POST-TONALITY IN *COISA NO. 2* BY MOACIR SANTOS

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PÓS-TONALIDADE EM *COISA N.2* DE MOACIR SANTOS

RESUMO

Este artigo investiga os procedimentos criativos do compositor brasileiro Moacir Santos em *Coisa n.2*, uma composição de seu álbum *Coisas* de 1965. Sendo um músico que combinava sua experiência no universo popular com o estudo do repertório erudito, Santos foi um destacado criador no cenário da música brasileira dos anos 1960. Seu estilo mescla elementos de estilos populares, jazz, percussão africana e influências clássicas. Aqui nós enfocamos em sua linguagem harmônica, aplicando ferramentas de análise neorriemanniana e teoria dos conjuntos, buscando demonstrar como os processos harmônicos do artista o situam no universo pós-tonal da música do século XX.

PALAVRAS-CHAVE

Moacir Santos. *Coisa n.2*. Pós-tonalidade. Análise musical.

ABSTRACT

This article investigates the Brazilian composer Moacir Santos's creative procedures for *Coisa no. 2* (*Thing no. 2*), a composition from his album *Coisas*, from 1965. As a musician who combined experience in the popular universe with the study of erudite repertoire, Santos was a distinctive creator of Brazilian music in the 1960s. His economic style merged elements of popular styles, jazz, African percussion and classical influences. Here we focus on his harmonic language, applying tools of neo-Riemannian analysis and set theory, and aim at demonstrating how the artist's harmonic processes helped situate him in the 20th century's post-tonal musical universe.

KEYWORDS

Moacir Santos. *Coisa no.2*. Post-tonality. Music analysis.

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Contextualization

It is curious to note how the analysis of the music of Moacir Santos has varied among authors who have studied it since some phonographic releases reintroduced it to the Brazilian public, beginning in 2001. However, when one thinks about the nature of his work and his career path, it is perfectly natural that such a process has taken place. First, Santos came from a background that artistically speaking was totally identified with Brazilian popular music: He grew up in the 1930s and '40s as an instrumentalist with bands from the interior of the Northeast, jazz bands of various radio stations (including that of Rio de Janeiro's Radio Nacional) and military bands; he was also a composer of *xotes, frevos, marchas, choros* and pieces in other genres. Even after his theoretical studies from the 1950s on and his subsequent refinement, Santos continued to produce work that was associated with popular music. Santos was also an artist who received recognition late in his career in his own country. In 1967, two years after releasing his debut album *Coisas*, the composer migrated to the United States, due to financial issues. He released four albums there and only returned to publishing material in Brazil in 2001, with the double album *Ouro Negro*. Both the public and Brazilian researchers seemed to have needed some time to get accustomed to the aesthetics of the recently discovered artist.

In this context, it was natural that two factors occurred: (1) Academic attempts to understand Santos would have different approaches in the works that dealt with him, mainly due to the newness of the theme; [1] and, (2) the choice of the means to analyze his music relied mainly on the tools commonly used in the analysis of popular music. However, even the works that adopted this approach (ZANONE GOMES, 2008; ERNEST DIAS, 2010; VICENTE, 2012) are unanimous in being intrigued by Santos's harmonic *dubiety*, indicating that, in a sense, the chord symbols of popular music did not explain everything about certain aspects of the artist's language. There are, therefore, comments on his "ambivalence of modes" (ERNEST DIAS, 2010, p. 187), or in the "use of a selection of notes in the melody that end up forming a one-mode structure, without a direct linkage to the tonality or underlying harmonic progression of the music" (VICENTE, 2012, p. 155). Such indications open up clues to something in Santos that becomes evident after a deeper look. The harmonic discourse through economic chord changes, the triadic transformations and the parsimonious exchanges of modes often tell more about his harmonic language than the possible chord symbols chosen to represent it. We will see in this article, based on *Coisa no. 2*, what these procedures indicate about the artist's harmony and how we can understand it more clearly. The first important point, however, is that in spite of being built by

[1] The first research about Moacir Santos appeared with the thesis of Improta (2007).

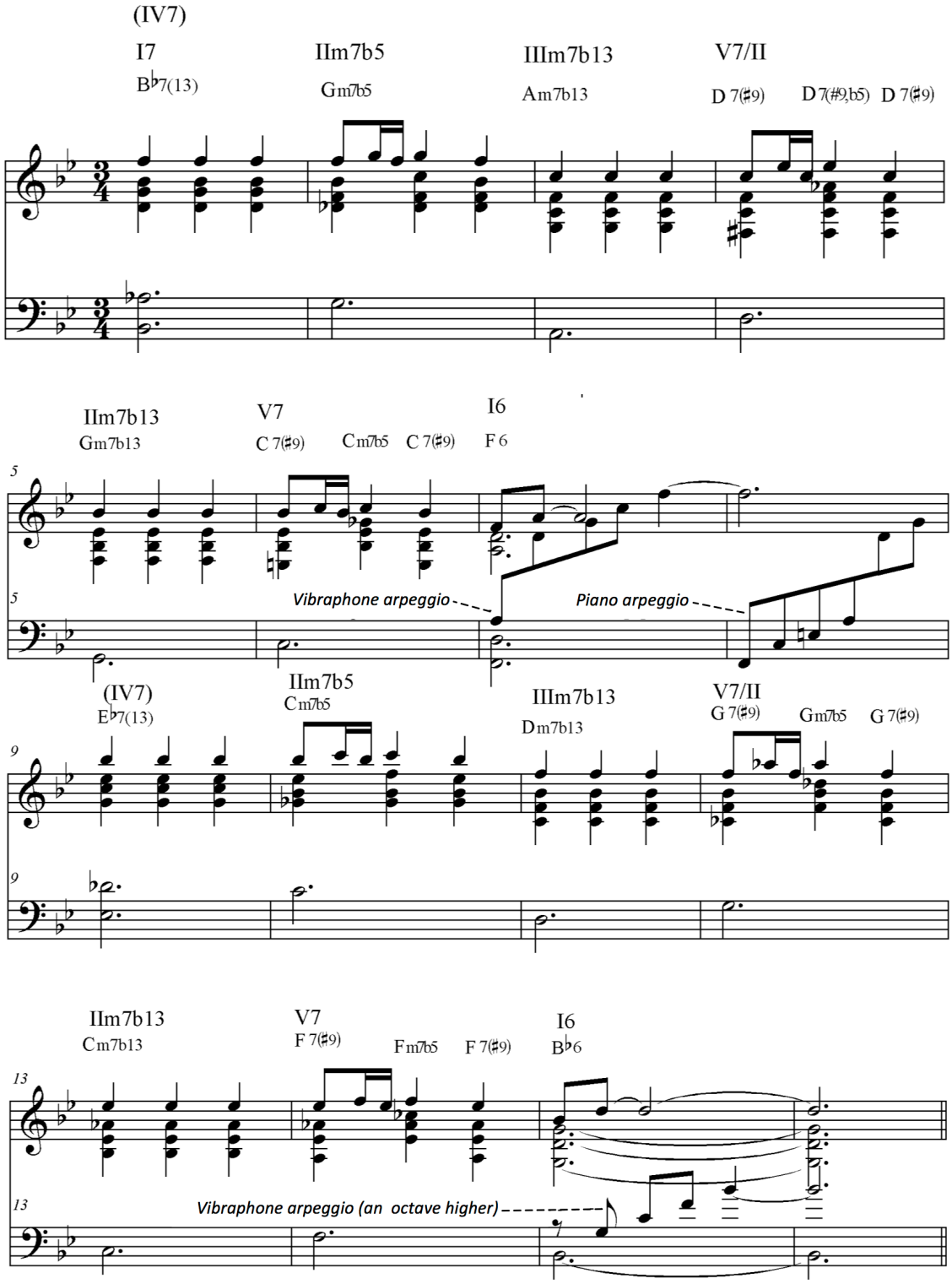
the progression of triads and tetrads this harmony is not always fully in tune with tonal principles, which lead us to the following considerations by Straus (2005):

> All tonal music is centric, focused on specific pitch-classes or triads, but not all centric music is tonal. Even without the resources of tonality, music can be organized around referential centers...In the absence of functional harmony and traditional voice leading, composers use a variety of contextual means of reinforcement. (STRAUS, 2005, p. 131).

We shall now see which of these means can be identified in *Coisa no. 2* and how, therefore, we can situate it in the broad universe of Post-Tonality.

Introduction: parsimony and harmonic ambiguity

One of the striking features of Santos's procedures is the way he gradually builds up the strategies of harmonic dubiety in his pieces, and *Coisa no. 2* is a ready example of this process. By this logic, the introduction of the music begins with the simplest strategy of dubiety, with this passage being closer to a functional language. Here the melody clearly establishes the mixolydian mode, while the accompaniment operates a kind of *modulatory harmony* in this passage, as Vicente (2012) defines it, relying on Tiné (2008). With the exception of mm. 1–2 and 9–10, the notes that operate the bass function bring cycles of fifths. The reduction below presents a piano melody, guitar accompaniment and piano and vibraphone arpeggios:

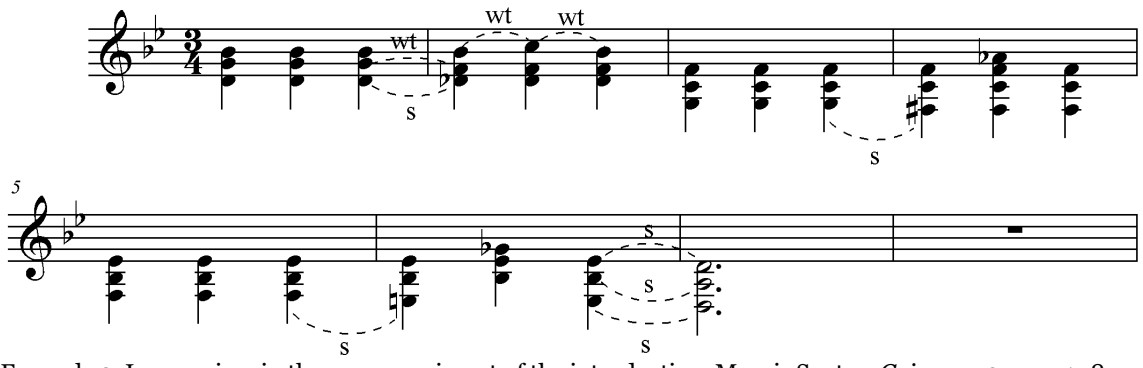


Example 1. Introduction, Moacir Santos, *Coisa no. 2*, mm. 1–16.

Some aspects stand out amidst the simplicity of this section. Initially, there is the B♭7(13) chord that supposedly would be the first degree in the harmonic hierarchy, but its dominant structure and the very sequence of progression make it clear that the discourse takes another path: in this case, resolving into F major in mm. 7–8. The melody in that first *pole* of the section (mm. 1–8) states the F-mixolydian mode (the E in the piano arpeggio, in mm. 8, is the only occasional

detail to suggest the Ionian mode). Then the whole first pole is transposed upwards by a perfect fourth and the process repeats itself: the E♭7(13) chord does not come to be affirmed as first degree, in view of the discourse going to the tone of B♭ major. The melody now affirms the B♭-mixolydian mode. Having received different chord symbols in two other works (ERNST DIAS, 2010; VICENTE, 2012), this passage has its harmonic dubiety punctuated in the following way by the first author: "Ambivalence of modes: mm. 1–2 (B♭ and B♭m); mm. 3–4 (F and Fm, in the second inversion); mm. 5–6 (E♭ and E♭m); mm. 7 (F6); mm. 8 (Fmaj7)" (ERNST DIAS, 2010, p. 187).

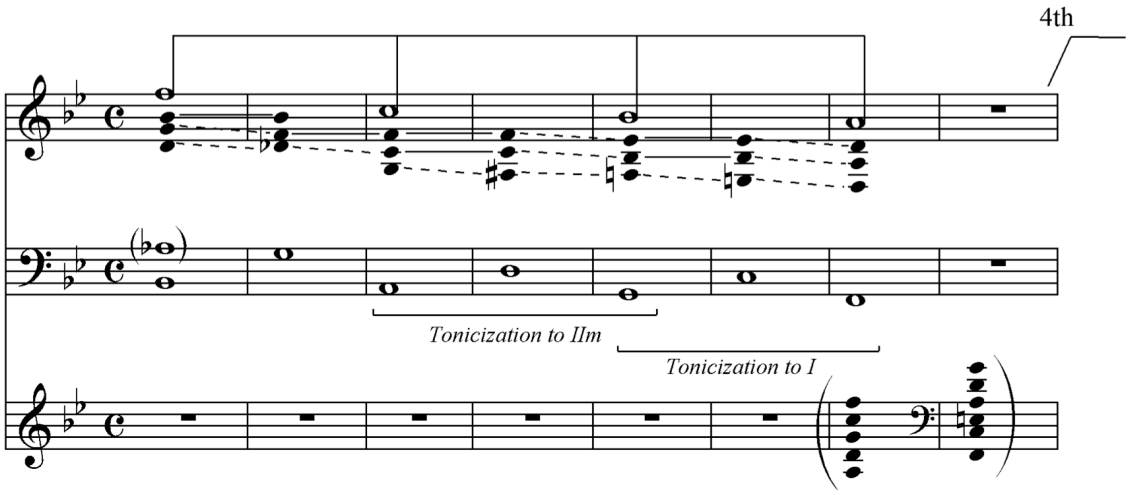
In addition to the typical ambivalences of the artist, however, the introduction of *Coisa no. 2* is clearly constructed by three main aspects: parsimonious voice leading, symmetry, and parallelism. Taking the simple transposition of pitch as a symmetric process (RHODE, 1997), we have already mentioned the exact transposition of the first pole upward by a perfect fourth, generating the conclusive pole. Another transposition pervades the whole passage, and concerns the constant intervals of a perfect fifth between the top line of the chords and the melody notes (the only exceptions being made to ornamental function notes such as G5 in the first beat of mm. 2 and Mi♭5 in the first beat of mm. 4). The melody, in turn, constantly presents a parallelism of octaves, a detail not included in the reduction. As regards parsimonious voice leading, the inner voices of the accompaniment clearly emphasize intervals of a whole tone and half tone, even suggesting the influence of the visual element of the guitar in the way Santos built the harmony (there are visually symmetrical voicings in the instrument, for example, between the mm. 3–4 and 5–6). Example 2 brings the reduction only with inner voices:



Example 2. Inner voices in the accompaniment of the introduction, Moacir Santos, *Coisa no. 2*, mm. 1–8.

Other sections of *Coisa no. 2* will bring new examples of parsimonious harmonic discourse in Santos, whose language often appears in accordance with the words of Tymoczko, for whom "Harmony and counterpoint constrain one another...Clearly, efficient voice leading is simply conjunct melodic motion in all parts of a contrapuntal texture" (TYMOCZKO, 2011, pp. 12–13). Thus, even in this excerpt from *Coisa no. 2*, closer to a tonal nature, it is clear that what drives the discourse is a concern relative to the counterpoint in the voice leading, so that indeed the structuring elements of the introduction are the following: Descending-scale modal melody; movement by seconds in the inner voices; parallel perfect fifths between the top line of the accompaniment and the melody notes; parallel octaves in the melody; the first pole moving up a

perfect fourth to the second pole (transposition); and, the bass in cycles of fifths (slightly altered). The graphic presented in Example 3 aims to summarize these aspects in the first pole of the introduction. Unfilled noteheads with stems refer to the melody, those without stem to the bass, and filled noteheads refer to accompaniment (those in parentheses, however, refer to vibraphone and piano arpeggios). The regular lines indicate continuity of notes and the dots indicate changes by a whole tone or semitone. The graph presumes the transposition of the first pole upward by a perfect fourth and the consequent repetition of the same process in the second pole:

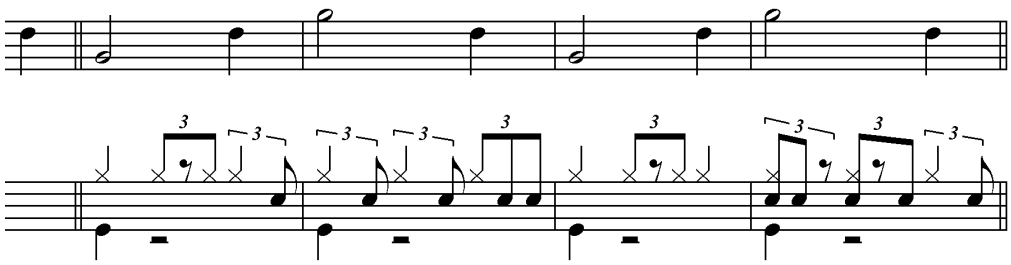


Example 3. Graphic related to the first pole of the introduction, Moacir Santos, *Coisa no. 2*, mm. 1–8.

A final note about the intro section can be made regarding the vibraphone arpeggios. If one revisits Example 1, one sees that these occur at constant perfect fourth intervals, resulting in a symmetrical sensation occurring only halfway through (mm. 7–8) and in the conclusion (mm. 15–16) of the section. Arpeggios by fourths, obviously, form a symmetry since their intervals are read in the same way, vertically speaking, in any direction. This quality of constructing symmetries only at key points of his musical sections (halves, transitions, conclusions), deconstructing them soon after, is a striking feature in Santos's procedures.

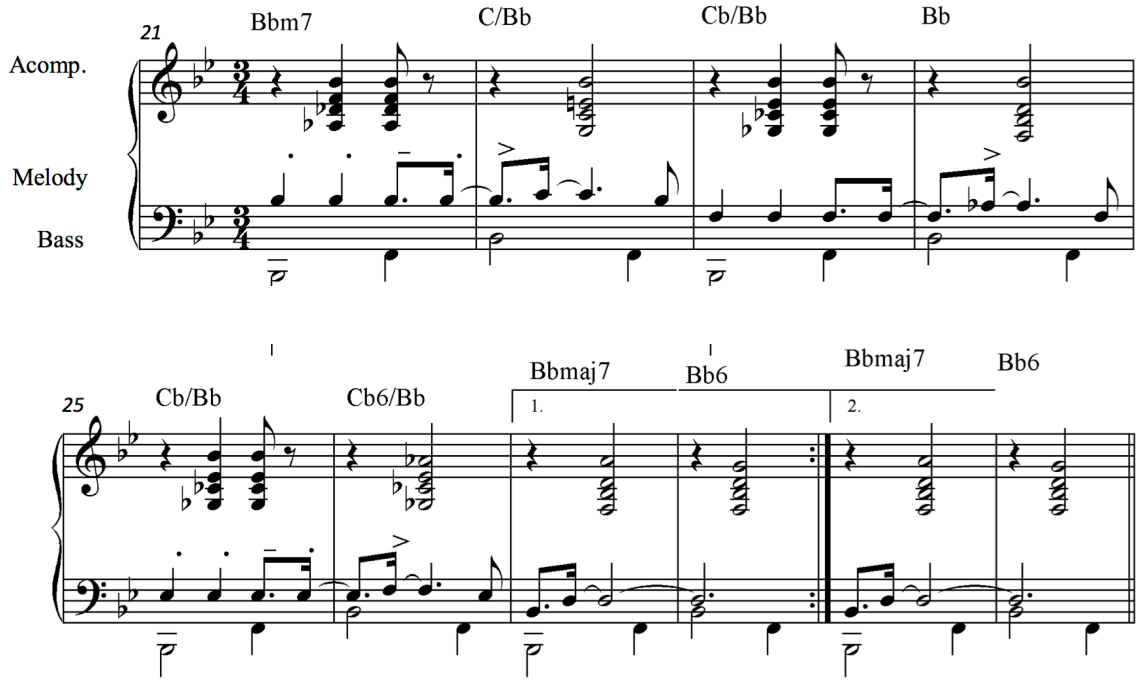
Section A: adding harmonic procedures

Section A of *Coisa no. 2* begins the gradual immersion in the harmonic ambiguity of the piece, reaching a point where we can no longer understand it by chord symbols. But the circular aspect already begins to overlap with the linear meaning of the discourse, in part, because of the ostinato of the double bass, whose pattern of fourths and fifths is joined to the ternary jazzy rhythm of the drums. Both will remain constant throughout the rest of the work:



Example 4. Ostinato of the double bass and ternary rhythm of the drums, Moacir Santos, *Coisa no. 2*, mm. 17–20.

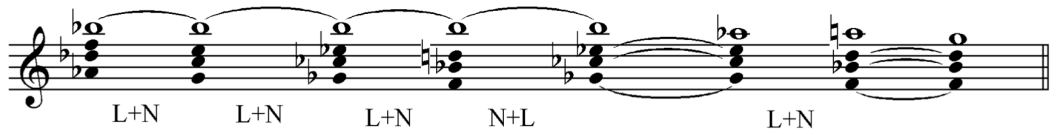
When the melody of section A enters, the same factors of voice leading and counterpoint of the introduction continue to govern the music. All the voices of the accompaniment (not just the inner ones) move by tone and semitone. As the melody passes to the trombone, horn and tenor sax, in a lower region, the intervals between the two upper lines now occur in the guitar accompaniment (no longer between accompaniment and melody), always maintaining the pattern of perfect fifths and of fourths, their inversions (the only exceptions being the augmented fourth in mm. 22 and the minor sixth in mm. 24). The chord symbols below, taken from the official songbook of the album *Coisas* (SANTOS, 2005), serve only to expose the harmonic ambiguity around the indefiniteness between Bb minor and Bb major, the latter affirming itself only at the end of the section. The lack of linkage of the melody (still in B♭ mixolydian) with the *music's underlying harmonic progression* (VICENTE, 2012) is clear in this section:



Example 5. Section A, Moacir Santos, *Coisa no. 2*, mm. 21–30.

Although constructed by the progression of tetrads, the harmony of section A is clearly divided between its top line and the triads positioned below it (see Example 6). The top line forms

a descending contour that will be reedited by another top line, in section B, as we shall see later, establishing a common feature between the sections. The lower triads, in turn, form a relation here that can no longer be confined to a tonal language or a single mode. The example below is transposed one octave above (Example 6):

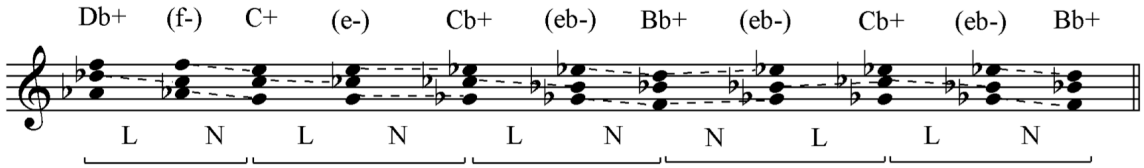


Example 6. Two layers in the accompaniment of section A, Moacir Santos, *Coisa no. 2*, mm. 21–30.

The relations that guide the lower triads are expressed here by the *triadic transformations*, whose theoretical description:

> ...originates with the theorist Hugo Riemann and has been elaborated in contemporary neo-Riemannian Theory... [*triadic transformations*] connect triads of different quality (major goes to minor and vice versa)... the triads are connected in the smoothest possible way, with the voices moving as little as possible... In many cases, we find extended progressions of triads that are not constrained by the norms of traditional tonality. In particular, the triads do not relate to each other functionally, as predominants, dominants, or tonics. Such music is triadic, but still distinctively post-tonal. (STRAUS, 2005, pp. 158-61).

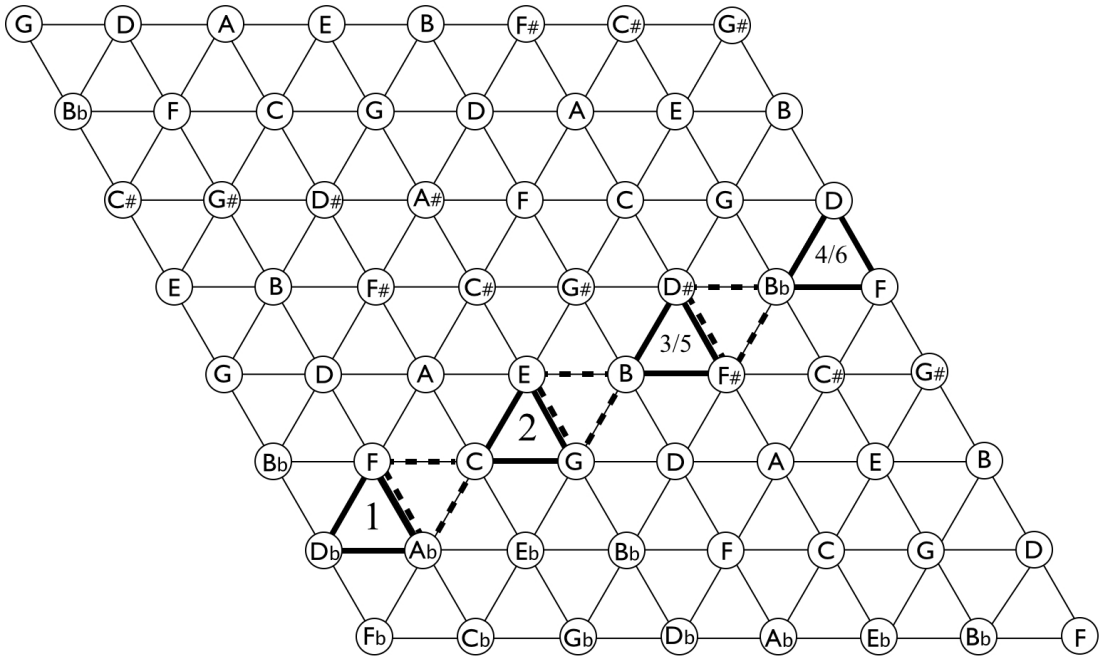
In the case of Example 6, we're talking about *composed* or *mixed* triadic transformations. This means that there is more than one transformation category connecting each of the triads: L + N or N + L. The following example, without the top melodic line, more clearly exposes this process (signs of + for the major triads and of - for the minor triads):



Example 7. Triadic transformations among the triads of section A, Moacir Santos, *Coisa no. 2*, mm. 21–30.

The triads outside the parenthesis are those connected by Santos and those inside the parentheses are the minor intermediate triads. The transformation *L* refers to the term *Leading-tone*, with the root note moving downward by a half tone and transforming a major triad into a minor one – such a relation occurs in the opposite direction between the octave and the antepenultimate triad. The *N* transformation (*Nebenverwandt*, according to Cohn (1998, p. 290) and introduced by Weitzmann (1853), which in English means something like *next* or *neighbor-related*) maps a minor triad in its major dominant, or a major triad in its minor subdominant by means of the parallel movement of two voices per semitone. Through this discourse organized by the triadic transformations, Santos thus constructs a progression that is not confined to the limits of diatonic tonality. It is interesting to observe how this process occurs visually through the Tonnetz (tonal network). In Example 8, the horizontal lines present perfect fifths, while the two

diagonal axes bring major and minor thirds intervals. Each major triad (triangles up) is always surrounded by three minor triads (triangles down) and vice versa: [2]



Example 8. *Tonnetz* exhibiting the triadic progression of section A.

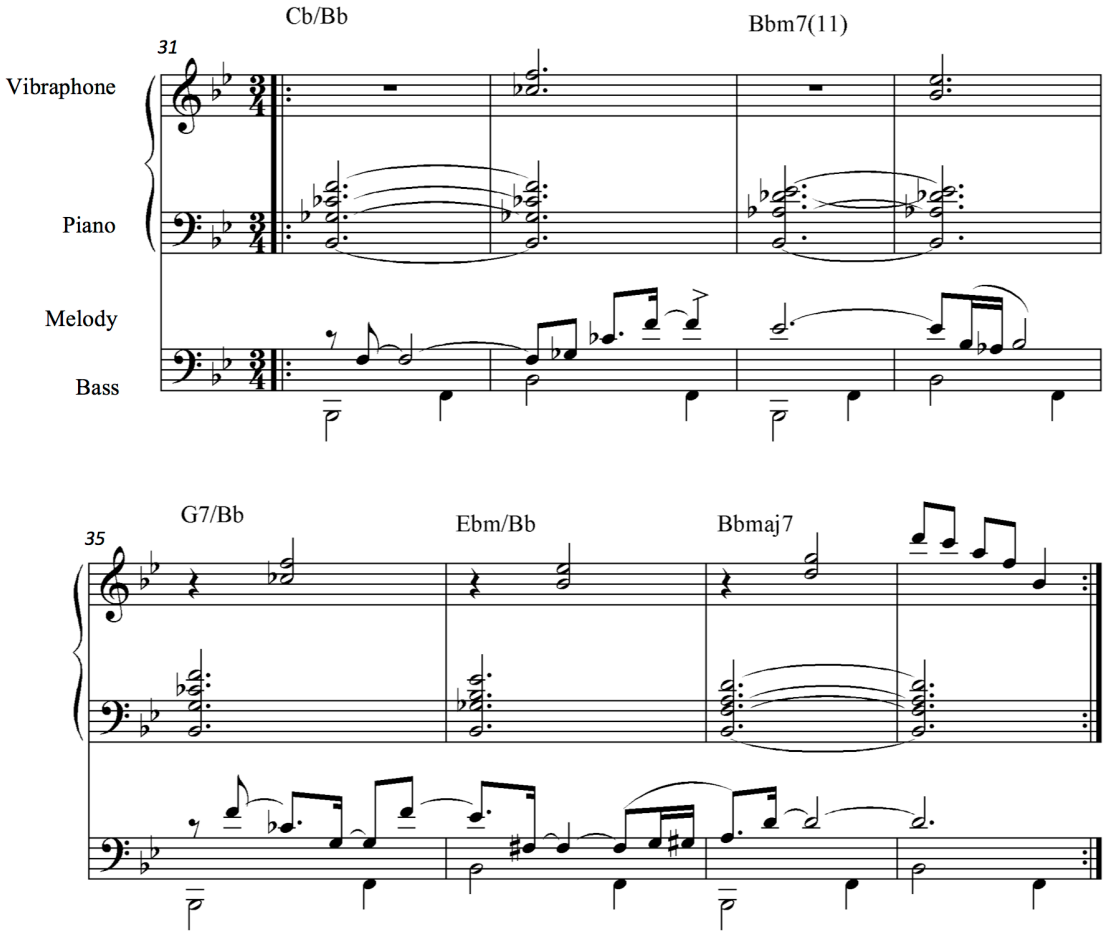
The reinforced and continuous triangles show the triads connected in Santos's progression, and the dashed triangles are the minor intermediate triads, clearly exposing the parsimonious voice leading path handled by the artist. The numbers within the triangles are the measures of the section in which each triad is found.

Section B: the classic primer of unit, variety and proportion

Section B of *Coisa no. 2* follows certain processes in section A, while varying others. Thus, it operates something significant in Santos's own compositional style: the classical principle of *unity, variety*, and *proportion*. Santos highlighted these words himself in one of Goestchius's books (1922) that he used to consult, as researcher Andrea Ernest Dias found in his access to the composer's library in Pasadena, California. Santos wrote this thought in one of his aphorisms, precisely based on this book: "Music is the poetry of sounds, an art in which unity, proportion and variety are the main factors" (ERNEST DIAS, 2010, p. 167). In this section B of *Coisa no. 2*, such principles, dear to the composer, are thus revealed: *unity* is conquered by the continuity of

[2] The *Tonnetz*, as it originally appeared in Euler (1739), showed a space created between notes related by perfect fifth and major third intervals. Later developed by Oettingen (1866), Riemann (1880) and other Nineteenth-century German theorists, it became an especial tool to chart harmonic motion between chords, working as a spatial representation of tonal distance. New interpretations of these relations would appear with the Neo-Riemannian theorists in the Twentieth-century. Lewin (1982; 1987) started and developed a transformational approach to triadic relations, aiming to show how a consonant triad (or *Klänge*) can be transformed to obtain another one. Finally, some of Lewin's transformations were developed by Hyer (1989), who organized these relations graphically in the specific *Tonnetz* form we chose here.

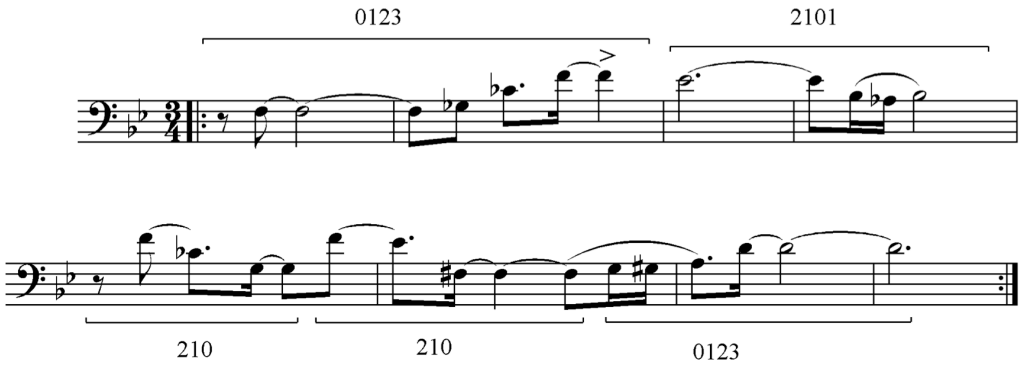
relations of seconds in the harmony, besides the continuation in the ostinato of the double bass and the drum rhythm. Moreover, the contour of the leading line in the harmonic accompaniment repeats, as we have said, the same contour of the leading line observed in the harmony of section A. Already showing variety, this appears initially in the main melody, whose arpeggiated contour contrasts with the linear melodic design of the previous section:



Example 9. Section B, Moacir Santos, *Coisa no. 2*, mm. 31–38.

The melody (still played by trombone, horn and tenor sax), even breaking the preceding linear style, reveals its coherence through the *musical contour*. To understand this parameter, according to Straus, "We do not need to know the exact notes and intervals; we only need to know which notes are higher and which are lower" (STRAUS, 2005, 99). Thus, a melodic line can be described by its *contour segments (CSEG)*, which designate its notes by numbering, from the lowest (number 0) to the highest (highest number). Let us see how the melody of section B can be described by these segments: [3]

[3] The issue of melodic contour was treated in different ways by scholars like Morris (1987; 1993), who excluded the temporal dimension from the contour analysis for the first time; Marvin (1988), with an approach strongly focused on the listeners' aural perception from musical patterns; Sampaio (2012); Moreira (2105), and others.



Example 10. *Contour segments* in the melody of section B, Moacir Santos, *Coisa no. 2*, mm. 31–38.

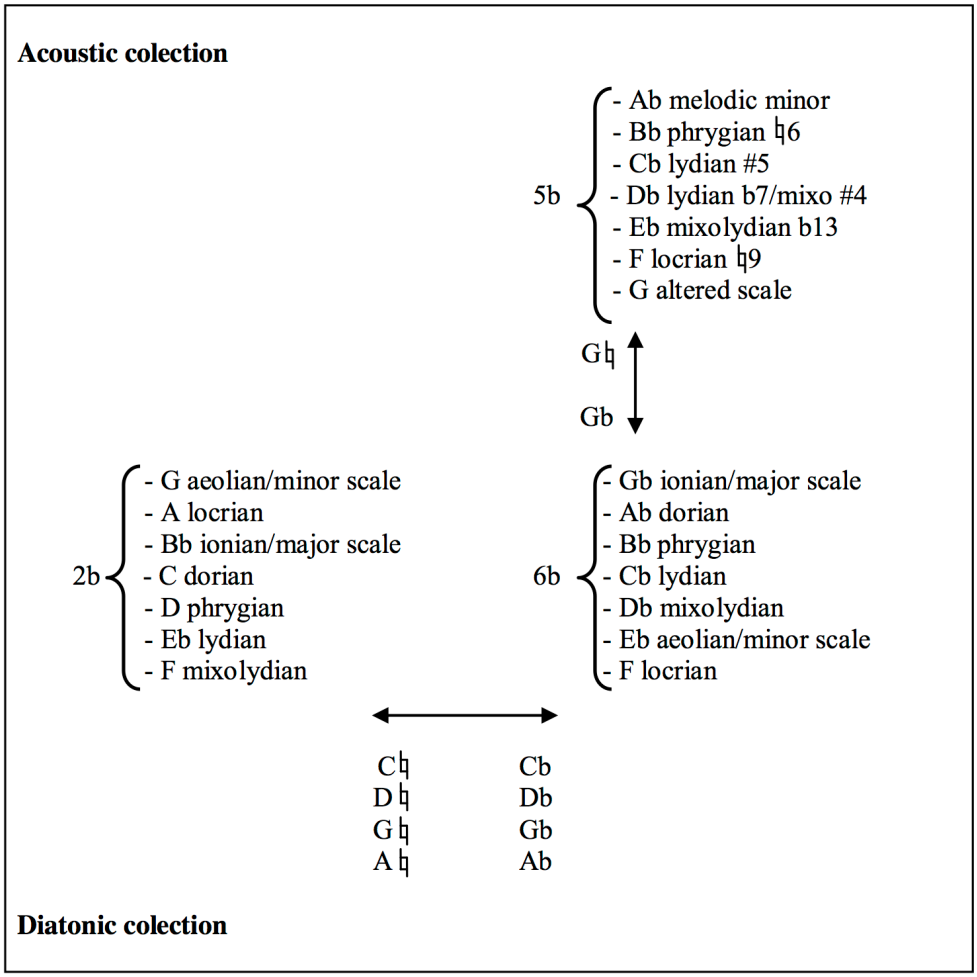
It can be seen that, if the contour of the first segment is retrograde, the segment <3210> is obtained. Taking only the first (highest) note of this segment results in <210>, a configuration that starts the second and summarizes the third and fourth CSEGs. The fifth and last CSEG only repeats the first. These relations of retrogradation and repetition of the first CSEG help to illustrate the unity of the melody of section B as to the perception of its contour.

The sharp change of melodic character seems to have caused a specific harmonic consequence in this section of the piece: contrary to the previous sections, the accompaniment chords basically stack the notes of the melody vertically, that is, there is not a melodic note that is not present in the chord that accompanies it (the only exception being the last two sixteenth notes of mm. 36, with an ornamental function). The discourse's horizontal sense, therefore, seems to have defined its construction at this point in the piece, so as to render unlikely any functional relation between harmonic blocks, or even processes of triadic transformation. The chord symbols, in turn, become useless for analysis. Therefore, it is from the horizontal point of view that this section can be understood, as far as the subtle changes between modes are concerned. More precisely, we must resort to the concept of *referential collections*, which Straus (2005) points out as relevant for much of the post-tonal music of the twentieth century: diatonic collection, octatonic collection, whole-tone collection and hexatonic collection. The author thus defines, for example, the diatonic collection:

> The *diatonic collection* is any transposition of the seven "white notes" of the piano...All the major scales, (natural) minor scales, and church modes are diatonic collections. Diatonic collections also are common in twentieth-century music. Large stretches of music by Stravinsky and others can be referred to one or more diatonic collections. In post-tonal music, however, the diatonic collection is used without the functional harmony and traditional voice leading of tonal music. (STRAUS, 2005, p. 140).

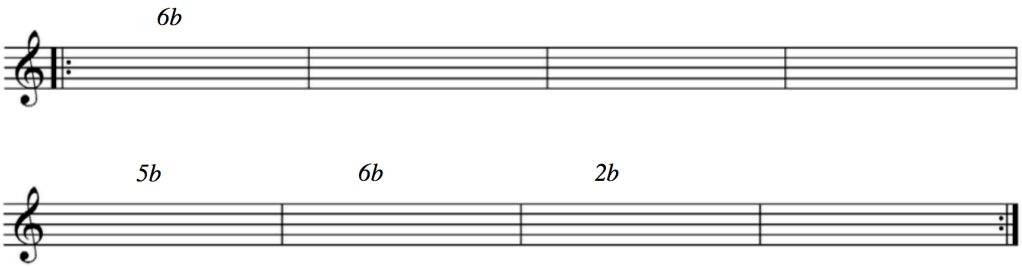
From this understanding of the diatonic collection as a set of pitch-classes, the definition of a centric tone becomes less important, since the collections are designated simply by the amount of accidentals they have—the *1-sharp* collection, for example, may designate: C lydian, D mixolydian, E aeolian, F# locrian, G ionian, A dorian or B phrygian. Hence the concept arises in Straus of *collectional interaction*, according to which "Music may shift from one [collection] to another and musical passages can be understood in terms of the interpenetration of one by

another" (STRAUS, 2005, p. 150). By this logic, this section B of *Coisa no. 2* can be understood as follows:



Example 11. *Collectional interaction* in section B.

This is the order in which the collections of the example above appear in the harmony of section B:

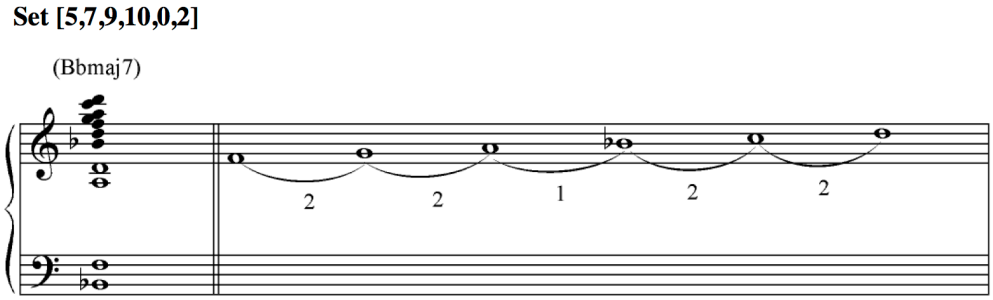


Example 12. Order of referential collections in section B.

Starting from the last two examples, Santos handles parsimonious changes between the first three collections, with modification by only one semitone between each one. In the last exchange, however, parsimony is abandoned, a kind of breaking of the pattern at the last moment

that in its own way is yet another of the composer's recurring trademarks. Here, however, the break is justified, in part, by maintaining the B♭-ionian mode as a conclusive collection in all sections of *Coisa no. 2*. This outcome, however, is achieved by a permanent modal dubiety and never by the traditional means of tonality.

In this context, Santos also tends to position some symmetries at key points in his sections (halves, conclusions, transitions, etc.), breaking such symmetries soon afterwards. In this section B, the symmetry is due to the last set of pitch-classes of the passage, located in the last two measures (see Example 9). This set consists of all pitch-classes referring to the piano, vibraphone (filled noteheads on the left in the example below), double bass, tenor sax, tenor trombone and horn. Excluding repeated notes from the set, we see how it appears when laid horizontally:

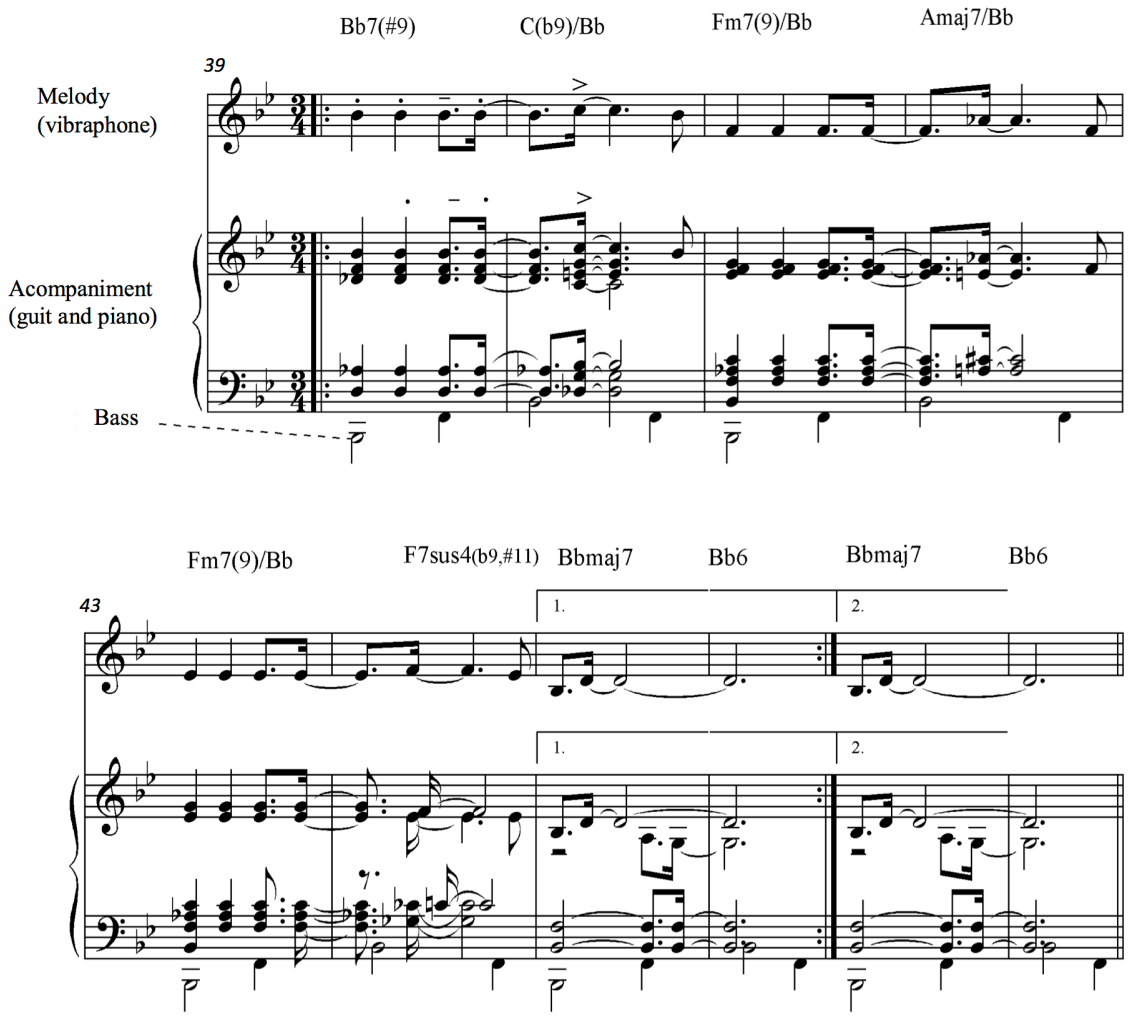


Example 13. Symmetrical conclusive set of section B.

Though the set is a simple manifestation of an incomplete scale, the detail to observe is that only at this point - and nowhere else in the section - the chosen notes result in a horizontal palindrome: the intervals are read in the same way from left to right or vice versa, a level of a little deeper symmetry that will be, as usual, abandoned shortly thereafter by the artist.

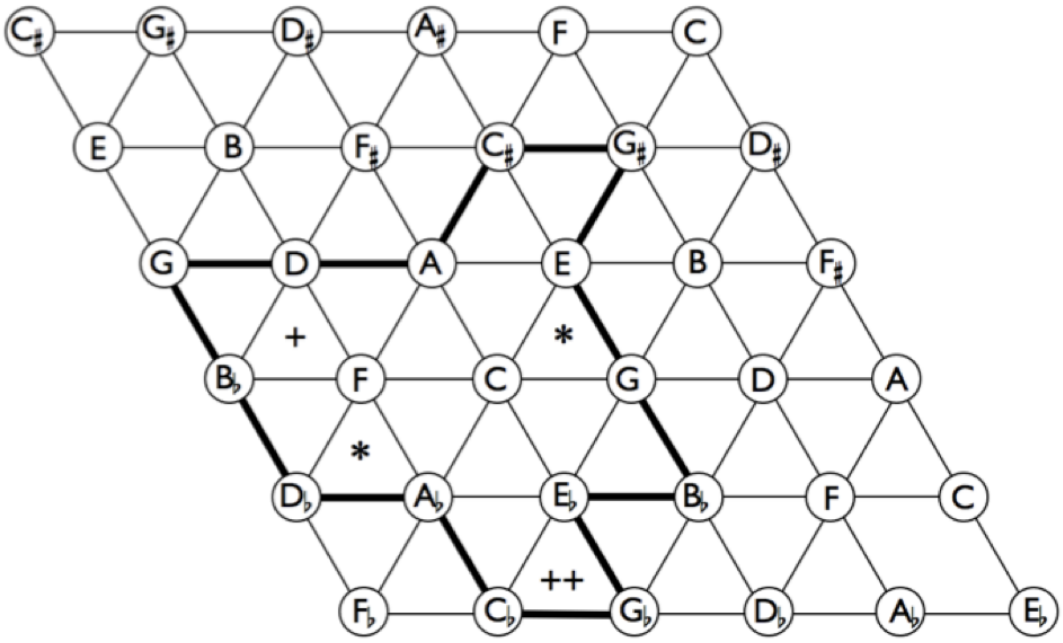
Section A': harmonic expansion of section A

The classic primer of *unity* and *variety* continues to operate on this varied reiteration of section A of the piece. Here the more static melody of that section returns, whereas, for the first time, the subtle voice leadings by intervals of seconds in the accompaniment are modified by a denser harmony. Let's look at the initial data in the reduction below:



Example14. Reduction of section A', Moacir Santos, *Coisa no. 2*, mm. 39–48.

What happens in this section is precisely the return of the harmonic strategy of section A, with a modal melody supported by chords related by triadic transformation, all of which here are composed of superimposed triads (e.g., C major triad on G diminished in mm. 40) or interlaced (ex: a C♭ major triad interlaced with that of F minor, considering the note Ab as a third omitted from the latter, in mm. 44). What happens here is that section A undergoes a kind of *harmonic expansion*, seen more deeply through the *Tonnetz*. All the major, minor and diminished triads present in section A' are presented below, graphically representing its *total harmony*:



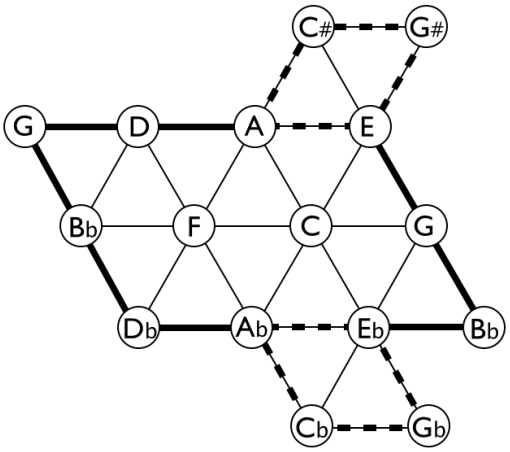
+ Bb major: chords 4 and 6 in section A.

++ B major: chords 3 and 5 in section A.

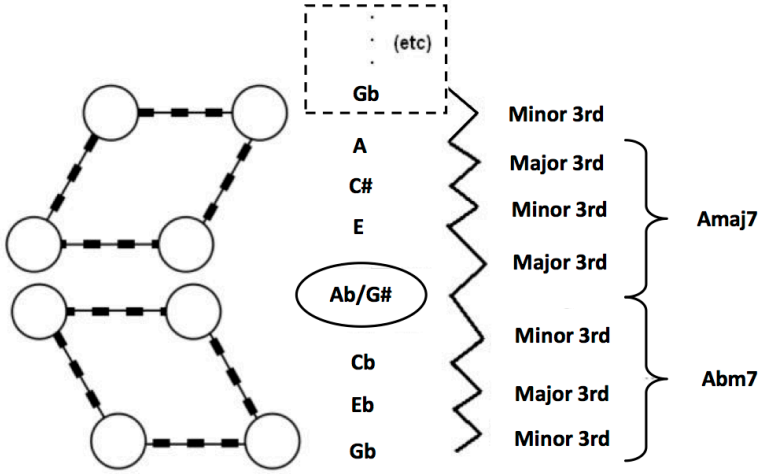
*** Db major and C major: respectively, chords 1 and 2 in section A.**

Example 15. *Tonnetz* with *total harmony* of section A '.

The process of harmonic expansion is revealed by the signs of +, ++ and * contained in the *Tonnetz*, indicating the inclusion within section A' of all triads present in section A. In this way, it is the *total harmony* of both the parts that are revealed in the figure above. This harmony also indicates a second important relation: the two parallelograms, upper and lower of the figure, visually demonstrate a symmetrical inversion relation, which is confirmed by stacking vertically the notes of both around their common note, thus forming a vertical interval palindrome. Below is the resulting *Tonnetz* figure, followed by this relation:

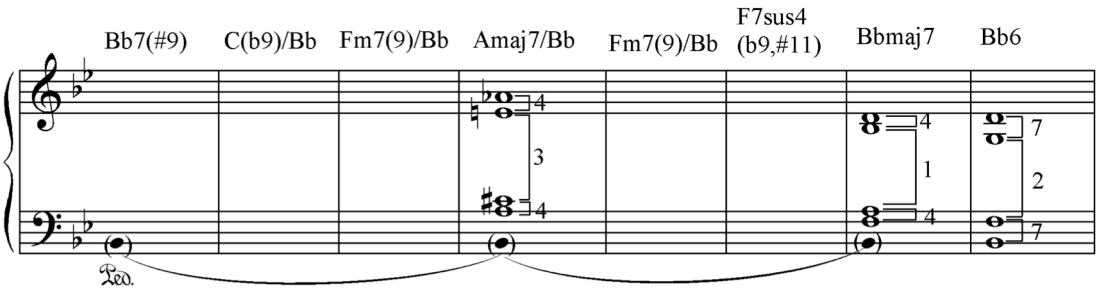


Example 16. Resulting *Tonnetz* figure.



Example 17. Symmetric relationship between parallelograms.

Finally, it is worth citing once again a last common symmetric procedure in Santos work: the one of positioning symmetrical sets in key points of its sections. In the case of section A', the progression advances to a symmetrical set in the central tetrachord, then the symmetry falls apart, then reappears in the concluding set (see Example 18). In this analysis, we disregard the pedal in B♭ emphasizing the whole passage, but that however integrates the last symmetry involving the B♭6 chord. Note that here we are referring to *pitch-symmetrical* chords (i.e., one takes into account the exact register in which the notes appear in the score) (STRAUS, 2005). What is formed, therefore, are vertical interval palindromes at the symmetrical points (the numbers of the intervals below refer to the number of semitones):



Example 18. Pitch symmetry in sets located at key points of section A', Moacir Santos, *Coisa no. 2*, mm. 39–46.

Conclusion

Although new variations of sections A and B still appear throughout the piece (including a section A transposed up a minor third), practically no new harmonic materials will arise from then on. Thus, as far as harmony is concerned, *Coisa no. 2* could be summed up as being in this form: Introduction/A/B/A'. The facts mentioned above, however, sufficiently attest to the central argument of this article: that through analysis the harmony of Santos reveals procedures that go

well beyond what his *harmonic dubiousness* initially suggests. The detailed and hidden character of his aesthetics draws attention above all to its being contained in a structure of great simplicity and economy of means. It is clear, as said, that the analytical tools commonly used in popular music, or in traditional tonal language, though useful in certain ways, are insufficient to understand Santos. The reasons for this, as we have seen, lie in the use of triadic transformations, specific voice leadings, parsimonious exchanges between referential collections, and occasional symmetries, among several other aspects that help situate Moacir Santos in the wide universe of post-tonal music. Other factors of *Coisa no. 2*, such as harmonic voicings and counterpoint are elements of great importance as the piece's variation resources, and the way Santos works with his *voicings* is certainly one of the trademarks of his style. Such factors, however, are a subject for other articles.

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