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Transformative influence of Afro-Brazilian syncopation on
European compound melodies in Brazilian Choro music

Melorhythmical re-organization of interleaved melodic structures in progressive
Afro-Brazilian music from the late-19th century

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Abstract

During the second half of the 19th century, Rio de Janeiro's public life became the setting for spontaneous gatherings by a varied assortment of amateur musicians. After attracting professional musicians from Rio's popular entertainment circuit, these meetings evolved into creative musical hubs during which songs of the day were instrumentally re-styled. Commonly known as 'Choro' or 'Chorinho' (Port. 'cry'), these music practices were infused with melodic elements from classical chamber music as well as stylistic influence from popular dance music. One significant development was the introduction of compound melodies, single-note structures that elicit the impression of being multi-melodic. Influenced by Afro-Brazilian accompanists, compound melodies became infused with syncopated phrasing elements and evolved into one of Choro's most emblematic traits. This thesis focuses on factors and processes that created Choro's syncopated compound melodies, identifying and explaining their organizational transformation during Choro's stylistic hybridization processes.

I declare that the research presented here is my own original work and has not been submitted to any other institution for the award of a degree.

Signed:

A handwritten signature in black ink, appearing to be 'Edwin Schots', written in a cursive style.

Edwin Schots

Date: 3 February, 2014

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Ed Schots, Sydney 2014

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1 Introduction

1.1 Statement of purpose

In recent years of jazz music study at Sydney Conservatorium, my interest in performing and listening to Latin-American music led me to a late-19th century instrumental Brazilian genre, named *Choro* or *Chorinho*. While investigating links to Brazil's progressive music history, the genre's name kept cropping up with compelling consistency in reference to innovating activities in the second half of the 19th century. My interest in the matter deepened after learning that these developments had a strong improvisational aspect, involving African popular styles European chamber music.

From a musicological perspective, there is precious little information on Choro's inceptive development as no scholarly relevant sources were ever created during its time. Fortunately, Choro's developmental connectedness with its surrounding social framework substantially aided renewed research from the 1960s onward, undertaken by leading researchers like Gerard Béhague¹.

Currently, a narrow but solid platform of source information supports the existing scholarly knowledge on Choro, supplemented by archival material such as early recordings, sheet music and illustrated chronicles.

Most prominent in Choro's stylistic profile is its melodic component, containing highly virtuoso passages that exhibit certain functional peculiarities. Particular patterns within Choro's compositions, so-called compound melodic lines, curiously project more than one melody line at a time². In European art music, this concept had already been extensively explored and applied since baroque times, although its psycho-acoustic propensities for generating these musical 'Gestalts' has only started to attract theorizing interest in recent decades³.

Similarly complex tonal structures, dubbed 'melorhythms'⁴, are produced by syncopated percussion and vocal music from the sub-Saharan West-coast of Africa, the cultural cradle of Brazil's African contingents⁵. Not audibly affected by time and distance, the ancestral principles of melorhythm persist within numerous contemporary accompaniment styles such as the Brazilian *samba* and *bossa nova*.

Melorhythms and compound melodies share similarities in acoustic appearance, both containing multi-melodic aspects, although either's perceptual processes are based on unrelated principles. Whereas single compound melodies fission into multi-melodic streams, multi-instrumental melorhythms consist of tonal complements that fuse into single polyphonic soundscapes with melodic

¹ See: (Béhague 1966, 1968)

² Although notated as single-voice melody, particular pitch and rhythm structuring projects two or more separate melodic streams.

³ See: (Dowling 1973)

⁴ See: (Nzewi 1974)

⁵ Melorhythms are tonal projections produced by ensemble performance of complementary rhythm cycles, a generative principle common to traditional music from the region..

qualities. Apparently emerging from unrelated musical processes, these two concepts nevertheless show compelling similarities inasmuch as that either's melodic qualities are a perceptual phenomenon. Regardless, the evident outcome was one of the most successful and viable melodic hybrids in musical history, pairing virtuoso melodic sophistication with a high amount of syncopated vigour.

The main purpose of this thesis is to identify and describe the occurrence of quantifiable processes and outcomes inherent to Choro's stylistic hybridization processes. Aided by my experience as part-time pianist and several decades of active listening experience, I also intend to demonstrate that these processes were aurally and instrumentally conducted rather than theoretically conceived.

1.2 Theoretical framework

This thesis links Choro's stylistic development with parallel social, historical and musicological developments that contributed to this genre's emergence in the late 19th century, a correlation long confirmed by leading researchers⁶.

Until social changes during mid-19th century, European and African sectors resided on opposite poles of Brazil's colonial class structure with ruling elites dictating terms of engagement between social classes. This *status quo* only rarely engendered interactions based on social equivalence between European and African sectors and was in most cases defined by the dominant sector's unilateral need or want⁷.

Directly related to the level of segregation between European and African sectors, both sectors' cultural content was subject to conservatism, albeit for decidedly different reasons. Whereas the cultural agenda of the ruling colonial elite was dictated by Imperial expansionism, ongoing customary practices within African slave communities were primarily aimed at group survival in the face of colonial oppression⁸.

Contrasting with the European custom of using literacy as archival medium, sub-Saharan society retained its cultural substance within its human practitioner-custodians in formats such as vocal lore, communal dance routines and music skills. Although heavily dependent on ongoing practice, this form of information retention strongly embedded relevant cultural content within its practitioners, in contrast to descriptions of cultural content within decentralized literature. Re-constituted sub-Saharan

⁶ See: (Béhague 1966)

⁷ Initially, colonial life was heavily male-dominated due to the rigors and privations associated with trans-Atlantic travel, infrastructure establishment and exploration efforts. From the earliest years onward, Brazil contained a mixed-race contingent, exclusively Euro-Amerindian before increased African slave importation during the 18th century added a new racial component to the mix.

⁸ In enslaved African communities, retention of language and cultural customs helped to preserve individual health and wellbeing besides maintaining a sense of collective identity and belonging among its practitioners. As slave owners were well aware of the correlation between health and labour productivity, African customary practices were tacitly allowed to take place after working hours, a recurring notion in colonial slavery (Sublette 2004, pg. 221).

culture in Brazil therefore can be regarded as a reliable emulation of the original model, even periodically enriched by infusions from newly arrived slave populations⁹.

In colonial Brazil, ruling European conservatism was expressed as imperialist cultural landscaping, driven by directives such as imposing ‘superior’ European visions and customs on usurped ‘inferior’ societies. In the spirit of the overarching imperial charter, cultural values and attitudes of Brazil’s colonial elite were studiously kept in line with those of ruling echelons in Europe¹⁰.

Among Brazil’s European and African population, musical performances traditionally had prominent functions in daily life, ranging from casual entertainment to ceremonial festivities¹¹. These circumstantial similarities, however, only in more recent times expanded into common grounds for cultural negotiations and interactions¹². As such, class segregation had a stronger preserving effect on music principles and practices within African communities compared to ruling classes’ continuous adjustment to European musical fashions. In terms of stylistic integrity, the persistence of recognizable sub-Saharan aspects in Brazilian music therefore provides a reliable touchstone for deducing stylistic developments in pre-recording decades.

Although sparse, there were selective cultural conduits between segregated sectors that most commonly were traversed by members of upper-class mixed-race contingent. *Mestiços* and *mulattos* were in some cases recognized by their European fathers who, if these had high social status, would bestow them with the same privileges and entitlements¹³. Occasionally, these upper-class *mulattoes* would retain contact with maternal common-classes, becoming dually acculturated with African as well as European customs. Often being gifted and well-educated musicians, the cultural profile of their musical output generally was aligned with European standards, influenced by formal educative methodology. More progressively-minded high-society Creoles developed a rich palette of cultural influences that occasionally expressed itself in innovative salon music, covertly introducing Afro-Brazilian musical aspects into Brazil’s conservative upper-classes.

The theoretical model that emerges is that of a society with two distinct but hierarchically segregated social strata that were connected by highly selective and incidental cultural conduits. Due to ruling classes’ dictatorial oppression, combined with their ingrained antagonism towards Afro-Brazilian culture, this class divide enduringly persisted during the colonial era. Whereas very little popular culture found its way into upper-class echelons during this time, common-class street music culture boasted a sizable bundle of commonly known popular songs, occasionally enriched with adapted versions of upper-class theatre or chamber music.

⁹ See: (Irobi 2007, p 912)

¹⁰ See: (Livingston-Isenhour & Garcia 2005, p 179)

¹¹ See: (Béhague 1966, pp 5-18)

¹² The cultural divide was maintained by persisting discrepancies between respective music philosophies, acculturated aesthetics and notions of morality. This gulf between respective core edifices of musical culture remained in place until well into the second half of the 19th century.

¹³ See: (Livingston-Isenhour & Garcia 2005, p 73)

With regard to music practices, developmentally limiting factors to lower-class musicians were a lack of access to formal education, relatively low quality instruments and no access to musical archives due to general illiteracy. The most popular instrument was the guitar (Port. *violão*), used to accompany lyrical songs and suitable to the itinerant lifestyle common to lower-class sectors. Simple flutes were commonly used, albeit predominantly for performance of relatively uncomplicated popular songs. Aurally trained, the musicianship of common-class musicians was limited to remain at the level of repertoire they assimilated. Upper class musicians were often formally trained in classical chamber music performance, permitting them ample access to highly sophisticated musical concepts. Although relatively well-skilled, their dependence on music notation nevertheless can be seen as a retardant for progressive musical creativity. Popular music genres generally were considered as vulgar and disreputable, a notion that also extended to instruments used for their performance, such as the guitar and *cavaquinho*.

Segregated by mutual restrictions on instrumentation and repertoire, classical and popular Brazilian music circles nevertheless required only one single-strand cultural conduit to bridge the stylistic divide. One unusually progressive and capable musician, Joaquim Callado, can be credited with the creation of a revolutionarily pathway for far-reaching changes within Brazil's musical landscape¹⁴.

Conclusively, in a broad sense this thesis' contextual framework parallels social developments in Brazil, taking into account that Choro's antecedents originated in disparate cultural strata. The metropolitan culmination of Choro is supported by discretely traceable influences, significantly confined to Rio de Janeiro's middle-class public life. Further narrowing down of the trail leads to an interactive strand between private music parlours and public dance halls, essentially places of compositional research and musical application. From here, relevant research trail diverge into a veritable flood of trend emulations beyond the scope of this thesis.

1.3 Methodology

In this thesis, Joaquim Callado's¹⁵ compositions are analysed to demonstrate that phrase syncopation of metrical compound melodic structures transforms their organizational functionality. Also, graphic comparison with the diagrammatic representation of accompaniments' soundscape intends to demonstrate that melorhythmic soundscapes formed the source reference for these transformations during real-time performance. By analysing Choro's flute melodies it can be deduced that syncopated compound melodies originated as pianistic figures before being introduced as Choro flute melodies.

¹⁴ See: (Diniz 2008)

¹⁵ See: (Diniz 2008)

Taken into consideration that virtually no pianos were available in the common-class establishments that hosted Choro meetings, it can be safely assumed that Callado explored compound melodic concepts in his private parlour, with or without assistance of invited Choro accompanists. And although ultimately being archived as sheet music compositions, it can be asserted that syncopated compound melodies were not created by conventional composition techniques as their musical conception took place in strictly aural environments.

Furthermore, compositional analysis of this melodic concept forms a methodical premise from which certain developmental processes can be reversely modelled. This examination intends to yield a working formula for further compositional and improvisational explorations.

1.4 Literature review

Scholarly resources that examine and detail aspects of Choro music have been, until recently, rather thin on the ground. The reason is a lack of sufficiently exhaustive sources that document Choro's active history, which makes for a rather narrow support base for direct research with musicological scope. Concert reviews, chronicles and biographies such as *Joaquim Callado: O Pai do Choro*¹⁶ allowed recent researchers to significantly expand perspectives on Choro's socio-historic context, which created new angles of attack on research topics related to the genre.

During my quest for resources I examined selected dissertations, articles and books, never translated out of its native Portuguese language, which turned out to be highly informative and added significantly to my understanding of the subject matter.

One significant work, written at the end of Choro's greatest popularity is *O Choro: reminiscencias dos chorões antigos*¹⁷ which, although by no means being of scholarly standard, is the only existing primary resource that offers first-hand accounts of Choro practice from before 1930. The author has included little musicological information but the work contains extensive descriptions of Choro performances and personal profiles of practitioners. This makes this work a useful source for outlining Choro's frame of social and historical reference during the period of its greatest popularity.

Another early researcher, Mariza Lira, is considered to be the first native 'folklorist' who researched early Choro practice. Her first article on Choro practice, *As características brasileiras nas interpretações de Callado*¹⁸ refers to a musical duel between one of Choro's significant founding flutists, the late 19th century *cariocan*¹⁹ virtuoso Joaquim Callado²⁰, and visiting Belgian flutist

¹⁶ See: (Diniz 2005)

¹⁷ See: (*The Choro: Reminiscences of Past Choro Musicians*, Pinto, Alexandre Gonçalves, first edition 1936, republished facsimile 1978)

¹⁸ See: (Lira 1942)

¹⁹ (Port., native to Rio)

²⁰ (1848-1880)

Mathieu-André Reichert²¹. A later investigation proved that, due to a chronological discrepancy, this legendary duel never could have taken place²² and attribute Lira's conjecture to a 'fertile imagination'²³. In spite of eroding the article's verity, reference to the interaction between two of Choro's seminal personalities created a significant footnote for further scholarly examination. Point in case being the publication *Mathieu André Reichert: Um Flautista Belga na Corte do Rio de Janeiro*²⁴, itself referential to the following resource.

A book that gets frequent mention in reference lists of recent research on Choro is the publication *Choro: A Social History of a Brazilian Popular Music*²⁵. As this book is supported by a wide range of preceding research, its frequency as quoted source is relatively high in this thesis. This is a comprehensive and compact source of information that offers, besides an accessible summation of Choro's facts and identities, a solid socio-historical frame of reference for musicological factors, crucial influences and cultural processes leading up to Choro's development and practice. This work substantially helped me to appreciate the existing research conducted on Choro as well as in defining my trajectory in examining the topical subject of this thesis. Also contained is an abundance of relevant information and references to Brazilian's musical history research which offered me a wide range of additional footnotes for future research topics relating to Choro practice.

The publication *Joaquim Callado: O Pai Do Choro*²⁶ assumes critical angles in examining the title figure's crucial role in the establishment of Choro's performance practices, organizational functionality and musical standards. This work, at present only available in Portuguese, contextualizes Callado's agency of musical change in conjunction with his middle-class status as a member of a society on the brink of a tumultuous transition. Given that he was involved in Choro's development for a solid decade leading up to his death, *O Pai* infers that Callado's influence on Choro was arguably much more substantial than Reichert's. This assertion is backed up to an extent by Callado's compositions, with tunes such as *A Dengosa* and *Florinda* testimonial to the genius behind these novel melodic structures. To the author's credit, notable consideration is given to Reichert having contributed crucial factors to Brazil's ample musical table, notably a new height in technical proficiency that was made possible by Boehm's improvements to the flute. Overall juxtaposition of comparative aspects subtly biases *O Pai*'s argumentative tone towards elevating its own side of the case, which at times finds expression as a decided lean towards the nationalistic – without eroding any of its scholarly solidity or literary candour.

Specific instrumental research focused on Choro flute, its most prominent instrumental representative, is relatively rare. Literally, only a handful of relevant works, such as the thesis *Popular*

²¹ (1830-1880)

²² (review: Baptista Siqueira ca.1965)

²³ ('*imaginação da mente fértil*')

²⁴ See: (Ernest Dias 1990)

²⁵ See: (Livingston-Isenhour & Garcia 2005)

²⁶ See: (Diniz 2005)

*Virtuosity: The Role of Flute Players In Choro*²⁷ contains analytical examinations of Choro's flute melodies but these, apart from elaborating on the historical context of Choro, predominantly focus on relation with harmonic context, application of ornamentation and supplementary techniques for instrumental performance.

The 1999 publication *Exercises for Choro Improvisation* by composer and performer Mário Sève is a style-specific training resource for those interested in melodic improvisation and as such deserves a respectable mention within the field of Choro research. Register range of notation in treble clef is suitable for most wind instruments, guitar and piano. These resources are intended for orientation on idiomatically relevant melody patterns for the aspiring Choro soloist, transposed in all keys. Besides requiring good reading skills and instrumental control, understanding of chord functions and structures are needed for extending these exercises to real-time performance application. For those skilled in contemporary jazz performance and improvisation this method might appear a bit dull due to lack of harmonic adventure, although enlightening as regards Choro's melodic idiom. Classical instrumentalists will encounter familiar scale and arpeggio patterns, albeit in syncopated phrasings rarely encountered in classical method. For both categories of players, challenge is to find an environment for applying the fruits of their labour.

In this respect, the play-along book and CD series *Classics of the Brazilian Choro* presents a highly recommended alternative for live performance practices. The series comprises a dozen volumes, dedicated to Choro composers and / or performers that were influential on the genre's development. Each book contains an introductory section elaborating on Choro's history, development, key figures and certain stylistic considerations such as form, articulation and phrasing. Compositions by Joaquim Callado, Chiquinha Gonzaga, Ernesto Nazareth, Zequinha de Abreu, Jacob do Bandolim are notated in lead sheet format, melody with chord changes for Concert, B flat, E flat and Bass clef instruments. Each of the ten or eleven songs in each volume matches a pair tracks on included CD, one accompaniment track with sample melody and one track with accompaniment only. The musicians use authentic instruments on these play-along CDs and are all renowned contemporary Choro performers. Their stylistically true rendering of songs provides a comprehensively workable environment for those interested in adjusting to the general peculiarities of this genre. Significant downside is the shortness of accompaniment tracks, only fitting the format of melodic notation without provision for extended improvisations. Passages from selected tunes are included in this thesis as primary data for parameter examination and documentation.

²⁷ See: (Witmer, 2009)

2 African melorhythm and Brazilian music

From the late-17th century onward, sub-Saharan African slaves became the driving force behind Brazil's agricultural and resource economy. Their import, settlement and ongoing presence in Brazil's society made a pronounced impact on the colony's cultural development during the centuries to follow. Especially the region of North-Eastern Brazil, traditionally Brazil's first port of call for slave traders, established and preserved a socio-cultural profile that to date clearly reflects African origins²⁸.

In a musical sense, customary practices remained strongly tethered to values and attitudes that expressed the cultural identity of its practitioners. This conservatism, passed on to following generations of Brazilian-born slaves, helped to maintain a sense of communal cohesion under trying conditions in expatriate servitude.

Besides being valued as communal custom and expression of cultural identity, the inherently strong viability and virility of African music turned out to be its major survival trait *in expatria*. Not only by being customarily conserved within slave communities, but also by enriching other imported styles with its various aspects did African music attain an enduring presence within Brazil's society.

One particular aspect of African music, defined as 'melorhythm', provides a new musicological perspective on the development of Brazilian music. The concept of melorhythm, a music organizing system characterized by tonally rendered rhythm cycles, is of particular interest.

Melorhythm formed an essential aural transfer stage between African musical aspects and their subsequent adaptation to Western instruments in colonial Brazil. Following elaboration on its functional principles is intended to provide a referential support platform for arguments in chapter 4.

2.1 African music principles

The majority of traditional music styles from Sub-Saharan Africa contain a common set of principal processes for organizing rhythm structures. The concepts behind these processes are remarkably similar to those for creating European music, although decidedly discrepant in aesthetic content. Principally, either tradition generates rhythmical structures with systemic levels in certain cohesion but African music lacks the formative angularity that typifies metrically oriented music.

Vocalization of African traditional melodies is based on the same principles, occurring as stand-alone practice or with instrumental accompaniment. Group application of these principles invests certain heterarchical tendencies in ensemble organization, expressed as a degree of rhythmical independence between interactively linked instruments²⁹.

²⁸ See: (Fausto 1999, pg 18-19)

²⁹ See: (Temperley 2000)

The transfer of African musical aspects to Western instruments did not adversely affect the substance of their musical vigor, its expressive power noticeably undiminished and undeniably recognizable as African rhythm component in Brazilian music.

2.1.1 Polyrhythm, cross-rhythm and hemiola

The central principle behind generating Sub-Saharan polyrhythms is based on concurrence of two contrastingly numbered beat cycles, presenting a so-called vertical hemiola (see fig. 1). The most elementary polyrhythmic ratio is 2:3, juxtaposing duple meter against its ternary counterpart, forming a rhythmical premise which is prevalent in Sub-Saharan music³⁰.



Fig. 1 Vertical hemiola 2:3

Historically, cycled hemiolas supported the development of particular standard patterns, their cycle length equal to the time period between coinciding onsets.

These patterns contain a resultant resolution formed by the smallest common product of this hemiola's ratio numbers (see fig. 2).

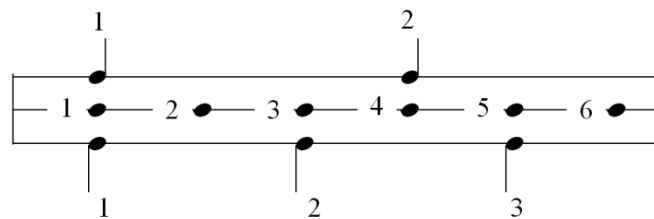


Fig. 2 Polyrhythm's ratio interface

Besides being structural to accompaniment patterns, polyrhythm also can be encountered as offset between accompaniment and melody or among melodic voices³¹.

Similar to hemiolas, cross rhythms are generated by repetition of musical figures whose cycle length contrasts with that of the prevailing metrical value (see fig. 3a).

³⁰ See: (Temperley 2000, pg. 33-65)

³¹ This trait occurred in various Afro-Brazilian genres ranging from salon compositions to more contemporary popular genres such as Bossa Nova.

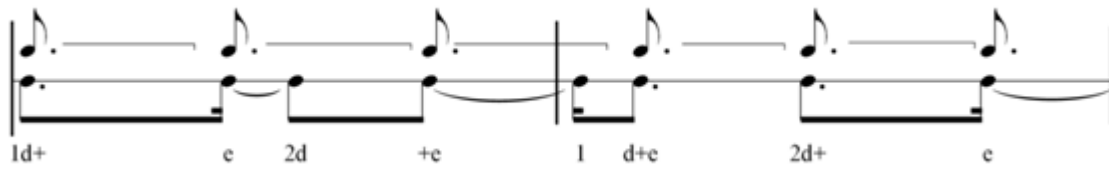


Fig. 3a Cross-rhythm

Ornamental cross rhythms (see fig. 3b) are usually performed by functionally prominent instrumentalists, such as master drummers, and can contain considerable internal complexity³².

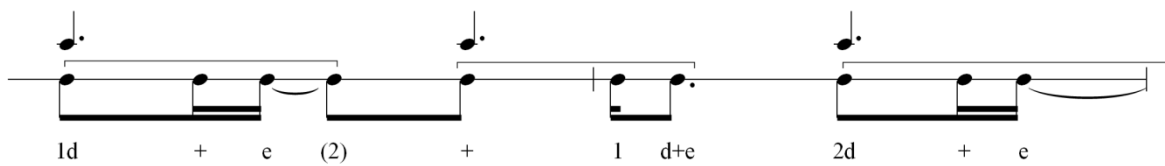


Fig. 3b Ornamental cross-rhythm

Polyphonic percussion instruments, such as marimbas, also can produce unaccompanied cross rhythms by repeating a self-referential, internally contrasting tone cycle (see fig. 4). This concept likely inspired adaptation of African music for the European guitar by 18th-century Afro-Brazilian musicians.

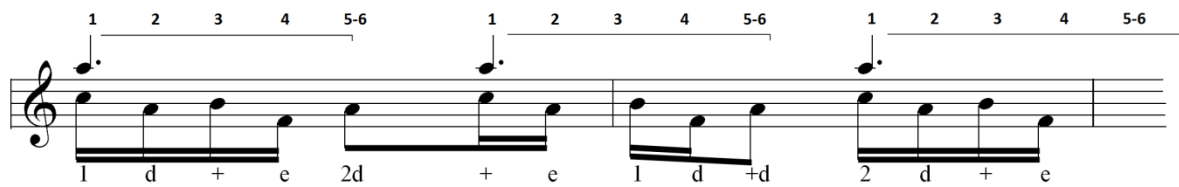


Fig. 4 Melodic cross-rhythm

Besides vertical hemiola, a serial form of hemiola can occur as cyclical modulation between two concurring pulse streams of contrasting ratio (see fig. 5). In this example, the pulse resolution modulates from duple into triple setting and vice versa.

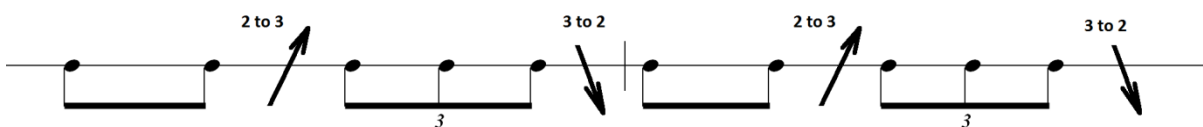


Fig. 5 Modulation between concurring pulse streams

³² See: (Temperley 2000, pg. 72, ex. 3)

This form of modulation recurs in Brazilian phrasing patterns as alternation between quaver and quintuplet subdivision in duple time bars of *Samba* music (see fig. 6). A slightly anticipated cross-over point accommodates the second quintuplet note and the last note contains a strong accent³³.

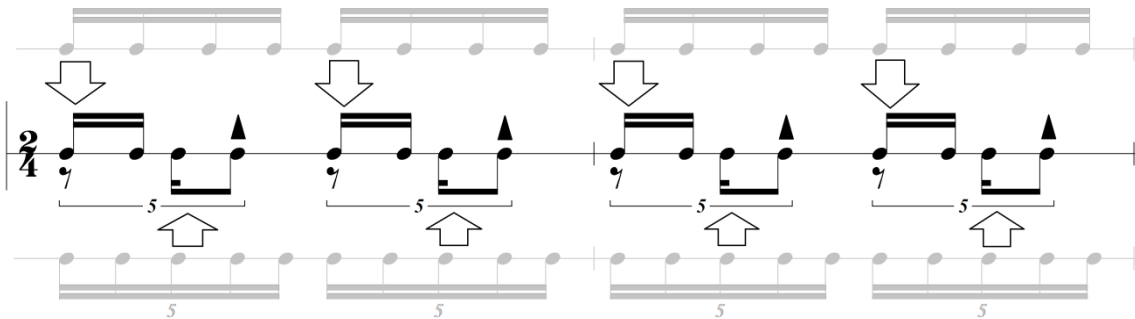


Fig. 6 Samba phrasing

This phrasing pattern already was firmly incorporated in Brazilian popular music at the time of the first recording in early 1900s and evolved into stock phrasing structure, particularly noticeable as higher-tuned drum routines in Rio's Carnival Samba rhythms.

2.1.2 Timelines

Sub-Saharan music is characterized by cyclic note patterns known as 'timelines' (see fig. 7). The cycle length of timelines can span the equivalent of two common time bars with a resolution consisting of twelve or sixteen equidistant onset values.

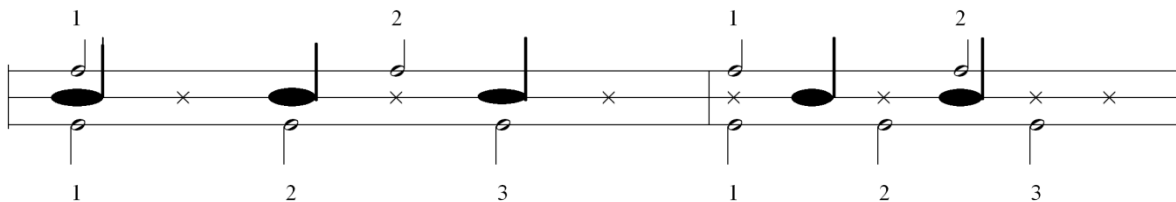


Fig. 7 Timeline 'Standard' Pattern 12/8

These timelines can accommodate a wide variety of internal patterning, although certain standard patterns prevailed and developed into a wide variety of interrelated musical styles.

Contrasting with the systemic proportionality of metrical rhythm, the onset values of timelines' internal modules is unevenly distributed along cycle arrays. Furthermore, remaining timeslots within cycles accommodate complementary 'shadow' patterns in offset to each modules' onset values. (see fig. 8). These offset values are orchestrated so as to contain varying tonal shadings

³³ This pattern is usually performed on snare drum during Rio de Janeiro' Carnival parade. A large number of phrasing variants, based on this elementary principle, are in use as preconceived snare drum routines as part of the so-called *batucada* (Port. 'barrage') parade orchestration.

on one instrument or relegated to different instruments altogether. The contrast between onset and 'shadow' groupings is heterarchical in nature, organizationally reflected as functional equality between instruments within sub-Saharan music ensembles.

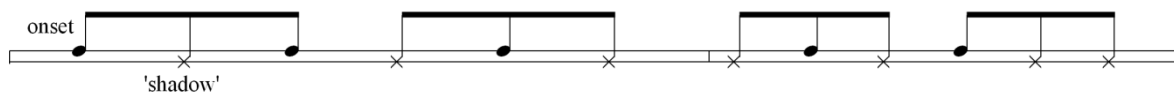


Fig. 8 Timeline 'shadow' values

Consequent to trans-Atlantic slave trade, the same standard pattern travelled to colonial Caribbean and South-American music circles via musical practices included in African religious rituals. In the case of Cuban music development, fusion with music from Ibero-European origins altered the pattern's internal resolution. This transformation re-oriented the timeline's notes to timeslot at binary resolution in nearest proximity to their placement in ternary resolution (see fig. 9). This altered timeline pattern evolved into the Afro-Cuban *clave* during the late 19th century and subsequently assumed a central position as orientation pattern for all other ensemble instruments³⁴.

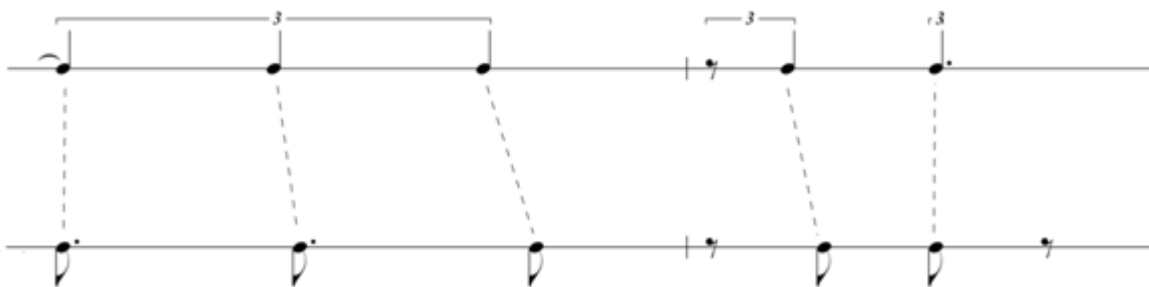


Fig. 9 Timeline re-quantification

In Brazil, relatively cohesive slave communities continued to practice Sub-Saharan traditional music, occasionally infused with fresh but closely related influences from newly arrived slaves³⁵. As a consequence, timeline patterns were an enduringly prominent ingredient for the production of Afro-Brazilian popular music. Transfer of timeline rhythms to Afro-Brazilian popular music occurred by re-instrumentation of traditional *lundú* music to guitar and flute. Brazilian-born African instrumentalists reportedly adapted their renditions of European music to suit the musical sensibilities

³⁴ In contrast to Afro-Cuban music, the concept of *clave* as central organizing principle never evolved within Afro-Brazilian accompaniment structures. This can be attributed to the overriding influence of the polka's metrical bass, introduced in the mid-19th century. This 'polkafication' of the Cuban *habanera*, a popular dance during the 1840s and 50s, resulted in Afro-Brazilian fusions such as the *tango brasileiro*. Along with the *maxixe*, this accompaniment style prevailed as one of the mainstays of early-20th century Brazilian popular music. Further down the line, the 1950s conceptualization of the 'Bossa Nova *clave*' was derived from stacking the onset values of its bass-and-chord pattern. This pattern in itself is a gentrified guitar reduction of orchestrated Samba rhythm, in turn derived from the older *maxixe*. (Sublette 2007)

³⁵ Brazilian slaves were imported from the same African regions under Portuguese control, predominantly from West-African Angola and Moçambique (Livingston-Isenhour & Garcia 2005, p 18)

of their own socio-cultural sector. For example, re-instrumentation of the Portuguese *moda* from harpsichord to guitar and syncopating its melodic phrasing resulted in its Afro-Brazilian variant, the *modinha*³⁶.

2.1.3 Syncopation

In Eurocentric music, an inherent structural hierarchy is allegorically represented by proportionality aspects within its rhythmical architecture. This proportionality is reflected in music notation as a dichotomous division of note values from bar level down (see fig. 10).

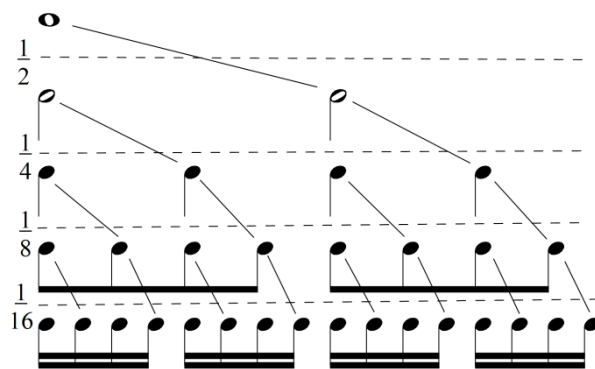


Fig. 10 Proportional dichotomy in metrical rhythm architecture

One significant property of this proportionality manifests itself as hierarchical accentuation, with domineering accents coinciding with the onset of each new bar (see fig. 11).

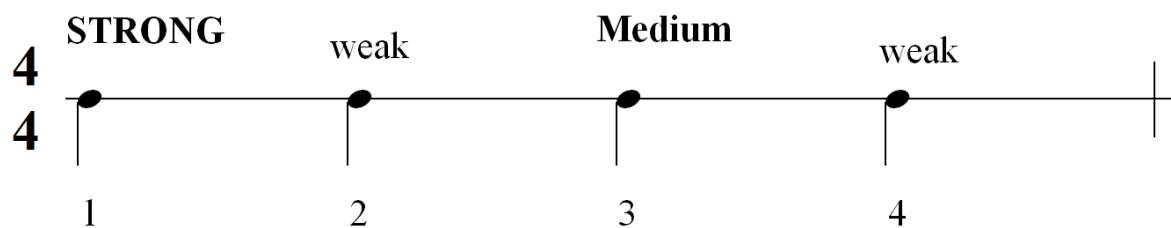


Fig. 11 Accentuation pattern at beat level

The concept of accentual hierarchy also extends to smaller resolutions within beats, effectively being accentual hierarchies that are proportionally scaled-down (see fig. 12).

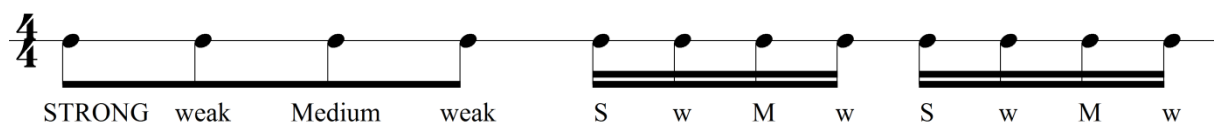


Fig 12 Accentuation pattern within beat subdivisions

³⁶ See: (Béhague 1968, pp. 44-81)

Accental defaults have been conventionally used as placeholder for significant melodic and harmonic events, such as melodic resolutions and chord changes. Deviations from this convention, such as anticipated chord resolution or suspended melody notes, are perceptually in contrast to expectation. Interpreted as exceptional disruptions within the predetermined order of structural proportionality, syncopated events are deliberately applied by composers for aesthetic effect (see fig 13). The magnitude of such deliberate disruption can range from mere offset at melodic level to incorporating the entire depth of musical events within orchestral performances.

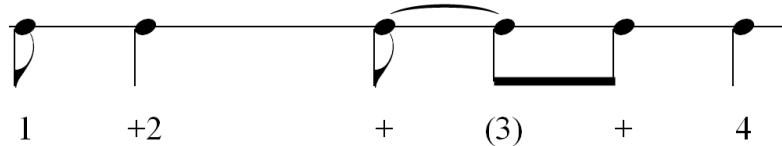


Fig. 13 Metrical syncopation

Not merely restricted to being incidentally disruptive to aesthetic continuity, a variant of systemic syncopation is produced by bass-chord offset patterns, such as polka or waltz (see fig. 14).



Fig. 14 Systemic syncopation – Waltz and Polka

In terms of overarching superstructure, European and sub-Saharan music follow highly similar modular concepts such as phrase and song sections. The main differences between traditions occur at resolution levels corresponding with respectively bar and timeline levels (see fig. 15).

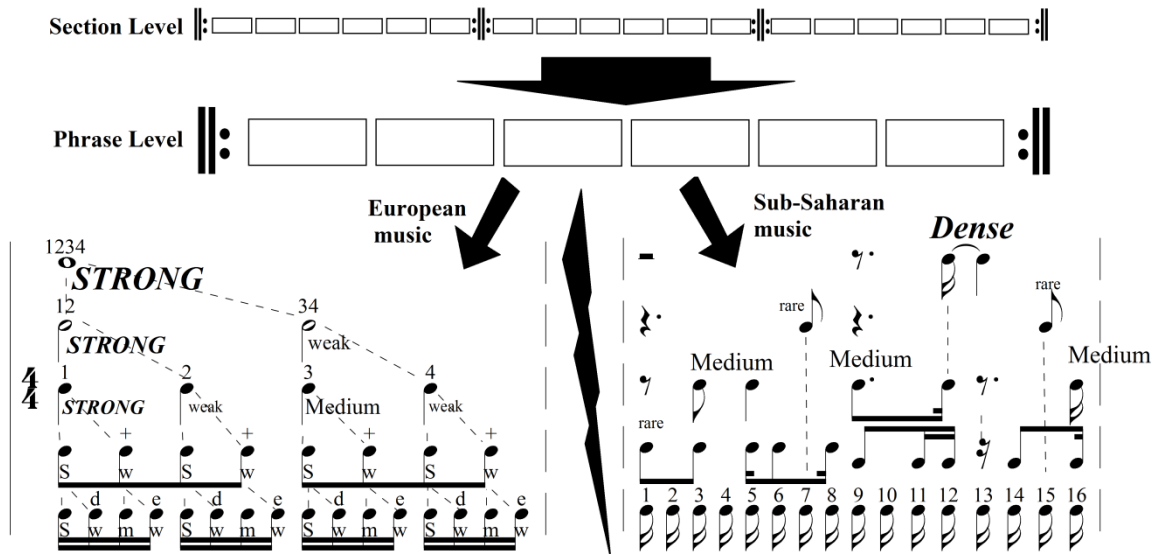


Fig. 15 Metrical accentuation versus timeline syncopation

Polyrhythmic and syncopated Sub-Saharan music propagates along temporal baselines that are relatively long compared to their smallest internal resolution. Therefore, the cycle length of timelines' accentual patterns is the shortest indication of structural regularity in rhythmical texture of Sub-Saharan music.

Within cycle lengths that contain 12 or 16 values there are literally thousands of mathematical outcomes for permutations of onset values and groupings. The majority of possible permutations likely proved unviable, likely due to lack of functional or aesthetic appeal. The remaining group of closely related patterns not only thrived enduringly but even cross-bred vigorously with styles from outside their native habitat³⁷. A point in case being Latin-American culture, developmental hotbed for unprecedented music styles that emerged from the union between otherwise unrelated cultures³⁸.

Syncopation, besides offering a substantially larger degree of rhythmical freedom, also gives certain musical prominence to melodies without succumbing to a numerically regular array. In sub-Saharan music, the start of timeline cycles therefore rarely coincides with significantly strong notes or note patterns (see fig. 15, right aspect).

Syncopation has been consistently present as traditional element in Brazilian popular music and pervades all local styles, ranging from salon repertoire to regional folk music that had the polka as one of its stylistic premises (see fig. 16).

The figure displays two musical staves in 4/4 time. The top staff illustrates a metric accompaniment structure with notes on beats 1, 2, 1, 2, 1, 2, 1, 2. The bottom staff illustrates a syncopated accompaniment structure with notes on beats 1+2, +3+, 4+, 1+2, +3+, 4+. Above the bottom staff are labels: 2, (3)+4+, 2, (3)+4+.

Fig. 16 Accompaniment structures – metric versus syncopated

³⁷ A geometrical rationale for this particular timeline is presented by Toussaint (n.d)

³⁸ In this respect, prevailing traditional standard patterns, in all their complexity and richness, might sound syncopated to the metrically trained ear but are effectively an asymmetrical variant of the rhythm concepts employed in generating metrical music.

2.1.4 Melorhythm

The concept of ‘melorhythm’, a neologism introduced by African musicologist Meki Nzewi³⁹, is based on the assertion that rhythmical structuring of sub-Saharan music is melodically organized. Prior to melorhythm’s theorization, African percussion music was regarded by Western musicology as purely rhythmical and instrumentally insular, a perspective in line with the relatively peripheral role of percussion instruments in European orchestras. In sub-Saharan music, however, each ensemble instrument contributes tonal complements which then merge into collective soundscapes, perceived as cyclical melodic outlines (see fig 17). Conversely, this melodic cycle serves as referential frame for orientating its constituent complements and to coordinate cross-linked interplay between ensemble instruments.

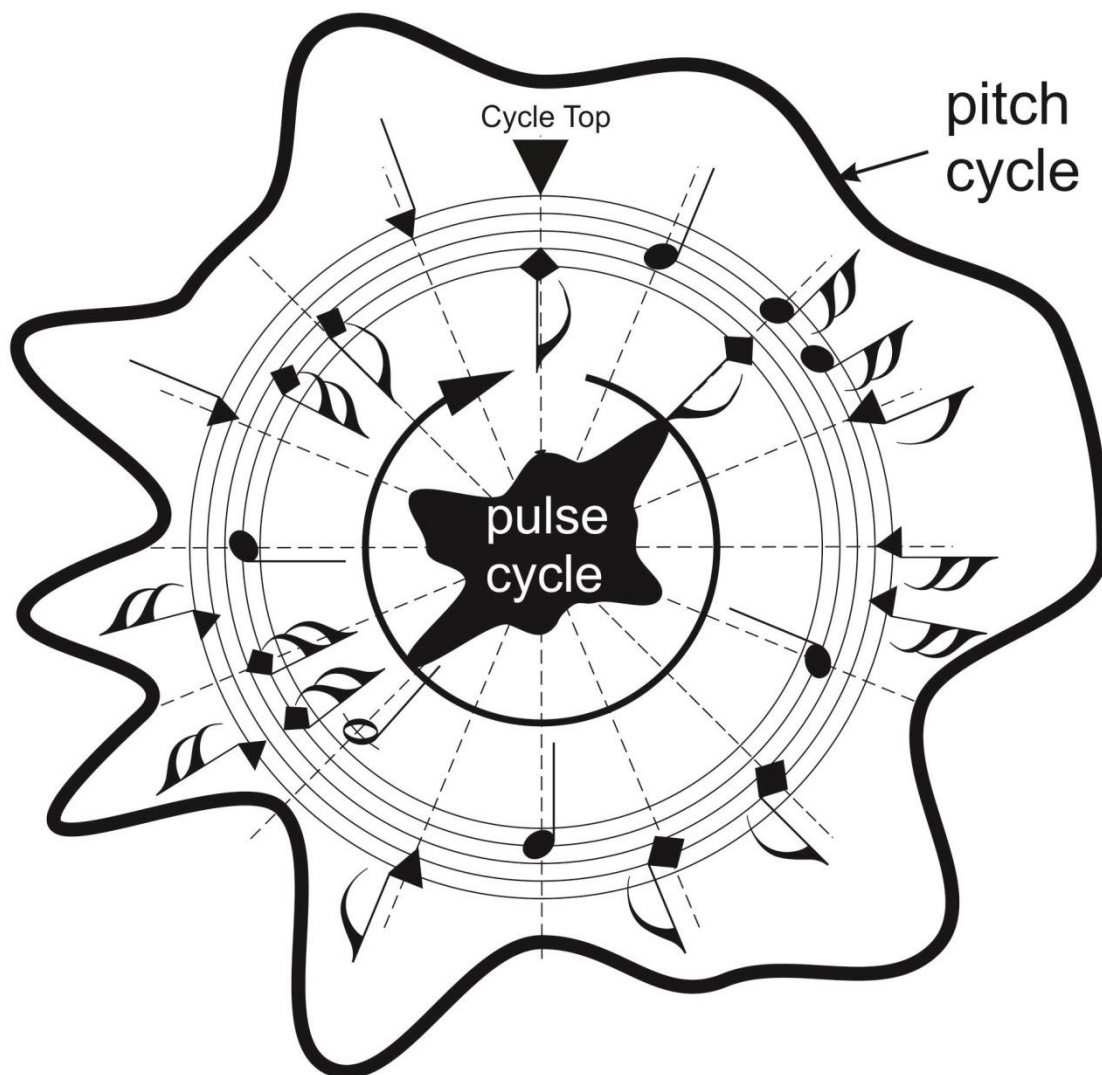


Fig. 17 Tonal and pulse cycles in melorhythmic ensemble music

³⁹ (1974)

During live performances, acoustic patterning of melorhythmical impressions presents participants and listeners with a cycle of kinetic cues. These cues can serve to direct individuals' participation, either for dance routines or instrumental emulation. Melorhythmic projections therefore can be regarded as a means for transferring musical process information that can be re-interpreted across stylistic and idiomatic divides in real-time⁴⁰.

Although not particularly close to the Western ideal of acoustic efficiency, most traditional sub-Saharan percussion instruments have a distinct acoustic profile. Apart from un-pitched instruments such as sticks, rattles, scrapers and shakers, certain traditional sub-Saharan percussion instruments can produce multi-timbral tones with recognizable tonal centers.

Handheld instruments such as bells, cymbals, woodblocks and high-tuned drums all project single-pitch notes which usually are employed to provide the middle-to-high systemic layer in ensemble music's structures.

Lower tuned drums, drums with variable head tension (the so-called 'talking drums') and friction drums (which later became known in Brazil as *guïca*) can be manipulated to emit different tonal pitches. These are generally used for orientation patterns that indicate the length of timeline cycles.

Marimbas, *mbiras* (a series of thumb-operated metal strips attached to a resonator) and *merimbulas* (a larger version of the *mbira*) are all polyphonic instruments. Predominantly used as standalone instruments, their musical output nevertheless is organized according to the same melorhythmical principles that underpin multi-instrumental performances.

Merging the output of all these instruments into complementary clusters produces a perceptual harmelodic⁴¹ continuum, containing incidental harmonies akin to voice leading in contrapuntal melodies (Swain 2013, p. 34). After travelling to Brazil along with its African-born custodians, this musical concept was certainly readily reconstituted into customary practice as instruments suitable for producing these sounds could be relatively easily fashioned from natural sources.

Although rigidly prescriptive in terms of stylistic particulars, melorhythmically organized music nevertheless allows musicians considerable potential for creative excursions. Common practice is to vary and extemporize on individual patterning, thus adding to the musical development of textural content within ensembles' output. Already strongly linked in terms of complementary interactivity, sub-Saharan music performers therefore were traditionally accustomed to interacting with players' individual creative exploits. Melorhythmical music organization therefore can be seen as stylistically preservative and inherently creative, allowing for extemporized and improvised content.

⁴⁰ Melorhythm's reformative potential was felt from early baroque times onward, when the first Creole music principles entered European culture as sailors' guitar music, derived from African dances (Sublette 2007).

⁴¹ Contraction of 'harmonic' and 'melodic' to indicate meshing of concepts as melodically outlined harmonies.

During the early 18th century, melorhythmic content of Afro-Brazilian *lundú* music already produced instrumental emulations by Afro-Brazilian plantation slaves, trained in European performance and musicology⁴². Texturally condensed and harmonically enriched, *lundú*'s melorhythms therefore substantively influenced the rhythmical and harmelodic patterning of mid-18th century popular music in Brazil. *Lundú*'s melorhythms also can be detected in erudite salon compositions from the late-19th century, particularly as pianistic figures that are reminiscent of African style elements. Therefore African melorhythms, via another instrumental adaptation, crossed the social divide between classes into late-19th century salon music for entertaining Rio's conservative social elite⁴³.

As an acoustic-kinesthetic medium, melorhythmic content perception certainly would have played an influential role in the aural transference of musical aspects. A primary mode of information exchange within Choro tradition, melorhythm can be seen as projecting a referential framework to aurally attuned performers, acoustically representing the combined instrumental kinematics of performers.

2.1.5 Pulse pattern

Melorhythmic textures tend to contain variations in density, occasionally resulting in tonal clustering (see fig. 17, inner aspect). This can be expressed as a function of the number of coinciding tones to their onset value position within timeline cycles. Values that have relatively high tonal density indicate the so-called 'pulse cycle' of a melorhythm. This propagates as an asymmetrical series of rhythmical prominences that are perceptually interlinked with melorhythms' tonal texturing. When produced by large ensembles, the acoustic pressure of these pulse patterns reportedly can be bodily perceived by partakers in accompanying dance routines.

The start value of timeline cycles in sub-Saharan music tends to avoid onsets with high tonal density, in contrast to European prevalence for clustering musically significant events on strong metrical accents. Cyclical orientation patterns therefore are played by a tonally prominent instrument such as a bell or woodblock, a principle that recurred in Latin-American applications of pulse-based rhythms. Pulse patterns represent the most visceral aspect of collective music generation and are an expression of ensembles' most elementary rhythmical processes.

⁴² See (Livingstone-Isenhour & Garcia 2005, p. 64)

⁴³ "...The acceptance of the *lundú* by the upper classes was an important step in the assimilation of black music into colonial and imperial society." (Livingstone-Isenhour & Garcia 2005, p. 30)

3 European Compound Melodies

3.1 Concept

Developed by European composers, compound melodies have been present in classical repertoire as early as the late 17th century baroque era⁴⁴. Compound melodies are made up of single-voice structures that, by their specific ordering of sequential intervals and density of temporal texture, perceptually fission into more than one melodic continuum. By applying contrapuntal ruling to each distinct melodic stream, compound melodies can project as many as four distinct melodic continua, analogue to separate melodic lines in multi-instrumental fugues. Besides quasi-polyphonic virtuoso pieces for solo melodic instruments, compound melodies also occurred as melodic motifs in instrumental ensemble music⁴⁵.

3.1.1 History

During the late-Renaissance, composers of instrumental music began experimenting with new organizational principles for formulating melodic material. Due to its melodic complexity this repertoire was no longer accessible by vocalists, creating a compositional stream specifically aimed at developing instrumental music. The late-17th century introduction of compound melodies, initially occurring as cycled chord arpeggios that later evolved motive melodic traits, induced revolutionary changes in music creation and performance practices.

One of the first, and best known, composers to apply compound melodies was Arcangelo Corelli⁴⁶, whose groundbreaking concepts were eagerly taken over by his contemporaries. Baroque composers, such as Bach⁴⁷ and Telemann⁴⁸ made extensive use of compound melodies in compositions for solo instruments, consequentially promoting a new standard for virtuoso performances. Aided by improved instrumental technology and acoustics, the performance of virtuosic compositions gained substantial appeal during the first half of the 19th century. In turn, this stimulated creation of technically more challenging repertoire based on compound melodic concepts, paralleled by the ascent of expressive individualism in arts development during the mid-1800s. During this time, compound melodies started expanding their influence from artistic circles to the realm of entertainment music, eventually landing on colonial shores as presentational salon music in Latin-American high-society.

⁴⁴ See: (Swain 2013, 29-33)

⁴⁵ Corelli's Sonatas for 2 Violins and Continuo are examples of ensemble application of compound melodies. Although applied for harmonic suspension in ensemble performance, its potential for solo application was plausibly not sufficiently explored at the time. Solo flute compositions by Telemann, published during the 1730s, already show significant evolutionary progress in this respect.

⁴⁶ (1653-1713)

⁴⁷ (1685-1750)

⁴⁸ (1681-1767)

3.1.2 Principle

Compound melodies, initially derived from repeated chord arpeggios, were highly prized by composers and performers for their tendency to generate dramatically dynamic musical textures while remaining harmonically static. The novelty value of this concept lay in their potential to suspend harmonic chord progressions whilst maintaining continuity of musical process, significantly adding aesthetic value to instrumental performances⁴⁹.

The melodic potential of compound melodies was extensively cultivated and applied long before any theories could explain their functionality as perceptual phenomena. Although accurately observed and described since their earliest applications, the first theoretical explanations for aesthetic qualities of multi-melodic musical textures had to wait until 20th century.

Early-20th century developments in psychological theory postulated the Gestalt effect, the mind's capability to extrapolate a reality that is more comprehensive than the combination of sensory stimuli amounts to⁵⁰. As acoustic parallel phenomenon, compound melodies can be considered as an auditory manifestation of Gestalt, perceived as more dimensionally expansive than indicated by auditory stimulus alone. Research in the field of cognitive psychology⁵¹ provided more insight in compound melodies' effect on auditory perceptual processes.

Known as auditory stream segregation, this effect is caused by specific intervallic order and placement within phrase sequences, eliciting a psycho-acoustic phenomenon known as melodic fissioning. Sequential patterning of compound melodies has a formatting effect on listeners' auditory faculties, inducing a state of synchronized perceptual receptiveness. The parameters for guiding this formative process are embedded in the auditory stimulus itself, defined by intervallic proximity of notes in conjunction with their sequential placement. These formative processes run parallel to perception of bulk melodic content, which then is processed by synchronized and pre-organized auditory faculties into parallel melodic streams (see fig. 18):

⁴⁹ See: (Swain 2013, 29-34)

⁵⁰ See: (Luccio 2011)

⁵¹ See: (Dowling 1973)

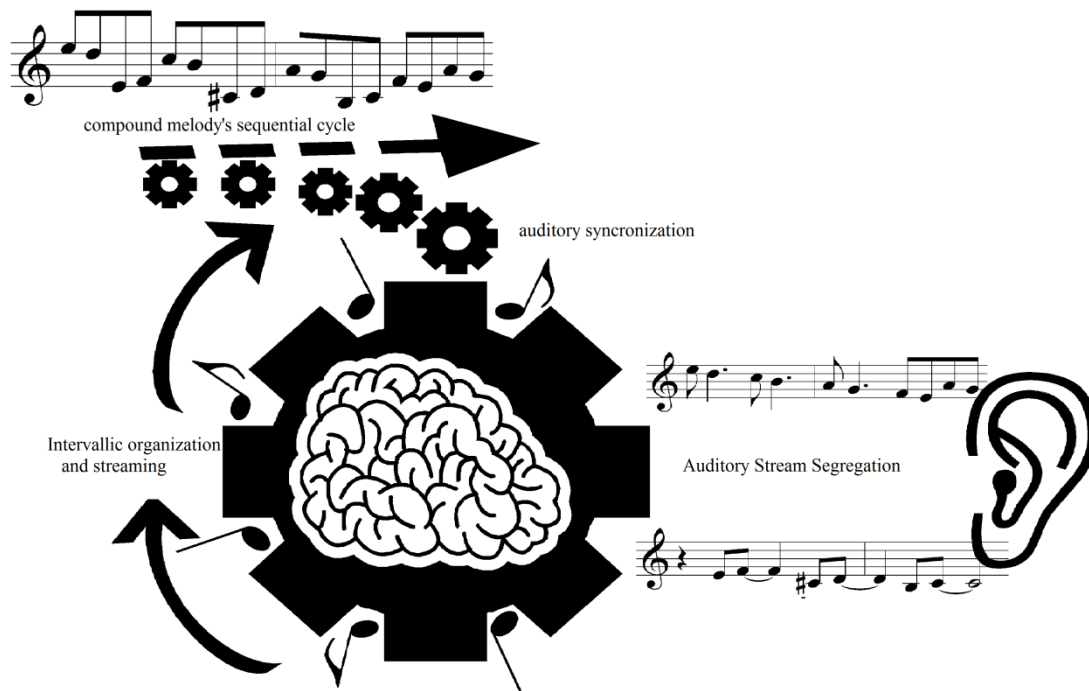


Fig.18 Auditory Stream Segregation of Compound Melodies

Besides requiring certain intervallic proximity within projected melodic streams, the propagation rate of melodic sequences is bounded by certain upper and lower values. Upon perception at too low a rate, auditory faculties can no longer extrapolate melodic continuity between the notes within each stream, causing a breakdown of melodic fissioning. At high propagation rates the auditory input ‘blurs’ into aesthetically unappealing soundscapes, rendering musical content incomprehensible although stream segregation continues⁵².

⁵² Comparable to perceptions of continuity between film frames by persistence-of-vision, the perception of compound melodies requires propagating at a minimum sequential tempo. The frequency of their recurrence induces a state of multi-melodic ‘persistence-of-hearing’ in auditory faculties, resulting in self-organizing segregation of bulk melodic input into separate melodic streams. As with film, this phenomenon persists at sequential frequencies above the rate of being aesthetically appealing, akin to viewing a movie at high speed.

3.2 Examples

Arcangelo Corelli⁵³ published works for two violins and continuo instrument that included the first notated application of compound melodic concepts (see fig. 19). Occurring as streams of arpeggiated voice leadings, his concepts were rapidly adopted by his musical contemporaries for further cultivation and emulation⁵⁴.

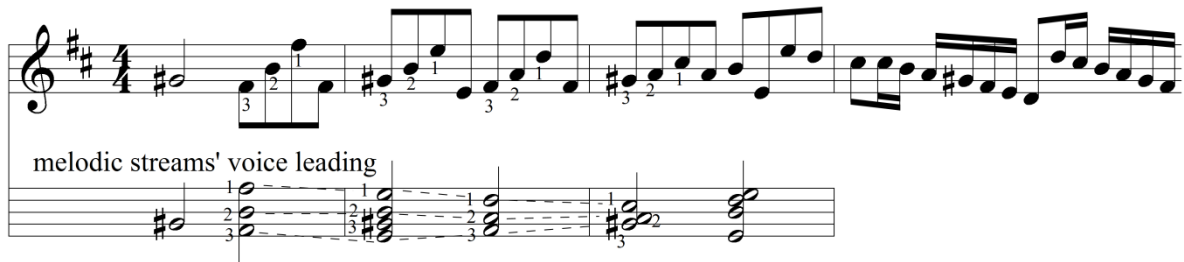


Fig. 19 Corelli - *Sonata in A Maj* for 2 Violins and Continuo⁵⁵

⁵³ (1653-1713)

⁵⁴ See: (Swain 2013, 29-34)

⁵⁵ Op.1, Vol. 3, 2nd Mvt

Georg Philip Telemann⁵⁶ wrote numerous works for instrumental solo performance, among which his flute fantasies indicate important methodological innovations in compound-melodic formulation⁵⁷. Aided by acoustic and mechanical improvements to the traverse baroque flute or *traverso*, solo flute performance gradually increased in popularity to eventually overtake the oboe as preferred woodwind. Telemann's fantasies contain more evolved compound melodies, exploring several types of streaming configurations (see fig. 20). Note the change from vertical separation to syncopated nesting of melodic streams in the second line

The image displays two systems of musical notation for a flute fantasy. The first system consists of a single staff with a treble clef, a key signature of two sharps (F# and C#), and a 4/4 time signature. It features a complex compound melody with multiple overlapping rhythmic patterns. Below the staff, fingering instructions are provided for various notes, including '1st', '2nd', '3rd', and '1st' positions. The second system consists of three staves. The top staff continues the compound melody from the first system, with '1st' and '2nd' labels above it. The middle staff is labeled '1st stream' and shows a single melodic line. The bottom staff is labeled '2nd stream' and shows another single melodic line. Vertical dashed lines connect the notes in the '1st stream' and '2nd stream' staves to their corresponding positions in the compound melody above, illustrating the nesting of the two streams.

Fig. 20 Telemann - *Flute Fantasie in A Maj*⁵⁸

Bartolomeo Campagnoli⁵⁹ was a virtuoso violinist and composer who, as a solo performer, extensively used compound melodic elements in his works for viola. Carrying the use of compound melodies over into the Romantic area, he widely travelled to perform Europe's main cities. Applications of compound melody in the following example (see fig. 21) show the use of a structural concept which imitates the labor division within a trio ensemble, generating comparably complex

⁵⁶ (1681-1767)

⁵⁷ Telemann's Fantasies are among a large volume of baroque compositions that used compound melody as founding principle rather than being applied for harmonic suspense in ensemble music.

⁵⁸ TWA 40:2-13

⁵⁹ (1751-1827)

musical textures. Note the syncopated upper melodic line that is offset by a quaver from the metrical continuo bass, joined by middle-voice syncopated *ostinato* in semi-quaver offset to both outer voices⁶⁰.

The image displays a musical score for Campagnoli's 'Caprice for Viola'. It consists of five staves. The top staff is in treble clef with a key signature of one sharp (F#) and a 3/4 time signature. It features a syncopated melodic line. The second staff contains three voices, with fingerings labeled '1st', '2nd', and '3rd' for each voice. The third staff is labeled '3rd stream' and shows a descending melodic line. The fourth staff is labeled '2nd stream' and shows a more complex, rhythmic melodic line. The fifth staff is labeled '1st stream' and shows a simple, steady melodic line. The score is a complex polyphonic texture with multiple melodic streams and syncopated rhythms.

Fig. 21 Campagnoli - *Caprice* for Viola⁶¹

In reappraisal of baroque music principles, Felix Mendelssohn Bartholdy⁶² made ample use of contrapuntal principles in compositions for a diverse range of instruments and ensemble configurations. Ongoing compositional appeal of compound melodic principles during the 19th century can be derived from Mendelssohn's polyphonic works, such as for piano or ensembles that contain compound melodic motifs and passages. Following example demonstrates the use of two melodic streams that initially descend parallel to their internal motivic direction, continuing the lower voice's sequential directionality during ascent of the melodic index on the second line (see fig. 22).

⁶⁰ The violin's potential to maintain sound production from tune's start to finish gave the instrument clear advantage over wind instruments which, at the time were not as effective as present versions. Although creation of wind instrument compositions initially lagged behind, development of acoustically and mechanically improved flutes during the first half of the 19th century saw an upsurge in virtuoso repertoire for woodwinds.

⁶¹ 41 Caprices Op. 22

⁶² (1809-1847)

The image displays two systems of musical notation for Mendelssohn's *Praeludium* for organ. Each system consists of a treble clef staff and a bass clef staff. The first system has eight measures, with the first ending (1st) marked above the treble staff and the second ending (2nd) marked below the bass staff. The second system has eight measures, with the first ending (1st) marked above the treble staff and the second ending (2nd) marked below the bass staff. The notation includes various rhythmic values, accidentals, and phrasing slurs.

Fig. 22 Mendelssohn - *Praeludium* for organ⁶³

3.3 Choro application

European chamber repertoire, preferred by Brazil's upper-classes as entertainment music, comprised a range of styles that included Baroque, Rococo, Classical and Early Romantic⁶⁴. Replete with sophisticated melodic and harmonic concepts, this repertoire remained largely confined to performance in erudite music circles, largely inaccessible to common-class audiences⁶⁵.

Compound melodic phrase elements were introduced into Brazilian Choro music during the late-19th century, resulting from progressive collaborations between classically trained instrumentalists and popular entertainment musicians⁶⁶. Under influence of popular Brazilian music's all-pervasive African rhythm aspect, compound melodies became structurally re-phrased to suit their multi-melodic propensities to Brazil's musical environment. Resulting idiomatic novelties, expressive of both their African as well as European musical antecedents, emerged as syncopated compound melodies in the earliest known Choro compositions. Emblematically demonstrative of Choro's hybridizing tendencies, syncopated compound melodies were also re-adopted by Brazilian classical composers for application in erudite repertoire, discretely emulating Choro's stylistic aspects.

⁶³ No. 2, Op. 37

⁶⁴ This is confirmed in Odette Ernest Dias' book *Reichert, Um Flautista Na Corte do Rio de Janeiro* (p 22), showing a mid-19th century concert programme with concert repertoire by Verdi, Donizetti and others.

⁶⁵ Generally, access to erudite music societies was both a socially as well as financially exclusive occasion due to their high membership and entry fees (Magaldi 1995).

⁶⁶ See: (Livingston-Isenhour & Garcia 2005, pg 67)

4 Hybridization of Melorhythm with Compound Melodies in Brazilian Choro Music

Brazil's social and musical developments are historically deeply intertwined due to traditional entrenchment of musical practices within Brazilian society, a view supported by leading researchers:

‘... In the specific case of Brazil, social and political conditions have influenced the course of its musical history to an unusual degree...’⁶⁷.

The first decade of 19th century marked the onset of a historical episode during which significant social changes started to make their presence felt. Reflected as idiomatic and stylistic shifts within associated music practices, these social changes left complementary imprints on musical developments, particularly on progressive streams such as Choro music.

In order to highlight the musicological significance of Choro music within this period, I intend to contextualize those musicological arguments that are in support of this thesis' assertions by further socio-historical elaboration. Conversely, examination of stylistic influences in conjunction with their cultural origin is to present a reference frame for leading circumstances up to Choro's emergence as an emancipated genre in the early 20th century.

4.1 Middle-ground music

During the 1860s, Rio's middle-class' musical entertainment generally took place in hospitality establishments, displaying quality standards generally aimed at the sensibilities of high-society patronage. Moreover, presence of a piano significantly improved establishments' status, the instrument being seen as a symbolic representation of musical sophistication. The combination of splendidous ambiance and instrumentation, in emulation of elite entertainment, also represented a certain class threshold that was only accessible to more affluent members of Rio's urban society⁶⁸.

In establishments accessible to poorer common-class circles, entertainment music was performed on portable instruments that were either home-made or sufficiently affordable. Repertoire choice consisted of aurally retained repertoire, comprising folk or dance songs as well as instrumental adaptations of lyrical street music.

The non-conformist milieu of common-class circles included a lively street culture, conducive to impromptu gatherings around communal activities such as music and games. Surrounded by reveling crowds, variegated groups of instrumentalists could be seen engaging enthusiastically in

⁶⁷ See: (Béhague 1966, pp. 1-4)

⁶⁸ See: (Magaldi 1995)

communal renderings of then-popular repertoire, facilitated by gradual disappearance of mutual social biases. These meetings reportedly took place on a nightly basis from the 1860s onward, enriching Rio's street culture with a new popular phenomenon that added extra color to daily life⁶⁹.

4.1.1 For music's sake

So, for the first time in Brazil's history a style of music had emerged that broke with ritual and official setting, becoming a stand-alone activity dedicated to musicians' own enjoyment and creativity. Although all cultural sectors of Brazil's society had long-standing associations with music performance, this was functionally embedded within customs such as community festivities or ecclesiastical parades⁷⁰. Even popular music ensembles, such as the wandering *barbeiros* trios active in public dance halls, were subject to their employers' requirements, leaving precious little opportunity for recreational indulgence during performances⁷¹.

Initially, public recreational music involved partakers of remedial to amateur caliber but also attracted the attention of Afro-Brazilian professionals active in Rio's entertainment circuit. Their superior musicianship and repertoire knowledge gradually transformed music gatherings from merely sociable occasions into progressively creative hubs. Increasingly held indoors as well as in open air, such musical occasions started hosting a veritable fraternity of likeminded and equally capable instrumentalists, performing high quality renditions of popular repertoire⁷².

Attracted by the infamous renown attached to popular music meetings, classical musicians from Rio's middle-class only had limited options for instrumental partaking⁷³. The guitar was considered a vulgar and disreputable instrument by Cariocan upper and middle class standards and as such studiously avoided by self-respecting members of Rio's refined music circles⁷⁴.

By default, middle-class involvement in music meetings tacitly relegated partakers to assume a prominent role on flute, in the hot seat of aural musicianship and memorization amidst acoustic barrages of strummed instruments.

⁶⁹ See: (Livingston & Garcia 2005, pp 65-66)

⁷⁰ See: (Medeiros 2002, pp 1-4).

⁷¹ See: (Livingston & Garcia 2005, pp 62-63)

⁷² With regard to ensemble instrumentation, choices were limited by notions of functionality and affordability. Musical accompaniment was produced on strummed instruments, such as guitars and *cavaquinhos* (Portuguese *ukulele*) and melodies most commonly played on transverse flute. Uncomplicated and cheap, guitars dominated popular music performance and were highly common household instruments in lower echelons from Brazil's earliest days as European colony. (Budasz 2005). Wooden flutes were no less common, basically wooden tubes with a sound opening and finger holes, but required considerable skill to musically match the quality of guitars' output. Keyed wooden and metal flutes, imported from Europe and only commercially available, were much prized for their sound quality and melodic flexibility but largely unaffordable to lower-class musicians (Livingston & Garcia 2005, p 65).

⁷³ Musical education, for those who could afford it, was aimed at performing classical salon repertoire on chamber music instruments like flute and piano. At that time, pianos were virtually non-existent in common-class venues where meetings took place, being too expensive to purchase and adequately maintain. For musicians from more affluent sectors of society, these restrictions narrowed their instrumental options down to flute, pairing its virtuoso potential with relatively high audibility (Livingston & Garcia 2005, p 73).

⁷⁴ See: (Livingston & Garcia 2005, p 165)

Musical demands on flautists were of such magnitude that actually extremely few have been known to consummately fill this position during this particular developmental episode. In the chapter below, more attention will be paid to the influence of the two only flautists known to have substantively influenced pre-Choro music.

4.1.2 Genius and quality

Among the plethora of European performers that toured 19th century the Americas, Belgian virtuoso flautist and composer Mathieu-André Reichert⁷⁵ stands out as innovator and revolutionizer of classical and popular flute methodology in Brazil⁷⁶. Arriving in the late-1850s, Reichert presented three interrelated novelties to Brazil's music circles: the acoustically superior and fully chromatic metal Boehm flute, novel repertoire to demonstrate the instrument's virtuoso potential and a new technical standard of quality for flute performance.

Reichert, already highly respected and renowned in European classical circles, soon became Brazil's most prominent classical concert flautists, gaining fame for his expressively virtuosic style of interpretation.

An inveterate and amiable *bon-vivant*, Reichert was known to immerse himself in Rio's urban nightlife at the fringes of respectability. He was also a regular partaker in popular music gatherings during the 1860s and 70s, demonstrating his improvisational prowess and sophisticated musicianship. Conversely, he adopted Afro-Brazilian phrase aspects into his performance methodology that recur in his later compositions.

Reichert's interactions with pre-Choro music were the first known music developments that transcended classical and popular stylistic delineations, but certainly not the last. Reichert's *modus operandus* was followed by young Joaquim Callado⁷⁷, later to become one of Choro's most heralded musical ancestors.

Callado, a well-educated middle-class *mestizo* (Port. 'mixed', of European and Amerindian descent) excelled in piano and flute performance as well as being a prodigious composer⁷⁸. Although highly regarded in Rio's classical music circles as performer of European concert repertoire, he actually preferred composing for and playing flute in Afro-Brazilian popular style, occasionally shocking erudite audiences with covert stylistic transgressions. His written compositions pair melodic and harmonic refinement with strongly syncopated phrasing, testament to his crucial role in establishing Choro's stylistic antecedents⁷⁹.

Callado created the first known Afro-Brazilian compositions to enter Choro's traditional repertoire, capturing a musical *Zeitgeist* long lost before the advent of recording technology. Derived

⁷⁵ (1830-1880)

⁷⁶ See: (Dias 1990)

⁷⁷ (1848-1880)

⁷⁸ See: (Diniz 2008)

⁷⁹ See: (Dalarossa 2008)

from earlier *barbeiros* and *chormeiro* (Port. ‘sweetly cried music’) groups⁸⁰, Callado also conceptualized the *terno* (Port. ‘trio’) orchestration as traditional Choro ensemble core. Consisting of flute, guitar and *cavaquinho*, the *terno* persists to date as functional format.

4.2 Cultural ingredients and musical processes

Both European high culture as well as African customs and traditions were maintained in such way as to assure conservation and continuation of conceptual purity *in expatria*. Performance of European classical music, preferred by Brazil’s elite, was reserved for socially exclusive high-society circles whereas traditional African music propagated as part of guardedly practiced rituals and customs⁸¹. Although segregated by socio-cultural incompatibilities, there nevertheless existed selective cultural pathways along which European and African influences could travel and interact⁸².

Incessant incursions of overseas imports on Brazil’s cultural landscape occasionally resulted in nation-wide fads, in case of the polka and the waltz resulting in indelible stylistic imprints on Brazil’s popular music development.

4.2.1 The *roda*

The circular shape is an ancient format in which official, social and ritual occasions have been held in many unrelated cultures around the world since time immemorial. This form is common to both African and European communal participatory practices, this form generally comprised a creative inward-facing hub surrounded by a rim of supportive revelers. Pre-Choro gatherings during 1860s already assumed this so-called *roda*⁸³ format, arguably the oldest formative aspect in Choro practice⁸⁴ (see fig. 23).

⁸⁰ See: (Livingston & Garcia 2005)

⁸¹ Irobi (2005) refers to the culturally preservative propensities of customary practices:

“...Collective memory in premodern societies was forged through song, myth, poetry, dance, drum language, processions, mime, and drama and expressed through the umbrella of festival and ritual performances...”

⁸² The main vector component within this sector was formed by *mulatto* and *mestiço* descendants from rich paternal upper-class parentage and maternal African common-classes, discussed further down.

⁸³ (Port. ‘wheel’)

⁸⁴ This activity is comprehensibly described in: (Livingston & Garcia 2005, pp 39-57, Scheffer 2012,)

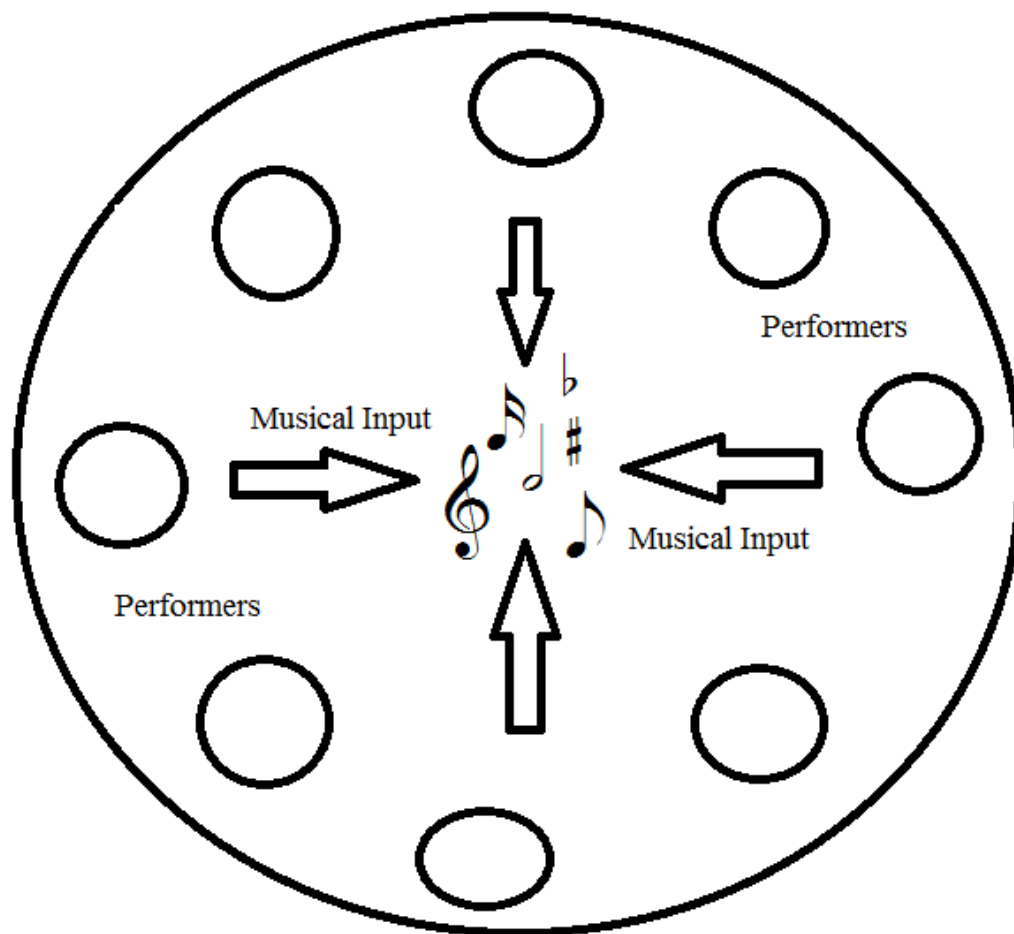


Fig. 23 The *roda de choro*

Freely accessible from all directions, this format allows for a high degree of supportive exchange and functional interaction between performers and surrounding supporters. Consequent to this configuration, the acoustic intimacy inherent to this inward directionality promotes a high degree of musical interactivity between ensemble members.

Choro *rodas* were – and are – conducted in an atmosphere of convivial and respectful camaraderie, while each individual's input was aimed at upholding ensembles' collective output quality and continuity. Routines applied during Choro practices included extemporization and improvisation on accompaniment forms derived from existing repertoire⁸⁵.

A soloists' input was expected to contribute positively to the overall quality of ensembles' musical output, with improvisations and extemporizations being an important part of this routine⁸⁶. One primary objective aimed at bringing the level of musical quality up to a higher plan by eliciting directed responses from accompanists, a routine further discussed in the following chapter.

⁸⁵ Few details of this repertoire have survived due to the aural nature of its practice. Although still referred to by Pinto (1936) as being performed during the first decades of the 20th century, this bundle as good as disappeared upon earthly departure of its practitioners.

⁸⁶ See: (Livingston & Garcia 2005, Diniz 2008, and Scheffer 2010)

Choro's participatory form, or *roda de Choro*, became a commonly witnessed practice that persisted at community level throughout the twentieth century and still takes place in Brazil to date⁸⁷. Traditional Choro practice formed an important stylistic middle ground within Brazilian music culture during the entire 20th century, its stylistic aspects recurring in derived genres such as the Samba and Bossa Nova.

In strict adherence to Choro's style parameters, the genre's traditional idiomatic constraints put limitations on the musical creativity of improvisers. These constraints eased up considerably during 1950s and 1970s revivals, inviting a creative approach more conducive to melodic and harmonic departures from its ancestral 19th century concepts⁸⁸.

4.3 Information retention and conveyance

During Brazil's colonial and post-colonial era leading up to the 20th century, music practices in Brazil were predominantly aurally retained, practiced and conveyed by its practitioners. Instrumental training of aspirant practitioners most commonly coincided with repertoire acquisition and performance, corrected under guidance of senior musicians⁸⁹.

High levels of illiteracy among lower-class practitioners, particularly with respect to music notation, denied them access to more sophisticated salon idioms. Additionally, a lack of methodical skill development limited their instrumental technique. Besides musicians generally being forced to remain within the idiomatic constraints of aural repertoire, especially flautists' potential was further compounded by the prevailing low quality of their instruments⁹⁰.

Participation in Choro's *roda* practice required melodic instrumentalists to possess a relatively rare combination of musical traits, essentially a combination of popular music's aural acuity and classical music's virtuoso technique. Add to that sophisticated melodic vocabulary, consummate musicianship and solid memory to complete the bare prerequisites⁹¹.

⁸⁷ The most recent revival took place in the mid-1980s, see (Livingston 1999).

⁸⁸ A more in-depth elaboration on contemporary Choro practice is presented by Louzada de Souza (2012) in chapter 2.

⁸⁹ For aurally attuned performers, methodical memorization and instrumental recall formed an effective method for learning popular repertoire. As memorized repertoire was continuously subject to musicians' idiosyncrasies and stylistic influences, repertoire versions would inevitably vary from performance to performance.

⁹⁰ (Witmer 2009, p. 25)

⁹¹ The earliest likely candidates for filling this role were freed slave musicians from regional *fazenda* (Port. 'plantation') orchestras who became active in metropolitan entertainment circles during the mid-1800s. Instrumentally trained for performing European chamber and dance music, freed *fazenda* musicians also had been active within indentured African slave communities as musical for accompaniment customary practices. By combining these experiences into stylistic fusions they managed to form a strong support pillar for the development of Afro-Brazilian popular music in metropolitan areas, particularly Rio de Janeiro.

4.3.1 Referential soundscapes, aural adoption and instrumental adaptation

‘Soundscapes’⁹², described as the overall acoustic projection of ensembles’ musical processes, correlate strongly with ensembles’ collective output generated by instrumental actions and aesthetic expression. For aurally attuned musicians, recorded and live music therefore takes on an extra dimension as aural referential framework. Applicable to aurally guided practices such as Choro music, melorhythmic ‘soundscapes’ can be described as time-based inflexion curves, additionally containing a matrix of harmonic constraints and rhythmic patterning (see fig. 24).

The figure displays a musical score in 2/4 time. At the top, a pulse pattern is shown with notes marked with accents (>). Below this, a waveform graph illustrates the 'tonal inflexion of stacked accompaniment projections', showing a series of peaks and troughs. The guitar part features chords C and G7, while the acoustic bass part provides a steady rhythmic accompaniment. Vertical dashed lines connect the pulse pattern, waveform, and the guitar/bass parts, indicating their temporal alignment.

Fig.24 Melorhythmic soundscape with harmonic constraints

The melorhythmic nature of soundscapes in Afro-Brazilian popular music is detectable as cyclical density fluctuations in ensembles’ output, analogue to the pulse cycles in ancestral sub-Saharan music. During ensemble performances, these textural fluctuations serve to orient and synchronize accompanists’ complementary inputs into one musical continuum, subject to styles’ specific patterning (see fig. 25). The onset values between pulses are not subordinate but complementary timeslots, accommodating notes that are structurally supportive to the pulse cycle.

⁹² ‘Soundscape’ could be considered as a derivative aspect of music performance, its processes maintaining an impression of acoustic ‘scenery’. Stereophonic directionality of sound sources within this scenery, formed by collective interlocking of individual musicians’ outputs, can be considered as the acoustic variant of stereoscopic vision.

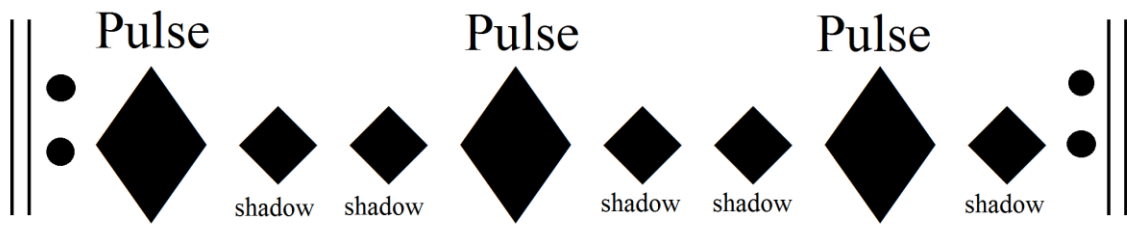


Fig. 25 Timeline pulse pattern

At the systemic periphery of melorhythms reside their collective tonal projections which, referring to Choro's orchestration, consists of the inflexion⁹³ pattern projected by bass and chord interplay (see fig. 26). Vocal or instrumental emulation of this pattern on monophonic instruments, such as flute, projects a rarefied melorhythm that effectively traces accompaniments' overall inflexion pattern. As explained in following sub-section, this aspect can be utilized as directive interface for musical interaction between melodic instrumentalists and accompaniment sections⁹⁴.

The figure shows a musical score for Guitar and Acoustic Bass. The Guitar part is in 2/4 time and features a series of chords. Above the guitar staff, a line graph shows the inflexion pattern, with peaks labeled 'HIGH' and troughs labeled 'low'. Vertical arrows indicate the relationship between the guitar chords and the inflexion pattern. The Acoustic Bass part is in 2/4 time and features a series of notes. The inflexion pattern is also shown above the bass staff, with peaks labeled 'HIGH' and troughs labeled 'low'. Vertical arrows indicate the relationship between the bass notes and the inflexion pattern. The inflexion pattern is also labeled 'Medium' at several points.

Fig. 26 Melorhythmical bass-chord inflexion pattern

Melorhythms' harmonic clustering, in Choro's case embedded within bass and chord structures, forms a dynamic referential array for matching melodic material to harmonic progressions.

⁹³ Inflexion as function of collective pitch to time, with high points in eventual polyphonic clusters forming definitive values

⁹⁴ Taking into account certain preconceived formative aspects, such as style, tempo, song form and chord progression.

Harmony content is the most variable aspect of melorhythmically generated music, due to the relatively long cycle length and song-specificity of chord progressions⁹⁵.

4.3.2 Extemporizing, improvising and mutual adjustment

Although subject to predefined style constraints, certain flexibility around stylistic guidelines gives Choro practitioners ample opportunity for introducing extemporizations and improvisations. As long as accompanists collectively manage to remain within stylistic constraints, the addition of impromptu adornments is considered essential to improving the musical quality and continuity of performances.

Accompaniment sections produce self-defining musical environments that are to certain extent responsive to external directive input. Particularly during improvised sections, soloists' improvisations can direct accompanist to respond with dynamic and textural nuances in their output^{96,97}.

Conclusively, the musical output of accompaniments can be manipulated into responding to soloists' directions which, however, only reaches to certain systemic depth of accompaniment processes⁹⁸.

4.3.3 Style components, musical heritage and cultural appeal

The antecedents of Choro music's stylistic profile are clearly represented by instrumental roles of the traditional *terno* orchestration. Especially within the accompaniment structure, the division of labor between bass and chord instruments also forms the interface between respectively European and Afro-Brazilian style components. Played on the lowest strings of the guitar, polka-derived bass melodies are metrically oriented whereas the *cavaquinho*'s syncopated chord phrasing represents Afro-Brazilian influences. Choro's main accompaniment styles, *maxixe* and *tango*

⁹⁵ As idiomatically independent aspect, harmonic content continued to evolve after Choro's stylistic stratification in the early 1900s. Analogue to their earlier transfer from African to European instruments, this evolution confirms melorhythms' ability to endure idiom changes without losing musical functionality.

⁹⁶ In order to achieve this, soloists will need to issue compelling directives to accompaniment sections in order to 'have their ear' before further interactions can take place. In order to get this attention, soloists attune their output to accompanists' kinematic repetitiveness, musically intending to 'join the club'. By copying and emulating their phrase elements, soloists can gradually tune in to accompaniment 'lingo' and start contributing recognizable adornments and extemporizations. This idiomatic middle ground can take on mutually directive tendencies between soloists and accompanists, often resulting in lively and sophisticated exchanges between and within sections.

⁹⁷ Occasionally, musical exchanges escalate into attempts to 'trip' one another up with rhythmical tomfoolery which can result in *derrubada* (Port. 'drop' or 'derailment') of musical proceedings and considerably hilarity. As musical representation of *malicia* (Port. 'trickery'), *derrubada* is one of Choro's most prized practices which, like its other routines, is conducted in convivial and respectful manner.

⁹⁸ Division of labour within accompaniments is dictated by deeply intermeshed and stylistically constrained processes, as impervious to external interference as the crankshaft inside a truck's engine. *Malicia*'s favoured outcome therefore occurs only rarely, for it takes a seasoned grandmaster to tease an entire accompaniment section into internecine anarchy. Exceptions like these merely illustrate the substantial influences that accompaniments exert onto melodic instrumentalists, the reverse only eliciting cosmetic effects in all but the rarest of instances.

brasileiro, were both the product of mid-1800s fusions between the European polka and Cuban *habanera* with a dash of *lundú* syncopation as afterthought.

As mentioned before, *maxixe* and *tango brasileiro* are essentially each other's organizational inverse see (fig. 27), the *maxixe*'s pattern consisting of polka bass with *habanera* chord phrasing and vice versa for the *tango brasileiro*. The pulse pattern of the *tango brasileiro* therefore has a decided 'lean' to the front of the timeline cycle, whereas the *maxixe* has a stronger metrical grounding due to its underlying regularity. Besides this style discrepancy being noticeable as a decidedly more Caribbean 'feel' to *tango brasileiro* accompaniment style, it also restricts its tempo to a lower limit than that of the *maxixe*⁹⁹. Irrespective of discrepancies between the variants, fusion of polka with *habanera* and *lundú* resulted in hybrid soundscapes that still retained melorhythmic functions (see fig. 28).

The figure displays two musical examples in 2/4 time. The first example, labeled 'Maxixe', shows a treble clef staff with 'Habanera chord phrasing' consisting of six chords (G4-B4, G4-B4, G4-B4, G4-B4, G4-B4, G4-B4) and a bass clef staff with 'Polka bass' consisting of six quarter notes (G2, B2, G2, B2, G2, B2). The second example, labeled 'Tango Brasileiro', shows a treble clef staff with 'Polka chord phrasing' consisting of six chords (G4-B4, G4-B4, G4-B4, G4-B4, G4-B4, G4-B4) and a bass clef staff with 'Habanera bass line' consisting of six eighth notes (G2, B2, G2, B2, G2, B2).

Fig. 27 Aspect reversal – *Maxixe* versus *Tango Brasileiro*

⁹⁹ A more contemporary comparison finds that the same issue occurs between respectively Trinidad's calypso and Dominican meringue music. Likely is, that metrical bass notes are instrumentally easier to sustain at high tempos than an asymmetrical timeline, although this can be resolved by evening the latter out to a triplet feel.

The image displays two musical examples, 'Maxixe' and 'Tango Brasileiro', each consisting of a treble and bass staff in 2/4 time. The 'Maxixe' example features a treble staff with a syncopated melody of eighth notes and a bass staff with a simple accompaniment. Annotations include 'HIGH' labels above the peaks of the melody, 'Medium' labels above the troughs, and 'low' labels below the troughs. Large upward-pointing arrows connect the 'Medium' and 'low' labels to the peaks, while downward-pointing arrows connect the 'low' labels to the troughs. A double-headed vertical arrow is positioned between the two staves. The 'Tango Brasileiro' example follows a similar structure but with a more complex treble melody. Its annotations include 'HIGH' labels above peaks, 'Medium' labels above troughs, and 'low' labels below troughs. Large upward-pointing arrows connect the 'low' labels to the peaks, and downward-pointing arrows connect the 'low' labels to the troughs. A double-headed vertical arrow is also present between the staves.

Fig. 28 Melorhythmic soundscaping – *Maxixe* versus *Tango Brasileiro*

4.4 Melorhythms and compound melodies in Choro music

Produced by entirely different creative processes, melorhythms and compound melodies nevertheless appear to have conceptual overlaps by notion of multiple melodic stream content. Both melorhythms as well as compound melodies emerge from sensory input by perceptual quality-adding, resulting in respectively single melodic outlines from complementary tone cycles and multiple melodic *gestalts*¹⁰⁰ from single-note arrays.

In a practical sense, the main compatibility wrench manifests itself as a discrepancy between organizational concepts of melorhythm and compound melody. Classical compound melodies mainly consist of note-saturated linear arrays, oriented to metrical accents, whereas melorhythms contain cycles occupied by asymmetrically accentuated note groupings. Therefore, melorhythms' regularity occurs at the cycle length of their pulse patterns whereas the rhythmical structure of compound melodies is metrically grounded in short symmetrical sequences¹⁰¹.

Perceiving compound melody as musical match for melorhythm by mere aesthetic similarities is an unjustifiably subjective assertion as there are no quantifiable grounds of any sort. A more objective argument in support of this compatibility, however, emerges after conjuring up hidden perceptual traits in melorhythm.

Temporal information density in melorhythmical structures is relatively low compared to compound melodies, effectively below the rate for tricking auditory perceptions into melodic stream segregation. Also, the tonal ambiguity of chord and bass structures in middle to low registers form pitch patterns that have no psycho-acoustic propensities beyond their immediate perception.

If, however, melorhythmical music is played back at double speed and pitch via sound editing software¹⁰², then melorhythms' temporal density and acoustic pitch start to approach that of compound melodic structures, indeed triggering the sense of listening to separate melodic lines within a single soundscape (see fig. 29)

¹⁰⁰ See: (Luccio 2011)

¹⁰¹ Whether based on ternary or binary beat groupings and subdivisions, conventional compound melodies are uniformly grouped and metrically oriented, for example on the first semiquaver of each beat.

¹⁰² Akin to replaying 33rpm vinyl records at 78rpm.

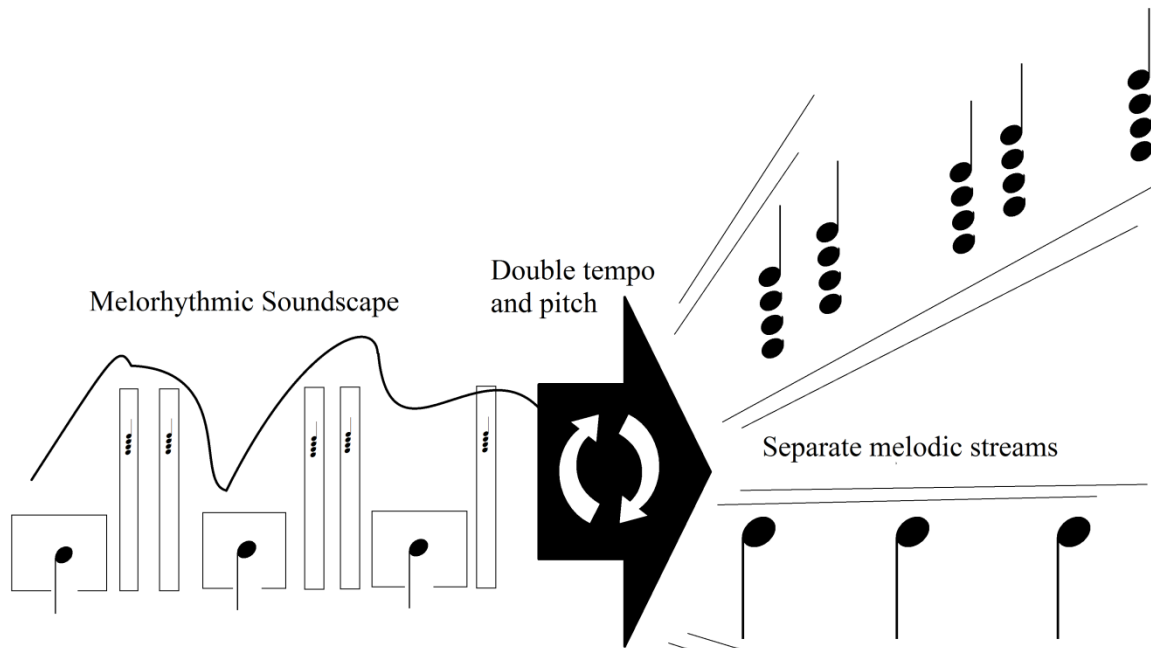


Fig. 29 Psycho-activation of melorhythm

Recapitulating *ad interim*: monophonic compound melodies fission into multiple melodic strains by their psycho-active structure. Tonal complements in melorhythms merge into a single collective tonal pattern, essentially the organizational reverse of the former's melodic fission. Increasing melorhythms' information density to psycho-active values, however, elicits a type of melodic fission between accompaniment strains that is highly similar to compound melodies. This demonstrates a functional parity between respective concepts that is temporal in nature, in my opinion a compatibility basis that is more compelling than mere similarities in aesthetic appearances. This revelation can be considered as a clinically induced breakthrough as real-time performance of melorhythms never would have revealed this trait.

Converting metrical compound melodies into proportional renderings of melorhythmic accompaniment would have required a decidedly clinical approach to music creation¹⁰³. Although Choro sessions were crucial in Brazil's progressive music development, they functioned more as occasions for mixing existing concepts rather than team-operated research-and-design laboratories¹⁰⁴. Idiomatic novelties such as syncopated compound melodies would require pre-formulation and instrumental consolidation before they could have been brought to Choro's musical table in good grace.

¹⁰³ By clinical I mean, as in instrumental experimentation outside of presentational performances or repertoire-based rehearsals.

¹⁰⁴ Arguably due to the reported prevalence for performing popular dance repertoire during gatherings. In this regard, the stylistic development of Choro music can be described as a progressive synthesis of discrete functional components, predominantly using *maxixe* and *tango brasileiro* patterns as developmental premise.

Multi-instrumentalist Joaquim Callado's compositions indeed contain ample syncopated compound melodic passages (see fig. 33, 34 and 35) which arguably were the result of such clinical experiments. As classical concert pianist, he doubtlessly would have had access to compound melodic material from salon repertoire, particularly right-hand structures with left-hand accompaniment¹⁰⁵. These right-hand compound melodies would have presented a stock of modules he could tinker with, applying syncopated phrase elements he had assimilated in the guise of Choro flautist.

Early 20th century salon piano pieces based on Choro music, such as composed by pianist Ernesto Nazareth¹⁰⁶, also included rhythmically adapted compound melodies with similar structural characteristics.

Nazareth, anxious to retain his upper-class patronage, reportedly had no intention to risk social stigma by associating with Choro musicians. In this respect, he had no interest in Choro beyond appropriating aspects that could give his creations novelty value in Rio's chamber performance circles. While keeping his ear to the wall, out of sight of musical denizens, he likely would have directly copied compound melodic formulas already entrenched within Choro practice rather than designing his own¹⁰⁷.

The decades separating Callado's clinics and Nazareth's novelties therefore mark an episode during which the concept of compound melody entrenched itself within traditional Choro practice. As with classical concert situations, the demonstrative value of these melodic constructs would have brought delight to audiences and certain respect to performers. Breathing new fire into musical one-upmanships, the introduction of compound melodies as token challenge would have created a new inner circle of virtuoso flautists. In this respect, Choro's melodic sophistication likely was caused by competitive instrumental prowess rather than artistic endeavor¹⁰⁸.

4.4.1 Orienting compound melodies to melorhythmical soundscapes

Responsibility for the introduction of compound melodies into Choro music can be traced back to Mathieu-André Reichert¹⁰⁹ and Joaquim Callado, both active in Choro circles during the 1860s and 70s¹¹⁰.

As an older and more accomplished musician, Reichert was probably the first to pioneer the use of compound melodies for creative improvisation besides having been involved in Choro music before Callado's involvement¹¹¹. Nevertheless, Callado stands out as the most reliable source for this development for a number of reasons.

¹⁰⁵ See: (Rietz 1874 pg 16-20)

¹⁰⁶ (1863-1934)

¹⁰⁷ See: (Livingston & Garcia 2005 pg 36)

¹⁰⁸ See: (Livingston & Garcia 2005 pg 46)

¹⁰⁹ See: (Ernest Dias 1990, pg 76-92)

¹¹⁰ See: (Diniz 2008 pg 55-62, Livingston & Garcia 2005 pg 66-68)

¹¹¹ This is confirmed by detailed programme notes that include Reichert announced as performing his own arrangements of *The Carnival of Venice* (Dias 1990, p. 72)

First, Callado created a bundle of compositions in Afro-Brazilian style that compellingly include compound melodies, their phrasing structure indicating orientation on melorhythmic pulse patterns¹¹². Irrespective of possible earlier applications by Reichert, these compositions are the first official indication of compound melodies being included as idiomatic innovation¹¹³.

Secondly, Callado's status as respectable *mestizo* allowed him to move freely within Brazil's common-class sector without risking disrepute among his European upper-class peers¹¹⁴.

Thirdly, both Callado as well as Reichert were versed in repertoire replete with compound melodic structures, as testified by their occurrences in either musician's compositions.

Although both were equally virtuosic concert flautists, Callado's added capabilities as concert pianist put him at a more advantageous position as creative clinician. Compared to flute technique with its decentralized acoustics and mechanics, the piano is a relatively accessible medium for producing music as it allows access to pitch and rhythm with a single-digit action¹¹⁵.

The piano's suitability for single-handedly generating multi-melodic structures made the instrument, combined with Callado's capabilities and incentives, a highly functional hybridization locus for producing melorhythmic variants of arpeggiated compound melodies.

Fourthly, besides giving classical flute and piano concerts, Callado also composed for his own Choro ensemble *Choro Carioca* with which he was known to perform regularly around Rio's nightspots. Being active in conservative as well as progressive music circles would inevitably have caused a class overlap in his respective circles of admirers¹¹⁶.

¹¹² See: (Dalarossa 2008)

¹¹³ On the other hand, the upbeat chamber polka *La Coquette* for virtuoso flute and piano, composed by Reichert during his life in Brazil during the 1860s and 70s, also contains compound melodic structures. Its melody, however, does not contain any Afro-Brazilian elements in its phrasing structure, being composed in strict metrical style. Made famous under the name *A Faceira*, it merely testifies of influence on Brazilian chamber music genres rather than on Choro's idiomatic development.

¹¹⁴ Irrespective of the growing upper-class Creole stratum within elite echelons, cultural values of upper-class echelons were still tied in with European superiority, a trend reflecting in elite's attitudes towards notions of race. As mixed-race musician, Callado's vertical social mobility formed a significant precondition for his access to musical style elements from both classical music as well as popular entertainment repertoire. In case of Reichert, the combination of his reportedly whimsical disposition and unaffiliated foreign status moved him from the country's highest Imperial circles to the most marginal of urban fringes and back during his musical exploits. Unlike Callado, Reichert never established a double career profile as both classical and popular musician, instead merely frequenting impromptu pre-Choro gatherings besides his activities as classical concert flautist.

¹¹⁵ To illustrate this, the performance of a basic two-stream compound melody on flute requires a general skill level far above the requirements for producing the same structure with two index fingers on piano. The melodic acrobatics that characterized compound melodies in Callado's compositions, typically formulated as a melody stream interspersed with arpeggiated chord notes, are single-handedly achievable for intermediate pianists. Additionally, the percussive kinematics in hand movements of piano technique are more in line with actions for producing musical structures that are melorhythmic in nature, comparable to the melodies produced on African *mbira* or *marimba*.

¹¹⁶ In particular, upper-class aficionados of mixed-race descent would have been able to follow him from common-class music venues to upper-class concert halls, their racial ambiguity not distinguishing them as native to any class.

Callado's progressive performances likely inspired a number of the flautists among them to take his concepts home for discrete cultivation, later returning to introduce their own versions into other Choro meetings. The subsequent adoption of compound melodies by common-class flautists plausibly elicited a groundswell of emulations, a trend also followed by subsequent generations of Choro composers and performers¹¹⁷.

Although Callado's compositions exhaustively capture his melodic creativity, no details remain of the particulars of his accompaniments' structural processes.

Callado's accompanists, names unknown but presumably consisting of a revolving pool of players, were active within Choro circles during their involvement with *Choro Carioca*, at the time in high demand as entertainment ensemble. *Choro Carioca*'s instrumentation consisted of two guitars and a *cavaquinho*, commonly played by Afro-Brazilians in popular music circles. The division of labor in this line-up assigns bass notes to one guitar and chords plus ornaments to the second guitar and *cavaquinho*.

Traditionally, Choro repertoire and skills were aurally acculturated during meetings, supplemented with incidental coaching by more senior practitioners. This implies that performers possessed active listening skills that enabled them to isolate instrument-specific performance information from full ensemble output¹¹⁸.

In order to direct his compositions, Callado certainly would have been able to dictate harmonic details in real-time on a piano towards his accompanists' highly accomplished ears. They, in turn, would have rendered his dictations according to their own assumed stylistic knowledge, tantamount to providing accompaniment on tap to Callado.

As it can be safely assumed that he was not a trained guitarist¹¹⁹, Callado would only have been able to interpret his accompanists' output in a pianistic sense, analogue to earlier slave musicians converting African *lundú* music to suit the musicological and technical restrictions of European instruments. Conversely, his common-class accompanists never captured the structural aspects of their output in notated form, likely due to having been musically illiterate at best.

That this cognitive gulf was bridged to certain extent from Callado's side can be deduced from his musical directorship, although limited to dictating tempi, chord changes and song form. His accompanists, on the other hand, had absolute stylistic sovereignty within the intermeshed structure of their instrumental processes, virtually impervious to external interference. The melorhythmical

¹¹⁷ Callado's position as flute lecturer at the Rio Conservatory, a position he held until his death in 1880, certainly would have helped the spread of his concepts into erudite music circles.

¹¹⁸ This trait was also known to support the perpetuation of popular street repertoire during the late-19th century. (Livingston Isenhour & Garcia 2005, pg 25)

¹¹⁹ During Callado's time, the guitar was unfavourably regarded by Rio's conservative elite as a vulgar and subverting representation of common-class culture, particularly from the Afro-Brazilian sector. As middle-class citizen, merely owning a guitar would have had the potential to damage one's standing beyond redemption, a risk Callado likely was not prepared to take. (Livingston Isenhour & Garcia 2005, p 87, p 165)

projection of their output, on the other hand, would have contained substantial reformative power, which in this case took aim at sophisticated melodic concepts presented by Callado.

Back-engineering a developmental process from circumstantial evidence, even when new clues put old information into a clearer perspective, does not guarantee to deliver results beyond mere conjecture. In Callado's case though, there is compelling information for supporting the assertion that a methodological approach for adapting compound melodies was open to him. Proof already exists that he conceptualized and applied these for compositional purposes, an assertion borne out by the very existence of his repertoire. Also supported, he had access to potential source material as well as the means and opportunities to turn this into a workable form, inspired by his private Afro-Brazilian ensemble. Their musical output, besides guiding to Callado's creative explorations, would have functioned as a real-time stylistic reference during conduct of idiomatic experiments.

It is said that in order to compose one must first decompose, starting with musical preconceptions. Examining structural propensities of compound melodies reveals certain internal patterning, in particular sequences of notes that are individually associated with separate melodic streams (see fig. 30). To facilitate explorative investigation, the obvious choice would have been to collect variants that are easy to perform on piano and put these aside for further processing.

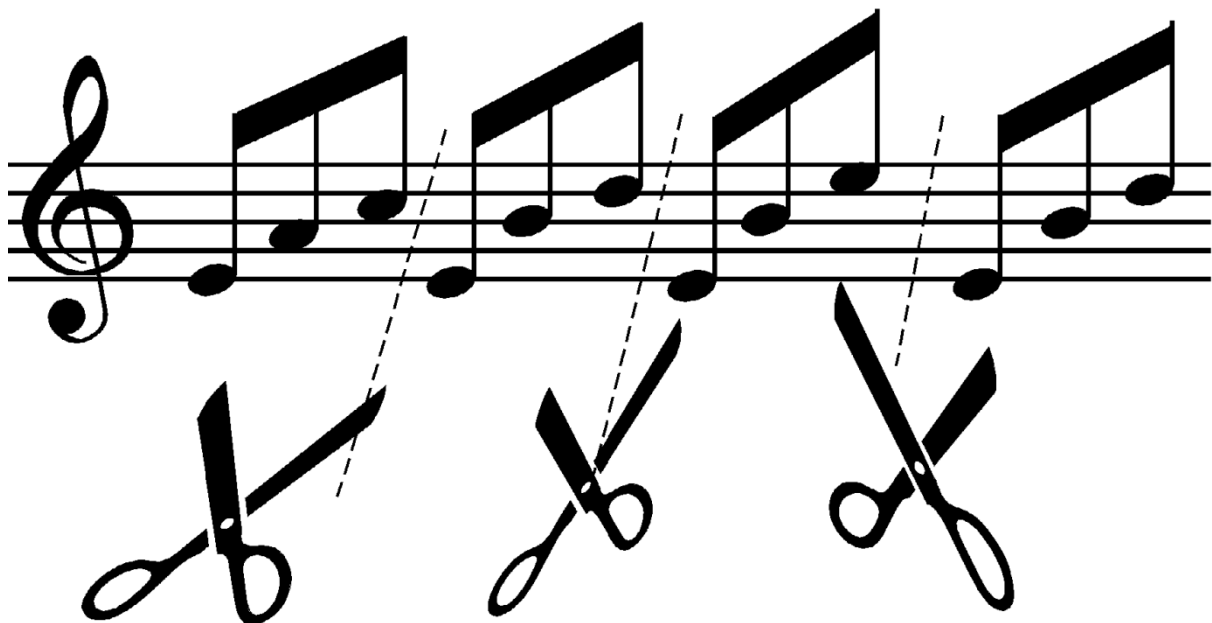


Fig. 30 Compound melody – melodic sections

Further to resolving the compatibility wrench between the entities at issue, first consider melorhythms' pulse pattern, the onset values of its containing array configured as 3-3-2 (see fig. 31).

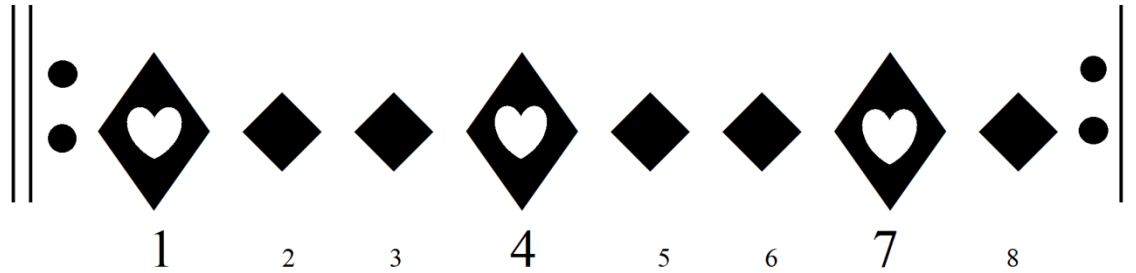


Fig. 31 Pulse pattern accentuation

The next step would have been to find compound melodies which propagate in ternary or triplet subdivision, for instance a simple triad arpeggio.

Step three would have been to extract two triple-unit melodic modules and overlay these onto the first two groupings of the pulse pattern.

Step four would have been to pare a three-note melodic module down to duple form, by removing either middle or last note, and fit to the corresponding grouping within the pulse pattern (see Fig. 32).

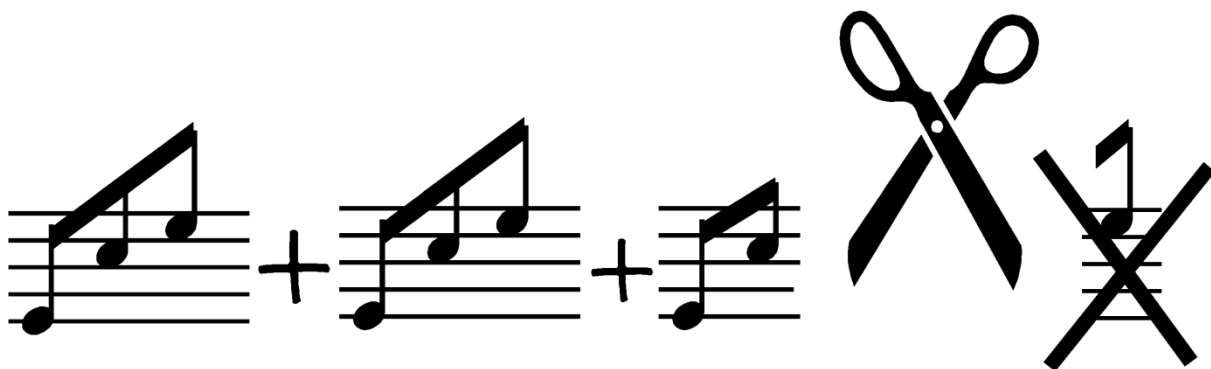


Fig. 32 Melodic modules – selection and re-assembly

After having covered two of melorhythms' formative aspects, pulse and harmony, last step in the clinical process is to fit overall melodic shaping to represent melorhythms' tonal outline.

This refit would have produced a basic working model for exploring other pitch configurations which could be tailored to match any chord progressions and melodic intent.

The directive influence of melorhythmic tone patterns on compound melodic formation served to complete the latter's transformation, effectively 'cloaking' the outline of melorhythms in a compound-melodic rendering of itself (see fig. 33).

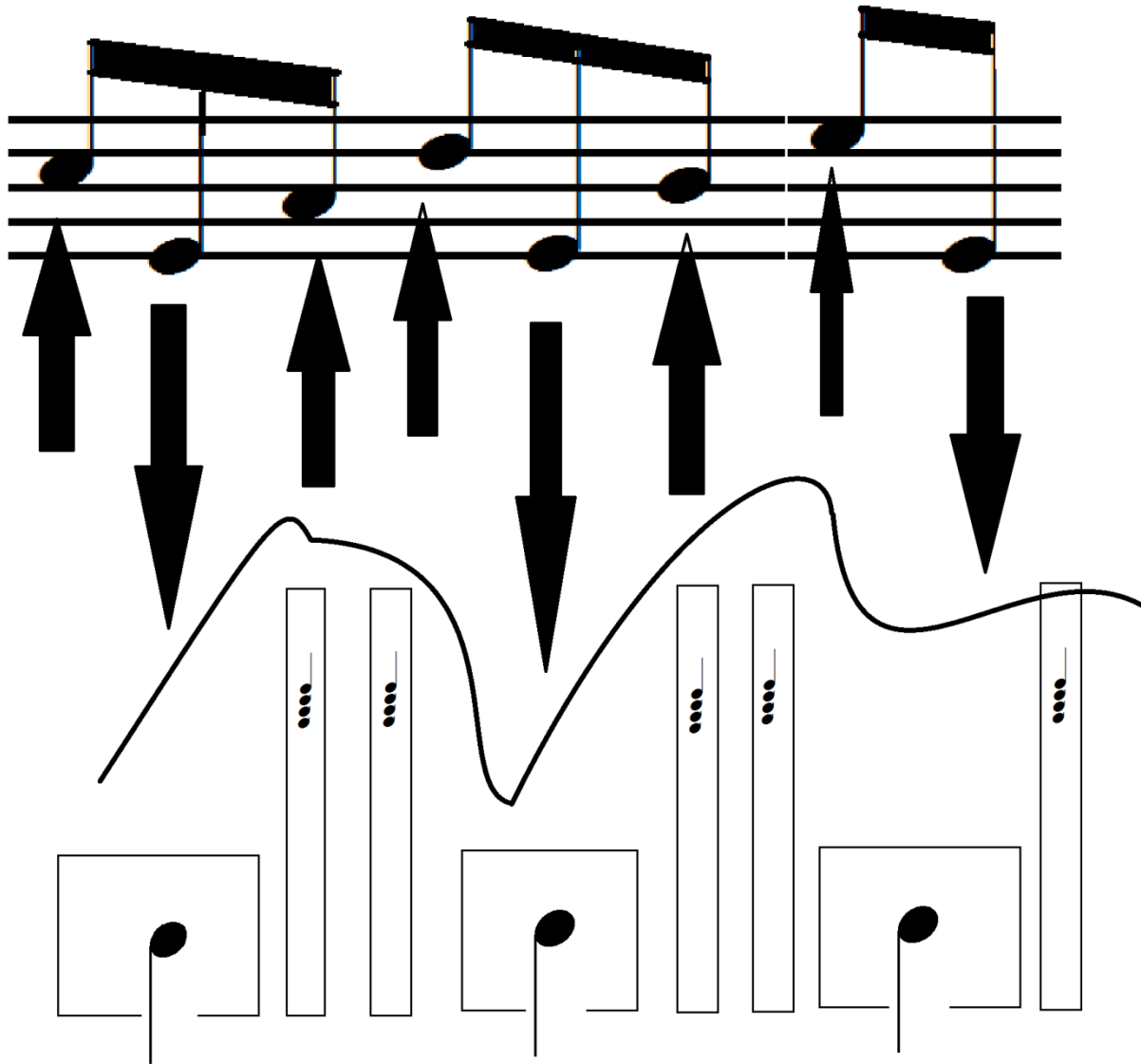


Fig. 33 Orienting compound melody to melorhythmic soundscape

Callado would have modeled a melodic structure that imitates accompanists' inflexion pattern, oriented on harmonic constraints and modularly phrased to match pulse cycles. In stylistic respect, a novel hybrid that nevertheless remains dually representative of its constituent cultural antecedents, therefore a fitting example of musical Creolization¹²⁰.

To develop this clinical concept into a musical principle for creative deployment would have required the touchstone of a melorhythmically structured chord progression, in other words a pilot project that included accompaniment. Callado, having his own Choro ensemble at his disposal, as

¹²⁰ Conceptually parallel to the processes involved in producing a mixed cultural identity from two distinctly different racial and cultural profiles.

such could freely avail himself of their services during directed rehearsals, re-iterating his experiments at will.

As with biological hybridization processes in nature, unforeseen ramifications can yield surprising and far-reaching changes in functional and aesthetic aspects. By using 3-3-2 phrased compound melodies, consisting of two triple and one duple melody cells, for instance within a hybrid melorhythm such as the *maxixe*, a new concept emerges that exhibits highly significant peculiarities in structural organization.

Originally orientated on prevailing meters, classical compound melodies propagate the intervallic structuring of their melodic streams along predictably regular arrays. The ‘fit’ of these arrays conventionally matches the cycle length of compound melodic cells with metrical units (see fig. 34). Mentioned before, the structural self-referentiality of metrical compound melodies emerged from serializing identically phrased melodic cells in a predictable array.

In 3-3-2 pulse-oriented compound melodies, re-configured modules merged to form overarching melodic cells within pulse cycles, placing notes of primary melodic streams at the start of each module. As pulse cycles’ length is the lowest systemic level at which structural regularity occurs, it can be asserted that the self-referentiality of re-grouped melodic cells is accordingly proportioned (see fig. 34).

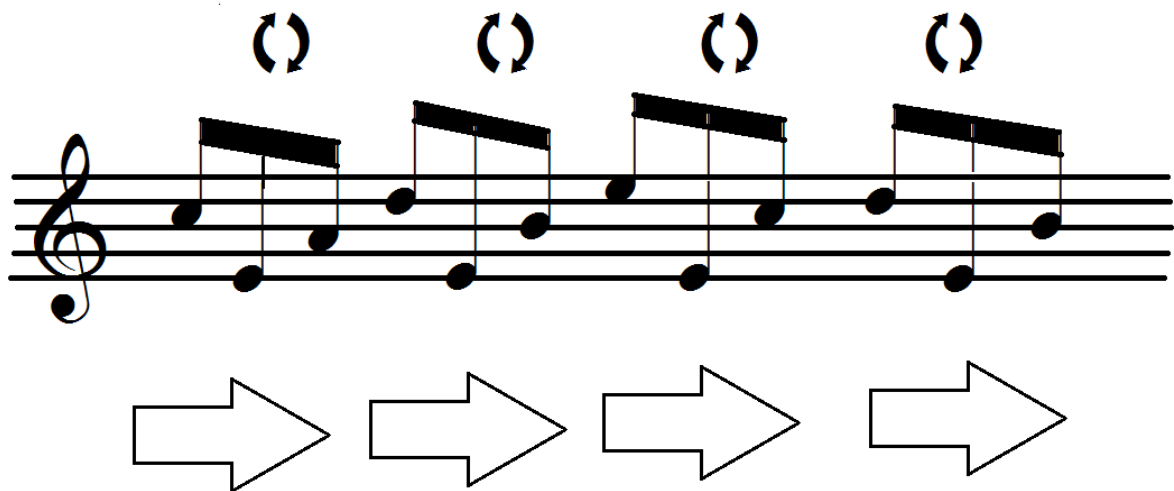


Fig. 34 Sequential modules in re-formatted compound melodies

Taking into account that pulse pattern arrays do not contain hierarchical accentuation, assigning primary notes to prominent pulse values relegates the notes in second and third stream to ‘shadow’ slots within cycles’ array in melorhythms. These ‘shadow’ values were locations of low tonal density within pulse patterns, occupied by sparse supplementary tones. Originally subordinate when part of metric structures, second and third stream notes now placed on these shadow values take

on a distinctly emancipated role, complementary to primary melodic streams. This functional equalization can be attributed to rhythmical heterarchy inherent to melorhythms, eradicating the vestigial accentual hierarchy within the modules of melodic cells (see fig. 35).

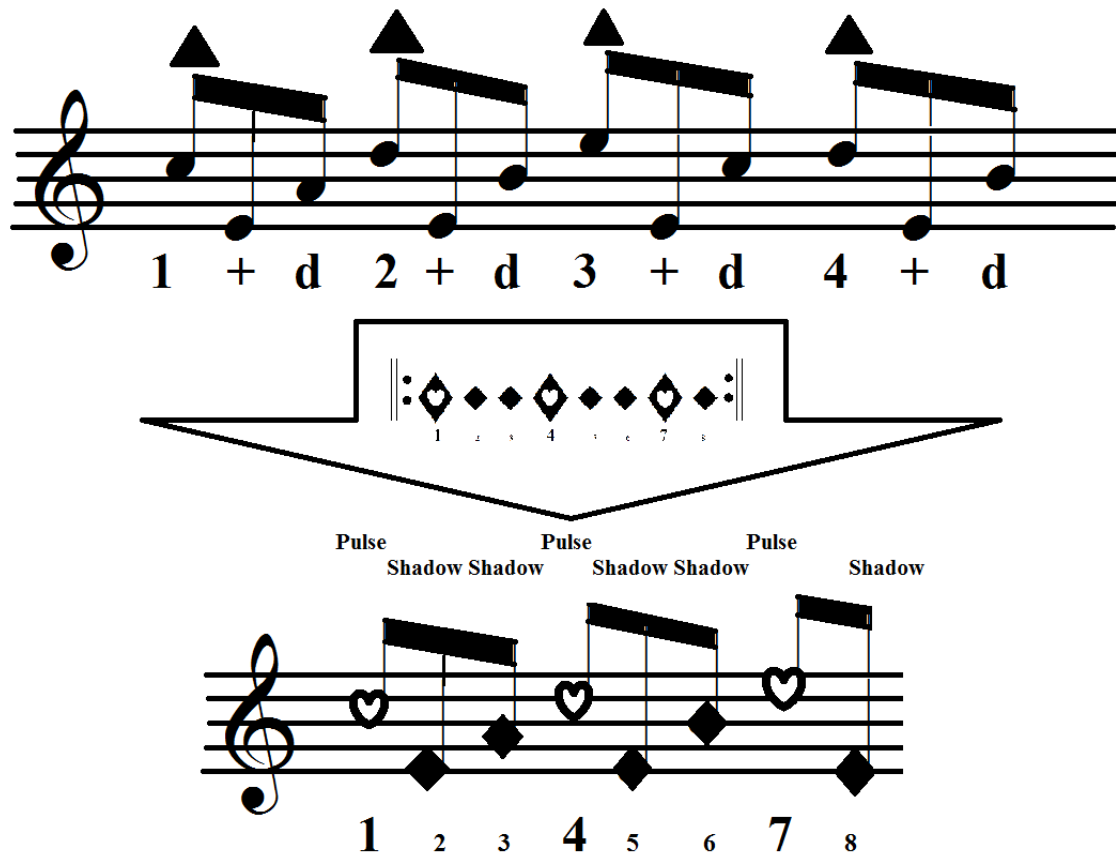


Fig. 35 Heterarchical reorganization of accentual hierarchy in syncopated compound melodies

After completing this stage of clinical development, the concept of re-formatted compound melody would have been fit for creative deployment as idiomatic novelty, an assertion partly backed by their actual inclusion within Callado's Choro compositions. Conventional compositional considerations, such as harmonic constraints versus melodic shaping, can be considered as having been mere afterthought to the above transformations.

Transposition of these melodies to flute would likely have posed few technical problems for Callado, being highly accomplished as interpreter of virtuoso repertoire. The most challenging, but also artistically rewarding, stage of development would have been the application of compound melodic formulation principles to Choro's improvisation routines. Callado's research and practice, based on extrapolating the 3-3-2 model into diatonic scalar arrays and modal harmonic sequences, would already have yielded a high number of formative permutations. The creative application of these melodies is a digressive development that, regrettably, is not part of this thesis' examinations, although it presents a tantalizing footnote for further research in this direction.

4.4.2 Examples

A Dengosa – Joaquim Callado¹²¹ (see fig. 36)

In spite of its metrical notation and designation as polka, this composition's melody is not to be interpreted as the stylistic reference to its European original suggests. Better known as *maxixe*, the name polka actually referred to a salon form of the *maxixe* that was more gentrified than its rambunctious original, a dance genre replete with *lundú*-derived phrase syncopations. The Brazilian variant of the polka only retained the bass patterns as metrical component whereas its chord structure follows the *habanera*'s 3-3-2 pulse pattern. Re-phrased accordingly, three sub-modules with initial accentuation can be distinguished, together forming an 8-unit recurrent cycle.

The first bar of *A Dengosa*'s melody clearly exhibits melorhythmic tendencies in its compound-melodic patterning. Besides containing secondary and tertiary melodic streams on 'shadow' locations in the timeline, its structure imposes melorhythmic texture and inflexion on a descending melodic index. Aesthetic content contained within the melody's key motif can be considered as thematically linked to the composition's name. Expressive of skittish but sensual character, the melody's catchphrase suggests a rapid change of moods, cycling from confronting exuberance to woeful monomania.

The musical score for 'A Dengosa' is presented in two systems. The first system covers measures 1 through 4, and the second system covers measures 5 through 8. The melody is written in a treble clef with a key signature of one flat (B-flat) and a 2/4 time signature. The melody is characterized by syncopated rhythms and a descending melodic index. The score includes chord symbols above the staff and labels for different melodic streams ('1st', '3rd') and rhythmic patterns ('3rd', '2nd') below the staff.

Fig. 36 Callado - *A Dengosa*, polka

¹²¹ See: (Dallaroso 2008) & (Diniz 2008)

Florinda – Joaquim Callado¹²² (see fig. 37)

Again, the primary melodic stream in this composition follows the *habanera*'s pulse pattern, ascending from the chord progression's 3rd via 13th to 9th in intervals of perfect 4ths. In a metrically oriented phrase, the latter two would have been considered as suspended notes for respectively the 5th and the tonic. Their pole position within pulse cycles, on the other hand, emancipated these notes as harmonically independent. This independence can be considered as an idiomatically progressive trait, particularly during times when unresolved melody notes in opposition to triadic harmony defaults were still considered as excessively dissonant to conventional sensibilities. As with the first bar of *A Dengosa*'s lead phrase, the primary melodic stream is enveloped in a melorhythmically functional rendering of complementary 'shadow' motifs. The aesthetic effect projects a sense of multi-faceted shimmer during phrase propagation, suggesting consistent and dynamic intellect offset by a certain pensive decisiveness in turn of phrase.

The image displays two systems of musical notation for the piece 'Florinda'. Each system consists of a treble clef staff with a key signature of two sharps (F# and C#) and a 2/4 time signature. The first system is annotated with chords D, A, A, and A above the staff. The second system is annotated with chords A, E7, A, F#7(#5), B7, E7, A, and A7 above the staff. Below each staff, there are two lines of notes representing a melodic stream. The first line of notes in each system has '1st' written above it, and the second line has '2nd' written below it. Vertical dashed lines connect the '1st' and '2nd' labels to their respective notes. The notes in the '1st' line are consistently higher than those in the '2nd' line, and they follow a similar rhythmic and melodic contour, illustrating the 'shadow' motif mentioned in the text.

Fig. 37 Callado – *Florinda*, polka

¹²² See: (Dallaroso 2008) & (Diniz 2008)

Improviso – Joaquim Callado¹²³ (see fig. 38)

In stylistic respect, the melody of *Improviso*'s trio is dually compatible, able to function in both metrical as well as habanera-based phrasing, presenting listeners with a 'trick of the ear'. Without the determinant of accompaniment, it is not possible to designate this melody as metrical or timeline-based, the effect comparable to the directional ambiguity of silhouetted figures.

Fitted to a metrical undercarriage, this melody propagates mainly as major arpeggio with an anticipated 'push' to the second beat by the preceding chromatic leading tone. Landing on the 3rd of the chord, its harmonic limitations have a stagnating effect on the chord progression, limited to the tonic or its diatonic substitutes on G or C.

In *habanera* pulse, however, the 'shadowed' complementary secondary note stream emerges in its full glory as 'cuckoo'-like descending motifs that match the harmonic progression. The primary stream now projects a distinctly ethereal character by descending from major to minor 3rd before floating up to harmonic dominance.

Melodic progress of the primary stream in the first two bars infers a dominant 'lean' on the second sub-module's onset, represented by the F#. When interpreted as a harmonic function of the suggested primary dominant chord, this F# pre-emptively enharmonizes to a more graceful G flat.

The ramifications for the chord progression are compelling, inserting the dominant chord as only alternative to exposing a melodic #9 to 19th century notions of dissonance. Syncopated rephrasing of this compound structure therefore not only enriches its rhythmical aspect, it also offers the opportunity to spice up the harmonic progression with an extra dominant chord on each second beat of the first two bars.

As the title suggests, this passage might well have eventuated as the result of extemporization on a particular compound-melodic model, albeit requiring diabolical technique when performed on flute. When performed by the right hand on piano, however, repeat of the first pattern turns out to be quite manageable, not even requiring any under-crossing with the thumb.

The exposition that follows would require minor translocation of hand position but, apart from a large leap spanning one octave plus major 3rd, this passage's predominance of black key notes provides ample tactile security.

Notions of instrument-specificity suggest that this passage indeed originated as clinical pianistic motif for melodic exploration. Not only would this tacitly confirm that Callado upheld a clinical method for developing his concepts, it also implies that his compositional and improvisational concepts had developed from instrumental research rather than applying compositional theory.

¹²³ See: (Dallaroso 2008) & (Diniz 2008)

Fig. 38 Callado – *Improviso*, polka

Favorito – Ernesto Nazareth¹²⁴ (see fig. 39)

Although an enthusiastic appropriator of Choro music's stylistic and idiomatic aspects, Ernesto Nazareth¹²⁵ had no intention of involving himself with the social side of this musical fringe phenomenon. As a composer and pianist, he was a respected presence in Rio's upper-class music circles and could not afford to risk his professional reputation by being seen fraternizing with *illiterati* from common-class descent. His musical perceptions, though, must have been keen enough to pick out Choro's stylistic essence at a distance as he aptly managed to emulate some of the genre's most typical traits in his piano compositions.

Careful not to antagonize the cultural sensibilities of his conservative rich patronage, he diplomatically altered the stylistic tag of his works to obscure the Afro-Brazilian lower-class origin of his appropriations. Exotically re-labeled as *tango brasileiro*, its original left-hand accompaniment nevertheless clearly emulated *habanera*'s phrasing in the bass line, no doubt dislodging more than a few monocles in Rio's music salons.

Although the melody recognizably emulates Choro's idiomatic profile, phrasing structures are only partly representative of compound melodic principles, being confined to the first beat of each bar. Syncopated notes in the second half of each bar mainly merely function as pickup for compound-melodic module in following bars, effectively precluding the emergence of melorhythm's characteristic cycles of compound melodic structures. The relative similarity between 2-bar phrase

¹²⁴ See: (Dallaroso 2008) & (Lourenço da Silva 2005)

¹²⁵ (1863-1934)

structures indicates repeated application of a relatively short and isolated motif that, although still stylistically representative of Choro music, gives the music a certain stilted angularity.

Even when reconstituted from memory in small and isolated doses, compound-melodic melorhythm has proven highly capable of conveying Choro's stylistic character. Treading a fine line between novel and disreputable, Nazareth's piece-meal application of Afro-Brazilian style aspects plausibly had an even greater influence on Brazilian music history than he already received credit for. His suave presentations of Choro-inspired salon repertoire likely persuaded his high-society audiences to discretely reconsider the ingrained notions of vulgarity and subversion attached to Afro-Brazilian music.

For his part, Nazareth can be credited with being instrumental to contributing to Brazil's musical revolution from society's the top down, arguably more by design than by desire. Although not actively involved in popular music culture, Nazareth certainly oiled the rusty bolt that locked high-society's common-class artist entry.

The musical score for Nazareth's 'Favorito' is presented in two systems. The first system consists of four measures with chords A, E7/B, E7/B, and A/C#. The second system consists of four measures with chords F#7/C#, Bm/D, B7/D#, and E7/B. The melody is written in treble clef with a key signature of two sharps (F# and C#) and a 2/4 time signature. The accompaniment is written in bass clef. Fingerings are indicated for both hands: '1st' and '3rd' for the right hand, and '2nd' for the left hand. The melody features a syncopated compound rhythm with a stilted angularity.

Fig. 39 Nazareth – *Favorito*, tango brasileiro

4.5 Afterthoughts

In a metaphorical sense, conversion of a structurally hierarchical melodic concept into cooperative heterarchy aptly parallels Choro's historical function as social equalizer. In that respect, Choro's catalyzing influence can be seen as opportune to its own evolutionary trajectory, the style's general musical appeal adding aficionados to its ranks even to this day.

Rhythmical reformation of compound melodies also can be seen as exploitative appropriation of Choro's classical aspect, the discrete change of cultural allegiance camouflaged by its boastful virtuoso prominence. By maintaining erudite mimicry as self-congratulatory showpieces, syncopated compound melodies put aesthetically acceptable *façades* on popular Afro-Brazilian music whilst covertly emulating its darkly melorhythmic principles. Fortunate for Brazil's popular music development, this might well have delayed the cultural elite's hair-trigger antagonism long enough to assure Choro's safe passage into more conservative circles, grouped around phonographs in private parlors.

Musicologically, idiomatic adaptation of compound melodies is allegorically demonstrative of Choro's typical tendency to create style-transcending hybrids, willingly seducing its practitioners to assume its phrasing concepts. Analogue to hybridization processes in the natural world, such developments require potential contributors to be formatively compatible as well as mutually enriching. In Choro melodies' case, the formative compatibility between melorhythm and compound melody was hidden in temporal proportionality while their mutual functional differences were masked by a similarity in aesthetic appearance. Effectively conceived out of thin air by matching soundscapes, the result was a successful hybrid that propagated on its own terms in dynamic virulence, spawning countless melodious varietals on its historical path.

5 Conclusions

Comparative analysis of compound melodic structures in Joaquim Callados' compositions, in my opinion, compellingly supports the notion of melorhythmical aspects as crucially influential to the integration of compound melodic structures into Afro-Brazilian progressive music.

Performance information that induced re-phrasing of these melodies was most likely transferred via accompaniments' musical output, either during live performances or in Callado's private piano room. Using the musical quality of Callado's oeuvre as compositional touchstone, it was well within his capabilities to stylistically adapt compound melodies to match the pulse patterns of popular Afro-Brazilian music. It can be stated with certainty that he also developed a working concept that could be tailored to suit specific melodic and harmonic demands, a notion supported by the fact that closely related variants of this concept can be found in his compositions.

Factual occurrence of syncopated compound melodies in Callado's compositions permits reverse-deduction of his most likely creative model by linking back to his known resources, opportunities and capabilities. Formatted for achieving optimum transformative outcomes between stages, the parameters of this model can be configured to yield results remarkably in line with Callado's melodic concepts. A working model for rhythmical conversion of compound melodic material also opens up a significant number of research possibilities. Particularly, exploring the width of stylistic parameters in melorhythmically organized music can inspire the creation of new compositions.

Central to the assertions in this thesis, this process model confirms that adapting compound melodies to melorhythmical pulse patterns annihilates any accentual hierarchy between the notes of melodic streams. This organizational transformation takes place during the stage when 3-3-2 grouping of melodic modules produces asymmetric 8-note arrays, structurally oriented to match its pulse cycle. Although these modules appear to retain certain accentual hierarchy, notes that previously occupied lower accentual ranks find themselves promoted to so-called 'shadow' positions in complement to primary stream notes. Therefore, adaptation of compound melodic cells to pulse pattern arrays effectively leveled their original accentual hierarchy, reorganizing their melodic streams into heterarchical, interdependent complements.

Symbolically present at deep levels within creative processes, Choro's style-transcending propensities can be identified and quantified as transformative effects on the functional organization of melodic streams in compound melodic structures. Due to the profound organizational transformation that compound melodic structures undergo during this process, they can be considered as most representative of Choro's style-transcending tendencies.

The 3-3-2 configuration in pulse patterning is, although prevailing in as melorhythm Choro's *maxixe* accompaniment, principally an arbitrary regrouping within the larger scheme of stylistic possibilities. Just as easily, any compound melodic structure can be suitably adapted to function in a wide variety of pulse cycles. Example are the 'standard' African pattern in 12/8 in grouping 2-2-3-2-3, Samba's *teleco teco* sequence in 2 bars of 2/2 grouped 2-3-2-2-3-2-2 or the Bossa Nova 'clave' in 4/4 grouped 3-3-4-3-3 (effectively one *habanera* fused to its own mirror image 3-3-2+2-3-3).

Remarkably, syncopated compound melodies remained fully functional in terms of psych-active stream segregation, a notion of high significance to possible development of relevant improvisation methods. Further research on this topic can readily use the same parameters as the process model applied to analyzing compound melodic texture in Callado's compositions.

By adjusting cycle length, grouping, melorhythmical outline and harmonic content, a suitably instructive environment can be created for clinical application of compound melodic concepts to improvised routines. With aid of present-day technology, this could be achieved by developing programmable computer software capable of generating melorhythmical cycles.

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