.
- 7 On the aesthetics of TR-808 presets, see the anecdote concerning the cymbal sound in Wolbe (2013).
- 8 "The degree of originality is, in general terms, that which surprises prevision" (Schaeffer 1966: 436).

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- 9 *Mass* is a “criterion of [sonic] matter that . . . corresponds to the *occupation of the field of pitches by the sound*” (Schaeffer 1966: 401). On the notion of perceptual field, see below.
- 10 The criterion of *facture* refers to “the manner in which energy is imparted [to the sounding object] and manifests itself in the duration [of the sonic object], in close relation with the maintenance” (Schaeffer 1966: 432).
- 11 *Complex* masses are those of sounds without definite pitch.
- 12 Differently from *complex* masses, *tonic* masses present definite pitches, which can be precisely sited without reference to other sounds; for this reason, their scaling is termed *cardinal*.
- 13 Spirito Santo, personal communication with the author (on Facebook messenger), 28 June 2016.
- 14 *Melôs* tend to be satyric in mood and should not be confused with the romantic subgenre of *funk carioca* that Brazilians call *funk melody* or simply *melody*.
- 15 When applied to *funk carioca*, the word *rap* may have historical connotations, so as to distinguish the age of *melôs* from the age of raps, but it can also serve as a short for *rap consciente* (conscious rap) or refer to relatively elaborate authorial narratives. The term *rappier* is reserved for practitioners of the musical genre we call, by synecdoche (*totum pro parte*), *Brazilian rap* or *Brazilian hip-hop*. *Funk carioca* artists are never called rappers but always MCs.
- 16 On *samba-enredo*, see Araújo (2014: 744–6).
- 17 As applied to Funk’n Lata, the term *funk* refers to the Brazilian appropriation of the African-American genre of the 1970s rather than to *funk carioca*.
- 18 “A homogeneous sound may comprise a microstructure, generally due to the maintenance of a bow, of a reed or even to the roll of drumsticks. This property of the *sonic matter* evokes the *grain* of a fabric or mineral” (Schaeffer 1966: 548).
- 19 “*Values* are the *distinctive features*, which emerge between several sound objects put into structure and form the elements of the *abstract* musical discourse itself; the other aspects of the object that are not relevant in the musical structure but constitute its concrete substance, its matter, are gathered under the name of *character*” (Chion 1983: 70).
- 20 *Harmonic timbre* is a remainder, that which we may say about sonic matter after exhausting its description in terms of *mass*, *melodic profile*, *mass profile*, *grain* and *allure*.
- 21 A *pedal* is a “type of artificial eccentric sound created by mechanical repetition in loop of a cell (hence, of a relatively complicated micro-object). The pedal is therefore a kind of prolonged and cyclic iterative sound” (Chion 1983: 136).
- 22 A *cell* is “an artificial object for which nature has not prepared us well, although electroacoustic equipment showers us with them: that object which is arbitrarily determined by locking a groove onto itself or by random cutting of a piece of magnetic tape” (Schaeffer 1966: 454).
- 23 *Harmonic masses* are those of sounds with definite pitch.
- 24 In this paragraph, I use the word “beat” in the *Oxford English Dictionary* sense: “a stroke upon a drum, the striking of a drum with the sound produced”.
- 25 Cabide uses the term *tambor* (drum) as a designation for the *tambozão* before it was named as such.

- 26 I use the term *tambor* for an undefined group of *tamborzão*-derived beats that emerged from around 2007 onwards, out of which beatboxes developed.
- 27 The terms *favela* and *community* denote essentially the same, with complex sets of different connotations. *Chopadas* are draught-beer parties. *Pago-funks* are dances in which a combination of romantic *pagode* and *funk carioca* is played (see Lima 2014). *Lajes* are rooftops of favela houses as places for entertainment and socialization. The word *camarote* (usually, a seated compartment in a theatre) designates here approximately semicircular structures above the ground floor that surround the internal walls of spaces where *funk carioca* dances take place. A *kombi* is a Volkswagen minibus used as a means of informal collective transportation.
- 28 *Putaria* (literally whoredom) is a subgenre that tackles the sexual prowesses of men and women (see Moreira 2014).
- 29 With “*Novos ritmos, novas galeras*” Cabide refers to the vignette “O rumo do funk” (the direction of funk) by its lyrics: *novas galeras, novos ritmos* (new crews, new rhythms). The term “crews” translates *galeras*: regroupments of *bondes* (trains), that is, of groups of people from specific communities or favelas, when they associate with other suchlike groups in the dances. Crews were divided into *Lado A* (A-side) and *Lado B* (B-side), each individual on either side being designated as *amigo* (friend), if they belonged to one’s side, or *alemão* (enemy), if they belonged to the opposite side. The use of the term *alemão* (literally German) for *enemy* originates from Second World War movies as seen on television. Cabide’s boss was Kokota, owner of the Gota sound system.
- 30 Rival crews engaged in recreational fights in *bailes de corredor* (corridor dances), or *bailes de briga* (fight dances). In these events, the space was divided in two sides (A-side and B-side), which would come face to face along two opposing lines of men separated by a fight zone, or corridor, in the middle.
- 31 *Pede a paz* (asks for peace), that is, *the favela asks for peace*, was an almost mandatory phrase in conscious raps of the 1990s.
- 32 “Lucas” stands for Parada de Lucas, a North Rio borough and favela. Nova Holanda is a North Rio favela, controlled by Comando Vermelho, in the Maré complex of favelas. Next to it, to the North, is Parque União, another Maré favela, also controlled by Comando Vermelho. The *arrastão* was an episode widely exploited for political purposes in which crews of funksters invaded the Arpoador beach to fight between themselves; see Yúdice (1994). Outside the Guanabara Bay, in South Rio, the open sea beaches of Copacabana, Ipanema and Leblon are divided into lifeguard areas, or *postos*, numbered from one to six, in Copacabana, and from seven to twelve, in Ipanema and Leblon. The Arpoador rock separates the beaches of Copacabana and Ipanema.
- 33 “Lowland” (*baixada*) stands for Baixada Fluminense, the lowland of the Rio de Janeiro state. Zezinho was the owner of the ZZ sound system. Furação 2000 is one of the main sound systems. Império refers to Império Serrano, a traditional samba school in the North Rio borough of Madureira.
- 34 Chaparral, within walking distance from Nova Holanda, was one of the last clubs to host corridor dances.

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