Pentaphones and Structural Plasticity in the Music of Jean-Louis Florentz

Federico Andreoni

Department of Music Research
McGill University, Montreal

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ABSTRACT

This thesis explores elements of the compositional style of Jean-Louis Florentz, both in light of his own analyses and according to a new analytical approach to form developed here.

The first chapter analyzes Jean-Louis Florentz's harmonic system as described by the composer in his treatise *L'hospitalité des mémoires (Genèse de ma technique harmonique).* In particular, the chapter examines the structural and interactive features of Florentz's *pentaphones*, which are complex melodic-harmonic units generated by the pitch-class content of 9^{th} chords.

While *pentaphones* and their interaction can explain crucial aspects of Florentz's harmonic syntax, large-scale formal features of his music can be better understood through an analytical approach based on the study of specific tonal, thematic, and intervallic functions. I have developed this approach through what I call a multiplanar theory. The theory draws significantly on Alegant and McLean's theory of tokens, which explains how thematically significant elements (tokens) can become objects of enlargement and thus acquire formal significance.

The multiplanar theory, used in the second chapter of the thesis to analyze Florentz's *Debout sur le soleil, op. 8*, employs multiplanar graphs to illustrate the potential poly-functionality of the piece's constituent elements. By detaching the process of form generation from the classical tonal syntactical domain, the multiplanar theory offers a new analytical model that may be of interest to other theorists in the analysis of pre- and post- tonal music.

RÉSUMÉ

Cette thèse explore des éléments du style compositionnel de Jean-Louis Florentz à la lumière de ses propres analyses et selon une nouvelle approche analytique développée ici.

Le premier chapitre analyse le système harmonique de Jean-Louis Florentz tel qu'il le décrit lui-même dans son traité *L'hospitalité des mémoires (Genèse de ma technique harmonique).* Ce chapitre examine en particulier les rapports structurels et interactifs des *pentaphones* de Florentz, qui sont des unités mélodico-harmoniques complexes générées par le contenu de pitch-class d'accords de neuvième.

Tandis que les *pentaphones* et leur interaction peuvent expliquer des aspects cruciaux de la syntaxe harmonique de Florentz, les rapports formels à large échelle dans sa musique peuvent être mieux compris grâce à une approche analytique basée sur l'étude de fonctions tonales, thématiques et intervalliques spécifiques. J'ai développé cette approche à travers ce que j'appelle la théorie multiplanaire : elle s'appuie de manière significative sur la théorie des jetons de Alegant et McLean, qui explique comment des éléments thématiquement signifiants (jetons) peuvent devenir des objets d'élargissement et acquérir ainsi une signification formelle.

La théorie multiplanaire utilisée dans le second chapitre de cette thèse pour analyser *Debout sur le soleil, op. 8* de Florentz, emploie des graphiques multiplanaires pour décrire la poly-fonctionnalité des éléments constitutifs de la pièce. En détachant du domaine syntaxique de la tonalité classique le processus générateur de la forme, la théorie multiplanaire offre un nouveau modèle analytique qui peut présenter un intérêt pour d'autres théoriciens dans l'analyse de musique pré- ou post-tonale.

INTRODUCTION

Jean-Louis Florentz (1947-2004) describes the genesis of his harmonic language in his treatise *L`hospitalité des mémoires (Genèse de ma technique harmonique)*,[1] written in 1994 and still unpublished. The title of the work does not reflect the full scope of the treatise, which, in fact, deals not only with the harmonic but also the melodic features of the composer's language. Two elements constitute the theoretical basis of Florentz's system: the 9th chord and its derived *pentaphone*. These two elements are closely related, the latter being a five-note collection whose pitch-class content replicates the former in a 'melodic version' collapsed into the octave. Starting from these basic harmonic and melodic structures, Florentz applies a first selection process to the 9th chords by discarding those that present pitch-class repetition or whose adjacent intervals are larger than four semitones; he then organizes the remaining chords in a hierarchical order according to their degree of dissonance (what he calls 'harmonic weight'), and identifies some specific *pentaphones* with modulating properties. In the second part of the treatise, Florentz discusses voice-leading and syntactical issues related to the use of *pentaphones*. He analyzes the outcomes of the application of his pentaphonic system to some of his own works, explaining how local musical events can be generated within a pentaphonic environment.

In my thesis I will analyze Florentz's harmonic system, and study outcomes and limitations of his theoretical findings. In particular, I will analyze how and to what extent these findings have informed his own compositional process. As Florentz himself points out, the information found in the treatise allows for a better understanding of the melodic

[1] Florentz, J.-L. *L`hospitalité des mémoires (Genèse de ma technique harmonique)*. Unpublished. From now on I will refer to this work as *L`hospitalité*.

and harmonic relationships, but is not a "catalogue of formulas and recipes."[2] Often, Florentz expresses a need for broadening the classical notion of harmonic syntax in order to be able to assimilate features of music of other cultures, notably modes from the music of the Ethiopian church. By combining, among others, harmonic and melodic elements from the reggae and jazz traditions with modal and tonal features of classical music he sets the stage for a non-conventional view of harmony that emphasizes a looser approach to tonal syntax. Florentz's harmonic indications perfectly describe how modes relate to each other, and how voice-leading issues at a local level can be addressed; however, they do not explain how local events interact with each other to form larger-scale structures, and therefore do not explain the global form of a piece.

Thus far, only a handful of scholars have analyzed the potential theoretical implications of Florentz's treatise.[3] My thesis will attempt to fill this theoretical gap by analyzing the basic features of Florentz's harmonic system, and by focusing on the harmonic and melodic features of one of Florentz's most significant organ pieces, *Debout sur le Soleil,* op. 8, [4] will show how the composer's abstract theoretical ideas operate within his aesthetic outlook.

Furthermore, I will apply a relatively new analytical approach, Alegant and McLean's theory of tokens, to Florentz's own harmonic view. Using this theory, I will explain how the structure of a piece can be seen as the expansion of thematically significant elements. As I will show, the analysis of *Debout* according to Alegant and

[2] *L`hospitalité*, 2. "Catalogue de formules ou recettes."
[3] To my knowledge, the only theoretical works on Florentz prior to this thesis are Truche 2007 and Florentz's own writings and published articles.
4 Florentz, J.-L. *Debout sur le soleil: chant de résurrection pour orgue*. Paris: Leduc, 1995. From now on I will refer to this work as *Debout.*

McLean's methodology supplies a complementary view to Florentz's harmonic technique, and allows for the comprehension of large-scale structures.

I will consider all available primary and secondary sources. Among the primary sources are the published organ score of *Debout* and Florentz's treatise *L`hospitalité*. All of Florentz's source materials pertaining to his compositional activities such as scores, analyses, writings, recordings, and drawings, are held by the *Association Jean-Louis Florentz* in Boulogne-Billancourt, France, from which I obtained a rare copy of Florentz's treatise. Secondary sources include all other items listed in the bibliography.

My thesis will consist of two chapters: in Chapter I, I will analyze Florentz's theoretical system as set out in *L`hospitalité*; in Chapter II, I will apply the theory of tokens to *Debout* to complement Florentz's analytical findings, placing them within a global structural view of the piece. My hope is that this thesis will fill the analytical vacuum in the currently available secondary literature on Florentz, and will provide greater insight into both his harmonic system and aesthetics.

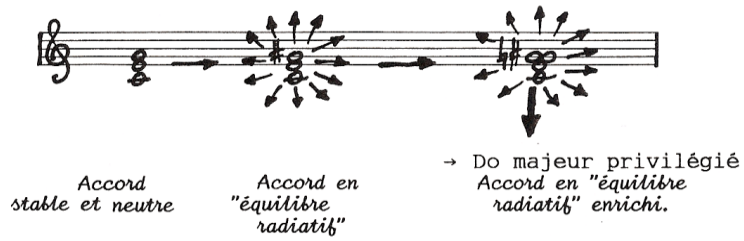
CHAPTER I

The Harmonic Language of Florentz

The root of Florentz's harmonic language is found in the concept of harmonic radiation (*radiation harmonique*), which involves the transformation of a chord from a state of stability into various states of instability. This process will eventually take the sonority back to the original state of stability.

The process of harmonic radiation is shown in example 1-1. Here, Florentz takes a stable chord, the major triad, [5] and raises its 5th by a semitone, creating a chord in what he defines as radiating equilibrium,[6] the symmetrical augmented triad. By adding what he calls a resolution note to the augmented triad, Florentz then obtains a chord in enriched radiating equilibrium.[7]

Example 1-1: The process of harmonic radiation at work. *L'hospitalité*, 3



[5] *L`hospitalité*, 3. "Accord stable et neutre."
[6] Ibid. 3. "Équilibre radiatif."
[7] Ibid. 3. "Équilibre radiatif enrichi."

As Florentz describes:

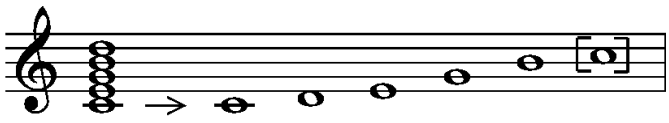
> From the point of view of tonal perception, the alteration of the 5th destabilizes the initial major chord, such that suddenly this new chord contains a very large potential of resolution. [...] To its "equilibre radiatif" corresponds an over-multiplication of its resolution functions. If we now attach to such an augmented triad one or more resolution notes […], the equilibrium becomes unstable because the chord has been enriched in the direction of one or more resolutions preferred to others. […] This chord, once enriched, will be able to move to other harmonic regions that it itself will have created by means of its global configuration.[8]

The process of harmonic radiation can also be applied to chords of more complex structure, such as 9th chords; these are the originating elements of Florentz's harmonic system.

The *pentaphones*

The pitch content of any 9th chord is the basis for a pentatonic mode. As shown in example 1-2, a 9th chord together with its pentatonic mode forms an entity that Florentz calls a *pentaphone.*

Example 1-2: The harmonic and melodic components of the *pentaphone* derived from the major 9th chord



[8] *L`hospitalité,* 2-3. "Du point de vue de la perception tonale, le fait d'altérer la quinte déstabilise l`accord parfait majeur initial de sorte que, subitement, ce nouvel accord contient une très grande potentialité de résolution. […] A son `équilibre radiatif` correspond une sur-multiplication de ses fonctions de résolution. Si maintenant on fixe sur un tel accord de 5te augmentée une ou plusieurs notes de résolution […], l`équilibre devient instable, car l`accord a été "enrichi" en direction d`une ou de plusieurs resolutions privilégiées parmi d`autres. […] Cet accord, une fois chargé, pourra en plus aller dans d`autres "régions harmoniques" qu`il aura lui-même suscitées de par sa configuration globale." All translations from French sources are mine.

From the 256 possible 5-note chords created by the stacking of major and minor 2nds and 3rds,[9] Florentz discards those that contain an interval larger than a major 3rd between the 5th and the 6th note of the melodic representation,[10] as well as those with identical intervallic structure and pitch-class duplication. Ultimately, only 31 basic *pentaphones* remain: 12 primary and 19 secondary. In the list of Appendix 1, each primary mode (e.g. *1er mode*, *2e mode*, etc.) is followed by the corresponding secondary ones (e.g. *1er mode `diminué`*, *2e mode `sur-diminué`*, etc.). The secondary modes are variations of the primary ones, with one of the pitches raised or lowered one or two semitones.[11]

Since *pentaphones* are at the same time melodic and harmonic entities, "writing in one of [the] 12 primary modes implies also the consciousness of the harmonic function of the 9th chord that generates it."[12] With reference to the 5th *pentaphone*, found in example 1-3 below, this melodic/harmonic dualism is described by Florentz as follows: "vertically speaking, this harmonic 'path' is nothing other than the succession of the four inversions and of the root position of the original augmented 9th chord. Horizontally, what dominates is the characteristic modal 'color.'"[13]

In the example, Florentz writes out all the inversions of the 5th *pentaphone*, generated by the augmented 9th chord, with each voice moving through adjacent pitch-classes in the mode.

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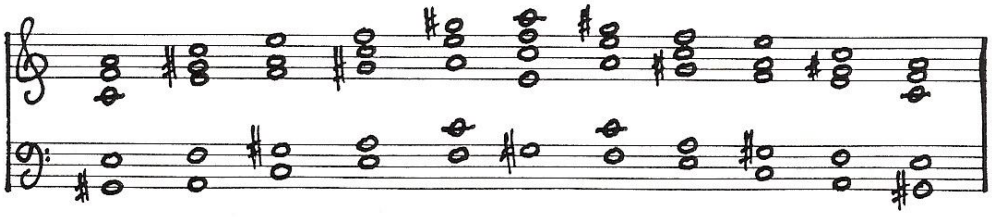
[9] *L`hospitalité*, 9.
[10] The 6th note from the bass of the chord coincides with the octave above the first note.
[11] When one of the pitches is lowered by one or two semitones, the mode is identified respectively as diminished (*diminué*) or over-diminished (*sur-diminué*); when one of the pitches is raised by one or two semitones, the mode is identified respectively as altered (*alteré*) or over-altered (*sur-alteré*).
[12] *L`hospitalité*, 9. "Ecrire dans l`un de ces 12 modes de base implique aussi une prise en compte de la function harmonique de l`accord de 9ème qu`il engendre."
[13] Ibid. 7. "Verticalement parlant, cette `marche` harmonique parallèle n`est pas autre chose que la succession des 4 renversements et de l`état fundamental de l`accord de 9ème augmentée original. Horizontalement, c`est la `couleur` typée, caractéristique, qui domine."

Example 1-3: Root position and inversions of the 5th *pentaphone*. *L`hospitalité*, 6



Moreover, Florentz draws a parallel between the pitch content of the 12 primary *pentaphones* and the harmonic series. As shown in Appendix 2, he assigns a numeric value to each partial of the harmonic series, and applies the same numeric value to the pitch-classes as they appear in the *pentaphones*.[14] The values of all pitch-classes of the *pentaphone* are then added together and the sum gives what Florentz calls the harmonic weight[15] of the *pentaphone*. Florentz concludes that the higher the sum, the heavier and, therefore, more dissonant the *pentaphone*.

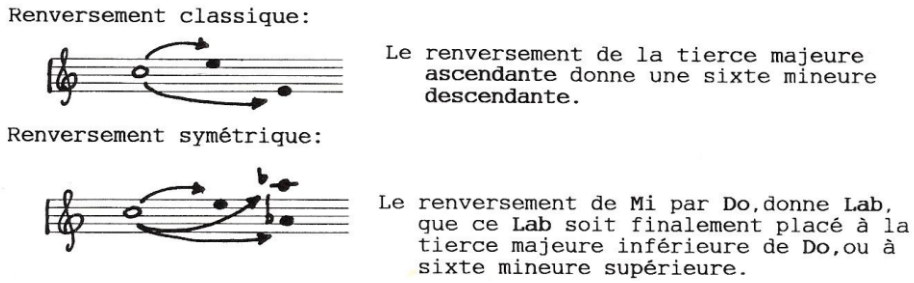
The *pentaphones* as *voies modales*

A key element of the *pentaphones* is their capacity to interact with each other, creating closed modal systems characterized by specific internal harmonic and melodic relationships.[16] Within these closed systems, composers can migrate[17] from one *pentaphone* to another by means of three types of interaction: strong, medium, and weak.

[14] The lowest occurrence of a pitch-class as partial is the one taken into account by Florentz.
[15] The harmonic weight ["poids harmonique"] is obtained considering enharmonic equivalence.
[16] A concept developed later in the chapter.
[17] *L`hospitalité,* 37. "Emigrer."

According to Florentz, the strong interaction is based on the relationship between a *pentaphone* and its symmetric inversion (SI),[18] which is shown in the following example.

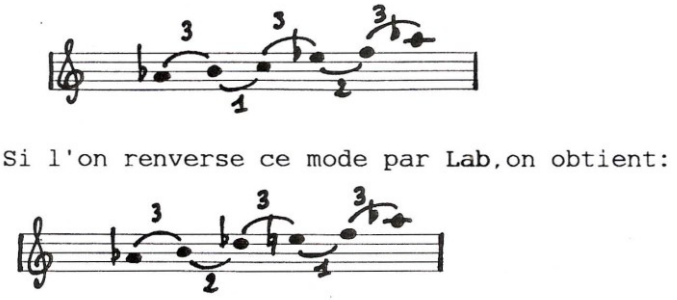
Example 1-4: Inversion versus complement. *L`hospitalité*, 19



A *pentaphone* and its SI may share the same intervallic structure (normal order), in which case the *pentaphone* is inversionally symmetrical in itself,[19] or may be structurally different, in which case they are simply related by strong interaction. In the following example, Florentz shows the 5th over-diminished mode and its SI around A-flat. The SI creates the 2nd diminished mode, which is therefore in strong interaction with the originating 5th over-diminished mode.

[18] *L`hospitalité,* 19. "Inversion symétrique." This is the only inversion-type used by Florentz.
[19] The originating mode is not-invertible ["non-renversable"]. Ibid. 20.

Example 1-5: The 5th over-diminished mode and its SI. *L`hospitalité*, 19



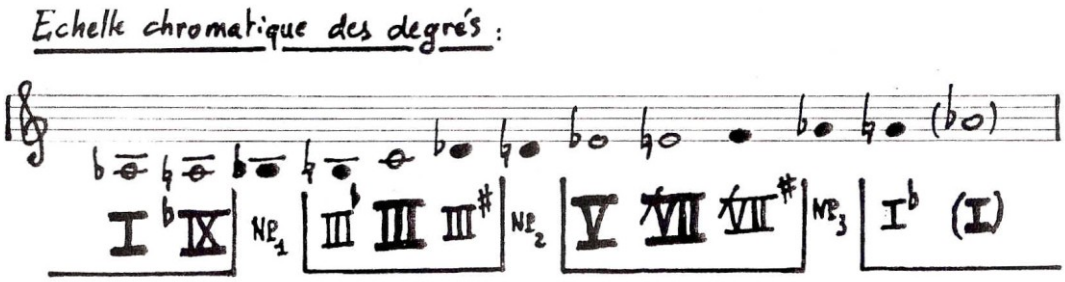
Appendix 3 shows the intervallic structure of all 31 basic *pentaphones* and their SI.

The medium interaction is established between two *pentaphones* by means of their seven-note complement[20] and/or inverted complement.[21] This interaction is obtained through a pruning process shown in Appendix 4. Florentz identifies and lists all transpositions of the complement of the 2nd over-diminished mode, then maps the pitches of the originating un-transposed mode onto each of the transpositions of the complement. When complete recurrences of the originating mode occur within a transposition, the remaining two pitches of the complement are designated as *pyen*[22] *lourds*. This mapping process yields different *pyen lourds* for different transpositions of the complement. As a result, the number of occurrences of *pyen lourds* may vary among *pentaphones*. As shown in example 1-6, on a chromatic scale the pitches of the originating mode plus the *pyen lourds* are organized into three functional areas (tonic, pre-dominant, and dominant

[20] *L`hospitalité*, 15. "Compagnon." This term describes the seven-note collection obtained by the selection process that prunes the *pentaphone* from the twelve-note chromatic scale.
[21] Ibid. 18. "Compagnon renversé."
[22] *L`hospitalité*, 15. The term *pyen* is a Chinese word that can be translated as "unimportant quantity."

areas), which Florentz calls "fields of action."[23] The pitch-classes of the originating mode are shown as open note-heads, *pyen lourds* and *pyen legers* as filled note-heads. The remainder are those pitch-classes that are neither *pyen lourds* nor those belonging to the tonic, pre-dominant, and dominant areas, and Florentz represents them as excluded from these areas.

Example 1-6: The fields of action of the 2nd over-diminished mode. *L`hospitalité*, 40

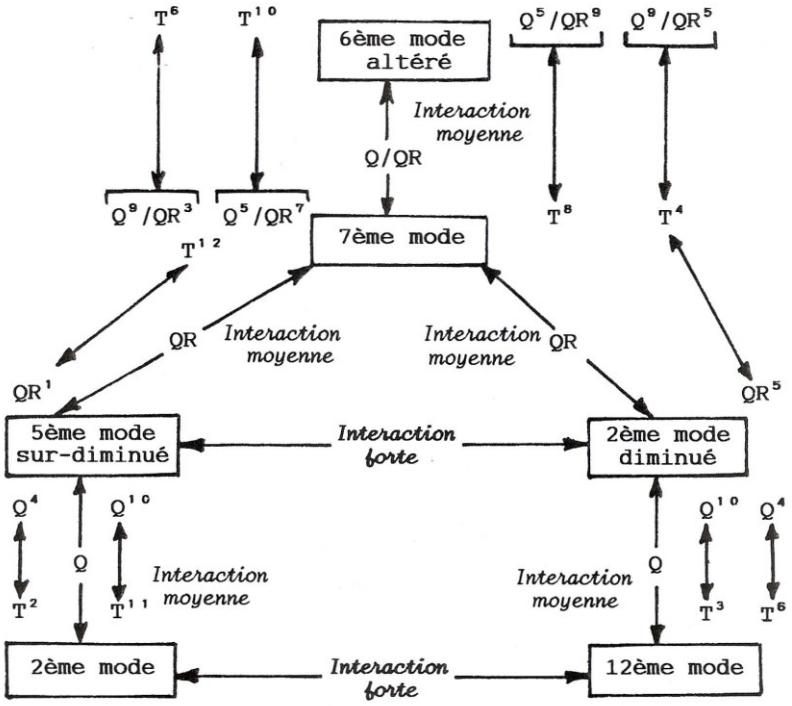


An example of medium interaction may be seen in Appendix 5. Here the extraction of the originating 5th over-diminished mode from both its complement and inverted complement produces the presence of the 2nd mode in transpositions 4 and 10 of the complement (left column), and of the 7th mode in transposition 1 of the inverted complement (third column from the left). Ultimately, the 5th over-diminished, 2nd, and 7th modes are considered to be in medium interaction with each other.

The following example shows how strong and medium interaction create what Florentz calls the "primary modal field"[24] of the 5th over-diminished mode.

[23] The term "field of action" is my English translation for what Florentz defines as "degrées en forme de champs." (*L`hospitalité,* 16)
[24] *L`hospitalité*, 37. "Champ modal primaire."

Example 1-7: The 5th over-diminished mode and its primary modal field. *L`hospitalité*, 36.[25]



As Florentz states:

> The six modes constitute, together, the primary modal field of the 5th over-diminished mode. The primary modal field (of a specific mode) is a family of modes tied together by strong and medium interaction, according to which are set in action their primary *pentaphones* or their inverted *pentaphones*.[26] For example, writing in the 5th over-diminished mode means to employ the different properties of its primary modal field.[27]

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[25] In the graph, T = transposition of the originating mode, Q = complement, and QR = inverted complement. The number on the right of each T, Q, and QR indicates their level of transposition. For example, the medium interaction between the 5th over-diminished mode and the 2nd mode (bottom left corner of the graph), is obtained by means of the 4th transposition of the 5th over-diminished mode's complement, which generates the 2nd transposition of the 2nd mode, or by means of the 10th transposition of the 5th mode's complement, which generates the 11th transposition of the 2nd mode.

[26] From now on I will refer to the inverted *pentaphones* with the acronym SI.

[27] *L`hospitalité*, 37. "Les six modes constituent, ensemble, le champ modal primaire du 5ème mode sur-diminué. Le champ modal primaire (d`un mode déterminé) est une famille de quelques modes, lies entre eux par des interactions fortes ou moyennes, selon que sont mis en jeu leurs pentaphones basiques ou leurs

The weak interaction is established by means of the pentaphone's enriched complement. Florentz's analysis of the 2nd over-diminished mode and the total chromatic effect28 created in transpositions 2, 4, 8, and 10 of its enriched complement shows how weak interaction works. 29 This total chromatic effect is found in the enriched complement when the addition of the pitches of both complement and inverted complement produces the chromatic scale. This unique situation allows for the identification of the pitch content of all the pentaphones within these four transpositions, which become then the interface through which the composer can migrate between pentaphonic environments.

The 2nd over-diminished mode as a *passepartout*

Florentz's harmonic system is heavily indebted to the Ethiopian liturgical musical tradition, as indeed is the work *Debout*, which will be analyzed in Chapter II. In Florentz's *oeuvre*, the assimilation of the Ethiopian musical tradition happens in the context of his personal experience and intellectual background. Florentz shows his awareness of the problems that he, as a composer, must face when dealing with the assimilation of other cultural idioms, reassuring his audience that he will avoid assimilation in the sense of colonization.[30] His assessment of the problem highlights his wish to maintain a dialogue between the Western tradition and the original cultures, without absorbing idioms indiscriminately; he states that the goal "is always and without

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pentaphones inverses. Ecrire par example dans le 5ème mode sur-diminué, consistera donc à exploiter les diverses proprietés de son champ modal primaire propre."

[28] *L`hospitalité*, 40. "Total chromatique."

[29] Refer to Appendix 6.

[30] *L`hospitalité*, 44. "I want to integrate other material into my own music without colonizing it." ["Je veux intégrer à ma matière musicale propre, une autre matière, et cela sans la coloniser."]

exception to magnify [the source], and give it a form, while paying it homage."[31] He identifies his process of assimilation with the word *bienvenue*.

Compositionally, this process begins with the use of the melodic version of each *pentaphone* as the first point of contact between his modal system and the modal system of the assimilated Ethiopian tradition. Florentz's choice to use the enharmonic system in the context of equal temperament is not one of convenience, but is determined by the fact that it allows for the approximation of the internal intervallic relationships of all 31 *pentaphones* to those of "pentatonic modal source[s] of extra-European origin."[32]

As Florentz states, equal temperament, which is the only temperament he uses, is the best medium for the acceptance of extra-European modes within a pentaphonic environment.[33] Florentz uses the term *margine d'equivalence* to describe the relationship between equal temperament and the complex and proteiform temperament on which the originating African pentatonic system used in his music is based. According to him, "in equal temperament, each of the 31 modes is able, by neighbouring of intervallic structure, to welcome a pentatonic modal source of extra-European origin."[34]

In this context, Florentz's 2nd over-diminished mode constitutes the privileged *voie modale* for the mapping process of the Ethiopian modal tradition onto his modal system. This mode is the most frequently used precisely for its modulating features,

[31] Ibid. 46. "C`est toujours et sans exception pour la magnifier, et lui donner une forme, tout en lui rendent hommage."
[32] Ibid. 43. "Source modale pentatonique d`origine extra-européenne."
[33] Ibid. 46. "The fact of having practiced enharmonic equivalence in the elaboration of my 31 pentatonic modes has the effect of implying a margin of error in the constituent intervals of a given mode, a margin that best corresponds to the margin of equivalence of an African pentatonic mode of which we also know that is often proteiform." ["Le fait d'avoir pratiqué l'équivalence enharmonique dans l'élaboration de mes 31 modes pentatoniques, a pour effet de sous-entendre une marge de tolérance dans les intervalles constitutifs d'un mode donné, une marge qui correspond au mieux à la marge d'équivalence d'un mode pentatonique d'origine africaine, dont on sait d'ailleurs qu'il est souvent protéiforme."].
[34] Ibid. 43. "Au tempérament au ½ ton près, chacun des 31 modes de la nomenclature est susceptible, par voisinage de sa structure intervallique, d`accueillir une source modale pentatonique d`origine extra-européenne."

which are summarized by the author in the mode's 'pentatonic ID.'[35] It acts as "a *masque*, thanks to which [Florentz] can plan a first 'contact' with another mode, this one Ethiopian, of which the transcription into our Western *solfège* will give at a first glance the same face, because it [*solfège*] is also not tempered at the semitone."[36]

Florentz's 2nd over-diminished mode thus becomes a *passepartout*, acting not only as a compositional tool to connect *pentaphones*, but also as a bridge between his Western musical heritage and the pentatonic hemitonism of Ethiopian sacred music.

Bienvenue of the *ambiguité:* Florentz's new syntax

> [My] modal thought develops by the dilution of the classical functions of resolution […]. At this stage of the "harmonic discourse," the over-multiplication of resolution perspectives and/or polar stabilization neutralizes the dominant tensions, and it is precisely this that I seek, to the point of dealing with harmonies as "sound-objects," but to the limits only. Never further, because any more would produce an annulment of the functions of tension/release. Annulment is something else entirely than neutralization. Neutralization is an over-compression of the energetic field. Annulment is somewhat equivalent to harmonic death.[37]

Through these words we understand that Florentz's *pentaphones* preserve the classical notion of sub-dominant and dominant functions but allow for the multiplication of resolution possibilities, thus enhancing the sense of harmonic ambiguity.

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[35] Refer to Appendix 6.

[36] *L`hospitalité*, 44. "Une masque, grâce auquel je peux envisager un premier `contact` avec l`autre mode, éthiopien celui-là, et dont la transcription dans notre solfège occidental donnera sensiblement le même visage, car lui non plus, n`est pas tempéré au ½ ton."

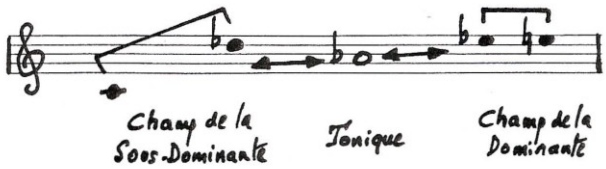
[37] Ibid. 61. "Une pensée foncièrement modale se développe par dilution des fonctions classiques de résolution […]. A ce stade du `discours harmonique`, la sur-multiplication des perspectives de résolution et/ou de stabilisation polaire neutralise les tensions dominantes, et c`est précisément cela que je recherche, quitte parfois à traiter telle harmonie aux limites de l` `objet sonore`, mais aux limites seulement; jamais plus loin, car au-delà il se produit une annullation des fonctions de tension/détente. L`annullation est tout[e] autre chose que la neutralisation. La neutralisation, c'est une sur-compression du champ énergétique. L`annullation, c`est un peu l`équivalent d`une mort harmonique."

Example 1-8[38] shows how Florentz interpolates the classical notion of dominant with that of functional field of dominant function in his piece *Le Songe de Luc Alcari, op. 10*.[39] In the example, he identifies the tonic of the piece as A-flat,[40] and the dominant as a field of action whose boundaries he determines as E-flat and E.

Example 1-8: The use of the dominant field in Florentz's analysis of *Songe. L`hospitalité*, 62

Similarly, as shown in example 1-9, Florentz identifies the sub-dominant of the piece with a field of action whose boundaries are C and D-flat.

Example 1-9: Tonic, pre-dominant, and dominant fields in Florentz's analysis of *Songe. L`hospitalité*, 62



[38] *L`hospitalité*, 61-62.
[39] Florentz, Jean-Louis. *Songe de Lluc Alcari, op. 10.* Paris: Alphonse Leduc, 1994). From now on I will refer to this work as *Songe*.
[40] Refer to example 1-6.

In the example Florentz seems to conflate the notions of pitch and pitch-class. He states that "the fundamental C is a privileged sub-dominant of [tonic] A-flat, [the former] found a minor 6th below. But, as [I] preserve the classical harmonic functions (that is to say the sub-dominant a 4th above the tonic), the sub-dominant is in reality a large field equal in size to the minor 9th C/D-flat. […] The sub-dominant could be C, D-flat, or any note within the minor 9th C/D-flat, with the exclusion, of course, of E-flat and E."[41] He thus equates the pitches E and E-flat above the tonic shown with the pitch-classes bearing the same names. However, the dominants E and E-flat are not the same as the pitches E and E-flat contained within the subdominant field shown in the example. Had Florentz identified the field of the sub-dominant as the semitone C/D-flat as he did with the dominant field E-flat/E, two degrees of the originating mode,[42] F and A, would have been left without function. This would have contradicted the generating principle of his system, in which each degree of each mode must belong to one of the three fields of action. To overcome this problem, Florentz expands the field of the sub-dominant to include all the pitch-classes that do not belong to tonic and dominant functions.

Noteworthy feature Florentz mentions when analyzing the scheme reproduced in example 1-9 is the symmetric structure of the augmented triad identified by the tonic A-flat, the lower pre-dominant C, and the highest dominant E. To the discussion of the harmonic significance of this triad,[43] he here adds a note on its structural role; this role,

[41] *L`hospitalité*, 62. "Le fondamental Do est une sous-dominante privilégiée du son polaire Lab, à la sixte mineure inférieure. Mais comme je conserve les fonctions harmoniques classiques, (c`est-à-dire la sous-dominante à la 4te supérieure de la tonique), la sous-dominante est en réalité un vaste champ, dont la largeur est égale à la 9ème mineure Do – Réb. […] Le fundamental sous-dominant peut être soit Do, soit Réb, soit une note à l`intérieur de la 9ème mineure Do/Réb, à l`exclusion bien sûr de Lab tonique, et de Mib et Mi bécarre dominants."

[42] The excerpt is based on the 2nd over-diminished mode. Refer to example 1-6 for the analysis of this mode.

[43] The augmented triad, "over-modulating by definition" ["sur-modulante pas definition"] (*L`hospitalité*, 62), is the first outcome in the process of harmonic radiation.

hinted at in *Songe,* will be of particular significance in my analysis of *Debout* in Chapter II.

The dualism exemplified by Florentz's notion of harmonic ambiguity allows movement towards the "dilution of the classical resolution functions"[44] in modal thought, and perfectly illustrates Florentz's idea of '*bienvenue* of the *ambiguité*.'

The theory of tokens: overcoming the limitations of a pentaphonic analysis

In a study of Florentz's music, the analysis of chord successions and transformations, and of voice-leading features according to classical syntax, is limited in scope. While such an analysis can be useful to explain local harmonic phenomena and their contextual relationships,[45] it cannot explain how these phenomena coalesce into larger-scale events and ultimately into the global structure of the piece.

In their article *On the Nature of Enlargement*,[46] Alegant and McLean explain how pitch-class successions with melodic/thematic significance (tokens) become potentially meaningful as objects of enlargement. Their theory, known as the theory of tokens, explains how the enlargement of tokens produces large-scale musical units in which the originating token functions as a cohesive element with interchangeable harmonic and melodic functions that are subordinate to the enlarged token's structural role.

Alegant and McLean show that a classical syntactical environment is not a necessary condition for an analytical approach based on the Schenkerian notion of structural levels as rooted in the process of enlargement. On the contrary, such an

[44] *L`hospitalité*, 61. "Dilution des fonctions classiques de resolution."
[45] Notably, what I call 'harmonic prolongations.'
[46] Alegant, B. and D. McLean. "On the Nature of Enlargement." *Journal of Music Theory*. 2001. 45.1:31-71.

analytical approach can be applied to music outside a classical syntactical environment, such as twelve-tone and other forms of post-tonal and/or non-triadic music. By analyzing how tokens can be expanded and connected, Alegant and McLean's structural approach offers a global perspective on the piece, thus complementing contemporary analytical procedures of non-tonal music, whose scope is limited to the analysis of local relationships.

As I have shown in a study on the application of the theory of tokens to North German Baroque keyboard repertoire, [47] the theory can also be applied to pre-tonal music. The study shows that the premises on which the theory of tokens is based are the same as the generating principles on which most improvisational and compositional procedures of the pre-Baroque and Baroque eras were based. In particular, from the analytical point of view the enlargement of tokens generates complex units with structural significance; this result parallels the outcomes of some pre-Baroque and Baroque improvisational/compositional procedures such as *Vorimitation* technique. This technique, which develops a melodic element, such as a *cantus firmus*, into large-scale organizing entities, is typically found in Johann Pachelbel's organ chorale-preludes and Dietrich Buxtehude's organ works in *stylus phantasticus*.

Florentz's *pentaphones* represent another system to which the theory of tokens may be applied. They are, by definition, complex modal-harmonic elements whose harmonic and melodic potential can be combined to create what can be identified as a specific pentaphonic syntax. My analysis of Florentz's *Debout* in chapter II is based on the application of the theory of tokens, and shows how localized harmonic and melodic

[47] Andreoni, F. "Token-Generated Structures in Dietrich Buxtehude's Toccata in F Major, BuxWV 156." 2009. Unpublished.

elements become structurally meaningful in the *Gestalt* of the piece. In particular, as the analysis will show, the expansion of tonal areas occurs locally as prolongations and globally as enlargements of tokens.

The terms prolongation and enlargement refer to the expansion of basic musical elements such as tokens and specific harmonic functions. However, I will use the term prolongation to define any expansion between events that are temporally contiguous and functionally related but whose combination does not necessarily generate large-scale structurally significant entities. The term enlargement indicates the expansion of tokens, which are not necessarily dependent on temporal contiguity or local functional relationship. Therefore, since prolongation is related to local events and enlargement is not necessarily so, prolongation is a sub-category of enlargement and, by definition, less structurally significant. Enlargement and prolongation are not mutually exclusive, but can be complementary.

An interesting analogy to the difference between prolongation and enlargement is found in Paul Hindemith's treatise *The Craft of Musical Composition*.[48] Hindemith states that:

> A harmonic progression [is a movement of chords] in which the relations of all the roots to their respective chords is governed by the same principle – as when none but chords belonging to a single sub-group[49] are used. [A second type of chord motion is a] shift of harmonic gravity; for this we shall henceforth use the term *harmonic fluctuation* [, for the creation of which] chords of different value[50] are always needed. […] In the connection of chords of identical structure there is no harmonic fluctuation; there are only harmonic relations which vary and […] regulate the tonal movement and build forms out of it.[51]

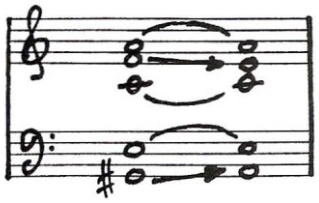
[48] Hindemith, P. *The Craft of Musical Composition. Book II.* 1937.Associated Music Publishers, Inc. New York. From now I will refer to this work as *The Craft*.
[49] Hindemith provides a list of the different chordal types at the end of the treatise in pages 224-225.
[50] The term "value" can be explained as degree of structural and functional similarity among chords.
[51] *The Craft*, 116-117.

Freed from the syntactical and harmonic constraints necessary to build harmonic progressions, the harmonic fluctuation is not tied to a temporally contiguous environment, and can therefore operate as an umbrella that includes several harmonic prolongations, in the same way as was previously described for enlargement.

The role of tonal centricity

Thus far, I have frequently referred to the term tonal center. In a classical sense, tonal center can be defined as a pitch-class (or a complex of pitch-classes) around which a certain area gravitates from the tonal point of view.[52] Florentz himself often refers to *centre tonal* in the classical sense of the term. For example, he states that a resolution of the first chord in example 1-10 according to classical syntactical parameters would be A minor.

Example 1-10: The simplest resolution for the G-sharp/E/C/F/A chord. *L`hospitalité*, 5



This example implies a series of harmonic and syntactical relationships generated within the context of a clearly established tonal area. However, in Florentz's system the term resolution has a broader sense than in a classical tonal environment. The resolution

[52] E.g., C is the tonal center of a I-IV-V-I C major progression.

potential of chords is expanded to include both classical-tonal and modal views, thus combining notions of tonal centricity from both tonal and pentaphonic environments.

According to a classical tonal view, each *pentaphone* determines a tonal area of influence whose tonal center can be identified as in the root of its generating 9th chord. Moreover, since each generating 9th chord is created by stacking only major and minor thirds, it has only one possible tonal center: if we were to choose any of the other notes of the mode as the root, in all cases intervals not considered as generators of the *pentaphones* would be produced.

However, the notion of tonal centricity of the *pentaphones* as determined by the root has limited analytical significance since Florentz's syntactical functions of tonic and dominant are not necessarily the same as in the classical model. Florentz offers multiple solutions to the issue of the identification of tonal centers. For example, he emphasizes how the orchestration and the disposition of parts, rather than the harmonic constraints dictated by the intervallic structure of the *pentaphones*, direct the choice of resolutions and help to identify the tonal center. Furthermore, he frequently emphasizes insistency on specific and significant pitch-classes with functional weight.

Beyond Florentz's solutions, another useful approach to the identification of tonal centers is found in Hindemith's chapter entitled *Family Relationship - The Construction of Tonal Spheres*,[53] in which he suggests that harmonic and melodic intervals always have a tonal center.[54]

[53] *The Craft*, 132-137.
[54] Ibid. 87-89.

Following Hindemith:

> The tritone has no definite significance, whether harmonic or melodic. In order to determine its position, we need a third tone. This third tone may sound simultaneously with the tritone, in which case the tritone is harmonically determined. Or else the tritone may form a part of a group of three successive tones. When such a group is not a mere broken chord (which would take us back to the purely harmonic situation), and when no special means (such as agogic or orchestral elements) are employed to make the tritone-relationship the most important of the group, the tritone becomes melodically subordinate to other intervallic relationships. One of its two tones becomes the neighbouring tone of an interval that is harmonically unambiguous, which then purges the tritone of its indefiniteness.[55]

Hindemith's indications may be applied to the first theme of *Debout,* where the two main points of attraction of the theme are the melodic augmented 4th E/A-sharp and the E major triad. The theme is analyzed in example 2-2.

However, since Florentz works in both modal and tonal environments simultaneously, the emphasis of insistency on the reciting-tone A-sharp plays a crucial role as a point of tonal reference for the theme, likely even more crucial than the triad built on E.

The second chapter of this thesis will be dedicated to the study of Florentz's application of tonal centricity in *Debout*. By expanding the notion of tonal centricity from a single and defined pitch-class to a field of action, Florentz loosens the classical notion of tonal centricity and syncretises a classical approach to harmony with his modal-tonal language. Florentz's approach to tonal centricity and functionality promotes flexibility and is applicable to a large range of compositional approaches, which is, in the end, the goal of Florentz's notion of *accueil*.

[55] Ibid. 89.

CHAPTER II

Tokens and Structural Plasticity in *Debout sur le soleil*, op. 8

Structural plasticity

As shown in chapter I, Florentz's harmonic system loosens the classical notion of tonal syntax by broadening the idea of resolution,[56] and favours parameters such as part disposition and orchestration as significant elements in directing the choices of harmonic concatenation. As Florentz points out, he wants to:

> Maintain […], even at the state of a trace or remembrance, the possibility of tonal tension/release of a chord […]; [I want] to introduce the texture […] and the timbres to highlight in each specific case the harmonic significance of a part of this chord, so that each virtual resolution possibility [can have] priority over the others, at a given moment, for a given function.[57]

In the present chapter I will show that the constituent harmonic and melodic features of *Debout* become multi-functional co-dependent elements, whose interaction generates a multi-layered structural framework on which the piece is based. My analytical approach is strongly influenced by Florentz's own views on harmony and functionality, and, in particular, by his definition of *pentaphones* as poly-functional entities, of which melody and harmony are interactive extensions; *pentaphones* therefore

[56] For example, Florentz's statement that in his music the "term 'resolution' will have a broader meaning than the strictly tonal one" ["ce terme `résolution` va d`ailleurs prendre un sens plus élargi que l`acception strictement tonale du terme"] (*L`hospitalité*, 6) hints towards the idea that a classical syntactical view of voice-leading features cannot account for structural interrelationships between temporally distant and harmonically unconnected events.

[57] *L`hospitalité*, 5. "Garder toujours présente, même à l`état de trace ou de vestige, la possibilité de tension/détente de type tonal d`un accord […]; d`autre part faire intervenir la tessiture […] et les timbres, pour souligner le cas échéant la prégnance harmonique d`une partie de cet accord, de sorte que telle possibilité virtuelle de résolution domine les autres, à un moment choisi, pour une fonction déterminée."

generate all melodic contours and harmonic/tonal/voice-leading features of the areas in which they exercise their influence.

In his analysis of measures 242 to 263 of *Debout*, Florentz states that "harmonic transformations […] are explained through the wish to modify as frequently as possible the virtual 'tonal' function of the most important supporting notes of the theme."[58] As seen in appendix 7, the enlargement of E through harmonic concatenations, some of which are "at the limit of *Jazz* and even more of *Reggae*,"[59] shows Florentz's approach to the enlargement of referential pitch-classes in temporally non-contiguous musical units within a non-classical syntactical environment.[60] Notably, the salient pitch E is mainly utilized as a structural tone and only occasionally present in the musical texture.

For Florentz, the preservation of E, the manipulation of its functions, and the de-stabilization of the tonal environment occur within a process of enlargement that shows strong similarities to the approach propounded in Alegant and McLean's theory of tokens. The form of *Debout* is the result of the enlargement of basic musical units developed from an originating singularity, the tonic of the piece. The layering of poly-functional constituent elements creates levels of increasing structural complexity; this engenders a phenomenon that I call 'structural plasticity.'

[58] *L`hospitalité*, 71. "Les transformations harmoniques […] s`expliquent par la volonté de modifier le plus souvent possible la fonction virtuellement `tonale` des notes d`appui les plus importantes du thême."
[59] Ibid. 72. "Aux frontières du Jazz et plus encore du Reggae."
[60] What Florentz calls the perturbation of the harmonic conscience. "Changer souvent le soubassement harmonique des notes d'appui d'un thême (mais aussi de revenir sur un même accord en soubassement d'une note d'appui différente, lorsque c'est possible) perturbe sensiblement la conscience harmonique."(Ibid. 72).

A novel multiplanar analytical approach

Starting from Florentz's desire to expand tonal syntax,[61] and continuing the analytical trajectory established by Schenkerians and the theory of tokens, my approach to Florentz's *Debout* contextualizes the idea of structural levels within a larger framework that stresses the importance of thematic and intervallic/structural elements as generators of the global form of the piece. While Schenkerian analysis mainly conceives of linear relationships between structural elements, my approach takes a tri-planar view of these relationships; this necessitates their graphic representation on three planes. This new approach, which I will refer to as multiplanar theory, explains both structural plasticity and the enlargement process through the multi-functionality of single elements (e.g., pitch-classes), and describes functional relationships among the constituent elements of entire sections of a piece as they unfold temporally.

The A-plane represents tonal centers.[62] The B-plane includes thematically significant material. The C-plane reveals whether notes belong to the whole-tone collection in its C-D transposition, used in *Debout* as a structural platform for the enlargement of tokens.

In the next sections of this chapter, I will divide my analysis in five parts. First, by using the multiplanar theory, I will analyze how the process of enlargement and the related phenomenon of structural plasticity operate in *Debout*. Second, I will study the role of the augmented triad and the whole-tone scale. Third, I will study how layers of

[61] This idea develops in the context of Florentz's notion of *bienvenue*.
[62] The A-plane uses a pruning process based on Schenkerian analytical methods to identify notes that are tonally significant.

tonal centricity interact. Next, I will study the structural significance of rhythm. Finally, I will analyze the role of the closing passage of the piece.[63]

Before studying the multiplanar features of *Debout*, I will summarize Florentz's own brief formal outline of the work as found in his article *L'espace symphonique et la liturgie éthiopienne dans "Debout sur le soleil," op. 8, pour orgue.*[64] Florentz identifies the following formal units: 4 *refrains* (measures 1 to 6, 28 to 32, 145 to 149, and 343 to 350); 4 *invitatoires* (measures 7 to 27, 128 to 140, 351 to 360, and 374 to 393); and the "*Midrash* of the Passion" (measures 187 to 228).[65] This list of formal units will be used as a reference during my own multiplanar analysis.

Analysis

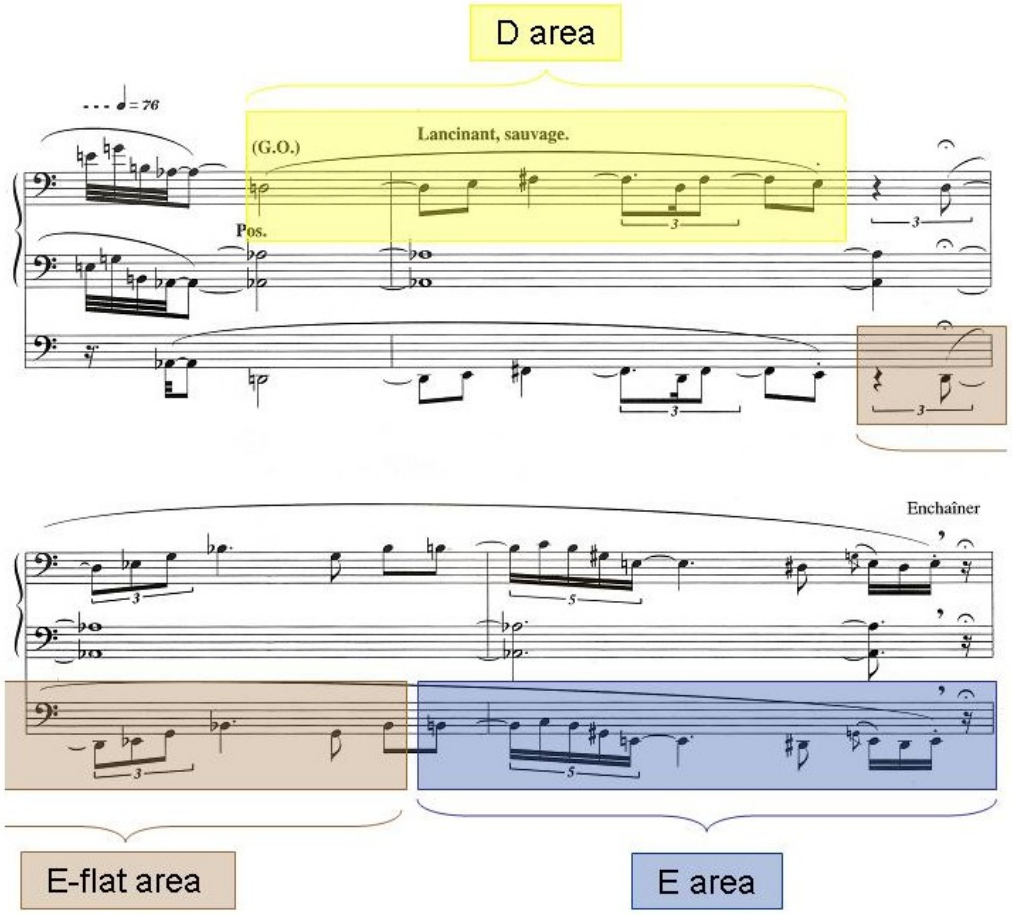
A first level of enlargement of the tonic A-flat[66] occurs in measures 1 to 6, in the first of the 4 *refrains* of the work. This six-measure fortissimo pedal point[67] is surrounded by sound-waves organized in long fast runs in 32^{nds}, alternating with dissonant chords tonally unrelated to the stable tonic A-flat.

The enlargement of A-flat continues in measures 6 to 9. In these measures, the tonic, while maintaining its function as a tonal center, is relegated to the role of a background event;[68] over it, a tonally unrelated melisma[69] that emphasizes the D Major,

[63] The 4th *refrain*. See formal analysis in the following paragraph.
[64] Florentz, J.-L. "L'espace symphonique et la liturgie éthiopienne dans 'Debout sur le soleil,' op. 8, pour orgue." *L'Orgue*. 1992. 221:21-41. From now on I will refer to this article as *L`espace*.
[65] *Debout* is inspired by a book by Jacques Leclercq bearing the same title, and in particular by the book`s final meditation, the *Miserere*.
[66] *L`hospitalité*, 71.
[67] Other instances of pedal-points are found in the other three *refrains* of the work, and in measures 271 to 311.
[68] Notice that Florentz calls for the A-flat in these measures to sound on the *Positif*, clearly wishing for it to be less strongly present than in the previous measures.
[69] On the "*Impératif […] 'Regardons!'*" *L`espace*, 31.

E-flat Major, and E-minor/Major triads is found. The following example shows the contour of the melisma over the pedal point A-flat.

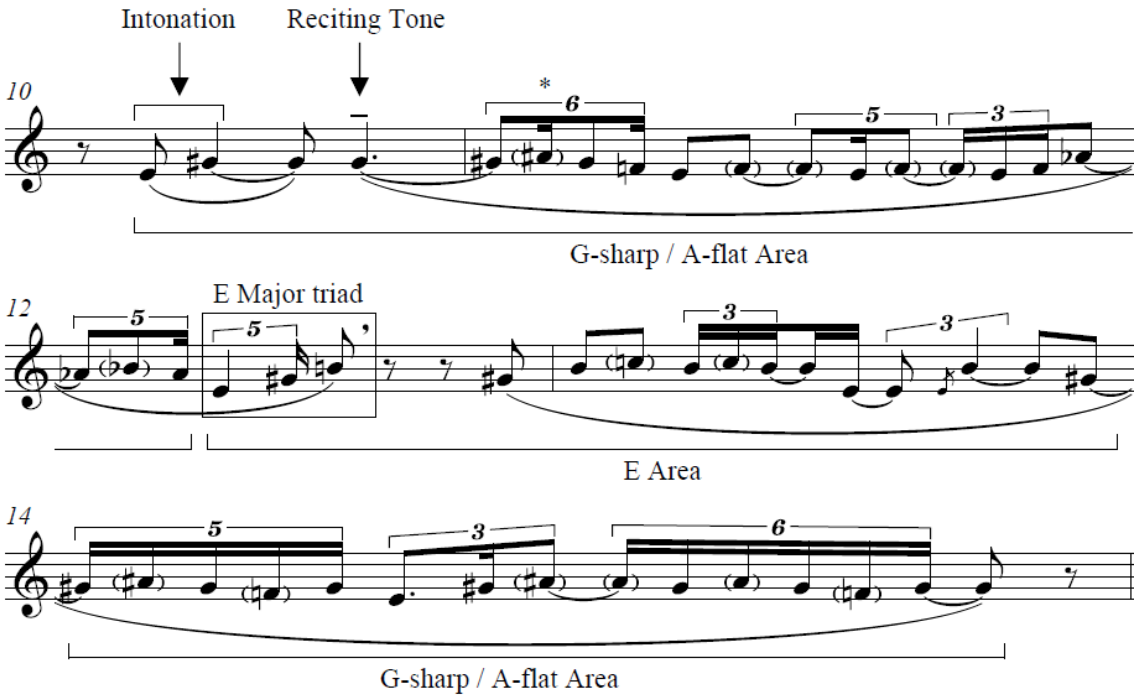
Example 2-11: The melisma in measures 6 to 9



An important shift takes place in measure 10, in the first *invitatoire*. E acquires a more prominent role as a second tonal point of reference, in addition to the tonic A-flat/G-sharp. In the same measure both E and G-sharp also acquire thematic significance: they become part of the main theme, and act as intonation; moreover, G-sharp also acts as the reciting tone. The following example shows an analysis of the main theme in

measures 10 to 14, highlighting intervallic and harmonic structures of particular interest that will be studied in more detail later.

Example 2-12: Analysis of the main theme

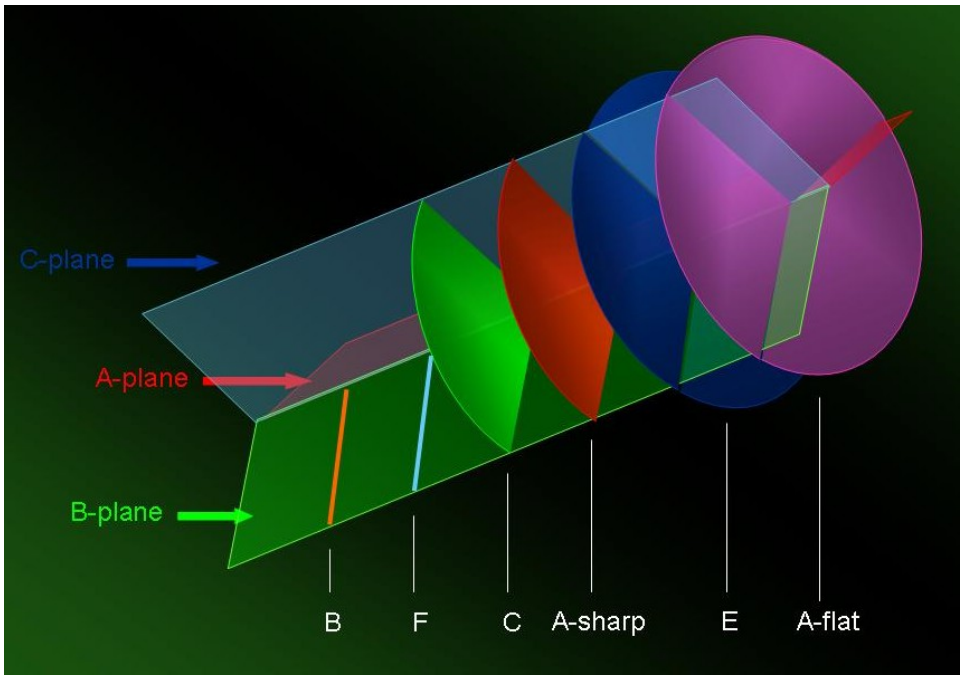


* neighbor tones indicated with parentheses

As shown in the example, the main theme is tonally organized around two A-flat areas (in measure 10 to the downbeat of 12 and again in measure 14) framing a middle E area (in measures 12 and 13). According to my multiplanar theory, the A-flat and E tonal centers, which are thematically significant by definition and belong to the C-D transposition of the whole-tone scale, are the only two notes of the main theme that belong to all three planes. The remaining pitch-classes of the main theme (F, A-sharp/B-flat, B, and C) are tonally subordinate to A-flat and E and therefore do not appear on the

A-plane.[70] However, they are thematically[71] significant and thus occupy a position on the B-plane. Among these four pitch-classes, A-sharp and C belong to the C-plane, while F and B do not, as only the former are found on the C-D transposition of the whole-tone collection. The following is a multiplanar representation of the functionality of the pitch-classes of the main theme in measures 10 to 14.

Graph 1: A multiplanar representation of the functions of main-theme pitch-classes (measures 10 to 14). A-flat and E belong to all three planes; they are represented by circles whose centers are found on the axis common to the three planes and whose circumference intersects all three planes. A-sharp and C meet the requirements for only the B and C planes, and are therefore represented by sectors of circles. B and F meet the requirement for only the B plane, and are therefore represented by lines. In this and the remaining graphs, each pitch-class is represented by a unique color.

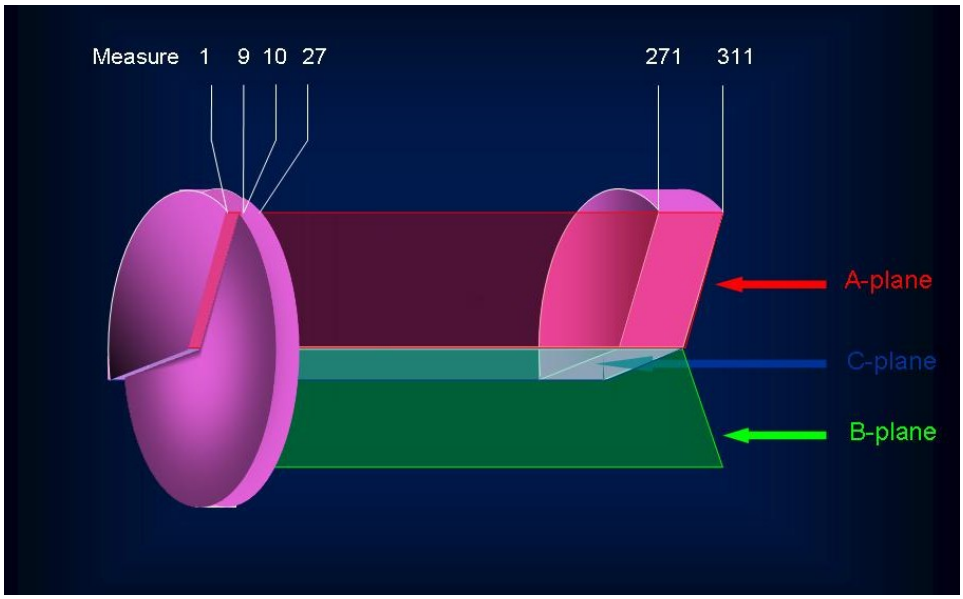


[70] Due to space constraints, the analyses and graphic representations in the present thesis will be simplified to a first level of analytical depth.
[71] From now on I will use the term thematic in reference to the main theme, and motivic to refer to any other secondary thematic ideas or melodic/motivic elements.

In different contexts, the same element (e.g., the pitch-class A-flat) can acquire or lose functional significance. A comparison of the first *invitatoire* with measures 271 to 311[72] highlights the following: A-flat (which belongs to the C-D transposition of the whole-tone collection) acts as the tonal center in measures 1 to 9, acquires thematic significance in measures 10 to 27, and appears again in measures 271 to 311 as the tonal center[73] but without thematic connotations. Therefore, on a multiplanar graph, A-flat is found on the A- and C-planes in measures 1 to 9, on all three planes in measures 10 to 27, and again on only the A- and C-planes in measures 271 to 311. The potential of A-flat, or of any other object of enlargement, for moving between and extending over several structural planes, constitutes a perfect example of what I have previously defined as structural plasticity. Graph 2 is a multiplanar representation of the functions of A-flat in measures 1 to 9, 10 to 27, and 271 to 311.

[72] The score of these measures is not reproduced here.
[73] A-flat is found in the ostinato accompaniment.

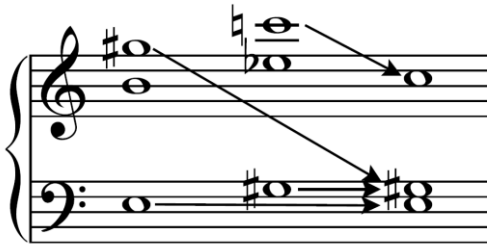
Graph 2: A multiplanar representation of the structural plasticity of A-flat in measures 1 to 9, 10 to 27, and 271 to 311



The augmented triad, the whole-tone scale, and the C-plane

The sections of measures 6 to 9 and 10 to 27, which are tonally related to each other through the common tone A-flat/G-sharp, are particularly important to explain structural features occurring later in the piece. A change in registration between the sections highlights an important feature: from measure 10, in order to emphasize the main theme, Florentz requires the use of the *Grand Cornet solo*, a stop which includes the harmonics of major 3rd and perfect 5th. Therefore, as shown in the following example, by playing E, the G-sharp (as part of the triad enhanced by the *Cornet*) and B are heard; by playing G-sharp, C (as part of the A-flat major triad enhanced by the *Cornet*) and E-flat are heard.

Example 2-13: The augmented triad effect produced by playing E and G-sharp with the *Grand Cornet solo.* The example shows the position of the sounding pitches of the *cornet*: the 3rd, found a 6th above the 5th, naturally acquires prominence over the 5th. As a result, the augmented triad effect is clearly heard.



As a result, in measure 10 the listener perceives both the reciting tone G-sharp, the common tone between the E Major and G-sharp Major chords, and the augmented triad emphasized by the same chord-complex E Major/G-sharp Major. Florentz employs the harmonic potential of the augmented triad[74] to enlarge the tonic A-flat/G-sharp while creating harmonic instability around it. The augmented triad, which is a subset of the whole-tone scale, becomes a crucial organizing element of the musical discourse from measures 10 to 27.[75] The analysis reproduced in Appendix 8 shows that the accompaniment of the main theme is based on only two sets, [0137] and [0248]. The intervallic structures of these two sets are either similar to ([0137]), or a sub-set of ([0248]), the whole-tone scale. This significant presence of whole-tone chordal structures highlights the intimate relationship between the accompaniment and the whole-tone structure.

From measures 10 to 27 (see example 2-2 and Appendix 8) the radiating equilibrium of the augmented triad has the effect of weakening the tonal power of the

[74] The features of this potential of the augmented triad have been discussed in Chapter I.
[75] Refer to the analysis in graph 3.

tonic A-flat, thus creating a sense of tonal indeterminacy. This is achieved through the use of three elements: first, the pitch-class F heard in the pedal part in measure 10, which does not belong to either the augmented triad E/A-flat/C or to the whole-tone collection from which the triad is derived; second, the parallel motion characteristic of the accompanying melody, which enhances the whole-tone environment, thus demolishing any sense of tonal syntax; and third, the ascending runs and the related tremolo effect[76] in the pedal in measures 14 to 27. These three elements combine to enhance tonal fuzziness around the tonic A-flat.

Layers of tonal centricity

The tonal center of the second *refrain* is once again A-flat. In measure 33, A-flat changes enharmonically to G-sharp and becomes the upper neighbour of the tonal center F-sharp of measures 33 to 38. In measure 38, D appears as a *note ajoutée* as well as a neighbouring note of the dyad F-sharp/C-sharp, which is the tonal point of reference of the section from measures 38 to 52.

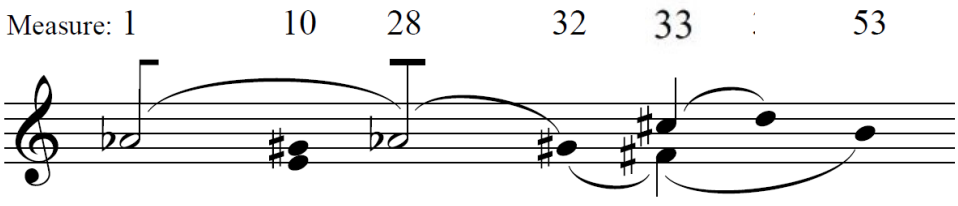
The tonal perturbation created by D within the referential dyad F-sharp/C-sharp is significant at a local level. However, D, which does not have thematic significance and does not act as a tonal center, belongs to the same C-D transposition of the whole-tone collection as the tonic A-flat and its triadic enlargement A-flat/C/E seen before. The whole-tone collection therefore reveals its significance as a cohesive force that serves as a structural platform for large-scale events. Therefore, the presence of D does not perturb the global framework of the originating whole-tone scale.

[76] With the term "tremolo" I refer to the quavering effect produced by the rapid alternation of pitches found a semitone apart.

Conversely, C-sharp, which is perfectly understandable when contextualized within the local tonal plan of the section, is not part of the large-scale whole-tone scale platform, since it is not part of its C-D transposition. Therefore, both C-sharp and D become elements of perturbation, the former at a large-scale level, the latter at a local level. Once again, the analysis reveals the multipotency of structurally significant pitch-classes, showing how their harmonic, melodic, and structural characteristics interact on both large and small scales.

In measure 53, D disappears and the tonal centricity function of the dyad F-sharp/C-sharp is perturbed by the entrance of B, which is confirmed as a momentary tonal center by a 4-3 suspension (E-D# over B) in measure 65.[77] B fits neither within the local F-sharp/C-sharp dyadic environment nor the general whole-tone plan of the piece, and, therefore, creates a collision of both small and large-scale perturbations. The following graph summarizes the tonal structure of measures 1 to 53.

Graph 3: Pitch-class hierarchies in measures 1 to 53



The function of B as the tonal center of measures 53 to 65 is quickly liquidated in measure 66, when Florentz imposes a C major triad on the B major triad to create a C major augmented 11th chord. A chromatic passage then brings the tonal center to D-flat,

[77] The choice of B as the tonal center is confirmed by Hindemith`s algorithm for finding the roots of intervals.

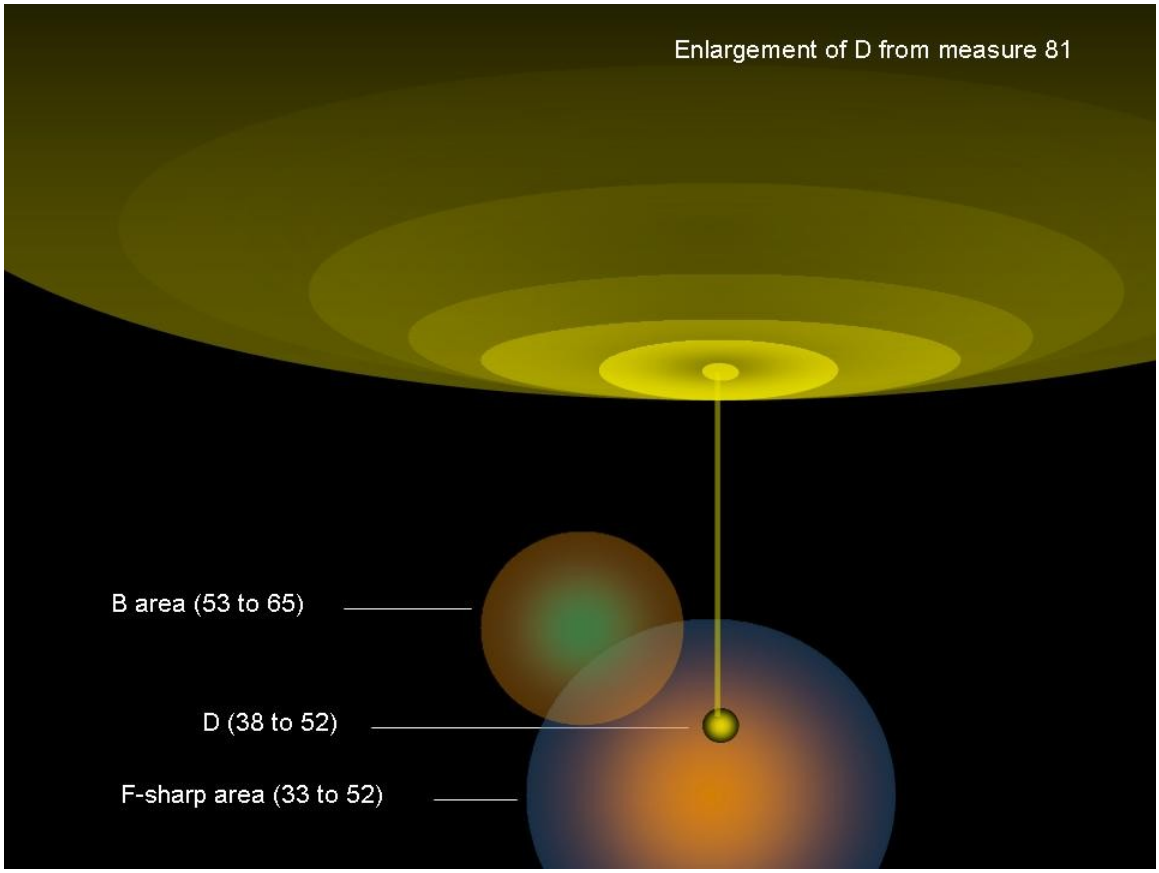
which lasts from measure 74 to 79; finally, D is restored as the tonal center in measure 81. The return of D marks the passage between the sections that Florentz identifies as "Au nom" and "du Père."[78]

As previously described, D represents an important referential pitch-class, both locally and globally. Following its initial appearance, Florentz drops pitch-class D to favour, at least momentarily, other tonal areas such as the F-sharp minor and B major triads. However, its return in measure 81 heralds its renewed structural importance as the main pole of tonal attraction until measure 126, at which point, as we will see in more detail later, it marks the transition into the second *invitatoire*.

A graphic representation of the relationship among tonal centers F-sharp and B, and their relationship with D in measures 38 to 126 is provided in the following graph.

[78] *L`espace*, 28.

Graph 4: Graphic representation of the relationship among F-sharp, B, and D areas. D appears as a minor detail within the F-sharp area and does not appear in the B area; however, retrospectively, D may be seen to have large-scale structural significance. In this graph, this significance is represented through the expansion of D into a large-scale sphere. The measure numbers are indicated in parenthesis.



The role of pitch-class D is a perfect example of how structural plasticity can be used to explain the poly-functionality of objects of enlargement. The following table summarizes the multi-functionality of pitch-class D between measures 38 and 126.

Table 14: Summary of the functions of pitch-class D in measures 38 to 126

Measures	Function	Plane
38 to 80	Perturbing element of the referential tonal F-sharp/C-sharp dyad	C
81	Pedal point	A,C
90 to 96	Melodically-oriented function as co-reciting tone, together with C	A,B,C
97 to 115	Tonal center	A,C
125 to 126	Reciting tone	A,B,C

In the following paragraphs, I will demonstrate how Florentz's choice of D as the overall point of tonal reference of these 88 measures is determined within the context of a larger formal vision which relies on large-scale thematic significance.

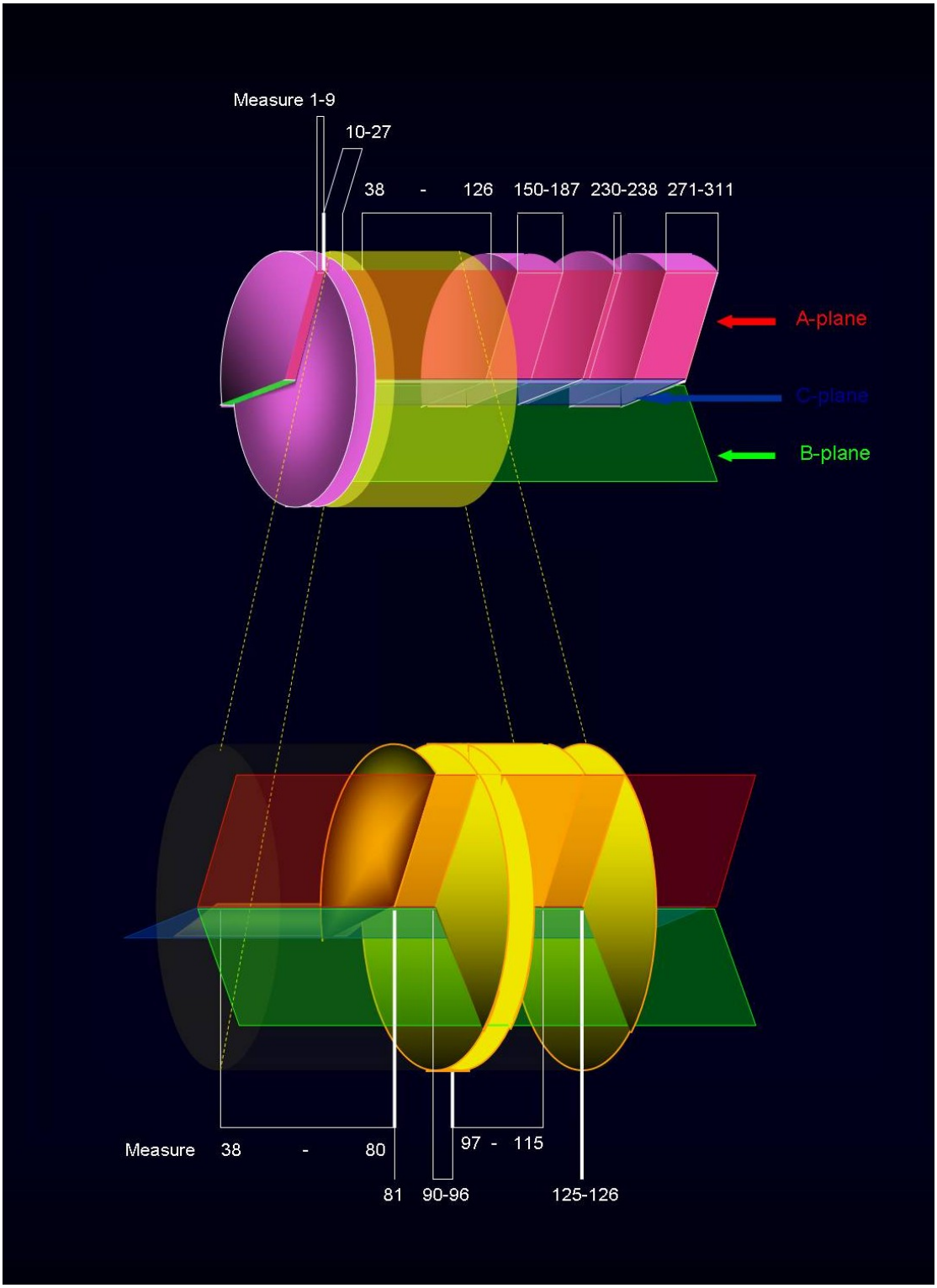
Florentz's choice can be understood through Alegant and McLean's theory of tokens, which is based on the notion that thematically meaningful pitch-classes also have the potential for harmonic and structural significance. Following this theory, the large-scale role of D is explained through its participation in the global plan of the piece: D and the tonic A-flat constitute the two members of what I define as an 'architectural tritone,' which is a structurally significant multi-functional entity with potential harmonic and/or melodic significance. This architectural tritone may be seen as the enlargement of the string of tokens identified by the tritone E/A-sharp[79] outlined twice in the first half of the main theme.[80] In addition, E/A-sharp and its enlargement A-flat/D are found a major 3rd

[79]The E major triad found in measure 12, at the end of the first half of the theme, is particularly significant from the structural point of view. Its role and outcomes will be discussed in more detail later in this chapter.
[80] In measures 10 to 12.

apart, thus both belong to the C-D transposition of the whole-tone platform, whose structural significance has been previously discussed.

The following graph is a development of graph 2 and shows the multiplanar relationships of the A-flat and D areas from measures 1 to 311. The graph highlights the properties of the two notes at local levels.

Graph 5: Multiplanar graph of the global relationships between A-flat (purple) and D (yellow)



Another example of multi-functionality is found in the enlargement of the main theme's neighbouring gestures into a large-scale complex of structural neighbours in measures 97 to 115. As shown in Appendix 9, in measures 97 to 115 the original neighbouring gestures found in the main theme are enlarged as a C/D/C melodic gesture repeatedly presented in the upper voice. Moreover, D and E-flat in the pedal and F and G-flat in the manual create two dyadic points of reference.[81]

Rhythm and form

An aspect of particular interest in the context of the present chapter is the relationship between rhythm and form. For example, from measure 150 on, rhythmic impulse and ostinato patterns become crucial elements of the unfolding musical discourse.[82] In particular, the ostinato patterns frequently emphasise the clash of specific pitch-classes against the surrounding areas to obscure the harmonic plan of the sections in which they operate, and create complex hypnotic background textural layers over which motivic material gains heightened significance.

I will now analyze in more detail some of the most significant relationships between rhythmic and tonal features starting from measure 150, to demonstrate how, through the acquisition of motivic significance in combination with harmonic elements, rhythmic ostinatos become platforms for the enlargement of tokens. In *Debout,* long-range rhythmic patterns always appear closely related to previously heard fragments and

[81] Over the underlying center D.

[82] The significance of the rhythmic aspect in *Debout* as a means to attract the attention of the listener exemplifies Florentz's use of rhythm as described in *L'espace*, 27, where Florentz states that "it is the role of the 'rhythmic agent' to draw the attention of the listener to a detail […], or to stimulate the audience to think about adjacent references." [c`est le rôle de l``agent rythmique` que de provoquer l`attention de l`auditoire sur un détail du récit, ou de stimuler l`assemblée pour qu`elle réfléchisse à des allusions adjacentes.`]

motivic material. Examples of this are found in Appendix 10, where the analysis highlights how ostinatos sometimes support gestures with motivic significance such as the parallel 6^{ths} in measures 156, 158, 160, and 162,[83] and sometimes fuse with motivic material to create melodic-harmonic entities, as in the case of the long ostinato pattern in the left hand in measures 170 to 186,[84] and the neighbouring chords in measures 184 to 186.

Another example of how ostinatos create musical entities with structural significance is found in measures 150 to 169 (score not shown here). From the tonal point of view, the center of the region moves from A-flat to F in measure 152, and returns to A-flat in measure 169. This prolongation A-flat/F/A-flat recalls the idea of the neighbouring gesture found so frequently in the main theme in measures 10 to 14, and enlarged in measures 97 to 115, as previously analyzed.

Measures 335 to 342, reproduced in Appendix 11, are based on another ostinato pattern, itself based on a fourfold complex. The main note of reference with motivic and tonal significance remains A-flat in the left hand; however, three other referential pitch-classes with both tonal and motivic significance can be identified. First, E-flat, as co-dyadic element with A-flat, found in the motivic line; second, D-flat in the pedal; and third, G-flat, which appears in the melody. The constant emphasis on D-flat creates a plagal tendency that diminishes the strength of A-flat as a tonal center. However, both A-flat and D-flat areas remain the tonal foci until the end of measure 342, which ends on a dominant D-flat 9th chord. The silence following this chord is therefore easily understood

[83] With respect to the parallel 6th motion, an interesting curiosity of the passage from measure 158 to 162 is the clear reference to the melodic and rhythmic contour of a well-known reggae song, *Buffalo Soldier,* by Bob Marley.

[84] Once more, this pattern emphasizes the whole-tone scale as a structural platform, which is found in both left (from measure 170) and right hands (from measure 184 to 186).

as a means to avoid tonal closure. The sense of suspense is further emphasized by the absence of A-flat at the beginning of the *refrain* in measure 343. When A-flat reappears in measures 343 to 344, it is accompanied by an F/D/A/B/F-sharp/D-flat/A-flat chord. This chord contains three relevant elements: the A/D/F-sharp/A-flat chord,[85] its *6ème ajoutée* B (above root D), and two pitch-classes, D-flat and F, of its resolution D-flat triad. However, the actual resolution to D-flat does not occur, and the insistence on A-flat in subsequent measures reinstates this pitch-class' tonal strength while that of D-flat dissipates.

The use of rhythmic reiteration as a compositional tool to fix simple thematic and/or motivic ideas in the mind of the listener is common to Florentz, and to a number of musical genres such as folk and pop. Florentz's conscious utilization of folk and pop elements, as well as jazz and reggae features, may be seen as an outgrowth of his notion of *hospitalité,* which is synonymous with inclusion but not absorption. Elements taken from folk, jazz, and reggae, such as rhythm, maintain their own individuality and are not subsumed as harmonic and melodic sub-categories of the Western musical tradition, as was the case for his teacher Olivier Messiaen. Following this anthropologically-oriented approach to other musical traditions, rhythm in *Debout* becomes an engine driving interaction between structural planes.

The driving structural force of rhythm is seen most significantly in the toccata (measures 187 to 228, not shown here), which employs 41 repeated staccato chords to generate a dramatic and violent texture.[86] The use of this technique is not new in the

[85] One of Olivier Messiaen's idiomatic chords, found, for example, in his *Apparition de l`Église eternelle*, *L`Ascension*, and *Harawi*.
[86] Florentz identifies these chords as the "41 chords of flagellation." (*L'espace*, 22).

organ repertoire;[87] however, Florentz introduces two features that, to my knowledge, are completely novel. The first is the use of manual changes to enhance the crescendo effect. The second is the presence of a three-layered dialogue between the 41 chords, an increasingly rhythmically complex middle layer, and a pedal line strongly reminiscent of the melisma of measures 6 to 9.[88] The pedal line starting in measure 200[89] is conceived as an *organum* in parallel augmented 4^{ths} featuring the dyad A-flat/D as the main point of reference, whose formal significance was previously discussed, and a contour reminiscent of the main theme of measures 10 to 14. The texture created by the staccato chords and the intervening silence produces a complex sonic plateau, generated by the interaction of rhythmic pulse and high-low sound saturation, which is used by Florentz as a compositional tool to highlight a significant fusion of thematic/motivic and tonal elements.

Smaller but significant outcomes of the application of rhythm as a support for structural and motivic elements are found elsewhere in *Debout*. For example, in measures 271 to 342 (not shown here), the ostinato contributes to three aesthetic elements that are extremely suggestive and reminiscent of the folkloric experience found throughout Florentz's music.[90] The first is the presence of heterophony, a technique common to tribal music traditions, which superimposes rhythmically and melodically independent ideas.[91] The second is the *parlando* effect.[92] The third, found from measures 321 to 342, is the

[87] Examples of this technique can be found in Messiaen's *Le livre du Saint Sacrement.*
[88] While in measures 6 to 9 the melisma was tonally unrelated to the center of the region A-flat, here the melodic idea in the pedal is tonally organized around the tonal center A-flat.
[89] It may be interesting to note that the beginning of the pedal line marks the middle of the piece.
[90] Once again, the notion of *hospitalité*.
[91] E.g., in measures 280 to 285.
[92] This effect is found, for example, in measures 281 to 285, where the superposition of different sets creates a remarkable contrast to the underlying triadic environment of the accompanying voice in the left hand, and to the *ostinato* in the pedal.

apposition of a rhythmic ostinato with a *Grand Cornet* melody; this helps to create the effect of a reciting voice rising over a background babble of a crowd of people.

Framing function of the pair *refrain-invitatoire*

As we have seen thus far, according to the multiplanar theory *Debout* is a multi-layered organism which develops from a singularity (the tonic A-flat). As shown by the analysis, the multi-functional role of tokens, contextualized within intervallic structures such as the augmented triad and the whole-tone scale, generates interactive large-scale events.

Within this context, Florentz uses seemingly anomalous elements as a rhetorical device to capture the attention of the listener. A significant example of this is found in the use of the pair *refrain-invitatoire*. The juxtaposition of *refrain* and *invitatoire* is found in only two places in the piece: at the very beginning, in measures 1 to 27, and in measures 343 to 360. From our perspective, the significant difference between these two sections, lies in the tonal point of reference highlighted by the beginning of the two *invitatoires* – while in measures 7 to 9 the pedal point occurs on A-flat, in measures 350 to 353 it occurs on B. This difference acquires a significant formal role when contextualized within the large-scale organization of the piece, and is understood only in relation to the framing role of measures 6 to 9.

The melisma of measures 6 to 9[93] ends on an E major triad,[94] which is used again as a rhetorical device in measure 12 to capture the attention of the listener through its

[93] The contour of the melisma in measure 351 to 353 is marked, as it was in measures 6 to 9, by the indication *Lancinant. Sauvage*; this indication is not found anywhere else in the piece.
[94] Refer to example 2-2.

incomplete participation in the whole-tone collection that frames the theme.[95] This triad retrospectively acquires a formal role when, in measure 353, it is presented (in its transposition a minor 3rd above, in G major) to hearken back to the beginning triad, and demarcate the formal closure of the piece.

[95] In measures 23 and 25, Florentz uses again the perfect 5th E-B as a means to re-iterate the significance of the E major triad.

CONCLUSION

"Music of the spheres"

In the present thesis I have analyzed the harmonic language of Florentz as it evolves from the use of *pentaphones*, which are pentatonic harmonic/melodic entities derived from the pitch content of 9^{th} chords.

Florentz strives to expand the *pentaphones*' functions and modes of interaction in two main ways. First, he uses the *pentaphones*' modulating properties, which he describes as strong, medium, and weak interactions, to create webs of structural relationships; this expands the area of influence of each *pentaphone*, including it within closed modal systems that he calls modal fields. In this context, the 2^{nd} over-diminished *pentaphone* plays a unique role as a passepartout, acting as a highway between all the *pentaphones*. Second, Florentz maintains and expands the *pentaphones*' tonic, pre-dominant, and dominant functions through the creation of functional fields of action. These are obtained through the contextualization of classical syntactical categories within the intervallic structure of the *pentaphones*' modal environments. As a result, *pentaphones* present both classical and non-classical syntactical categories, as well as tonal and modal features.

Florentz's conscious effort towards the expansion of the *pentaphones*' harmonic and melodic potential clearly shows his interest in the inclusion of *pentaphones* within a large-scale organizational plan not necessarily based on a classical view of harmonic syntax. However, the contextualization of only the *pentaphones*' harmonic features within a large-scale organizational plan can be limited in scope. The *pentaphones*'

potential for the creation of larger-scale events can be better understood through the analysis of the interaction between their harmonic and melodic features, which is best represented by the theory of tokens. The theory, whose principles are rooted in well-known and widely employed compositional techniques, is based on the notion that thematic fragments (tokens) are, at the same time, harmonic, melodic, and formally significant elements whose enlargement and interaction generate the architecture of a piece. As previously discussed, this theory constitutes a common analytical ground through which both pre- and post-tonal music can be analyzed.

Tokens become unified structural entities, whose potential for the acquisition or loss of either tonal or thematic significance I have defined as structural plasticity. Plasticity multiplies the structural generativity of these entities by increasing their connective potential. When re-analyzed in the context of plasticity, the constituent elements of the structure are not simply juxtaposed, but bring to fruition the global structure of the piece. In order to describe the connective potential of the elements in a time scale, another dimension is necessary.

Structural plasticity is a phenomenon that can be analyzed through what I have called multiplanar theory, which describes the relationships among events in light of their potential to serve multiple functions simultaneously. For example, in the specific case of *Debout*, the theory describes how a note can belong to the main theme, be meaningful as a tonal center, and also be significant as a larger-scale structural element of the piece through its participation in the whole-tone collection.

Moreover, the multiplanar theory identifies different layers of structural complexity. For example, it explains how pitch-classes with thematic significance are

structurally more important than pitch-classes without thematic significance, and how the enlargement of such thematically significant pitch-classes creates structurally meaningful units, which, in turn, become part of the global structure of the piece.

However, while the theory explains relationships among discrete elements and their interaction in the creation of structural layers, it can describe neither the process of generation nor the evolution of levels from one to another. In other words, the theory can analyze the effects of plasticity but cannot explain the process of their causation. For example, the function of a pitch-class in two different levels may vary significantly: the theory, which tells us about such a difference, does not tell us anything about the process through which this change takes place temporally. In the graphic representations of the present thesis, time does not play an active role. For example, in graph 1[96] the evolution in time of the main theme is not seen; instead, a list of pitch-classes is represented on a planar graph. In graph 2,[97] time is used as a spatial feature but does not show any intrinsic quality of "timeness."

The next step in future research will be the expansion of the multiplanar theory to include the study of the time-unfolding function, in what I call the model of sphere inclusion. By means of concentric spheres expanding in time, this model describes tonal centricity relationships according to the multiplanar theory. Each sphere represents a tonal center; qualities such as thickness and brightness of the spheres/tonal centers describe their functions. Modifications occurring in real time to each sphere highlight relationship transformations among them and, therefore, describe plasticity and functional evolution of the constituent elements of the global structure.

[96] 36.
[97] 38.

The use of the sphere model presents a number of advantages for both theorists and non-specialists. First, the sphere can be sliced to visualize in more detail specific elements determined by the unfolding in time of the events. Moreover, each sphere/tonal center can be extracted from the others and analyzed separately through the multiplanar theory, as a microcosm of local events. Finally, the model provides a graphic representation of the piece that is accessible to specialists and non-specialists alike thanks to easily understandable symbols and elements such as shapes and colors; in this way the analysis is made accessible to a larger number of people, including non-specialists.

The present thesis has introduced only some basic features of the multiplanar theory, and explained only briefly the potential advantages of plasticity and the sphere model. The theory offers a complementary alternative to other analytical approaches, in that its use neither precludes nor excludes them. Further developments of the multiplanar theory could allow for the blending of music, shapes, and colors into a performing analytical art in which strings of data (tokens) resonate structurally into "music of the spheres."

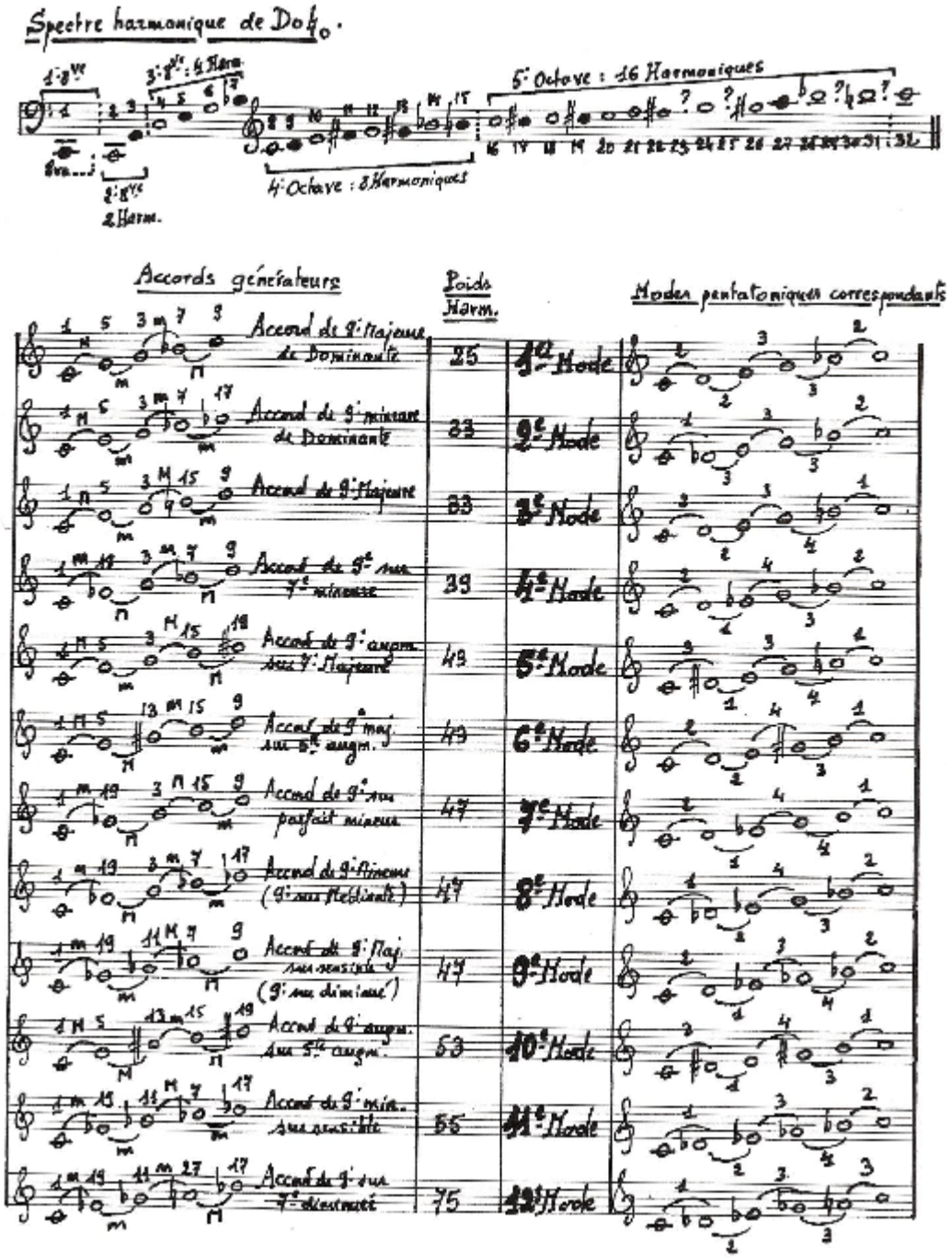
APPENDICES

Appendix 1

The 31 basic *pentaphones.* The roman numeral underneath each pitch-class indicates the position of that pitch-class within the originating chord. *L`hospitalité, 14.*

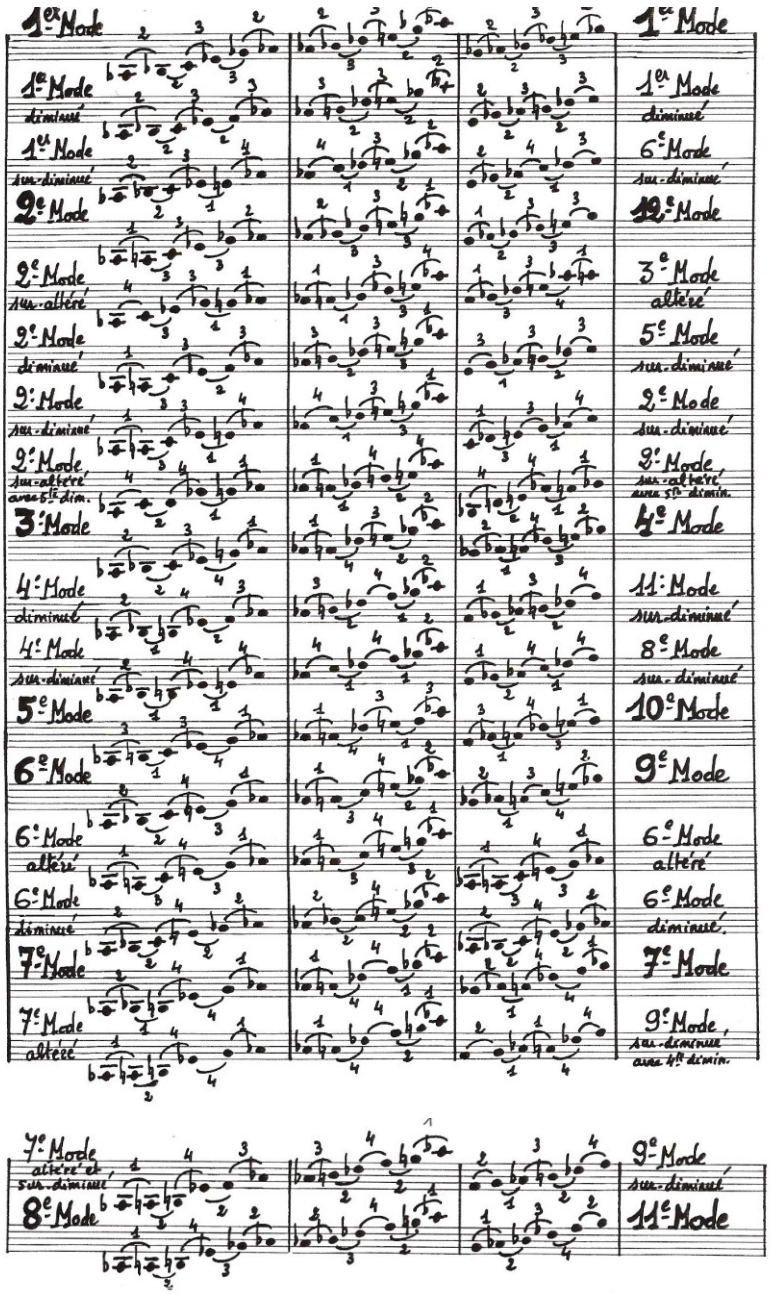
Appendix 2

From left to right: the originating 9th chords of the 12 primary pentatonic modes, their harmonic weight (which is based on the position of each pitch-class in the harmonic series), and the 12 primary pentatonic modes. *L`hospitalité*, 8.



Appendix 3

Left to right: originating mode, SI, and its transposition. *L`hospitalité,* 21-22.

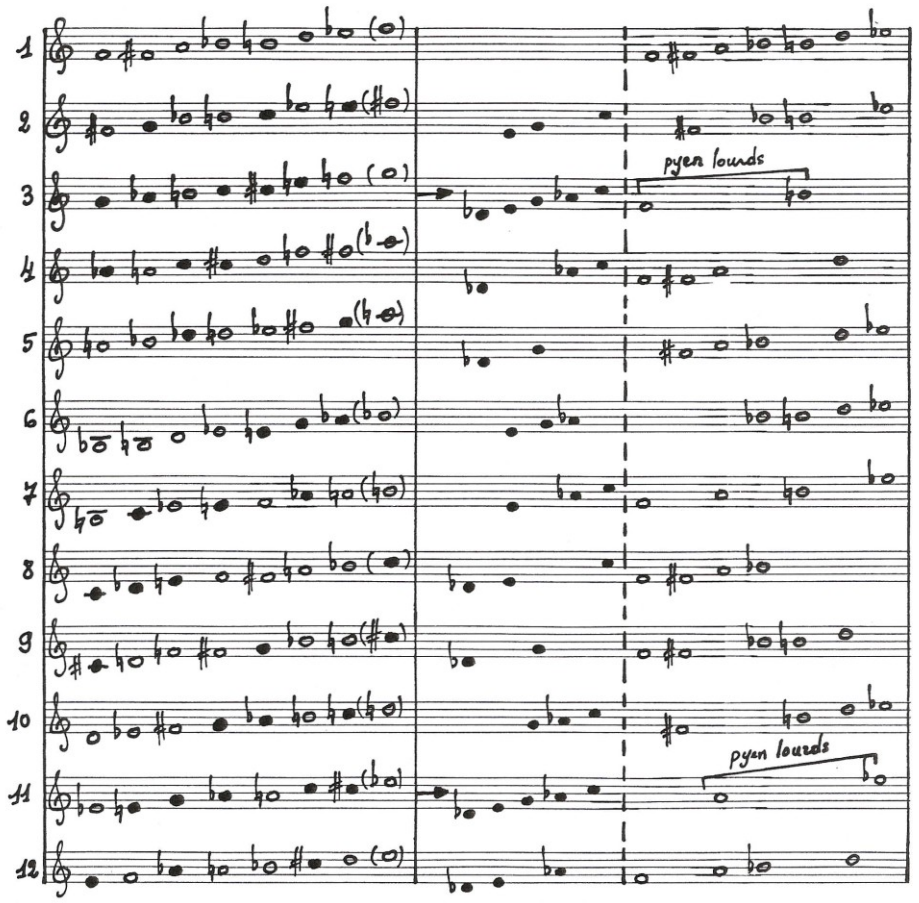


Pairs of modes in strong interaction
1st over-diminished - 6th over-diminished
2nd - 12th
2nd over-altered - 3rd altered
2nd diminished – 5th over-diminished
3rd - 4th
4th diminished – 11th over-diminished
4th over-diminished - 8th over-diminished
5th - 10th
6th - 9th
7th altered - 9th over-diminished
7th over-diminished / 9th over-diminished
8th - 11th

Non-invertible modes
1st
1st diminished
2nd over-diminished
2nd over-altered
6th altered
6th diminished
7th

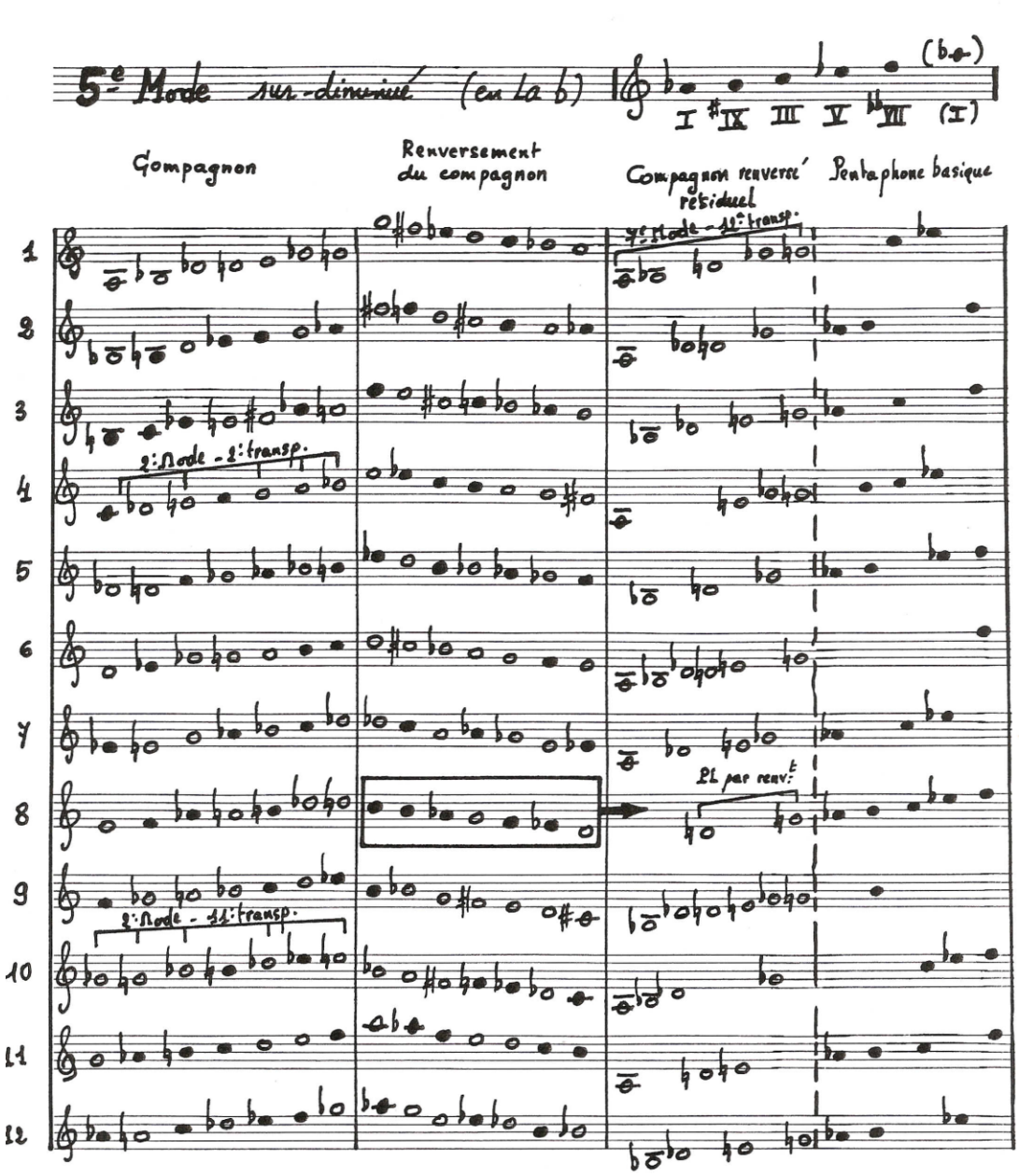
Appendix 4

From left to right: the 12 transpositions of the 2nd over-diminished mode's complement, the pitch-classes of the un-transposed originating mode as they appear in these transpositions, and the remaining pitch-classes, which Florentz calls *pyen lourds* and *pyen legers*. The role of *pyen legers* will be analyzed in the following paragraph. *L`hospitalité,* 17.



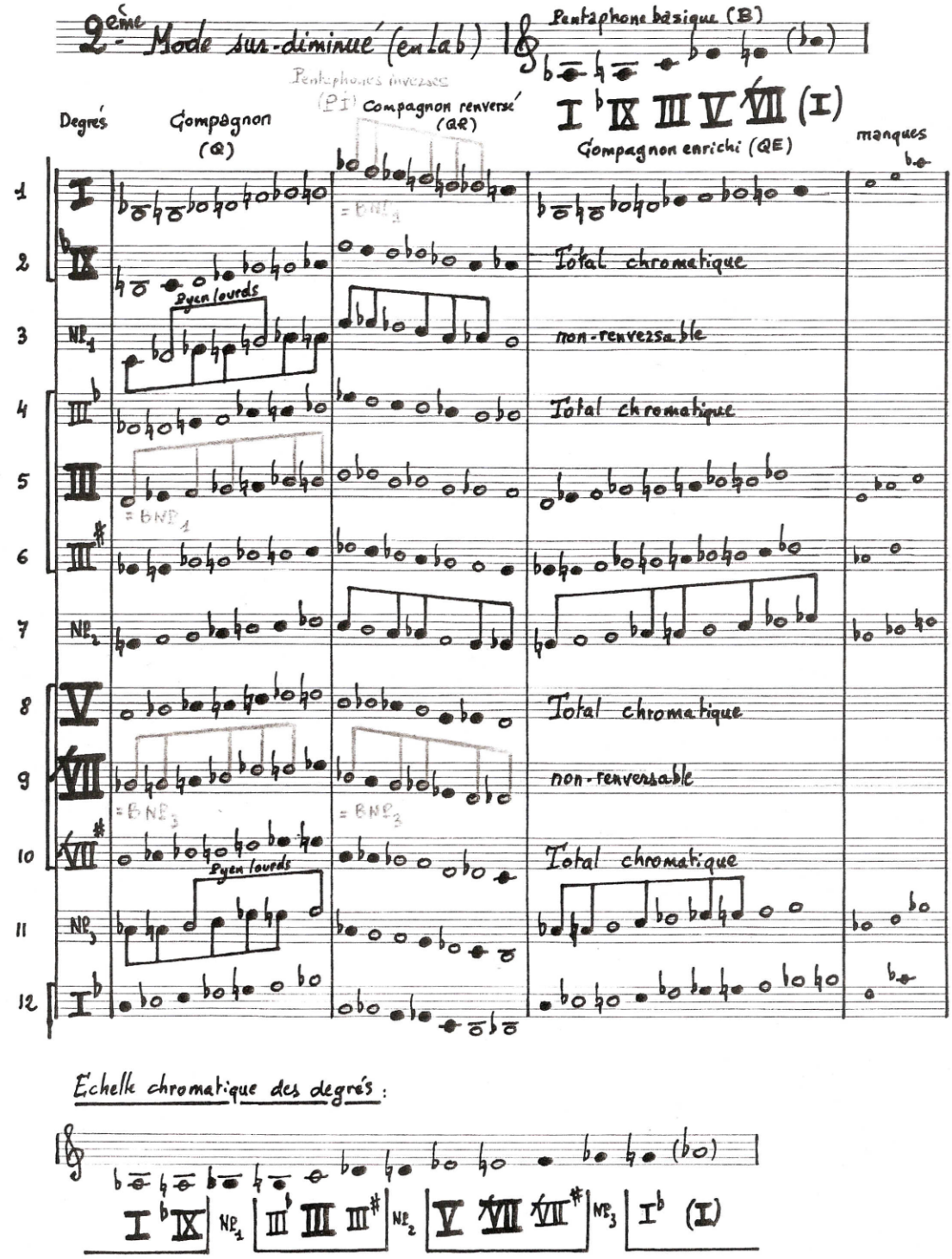
Appendix 5

Florentz's analysis of the 5th over-diminished mode. *L`hospitalité,* 24.



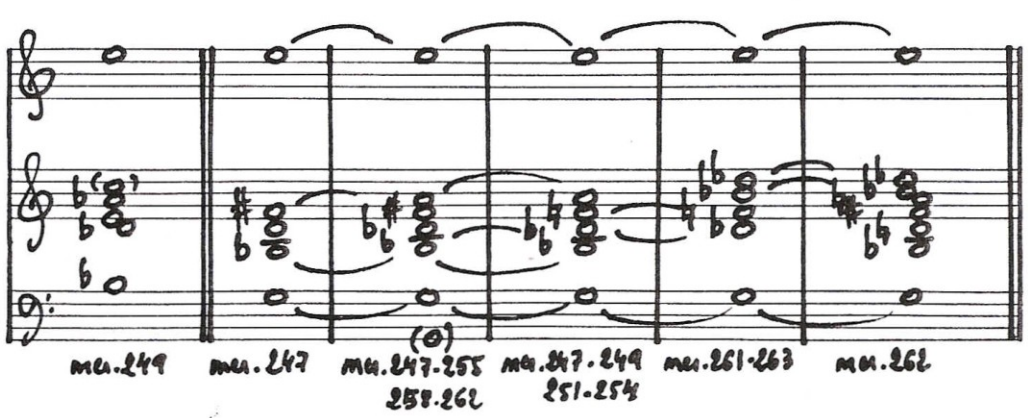
Appendix 6

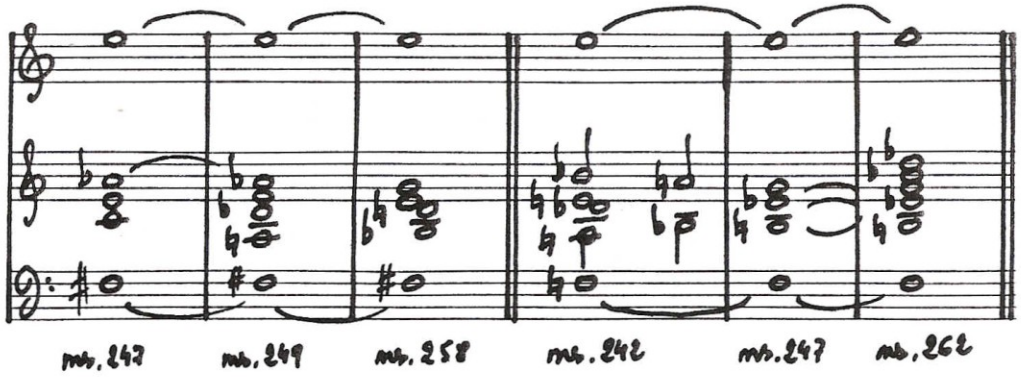
Florentz's analysis of the 2nd over-diminished mode. *L`hospitalité,* 40.

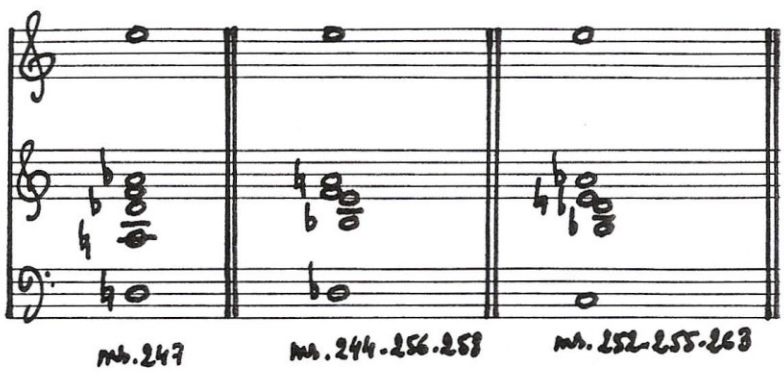


Appendix 7

Florentz's catalogue of the underlying harmonizations of pitch-class E in measures 242 to 263. The catalogue is organized according to the bass note. *L`hospitalité,* 71-72.

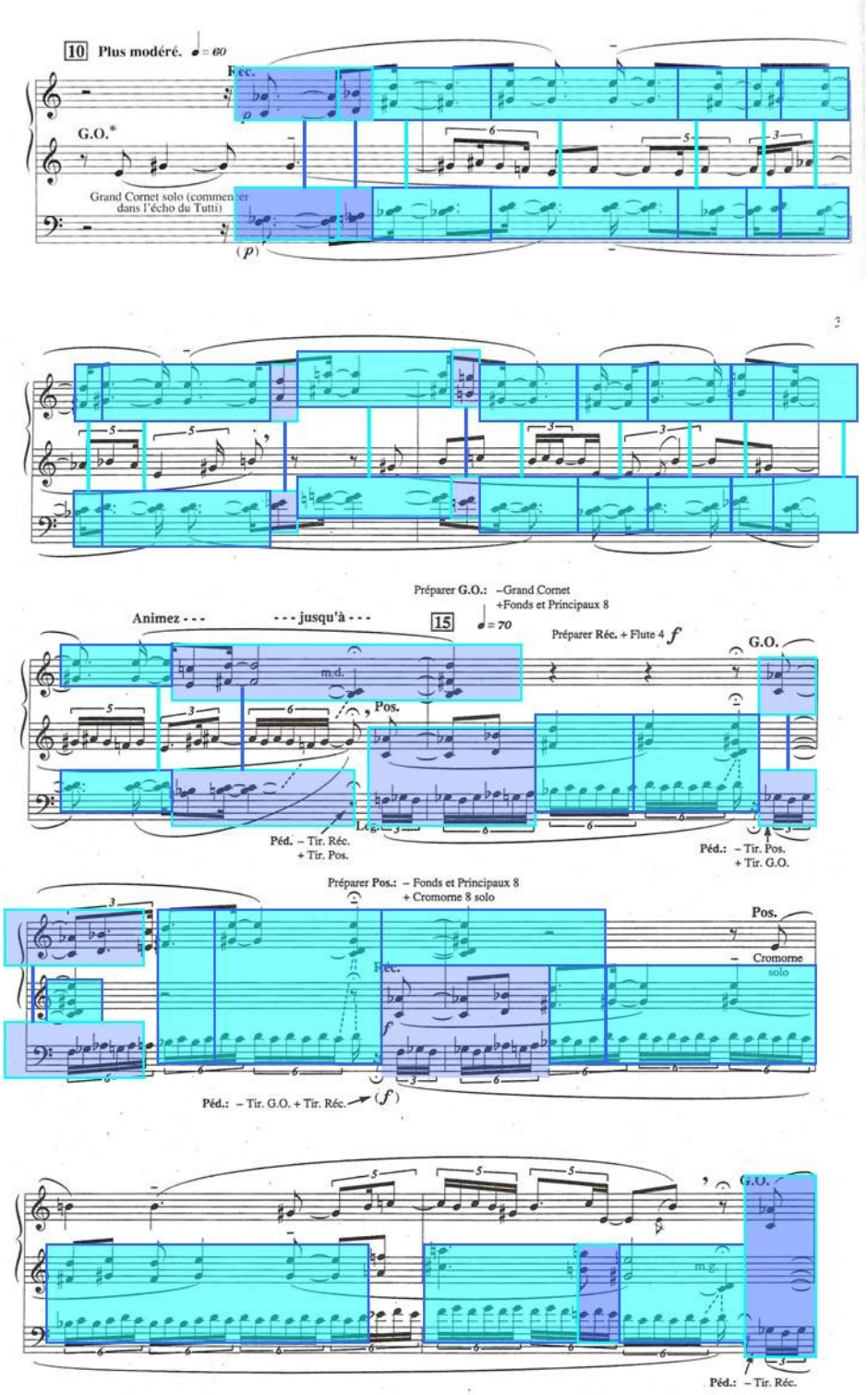




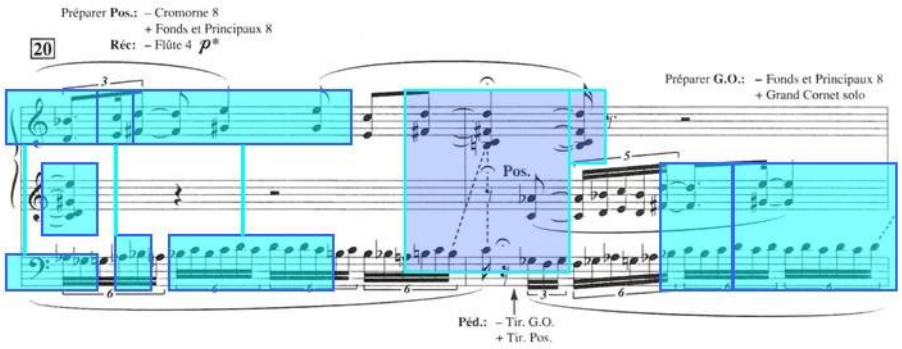


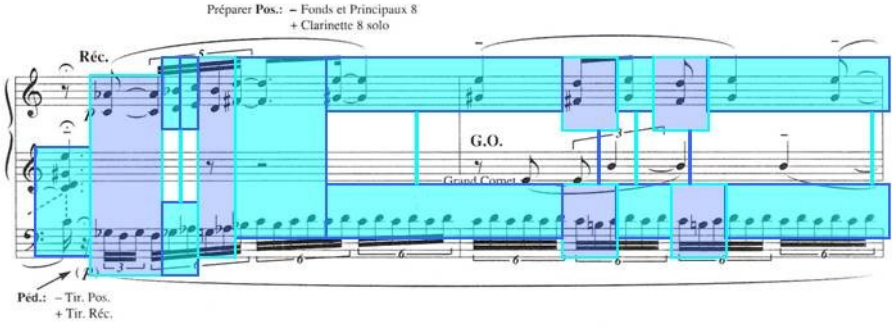
Appendix 8

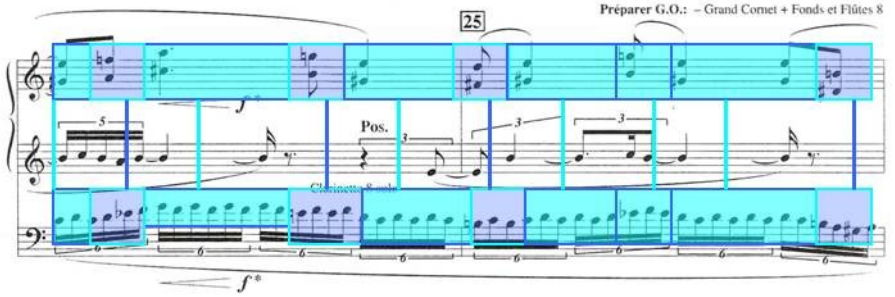
Measures 10 to 27. The analysis highlights the two sets used for the accompaniment of the main theme: [0137] (in blue) and [0248] (in turquoise).

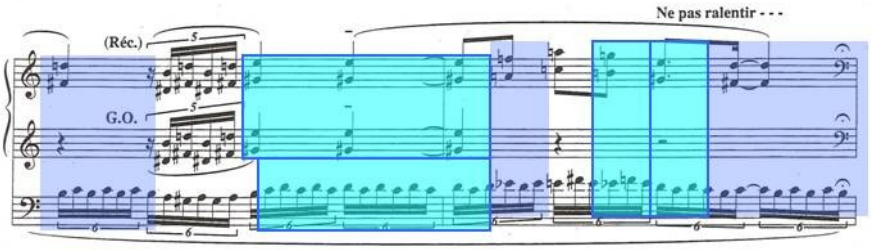


x


Préparer Pos.: – Cromorne 8
+ Fonds et Principaux 8
20
Réc: – Flûte 4 p*
Préparer G.O.: – Fonds et Principaux 8
+ Grand Cornet solo
Pos.
Péd.: – Tir. G.O.
+ Tir. Pos.

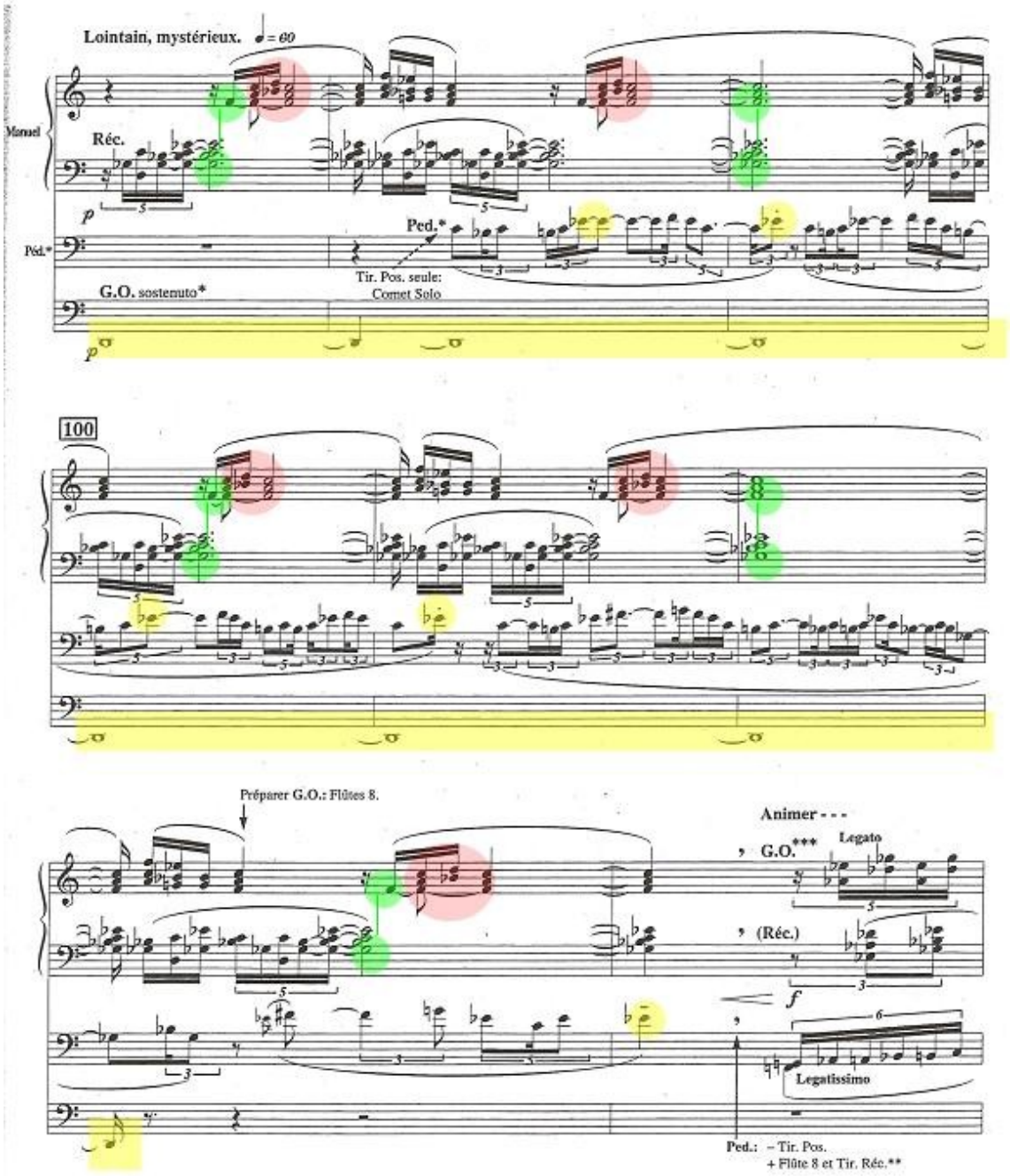

Préparer Pos.: – Fonds et Principaux 8
+ Clarinette 8 solo
Réc.
G.O.
Grand Cornet
Péd.: – Tir. Pos.
+ Tir. Réc.

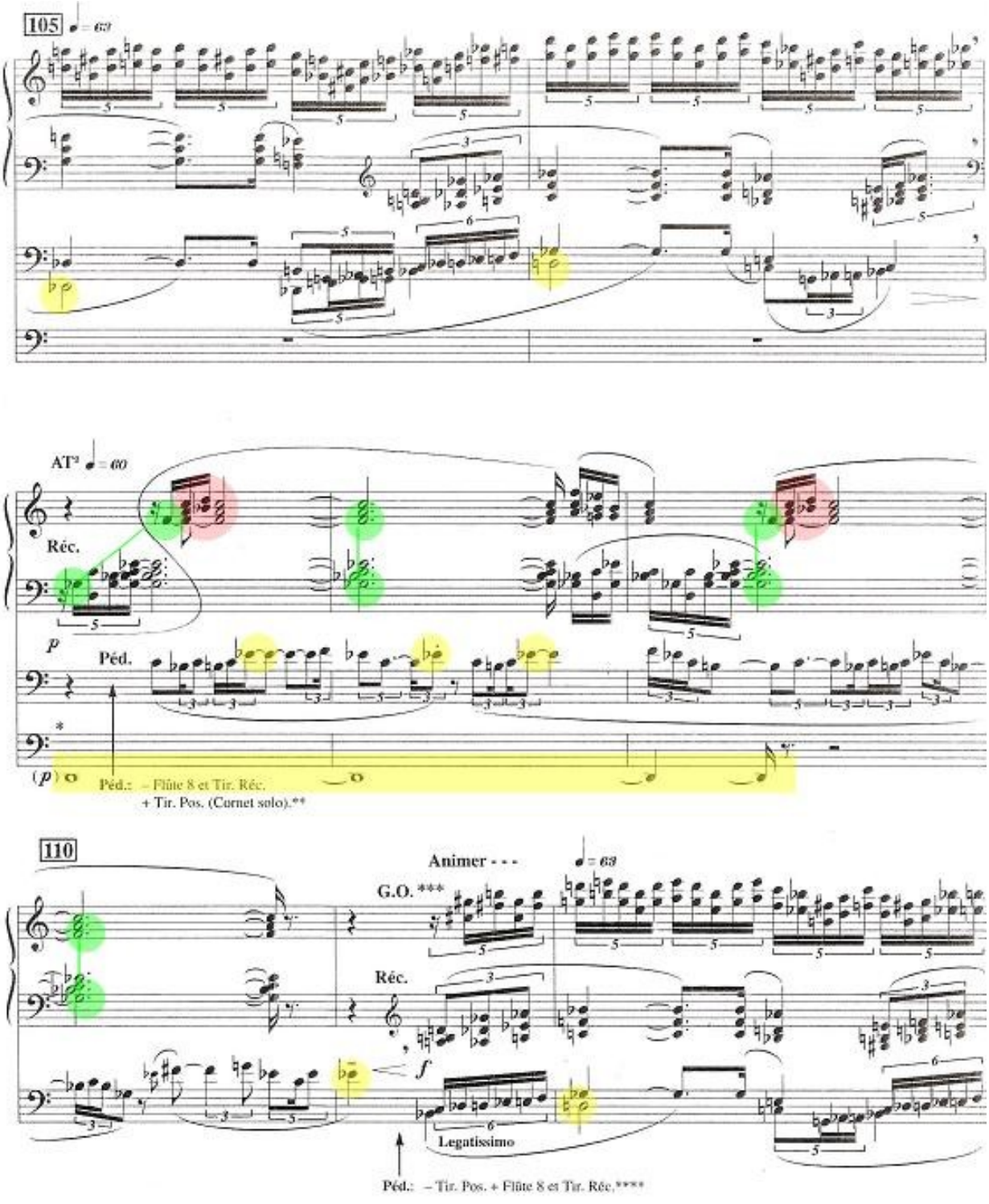

25
Préparer G.O.: – Grand Cornet + Fonds et Flûtes 8
Pos.
Clarinette 8 solo

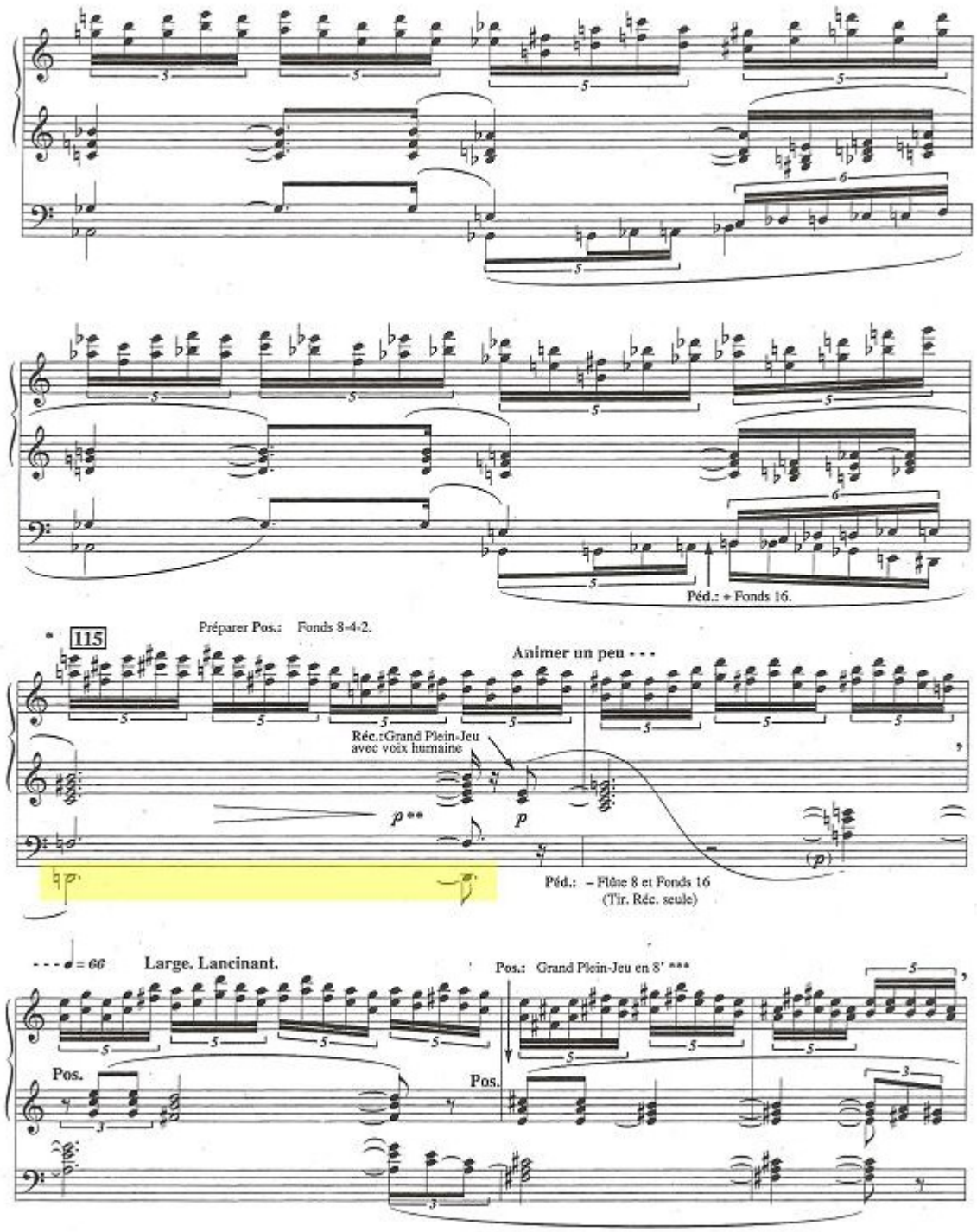

Ne pas ralentir - - -
(Réc.)
G.O.

Appendix 9

Analysis of the enlargement technique at work in measures 97 to 115 of *Debout*. The excerpt is based on the enlargement of the theme's characteristic neighbouring gestures. Red represents the melodic neighbouring gesture C/D/C (which is enriched by a second neighbouring gesture a third below, A/B-flat/A); green the harmonic dyad F/G-flat (in which each of the two pitches carries its own harmony); and yellow the large-scale formal dyad D/E-flat.

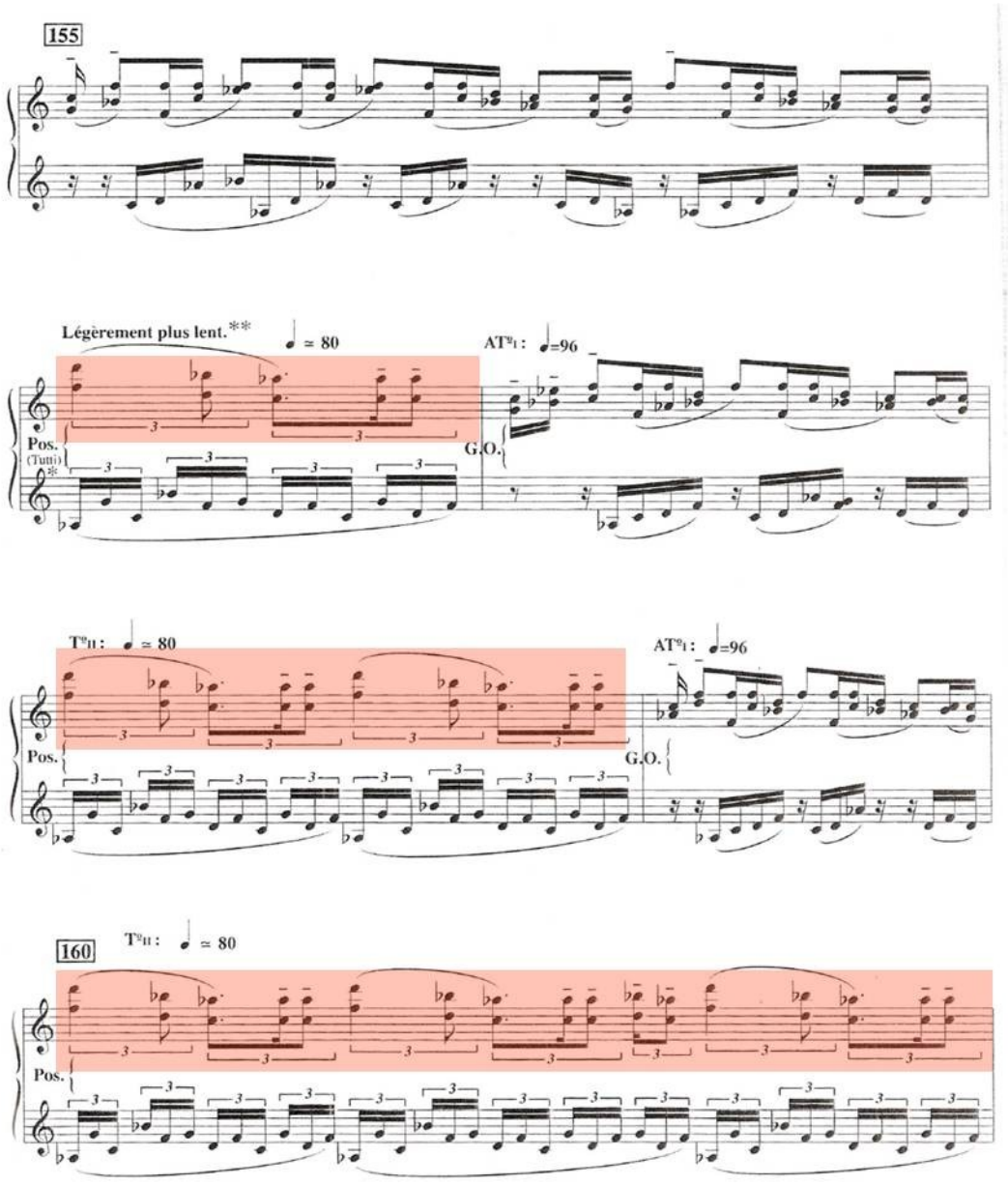


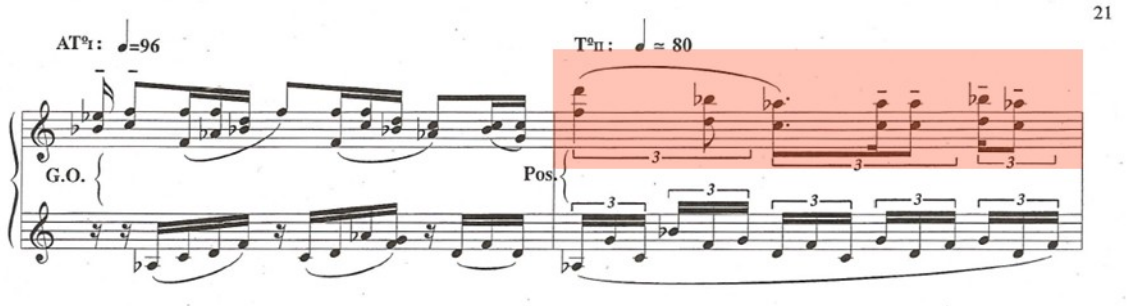

105
AT³
Réc.
Péd.
Péd.: – Flûte 8 et Tir. Réc.
+ Tir. Pos. (Cornet solo).**
110
Animer - - -
G.O. ***
Réc.
Legatissimo
Péd.: – Tir. Pos. + Flûte 8 et Tir. Réc.****


Péd.: + Fonds 16.
115
Préparer Pos.: Fonds 8-4-2.
Animer un peu - - -
Réc.: Grand Plein-Jeu
avec voix humaine
Péd.: – Flûte 8 et Fonds 16
(Tir. Réc. seule)
- - - ♩ = 66
Large. Lancinant.
Pos.: Grand Plein-Jeu en 8' ***
Pos.
Pos.

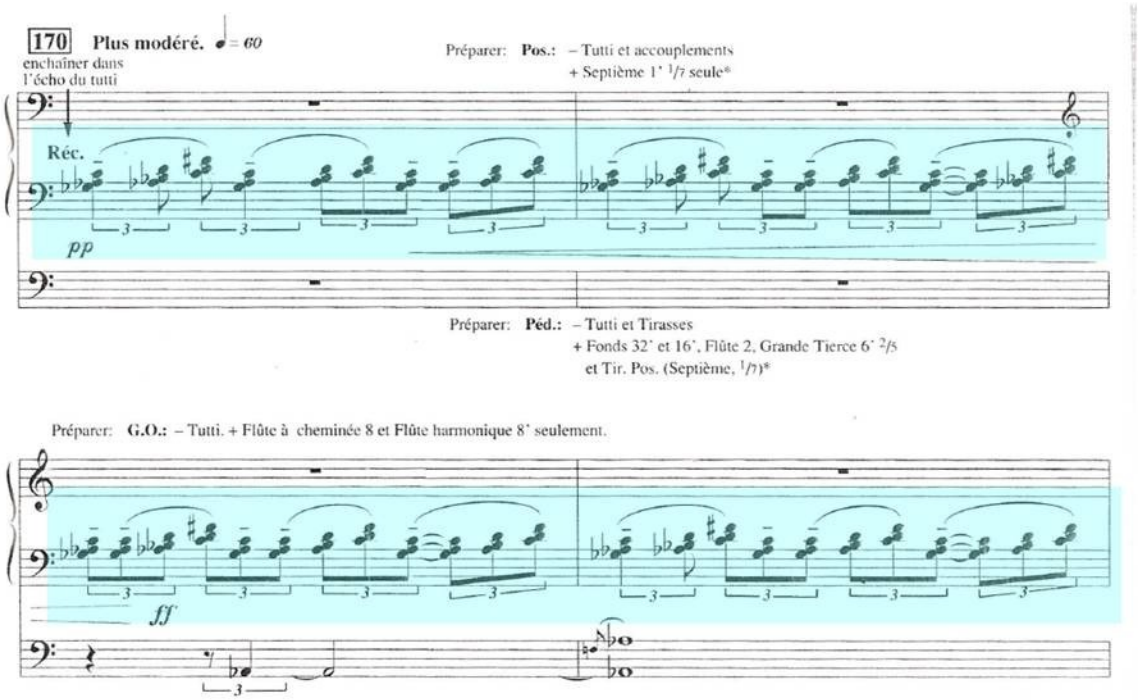
Appendix 10

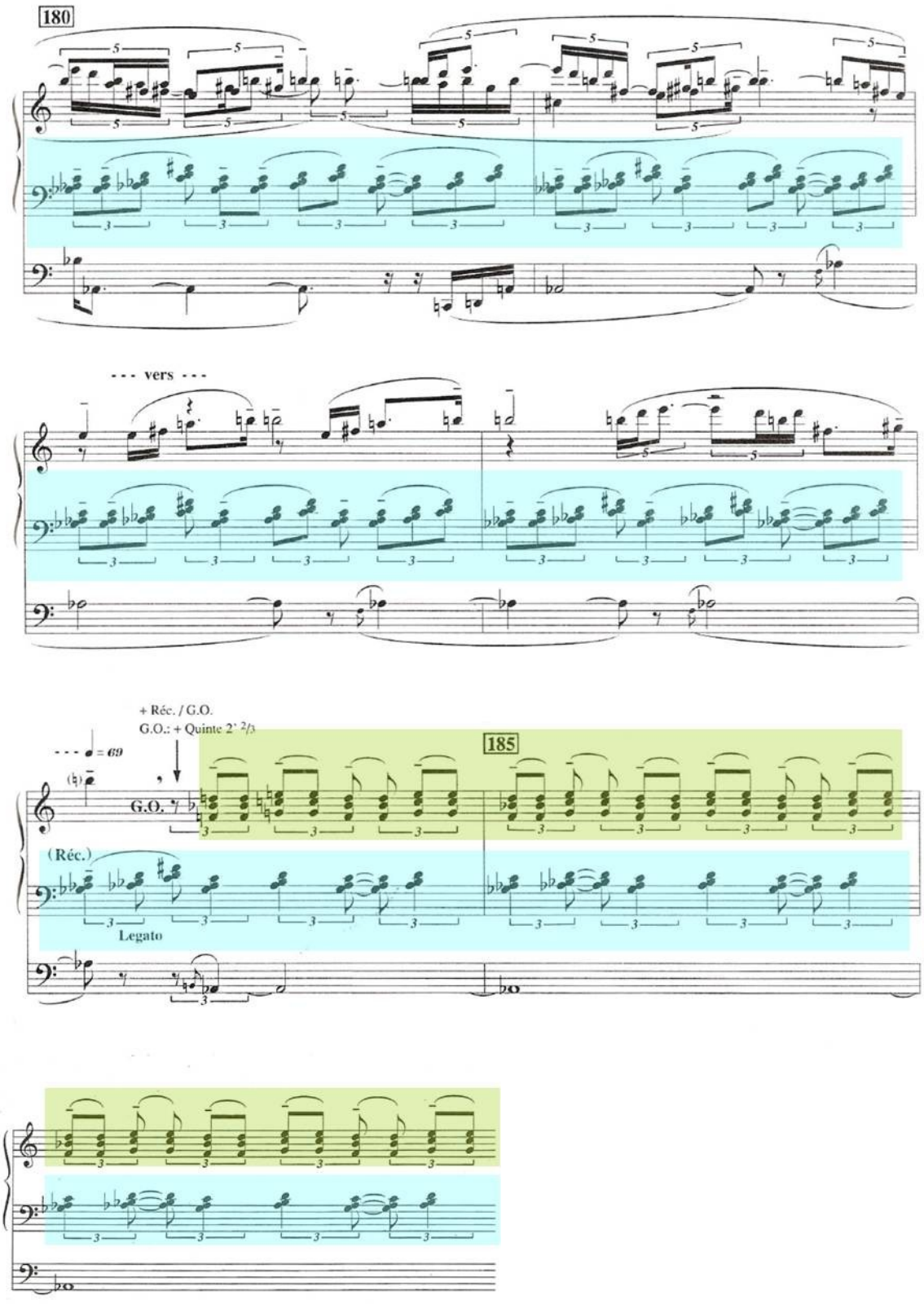
Three examples of how ostinato patterns support gestures with motivic significance. In the first example, the left hand ostinato supports a parallel 6^{ths} motive (highlighted in red in the score) in the right hand





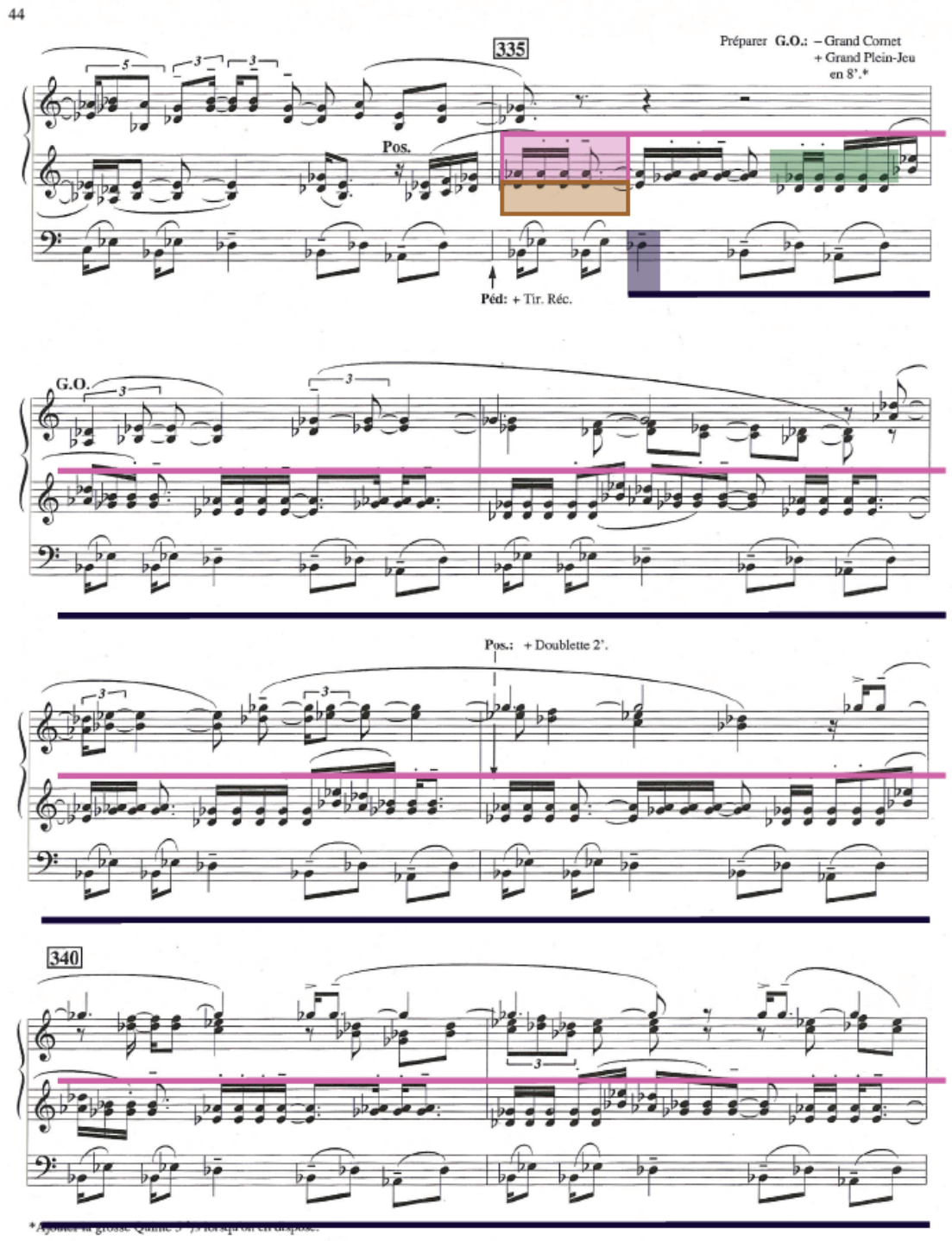
In the second example, two ostinato patterns are shown, both fused with motivic material. The first ostinato, highlighted in turquoise, is reminiscent of the beginning melisma in measures 6 to 9; the second, highlighted in green, is reminiscent of the neighbouring gestures characteristic of the main theme.

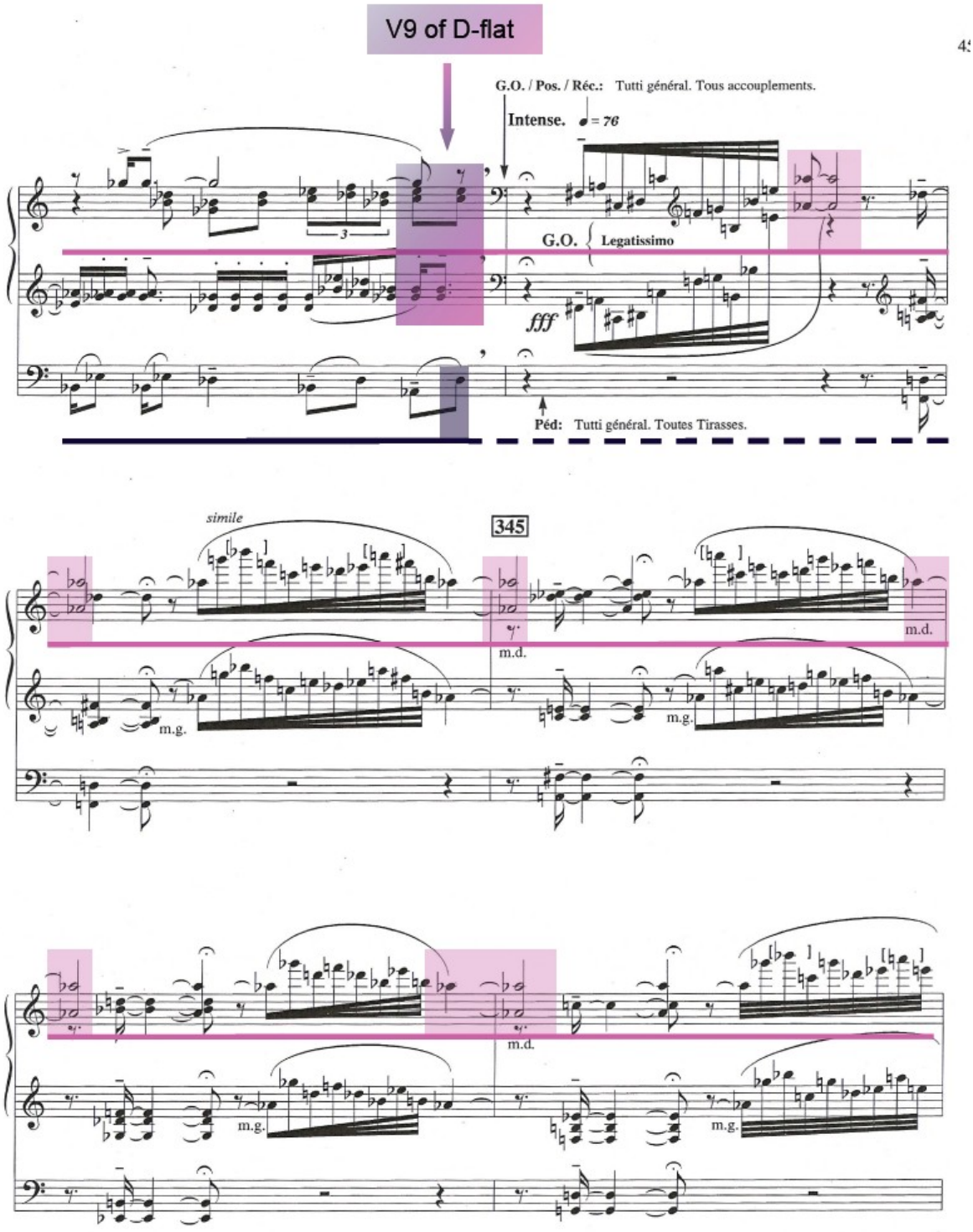



180
--- vers ---
+ Réc. / G.O.
G.O.: + Quinte 2' 2/3
185
G.O.
(Réc.)
Legato

Appendix 11

The analysis shows the fourfold tonal complex of measures 335 to 342. The four pitch-classes of the complex are: A-flat (purple), E-flat (brown), D-flat (dark blue), and G-flat (dark green).




V9 of D-flat
G.O. / Pos. / Réc.: Tutti général. Tous accouplements.
Intense. ♩ = 76
G.O. Legatissimo
fff
Péd: Tutti général. Toutes Tirasses.
simile
345
m.d.
m.g.

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