From polymodal chromaticism to symmetrical pitch construction in the musical language of Villa-Lobos*

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Abstract
The intention in this essay is to show how the transformation of folk modalities into more abstract modernistic pitch constructions is reflected in the music of Brazilian composer Heitor Villa-Lobos. The larger trend toward modal transformation and the establishment of a new harmonic language in the early twentieth century is exemplified in a study of his *Choros no. 10* (1926). Composers of various national backgrounds commonly derived symmetrical pitch constructions from the pentatonic and modal materials of their folk-music sources, the varied types of pitch collections in their works ranging from the pentatonic and modal constructions of folk music to the more abstract modernistic sonorities of polymodal combination as well as whole-tone, octatonic, and various hybrid combinations derived from them. In *Choros no. 10*, while polymodal chromatic constructions are transformed from octatonic to pentatonic structural blocks as the basis of a new concept of tonality and progression, the interactions of these sonorities within the larger rhythmic-timbral context of the work contribute to the composer's intended general evocation of various natural qualities of Brazil.
Keywords
20th century – Brazilian music – modernism – Heitor Villa-Lobos – musical analysis.

Resumo
O propósito deste ensaio é mostrar como a transformação de modalismos folclóricos em construções modernistas mais abstratas de altura das notas reflete-se na música do compositor brasileiro Heitor Villa-Lobos. A tendência de transformação modal e o estabelecimento de uma nova linguagem harmônica no início do século XX são exemplificados neste estudo sobre o *Choros nº 10* (1926). Compositores de várias nacionalidades extraíram construções simétricas de altura das notas derivando-as de materiais pentatônicos e modais de suas fontes de música folclórica; os variados tipos de coleções de alturas em suas obras vão desde construções pentatônicas e modais da música folclórica até as mais abstratas sonoridades modernistas de combinação polimodal, tons inteiros, octatônicas e combinações híbridas derivadas. No *Choros nº 10*, construções cromáticas polimodais são transformadas de blocos estruturais octatônicos para pentatônicos como a base de um novo conceito de tonalidade e progressão, enquanto as interações destas sonoridades dentro de um contexto rítmico-timbrístico mais amplo da obra contribuem para pretendida evocação geral de várias qualidades naturais do Brasil.
Palavras-chave
Século XX – música brasileira – modernismo – Heitor Villa-Lobos – análise musical.

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In the early twentieth century, the modalities of folk music were transformed by composers of divergent national backgrounds into new kinds of scale constructions. In addition to the pentatonic and modal sources of folk music, polymodal, whole-tone, octatonic. and various types of hybrid pitch collections became increasingly evident. The interactions of two or more of these types of pitch collections were commonly found in the music of Debussy, Stravinsky, Villa-Lobos, Bartók, Kodály, Griffes, and many others. The distinctive national elements of these composers reflected the search in the late-nineteenth and early twentieth-century for one's cultural identity as a viable alternative to the ultrachromatic sources of the Wagner-Strauss period. The intention of this study is to show how the synthesis of national stylistic elements with contemporary compositional techniques is reflected in the music of the Brazilian composer Heitor Villa-Lobos. This move toward synthesis and the establishment of a new harmonic language is epitomized in his *Choros n. 10* (1926), a large-scale setting for mixed chorus and orchestra.

In the early twentieth century, the free use of the anhemitonic pentatonic scale (represented by any one of the five permutations of the piano's black-key collection) and the seven-note modal permutations of the diatonic scale (represented by any one of the seven modal octave segments of the piano's white-key collection) led to a weakening of the hierarchical tonal functions inherent in the traditional major-minor scale system. This trend within the diatonic spectrum paralleled a similar trend within the ultrachromatic spectrum of German late-Romantic music, so composers of divergent national backgrounds began to evolve a new concept of the relations contained within the chromatic continuum.

The tendency to equalize the value of the twelve degrees of the chromatic scale and weaken tonal motion was foreshadowed in the nineteenth century by the infusion of symmetrical pitch relations into traditional triadic contexts. These relations occurred most frequently as the basis of harmonic root progression, where we often find consecutive motions by a single interval. Such root progressions generated either partial or complete linear partitions of the interval cycles, including both whole-tone scales, cycles of minor thirds, major thirds, etc., or compound cyclic-interval constructions such as the octatonic scale (an eight-note symmetrical scale alternating whole-steps and half-steps, or half-steps and whole-steps, formed by joining any two of the three diminished-seventh chords, i.e., minor-third cycles).[1] These practices foreshadowed pervasive use of symmetrical and cyclic-interval constructions by many twentieth-century composers, as the primary means of integrating large-scale compositional structure.

[1] For some of these manifestations of symmetrical construction and progression in chromatic tonal music of the nineteenth century, see Perle (1955, p. 301), Friedheim (1960, p. 286), Salzer and Schachter (1969, p. 215-21), Proctor (1977), Antokoletz (1984, p. 323-5), and Taruskin (1985, p. 79ff).

Symmetrical pitch constructions were commonly derived by various composers from the pentatonic and modal materials of folk-music sources. These materials are often transformed into cyclic-interval (symmetrical) collections by means of special transformations. The pentatonic scale, for instance, may be employed explicitly in its symmetrical permutation, Eb-Gb-Ab-Bb-Db (Example 1a), or reordered more radically as a segment of the cycle of fifths, Gb-Db-Ab-Eb-Bb. Larger diatonic collections are similarly exploited as both symmetrical mode (Example 1b, in Dorian form, D-E-F-G-A-B-C-D) or reordered more radically as a seven-note segment of the cycle of fifths, F-C-G-D-A-E-B. Folk-music sources have also yielded various nondiatonic modes, which have been exploited by composers of different national backgrounds in order to derive larger, more abstract pitch collections, i.e., nondiatonic folk mode with divergent overlapping modal segments (Example 1c). One such mode found in various folk-music sources, G-A-Bb-C-Db-Eb-F,[2] is often extended to larger diatonic (G-A-[Bb-C-Db-Eb-F-G-Ab-Bb]), octatonic ([G-A-Bb-C-Db-Eb-Fb-Gb]), and whole-tone (G-A-Bb-C-[Db-Eb-F-G-A-B]) scales (see basic scalar segments in Example 1c or octatonic and diatonic extensions in Example 1d). Diatonic modes are also represented as adjacent seven-note segments along the cycle of fifths (Example 1e).

With the free use of the folk modes and the disappearance of the triad as the basic harmonic premise in the early twentieth century, the concept of the "pitch-set" in a broad body of non-twelve-tone, nonserialized music includes the folk modes, their symmetrical extensions and transformations (e.g., octatonic and whole-tone), as well as more abstract pitch collections that are far removed from the modal sources. Interactions between the diatonic sphere, including pentatonic, modal, and polymodal types of collections, and the chromatic sphere, including octatonic, whole-tone, and other cyclic-interval types of collections, are essential for establishing a sense of transformation, polarity, and coherence within nontraditional musical contexts.

Example 1. Symmetrical pitch constructions derived from pentatonic and modal materials of folk-music sources.

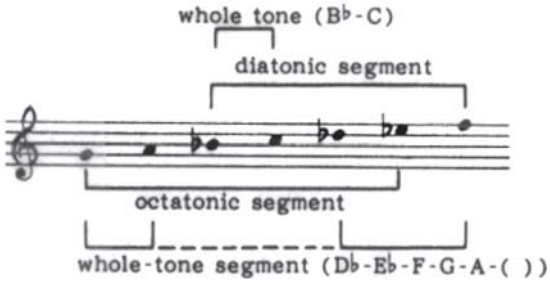
Eb Gb Ab Bb Db = Gb Db Ab Eb Bb

Example 1a. Symmetrical pentatonic scale reordered as segment of cycle of fifths.

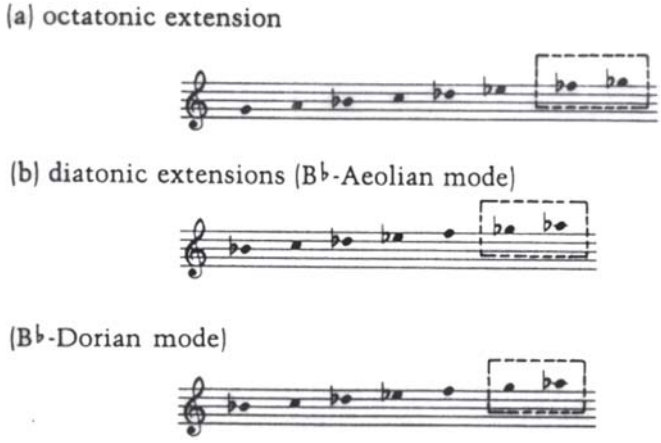
[2] See Bartók in Suchoff (1976, p. 363); and Bartók in Suchoff (1975, p. 19), Pattern 10 of Table 2, which contains this modal permutation. See also Antokoletz (1984, p. 204ff).

D E F G A B C D = F C G D A E B

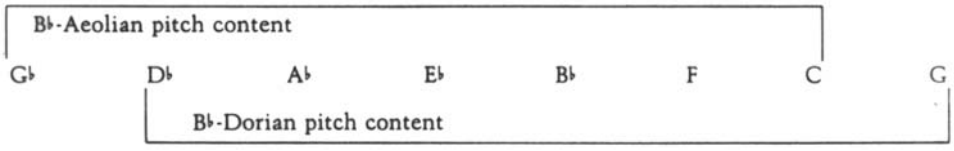
Example 1b. Symmetrical Dorian mode reordered as segment of cycle of fifths.



Example 1c. Nondiatonic mode with divergent overlapping modal segments.



Example 1d. Octatonic and diatonic extensions of nondiatonic folk mode.



Example 1e. Diatonic modes represented as adjacent seven-note segments along of cycle of fifths.

In Villa-Lobos's *Choros n. 10*, polymodal chromatic transformations from octatonic to pentatonic structural blocks underlie the concepts of tonality and pro-

gression as well as evoke various natural qualities of Brazil in general. The opening instrumental portion of the work contains instrumental motives and devices that evoke the rich variety of bird calls and other natural sounds of the Brazilian tropical forests. In the choral-orchestral portion (from n. 6), a chant-like ritualistic momentum is induced by the additive contrapuntal unfolding of the Indian-sounding verbal articulations, to which is added *Rasga o coração* ("Rend my heart"), "a lyrical and sentimental melody in the manner of the urban *modinha* extracted from a popular song."[3] (The urban *modinha* was originally a simple, nostalgic, Portuguese song, introduced in Brazil in the late-nineteenth century.) The Indian-sounding syllables of the choral chant have no literary meaning, but are used rather onomatopoeically, so the voices acquire an instrumental role simply as another sonic plane within the larger orchestral texture. The ritualistic Indian quality is further enhanced by the percussive Afro-Brazilian dance ostinati as well as a colorful and "exotic" orchestration, all of which suggest Stravinsky's primitivism absorbed into a highly personal, nationally imbued contemporary idiom. The numerous blocks that comprise the two-part cumulative form are themselves made up of differentiated motivic and textural planes, all essential to evoking the primitivistic quality. While each of these local planes and layers is distinguished by its own individual rhythmic pattern, contour, timbre, and intervallic construction to produce a sharply defined kaleidoscopic fabric, pitch and intervallic connections among them contribute to the integration of the structure.

Against the held *fortissimo* chord of the opening, an exotic melody, which characterizes the song of a rare bird of the Brazilian forests, known as *Azulão da mata,* unfolds in two pairs of varied statements, in flutes (Example 2), then clarinets (see Example 3) as the structural basis of the opening formal block (to letter B).[4] The initial flute statement unfolds above the spare "dissonant" G and Bb pedals (in horn and clarinet, respectively), whereas the extended consequent of the closing statement in the clarinets (to letter A, m. 3) is set within a more complex, planed, contrapuntal texture (Example 3), which serves as a focal point in the structural building of the first large sectional block. The opening timbral and rhythmic polarity between harmony and melody is enhanced by differentiation of pitch content (see Example 2), the opening chord revealing the "octatonic-1" source (Eb-E-G-A-Bb, plus one "odd" note, D) of the G and Bb pedals and establishing one of the fundamental types of pitch sets of the work.[5] The flute theme also unfolds an octatonic segment,

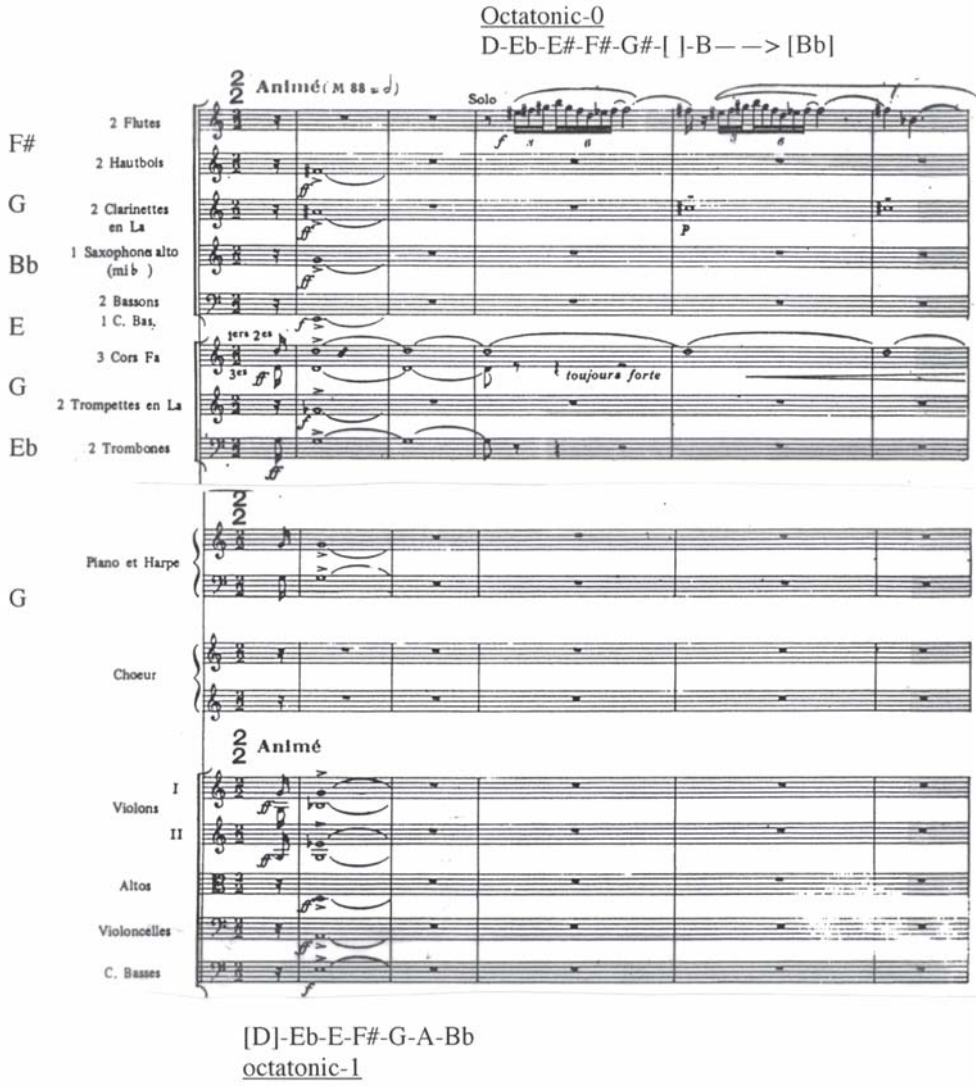
[3] Museu Villa-Lobos (1972, p. 204).
[4] Museu Villa-Lobos (1972, p. 203).
[5] The octatonic scale on C (C-D-Eb-F-F#-G#-A-B), i.e., according to the interval-2,1,2,1,2,1,2,1 model, will be referred to as "octatonic-0," that on C# (C#-D#-E-F#-G-A-Bb-C) "octatonic-1," and the remaining one on D (D-E-F-G-G#-A#-B-C#) "octatonic-2," regardless of ordering or enharmonic spelling within a given scale.

this time from octatonic-0 (D-Eb-E#-F#-G#-B, plus the "odd" cadential note, Bb). Maximal differentiation of pitch content between chord and melody is permitted by the use of two different octatonic collections, so a kind of *polymodal chromaticism* is suggested (i.e., the combined pitch content of both octatonic segments produces most of the twelve tones). The disruptive role of the "odd" D and "odd" Bb within these two octatonic collections, respectively, foreshadows one of the basic means for producing chromaticism. Such intrusions serve as preparation for progressions either between transpositions of a set or from one type of set (diatonic or octatonic) to another.

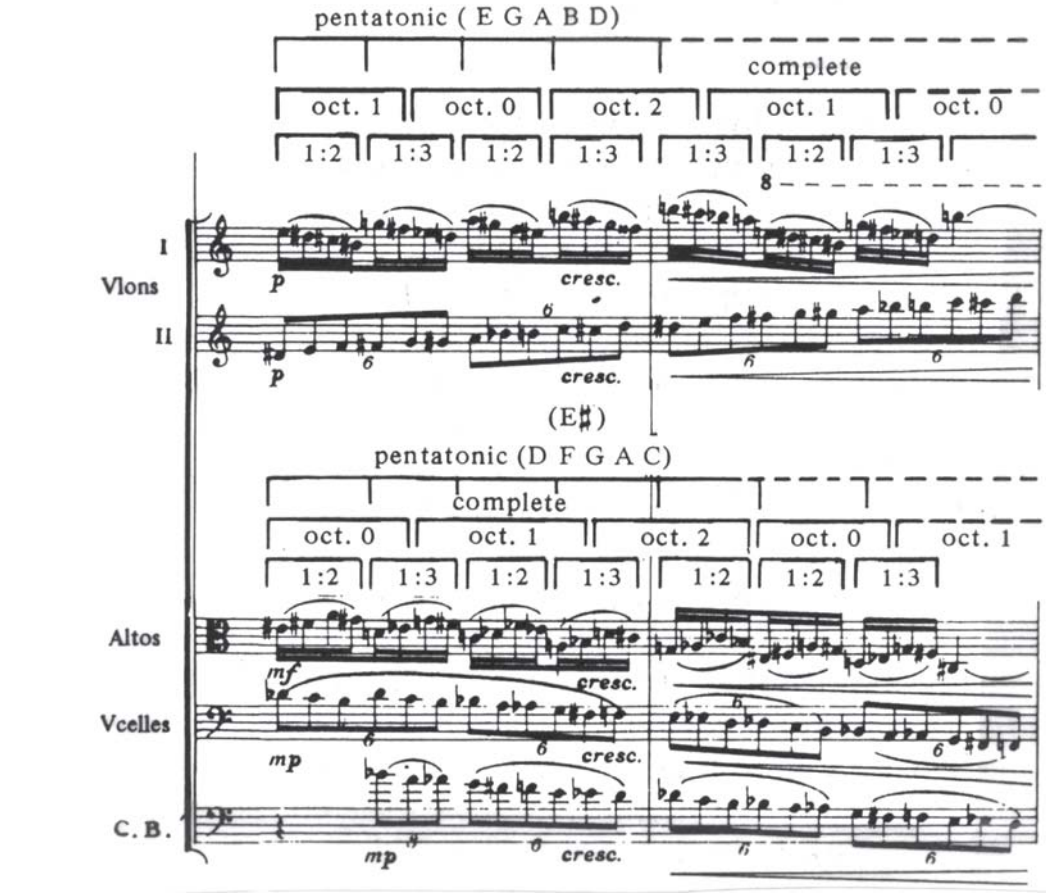
A contrasting textural plane appears in the strings, piano, and harp against the held G of the horn (mm. 6ff.). This plane is distinguished from the opening octatonic segments not only by its ostinato rhythmic character, but also by its "white-key" diatonic content, which is partitioned into two alternating tertian harmonic constructions, A-C-E-G and E-G-B-D-F. The lack of tonal function of these diatonic chords draws the entire collection into the pitch-set premise, that is, the diatonic collection is defined exclusively in terms of intervallic content. This appearance of the "white-key" collection establishes the first polarity between octatonic and diatonic sets in the work.

Toward the end of the first sectional block (letter A, mm. 2ff.) (Example 3), the consequent phrase of the octatonic theme in the clarinet is absorbed into a more complex, layered texture of symmetrical pitch formations, the combination of which produces a *polymodal chromatic fusion* of the work's two basic types of sets – octatonic and diatonic. While the four-against-three juxtaposition of the two basic rhythmic patterns (sixteenths and sextuplets) contributes to the distinction between these layers, the inversionally related chromatic scales of the sextuplet lines themselves produce yet another level of linear distinction. Similarly, the sixteenth-note lines are distinguished from each other by their contrasting contours and scalar content based on conflicting octatonic segments. Violin I unfolds a series of symmetrical tetrachords (E-D#-C#-B#, G-F#-Eb-D, etc.), which form octatonic (interval-ratio 1:2) and expanded (interval-ratio 1:3) segments, respectively. It can be demonstrated that the interval-ratio 1:3 tetrachord represents a joining of half steps from two different octatonic scales, the entire tetrachordal succession resulting in an elided series of larger six-note octatonic segments: B#-C#-D#-E/F#-G (octatonic-1), D-Eb/E#-F#-G#-A (octatonic-0), Fx-G#-A#-B/C#-D (octatonic-2), A-Bb/B#-C#-D#-E/F#-G (complete octatonic-1), and a concluding smaller segment, B-D-Eb (from octatonic-0). This succession of all three octatonic collections produces a linear chromaticism, compounded harmonically by the sixteenth-note lines of the violas and clarinets stated simultaneously. As in the violin-I line, these tetrachordal adjacencies also form larger six-note octatonic segments: A-G#-F#-E#/Eb-D (oct-

atonic-0), G-F#/Fb-Eb-Db-C/Bb-A (complete octatonic-1), D-C#/Cb-Bb-Ab-G (octatonic-2), etc. However, the latter octatonic transpositions are not synchronized with those in violin I, so chromatic harmonies are produced.



Example 2. *Choros no. 10,* song of Azulão da mata (rare bird of Brazilian forests)*, opening*, in two pairs of varied statements – flutes (then clarinets), timbral and rhythmic polarity between harmony and melody, enhanced by differentiation of pitch content.



Example 3. *Choros no. 10*, ending of first sectional block (letter A, mm. 2ff.), layered texture based on "polymodal" chromatic fusion of two basic types of pitch sets – octatonic and diatonic.

Each of the two sixteenth-note successions (in violin I and viola/clarinet) is based on a fusion of octatonic and pentatonic sets. The initial notes of the successive tetrachords in violin I outline an ascending pentatonic scale (E-G-A-B-D), while the initial notes of the successive tetrachords in viola/clarinet outline a different descending pentatonic scale (in enharmonic spelling (F-D-C-A-G). These two pentatonic scales (E-G-A-B-D and D-F-G-A-C) together produce the entire "white-key" diatonic collection. The brass instruments form a contrasting plane, in which two of the lines unfold diatonic (G-Ab-Bb-C and F#-G-A-B) and two of the lines octatonic (Eb-F#-G and Db-Eb-F#-G) segments simultaneously. Thus, this passage fuses contrasting modes systematically (octatonic and diatonic), which had appeared separately in the preceding passages, into a polymodally chromatic context, the

fusion of which contributes to the closure of the first large formal block. Such pitch-set interactions are also basic to the integration of the otherwise divergent planes and layers of this mosaic context.

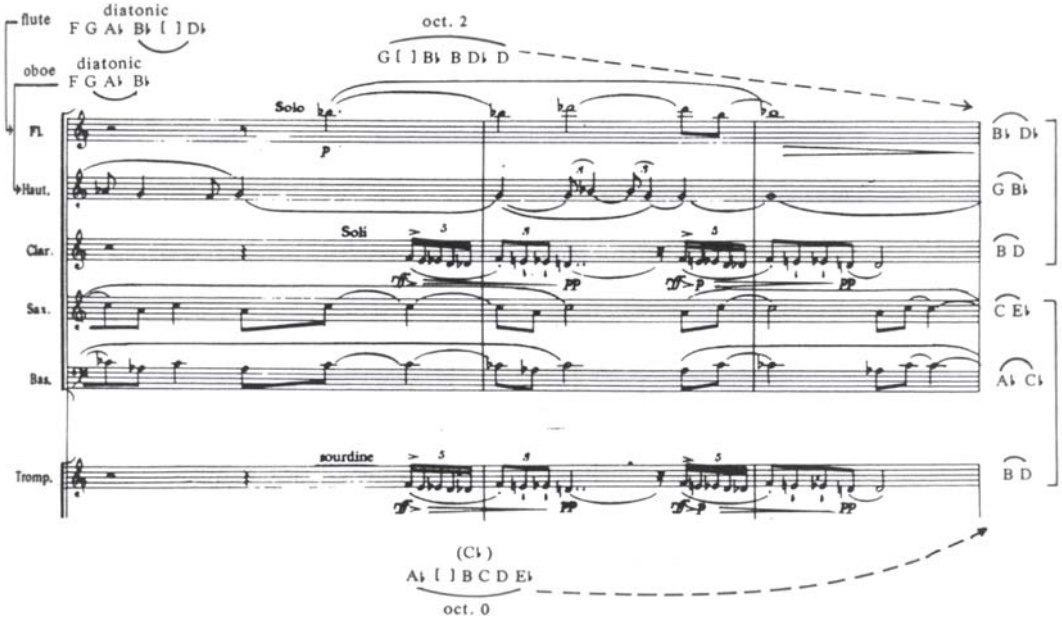
Segments of these sets are juxtaposed between the triplets at the cadence of this block (two before B), based on an octatonic-segment G-C-C#, and the multiple layers at the beginning of the next block (B), based on linear diatonic segments in contrary motion. The descending diatonic form, which emerges as a prominent thematic construction (letter F, m. 2), foreshadows the main thematic chant of the choral section (see No. 6f.). At the same time, the ascending pentatonic segment, A-B-D-E (violins, violas, and horn I, at letter B), anticipated in the pentatonic outline (E-G-A-B-D) of the preceding passage, emerges as a distinct idea in the next block (unison strings at letter C), the latter of which is set off by a metric return from 3/2 of the preceding block (letter B) to the original 2/2 meter. This trend from octatonic to pentatonic is also reflected in the highest structural levels of the work. The final section (*Largo*) reestablishes the fundamental pentatonic segment (A-B-D-E) in the clarinet, horn I, trumpet, upper piano line, and upper strings, against which the chorus now sustains the complete pentatonic form (A-B-D-E-F#) before shifting to another pentatonic collection (F#-A-B-C#-E) in the last two measures. Both pentatonic collections together form a larger diatonic segment on F# (F#-[]-A-B-C#-D-E). Thus, the work moves from the opening octatonic to final pentatonic-diatonic sphere.

The thematic form of this basic pentatonic segment, A-B-D-E, is manifested in various scalar transformations throughout the work, but is always identified by thematic contour (A-B-D-E-A-B-D-E). As mentioned above, the latter is a contour inversion of what emerges as the main ostinato choral chant (No. 6 to No. 14, m. 6). (The final *Largo* reestablishes this inversional contour relation, which had initially occurred at letter B, the bass instruments unfolding the descending diatonic pattern against the ascending pentatonic form simultaneously.) While the main choral chant, which begins with the words "Jakatá kamarajá," is invariably based on the descending diatonic form, the thematic source may be traced back to the very opening octatonic flute theme, which begins and ends with ascending interval-ratio 1:2 (E#-F#-G#-B) and interval-ratio 1:3 (D-Eb-F#) segments. These are extracted and inverted in violin I (letter A) in the alternating octatonic interval-ratio 1:2 (E-D#-C#-B#) and interval-ratio 1:3 (G-F#-Eb-D) tetrachords discussed above (see Example 3).

Several varied manifestations of the choral theme appear in the first half of the work in both chromatic and diatonic forms (as at letter C, mm. 9ff., strings, and letter G, respectively). A striking manifestation of the chromatic form (letter I, mm.

[6] Museu Villa-Lobos (1972, p. 204).

3-5, clarinet and trumpet) is reminiscent of the quarter-tone "hammock" chants of the Parecis Indians of Mato Grosso.[6] However, its larger minor-third boundary (B-D) acquires a more global compositional significance in terms of the basic diatonic and octatonic sets by its placement within a contrapuntal context of overlapping minor thirds (Example 4). The contrapuntal alignment of flute and oboe thirds (Bb-Db and G-Bb) with the clarinet/trumpet boundary (B-D) implies the presence of a gapped octatonic-2 segment, G-[]-Bb-B-Db-D, which outlines interval-ratios 1:2 and 1:3, while the contrapuntal alignment of bassoon and saxophone thirds (Ab-Cb and C-Eb) with the same thematic clarinet/trumpet boundary (B-D) implies the presence of an analogously gapped octatonic-0 segment, Ab-[]-B-C-D-Eb. Both segments together (G-Ab-[]-Bb-B-C-Db-D-Eb) produce the larger polymodal chromatic content of this passage. Two of these linearly stated thirds are each part of a longer diatonic and/or octatonic line, the flute Bb-Db unfolding as part of the segment F-G-Ab-Bb-[]-Db, the oboe G-Bb as part of F-G-Ab-Bb. Thus, the entire chromatic passage suggests an intersection of intervallically expanded diatonic and octatonic segments, the contrapuntal relations of which point to the expanded intervallic potential of the chromatic theme in terms of the two basic thematic set types.



Example 4. *Choros no. 10*, transformed choral theme reminiscent of quarter-tone "hammock" chant of Parecis Indians, letter I, mm. 3-5, overlapping minor thirds based on diatonic-octatonic interactions.

The most extreme polarity of the diatonic and octatonic forms is then manifested in the two contrasting central blocks, the chromatic form in the bass instruments at the beginning of the main part of the work (No. 5f.), the diatonic form at the choral entry (No. 6f). The final transition from chromatic to diatonic forms begins with the expansion to octatonic and interval-ratio 1:3 segments toward the ending of the instrumental block (No. 5, mm. 5ff., trombone, A-Bb-C-Db, and mm. 9ff., viola, F#-F-D-C#). Thus, in a context of layers and blocks based on extreme textural, timbral, rhythmic, and pitch-set polarities, unity is produced by special pitch-set interactions and transformations between octatonic and pentatonic/diatonic forms primarily. These "modal" features contribute to the distinctive Brazilian atmosphere of the work, the varied themes evoking the natural sounds of the forest, the "phonetic atmosphere characteristic of the language of the aborigines," and "a lyrical and sentimental melody in the manner of the urban modinha extracted from a popular song."[7]

The variety of instrumental combinations that make up the set of *Choros* is also reflected in Villa-Lobos's vast repertoire of solo, chamber, orchestral, and vocal works throughout his career. However, his most original stage of development, as manifested in the intensive fusion of the varied national elements with contemporary pitchset techniques, is reflected in the works composed during the period of the *Choros* in the 1920s. Although it was in the mid-1920s that his original national style began to appeal to the most progressive musical circles in Paris, his intensive turn toward national sources had already been inspired during The Week of Modern Art in São Paulo in 1922, and some of his most original nationalistic works were composed in the early 1920s. The *Trio No. 3* (1921) for oboe, clarinet, and bassoon is remarkable for its rhythmic sophistication and vitality as well as technical demands. In the first movement, two basic rhythmic motives, which produce a complex counterpoint of overlapping angular ostinati, are primarily made up of diatonic, octatonic, and whole-tone tetrachordal tone patches. These are broken up into distinct intervals in the separate instruments and often presented in parallel seconds. In the third movement, allusion to Indian drumming pervades the succession of contrasting block structures, which build to a dynamic climax. The result is a ritualistic Indian quality infused into a complex, modernistic Stravinskian idiom.

[7] Museu Villa-Lobos (1972, p. 204).

BIBLIOGRAPHICAL REFERENCES

Antokoletz, Elliott. *The Music of Béla Bartók: A Study of Tonality and Progression in Twentieth-Century Music*. Berkeley and Los Angeles: University of California Press, 1984.

Bartók, Béla. *Rumanian Folk Music,* vol. IV, ed. Benjamin Suchoff, trans. E. C. Teodorescu et al. The Hague: Martinus Nijhoff, 1975.

Bartók, Béla. *Essays,* ed. Benjamin Suchoff. New York: St. Martin's Press, 1976.

Friedheim, Philip. "Radical Harmonic Procedures in Berlioz," *Music Review*, v. 21, n. 4 (November, 1960), p. 282-296.

Museu Villa-Lobos. *Villa-Lobos – sua obra.* 2nd ed. Rio de Janeiro: Museu Villa-Lobos, 1972.

Perle, George. "Symmetrical Formations in the String Quartets of Béla Bartók", *Music Review*, v. 16 (November, 1955), p. 300-312.

Proctor, Gregory. "Technical Bases of Nineteenth-Century Chromatic Tonality: A Study in Chromaticism." Ph.D. diss., Princeton University, 1977.

Salzer, Felix and Schachter, Carl. *Counterpoint in Composition: The Study of Voice Leading*. New York: McGraw-Hill, 1969.

Taruskin, Richard. "Chernomor to Kashchei; Harmonic Sorcery; Or, Stravinsky's 'Angle'," *Journal of the American Musicological Society*, v. 38, n. 1 (Spring, 1985), pp. 72-142.

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