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This document analyzes Gotkovsky's *Quatour de Saxophones* from a post-tonal perspective, focusing on performance-related decisions. Because much of the repertoire for chamber ensembles, particularly saxophone quartet, is recently composed, traditional analytical techniques grounded in functional harmony often fail to provide clarity with regard to harmony or form on both the small and the large scale. This dissertation addresses the need for performers to approach chamber music from an analytical perspective, using *Quatour* as a case study. It does not seek to employ a single analytical method; rather, different techniques address different components of the music. Post-tonal triadic analysis, pitch-class and beat-class analysis, as well as other post-tonal approaches to harmony, rhythm, and form, help to inform both interpretive choices as well as improve ensemble intonation.

USING POST-TONAL ANALYTICAL TECHNIQUES FOR
A BETTER PERFORMANCE OF IDA GOTKOVSKY'S
QUATOUR DE SAXOPHONES

by

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Approved by

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To my parents, my brother and sister, my godparents, my teachers,
and everyone who has supported me and loved me.

APPROVAL PAGE

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TABLE OF CONTENTS

	Page
LIST OF FIGURES.....	vi
CHAPTER	
I. INTRODUCTION.....	1
II. MOVEMENT I, “MISTERIOSO”	5
III. MOVEMENT II, “LENT”	20
IV. MOVEMENT III, “LINEARE”	26
V. MOVEMENT IV, “CANTILENE”	36
VI. MOVEMENT V, “FINAL”	45
VII. CONCLUSIONS AND IMPLICATIONS	56
REFERENCES.....	58

LIST OF FIGURES

	Page
Figure II.1. Measures 1-8 of <i>Quatour</i> , I.....	6
Figure II.2. Measures 1-8 of <i>Quatour</i> , I, rebarred.....	7
Figure II.3. Measures 9-12 of <i>Quatour</i> , I, rebarred	8
Figure II.4. Measures 1-2 of <i>Quatour</i> , I, baritone saxophone.....	9
Figure II.5. Harmonic reduction of mm. 4-9, <i>Quatour</i> , I.....	9
Figure II.6. Harmonic reduction of mm. 4-9, with traditional harmonic analysis.....	10
Figure II.7. Harmonic reduction of mm. 4-9, with post-tonal triadic analysis	12
Figure II.8. Measures 41-54, rebarred, tenor saxophone	15
Figure II.9. Tenor and baritone, mm. 55-56, reduced	16
Figure II.10. Harmonic reduction of mm. 69-76, <i>Quatour</i> , I.....	17
Figure III.1. PC Set {268E}, from m. 1 of <i>Quatour</i> , II.....	22
Figure III.2. PC Set {1369T}, from m. 12 of <i>Quatour</i> , II.....	22
Figure IV.1. Motive A, soprano saxophone, mm. 1-4 of <i>Quatour</i> , III.....	27
Figure IV.2. Motive B, alto saxophone, and Motive C, soprano saxophone, mm. 4-6	27
Figure IV.3. Measures 21-30 of <i>Quatour</i> , III, tenor and baritone saxophones, rebarred.....	30
Figure V.1. Mm. 1-12 of <i>Quatour</i> , IV, baritone, tenor and soprano saxophones.....	38
Figure V.2. Mm. 29-32 of <i>Quatour</i> , IV, baritone, tenor and soprano saxophones	42
Figure VI.1. Measures 1-3 of <i>Quatour</i> , V, soprano saxophone.....	47
Figure VI.2. Measures 25-26 of <i>Quatour</i> , V	48

Figure VI.3. Measures 29-30 of <i>Quatour</i> , V	49
Figure VI.4. Measures 47-48 of <i>Quatour</i> , V	50
Figure VI.5. Measures 92-95 of <i>Quatour</i> , V, baritone saxophone	51
Figure VI.6. Previously unbarred portion of <i>Quatour</i> , V, beginning at m. 55, with added barlines and meter signatures, soprano saxophone.....	54
Figure VI.7. Previously unbarred portion of <i>Quatour</i> , V, beginning at m. 186, with added barlines and meter signatures, soprano saxophone.....	55

CHAPTER I

INTRODUCTION

Playing in a chamber ensemble allows musicians the unique opportunity to approach repertoire from a fresh perspective, without the influence of a director. As a unit, an ensemble makes choices regarding style, interpretation, technique, and countless other factors that comprise a performance. Although this setting certainly encourages musical maturity and growth and allows for a great deal of freedom, it also carries a heavy responsibility. Certainly, chamber musicians must work without a conductor beating time or cueing entrances, but more importantly, they must engage with the score in order to best understand a given work.

For conductors, intense score study precedes any read-through or performance with the ensemble present. Although chamber ensembles likely do not have the same time to prepare a score, theoretical analysis still provides necessary information about the piece that musicians cannot gather by listening alone. Therefore, it is important for chamber musicians to have the theoretical tools needed in order to analyze a given work.

In many settings, a traditional undergraduate music theory education provides the knowledge and understanding of analysis necessary for chamber music. The chamber works of Haydn, Mozart, and Beethoven, for example, appear regularly in college-level music theory texts as examples for the fundamental concepts of tonality, rhythm, and meter. By analyzing and understanding how each of these ideas functions in a work, the ensemble can make better-informed choices regarding interpretation, style, and intonation. Additionally,

with a more specific analysis of each individual work, ensembles can avoid interpreting each piece in the same manner. Works from similar time periods or multiple works from the same composer can take on more individualized styling if theoretical knowledge is part of the decision-making process.

Despite these advantages, not all works make for a simple analysis, particular with the tools available after a typical undergraduate music education. New pieces and works from composers who stray from the bounds of tonality and Western traditions do not particularly benefit from Roman numeral, Schenkerian, or other typical analytical techniques. Most of the music in the repertoire for saxophone quartet falls into this category. Apart from transcriptions and a few early works in the repertoire, a majority of saxophone quartet music utilizes compositional styles and theoretical techniques that require more advanced analytical skills. Musicians would benefit from the techniques garnered in graduate-level study of post-tonal theory, including pitch class, beat class, neo-Riemannian and other non-functional triadic analysis.

This paper will demonstrate how these techniques, along with other fundamentals of chamber music, can improve performance-related decisions and result in a more complete and compositionally sound product. Ida Gotkovsky's *Quatuor de Saxophones* will serve as the case study for the investigation.

Ida Rose Esther Gotkovsky (b. 1933) grew up in Calais, France, in a family with great musical interests. Both of her parents were violinists, her father a member of the Loewenguth Quartet, and her brother and sister pursued piano and violin, respectively, as talented performers. Upon entering the Conservatoire National Supérieur de Paris, Gotkovsky studied both with Nadia Boulanger and Olivier Messiaen, although Messiaen's

influence was far greater.¹ In 1957, she was awarded the *Prix Lili Boulanger* for her works, and she has since received a great deal of recognition for both her compositions and her teaching.² Gotkovsky writes for a wide variety of genres, including: opera, chamber music, concertante and solo works, and choral works. Her music for saxophone (*Brilliance* (1974), *Concerto* (1980), *Variations Pathétiques* (1983), *Quatour de Saxophones* (1988)) is particularly well-known and is considered part of the standard professional repertoire. In addition, she includes saxophone in several other chamber works, including a trio for violin, piano, and alto saxophone, and a work for fifteen saxophones, entitled, *Golden Symphonie* (1991).³

Gotkovsky describes the *Quatour*, a government commission from 1988, as requiring virtuosity on the part of the saxophonists, as it contains a wide variety of musical challenges.⁴ She draws much of the material for the piece from other works already in her *oeuvre*, especially the *Variations Pathétiques*. This is not mere reworking of material, however, as Gotkovsky treats the music quite differently, not only in orchestration, but also in rhythmic and harmonic development.⁵

In order to avoid simply utilizing an analytical approach and fitting the music into predetermined theoretical boundaries, this paper employs different analytical techniques for each movement. This strategy allows for analytical decisions to be made with performance

¹ Karin Anna Pendle, *Women and Music: A History, Second Edition*, (Bloomington, IN: Indiana University Press, 2001): 263.

² Ida Gotkovsky, "Distinctions honorifiques," *Ida Gotkovsky: A Life, a Work*, <http://www.gotkovsky.com/textes_versionFR/txt_distinctions.html>, (accessed 28 March 2011).

³ "Fisches," *Ida Gotkovsky: A Life, A Work*, <http://www.gotkovsky.com/textes_versionFR/txt_fiches_des_oeuvres/fiches-des-oeuvres.html>, (accessed 22 March 2011).

⁴ "*Toutes les difficultés instrumentales, toutes les virtuosités y sont présentes*," Ibid.

⁵ Kenneth Carroll, "The Influence of Olivier Messiaen on *Brilliance* and the *Concerto Pour Saxophone-Alto et Orchestra* by Ida Gotkovsky: An Analytical Study," (DMA diss, The University of Georgia, 1992): 8.

at the focus. When the music calls for clarity from a rhythmic standpoint, analysis will derive from rhythmic theory; if the performers can benefit from a deeper understanding of a harmonic gesture, specific techniques in harmony will better elucidate the content. Since post-tonal music, like that of Gotkovsky, draws from an extensive set of musical influences, using many analytical tools can best aid musicians in making musical decisions that will impact their performance in the most meaningful way.

CHAPTER II
MOVEMENT I, “MISTERIOSO”

Gotkovsky describes the first movement of her *Quatuor*, “Misterioso,” as an introduction to the work.⁶ Expectedly, she introduces thematic material, both harmonic and rhythmic, that recurs throughout the remainder of the piece. In order to interpret the work in its entirety and make performance-related decisions, therefore, it is necessary to obtain a clear understanding of several components of the first movement. First, the notated meter is at times in conflict with the grouping and perceived metric structure of certain sections of the work; therefore, it will be necessary to rebar certain passages (utilizing the preference rules of Fred Lerdahl and Ray Jackendoff), so that the performers can go beyond the confines of the written barline and interpret the phrases as they are grouped. Many of the musical principles of Olivier Messiaen, Gotkovsky’s teacher, impact the interpretation of the content of this movement, particularly the rhythmic and metrical composition. In addition, the melodic and harmonic content in this movement is largely governed by triadic motion. Techniques from the field of triadic post-tonality will aid not only in analysis, but will also benefit decisions regarding intonation in performance.

The piece begins with a seven-note melodic motive repeated in the baritone. Although the meter of the movement is marked 3/4, the baritone motive sets the metric framework upon which the beginning of the work is based (Figure II.1).

⁶ Gotkovsky, *Quatuor*.



Figure II.1. Measures 1-8 of *Quatour, I*.

By repeating the motive several times and placing the accent on the same note, every seventh concert B-flat, Gotkovsky creates parallel melodic structure, despite the fact that the motive creates a continuous string of eighth notes. According to Lerdahl and Jackendoff's first Metrical Preference Rule (MPR), where parts of groups can be considered parallel, they preferably should receive parallel metrical structure.⁷ In addition, according to the sixth MPR, a metrically stable bass is preferable, in this case, the baritone, which is the lowest voice.⁸ The confluence of these factors suggests a meter of 7/8, therefore, rather than the written 3/4.

The baritone repeats the motive three times before the upper three voices enter in m. 4 on the second eighth note of beat 2. Were the opening written in 7/8, however, soprano, alto and tenor would enter on the downbeat of re-barred m. 4 (Figure II.2).

⁷ Fred Lerdahl and Ray Jackendoff, *A Generative Theory of Tonal Music*, (Boston: MIT Press, 1983): 75.

⁸ *Ibid.*, 88.



Figure II.2. Measures 1-8 of *Quatuor*, I, rebarred.

The question then arises, why did Gotkovsky choose to write the movement in 3/4, if the work appears to be based upon a motive that implies a meter of 7/8? Closer inspection of the upper voices offers a possible conclusion. Although musicians customarily perform in asymmetrical meters like 7/8, it appears that Gotkovsky writes the opening in simple triple meter to make the rhythmic values even clearer for the players. Messiaen describes this technique as “Fourth Notation,” where a composer utilizes a “normal meter” that has no direct relationship to the phrase material of the music itself.⁹ Furthermore, the opening of Gotkovsky’s *Quatuor* does not remain solely in an implied 7/8 meter; rather, it contains metric interruptions, such as a bar of 3/8 that occurs after the ninth statement of the seven-note baritone motive. The change in meter is foreshadowed by the omission of an accent on the downbeat of the ninth statement, and a slight change in melodic material. Additionally, Gotkovsky allows the baritone a moment to breathe, writing the first beat of rest in the *ostinato* part (Figure II.3).

⁹ Olivier Messiaen, *The Technique of My Musical Language*, (Paris: Alphonse Leduc, 1956):29.

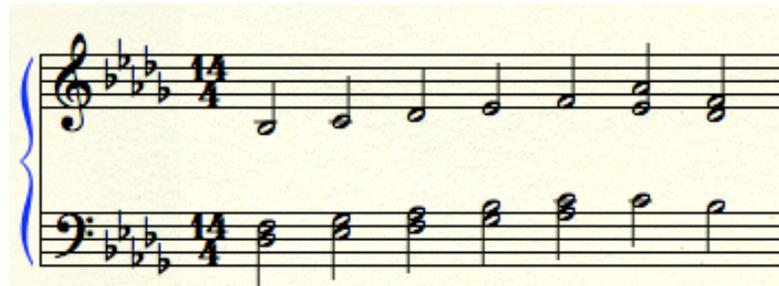


Figure II.3. Measures 9-12 of *Quatuor*, I, rebarred.

The repetition of the baritone part is another practical consideration that could explain why Gotkovsky uses a “false meter.”¹⁰ Since the upper voices move at an irregular rate, it is more important for the meter signature to be as clear as possible, while the baritone can easily repeat the seven-note motive, accenting the beginning of it when necessary. As Messiaen states, the performer need only play the values indicated, no matter the notational approach. If the musicians are sensitive to the metric implications of the music, they will be able to convey the conception of the composer to the audience.

The melodic and harmonic material of the first movement of the *Quatuor* contains material that Gotkovsky uses later in the work as well as general ideas that are present in her other works. The initial seven-note motive in the baritone clearly establishes the key of concert B-flat minor, first outlining the tonic triad and ending on scale degree 5, creating the “sol-do” expectation at the end of the motive (Figure II.4).

¹⁰ Ibid.



Bb minor: i^6 ii^{o6} III^6 iv^6 v^6 VII^6 i

Figure II.6. Harmonic reduction of mm. 4-9, with traditional harmonic analysis.

Although traditional analysis paints a picture of the harmonic motion in the opening of the work, the triads formed do not function as they would be expected to in tonal music. Rather, each voice begins by simply ascending diatonically through the B-flat natural minor scale, and the resulting harmonies are a product of beginning the pattern on the tonic triad in first inversion. The pattern changes after the sounding of the F-minor triad (v^6), as Gotkovsky skips one degree of the scale for each voice, instead moving to the A-flat major triad, effectively omitting “VI.” The phrase ends when the harmony returns to tonic, where it began; the end of the phrase is also made clear in the markings in the score, which show a complete phrase marking stretching from the entrance of the upper voices in m. 4 until the rest on tonic harmony in m. 9.

Instead of Roman numeral analysis, triadic post-tonality more clearly explains how the upper voices are functioning both in relation to each other and in the structure of the phrase as a whole. Straus explains that distinctively triadic music is post tonal when the “triads do not relate to each other functionally, as dominants, or tonics.”¹¹

¹¹ Joseph Nathan Straus, *Introduction to Post-Tonal Theory*, (Upper Saddle River, NJ: Prentice Hall, 2005): 158.

Although the first movement of the *Quatuor* certainly has a tonal center, the other triads do not operate functionally in that tonal space. For example, the “v⁶” triad that sounds in m. 7 would, in tonal music, be expected to function as dominant, either resolving directly to i, or possibly first through a cadential 6-4; instead, Gotkovsky follows “dominant” harmony with a first-inversion VII chord before resolving to i. Moreover, by using the minor form of v as well as VII based upon the natural 7 of the B-flat minor scale, Gotkovsky avoids the leading tone in the sonorities most expected to contain the strong tendency tone.

By utilizing analysis based upon motivic triadic motion, the triads that appear are projected along a certain well-defined pathway.¹² In this case, the triads are derived from the diatonic collection, and although they certainly function as harmonies, each voice is also operating in B-flat minor, also called the five-flat collection, independently. Soprano begins on concert B-flat, alto begins on concert F, and tenor begins on concert D-flat, and each voice ascends within the expected pathway, apart from the traditional bounds of functional tonality. The resulting sonorities have a strong link to tonal music while acting in a new way, utilizing the referential source collection (the diatonic collection) in order to draw melodic and harmonic material.¹³ Therefore, in order to most accurately analyze the triads, simply the root, quality, and inversion of the given triad are necessary, without reference to tonality (Figure II.7).

¹² Ibid.

¹³ Ibid., 141.

Bb⁻⁶ C^{o6} Db⁶ Eb⁻⁶ F⁻⁶ Ab⁶ Bb⁻

Figure II.7. Harmonic reduction of mm. 4-9 with post-tonal triadic analysis.

The first phrase is tagged with more triadic motion in the upper voices, descending from E-flat minor to B-flat minor, passing through D-flat major and A-flat major, in first and second inversions, respectively. Although the descent allows the tenor to again rest on the third of the B-flat minor triad, where it began, the alto interrupts the stepwise motion, resting on a concert A-flat throughout m. 11 while soprano and tenor continue their descent. This interruption allows the same cadence between A-flat major and B-flat minor that the first phrase utilized, and it foreshadows the exchange between A-flat major and B-flat minor that begins in m. 12 and continues until m. 17.

A final descent from E-flat major to B-flat major begins on beat 2 of m. 17, moving through D-flat major, and the expected C diminished triad (rather than A-flat major) before resting on a first inversion B-flat minor triad on the downbeat of m. 21. Throughout these triadic shifts, the baritone continues to play the seven-note initial motive, reminding the listener of the B-flat minor centrality of the work thus far. Gotkovsky again repeats the triadic motion between A-flat major and B-flat major, but does so with only the inner voices, implying the same harmonies through mm. 21-22 as in mm. 13-17. However, a meter shift at m. 23 into 4/4 signals a change, which occurs in the following bar; rather than the

expected B-flat minor triad, Gotkovsky scores a G-flat major triad in root position, a sonority that contains two common tones with B-flat minor. Enharmonically respelled, the triad can be interpreted as an F-sharp major triad, which then shifts to F-sharp minor in the following bar. At this point, the soprano begins the seven-note motive from the beginning, transposed the interval of a tritone into E minor rather than the original key of B-flat minor.

The lower voices now take the role of establishing the harmonic landscape, over which the soprano repeats the seven-note motive. Although it bears rhythmic and motivic similarity to the opening, this section does not mirror it harmonically, since the first sonority is not an E minor triad, but instead a C-sharp diminished triad. Based upon scale-degree 6 in the key of E minor, this sonority is, in fact, the one triad Gotkovsky avoids in the opening, when the pattern was based on B-flat minor. Additionally, the voices do not move by the same interval in the diatonic collection, as the alto shifts by a minor third while tenor shifts by a major second. As a result, the second harmony formed is a B major triad, with the alto playing the root, tenor playing the third, and soprano playing the fifth (as part of the seven-note motive). The harmony alternates between C-sharp diminished and B major until the downbeat of m. 29, where tenor moves to a concert G, creating a sonority containing F-sharp, G, and B. This is the first chord that could be considered “dissonant,” as it contains two pitch classes separated by only a half step. After another C-sharp diminished triad, Gotkovsky then writes a sonority containing D-sharp, E and F-sharp, even more dissonant than the chord heard earlier. This shift away from triadic harmony foreshadows a change in both melodic and motivic content, as the baritone and tenor begin a sequence that is passed through the alto and tenor. When the alto enters, it moves with a different sequence of intervals than the tenor, resulting in an extension of dissonance until the seven-note motive

returns in soprano in m. 35. At this point, triadic harmonies return once again, as all four voices descend together until a fermata on E-flat major harmony in m. 40.

This descent begins on the downbeat of m. 37 with C major harmony, passing through B-flat major, A minor, G major, F major, E major, D major, C major, B minor, A minor, G major and F major before the final cadence, with all triads in root position. All four voices move by step throughout the phrase, but they do not remain in one diatonic collection. The resulting motion loses all sense of function, as any of the triads could potentially serve as the final resting point of the line. Gotkovsky's choice of E-flat major is significant, however, as it follows with the seven-note motive centered on F minor. The movement of E-flat major to F minor recalls the same cadential movement from A-flat major to B-flat minor earlier in the work, now transposed by the interval of a perfect fifth. Throughout the triadic descent, each voice again retains the same chord member of the resulting triad, with baritone and soprano playing the root, tenor playing the fifth, and alto playing the third. As long as the performers are aware of the quality of the sounding triad, they can easily adjust for intonation on each sonority. Alto has the most complicated task, having to alternate between major thirds adjusted relatively flat and minor thirds relatively sharp compared with equal temperament.

At m. 41, tenor begins the seven-note motive, while soprano, alto, and baritone establish the triadic landscape; it should be noted that between mm. 41 - 46, alto is scored higher than soprano. Moreover, Gotkovsky underscores the centrality of F minor, scoring several tonic triads in root position while choosing to score other triads in inversion. Throughout this series of triads, baritone plays the third of the chord a majority of the time; exceptions include F minor triads in root position, found on beat 2 of m. 43, beat 3 of m. 44,

and beat 2 of m. 48. Alto plays the root of the remaining triads until m. 47, when soprano is scored higher and plays the root. Prior to m. 47, soprano plays the fifth of each triad. As with any section of the piece based upon the seven-note motive, a 7/8 meter underlies the harmonies moving at irregular rates. Rather than remaining in a constant 7/8 feel, however, Gotkovsky changes the pattern more often, scoring rests and altering the presence position of accents within each measure. As a result, the listener perceives a change of meter, between 7/8 and 8/8, despite the constant 3/4 time in the score (Figure II.8).

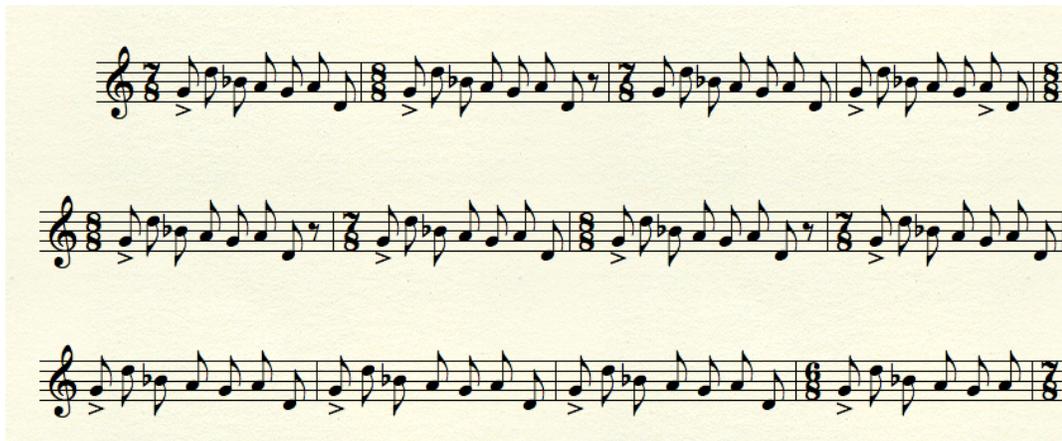


Figure II.8. Measures 41-54, rebarred, tenor saxophone.

Beginning at m. 53, tenor plays the seven-note motive alone, recalling the opening baritone solo; however, the motive changes, with the first melodic interval now a diminished fifth rather than a perfect fifth. When baritone joins the pattern in m. 55 it does so at the interval of a minor third lower, essentially playing the motive centered in D, also with a diminished fifth as the first interval (Figure II.9).



Figure II.9. Tenor and baritone, mm. 55-56, reduced.

The resulting harmony is a series of thirds (2 minor, 1 major, 4 minor), but the greater musical effect is a simultaneous sounding of the seven-note motive based on two different tonal centers. The alto then enters on a concert F in m. 57, and soprano enters on a concert F in the following measure. Therefore, when all four voices are present, only baritone plays the motive beginning on a different pitch, while the upper voices play in octaves.

The texture changes in m. 62, when alto and baritone play a legato, ascending motive, marked *espressivo*. Gotkovsky continues to write harmonies that are based upon thirds, as alto begins a minor tenth above baritone. The pattern continues at the soprano and tenor entrance at m. 64, who also begin at the interval of a minor tenth. Although each line is somewhat melodically independent, the performers should be aware of the harmonically intervals that are sounding in pairs, particularly when octaves are present. Octaves occur on beats 2 and 3 of m. 62 between alto and baritone, on the downbeat of m. 66 and beat 3 of m. 67 between alto and tenor, and sustained through beats 2 and 3 of m. 68, again between alto and tenor. Throughout this section of the work, where the harmony is more dissonant and the intervals more closely spaced, careful attention to intonation of octaves will help to improve the overall tuning of the clustered sonority.

Measure 69 marks the beginning of yet another triadic ascent, and one that is more complete than any similar gesture thus far. The first triad, root position concert E major,

ascends by a whole step to G-flat major, also in root position. This progression begins an interval cycle, moving by whole step. An interval cycle occurs when melodic movement begins on a certain pitch class and changes repeatedly by any interval.¹⁴ This particular interval cycle is important in that it creates a cyclic set, or an entire cycle that returns to the pitch class from which it began.¹⁵ All voices move together in whole-tone motion through E major, G-flat major, A-flat major, B-flat major, C major, D major and E major (Figure II.10).



Figure II.10. Harmonic reduction of mm. 69-71, *Quatuor*, I.

At this point, the cyclic pattern changes, as the voices move by only a half step, to F major, before beginning the interval cycle once again. The second cycle is not a complete cyclic set, however, as the harmony ascends from F major through G major, A major, and B major, closing with a C-sharp major triad under a fermata.

This particular section of the work stands apart musically from other ascending or descending triadic sections for two reasons: first, the harmonies formed by the voices are all major triads in root position, with the root doubled in the soprano. Second, the ascent never reverses direction, instead continuing to rise until the fermata in m. 74. During this set of

¹⁴ Straus, 154.

¹⁵ Ibid., 155.

triads, each player has a simpler task with regard to intonation, as each triad is of the same quality and every chord is constructed with the same member in the same voice. This allows alto, who plays the third, to more easily adjust the intonation down from equal temperament on each pitch in order to achieve an in-tune major third in each triad. The ascent also prepares the listener for the next section of the work, essentially a recapitulation of the beginning, only with the harmonies in the upper voices scored an octave higher. The work returns to the opening key of B-flat minor, and the seven-note motive is once again in the baritone, while the upper voices play mostly first-inversion triads in a progression similar to the beginning. Each voice ascends homophonically while remaining in the diatonic collection, progressing from B-flat minor through C diminished, D-flat major and E-flat minor before reaching a root-position B-flat minor triad on beat 2 of m. 77. After skipping melodically to A-flat major, the voices begin their descent back toward B-flat minor. This progression differs from the statement at the beginning of the movement in that we hear B-flat minor, the essential “tonic” of the section, after the E-flat minor triad, rather than F minor. The performers should be aware of this difference in order to adjust intonation to the appropriate degree. Although most of the triads in the statement are in first inversion, placing the most responsibility for tuning on the tenor, the B-flat minor triad is in root position; alto must be sure to adjust the intonation of the concert D-flat, the third of the minor triad, appropriately high in order to make the triad sound in tune.

The harmonic motion in the upper voices closes with harmonic motion between A-flat major and B-flat minor, again recalling the earlier cadential motion at mm. 11-12. However, Gotkovsky elaborates that cadence in order to end the baritone *ostinato* seamlessly. Baritone passes off an ascending melodic line to tenor, sustaining the final pitch; tenor

interacts similarly with alto, and alto passes off the motive to soprano. The final sonority is a cluster chord containing G-flat, F, A and E sounding simultaneously in open position. All four voices hold the chord under a fermata before entering homophonically in m. 89 with three statements of the final sonority, a B-flat minor triad with neighboring motion in the alto and soprano. Alto moves from a concert C, a non-chord tone, to D-flat, the third of the triad, while soprano moves from A-flat to B-flat. Along with ornamenting the final triad, the neighboring motion recalls the cadential motion from A-flat major to B-flat minor, which appears throughout the movement and continues to recur in other movements. Soprano must be aware that baritone is already sounding the concert B-flat and listen in order to ensure the intonation of the two-octave interval when moving from A-flat. Alto again has the most difficult task, moving by half step from a non-chord tone to the third of the minor triad. The semitone must be wide, as the concert D-flat will need to be tuned high for the triad to sound in tune. This task is made more challenging by the *pianissimo* dynamic of the closing figure, but fortunately, all four voices are in a comfortable range on the instrument.

CHAPTER III
MOVEMENT II, “LENT”

It can be difficult for musicians to utilize pitch-class and set-class material in order to further inform their performance of a work. Although most theoretical tools removed from the language of traditional, letter-based nomenclature may feel distant from performance, pitch-class awareness can allow performers to better emphasize the arrival of a new note. Additionally, the musicians can better understand how the composer is changing the harmonic language, particularly if the music is not anchored in a specific key or operating within the bounds of traditional tonality. For performers, this understanding is crucial for the purposes of intonation and form. Pitch-class vocabulary also takes any emphasis away from register and octave; as a result, the harmonic landscape can be regarded as a single unit, rather than a stratified universe of different voices. For movement two of *Quatuor*, some use of pitch-class analysis can help to better explain how the music is functioning. In this chapter, the music will be discussed in terms of both letter names and pitch classes, utilizing the standard mod-12 system (pitch classes 0-11). Additionally, the analysis of this movement relies on post-tonal triadic analysis.

The second movement of *Quatuor*, “Lent,” begins with a slow harmonic sequence in the baritone, tenor, and soprano. They begin by sounding an A-flat diminished triad, moving to a C-flat minor triad, and then returning to an A-flat diminished triad that then shifts into first inversion. Gotkovsky accomplishes the harmonic motion in m. 2 between A-flat diminished in root position and first inversion by a three-way voice exchange. At this

point, it is difficult for the listener to determine the meter of the work until alto enters on the second eighth note of m. 3 with a serpentine melodic line that clearly delineates the compound meter of the movement. Baritone, tenor, and soprano continue the slow harmonic motion, continuing to shift between A-flat diminished and C-flat minor, until the downbeat of m. 7, where they sound a D augmented triad before returning to C-flat minor on beat 2.

Although this triadic motion could be considered harmonically grounded in the key of B-flat minor because of the key signature, Gotkovsky introduces new pitch classes in the accompaniment one-by-one. For example, by first establishing the motion between A-flat diminished and C-flat minor, the only pitch classes present are E-double-flat, G-flat, A-flat, and C-flat. The alto melody expands the pitch-class vocabulary, but the harmonic voices continue within the same pitch-class set until Gotkovsky introduces new material after the fermata in m. 11. At this point, the harmonic language appears in soprano, alto, and baritone, which alternate between E-flat minor and G-flat minor triads.

Since the harmonic landscape of this section is not anchored in a given key, it can be easier to compare sonorities and follow harmonic changes by using numeric notation. Transpositions on a large scale can be more easily recognized without applying false label of a “key.” Additionally, we can briefly ignore the quality of chords in order to better understand how the music is functioning harmonically on a larger scale. In numeric pitch-class vocabulary, the first set of pcs in the accompaniment equates to a pitch-class set of {2, 6, 8, E}, or Forte label 4-27 with prime form of {0258} (Figure III.1).

Figure III.1. PC Set {268E}, from m. 1 of *Quatour*, II.

During the harmonic motion after m. 11, Gotkovsky utilizes the pitch classes D-flat, E-flat, G-flat, B-double-flat, and B-flat, or {1369T}. If we momentarily disregard the B-flat, pc T, then the remaining set, {1369}, bears considerable resemblance to the first pc set Gotkovsky employs. In prime form, {1369} reduces to {0258}, the same pc set as the opening; therefore the second set can be considered a T7 of the first, with one added pitch class (Figure III.2).

Figure III.2. PC Set {1369T}, from m. 12 of *Quatour*, II.

By adding a pitch class, in this case, B-flat, Gotkovsky is able to not only expand the pitch-class language of the piece, but also the harmonic language, moving between two minor triads rather than a diminished triad and a minor triad. Awareness of the pitch class material in the opening section helps to connect the first group of harmonies to the second

in a meaningful way; additionally, the performers can better understand the significance of concert B-flat (pc T) and emphasize its arrival.

The next broadening of pitch-class material in the accompaniment occurs on the downbeat of m. 15, where the three harmonic voices sound an A minor triad, adding pc 0 to the current pc set. The resulting set becomes {01369T}, or Forte label 6-27 with a prime form of {013469}. After a fermata in m. 18, a new set of harmonic material appears in baritone, alto, and soprano, with tenor again playing a collection of pitch classes that begins with {024T} in the m. 19; the next measure adds pcs 1, 9, and 5, while the following measure adds pcs 6 and 8. The final set, {01245689T}, is nearly the complete twelve-tone collection, lacking only pcs 3, 7, and E, all of which appear within the first two beats of m. 24.

Beginning at m. 24, the accompanying voices have introduced all twelve tones, and the *crescendo* to *fortissimo* is therefore supported structurally. Gotkovsky alters the texture, meter, and dynamic, also calling on all four voices to play *espressivo*. Although the division of the beat and nearly homophonic texture may suggest to the players that the section should move ahead, the tempo marking, *calme*, requires restraint through the more emotive section to follow. The long, singing lines utilize triadic harmony, particularly in the upper three voices, which move in homophonic texture.

Beginning on beat 2 of m. 25, soprano and baritone move in a series of minor thirds, while inner voices fill in the resulting harmonies, which are no longer solely triads, but a combination of seventh chords, clustered chords, and some triads. Although the intonation of each of these sonorities will require different adjustments, all players should be aware of the major third relationship between baritone and soprano. Since these two voices sound

most prominently in the thickly scored texture, soprano should adjust the intonation of the major third lower in relation to the baritone pitch.

In m. 28, all four voices begin to ascend, spelling first-inversion major triads throughout the section. Between mm. 28-30, the harmony consists entirely of major triads, with roots on C, E-flat, E, G, B-flat, D-flat, F, A-flat, and D. Since baritone has the third of each major triad, the pitch must stay relatively low in reference to equal temperament. This is a difficult task as the bass instrument, and the ensemble should practice building the triads first from the root and the fifth, before adding the baritone's major third. Fortunately, the voicing of each triad is the same, allowing for continuity while making adjustments for intonation.

After a *crescendo* to *fortissimo* and *molto ritardando* in m. 30, m. 31 marks the start of a new section of the movement. Baritone echoes the dotted-quarter-note motion from the opening, moving between concert C and concert F-sharp, while alto and tenor play a variation on the original theme. The two voices operate the interval of a major sixth apart, and soprano plays a decorative sixteenth-note motive over top, marked *sostenuto*. Beginning at m. 34, soprano moves in opposition to the remaining three voices, which move in parallel motion. Tenor plays a perfect fourth above baritone, while alto plays a minor third above tenor. The harmony shifts between three trichords, {15T}, {27T} and {47E}. The composite pitch-class set, {12457TE}, or Forte label 7-31 with a prime form of {0134679} differs from the pc set of the opening, {013469} of m. 15 by adding only one pitch class. Although these sections may seem far apart in terms of pitch-class content, numerical comparisons reveal the structural connection to earlier parts of the movement.

Measure 40 marks a return to the opening, recalling m. 3, now transposed up the interval of a major seventh. Alto again has the solo, while the other three voices provide harmonic support, moving between G half-diminished 7 in root position and in first inversion. At this point, the pitch-class set that constitutes the harmony contains pcs {1, 5, 7, T}. This is the same pc set as the opening, with Forte label 4-27 and a prime form of {0258}. When Gotkovsky again introduces new pcs, in m. 44, the pitch-class language includes {0, 1, 4, 5, 9}; although this section holds similarities to the opening, the pitch-class sets reveal how Gotkovsky uses different pitches in different part of the work. Instead of simply adding another spelling of Forte label 4-27 to the original material as in the beginning, Gotkovsky introduces a more clustered sonority, spelling a chord containing concert C-sharp, E, G and G-flat, or {1478}. A cadenza in the baritone marked *espressivo* closes with a concert E-flat. This figure functions in a half-cadential manner, preparing the listener for a return to A-flat half-diminished seventh in m. 49. This is a return to the material from the opening, only the solo line now appears in tenor rather than alto, but is still marked *molto espressivo*. Moreover, Gotkovsky alters the voicing of the harmony in the accompanying voices, as baritone begins with the concert E-double-flat. The harmony of the final section rests primarily on concert A-flat, made clear by the final note of the melody line. Gotkovsky then emphasizes the interval of the tritone by placing the E-double flat in the bass. Again, Gotkovsky recalls earlier motion in the bass (at m. 31) between the interval of a tritone. The result is a harmonic landscape that lies not in the key of A-flat, but that pulls from the pitch classes in set class 4-27.

CHAPTER IV
MOVEMENT III, “LINEARE”

In the third movement of *Quatuor*, “Lineare,” Gotkovsky sets a new textural landscape for the work thus far. She describes her writing in the movement as having an “unreal color,” and asks all four voices to utilize their entire vocal and timbral range, calling for all voices to play both “*sordino*” (muted) and “*Détimbré*.”¹⁶ The marking, *Détimbré*, stipulates that the performers should aim for a sound that is unlike one with “*timbre*,” or containing the entire harmonic content of a specific sound.¹⁷ In this case, Gotkovsky seems to be calling for a tone that is hollow in character, or one that creates fewer overtones. The title, “Lineare,” suggests a change in character from the harmonically-grounded material in the first two movements toward a more contrapuntal approach. In this movement, analysis will focus on the intervallic content of the melodic line in order to best facilitate good intonation. Moreover, this movement benefits from occasional rebarring in order to clarify the phrasal structure of the music. It will result from similar techniques as were used for rebarring the opening movement, without the formalism of Leirdahl and Jackendoff’s metrical preference rules.¹⁸

¹⁶ Ida Gotkovsky, “*Quatuor de Saxophones*,” *Ida Gotkovsky: A Life, a Work*, <http://www.gotkovsky.com/textes_versionFR/txt_fiches_des_oeuvres/ff_quat.htm>, accessed 11 April 2011.

¹⁷ <http://www.dolmetsch.com/defst2.htm>

¹⁸ Hopefully, by learning and understanding the principles inherent in rebarring, which depend upon Leirdahl and Jackendoff’s rules, musicians can begin to internalize those guidelines. Rebarring can then take place “on-the-spot,” without necessarily needing to consult external sources while working on music in a rehearsal setting.

The movement begins with soprano solo in the key of B-flat minor (motive A, Figure IV.1), meandering toward E-flat by beat 3 of m. 4. Gotkovsky accomplishes this modulation by arpeggiating a D-flat minor triad, followed by an A-flat minor triad; the motion by the interval of a fifth prepares the listener for the next motion by the same interval, from A-flat to E-flat.



Figure IV.1. Motive A, soprano saxophone, mm. 1-4 of *Quatour*, III.

At this point, alto enters with a new melodic motive (motive B, Figure IV.2) that rests primarily on a concert F-flat. More notably, the motive is based on pitch-class motion by a half step, first between the concert E-flat and F-flat in two octaves, and then between concert G-flat and A-double-flat. Gotkovsky then widens this interval to a major second, moving between G-flat and A-flat and finally from A-flat to B-flat.

Figure IV.2. Motive B, alto saxophone, and Motive C, soprano saxophone, mm. 4-6.

During the alto motive, soprano plays a countermelody based on the opening motive, but with augmented rhythmic values (motive C, Figure IV.2). Melodically, the motive begins the same as the opening, but transposed down the interval of a perfect fifth. After beat 3 of m. 5, however, the melodic material changes in order to allow the alto melody to remain prevalent. Additionally, Gotkovsky keeps the soprano countermelody in a fairly low and steady range, while the alto melody skips between the low and high registers, even soaring above the soprano from time to time. Both lines are both ascending in range and dynamic, leading toward the first point of homophony that occurs on the downbeat of m. 8. On beat 2 of m.8, all four voices enter together, in octaves and unison, with new melodic material. Based on arpeggios, this theme outlines F minor, D-flat minor, A-flat minor and G-flat minor before ascending with material that suggests the key of B, by resting on concert B at the end of a sol-do climb. Gotkovsky follows the “sol-la-ti-do” fragment with another ascending line that seems to begin in F minor but again borrows from the key of B. By suggesting the key of B, Gotkovsky prepares the listener for the tenor entrance in m. 11 that echoes the beginning motive, now transposed up one half step into the key of B minor.

After the transition, which closes with a solo descending line in the baritone, Gotkovsky introduces a new texture in m. 21, pairing soprano with tenor and alto with baritone. While the B-flat instruments play a variation of the opening motive in the original key, the E-flat instruments establish a drone, holding concert F-flat and C-flat. This new harmonic context alters the listener’s perception of the tonal center, which now emphasizes the baritone’s low F-flat. After one measure of drone, alto and baritone emerge from the texture in a bar of 5/16, quickly building in dynamic and then receding. The change in

meter highlights the asymmetrical nature of the motive, and soprano and tenor emphasize the change in time as they re-enter on the downbeat of the following bar. Therefore, Gotkovsky clearly establishes a measure of 5/16 both in the score and aurally, perceptible to the listener. In m. 23, the meter changes to 3/4, while the drone again supports the melody in the B-flat instruments. Although the next measure appears to continue in traditional meter, written in 4/4, the E-flat instruments re-create the 5/16 bar by repeating the same gesture that already appeared. However, due to the scoring of the motive, the E-flat instruments now see the group of five notes as a pickup followed by a beat of sixteenth notes. The manner in which performers play an isolated bar of 5/16 differs significantly from how they perform an anacrusis followed by a full beat of sixteenth notes in a traditional meter. Therefore, rebarring the excerpt to highlight the parallelism of the groups of five can aid musicians in the performance of this section (Figure IV.3).¹⁹

¹⁹ Lerdahl and Jackendoff.



Figure IV.3. Measures 21-30 of *Quatour*, III, tenor and baritone saxophones, rebarred.

In m. 31, alto emerges as the solo voice from the sustained texture, marked with a crescendo to forte and *cantando*, or “singing.” The other three voices, although in clearly secondary roles, still play contrapuntal melodic lines. Baritone begins with sixteenth notes on beat 1 of m. 32 that then pass to tenor on beat 2. When soprano enters with sixteenth notes on the last eighth note of m. 33, it then fills a space where the other voices are sustaining. The resulting composite rhythm, therefore, is never busy or cluttered, but dynamic and balanced by design. In order to highlight the intricate, contrapuntal structure of the accompanying parts, each player must be aware of when his or her part should come to the fore, and conversely, when it must be less noticeable. Moreover, soprano, tenor and

baritone must still listen to the alto, which is the lead voice until beat 4 of m. 38, when all four voices begin to move in triplet division of the beat.

Beginning at m. 40, baritone, tenor and soprano share the same rhythmic motion, moving in homophony, while alto is again set apart, filling the rhythmic gaps the other three voices create. At this point, it is important to consider the harmonies formed by the three homophonic voices in order to address intonation concerns. On beat 2 of m. 40, these voices sound an A major triad in first inversion, beginning a long series of first-inversion triads. After the A major triad, the voices move through C major, D major, F-sharp diminished, A-flat major, D-flat major, E major, G major, D major, F major, and A-flat major. Baritone must be sure to adjust the pitch of the third down in order to tune the major triads, while being aware that beat 4 of m. 40 is the lone diminished triad in the series. The player should alter the intonation of this note upward to accommodate the minor third within the triad.

After the A major triad on beat 4 of m. 42, the following sonority contains the pitches E, G-sharp, and C, from low to high. If the series of first-inversion triads were to continue, this chord would be considered a first-inversion C augmented triad. However, since the construction of the augmented triad is symmetrical, there is no way to distinguish between its inversions; furthermore, its resulting harmonic ambiguity foreshadows the more dissonant nature of the following transitional section that begins in m. 43.²⁰

Beginning in m. 43, soprano, tenor, and baritone play at *pianissimo* homophonically, while alto is set apart, moving between a concert A5 and G-sharp 6 on the following beat.

²⁰ Steven G. Laitz, *The Complete Musician: An Integrated Approach to Tonal Theory, Analysis, and Listening*, 2nd Edition, (Oxford, UK: Oxford University Press, 2007): 645-6.

The harmony throughout this transition, which lasts until the fermata in m. 48, utilizes a series of dissonant, clustered chords in similar motion. Each of the four voices is playing in the upper stretches of their respective registers, and Gotkovsky calls for the three homophonic voices to increase dynamic on beat 3 of m. 45, emphasizing the sixteenth-note division of the beat. In the following bar, the same voices should clearly delineate the changing division of the beat, from eighth notes on beats 1 and 2 to quarter-note triplets beginning on beat 3. If played forcefully, this *fortissimo*, harmonic declaration makes for a more convincing *subito piano* attack in all four voices on beat 2 of m. 47; the dissonant sonority becomes nearly unidentifiable as all voices trill, building in dynamic until the new section at m. 49.

Along with a change of meter, m. 49 also brings about a change in tempo, division of the beat, and style. The new melodic material begins with soprano and alto playing sixteenth-note triplets, still in close, dissonant harmony. The motive passes from alto to tenor, and finally to baritone, with each voice marked *declamando*. By beat 4 of m. 49, alto and soprano sound the interval of a major sixth, and tenor comes to rest on a concert F on the downbeat of m. 50, sounding a major sixth below alto. Although the resulting harmony is a second-inversion B diminished triad, the baritone B-flat on beat 3 of m. 51 serves as a new harmonic jumping-off point as well as the drone over which the next motive appears.

The motive at m. 50, played in the three upper voices, is the first restatement of the entire opening motive from its beginning. Prior instances of the opening theme (i.e., m. 11, tenor) begin partway through the motive, usually after the first two beats. Therefore, m. 50 serves as a strong point of return for the movement, foreshadowing the upcoming recapitulation that begins in the alto at m. 57. The restatement of the opening theme also

again utilizes strong triadic harmonies, sounding a series of major triads over a baritone drone. Each of the triads appears in first inversion; therefore, tenor must be aware of the intonation of the major third, particularly since the baritone note is only occasionally part of the sounding triad. After the upper voices repeat the same series of triads (A major, G major, B-flat major and C major), baritone moves in a series of half steps, recalling the alto motive from m. 4. Baritone comes to rest on a concert D-flat, again the drone for a different series of major triads in the upper voices, transposed down a major sixth. These triads, again in first inversion, begin with C major, moving through B-flat major, D-flat major, and E-flat major.

Triplet motion in baritone in m. 55 foreshadows the rhythmic augmentation that occurs in the following measure, as the sixteenth-note motion in the upper voices transitions to eighth-note triplets. Along with a marked *ritardando*, the effect for the listener is a gradual slowing of tempo, while still retaining the ratios between rhythmic values established in the sixteenth-note portion of the motive. The final triad, C major, sets the stage for the baritone solo that begins on the anacrusis to m. 57 with a concert C. The solo ends on a concert B-flat, the same pitch upon which alto enters on the second sixteenth note of beat 3, restating part of the opening motive in its original key of B-flat minor. Alto should be aware of this unison upon the entrance, matching the concert B-flat already established by baritone.

The recapitulation, although similar to the opening, differs both melodically and rhythmically, and the melody is an octave lower than the original soprano statement. The majority of the changes allow for an extension of the solo by four additional beats, despite its omission of the first two beats of the melodic line. The extension serves to modulate the melodic line before the entrance of the next motive, through the use of ascending scalar

fragments, the first of which appears on beat 4 of m. 58, suggesting a 5-flat key signature. On beat 2 of the following bar, Gotkovsky again suggests a 5-flat tonality with the ascending line but begins to incorporate other pitches in m. 60, including F-flat, G natural, and A natural. The downbeat of m. 60 also serves as a point of aural expectation; in the original statement, motive B appears after the parallel melodic material. The ascending lines in alto serve to modulate and extend the melody, in contrast to the opening statement. The alto line closes with the same line that suggests the 5-flat key signature, but rests on a concert G-flat. Gotkovsky alters the recapitulation once again, passing off the next motive, C, from alto to tenor, while soprano plays motive B.

At this point, both motives appear transposed up the interval of a major second (or the compound interval that reduces to a M2) as compared to the initial statement. The earlier scoring, which placed motive B in a similar range as the contramelodic motive C, is no longer present; motive B has the clearly principal role in a resonant part of the soprano range. The performers should note that this statement is marked one dynamic softer than the opening, remaining at *pianissimo* until the final eighth note in m. 65. In m. 64, Gotkovsky utilizes a metric indication that subtracts a sixteenth note from the measure, effectively creating a bar of 15/16. The next measure, marked 2/4, and m. 66, marked 4/4, also call for the subtraction of a sixteenth note. This technique derives from the work of Olivier Messaien, Gotkovsky's teacher and profound influence.

Beginning at m. 69, Gotkovsky recalls material from m. 11, now transposed up a half-step. Each voice retains the same role throughout the measure and into m. 70, when the music begins to differ from the original statement. Soprano takes over the melodic material, as the lower three voices play supportive, accompanying roles. The lower voices

recall the harmonic motion from m. 13, only now the rhythmic values are augmented from a sixteenth-dotted-eighth pattern to quarter notes and half notes. Therefore, although all voices are marked to *diminuendo* throughout mm. 71-72, they should resist the temptation to allow the tempo to slow in tandem. The rhythmic augmentation in the accompanying voices accomplishes the task of slowing any forward motion while the melodic line remains in time.

Measure 74 marks an amalgamation of many of the earlier themes of the piece; the dotted-eighth-sixteenth figure in alto and soprano recalls motive C (originally appearing in soprano), while beats 3 and 4 of the measure melodically recall motive A. The soprano countermelody functions contrapuntally, becoming active when alto and tenor hold longer durations. Baritone's concert G-sharp drone forms the root of a G-sharp diminished triad, the harmony which supports the following three measures. A *ritardando*, along with lengthening of rhythmic values, marks the beginning of a new section at m. 77. Tenor plays a melodic line beginning on the second sixteenth note of beat 1 that baritone echoes beginning on the fourth sixteenth note of beat 2. The canon ends in m. 79, when all four voices play quarter notes on beats 2, 3, and 4, sounding D-flat minor, B-flat minor, and A-flat major triads. Alto plays the third of each of these sonorities, and should adjust intonation accordingly, particularly taking note of the major triad on beat 4 of m. 79.

The final section of the work, which begins at m. 80, features baritone with melodic motion. The three upper voices sound F minor, while the baritone melody rests primarily on concert F. In measure 82, the melodic line passes to alto and finally to soprano, before the final cadence. With all voices in unisons and octaves, the melody closes with concert D-flat, F, E-flat and a final F. The motion from E-flat to F seems to function as a "te-do" closing, recalling the same whole-step cadence from the first movement.

CHAPTER V
MOVEMENT IV, “CANTILENE”

The fourth movement of *Quatuor*, “Cantilène,” calls for a fifth voice, another alto saxophone, to reinforce the harmonies behind the extensive alto solo. Although some quartets omit this movement in performance because of the change in instrumentation, it will be included in this analysis, keeping in mind that the second alto part is *non-obligé*, and therefore not crucial for making harmonic and rhythmic decisions. *Cantilène* translates to the Latin, *cantilena*, meaning a lyrical melody performed in a smooth style.²¹ *Cantilena* can also refer to a vocal exercise that utilizes the entirety of a scale, a facet of the term that Gotkovsky may be utilizing in the central motive of the movement.²² In this movement, triadic harmony again underlies the linear nature of the melody; through these harmonies, Gotkovsky continues to shift mode. An informed performance benefits from an analysis of the vertical harmonies while still recognizing the importance of melodic counterpoint.²³ Changes in mode, particularly between parallel major and minor keys, mark cadential moments and outline the structural layout of the music.

²¹ “cantilena,” in *The Oxford Companion to Music*, edited by Alison Latham, *Oxford Music Online*, <<http://www.oxfordmusiconline.com/subscriber/article/opr/224/e1133>> , accessed 30 November 2010.

²² Ibid.

²³ Ida Gotkovsky, “*Quatuor de Saxophones*,” *Ida Gotkovsky: A Life, a Work*, <http://www.gotkovsky.com/textes_versionFR/txt_fiches_des_oeuvres/ff_quat.htm>, accessed 11 April 2011.

The opening sonority refers to the opening movement, sounding concert B-flats and Fs, while alto plays D-flat, effectively forming a B-flat minor triad. Gotkovsky marks the solo alto part *molto cantando – ad libitum quasi Recitativo*, and the performer should feel free to take artistic and expressive liberties; however, it is important for the alto player to remember the implications of the harmonic sonorities in the other voices. In the opening measure, for example, alto is the only voice with the third of the minor triad, and he or she must be sure to keep the pitch higher than equal temperament for the best intonation possible. In m. 3, when alto comes to rest on a concert B-flat, it must be in tune with the baritone B-flat one octave lower, and if the second alto part is present, in unison with the same B-flat. This pitch is even more important as alto sustains over the barline while the other voices release; any change from the sonority already sounding will be apparent to the listener, and alto must match whatever B-flat is already present.

The alto melody utilizes most of the B-flat natural minor scale, which includes the pitch classes B-flat, D-flat, E-flat, F, G-flat, and A-flat. The melody suggests B-flat minor as tonic but avoids the leading tone or supertonic. Combined with the open fifths sounding in the accompaniment, the movement avoids traditional tonality. Additionally, the motion from A-flat to the tonic of B-flat recalls earlier cadential motion in earlier movements that also moved by the interval of a major second.

The first instance where the accompanying voices play any other pitch besides concert B-flat or F occurs in m. 11, where tenor and soprano move to a concert E; soprano

continues to ascend chromatically into the following measure, resolving to a G, while tenor ascends to D-flat (Figure V.1).



Figure V.1. Mm. 11-12 of *Quatour*, IV, baritone, tenor and soprano saxophones.

Alto melody also comes to rest on a concert G on the downbeat of m. 12, forming a harmonic landscape that is rather ambiguous. Because baritone and second alto continue to sound the same open fifth, grounded on concert B-flat, the performers should base the intonation of the resulting sonority upon that constant factor. Tenor, for example, should adjust the D-flat higher than equal temperament in order to form the minor third with baritone's B-flat. Although this action may suggest that the B-flat is the principal pitch in the harmony, the concert Gs in both alto and soprano take a more prevailing role for several reasons. First, G is the only doubled pitch; moreover, both alto and soprano ascend by half step to G. This motion, evocative of a leading tone, causes the listener to hear the G as the root of the chord, a G half-diminished 6/5. Therefore, although the ensemble's intonation must still come from the constant B-flat in baritone, the G, particularly the half-step ascent from G-flat to G, should come to the fore of the texture.

In the following measure, the harmony becomes increasingly dissonant, as soprano and alto move to concert As. Baritone reminds the listener of the tonic triad, outlining B-flat minor, but resolves to a concert A-flat, the seventh of the chord. By the downbeat of m.

14, the sonority consists of a concert A-flat, D-flat, F, and A, from low to high, all at the dynamic of *forte*. Solo alto punctuates the dissonance with a descending chromatic line; however, after the other voices release, alto reiterates the original pitch content of the opening, descending from D-flat to B-flat. This shift away from B-flat minor, first through the G half-diminished 6/5 in m. 12 and then through a series of dissonant, non-triadic sonorities serves as an attempt, and subsequent failure, to progress into new harmonic territory. Although the harmonies suggest the possibility of development, the chromatic descent and final “me-do” cadence in alto signal the return to the original tonality. The performers should work to emphasize this quality of striving to develop, being sure to *cresecendo* to a full *forte*. In response, the *poco ritardando* during the alto descent in m. 15 signals a return to the original key center of B-flat minor.

The accompanying voices re-enter on beat 4 of m. 16, again with concert B-flats and Fs. The scoring is, for the most part, an octave higher, although soprano now rests on tonic B-flat rather than F, as in the opening. As a result, the doubling of the accompanying open fifth changes, now with tenor as the only voice on the fifth. Tenor should be sure to come to the fore of the accompanying voices, particularly because the higher scoring of both soprano and alto will tend to dominate the texture if left unchecked. The alto melody is also marked an octave higher, although the dynamic is the same as the opening; therefore, alto should be sure not to play too strongly, in order to leave room for the *cresecendo* in m. 20. Gotkovsky does not allow the melody to rest as long in the same harmonic landscape as in the first statement, instead introducing the G half-diminished 6/5 chord on only the third measure of the melody, in m. 19. This voicing differs from m. 12 in that alto is the only voice with the concert G, and it appears an octave lower. As a result, Gotkovsky

foreshadows a more gradual harmonic shift, which takes place over the next eight measures. After the *crescendo* in m. 20, the accompanying harmony moves to B-flat minor-major 7. This harmony is similar to the clustered chord in m. 14 (A-flat, D-flat, F, A-natural), but functions more clearly over a B-flat in baritone. This constant drone allows the performers to continue to adjust intervals intuitively, in relation to the bass. Beginning in m. 22, alto and baritone begin to trade melodic fragments, while the remaining accompanying voices sound a B-flat diminished triad in first inversion. The addition of baritone and alto to the harmony add the minor 7th to the chord, creating a B-flat half-diminished 4/3 chord by the downbeat of m. 23. Although this harmony continues to under gird the melodic material for the next two measures, the change in texture suggests forward motion and development toward a new key area by beat 4 of m. 26. Alto trades chromatic fragments with baritone, with each gesture augmenting rhythmically, beginning with sixteenth notes in m. 22, changing to triplets in m. 23 and quarter notes in the following measure. Although the pattern does not augment exactly, the figures still provide the impression of *ritardando* without any actual slowing of tempo.

This decrease in tempo, however, is only the penultimate example of such before the end of the section in m. 26. In m. 25, alto begins yet another series of chromatic fragments, this time solo, that both augment rhythmically and are marked *molto ritardando*. Additionally, as the rhythmic values continue to increase, the motive truncates, shortening from four notes, to three, and finally to two. In the same way the performers brought out the “false modulation” before m. 15, they should emphasize the first set of rhythmic augmentation in mm. 22-24, while remaining at *forte espressivo*. This will serve to make a greater expressive impact throughout the alto *ritardando* in mm. 25-26, particularly if the performer matches the

decrease in tempo with a corresponding lessening of dynamic. If treated appropriately, the deceptive nature of this section has the potential to increase the impact of the eventual arrival.

Not only does the alto concert G on beat 4 of m. 26 mark a rhythmic arrival, but a harmonic one as well. Earlier, in m. 12, the harmonic motion moved toward G half-diminished, doubling the concert G; however, this shift never fully occurred, instead returning to B-flat tonic harmony by m. 16. In this instance, the harmonic change actually happens, and alto sustains a concert G across the barline into a new section beginning at m. 27. Tenor enters, *pianissimo* and *dolcissimo-legato*, with a sixteenth-note pattern that establishes G as tonic. Gotkovsky has not, however, settled into a traditional key; the arpeggio pattern in tenor vacillates between G major and G minor, never resolving to one or the other. Tenor should be aware of the harmonic implications of this new motive, but should remain *calme*, as marked.

When soprano enters in m. 29 with a lyrical melodic line, it begins on a concert G, as expected, given the harmonic context already established; however, it alternates between G and E, suggesting the minor third of an E minor triad. This harmony is reinforced on beat 3 of m. 30, when baritone, tenor, and alto 2 enter with concert Es and Bs. The opening soprano motive, therefore, acts as a “go-between,” linking G and E as simultaneous tonic areas. While the other voices are sounding the E minor triad, alto continues the sixteenth-note motive between G major and G minor. The other voices descend, spelling C-sharp minor, C minor, B minor and G-sharp minor triads before resting on an F-minor triad on beat 2 of m. 32. Soprano plays the third of each triad throughout the downward motion, so

the pitch should be adjusted higher in comparison with equal temperament in order for the minor third to sound in tune (Figure V.2).



Figure V.2. Mm. 29-32 of *Quatour*, IV, baritone, tenor, and soprano saxophones.

The sixteenth-note motive continues in alto, transposed down a minor third in m. 31 to outline E minor. The motive changes in m. 32, moving stepwise rather than continuing to arpeggiate triads. It still functions to obscure the mode of the section, however, as it centers on concert A during the sustained F minor triad. The lyrical, melodic line (now scored in four voices) begins again in m. 33, and the alto motive returns to its original function, moving between G major and G minor. The introduction of diminished harmony in the following bar signals an upcoming change, as all voices move to sound F-sharp half-diminished 7 chord in m. 35.

At this point, a *ritardando* and lengthening of rhythmic value (from sixteenth notes to triplets) also marks a changing of roles between alto and soprano, as soprano takes over the sixteenth-note motive. The lower voices continue to move in triads, first spelling F-sharp minor, then moving to E-flat minor, and unexpectedly, to F-sharp diminished in m. 38. The 2/4 meter of m. 38 signals the change, which occurs as tenor moves from concert C-sharp to C. Throughout this triadic motion, the sixteenth-note line in soprano moves in a meandering pattern, melodically spelling the sonorities sounding below before moving

stepwise to fill in the harmonic gaps. Although the active soprano line may appear to hold the most importance, Gotkovsky marks it *pianissimo*, as compared to the lower voices, which are marked *piano*. Therefore, soprano should add forward motion and interest to the slower, triadic lines, rather than looking for harmonic support from the lower voices.

In m. 39, the lower voices spell F-sharp minor, E-flat minor, and D minor, before cadencing on B minor (with second alto, the sonority is B minor-minor 7). The marked *ritardando* is made even more dramatic by the lengthening of rhythmic values in mm. 40-41 as tenor transitions from sixteenths to triplets, and finally to eighths, marked *molto ritardando*.

The soprano entrance on the second sixteenth note of beat 3 in m. 41 recalls m. 27; soprano alternates between spelling a minor third and a major third with B-flat as the root. The accompanying voices enter with sustained B-flats and Fs, signaling a return to the opening. As expected, alto enters, *mezzo-forte* and *con anima*, with the original theme from the opening. The scoring follows the first statements closely, until a soprano interjection with the sixteenth-note motive at m. 46. The presence of the sixteenth-note motive prevents the section from feeling like a true recapitulation of the opening; by questioning the mode of the melody, the piece does not come to rest. In m. 50, Gotkovsky quotes mm. 11-12, down an octave, as alto builds to *forte*. The remaining voices spell concert B-flats and Fs while alto descends chromatically, before ending with motion from concert D-flat to concert B-flat. Soprano does not yet allow the minor third to dictate the mode, however, as the sixteenth-note motive again recalls both B-flat major and B-flat minor.

After a fermata in m. 53, all voices *crescendo* to *forte*, with concert B-flats and Fs still constituting the texture. Alto, however, colors the sonority in a new manner, boldly moving to concert E, the interval of a tritone above baritone. Additionally, alto is scored above

soprano, allowing the tritone harmony to dominate the chord. With a final chromatic descent, alto again closes with motion between D-flat and B-flat. As the tempo slows, soprano allows the minor mode its triumph, and the sixteenth motive simply moves between concert F and E-flat. All voices close with open fifths, sounding B-flats and Fs and recalling the opening, except for baritone, which moves from concert B-flat down a major second to concert A-flat.²⁴ The presence of “te” in the bass rather than “do” creates the same uncertainty that the sixteenth-note motive did earlier in the movement. The piece yet again does not come to rest. Additionally, Gotkovsky reminds the listener of the whole-step cadential motion both earlier in the movement and in movements 1 and 3, now allowing both pitch classes to exist simultaneously.

²⁴ In the score, baritone has a concert A-flat on the final sonority. However, many ensembles close with baritone on concert B-flat, recalling the open fifths from the beginning of the work.

CHAPTER VI
MOVEMENT V, “FINAL”

The fifth movement (“Final”), probably the most often played of the quartet, is also the most technically challenging. Each player is required to execute extremely quick articulation, and the blazing tempo pushes even the most experienced players to their technical limits. Nevertheless, ensemble coordination in this movement is crucial but difficult to attain. A deeper understanding of the rhythmic structure of the movement, therefore, greatly contributes not only to the simultaneity of attacks, but also the organization of the piece as a whole.

The written meter of the movement, much like in movement 1, is not always representative of the perceived meter; the accents shift and barlines are not necessarily coordinated with “downbeats,” in the traditional sense. These accents provide more than simply a change in articulation; due to the repetitive nature of the pitch content in each voice, the accents also mark brief changes in pitch. These changes allow the listener to derive some sense of pulse and meter from an otherwise interminable rhythmic landscape. Moreover, Gotkovsky leaves large sections of the movement unbarred, which creates added difficulty for the ensemble. This chapter will investigate the role of accents in establishing the small-scale grouping and larger-scale meter of the movement by classifying their arrival on different attack points within a given beat. After establishing the framework upon which the opening of the work is based, barlines will be added to the unbarred sections of the work, utilizing the grouping preference rules developed by Fred Lerdahl and Ray Jackendoff

in their book, *A Generative Theory of Tonal Music*. In order to address the entire movement from a similar standpoint, this analysis will utilize beat-class techniques, which will allow the entire work to remain in the same modular system, rather than changing “meters.” Although beat-class analysis is generally reserved for minimalist works, most notably those of Steve Reich, the repetitive and rhythmically driven nature of the fifth movement is more easily discussed with reference to attack point rather than the traditional vocabulary of downbeat and upbeat. Gotkovsky writes the movement primarily in 6/8 meter with a clear division at the beat level (dotted quarter note). Therefore, rather than considering each measure to contain twelve beat classes, this analysis will utilize a mod-6 system, dividing each beat into six attack points, each with a duration of a sixteenth note. Furthermore, when the tempo of the piece changes, and the smallest division of the beat is at the first-division level (rather than the second), it will be easier to compare different portions of the work by continuing to use a mod-6 system based upon eighth notes.

Each beat, therefore, contains six attack points, labeled 0-5. Throughout the opening section, Gotkovsky utilizes accents for three major purposes: first, the accents determine the grouping structure on a small-scale level, within each beat. Second, the accents denote the rhythmic imitation that happens between voices, both in a two-voice canon as well as a four-voice canon. Third, the accents serve to orient the listener to the pulse of the piece, as is conveyed specifically through a mod-6 division of the beat.

In the opening section (mm. 1 – 24), which serves as the thematic introduction to the movement, all four saxophones move in homophony, with the accents occurring together. The accents always occur at a change in pitch, while most of the unaccented notes are repeated. The grouping of repeated notes in relation to the accents, therefore,

determines how the listener perceives the pulse. The work begins with an accent in all four voices on the second sixteenth note of the measure, attack point (AP) 1. By placing an accent in the next beat on AP 0, Gotkovsky immediately establishes the mod-6 context from which she builds the piece. Throughout mm. 1-13 Gotkovsky groups the eighth notes differently from beat to beat; by placing an accent on AP 3 in m. 2, the first beat divides evenly into two sets of three sixteenth notes. This pulse is contrasted on the second beat of the next measure, where accents occur on APs 0 and 2. These accents divide the beat into a group of two sixteenth notes and a group of four sixteenth notes (Figure VI.1).



Figure VI.1. Measures 1-3 of *Quatour, V*, soprano saxophone.

The duple division of the beat continues through m. 13, when the opening motive beginning on AP 1 returns; Gotkovsky reinforces this return to earlier material by an immediate and drastic change in both register and dynamic. With the exception of m. 17, which places an accent on AP 3, the accents occur in groupings of twos (with stress on APs 0, 2, and 4).

At m. 25, the texture shifts from homophony to a two-voice rhythmic canon of sorts; the soprano and alto saxophone comprise one voice, while the tenor and baritone comprise another. Although the voices first appear to be purely imitative, Gotkovsky still retains the mod-6, beat-level division throughout this section of the piece. The canon begins with soprano and alto on AP 1, recalling the beginning of the piece and signaling the start of

another section. The tenor and baritone answer, beginning the same pattern on AP 4 (Figure VI.2).

The image shows a musical score for four voices (Soprano, Alto, Tenor, and Baritone) in 6/8 time, measures 25 and 26. The score is written on four staves. The key signature has one sharp (F#). In measure 25, the Tenor and Baritone parts have a rhythmic pattern of eighth notes with accents, while the Soprano and Alto parts have a similar pattern but with a different rhythmic structure. In measure 26, the Soprano and Alto parts have a rhythmic pattern of eighth notes with accents, while the Tenor and Baritone parts have a similar pattern but with a different rhythmic structure. The score is marked with measure numbers 25 and 26 in green. A blue vertical line separates the two measures.

Figure VI.2. Measures 25-26 of *Quatour, V.*

After the offset entrance between the two voices, the soprano and alto sustain for three full beats while the tenor and baritone have new rhythmic material. These rhythmic figures are then imitated in the soprano and alto, essentially exchanging the roles of the two voices (Figure VI.3). The canon continues until m. 32, where the voices begin to move in homophony again.



Figure VI.3. Measures 29-30 of *Quatour, V.*

The next point in the movement when Gotkovsky utilizes accents within the mod-6 system begins at measure 43. The tenor saxophone begins to repeat a motive, four sixteenth notes and an eighth note, beginning with an accent on AP 0 and continuing on each beat. In m. 45, the alto enters with the same rhythmic motive, only beginning on AP 2. Baritone begins the motive in m. 47 on AP 4, and soprano enters in the following bar, also on AP 4 (Figure VI.4). The full canon with all four voices lasts only one measure before an accent in all four voices on AP 3 in measure 50. An accent on AP 0 on the downbeat of m. 51 reorients the mod-6 system back with the barlines, and the voice move in homophony once again.



Figure VI.4. Measures 47-48 of *Quatour, V.*

Therefore, despite the entrances on different APs, Gotkovsky's use of accent clarifies the presence of the dotted-quarter-note duration as the beat. When all voices return with a simultaneous accent, the beat is further elucidated, with regular accents on AP 0.

Another would-be canon begins in measure 92, after a change of meter signature. Gotkovsky writes the section in 3/4 meter, and the first division level, the eighth note, is the smallest note value present. Therefore, the mod-6 system utilized in the opening section continues to function, with each bar comprising a set of six eighth-note attack points. The primary motive, which begins in the baritone on AP 0, is seven eighth notes long. However, after stating the motive twice, the line is interrupted, and the baritone places yet another accent on AP 0 of m. 95, beginning the motive once again (Figure VI.5).

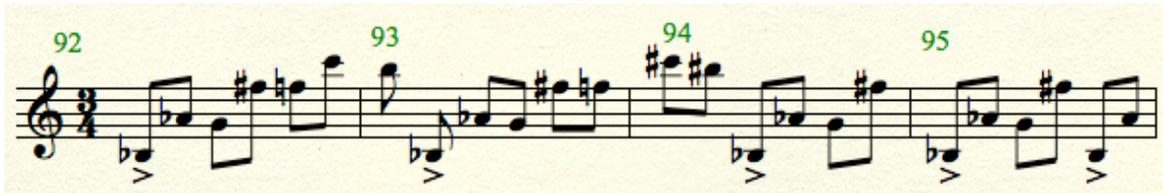


Figure VI.5. Measures 92-95, of *Quatour*, V, baritone saxophone.

When the alto enters on AP 4 of m. 95 it does so with the baritone. They state the motive twice and then reset the mod-6 system, placing an accent on AP 0 of m. 98. When the tenor enters on AP 2 of m. 98 it seems as if the canon will finally come to fruition; however, the soprano enters on AP 1 of the following measure (before the seven-note motive is completed in the tenor), and the three upper voices return to homophony, offset by echoes in the baritone.

When the meter signature returns to 6/8, the mod-6 system returns to its original function, describing sixteenth-note attack points within each beat. As the piece progresses, the importance of AP 1, upon which the movement begins, becomes increasingly apparent. Every return of the original motive takes place on AP 1. The secondary motive, which appears at m. 25 and again at m. 130, also begins on AP 1. At the very end of the work, a string of repeated pitches that begins in m. 190 and continues through m. 198 begins in the tenor and baritone on AP 1; the soprano enters on AP 1 in beat 2 of m. 191. Furthermore, all four voices have a *sf* accent on AP 1 of m. 194, accompanied by a change in pitch. Gotkovsky, therefore, not only brings a continuity of attack point throughout the movement, but also places structural importance on that attack point.

Measure 55 marks the beginning of a long passage that Gotkovsky leaves unbarred. I will attempt to add barlines to this section of the piece, taking into account both the mod-6 system that Gotkovsky has already established as well as grouping well-formedness

guidelines, as described by Lerdahl and Jackendoff. Although Gotkovsky leaves the section unbarred, by determining the grouping structure, we can better assess what the listener perceives from the rhythmic structure of the music.²⁵ Due to the presence of accents on nearly every sixteenth note in the unbarred section, other criteria, including pitch proximity, change in register, and parallelism must determine where barlines should be placed.²⁶

The unbarred section begins in the same meter from which it came; groups of six sixteenth notes repeat the same motive, regularly returning to the same pitch, concert E, at the start of each group. Conceivably, the first measure could instead be read as two measures of 3/8 meter, since the motive repeats after the time span of a dotted quarter note. However, Lerdahl and Jackendoff suggest that grouping notes into larger groups, rather than smaller subsections of them, is preferable.²⁷ Since the meter signature preceding the unbarred section is in 6/8, it follows that the listener would continue to hear that pulse until another one is clearly present. The second measure of the unbarred section brings this change; a measure of 7/16 followed by a measure of 5/8 most clearly delineates the groups from one another. Although the listener may not perceive exactly what irregular meter is present at a given time, the return of the original distinctive motive marks the beginning of a new measure. Therefore, the change in register between the arrivals of the motive, which

²⁵ Lerdahl and Jackendoff, 39.

²⁶ This analysis utilizes grouping preference rules rather than metrical preference rules. As Gotkovsky's work is not tonal, it does not follow the guidelines of harmonic rhythm prescribed in Lerdahl and Jackendoff's metrical preference rules. Therefore, the more essentially rhythmic guidelines meant for grouping structure apply more directly in this case.

²⁷ Lerdahl and Jackendoff, 43.

corresponds to Lehrdahl and Jackendoff's grouping preference rule 3, makes for a clear distinction when the motive returns and another barline can be drawn (Figure VI.6).²⁸

After drawing the first several barlines, it becomes clear where the “downbeat,” or the first attack immediately following a barline, should occur. As described in grouping preference rule 6, “where two or more segments of music can be construed as parallel, they preferably form parallel parts of groups.”²⁹ In this analysis, the goal is to establish the meter signature; therefore the most applicable parts of groups are anacrusis and downbeat. For example, the passage begins with a repeated set of sixteenth notes on concert E. When this same set of two sixteenth notes appears again, it should occur on the downbeat, or the parallel position in a different group.

²⁸ Ibid., 46.

²⁹ Ibid., 53.

Figure VI.6. Previously unbarred portion of *Quatour*, V, beginning at m. 55, with added barlines and meter signatures, soprano saxophone.

As the unbarred section continues, the presence of triplets foreshadows a change in musical content. Rather than unison concert Es, the four voices spell a diminished triad with a major 7th in the soprano, sounding concert G-sharp, B, D and G natural from lowest voice to highest. Despite the dissonant harmony on the repeated-sixteenth motive, the sonority still marks the parallel position in the grouping structure. Additionally, since the triplets act as the anacrusis to the original motive, they function the same way when they return in the eleventh measure. Several preference rules guide the addition of barlines in the end of the section. As a whole, the long string of triplets serves as a longer anacrusis to the

return of the original theme, beginning on AP 1 in m. 56. However, the change in register between the concert B4 in in the fourth group of triplets and the concert C-sharp 4 in the fifth group marks the beginning of a smaller group. When the triplets begin to divide into sets of twos, the change in articulation and, as a result, the division of the pulse, marks the beginning of yet another measure.

Gotkovsky writes another unbarred section of the piece beginning in m. 186.

Although it contains different pitch material, this section mirrors the first seven bars of the first, and it divides according to the same grouping preference rules (Figure VI.7).

Figure VI.7. Previously unbarred portion of *Quatour*, V, beginning at m. 186, with added barlines and meter signatures, soprano saxophone.

Lerdahl and Jackendoff's rule of parallelism is especially applicable when comparing the unbarred sections. Gotkovsky utilizes similar changes in register and attack point, calling for a similar interpretation when adding barlines.

CHAPTER VII

CONCLUSIONS AND IMPLICATIONS

Although every work for saxophone quartet, or any chamber ensemble, benefits from different analytical techniques, Gotkovsky's *Quatour* contains a variety of elements that can be discussed analytically. By focusing on the theoretical aspects of the work that will improve as a result of analysis, including intonation, form, meter, and melodic and harmonic structure, musicians can choose to use the appropriate analytical tool at the appropriate time.

If students conceptualize post-tonal analytical techniques not as complex formulas to memorize and regurgitate, but rather as an arsenal from which to draw, perhaps they will be more likely to utilize them in practice. This approach will help to make decision-making within the ensemble a more streamlined process and may even help to quell some interpersonal conflicts. Theoretical analysis can provide a more stable and trustworthy alternative to making interpretive choices based solely on intuition.

Although a full-scale analysis provides a large-scale perspective of the work, musicians can still use analysis in making specific decisions or when playing a single movement of a piece. In post-tonal works in particular, where composers often draw from the traditions of several different musical styles, the most accurate analysis may, in fact, be one that *does not* seek to apply a singular approach to an entire work. Therefore, calling upon a variety of methods not only allows for on-the-spot theoretical analysis, but may also be a more preferable way to look at a given piece.

Due to the ever-increasing number of new pieces and the continued popularity of saxophone quartets for new commissions, saxophonists should continue to develop their analytical skills if score study is to become a part of performance preparation. Traditional undergraduate music theory curricula often cannot or do not include sufficient training in post-tonal theory for students to meaningfully integrate the concepts into their practice. Therefore, faculty who choose to coach chamber ensembles that frequently perform new works, including saxophone quartets, should be sure to keep their theoretical knowledge both fluent and up-to-date. By allowing analytical skills to fade, a coach will not be able to serve her or his ensemble to the best of her or his ability. Deep theoretical understanding also benefits a coach in his or her individual performance, whether solo or in an ensemble.

By understanding the use of theoretical analysis outside of the theory classroom, students can more clearly recognize the importance of academic classes in music performance. Post-tonal chamber music certainly presents challenges, both in performance and analysis; by engaging with the music in meaningful ways in both arenas, theory can truly manifest itself in practice.

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