

CONTINUITY, MOTION, AND ENERGY THROUGH THE SPECTRUM:
AN ANALYSIS OF PHILIPPE LEROUX'S
UN LIEU VERDOYANT - HOMMAGE À GÉRARD GRISEY

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ABSTRACT

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In recent years the music of French composer Philippe Leroux (b. 1959) has become more widely programmed in the United States; yet, few of his acoustic works have been the subject of a thorough musical analysis intended for English-speaking audiences. The purpose of this document is to provide a comprehensive analysis of Leroux's composition for soprano voice and soprano saxophone, *Un lieu verdoyant - Hommage à Gérard Grisey*. After providing information concerning the background of both the composer and composition, this document presents a detailed, multilayer description of significant musical features within the piece, including pitch-space contour, dynamic intensity, density, and an analysis of vocal text. The continuity of these features between sectional divisions is examined, in order to form meaningful conclusions about the work's existence as a unified whole. These conclusions are a synthesis of analytical data obtained through score study, research concerning Leroux's musical philosophies, correspondences with the composer, and pre-existing scholarly literature on the subjects of musical continuity and Spectral Music.

After encoding the score, using numeric data points as representations of pitch, intensity, and duration, graphic visualizations were created to facilitate the comparison of distinct musical sections. A final analysis shows an underlying compositional process at the heart of *Un lieu verdoyant - Hommage à Gérard Grisey*, which illustrates Leroux's preoccupation with the notions of continuity and motion during the time in which this piece was written.

In loving memory of
Carla Anne Ciancio Smith
(January 20, 1962 – May 31, 2013)

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INTRODUCTION

0.1. Research Topic

In recent years, the music of French composer Philippe Leroux (b. 1959) has become more widely programmed in the United States; yet, few of his acoustic works have been the subject of a thorough musical analysis intended for English-speaking audiences.¹ The purpose of this document is to provide a comprehensive analysis of Philippe Leroux's composition for voice and soprano saxophone, *Un lieu verdoyant - Hommage à Gérard Grisey*, which will be referred to as *ULV* from this point forward. This analysis will include a detailed, multilayer description of the significant temporal and harmonic features of this chamber work. The "growth" and "continuity" of these features shall be evaluated in order to form meaningful conclusions about the work's existence as an organically unified whole.² These conclusions will comprise a synthesis of analytical data obtained through score study, research concerning Leroux's musical philosophies, and pre-existing scholarly work in the field of music theory and cognition. A thorough examination of this piece will not only highlight the salient musical features contained within *ULV*, but it will also present an English-speaking audience with greater insight into the compositional process of this important contemporary French composer.

1. Leroux's *Continuo(ns)* (1994) has been the subject of an extensive analysis (in French) by musicologist Michel Vilella (see bibliographic entry Vilella, 1999).

2. See section 0.4 for definitions of the terms *growth*, *continuity*, and *organic unity*.

0.2. Document Organization

This document's introduction contains definitions of key concepts and terminology that will be utilized throughout the remaining text; it includes a brief review of the current scholarly literature associated with Philippe Leroux, in addition to information related to the development of Spectralism in France. In Chapter One, "Background Information," I provide the reader with information about Leroux's musical development, stylistic influences, compositional philosophy, and his creative process; I also summarize the development of *ULV* within the context of the composer's musical oeuvre. The second chapter, "Descriptive Analysis of *Un lieu verdoyant - Hommage à Gérard Grisey*," contains a description of the analytical methods used to quantify and transform musical data into meaningful visualizations, in addition to a detailed microanalysis, middle-analysis, and preliminary macroanalysis of this piece for voice and soprano saxophone.³ The final chapter, "Macroanalysis and Conclusion," is a brief summary of growth and continuity related to the salient musical aspects of *ULV* identified and described in Chapter Two.

0.3. Primary Literature

The sources mentioned within this text are taken from three general categories. The first category consists of audiovisual, digital, or print source material associated with the life and work of composer Philippe Leroux (i.e., musical scores, audiovisual recordings, websites, journal

3. The terms microanalysis, middle-analysis, and macroanalysis have been taken from John D. White's *Comprehensive Musical Analysis*. Definitions of these concepts are provided in the second chapter of this document.

articles, and books). Print materials from the realms of music theory, philosophy, and music cognition populate the second category, while sources from the third category are related to the study of French Spectral Music.

0.3.1. Sources Concerning Leroux and His Music

Philippe Leroux's biographical background information has been gathered from the composer's official website,⁴ an entry in *Grove Music Online* by Dominique Druhen,⁵ and interviews with Philippe Leroux conducted by Elvio Cipollone⁶ and Yiorgos Vassilandonakis.⁷ Additional interviews conducted by Sophie Stévanca and Christophe Bruno provided supplementary insight into Leroux's thoughts concerning music and composition in the late-twentieth and early-twenty-first centuries, and they served as models for my own correspondence with the composer.⁸ Much of the information presented in this document pertaining to Leroux's compositional philosophies has been extracted from texts written—or co-written—by the composer. Of particular interest, *Musique, une aire de jeux* and *Musique contemporaine: une solution de continuité* were invaluable resources during the analysis of *ULV*.⁹

4. Philippe Leroux, "Index," The Official Website of Composer Philippe Leroux, <http://www.lerouxcomposition.com/en/index.html> (accessed March 02, 2013).

5. Dominique Druhen, "Leroux, Philippe," in *Grove Music Online / Oxford Music Online*, <http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/grove/music/45090> (accessed September 10, 2012).

6. Philippe Leroux, *Musique, une aire de jeux: Entretiens avec Elvio Cipollone* (Éditions MF, 2009).

7. Yiorgos Vassilandonakis and Philippe Leroux. "An Interview with Philippe Leroux." *Computer Music Journal* 32, no. 3 (Fall, 2008): 11–24.

8. See Appendices F and G for correspondence between Andrew Martin Smith and Philippe Leroux.

9. In addition to the materials previously described, several recordings of *ULV* were consulted during the process of analysis, including a recently released album, "I Vapor Breath," with a

0.3.2. Sources Concerning Music Theory, Philosophy, and Music Cognition

The sources in this category provided a framework for my exploration of *ULV*. Much of the theoretical terminology found in this text was taken from the writings of theorists Jan LaRue and John White. While their writings predate the composition of *ULV*, their terminology traverses stylistic boundaries, and is applicable to the analysis of this piece. The philosophical ideas of Henri Bergson greatly influenced my understanding of time and motion, while various authors in the field of music cognition informed my opinions regarding the perception of rhythm and gesture.

0.3.3. Sources Concerning Spectral Music

It is difficult to capture the essence of any musical style in a concise passage of prose. This difficulty only increases when discussing a style that can be considered relatively young, as questions may linger regarding the identification of its fundamental characteristics. If the music in question originates from a foreign culture, then the problem of understanding the salient features of its style is compounded. A vast majority of research concerning Spectralism is published in French.

Fortunately, English-speaking audiences have been given a window into the world of Spectral Music through a series of articles written within the past twenty years. The most

performance given by Amanda DeBoer Bartlett (soprano) and James Fusik (soprano saxophone). Other performances—given by Lieke Beirnaert and Ryan C. Lemoine, Fabienne Séveillac and Joshua Hyde, and Amanda DeBoer Bartlett and Ryan Muncy—also contributed to my understanding of this piece. They are currently available for Internet viewing via YouTube. (See Recordings section of Bibliography for details.)

comprehensive collection was published in *Contemporary Music Review* in the year 2000. It featured the writings of several key figures associated with Spectralism, and included a detailed appendix of terminology pertinent to the discussion and analysis of Spectral Music. After consulting this collection, several applicable concepts and terms were considered during the analysis of *ULV*. These concepts are discussed in Sections 0.4.4. and 0.4.5.

0.4. Important Terms and Concepts

While terminology used in this document is generally defined as needed within the context of specific sections, there are a number of concepts that deserve special consideration. Definitions of these terms (i.e., *continuity*, *topology*, *motion*, *energy*, *timbre*, *Spectral Music*, and *organic unity*) have been taken or synthesized from the sources outlined in Section 0.3. All of these concepts are interrelated since the substance of their individual definitions is tied to an understanding of the broadest term among them: *organic unity*.

John D. White has elegantly defined the notion of organic unity within the following passage:

A scientific definition of organic unity denotes a state in which all of the parts contribute to the whole and in which none of the parts can exist independently. For musical purposes, however, organic unity can be defined as the binding relationship among all of the parts of a musical composition. In a repetition with a changed instrumentation, this unity is clearly apparent in that all of the pitches, rhythms, and textures remain the same. When completely new thematic material is introduced, unity may be found in the relationship of the new material to a previous tempo, rhythm, melodic style, or instrumentation. Presumably, in a well-wrought piece of music, organic unity can be observed in any of its parts.¹⁰

10. John D. White, *Comprehensive Musical Analysis* (Metuchen, NJ: Scarecrow Press, 1994): 23–24.

This definition does not carry with it any stylistic bias. For this reason the abstract notion of organic unity can be found in a wide variety of compositions. Ideas related to the term *organicism* are evocative of Schenkerian analysis. The development of melodic and/or harmonic motives, however, is not being considered in the traditional sense within this document. The binding relationship between *ULV*'s musical components is found in the development of process.¹¹

0.4.1. Continuity and Topology

Before exploring the music of Philippe Leroux, one should possess some familiarity with the concept of continuity. Generally defined as, “uninterrupted duration or continuation, especially without essential change,”¹² continuity is a designation that is applied to an infinite realm connecting two separate states of existence. When we speak of continuity between two states, we speak of something that links these states together in a continuum, in which we can conceive of an infinite number of intermediary states. These intermediaries are discrete elements of a single—more abstract—entity. Take for example the continual transformation of H₂O through its solid, liquid, and vapor forms. Without having seen the transformation it might be difficult to conceive of these phenomena as discrete states of the same substance; yet, we understand ice, water, and water vapor to be the same chemical compound. These states share a fundamental component that makes them essentially the same. By identifying this component, we come to

11. See section 0.4.5.4. for a definition of *process* related to Spectral Music.

12. *Merriam-Webster.com*, s.v. “Continuity,” <http://www.merriam-webster.com/dictionary/continuity> (accessed March 19, 2013).

know and understand the essence of water itself, regardless of its momentary, superficial characteristics.

This is also true of sound, which is a continuous phenomenon.¹³ Consider the Doppler effect. As a resonating body approaches a listener's fixed position the apparent intensity of that sound increases. As the sound source moves further away there is an apparent decrease in sonic intensity, until the sound is no longer audible. This modulating intensity is accompanied by a perceived change in pitch, as the sound source moves relative to the listener. The sound's frequency seems to rise on approach, and fall as the sound departs. In spite of the apparent changes in frequency and amplitude the listener would have little trouble identifying this sound as a single phenomenon, since the sound's continuity was never broken during the perceived transformation. Even though I have described this phenomenon in a series of discrete stages (i.e., approaching sound, passing sound, fading sound) it should be understood that the entire trajectory of the sound is a single, continuous unit. According to Philippe Leroux and Christophe Bruno we can consider musical passages in the same manner: "For convenience we cut a melody into separate notes, but in reality, this melody is indivisible. Its movement is perceived as continuous."¹⁴

In order to better understand the notion of continuity one must consider how discrete components are grouped into a single entity. The Gestalt psychologists of the early twentieth century conducted seminal research that sought to explain how humans organize perceptual input. There are five Gestalt principles of grouping:

13. Philippe Leroux, "...phraser le monde: continuité, geste et énergie dans l'oeuvre musicale," *Circuit* 21, no. 2 (2011): 30.

14. Philippe Leroux and Christophe Bruno, "Musique Contemporaine: une solution de continuité," in *La création après la musique contemporaine*, collected and presented by Danielle Cohen-Levinas, 23–40 (Paris: L'Harmattan, 1999): 24. (translation by author)

- 1) *proximity*: objects that appear close together seem to be part of the same group;
- 2) *similarity*: equally spaced objects that appear to be similar tend to be grouped together;
- 3) *symmetry*: the probability of encountering related objects that exhibit symmetry is greater than the probability of encountering unrelated symmetric objects in nature; therefore, symmetrical objects are considered to be part of the same group;
- 4) *good continuation*: collinear objects tend to be grouped together;
- 5) *common fate*: objects that move together likely belong to the same group.¹⁵

Although these principles were primarily used to understand the way in which humans group visual images, numerous studies from the later half of the twentieth century have shown that these grouping mechanisms are relevant to auditory perception.¹⁶

The idea of continuity is also relevant in the mathematical field of topology, which allows for correlations between mathematics and music. Topology is the study of objects and spaces; it is the search for a qualitative understanding of figures. Leroux and Bruno have illustrated the difference between qualitative and quantitative studies: “While geometry deals with distances, lengths, and shapes, topology is concerned with continuity. For example, from the topological point of view, a cup with a handle and a torus are equivalent, while their shape—their geometry—is different.”¹⁷ Two objects are considered to be topologically equivalent if it is possible to pass from one to the other through some continuous, non-destructive transformation

15. Roger Shepard, “Cognitive Psychology and Music,” in *Music, Cognition, and Computerized Sound: An Introduction to Psychoacoustics*, edited by Perry R. Cook, 21–35 (Cambridge: The MIT Press, 1999): 32.

16. Diana Deutsch, “Grouping Mechanisms in Music.” in *The Psychology of Music*, 2nd ed., edited by Diana Deutsch, 299–348 (San Diego: Academic Press, 1999).

17. Philippe Leroux and Christophe Bruno, “Musique Contemporaine: une solution de continuité,” in *La création après la musique contemporaine*, collected and presented by Danielle Cohen-Levinas, 23–40 (Paris: L'Harmattan, 1999): 28.

(e.g., stretching, compressing, folding, or bending). In this way, a cup can be viewed as a transformed torus.

0.4.2. Motion

It is important to recognize that the notion of a discrete, fixed state of existence is an artificial construct. Thinking about an ice cube as a static object, for example, denies the inherent motion that it possesses. Objects exist in a continuous state of transformation: a journey through time.

The French philosopher Henri Bergson (1859–1941) argued that motion and time were indivisible concepts. Through writings such as *Time and Free Will*, *Matter and Memory*, and *The Creative Mind*, Bergson became one of the most influential philosophers of the late 19th and early 20th centuries. His concept of multiplicity, which attempts to unify the contradictory notions of heterogeneity and continuity, has been deemed a revolutionary contribution to philosophical thinking.¹⁸

Bergson urged philosophers to consider time without confusing it with the concept of static space. If one were to conceive of time in a linear manner (i.e., as a line in space), then the discrete events existing in time would lose all motion. This is because points on a line are fixed. Conceptualizing events in the past as fixed points in time limits our understanding of change and continuity, as events in time are never static.

Conceiving of time with words is equally problematic. As presented through the writing of Suzanne Guerlac, Bergson believed that, “thinking in time...will always be incommensurable

18. Leonard Lawlor and Valentine Moulard, “Henri Bergson,” *The Stanford Encyclopedia of Philosophy*, Spring 2013 Edition, edited by Edward N. Zalta, <http://plato.stanford.edu/archives/spr2013/entries/bergson/> (accessed April 16, 2013).

with language, which crushes duration through its very iterative structure. We repeat the same word to name a variety of things at different moments, when, in actuality, nothing ever occurs in exactly the same way twice.”¹⁹ Time is continuous change, and continuous change is motion.

Organic growth is one piece of anecdotal evidence used to illustrate, highlight, or allude to the idea of motion through time. Growth is a type of change that can be experienced, measured, and evaluated. Through the continuity of our own growth we come to understand the significance of time, as it relates to our own existence.

Music—and all sound in general—exists within a temporal domain. It is born, grows, and eventually fades into a non-existence relative to the continuity of time. When musicians wish to discuss a composition’s temporal trajectory they usually describe various aspects of musical form (e.g., motives, phrases, periods, sentences, and sections); however, the term *form* is often associated with a fixed state of existence. Describing the development of a musical work in terms of a static shape is akin to describing time in terms of static space: all motion is lost. For this reason Jan LaRue has described the way in which a piece of music unfolds in terms of *growth*:

Growth...can be separated for analytical purposes into two parallel functions: Movement and Shape. Yet in making any such useful if artificial separations we must always somehow remain continuously aware of this indispensable unity-plus-duality: musical Shape is the memory of Movement. Fortunately the two aspects constantly remind us of their relationships in the recurrent process of articulation, a uniquely ambivalent transaction in music that both marks a node of change and yet maintains sufficient continuity to preserve and sometimes even to enhance the fundamental Movement. Only by accumulation of articulations can we recognize a growing Shape; and only by responding differently to the expressive entities that articulation bonds together (yet also partly segregates) can we sense the changes that govern musical flow.²⁰

19. Suzanne Guerlac, *Thinking in Time: An Introduction to Henri Bergson* (Ithaca, NY: Cornell University Press, 2006), 2.

20. Jan LaRue, *Guidelines for Style Analysis*, 2nd ed. (Warren, Michigan: Harmonie Park Press, 1992), 115.

Identifying and articulating the form of a musical composition is useful when one tries to describe an enigmatic piece of art to someone who has not experienced it. However, it is important to remember that articulating the shape of a piece, without acknowledging its defining motion, provides little understanding of musical growth.

The idea of musical growth is related to the concept of *gesture*. The word itself implies movement; gesture is inextricably linked with time and growth. When discussing music's temporal components one must invariably describe the related concepts of *duration* and *rhythm*. All things that exist in time have duration. That is to say, duration has a starting point (onset) and an ending point (conclusion). Musical rhythm is the perceived relationship between distinct durations. For more precise definitions of these fundamental terms—as well as other salient terms associated with the temporal understanding of music—I refer to the writings of two music cognition scholars: W. Jay Dowling and Dane L. Harwood:

Duration is the psychological correlate of time. *Beat* refers to a perceived pulse marking off equal durational units. *Tempo* refers to the rate at which beats occur, and *meter* imposes an accent structure on beats. [...] *Rhythm* refers to a temporally extended pattern of durational and accentual relationships. Usually, rhythmic patterns are repeated, creating expectancies about future events. Where the events in a piece are of different durations and the beat is hard to determine unambiguously, we use the term *density* to refer to an average presentation rate taken across events of different duration (often expressed in notes per second).²¹

Knowledge of these related concepts is vital to our understanding of musical time,²² yet through the extension of these ideas we can form connections between musical time and other types of

21. W. Jay Dowling and Dane L. Harwood, *Music Cognition*, (Orlando: Academic Press, 1986): 185.

22 . It is interesting to note that Dowling and Harwood make a distinction between compositions based on *ontological time* (i.e., associated with the normal flow of time; clock time) and *virtual time* (i.e., disassociated from the normal flow of time). For our purposes the distinction between these two perceptions of time is irrelevant; motion is fundamental to both

motion. As aesthetic theorist Susanne Langer noted, “the essence of rhythm is the preparation of a new event by the ending of a previous one. A person who moves rhythmically need not repeat a single motion exactly. His movements, however, must be complete gestures, so that one can sense a beginning, intent, and consummation, and see in the last stage of one the condition and indeed the rise of another.”²³ Additional connections have been made between our perception of duration as rhythm and human movements (i.e., gestures):

We can only hear a series of notes as rhythm if their durations fall within a fairly narrow range. The shortest durations cannot be less than a tenth of a second, while the longest interval between successive note onsets cannot be more than about two seconds. The range for musical rhythm overlaps in significant ways with the ranges for other human motor activities, most notably walking and running. This is not surprising, as our sense of musical rhythm and motion is bound up with the sensorimotor system that controls our own bodily movements. Thus the way we move informs the way we hear and understand musical gestures (and, perhaps, vice-versa).²⁴

In a paper concerning semiotic gesture musicologist Ole Kühl stressed the importance of musical gesture as it, “epitomizes human expressivity.”²⁵ Kühl noted that, “[Musical gesture] represents an implied level of communication, in which a musical phrase signifies a gesture. In this way, gesture becomes the key to the understanding of musical meaning.”²⁶ The richness and depth of our gestural awareness can be understood through the following passage:

The musical gesture is a cognitive phenomenon, emerging in the mind in response to musical priming. When we listen to music, what we actually hear is an auditory stream, which is subsequently being processed by auditory perception. In order to economically

ontological and virtual time. I have elected to use the term *musical time* to refer to any and all time perceived within a given composition.

23. Susanne Langer, *Feeling and Form*, (New York: Scribners, 1953): 117.

24. Justin London, “Musical Rhythm: Motion, Pace and Gesture,” in *Music and Gesture*, edited by Anthony Gritten and Elaine King, 126–141, (Burlington, VT: Ashgate, 2006): 126.

25. Ole Kühl, “The Semiotic Gesture,” in *New Perspectives on Music and Gesture*, edited by Anthony Gritten and Elaine King, 123–130, (Burlington, VT: Ashgate, 2011): 123.

26. Ibid.

and effectually process the sonic stream of information, our cognitive apparatus stands in need of organizing input in *chunks* of a certain size. These chunks are represented amodally in the mind as *gestalts*, and variously described as *moving forms*, *vitality affects*, and *energetic shaping*. Musical gesture stems from the generic level of perception, where it is tied to gestalt perception, motor movement, and mental imagery. Gestures, accordingly, are rich *gestalts* that combine auditory information (hearing the movement) with implied visual information (imagining the movement), somatosensory information (feeling the movement), and emotional information (interpreting the movement).²⁷

Through the application of gestalt grouping principles we piece together discrete auditory chunks into musically idiomatic units. The term *idiomatic construction* has been used by cognition scholar Mary Louise Serafine to describe a musical coherence that is dependent upon the organizational rules of a particular idiom:

The psychological implication of idiomatically constructed units is this: Sound events that are logically discrete and isolable (e.g., pitches) in fact are perceived or felt as a continuous gesture. The separate tones of a melody are perceived in a continuous sweep so that earlier tones are somehow tied to later ones, even after the former have quit sounding. The result of this—that the effect of now-silent tones is still felt upon the remaining tones of a unit—is that units project shape, contour, and direction. The “rising line” of an ascending melody is impossible without the knitting together of earlier and later tones, though the former have ceased by the time later ones sound. The idiomatic construction of units is a matter of cohesion during or within succession.²⁸

Gesture is the memory of movement experienced through the association of successive, discrete, musically idiomatic components. This is how we perceive the continuity of a musical passage. When we hear and imagine gesture within a musical passage we are experiencing motion. The memory of this motion helps us conceptualize growth (i.e., change over time). Musical growth is the gestalt trajectory of a composition; it is the temporal motion of music.

27. Ole K hl, “The Semiotic Gesture,” in *New Perspectives on Music and Gesture*, edited by Anthony Gritten and Elaine King, 123–130, (Burlington, VT: Ashgate, 2011): 125.

28. Mary Louise Serafine, *Music as Cognition: The Development of Thought in Sound*, (New York: Columbia University Press, 1988): 75.

0.4.3. Energy

Within the context of this paper, energy is discussed and evaluated through the examination of three musical parameters: tempo (i.e., speed), dynamics (i.e., loudness), and texture (i.e., density). Of these three parameters, loudness is the most difficult to quantify. It is a more subjective, context-dependent phenomenon. In his book *The Musician's Guide to Perception and Cognition* David Butler states that, "The perceptual measurement of loudness is related to the physical measurement of intensity, but there is not a direct correlation between the two systems of measurement."²⁹ The intensity of a sound, which is typically expressed in decibels (dB), is not the same as our sensation of that intensity; this is well documented in a study conducted by scientists Harvey Fletcher and Wilden Munson.³⁰ Philippe Guillaume, a French professor of mathematics and musical acoustics, presented a simple explanation for—and example of—this disassociation in his book *Music and Acoustics: From Instrument to Computer*: "First of all, we only hear sounds for a range of frequencies between 20 Hz and 20 kHz. But even inside this interval, for a given decibel level, loudness varies depending on the frequency. In particular, hearing shows a sensitivity maximum between 3,000 and 4,000 Hz, allowing [for example] the piccolo to effortlessly stand out in a *tutti* orchestra." Higher frequencies seem to be louder than lower frequencies produced at the same level of intensity. Since a scientifically accurate assessment of dynamic energy is impractical for use in this context, the printed dynamic level of each musical passage in *ULV* will be used as a basis for comparison, regardless of how we perceive energy within the frequency spectrum.

29. David Butler, *The Musician's Guide to Perception and Cognition* (New York: Schirmer Books, 1992), 78.

30. Harvey Fletcher and Wilden Munson, "Loudness, Its Definition, Measurement and Calculation," *Journal of the Acoustic Society of America* 5, (1933): 82–108.

0.4.4. French Spectral Music and Timbre

According to composers Joshua Fineberg (b. 1969) and Julian Anderson (b. 1967), Spectral Music developed in Europe during the 1970s, with much of the movement centered in Paris, France. The principle figures associated with its development were Gérard Grisey (1946–1998), Tristan Murail (b. 1947), and Hugues Dufourt (b. 1943), the latter having coined the term *Spectral Music* in 1979.³¹ A universal definition of this musical genre has been difficult to codify. Fineberg insists that it is, “only through extended familiarity not just with a type of music, but also with its milieu, can one hope to develop meaningful categories that are more than mere simplified labels.”³² He also acknowledges that those who identify themselves as spectral composers may very well reject the categories and rigid labels ascribed to their personal style. This has created an ambiguity around the concept of Spectralism that several authors have attempted to clarify while this music has gradually taken shape.

In his article entitled, “A Provisional History of Spectral Music,” Anderson loosely categorized this difficult-to-define genre as something lacking a formal cohesion:

In attempting a historical and comparative survey of so-called ‘Spectral Music,’ therefore, it must be made immediately clear that few of the composers whose music might at one time or other have been described as ‘spectral’ had any conscious notion that they might have constituted a coherent group. There is no real school of spectral composers; rather, certain fundamental problems associated with the state of contemporary music, since at least 1965, have repeatedly provoked composers from widely different backgrounds into searching out some common solutions involving the application of acoustics and psycho-acoustics to composition.”³³

31. Julian Anderson, “Spectral Music,” in Grove Music Online, *Oxford Music Online*, <http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/grove/music/50982> (accessed September 10, 2012).

32. Joshua Fineberg, “Spectral Music,” *Contemporary Music Review* 19, part 2 (2000): 2.

33. Julian Anderson, “A Provisional History of Spectral Music.” *Contemporary Music Review* 19, part 2 (2000): 7.

While Anderson states that there is no school of spectral composition in the formal sense, the common acoustic and psycho-acoustic solutions to which he has referred point to the existence of quantifiable components that are present—to some degree—in all Spectral Music. Identifying these components, as well as determining their relative importance to any given composition and creator, has been the primary goal of various theorist, historians, and composers during the late-twentieth and early-twenty-first centuries.

In 1996 the composer and theorist François Rose stressed the significance of timbre and the harmonic spectrum within music of the spectralists. Rose stated that, “...although many composers have placed a strong emphasis on timbre, the composers of the spectral school have made it the main element in their compositions. They have also established the overtone series as their point of reference.”³⁴ Due to its importance, timbre has been defined in a variety of musical sources (e.g., Schaeffer’s *Traité des objets musicaux*,³⁵ or Roads’s *The Computer Music Tutorial*³⁶), each offering different levels of technical specifications. The *Harvard Dictionary of Music* describes timbre as tone color, or, “the character of a sound, as distinct from its pitch; hence, the quality of sound that distinguishes one instrument from another. It is largely, though not exclusively, a function of the relative strengths of the harmonics (and sometimes nonharmonic frequencies) present in the sound.”³⁷ It is important to remember that the relative strength of harmonics (i.e., the harmonic spectrum) varies within a given sound; therefore,

34. François Rose, “Introduction to the Pitch Organization of French Spectral Music,” *Perspectives of New Music* 34, no. 2 (Summer, 1996): 6–7.

35. Pierre Schaeffer, *Traité des objets musicaux* (Paris: Éditions du Seuil, 1966).

36. Curtis Roads, *The Computer Music Tutorial* (Cambridge, Massachusetts: MIT Press, 1996).

37. Don Michael Randel, ed., *The Harvard Dictionary of Music*, 4th ed. (Cambridge, Massachusetts: Belknap Press of Harvard University Press, 2003), 899.

defining the specific characteristics of instrumental or vocal timbre can become quite complicated. That being said, Philippe Guillaume has offered a simple description of the two fundamental characteristics that comprise timbre:

- 1) the sound's spectrum (i.e., resultant frequencies produced by the interaction of a vibrating body and a resonator);
- 2) the sound's envelope (i.e., the way in which a sound is born, lives, and dies).³⁸

Essentially, changes that occur within a sound's spectrum over time—the fluctuation of relative intensity between harmonic and/or inharmonic frequencies within a given sound envelope—contribute to an understanding of timbre, and provide ways of distinguishing one type of sound from another.

Like Rose, researcher Viviana Moscovich argues that timbre and the harmonic spectrum function as fundamental aspects of spectral composition. “In Spectral Music, the spectrum—or group of spectra—replace harmony, melody, rhythm, orchestration, and form. The spectrum is always in motion, and the composition is based on spectra developing through time and exerting an influence on rhythm and formal processes.”³⁹ The notion of various spectra replacing traditional elements of Western classical music need not seem destructive nor pejorative; in essence, timbre becomes the model upon which ideas related to harmony, melody, rhythm, orchestration, and form are conceived. Timbre is a macrocosm of subtle changes in frequency and amplitude over time. The relationship between microcosmic fluctuations in basic musical parameters and the perception of tone color is congruent. Thus, timbre becomes the foundation

38. Philippe Guillaume, *Music and Acoustics: From Instrument to Computer* (Newport Beach, California: ISTE USA, 2006), 89.

39. Viviana Moscovich, “French Spectral Music: An Introduction.” *Tempo*, no. 200 (April, 1997): 22.

for every musical construct, not simply an ornamental addition to predetermined compositional material.

Moscovich's article includes two lists of characteristics—one attributed to Tristan Murail, the other to Hugues Dufourt—that articulate the arguable precepts of Spectralism. Both stress that spectral composers adopt a global approach to form, maintain a congruent relationship between the macrocosm and the microcosm, and take a functional approach by balancing the relationship between conception and perception. The use of timbre as a structurally significant music element is a manifestation of the aforementioned characteristics; it is a tangible profession of these ideas.

In an article translated by Joshua Fineberg, Gérard Grisey articulates his own view of Spectralism in the following manner:

From its beginnings, this music has been characterized by the hypnotic power of slowness and by a virtual obsession with continuity, thresholds, transience, and dynamic forms. It is in radical opposition to all sorts of formalism, which refuse to include time and entropy as the actual foundation of all musical dimensions. Strengthened by an ecology of sounds, Spectral Music no longer integrates time as an external element imposed upon a sonic material considered as being 'outside-time,' but instead treats it as a constituent element of sound itself.⁴⁰

Grisey's reference to an obsession with time—a concept that is inextricably linked with the idea of timbre—and continuity reinforce the spectral tenets synthesized from Murail and Dufourt. The importance placed upon constituents of sound can be attributed to the significant influence of Electroacoustic Music in the mid- to late-twentieth century, as evident by this passage taken from writings of the composer Jonathan Harvey (1939–2012):

40. Gérard Grisey, "Did You Say Spectral?" Translated by Joshua Fineberg, *Contemporary Music Review* 19, part 3 (2000): 2.

History seems grand, for once; Spectralism is a moment of fundamental shift after which thinking about music can never be quite the same again. Spectral Music is allied to electronic music: together they have achieved a re-birth of perception. The one would scarcely have developed without the other. Electronic music is a well-documented technological breakthrough, Spectralism, in its simplest form as color-thinking, is a spiritual breakthrough.⁴¹

Like Harvey, Anne Sedes, an active researcher in the field of Electroacoustic Music, has acknowledged the ties that exist between Spectralism and the electroacoustic realm. She has also described several ways in which spectral composers have contributed to the creation and manipulation of musical material:

The spectralist movement, which has indeed touched upon approaches stemming from the manifold experiences of electronic music both in and outside of real-time, often focusing on the temporal more than on the frequency domain, has fortunately contributed to the integration of new methods, treating sonic material as a sound-source or sound-space, as a complex musical object, as a linguistic element whose perceptual dimensions are equally assimilable into variables that nurture and transform a work's multi-leveled, multi-dimensional temporality.⁴²

With an emphasis placed upon the perception of sonic phenomena, Spectral Music represents a fusion of acoustic and electroacoustic techniques, philosophies, and sounds.

Without getting lost in a quagmire of philosophical differences between the perception of two semantic phenomena, it is important to note that both music and sound share four fundamental characteristics: frequency, intensity, duration, and timbre. In fact, timbre has been shown to be the resultant union of the three previous characteristics, owing its identity to the interplay between pitch, energy, and time. Timbre is a vital component to any spectral composition. Beyond superficial manipulations of color and orchestration, the very idea of

41. Jonathan Harvey, "Spectralism." *Contemporary Music Review* 19, part 3 (2000): 11.

42. Anne Sedes, "French Spectralism: From the Frequency to the Temporal Domain: Analysis, Models, Synthesis...and Future Prospects," in *The Foundations of Contemporary Composition*, edited by Claus-Steffen Mahnkopf, translated by Wieland Hoban (Hofheim: Wolke, 2004): 129.

timbre—the physical reality of that which is understood as timbre—has become a fundamental model for spectral composers.

0.4.5. Pertinent Spectral Music Techniques

Before examining the music of Philippe Leroux several spectral techniques should be made familiar to the reader. The following subsections list and provide brief definitions or overviews of compositional procedures that are relevant to the study of Leroux’s music; this list of techniques is not meant to be exhaustive. The definitions provided in this text have been taken or synthesized from Joshua Fineberg’s article “Guide to the basic concepts and techniques of Spectral Music.”⁴³

0.4.5.1. Acceleration/deceleration and Proportional Notation

Due to the nature of traditional music notation and its lack of sophisticated techniques for describing timbre, many spectralists have adopted new methods of graphic notation. The use of this novel notation, in conjunction with traditional elements of rhythm and meter, helps to convey the continuity of gradual transformation⁴⁴ and provides visual fidelity for the Spectralist’s musical intentions. Proportional indications of acceleration and/or deceleration, such as feathered beaming, aid in the interpretation and performance of timbre-based compositions.

43. Joshua Fineberg, “Guide to the Basic Concepts and Techniques of Spectral Music,” *Contemporary Music Review* 19, part 2 (2000): 81–113.

44. *Ibid.*, 105–106.

0.4.5.2. Other Electroacoustic Models

Continuing to use Electroacoustic Music as a fertile source of inspiration, some spectral composers seek to apply additional electroacoustic techniques (beyond timbral models of sound) to their work within an acoustic medium. Fineberg states that, “other than curves, the most important class of models are the ones inspired by electroacoustic procedures like echoes, delays, tape loops, etc.”⁴⁵ Adapting these tape procedures for use in notated instrumental music offers a variety of rhythmic possibilities and imitative musical textures.

0.4.5.3. Rhythmic Distortions

According to Fineberg, many contemporary composers have decided to distort predictable rhythmic structures within their music in order to introduce certain durational anomalies. These anomalies provide momentary surface-level disruption within a context of repetitive rhythmic activity. While considering the methods of spectral composers, Fineberg described several of these disruptive techniques in the following manner:

The simplest types of distortion preserve the relative lengths of the rhythms; a good example of this is rhythmic stretching or compression, whereby the relative lengths of each duration is preserved while the total duration is augmented or diminished. Another technique is to add a percentage of random rhythmic fluctuation to the durations. When this percentage is small, the underlying structure is still very present, but the surface is made less predictable; when the percentage is increased, the randomness can begin to overpower the underlying structure.⁴⁶

45. Joshua Fineberg, “Guide to the Basic Concepts and Techniques of Spectral Music,” *Contemporary Music Review* 19, part 2 (2000): 106.

46. *Ibid.*, 107.

These rhythmic disturbances allow the continuity of musical phrases to remain unbroken, while simultaneously providing a desired degree of instability. Fineberg has also noted that the various types of distortion used to change durational structures within a spectral composition are congruent with distortions performed on its harmonic material.

0.4.5.4. Process and Interpolation

The notion of process has preoccupied composers for generations; the way in which musical ideas transform through time has long been a fundamental aspect of composition, regardless of style. In the case of Spectral Music, Fineberg argues that process itself has played a formative role, one that differs from the processes associated with other styles of music. “The types of processes found in Spectral Music are significantly different from those of minimalist music, for example, in that they affect all the musical parameters together, rather than acting on only one or two (like phasing). Typical processes of early pieces from the movement were transformations from order and stability (which includes harmonicity) towards the disorder and instability of noise, or vice versa.”⁴⁷ The use of such broad transformations upholds the spectral tenets described in section 0.4.4 (pg. 14). Motion from one state to another is conceived globally, surface-level details reflect the momentary ramifications of implementing that specific transformation, and the organic unity of the musical shape is transparently maintained.

In order to affect smooth transitions between desired initial and final states, many spectral composers employ interpolation in their compositions. Fineberg defines interpolation as a line or curve between two end-points that is sampled at various places along the continuum to generate

47. Joshua Fineberg, “Guide to the Basic Concepts and Techniques of Spectral Music,” *Contemporary Music Review* 19, part 2 (2000): 107.

intermediate states of existence.⁴⁸ While this abstract notion may be applied to any parameter of music, interpolation is often used to connect discrete harmonic or rhythmic end-points within a given section of music. A greater number of intermediate states will yield greater fidelity; the sonic continuum will be more complete, which will allow for a more accurate differentiation of linear and exponential interpolations.

48. Joshua Fineberg, "Guide to the Basic Concepts and Techniques of Spectral Music," *Contemporary Music Review* 19, part 2 (2000): 108.

CHAPTER 1. BACKGROUND INFORMATION

1.1. A Brief Biographical Sketch of Philippe Leroux

Philippe Leroux, considered to be one of the leading “post-spectralist”¹ composers of the early twenty-first century, has been steadily gaining international recognition for his creative work over the past two decades. Born on September 24, 1959 in Boulogne-Billancourt—a township located in the western suburbs of Paris, France—Leroux began studying music at the age of eleven, taking both guitar and piano lessons. His interest in composition began immediately, and as a teenager he had the opportunity to participate in workshops for young musicians that were held at Radio France. His first ensemble composition, *Piège*, was broadcast when he was sixteen years old.² He entered the Paris Conservatory in 1978, where he studied analysis with Claude Ballif (1924–2004), composition with Ivo Malec (b. 1925), and Electroacoustic Music with Guy Reibel (b. 1936) and Pierre Schaeffer (1919–1995).³ During these formative years, he received additional instruction from Franco Donatoni (1927–2000), Jean-Claude Eloy (b. 1938), Betsy Jolas (b. 1926), Olivier Messiaen (1908–1992), and Iannis Xenakis (1922–2001).⁴

In 1993 Leroux was granted a residency at the Villa Medici (l’Académie de France à Rome). This institution, created in the late seventeenth century during the reign of King Louis

1. Tristan Pugin, “Through the Spectrum: The New Intimacy in French Music (II),” *Tempo*, no. 217 (July, 2001): 38.

2. Philippe Leroux, *Musique, une aire de jeux: Entretiens avec Elvio Cipollone* (Éditions MF, 2009), 11–12. (Unless otherwise noted, all English quotations of this text are my own translation.)

3. Dominique Druhen, “Leroux, Philippe,” in *Grove Music Online / Oxford Music Online*.

4. Philippe Leroux, “Bibliography,” *The Official Website of Composer Philippe Leroux*, <http://www.lerouxcomposition.com/en/pages/bio.html> (accessed March 02, 2013).

XIV, is a residence for academic fellows interested in pursuing individual creative exploration, studies, and research. Fellows are provided with accommodations and workspaces relevant to their scholarly discipline, which affords them the opportunity to focus on specific projects during a one- or two-year period.⁵ Leroux remained at the French Academy in Rome until 1995, by which time he had completed several notable works such as *Air-Ré* (1992), *PPP* (1993), *Continuo(ns)* (1994), and *(d') Aller* (1995). From 2006 until 2009 he was composer-in-residence with Metz Arsenal and Orchestre National de Lorraine; he is currently in-residence with Ensemble MEITAR (Tel-Aviv).

As of 2014 Leroux's compositional output totals over seventy works, including both acoustic and Electroacoustic Music. He has written vocal and instrumental compositions in a variety of settings, ranging from chamber music to large-scale symphonic works, and he has also produced a series of pedagogical studies for beginning percussionists. His music has been commissioned by numerous internationally recognized institutions and ensembles, including Ensemble Court-Circuit, Ensemble Ictus, Ensemble Intercontemporain, the French Ministry of Culture, Institut de Recherche et Coordination Acoustique/Musique (IRCAM), the Koussevitzky Foundation, Nouvel Ensemble Moderne de Montréal, the Radio France Philharmonic Orchestra, the San Francisco Contemporary Music Players, and Sixtrum Percussion Ensemble.⁶ Already performed throughout Europe, Leroux's music has been increasingly programmed in North America, with recent performances in Baltimore, Boston, Bowling Green (Ohio), Calgary,

5. "Académie de France à Rome - Villa Medici," <http://www.villamedici.it/en> (accessed March 02, 2013).

6. Philippe Leroux, "Bibliography," The Official Website of Composer Philippe Leroux.

Cleveland, Gainesville, Montréal, New York, Oberlin (Ohio), Ottawa, San Francisco, Toledo (Ohio), and Toronto.⁷

In addition to his creative work, Leroux is an active music scholar and educator. He has taught at IRCAM (2001–2006), Université de Montréal (2009–2011), and, since September 2011, he has been Associate Professor of Composition at McGill University’s Schulich School of Music. Leroux has given lectures at many esteemed institutions, including the University of California Berkeley, Columbia University, Le Conservatoire Américain de Fontainebleau, the Georgia Institute of Technology, Harvard University, the Lyon and Paris Conservatories, the Royal Conservatory of Copenhagen, and Toronto University. He is the author, or co-author, of several publications concerning contemporary music.⁸

1.2. Leroux’s Music, Influences, and Compositional Philosophy

Having trained in Paris during the formative years of Spectralism, one might assume that Leroux’s creative output falls squarely into this late-twentieth-century genre of contemporary music. This assumption, however, is far too limiting, and does not accurately reflect the depth and complexity of Leroux’s musical influences. The composer has stated that, “it would be pointless to deny the influence of the spectral school on my music, especially given the time and place of my formative years as a composer. It was almost impossible to not be influenced by the spectralists, because their approach was very fresh and exciting when it came

7. Philippe Leroux, “News in Archive,” The Official Website of Composer Philippe Leroux, http://www.lerouxcomposition.com/en/pages/actu_archives.html (accessed March 2, 2013).

8. Philippe Leroux, “Bibliography,” The Official Website of Composer Philippe Leroux.

along...[but]...There was a lot more going on in Paris than just Spectral Music.”⁹ In a brief entry published in *Grove Music Online*, Dominique Druhen has described the aesthetic of Leroux’s music in a concise, thought-provoking manner:

Leroux’s approach to colour and harmonic organization owes something to Spectral Music. But in its instrumental writing and its emphasis on rhythmic movement his music owes more to Ligeti. Leroux makes frequent use of repetition, but within a framework of continuous variation, playing on oppositions between continuity and discontinuity, proximity and distance, developmental logic and random association. The works of his later period have shown a greater playfulness in their exploration of musical procedures, together with an ongoing concern for clarity and elegance in the presentation of ideas.¹⁰

Within Druhen’s entry we find reference to a music that exhibits characteristics consistent with the philosophical roots of Spectralism, while incorporating elements of structure, rhythm, and texture from individuals or styles outside or tangential to the spectral realm. This pluralistic collection of influences creates a musical amalgamation that is simultaneously intuitive and intellectually stimulating.

In 1975, Leroux had the opportunity to audit a course, taught by composer Claude Ballif (1924–2004), concerning musical analysis for composers. This course was particularly important to Leroux’s development as a young musician. Within the context of Ballif’s course, Leroux studied a variety of formal archetypes, and he became aware of how concepts such as continuity, growth, variation, symmetry, and proportion influence the notions of form and material in a musical work. During an interview with Elvio Cipollone, Leroux stated that it was in the presence of Ballif where he truly learned how to compose a piece of music.¹¹

9. Yiorgos Vassilandonakis and Philippe Leroux, “An Interview with Philippe Leroux,” *Computer Music Journal* 32, no. 3 (Fall, 2008): 12.

10. Dominique Druhen, “Leroux, Philippe.”

11. Philippe Leroux, *Musique, une aire de jeux: Entretiens avec Elvio Cipollone*, 13.

Continuing to investigate the intricacies of musical composition, Leroux also audited a course taught by Olivier Messiaen (1908–1992) during the musical titan’s last years teaching at the Paris Conservatory. In addition to learning about Messiaen’s music and compositional techniques, Leroux gained significant knowledge in the study of instrumentation. “This was also fabulous with Messiaen—that is, when he spoke of an instrument, one could hear it—well, me, it allowed me to hear internally.”¹² In addition to providing metaphysical descriptions of timbre, Messiaen offered his students the opportunity to experience new sounds. By invitation, several members of the newly formed Ensemble Intercontemporain visited the course to discuss topics related to their primary instruments and contemporary performance techniques.¹³

Another important figure influencing Leroux’s development during his formative years was Ivo Malec (b. 1925), a composer active in creating both acoustic and Electroacoustic Music. According to Leroux, Malec never sought to impose his own aesthetic values on his students. While studying composition with this dedicated pedagogue at the Paris Conservatory, Leroux learned how to manage his own orchestral writing. More specifically, he gained an understanding of how to present complex sounds and textures in a simple, elegant manner so that performers would have less difficulty interpreting and executing his desired musical ideas. Devising elegant solutions to problems associated with the organization and presentation of compositional materials has been extremely important for Leroux, in terms of developing a virtuosic musical language that can be executed by highly skilled performers.¹⁴

The musical thoughts of Iannis Xenakis (1922–2001) and György Ligeti (1923–2006) have also significantly influenced Leroux’s compositional aesthetic. For a brief period of time,

12. Philippe Leroux, *Musique, une aire de jeux: Entretiens avec Elvio Cipollone*, 14.

13. *Ibid.*

14. *Ibid.*, 15.

Leroux had the opportunity to work with Xenakis's UPIC (Unité Polyagogique Informatique CEMAMu), a computer tool designed to assist in the process of creating a musical composition. This tool allowed a composer to draw waveforms, which were subsequently digitized, in order to control specified sound parameters. Working with this technology greatly informed Leroux's compositional process during the creation of pieces such as *(d')Aller* and *Voi(Rex)*.¹⁵ Leroux has indicated that Xenakis's work with mathematical models and formalized processes was also important to his development. "When I was eighteen, I read his essay, *Musique, Architecture*.¹⁶ Even though I did not understand most of the formulas and equations he used, this book left a tremendous impression upon me."¹⁷

Like Xenakis, Ligeti had a substantial impact upon Leroux's creative output, even though the two composers did not have much physical interaction. When asked if he had ever met Ligeti, Leroux responded by saying, "Yes, at the Donaueschingen Festival in Germany, but it was a brief meeting, during a breakfast. But in fact, I did not really need to meet Ligeti; his body of work was enough for me; it was powerfully nourishing."¹⁸ By studying Ligeti's musical oeuvre, Leroux had the opportunity to synthesize and develop compositional techniques and sound materials associated with intricate sonic textures. As indicated by the aforementioned statements contained in Druhen's biographical entry, this synthesis has created an audible connection between the two composers that is evident within Leroux's instrumental writing.

15. Philippe Leroux, *Musique, une aire de jeux: Entretiens avec Elvio Cipollone*, 16–17.

16. The writings of Xenakis referenced in this quotation may be pursued by English readers in a book compiled, translated, and commented by Sharon Kanach: Xenakis, Iannis and Sharon E. Kanach. *Music and Architecture: Architectural Projects, Texts, and Realizations*. Hillsdale, NY: Pendragon Press, 2008.

17. Philippe Leroux, *Musique, une aire de jeux: Entretiens avec Elvio Cipollone*, 17.

18. *Ibid.*, 18.

The philosophies of Guy Reibel (b. 1936) and Pierre Schaeffer (1919–1995) had a profound effect on Leroux’s conception of musical sound. In a course that he taught concerning electroacoustic composition, Reibel sought to focus his students’ attention upon notions of gesture and movement. After participating in this course, Leroux has stated that, “this allowed me to understand—a little later—that one could think of music in terms other than pitch or structural systems: in terms of gestures and movements of sound in particular.”¹⁹ The motion of music through time has become particularly important to him on a fundamental level.

In addition to this heightened awareness of—and emphasis on—movement gained through the study of Electroacoustic Music with Reibel, Pierre Schaeffer’s concept of the sound object (*l’objet sonore*²⁰) inspired Leroux to develop and adhere to a personal technique of composition, which incorporates an element described as sound actions (*les actions sonores*). In the foreword to Michel Vilella’s book concerning process and invention in *Continuo(ns)*, Philippe Leroux briefly explains his concept of *les actions sonores*: “Actions: because I assume an *a priori* internal movement in these sound actions. Sound: because they come first of all from an inner listening, and not from a speculative elaboration; they are intrinsically related to imaginary acoustics. These sound actions, therefore, allow me to work directly on sound that is already in motion and not on a material that is inert and discretized to the extreme.”²¹

19. Philippe Leroux, *Musique, une aire de jeux: Entretiens avec Elvio Cipollone*, 16.

20. A detailed explanation of Schaeffer's “sound object” can be found in his *À la recherche d'une musique concrète*. Essentially, this psychological object is sound considered within its own context. That is to say, it is a sound that is divorced from its physical causation. The source of the sound is unimportant; a listener considers only the inherent qualities of the sound itself. For readers interested in further study, Brian Kane's critical exploration of Schaeffer's sound object in *L'objet sonore maintenant: Pierre Schaeffer, sound objects and the phenomenological reduction* considers multiple aspects of this acousmatic idea, which are beyond the scope of this document topic.

21. Michel Vilella, *Processus et invention dans Continuo(ns) de Philippe Leroux* (Paris: L'Harmattan, 1999), 11.

Concentrating on the inherent motion within—and between—sonic events, instead of isolating sound objects as static states of perception, Leroux has incorporated a second element to his compositional technique that has its genesis in the works of early spectral composers. This is the process of continual transformation.

Analogous with topology, I assume two sound actions to be equivalent, if they can be transformed from one to the other in a continuous manner. These transformations are organized in the form of processes. In order for one sound action to pass to another, and so that this music becomes a living organism of multiple sonic cells, it is necessary to generate some change that is subject to certain laws. Processes, therefore, act as lawmakers to manage these changes and vectorize them. They interlock the sound actions in networks, and they give them a mode of organic growth.²²

While processes become strong organizing forces within his music, Leroux acknowledges that there are certain limitations to a strict adherence to their resultant structures. Because of the predictable nature of process driven music, it may become necessary, at times, to relax or loosen a guiding process that is too directional. “This is where intuition comes in based upon the experience and forward-looking spirit of the composer...Structure is in the service of the composer and not the reverse.”²³ When asked recently about his interest in continuity, perception, and other cognitive subjects, Leroux made the following statement: “I think that a composer must lie within a general aesthetic context, and for that [he/she] needs to understand [his/her] tools and goals. On the other hand, I have also always thought that a beautiful piece rested on a balance between intuition and structure. To find the right structures, which allow intuition to live and be framed, one must be concerned with theoretical reflection.”²⁴ This desire for balance between the calculated and the intuitive aspects of a musical composition makes the

22. Michel Vilella, *Processus et invention dans Continuo(ns) de Philippe Leroux*, 11–12.

23. *Ibid.*, 12.

24. Philippe Leroux, e-mail correspondence with author, December 4, 2012. (Unless otherwise noted, all English translations of this correspondence are my own.)

creative work of Philippe Leroux a mixture of predictable trajectories and spontaneous outbursts. Through the interaction of these and other oppositions, he generates a soundscape that simultaneously reflects and transcends his musical influences.

It is important to note that Leroux also shares beliefs and thoughts that are associated with early-20th-century philosophical inquiry. He has acknowledged that the writings of Henri Bergson (1859–1941), in particular, have a correlation with his own understanding of musical time and movement. “Bergson is a philosopher with whom I have a strong affinity. His vision of a time that is perceived as indivisible can apply as much to the whole of a lifetime as it can to music.”²⁵ The connection between Bergson’s philosophical contributions and Leroux’s compositional aesthetic can be gleaned from the following statements:

Bergson also speaks beautifully of continuity and the actual duration of time. This affects many levels of my work, especially the notion of sonic gestures. The notion of working with a form or figure, that has not been discretized into particles or parameters, aligns with the reflections of Bergson...My work on process was also developed around the concept of continuous time. The key is not the object itself, but its movement.²⁶

Like many artists, Leroux’s compositional aesthetic is a synthesis of stylistic techniques and philosophical concepts. The resulting music is a balance of structure and instinct; it is a music crafted from the continuity of oppositions, an organic unfolding of material existing as a continuous process of change.

25. Philippe Leroux, *Musique, une aire de jeux: Entretiens avec Elvio Cipollone*, 40.

26. *Ibid.*, 40–41.

1.3. Un lieu verdoyant - Hommage à Gérard Grisey

Written in 1999 over a period of approximately two months,²⁷ Philippe Leroux's *ULV* is a single-movement chamber work composed for voice and soprano saxophone that is approximately five minutes in duration. The decision to write for this particular instrumentation was rooted within the creative impulse that inspired the work. This piece was created as a token of affection for the French composer, Gérard Grisey (1946–1998), who is widely regarded as one of the founding members of the genre known as Spectral Music. According to the composer's program note, the musical material was designed to be articulated by the voice that Grisey loved (Mireille Deguy) and an instrument for which Grisey had written (the saxophone). Dedicated to mezzo-soprano Mireille Deguy and saxophonist Vincent David, *ULV* was premiered on December 4, 1999 at the Auditorium Gérard Grisey de Sarcelles.²⁸

The text for this work,²⁹ having been crafted in French by the composer himself, is based upon the book of Lamentations. Leroux chose this particular set of poetic text from the Hebrew Scriptures because it, “[speaks] of the violence of death in a very strong manner, and, at the same time, [it also speaks] of hope.”³⁰ The music is a tangled web of ascending and descending gestures that constitute the work's melodic and harmonic components. As stated in the composer's program note for this work, these gestures are metaphors for primordial movements,

27. Philippe Leroux, e-mail correspondence with author, December 4, 2012

28. IRCAM, “Philippe Leroux: Un lieu verdoyant - Hommage à Gérard Grisey (1999),” <http://brahms.ircam.fr/works/work/14297/> (accessed March 9, 2013).

29. See Appendix A for full text translation.

30. Philippe Leroux, e-mail correspondence with author, December 4, 2012.

life, and death.³¹ Within the soundscape of this piece, descending gestures represent the concept of death, while ascending gestures represent life and hope.³²

ULV was created during a time in which Leroux was working specifically with processes of continual transformation as an approach to musical composition. His pieces from the 1990s, such as *PPP* (1993), *Continuo(ns)* (1994), *(d')Aller* (1995), *Souffles* (1996), and *M* (1997), exhibit characteristics of this compositional research and creative activity. During an interview in 2009, he indicated that this approximately ten-year period of exploration culminated with the completion of *De la vitesse* (2001), an eighteen-minute piece for six percussionists. *ULV* (1999), therefore, can be viewed within this context as a work that incorporates well-practiced techniques for creating musical continuity.

Leroux often utilizes software designed for sound editing and algorithmic composition to create models of continual transformation during the compositional process. “I mainly work with OpenMusic, Pro Tools, AudioSculpt, Max/MSP, and Peak. I also work in very ‘low-tech’ ways, with pencil and paper.”³³ In the case of *ULV*, the latter statement is relevant; he began composing this duet while in the Canary Islands, where he did not have access to a computer.³⁴

31. IRCAM, “Philippe Leroux: Un lieu verdoyant - Hommage à Gérard Grisey (1999).”

32. Philippe Leroux, e-mail correspondence.

33. Yiorgos Vassilandonakis and Philippe Leroux, “An Interview with Philippe Leroux,” 12.

34. Philippe Leroux, e-mail correspondence.

CHAPTER 2. DESCRIPTIVE ANALYSIS OF UN LIEU VERDOYANT - HOMMAGE À GÉRARD GRISEY

2.1. Overview

The purpose of this chapter is to identify, analyze, and compare the salient musical features of *ULV*—(i.e., density contour, dynamic contour, and pitch contour)—with regard to the aforementioned notions of continuity, motion, and energy. It begins with a description of the methods used to extract data from the musical score, in order to facilitate subsequent discourse about individual temporal sections. This is followed by a preliminary macroanalysis of the work, wherein the overall form of the music is delineated and aspects of metric organization are identified. A brief text analysis provides support for formal delineations outlined in the preliminary macroanalysis. Within the boundaries of these partitions I describe the unfolding of surface-level events and highlight the relationships that exist between important musical structures.

2.1.1. Methodology

In analyzing *ULV*, I set out to understand the continuity of events as they unfold within the structural framework of the piece. The first step in this process was to parse the work into meaningful sections, so that observational data could be collected about component parts in

relation to the entire form. In essence, I wanted to be able to examine *ULV* in detail at various temporal levels, so that the findings could be subjected to micro-, middle-, and macroanalyses.

At the most fundamental level, a microanalysis is an analytical procedure that allows for the description of surface-level events that occur within brief temporal sections of music. As larger musical structures are observed (e.g., phrases, textures, etc.) a middle-analysis allows an understanding of the relationships that exist between these structures. At the highest level, a macroanalysis describes the overall shape of a composition, while the analyst reconsiders generative processes and surface details seen at smaller structural levels.¹

In order to facilitate a quantitative comparison of specific musical structures in *ULV*, I have encoded elements of the score as numeric data points, which were subsequently transformed into graphic visualizations of each section.² These visualizations were used to apprehend the continuity of each element through time. The encoded elements were density,³ motion,⁴ dynamic intensity, and pitch.

Pitches were converted into MIDI⁵ note numbers, wherein the number sixty represents C4.⁶ All of the surrounding integers—relative to this number—represent frequencies corresponding to semitones above and below C4. Microtonal pitches were encoded using decimal values in conjunction with MIDI note numbers (i.e., 69.5 = A4 one quarter-tone sharp).

1. John D. White, *Comprehensive Musical Analysis* (Metuchen, NJ: Scarecrow Press, 1994): 24–28.

2. See Appendices C, D, and E.

3. In this context density refers to the number of discrete musical notes that occur within a given space of time.

4. Since linear motion is a fundamental component to the structure of *ULV*, occurrences of ascending and descending lines were tallied throughout the work.

5. Musical Instrument Digital Interface.

6. This is the ANSI standard for middle C.

In order to adequately reflect the pitch contour, *glissandi* were encoded by interpolating numeric values between fixed starting points and endpoints.

Dynamic intensity was encoded using the information shown in Table 1.

Table 1. Dynamic intensity conversion table

Dynamic	<i>∅</i>	<i>pppp</i>	<i>ppp</i>	<i>pp</i>	<i>p</i>	<i>mp</i>	<i>mf</i>	<i>poco f</i>	<i>f</i>	<i>ff</i>	<i>fff</i>	<i>ffff</i>
Intensity Level	0	1	2	3	4	5	6	6.5	7	8	9	10

In cases of gradual dynamic change (i.e., *crescendi* or *decrescendi*), values were interpolated between fixed dynamic points.⁷ If no dynamic was specified for a given musical figure, but similar figures were previously encountered with specific indications, the dynamic intensity and shape of each related figure was considered to be identical. All *sforzandi* were treated as strong accents within a greater dynamic context; therefore, a *sffz* within a *forte* passage would denote a momentary increase in dynamic intensity.

Density was determined by recording the number of discrete musical notes found within a given beat, showing the changes in surface activity within delineated sections. During the macroanalysis this data was averaged, and the beat unit was converted into seconds in order to create a density profile for the entire piece.

7. When specific starting or ending points were ambiguous or absent, subjective judgments were made based upon musical context. For example, if a *crescendo/decrescendo* shape were observed within the context of a loud dynamic, but exact specifications were not given with regard to how loud and/or soft the performer should deviate from the initial *forte*, then the overall change in dynamic intensity was considered negligible.

2.1.2. Preliminary Macroanalysis

The overall form of *ULV* may be heard, and analyzed, as a continuous journey through ten musical sections of unequal duration, delineated by abrupt or gradual changes in tempo that transpire over the course of approximately five minutes. Table 2 lists each section and its respective tempo.

Table 2. Structural overview of *Un lieu verdoyant - Hommage à Gérard Grisey*

Section	Measures	Duration (in sec.)	Tempo (MM)	Tempo alterations
I	1–24	ca. 94	quarter note = 60	fermata (m. 1)
II	25–29	ca. 8	quarter note = 52	subito (m. 25)
III	30–32	10	quarter note = 60	subito (m. 30)
IV	33–39	ca. 6	quarter note = 52	subito (m. 33)
V	40–44	ca. 7	quarter note = 69.333	metric modulation (m. 39 = m. 40)
VI	45–73	ca. 54	quarter note = 66	subito (m. 45); accel. (m. 73)
VII	74–83	ca. 17	quarter note = 72	
VIII	84–91	ca. 16	quarter note = 60	rall. (m. 84); tempo at m. 85
IX	92–108	ca. 28	quarter note = 72	subito (m. 92); rall. (m. 108)
X	109–135	54	quarter note = 60	

The first, and longest, section of music (mm. 1–24) begins with a fermata of indeterminate length. Unfolding over the course of approximately ninety-four seconds, Section I is notated entirely in 4/4 until the last measure, a bar of 2/4.

Section II (mm. 25–29) features a significant increase in density with a slight decrease in overall tempo, relative to the previous section. Incongruous, rapidly changing meter obscures the new quarter-note pulse. Each measure bears its own distinct time signature, yet, all measures within this section share a common basic durational unit: the thirty-second note. This, combined

with the use of irregular accentuation, creates a hurried feeling associated with rapid tempi, in spite of the fact that the written metronome marking has decreased.

Section III (mm. 30–32) is comprised of a single descending gesture executed in unison by the performers. This interruptive gesture is framed by thirty-second note silences, and it is followed by approximately six seconds of music—Section IV (mm. 33–39)—resembling the material presented in Section II, with regard to tempo and metric organization.

Section V (mm. 40–44) contains the highest notes heard within the entire composition. It also contains the only example of metric modulation between sections. The temporal duration of measure thirty-nine is equivalent to that of measure forty,⁸ seamlessly connecting Sections IV and V.

A sudden change in tempo marks the beginning of Section VI (mm. 45–73), with this and all remaining sections being written in simple duple meter. Metric monotony is avoided through judicious use of gradual tempo changes. For example, the last measure of Section VI (m. 73) contains an *accelerando*, which steadily eases listeners into the subsequent section's tempo. Similar tempo alterations occur in Sections VIII and IX.

Though *ULV* can be discretized into ten sections it is important to remember that this work is actually a single, continuous entity. Even as each section is described separately, the continuity of sound between sections is of fundamental importance.

8. The published score indicates the equivalency of these measures; however, the printed tempo marking at measure forty is approximately eighty beats per minute. At that tempo measures thirty-nine and forty would not be equivalent. Through conversations with the composer I have learned that the correct tempo marking at measure forty should read approximately sixty-nine beats per minute.

2.2. An Outline of Text in ULV

Leroux modeled the text for *ULV* after the book of Lamentations, which is a collection of five poems mourning the destruction of Jerusalem (ca. 586 B.C.E).⁹ Specifically, Leroux’s text seems closely related to the first three poems within the collection: “The Sorrows of Jerusalem,” “The Lord’s Punishment of Jerusalem,” and “Punishment, Repentance, and Hope.” Passages were not taken and set directly from the poems; instead, they were used as semantic and phonetic reservoirs for the creation of a text with similar emotional sentiments.¹⁰

Appendix A contains an annotated presentation of the complete French text for *ULV*, with corresponding English translations. Similarities can be readily seen while comparing the book of Lamentations¹¹ with this appendix. Appendix B highlights some of the most striking similarities, giving location references in both texts.

2.3. Micro- and Middle-analyses

The following subsections contain micro- and middle-analyses of the structural delineations specified in Table 2. These analyses detail changes that occur in pitch-space,¹² and feature descriptions of musical gestures and patterns supporting the written text of each section.

9. American Bible Society, *Good News Bible with Deuterocanonicals / Apocrypha: Today’s English Version*, 2nd ed. (New York: American Bible Society, 1992), 961.

10. See Appendices F and G for correspondence between Andrew Martin Smith and Philippe Leroux.

11. American Bible Society, *Good News Bible with Deuterocanonicals / Apocrypha: Today’s English Version*, 2nd ed. (New York: American Bible Society, 1992), 961–970.

12. The term *pitch-space* (p-space) has been borrowed from the writings of Robert Morris. In the glossary for *Composition with Pitch-Classes: A Theory of Compositional Design* (pg. 345)

2.3.1. Section I (mm. 1–24)

The opening section of *ULV* consists of a gradual intensification of all musical parameters within the given tempo. The ambient noise of the performance space is slowly disrupted by a single tone emanating from the soprano saxophone (see Example 1). This concert G4 is quietly sustained without vibrato, allowing the voice to emerge from within the saxophone's sound (m. 2). Since the performance notes indicate that the musicians should be spaced apart from one another, the introduction of the voice affects a change in spatialization as well as the overall timbre of this pitch. Subsequently, the frequency of the sustained note begins to change with a subtle *glissando* indicated in the saxophone part (m. 3), which is echoed and augmented by the voice (mm. 3–4).¹³ In measure four the vocalist adds vibrato to the sustained note; the saxophonist echoes this in measure five. By the sixth measure of this section there is a slight increase in dynamic of the sustained tone, and the vocalist's vibrato has morphed into a distinct microtonal oscillation.

Example 1. *Un lieu verdoyant - Hommage à Gérard Grisey*, mm. 1–4

The musical score for Example 1 consists of two staves: Voice and Saxophone. The key signature is one sharp (F#) and the time signature is common time (C). The tempo is marked as ♩ = 60 MM env. Above the first measure, the instruction "Comme une déploration" is written. Above the second measure, the instruction "faire naître la voix à l'intérieur du son du saxophone" is written. Above the third measure, the instruction "sans vibrato" is written. Above the fourth measure, the instruction "poco vibrato (vib. ord.)" is written. The vocal line starts with a whole note rest in measure 1, followed by a half note in measure 2, and then a series of eighth notes in measures 3 and 4. The saxophone line starts with a whole note in measure 1, followed by a half note in measure 2, and then a series of eighth notes in measures 3 and 4. The dynamic markings are: "pp" for the saxophone in measure 2, "pppp sub." for the saxophone in measure 3, and "pp" for the saxophone in measure 4. The vocal line has "sans vibrato" in measure 2 and "poco vibrato (vib. ord.)" in measure 4. The lyrics "In - - - - - cli - ne la" are written below the vocal line.

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Morris defines p-space as, “a pitch-space consisting of adjacent pitches separated by identical intervals.” See bibliographic entry: Morris (1987).

13. This subtle descending gesture seems to reflect the movement described in the opening line of text: “Bow your head toward the earth.”

This process of gradual intensification continues throughout the section. By the seventeenth measure the pitch oscillation widens considerably, and the overall dynamic level is quite loud.

Example 2. *Un lieu verdoyant - Hommage à Gérard Grisey*, mm. 16–17

The musical score for Example 2, measures 16–17, is presented in two staves. The top staff is the vocal line, and the bottom staff is the piano accompaniment. The key signature is one sharp (F#), and the time signature is 4/4. The vocal line begins at measure 16 with the lyrics "de mes jours que dé-jà me voi-ci au seuil". The piano accompaniment features a trill and glissando. Dynamics include *f* (forte) and *tr* (trill). Performance instructions include "précis et sec", "trille gliss. lent", and *f*.

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Notice that as the voice sings progressively larger intervals in Example 2 the note durations gradually become shorter. This increase in musical density is another result of Leroux's process of intensification. The overall effect of this process can be seen clearly through the graphic representations of pitch, dynamic intensity, and density found in Figures 1, 2, and 3 respectively.

P-space (see Figure 1) expands throughout the first twenty-four measures, as pitches above and below G4 are gradually introduced. The musical ideas contained within the opening unison are topologically transformed, eventually spanning the range of nineteen semitones: the lowest pitch being A3 (m. 22) and the highest pitch E5 (m. 21).

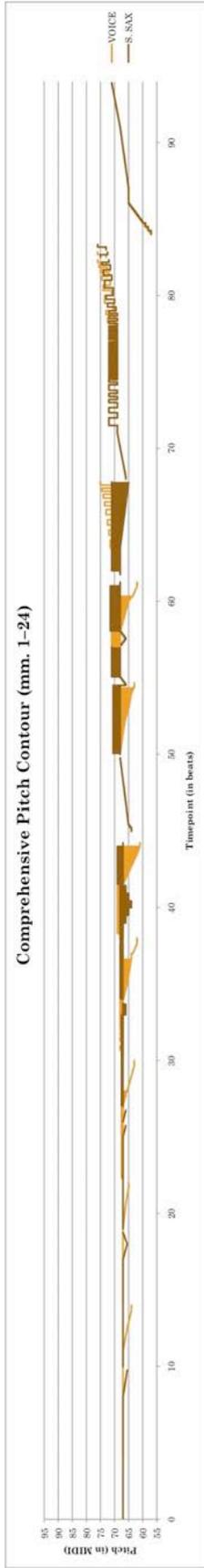


Figure 1. Pitch-space, mm. 1-24

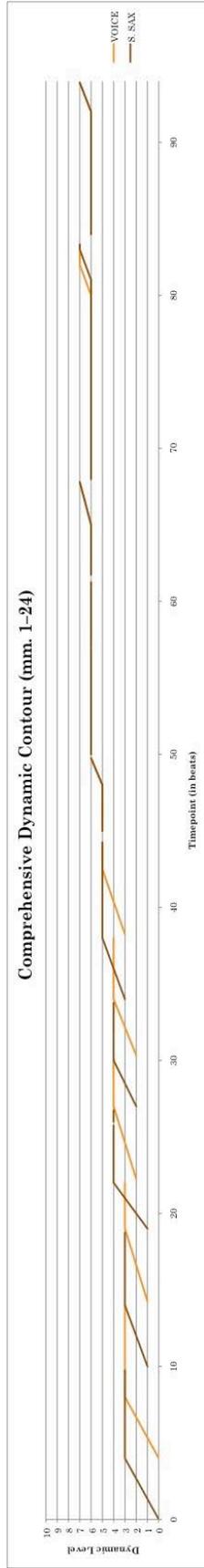


Figure 2. Dynamic intensity, mm. 1-24

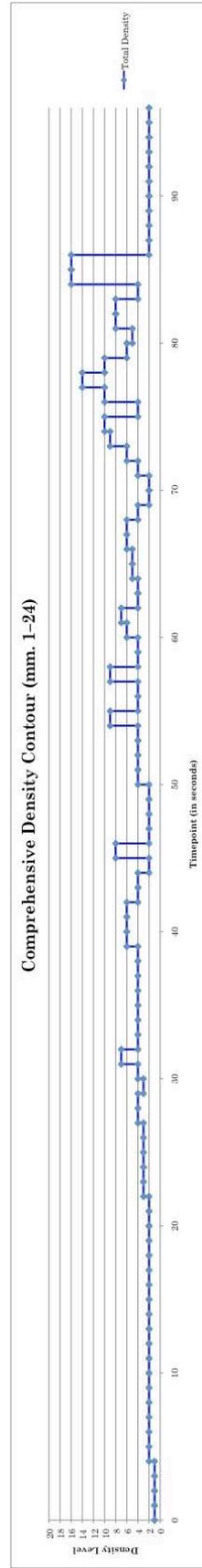


Figure 3. Density, mm. 1-24

Evidence of this topological transformation can be readily seen when examining the isolated pitch contour of the voice part. Figure 4 shows five musical gestures, which the voice executes during the first half of Section I. There is a strong sense of continuity between these gestures. Each shows evidence of being a transformed version of the previous state, where the process of transformation involved stretching, compressing, bending, or folding. These non-destructive processes are characteristic of topological transformation.

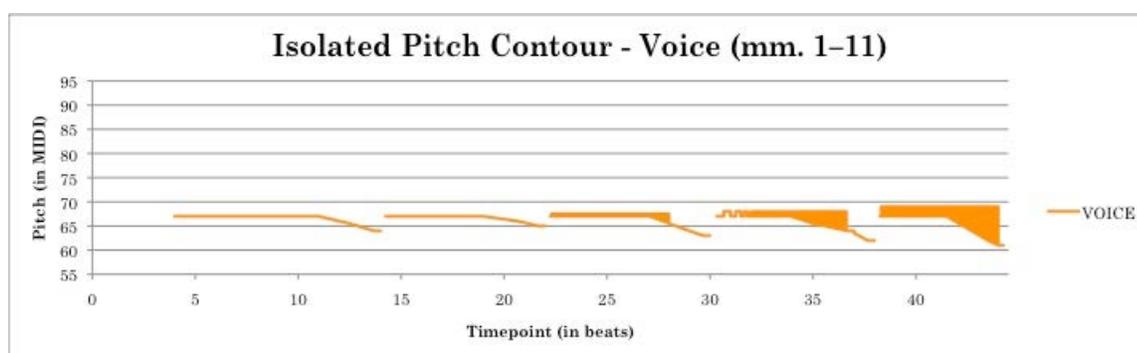


Figure 4. Evidence of topological transformation in voice part, mm. 1–11

Continuity between specific musical elements can also be seen within smaller temporal sections. Example 3 shows a single measure taken from the end of Section I. This measure is a linear ascending gesture from A3 to F4. As notated, the musical idea in the vocal part gives the impression of a continuous transformation from the starting pitch to the ending pitch. This same idea is represented in the saxophone part as discrete microtonal pitches in an ascending scale. It is a discretized version of the intended gesture, in order to mimic the syllabic text setting in the vocal part. In spite of the discretization, this measure can be heard as unbroken interpolation between two points on a sonic continuum.

Example 3. *Un lieu verdoyant - Hommage à Gérard Grisey*, m. 22

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In addition to the topological expansion and continuity of p-space, there is a strong sense of dynamic intensification in Section I (see Figure 2). The piece begins from *niente*, and becomes gradually louder over time until reaching *forte* (mm. 17, 21, 24). Most musical gestures in this section include a *crescendo*, the apex of which either maintains the previous dynamic climax or pushes beyond this threshold to a more intense dynamic tier.

As illustrated in Figure 3, the density of musical information in Section I fluctuates over time. However, the overall trajectory of these fluctuations is one of increasing musical density. Moving from a state of relatively low density to a highly dense state is another manifestation of the global intensification of all parameters within this section. The average density value for the first twenty-four measures is 4.2, indicating an average of approximately four attacks per second.

While p-space, dynamic level, and density are being expanded or intensified within Section I, there is a fundamental shift in the movement of musical gestures. Descending motion within gestures is prevalent during the first ten measures. In that span of time there is only one instance of an ascending gesture, which occurs in measure five of the saxophone part as a brief

pitch-bend. Subsequently, a short period of ascending and descending gestures (mm. 11–17) gives way to a musical soundscape that is comprised exclusively of ascending gestures (mm. 18–24). In Leroux’s program note for this piece the music was indicated to be a web of ascending and descending melodic lines, wherein the motion of these lines were musical representations of life/hope and death respectively. Considering the first section in isolation, one might assume that the listener is being prepared for a dramatic catharsis, in which the gloom of death and despair is overcome by hope and a renewed sense of life.

2.3.2. Section II (mm. 25–29)

Section II of *ULV* is a series of five descending gestures of unequal length, partitioned into separate measures with *sffz* accentuated downbeats in one or both parts. Furthermore, the onset of a new measure coincides with the beginning of a new line of text. Since the lines of text vary in length and each syllable has been assigned to a thirty-second note unit, each measure results in a unique time signature and duration. The downward motion of these gestures reflects the ominous tone of the text, which is translated as follows:

He has stretched a net before my footsteps

He has made me stumble

He has thrown me into desolation where I languish all day

He has made me dwell in darkness

He has worn out my flesh and my skin.¹⁴

14. All text translations are by the author.

The p-space in Section II spans the interval of fourteen semitones, from A3 (m. 28) to B4 (mm. 25–29), and exhibits several interesting surface features (see Figure 5). The notation for this section is similar to that of Example 3, in which each syllable of vocal text is placed on a pitch continuum between two endpoints while accompanied by an imitative microtonal scale in the saxophone part. Essentially, the musicians are performing in unison for the first two measures. After returning to B4 at the start of the third gesture (m. 27) the voice oscillates between two congruent descending lines that surround the saxophone's microtonal scale. As the saxophone descends it moves further away from the upper vocal line and closer to the lower, until it seems to become a continuation of the lower vocal line in the subsequent measure.

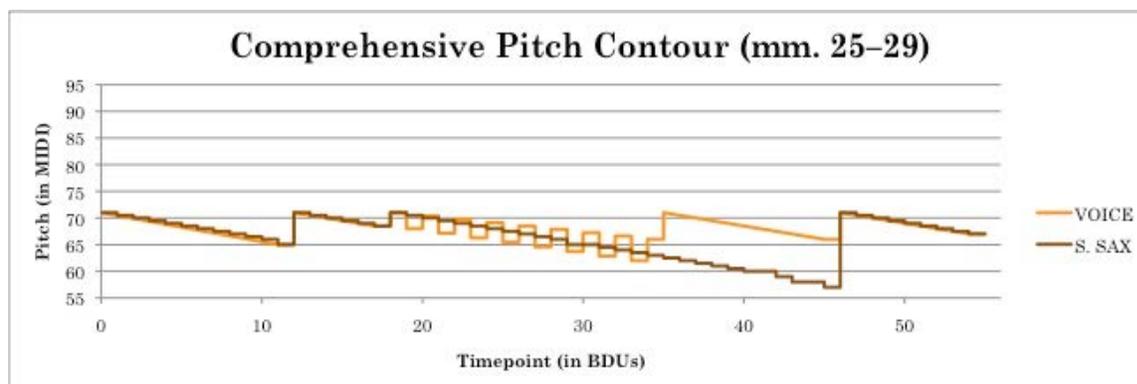


Figure 5. Pitch-space, mm. 25–29

The dynamic contour of Section II is displayed in Figure 6. A maximum intensity of *fortissimo* (i.e., an eight on the chart) occurs seven times within the sectional boundaries. The saxophone occupies a relatively soft dynamic while the voice continues to sustain at a loud level throughout. Given the rapid speed at which the vocalist must articulate a large number of syllables, and the proximity of each melodic line in p-space, the distinct dynamic indications facilitate intelligibility of the text being conveyed.

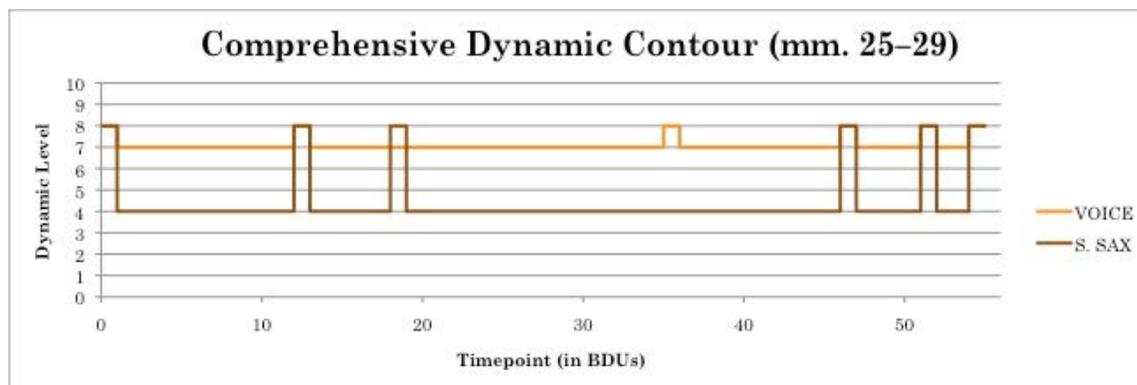


Figure 6. Dynamic intensity, mm. 25–29

In addition to establishing a hurried soundscape, the rapid articulation of evenly spaced syllables also results in a sustained musical density of 13.5 attacks per second. This constant density reinforces the relentless actions described in the text.

2.3.3. Section III (mm. 30–32)

In Section III, the voice and saxophone execute a hushed, simultaneous glissando from B4 to C4. By essentially freezing the motion of all parameters except pitch, Leroux achieves a simple and elegant musical statement.

The text for this passage—*Il m'a oté toute issue*—is reflected in this isolated motion. Translated as, “He has removed every exit,” this sentiment is one of profound hopelessness. Observed in a larger context, Section III is like a desolate island surrounded by a tumultuous ocean of anxiety (Sections II and IV). It is a space in which the full weight and meaning of Leroux’s words can be heard and felt.

2.3.4. Section IV (mm. 33–39)

Similar to the hurried music heard in Section II, the fourth section of *ULV* is a series of descending gestures comprised of rapidly articulated thirty-second notes. This section's average musical density is approximately eleven attacks per second, which is slightly less than the density encountered in Section II. The discrepancy between these two similarly dense passages is the result of silences that occur at the end of Section IV (mm. 38–39).

The rhythmic structure of this section is a side effect of syllabic text setting, in which a single durational unit is employed. Each measure begins with a *sffz* accent on B4 and encompasses a single line of text. The length of these lines continually decreases, with each line being one syllable shorter than the previous. The result of this process is a continuum of changing meter that illustrates the feelings of heightened anxiety and helplessness contained within the text. As presented in Appendix A, the text seems to provide a visual correlation for these feelings, with a subtle similarity to Guillaume Apollinaire's poetic style. When considered as a single unit, these shrinking lines of text create a wedge-gesture, which exemplifies the notion of topological transformation.

Il m'a rassasié d'amertume

Il m'a entouré d'un mur

Il a brisé mes os

Il a bouleversé

Il a barré

Il fermé

Il m'a

When the p-space of Section IV is isolated and analyzed, other interesting surface features are brought sharply into focus (see Figure 7). The voice and saxophone begin this section in unison, but this texture is quickly altered in the second half of measure thirty-three. At that time the saxophone reiterates the first four pitches of the initial gesture before continuing its imitation of the voice, effectively creating a delay between the articulated *glissando* and the corresponding microtonal scale. This delay is exaggerated by the spatialization indicated in the score, and it is a topological alteration to the sounds heard in Section II.

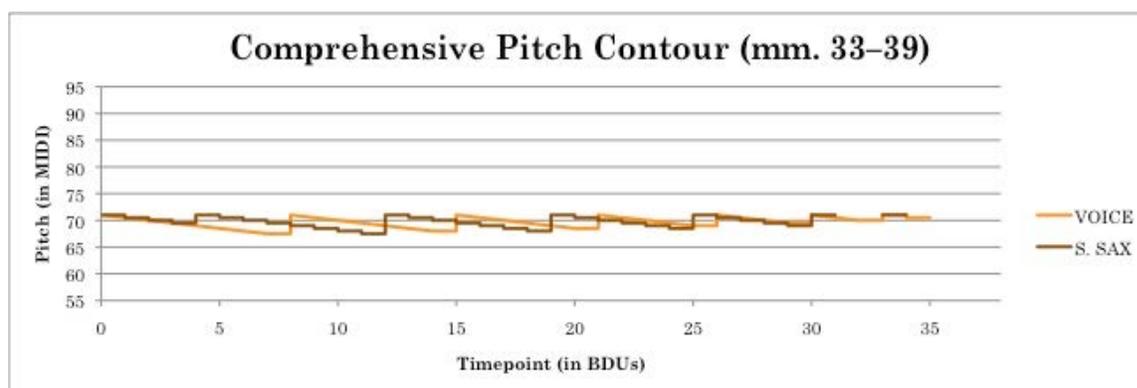


Figure 7. Pitch-space, mm. 33–39

At the micro-level individual gestures descend, but a middle-analysis shows that there is an underlying ascent throughout this seven-measure section. As the vocal gestures are progressively shortened their p-space decreases. The widest interval occurs in measure thirty-three, where the distance between endpoints is 3.5 semitones (G4 quarter-sharp to B4). The lowest pitches of each vocal gesture create a subtle ascending macro-line, which is imitated by the saxophonist throughout this brief section.

2.3.5. Section V (mm. 40–44)

Section V, a brief four-measure passage, is pivotal to the continuity of *ULV*. It is a seamless bridge between two distinct musical textures. In part, the seamlessness of the transition into this section is the result of a tempo modulation that occurs between measures thirty-nine and forty. The duration of these two measures should be identical; therefore, a measure of 6/32 at fifty-two quarter notes per minute (m. 39) is temporally equivalent to a measure of 4/16 at approximately sixty-nine quarter notes per minute (m. 40).¹⁵ The equally smooth transition out of this section is accomplished by eliding the sibilance of the last syllable of text with the onset of Section VI. This is the first section in *ULV* to have such seamless boundaries.

This section is also the first time in which a genuine sense of independence between the voice and saxophone parts occurs. Until this point the musicians articulated musical gestures within a similar p-space and/or with a similar motion. In measure forty-three a descending *glissando* occurs in the saxophone part. Instead of imitating the saxophone or contributing in some way to its sonic material, the voice executes a pronounced ascending semitone. This is indicated to be the loudest moment in the entire piece, and each musician performs their individual gesture at the height of their range. In *ULV* the highest saxophone pitch (B-flat6) occurs in measure forty-two, and the highest vocal pitch (G5) occurs in measures forty-three and forty-four. The extreme range, dynamic intensity, and independence of parts give this section formal emphasis within the global context of the work.

15. Based upon the indicated equivalency of measure durations, the printed tempo in measure forty should be ♩ = 69.333.

The musical emphasis of this short passage seems an appropriate setting for the text being conveyed. The soprano speaks of one making an effort to overcome her. It is delivered as a shout with sustained intensity, as someone trying desperately to survive a tremendous onslaught of pain and grief. Since measure twenty-five the text has communicated that which has been done to, or taken from, her. After nearly twenty measures of relentless description, this moment seems to encapsulate all of her anguish and frustration, while simultaneously conveying an exhausted, defiant resilience.

2.3.6. Section VI (mm. 45–73)

The p-space of Section VI—shown in Figure 8—extends from B3 quarter-sharp (m. 60) to D5 quarter-sharp (m. 63), a span of fifteen semitones. It is a relatively quiet section, with a peak dynamic intensity of *mezzo-piano*. Additionally, this section contains the first instances of altered vocal timbre (mm. 63–64, 65–66, 70–71, and 72–73). During these passages the vocalist is asked to whisper specific text. Each whispered utterance involves similar vowel sounds (i.e., *froid*, *effroi*, and *pourquoi*). In measure seventy-two the saxophonist reinforces the sonic continuity of these vocal sounds by blowing air through the instrument, emulating the voice.

Due to syllabic text setting and sparseness of texture, the text being conveyed seems rather fragmented in this section, a relatively intimate period of self-reflection. The soprano haltingly sings that she, “does not wish for you to ruin your face with sighs, tears, or cries.” At the same time, she implies a subtle dread as she admits to being cold. This chill and anxiousness is reflected by the labored delivery of each syllable.

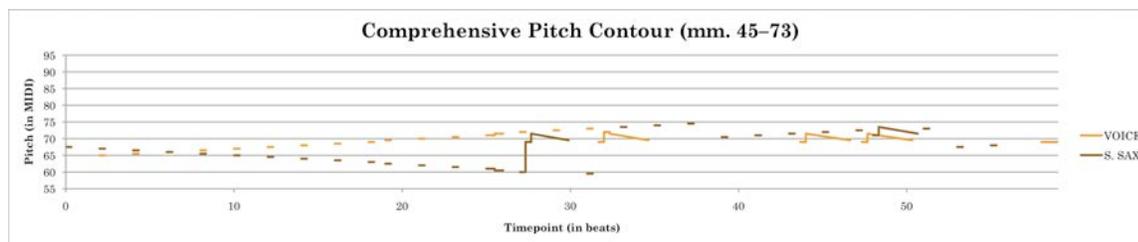


Figure 8. Pitch-space, mm. 45–73

In addition to the sonic imitation of whispering described above, this section includes several occurrences of a brief musical motive, which is reminiscent of sighing. This sigh-motive first occurs in the saxophone part (see Example 4), and it is imitated four times before the onset of Section VII. The motive begins with a brief ascending step or skip, which is followed by a relatively long, slow *glissando*. This is an example of a micro-level struggle between ascending and descending motion, between life and death. These microcosms exist within a larger realm, where a tangle of middleground ascending and descending lines frame sonic boundaries.

Example 4. *Un lieu verdoyant - Hommage à Gérard Grisey*, mm. 58–59

ge ci pur

mp
légèrement en dehors
comme une plainte

Section VI is the sparsest section of *ULV*, with an average density of 1.6 attacks per second. This sparseness is a direct result of middleground topological transformations. Ascending and descending microtonal lines, which were encountered in earlier sections of the work, are presented simultaneously here in an augmented form. The onset of each note along the continuum generally occurs on metric downbeats, with two notable exceptions: measures fifty-four and fifty-seven. In measure fifty-four there are two adjacent note onsets (beats one and two) and an added beat of rest, which maintains the established pattern of silence occurring between onsets. Similarly, measure fifty-seven contains two adjacent note onsets within the space of a single beat unit. Other than the aforementioned exceptions, which exemplify the notion of rhythmic distortion, the articulation of elements within these microtonal lines occurs at a consistent pace throughout the section.

After completing its descending microtonal scale (mm. 45–60), the saxophonist articulates the final three pitches of the vocalist's ascending line as well, continuing from the point in measure sixty where the voice left off. By changing timbre while the ascent continues, Leroux creates a smooth transition into the second half of this section (see Figure 8, time points 30–35). At this point, the texture is more motivic and imitative, though vestiges of the initial sonic environment persist with the presence of subtle ascending lines. These lines are composites of musical material in both the vocal and saxophone parts. After conducting a middle-analysis of this section, it is interesting to note that these relatively short ascending lines are actually part of a larger descending gesture. The lowest pitch of each ascending line is slightly lower than the previous, symbolizing a fundamental struggle between hope and despair.

2.3.7. Section VII (mm. 74–83)

Section VII is a seventeen-second passage in which all musical parameters are intensified or expanded. Similar to the processes that occur in Section I, this intensification begins on a single pitch (A4). As compared to the opening of *ULV* this pitch is a whole-step higher, which indicates a middleground ascent in musical trajectory between these two sections.

P-space is gradually expanded until it reaches the maximal interval of 6.5 semitones in measure eighty-three, spanning the distance between E4 quarter-sharp and B4 (see Figure 9). This expansion occurs in both the voice and saxophone parts at different rates. The vocalist executes slow, microtonal oscillations around A4 for much of the section, until a dramatic expansion occurs during the last four beats (mm. 82–83). The p-space expansion is more consistent within the saxophone part, as it gradually widens until measure eighty-two. At that time the saxophonist executes a continuously expanding trill above A4, which in itself is an expansion of p-space (see Example 5).

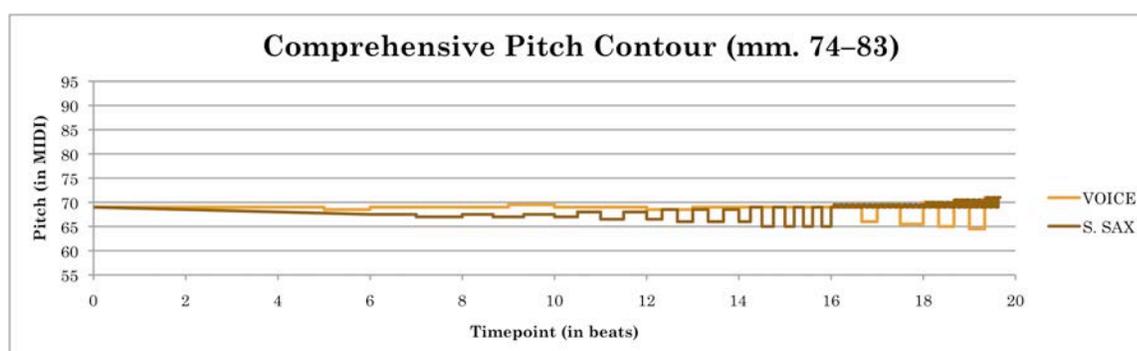


Figure 9. Pitch-space, mm. 74–83

Example 5. *Un lieu verdoyant - Hommage à Gérard Grisey*, mm. 82–83

The musical score consists of two staves. The upper staff is for the voice, with lyrics: "peut-être y a-t-il de l'es-pérance". It features three triplet markings over groups of three notes. A trill is indicated above the first measure. The lower staff is for the saxophone, also featuring a trill and triplet markings. Dynamics include "poco f" above the voice staff and "mf" below the saxophone staff.

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This section's dynamic contour is linked to the expansion of p-space occurring within the vocal part. The last two measures (mm. 82–83) include a *crescendo* from *mezzo-piano* to approximately *mezzo-forte*. This is the only dynamic alteration to occur (see Figure 10), and it coincides with the vocalist's increased pitch activity (see Example 5).

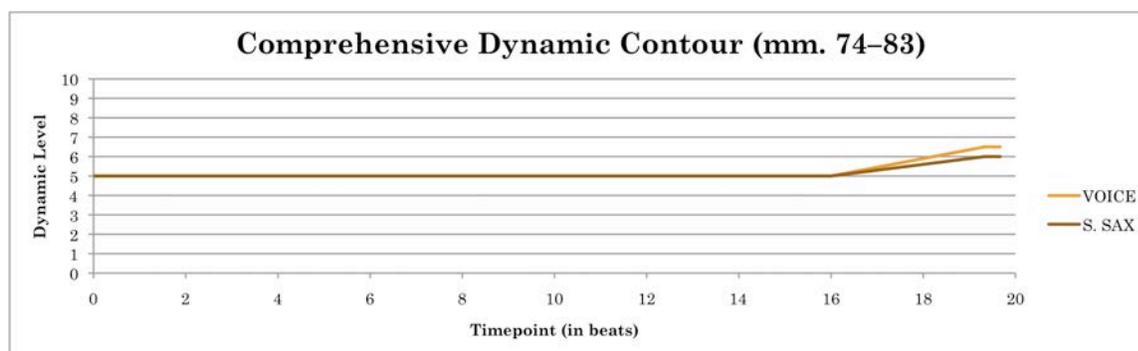


Figure 10. Dynamic intensity, mm. 74–83

A gradual increase in musical density contributes to the global process of intensification heard in Section VII (see Figure 11). As p-space expands, and the level of dynamic intensity

increases, the musical material becomes increasingly dense. The average density of this section is 4.2 attacks per second, which is identical to the density encountered in Section I. In spite of differences in their overall length and tempo, Section I and Section VII are topologically similar, in that their fundamental musical processes are the same.

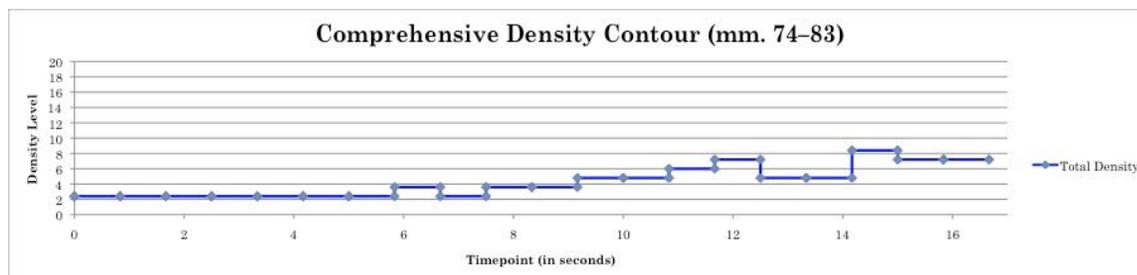


Figure 11. Density, mm. 74–83

The gradual intensification of dynamics and density, along with the expansion of p-space, coincides with a relatively uplifting text: *peut-être y a t-il de l'espérance* (is there perhaps some hope). Until now, we have musically experienced the struggle between life and death; this is the first time in which we hear explicit utterances of hope.

2.3.8. Section VIII (mm. 84–91)

Section VIII contains additional examples of musical intensification. Unlike Sections I and VII, this intensification is present in only two of the three sonic parameters currently under examination: p-space and density. Dynamic intensity is held constant throughout this sixteen-second passage.

In Figure 12 p-space is seen expanding outward from a central pitch (A4) until it spans the range of a fourth, from F4 three-quarter-sharp (m. 91) to B4 quarter-sharp (m. 90).

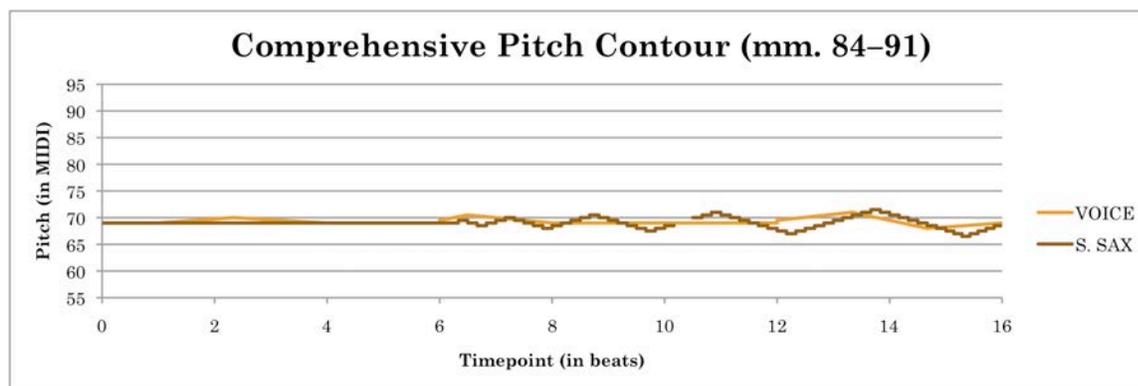


Figure 12. Pitch-space, mm. 84–91

Within the vocal part this p-space expansion begins with subtle *glissandi* to pitches above and below the central pitch. This process is mimicked by the saxophonist, who begins her own expansion with a *bisbigliando* that gradually transforms into a series of ascending and descending microtonal lines of increasing length. As seen in previous sections, the upper and lower boundaries of these lines form two simultaneous macro-lines: one ascending to B4 quarter-sharp and the other descending to F4 three-quarter-sharp. This collection of interrelated microtonal lines creates an interesting aural effect, wherein the saxophonist's sound orbits the prominent central pitch articulated by the voice.

Musical density fluctuates within this section as a direct result of the rhythmic activity associated with microtonal lines described above. Figure 13 shows an overall increase in the density of Section VIII as it unfolds through time, averaging at 6.4 attacks per second.

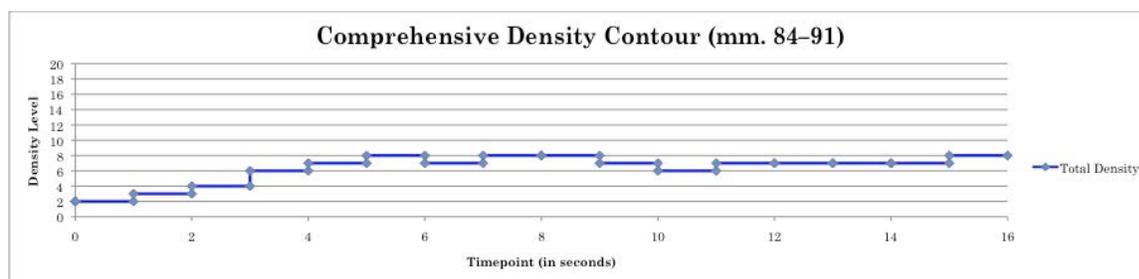


Figure 13. Density, mm. 84–91

2.3.9. Section IX (mm. 92–108)

The opening of Section IX is remarkably similar to measures eighty-two and eighty-three, which occur at the end of Section VII. When comparing these related measures (see Examples 5 and 6) notice that the voice's p-space is an identical wedge-gesture, resulting from boundaries created by ascending and descending microtonal lines. The rhythmic durations are different; yet, the process of intensification is maintained. When considering the saxophone part in isolation, these two examples share common surface features with regard to density and dynamic intensity. The only difference being the melodic depth and direction in which the musical trill expands. At the conclusion of Section VII the trill ascends to a whole-step above the primary pitch (written B4; sounding A4). In measures ninety-two and ninety-three the trill eventually spans the distance of five semitones below that same pitch. These figures are topologically similar, in that the musical material is transformed from one to the next by means of non-destructive processes (i.e., bending, folding, and stretching).

Example 6. *Un lieu verdoyant - Hommage à Gérard Grisey*, mm. 92–93

a Tempo sub. ♩ = 72 MM

poco f *léger*

Dans un lieu de lu - mière et de paix Un lieu ver-do-

tr *mf*

♯Tc G₄ → G₄

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A second, larger wedge-gesture—occurring in the saxophone part—begins to take shape in measure ninety-five (see Figure 14). A middle-analysis shows this part to be a continuum of small gestures, which contribute to the continuity of a larger musical idea. Again, this macroscopic topological transformation is indicative of the intensification process. At the apex of its growth, this passage represents one of the largest registral expansions within *ULV*, spanning from A-flat₃ to G₅ (mm. 105–107).

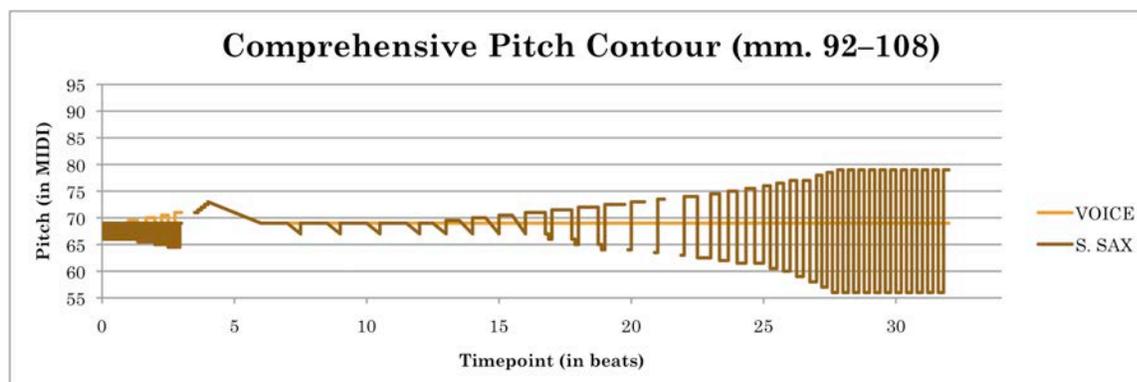


Figure 14. Pitch-space, mm. 92–108

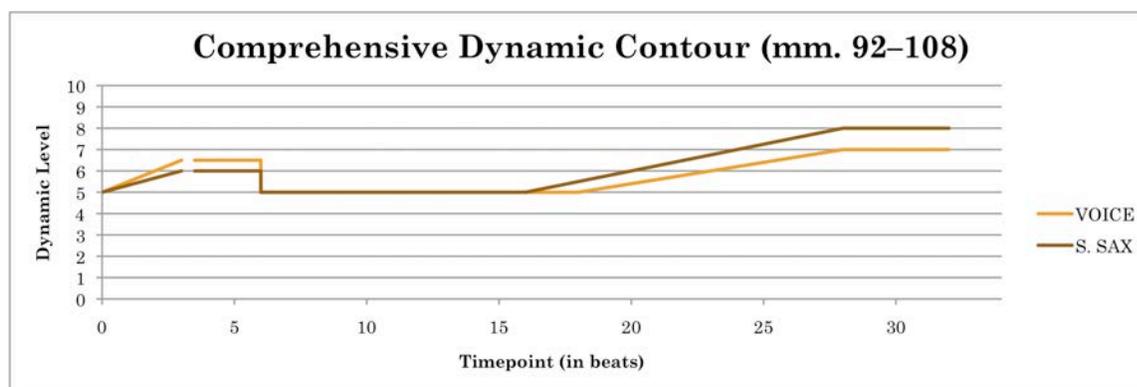


Figure 15. Dynamic intensity, mm. 92–108

As dynamic intensity increases with the expansion of p-space, so too does musical density (compare Figures 14, 15, and 16). There is an identifiable increase in density as each wedge-shaped gesture is executed, with the average density of this section being 4.45 notes per second.

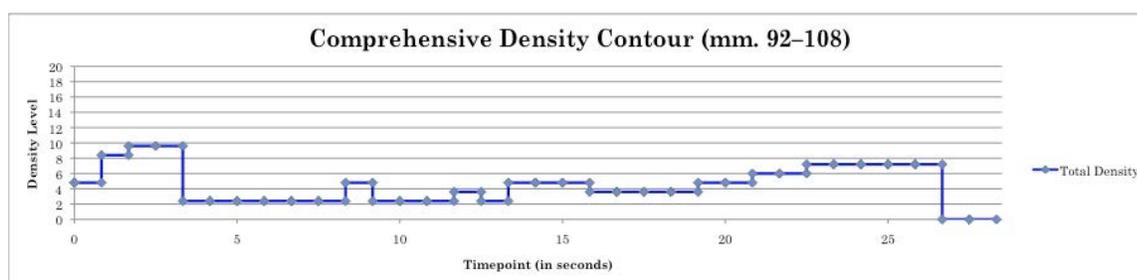


Figure 16. Density, mm. 92–108

The foreshortening of rhythmic durations usually accompanies an increase in density. Until this section, these durational alterations have come in the form of discretized rhythmic units that approximate continuous change from long durations to shorter ones (or vice versa), much in the same manor that microtonal scales approximate linear *glissandi*.

2.3.10. Section X (mm. 109–135)

At the most abstract level, the first half of Section X can be seen and heard as a single wedge-gesture (see Figure 17). Compared to similar gestures that have been encountered previously, this wedge is more angular in shape. It is a topological deformation of an ideal wedge-shape. In spite of this deformation the shape is clear, resulting from the gradual expansion of p-space in the saxophone part. This expansion is accomplished through the transmutation of microtonal scales into arpeggiated chords (mm. 118–124). The range of p-space eventually spans the distance between A-flat3 and E6 (m. 124).

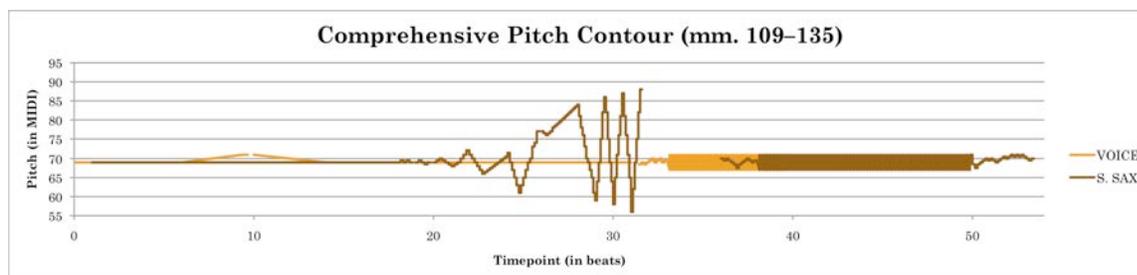


Figure 17. Pitch-space, mm. 109–135

Since the onset of Section VII (m. 74) there has been a common central pitch from which each new expansion of p-space departs: A4. The vocalist articulates this pitch at the beginning of Section X, and she quickly establishes a continuous pulse of legato eighth-note triplets. As heard in the previous section, the vocalist maintains activity at, or near, this central frequency throughout this twenty-seven-measure passage. In spite of this apparent macro-stasis within the vocal part, there is constant motion along four simultaneously occurring musical continuums: pitch, timbre, dynamic intensity, and duration.

Motion along the pitch continuum occurs relatively early in the vocal part, with an ascending *glissando* between A4 and B4, (mm. 112–113). This is followed immediately by a two-measure descending *glissando* that comes to rest on A4 (mm. 114–116).

In the midst of these subtle pitch alterations gradual timbral changes begin to occur. Coinciding with the descending *glissando* (m. 114) the vocalist is instructed to transform the vowel being sung. This transformation (from “a” to “wa”) is complete after three measures, at which point the vocalist is directed to bring out as many harmonics in her sound as possible. After five measures of this new timbre the overall sound is altered once more. This time the vocalist is to perform at the threshold of overtone singing (mm. 122–124). She is subsequently asked to improvise a microtonal melodic line, within the narrow boundary of four semitones (G4–B4), with her mouth closed.¹⁷ A fragment of whispered text follows this distant murmuring (mm. 130–132). The relationship between these timbral alterations, when viewed on single continuum, is one of diminished presence. It is as if a series of filters were being applied to the initial, fully voiced sound, altering its sonic characteristics until it becomes a noisy whisper: *mémoire pour Gérard*.

This diminutive profile is also a characteristic of Section X’s vocal dynamic contour (see Figure 18). After a brief *crescendo*, coinciding with the aforementioned ascending *glissando* (mm. 112–113), dynamic intensity decreases as the vocalist alters her timbre. The *poco f* indication (m. 130) is an exception to this overall decrease in energy; however, this type of dynamic indication is a necessity within the given context. In order for whispered text to be heard in a concert setting greater dynamic energy is required. The overall effect, however, is still one of decreasing intensity.

17. This musical idea is imitated by the saxophone three measures later (m. 127), and it continues throughout the remainder of the piece.

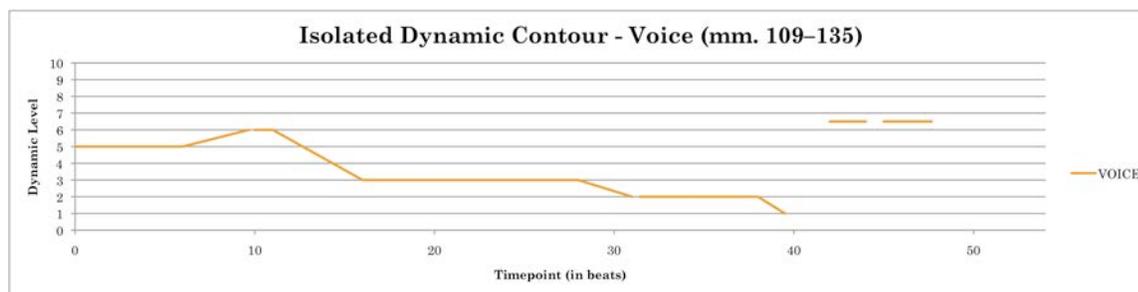


Figure 18. Vocal dynamic intensity, mm. 109–135

As change occurs along the three continuums described above there is simultaneous alterations in note duration. The eighth-note triplet pulse heard at the onset of Section X is gradually augmented within the vocal part (mm. 118–124). During this same period the density within the saxophone part gradually increases. The saxophonist begins to articulate sextuplet figures that are eventually transformed into dectuplets. Once again rhythmic interpolation contributes to an overall increase in musical density (see Figure 19), with the average being 7.5 attacks per second.

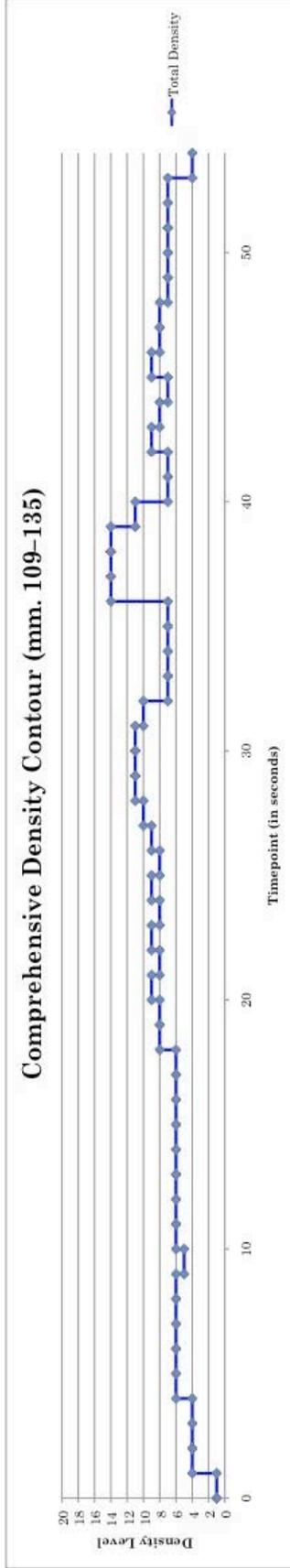


Figure 19. Density, mm. 109-135

CHAPTER 3. MACROANALYSIS AND CONCLUSION

3.1. Overview

This chapter will consider the independent sections of *ULV* within the larger organic context of a single, unbroken entity. By understanding the macro-trajectories of p-space, motion, dynamic intensity, and density, continuity is revealed as a binding force within Leroux's tribute to Gérard Grisey.

3.2. The Continuity of *ULV*

Many of the tempo modifications that delineate sections within this work are sudden, yet the continuity between musical sections is remarkably seamless. This seamlessness contributes to the organic nature of *ULV*, in as much as each musical section seems to be an outgrowth of those preceding it. Take, for example, the seam between Section I and Section II. There is a brief pause between these two sections, indicated by a breath mark in both parts. In spite of this space, Section II seems to be an outgrowth of Section I's final gesture. The apex of this final *glissando* is actually the first pitch of the second section. This makes the onset of Section II the next macro-pitch state along an evolving continuum. Similarly, Section II's opening dynamic level can be interpreted as a result of the previous measure's *crescendo*. In addition to dynamics and pitch, other musical elements contribute to the connectedness of adjacent sections within *ULV*. These linking elements include:

- 1) Elision—the beginning of a section is actually the end of a previous section;
- 2) Overlap—the beginning of a section is anticipated during the end of a previous section;
- 3) Tempo—there is a change in tempo (or a metric modulation) that facilitates smooth or seamless transition to the marked tempo of a subsequent section.

Table 3 illustrates the specific elements that link adjacent sections within *ULV*.

Table 3. Musical links between *ULV*'s sections

Sections	Linking Elements			
	Dynamic	Elision / Overlap	Pitch	Tempo
I–II	x		x	
II–III			x	
III–IV			x	
IV–V	x	x	x	x
V–VI		x		
VI–VII	x	x	x	x
VII–VIII			x	
VIII–IX	x	x	x	
IX–X			x	x

A greater number of linking elements between sections indicates a stronger continuity. This is noticeable when comparing the transition between Sections II and III with that of Sections IV and V. While a connection is still tangible between them, the only element binding Sections II and III together is pitch. Section III begins with a B4 in both parts, which is the starting pitch of each gesture within the previous section. Comparatively, the connection between Sections IV and V is so strong that it is difficult to aurally pinpoint the delineation between them. This is due to the fact that many linking elements are employed, achieving a smooth transition.

Given the relative fluidity of all sectional transitions within *ULV*, the entire piece can be heard as an unbroken musical journey. P-space, gestural motion, and energy can be examined as separate continuums along this journey, contributing to the work's overall trajectory.

3.2.1. P-space within *ULV*

Figure 20 illustrates the trajectory of p-space in *ULV*. The blue line represents the music's upper limit within each section, while the green line represents the lowest boundary. These boundaries show the total range of each section, not the actual details of surface p-space. The maximum and minimum boundaries in this figure facilitate an abstract comparison of p-space between adjacent sections. It is interesting to note that the within the registral boundaries many sections feature gradual p-space expansion on the music's surface as time unfolds.

Though the upper boundaries are distinct, the lower limits of Section I and Section II are identical. This similarity helps to maintain the continuity of p-space between these sections. Similarly, there is oblique motion as the p-space boundaries of Sections II, III, and IV contract. The fixed upper threshold of these sections becomes the lowest limit of Section V.

Sections V through IX exhibit a different type of p-space continuity than that of the opening sections. The boundaries of p-space shift in similar motion between Sections V and VI, and Sections VII and VIII. Elsewhere the outer limits of p-space expand and contract in contrary motion (between Sections VIII and IX, and Sections VI and VII respectively).

Sections IX and X contain identical lower limits, the same type of continuity found between Sections I and II. Section X also features the largest registral expanse within *ULV*. While the fluctuation of p-space is not a linear progression from beginning to end, the fact that

the largest pitch span occurs within the final section is significant. The greatest expansion of p-space is one of the last musical processes heard, which can be viewed as a culmination of the expansions encountered in previous sections.

When looking abstractly at each section's p-space it would be easy to assume that the surface material of each section reflects these seemingly drastic changes in register. Each section's surface-level pitch characteristics, however, are more tightly bound together than Figure 20 is able to illustrate. To compensate for this, Figure 21 shows the average pitch level¹ of each section. From this one can see that the fluctuation of pitch within *ULV* is not drastic. The work sits primarily within the fourth register of p-space (i.e., C4–B4). The most significant deviation occurs in Section V, when both musicians perform suddenly at the highest part of their range (mm 42–43). This anomaly is easily absorbed by the consistency of the music that surrounds it. The continuity of p-space is actually a subtle ebb and flow within the narrow confines of a single register.

1. An average was taken from encoded pitches within each section of *ULV*; this shows the pitch around which most musical material occurs within a given passage.

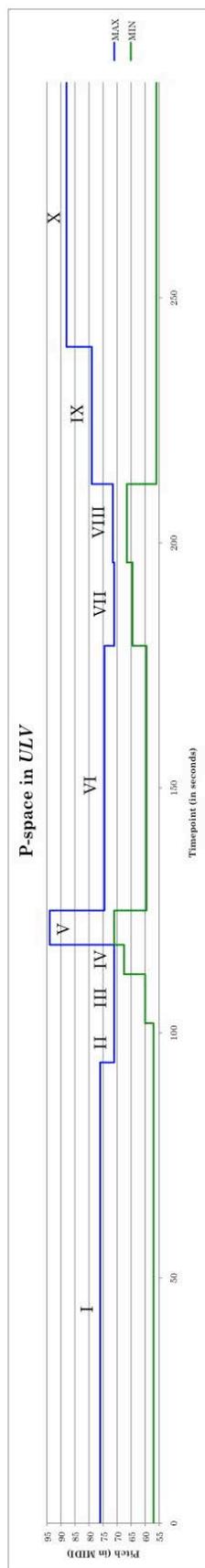


Figure 20. Pitch-space within *Un lieu verdoyant - Hommage à Gérard Grisey*

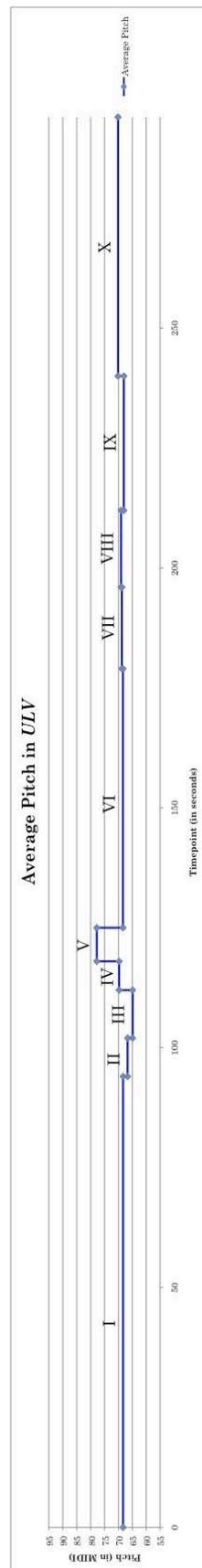


Figure 21. Average pitch level within *Un lieu verdoyant - Hommage à Gérard Grisey*

3.2.2. Motion within ULV

The tangle of ascending and descending gestures within *ULV* are representative of two complex emotions: hope and despair. In general, listeners often associate ascending lines with increasing energy, optimism, joy, and/or life, while associating descending lines with decreasing energy, pessimism, sadness, and/or death. As described in Chapter Two, *ULV* contains many examples of these contrasting gestures/emotions, which are presented in succession or in layers. Figure 22 illustrates the predominance of each gesture-type across contiguous chunks of the music's surface. By examining the change in this predominance over time one can begin to understand the abstract emotional continuum underlying *ULV*.

Section I can be viewed as having three subsections, illustrated in Figure 22 (i.e., mm. 1–10, mm. 11–17, mm. 18–24). The changing directionality of gestures supports the perception of these three divisions: the first descending, the last ascending, and the middle a mixture of the two. The remaining sections of *ULV* do not exhibit the same variety of motion within their boundaries. These sections contain only a single type of gesture, or thoroughly integrate ascending and descending lines.

Of the 136 gestures identified within *ULV* eighty-one are descending. Since this work is based upon the book of Lamentations the predominance of descending material is likely to be anticipated, given that the emotional characteristics of laments are often associated with grief. Section I (mm. 1–24) contains an equal number of ascending and descending gestures, with fifteen occurrences of each. The music's "hopeful" ascension is subsequently dashed, as the second and third sections (mm. 25–32) are collectively comprised of twelve descending gestures. Section IV (mm. 33–39) includes a middleground stepwise quarter-tone ascent embedded in a

descending surface texture, articulated by both performers. This ascending line is an abstract continuum formed between the lowest pitches of each descending figure. Equilibrium of motion occurs in Section V (mm. 40–44), where a single example of each gesture-type occurs. In subsequent sections, ascending gestures consistently outnumber their counterparts by a small margin. This consistency is broken in Section IX (mm. 92–108), as descending lines dominate the musical soundscape. The final section (mm. 109–135) is again comprised of mostly ascending material, with the last dramatic gesture performed by the saxophonist in measure 124. This final ascending arpeggio, in combination with the subtle ascent of each section's average pitch level, could allude to the triumph of hope over death and despair.

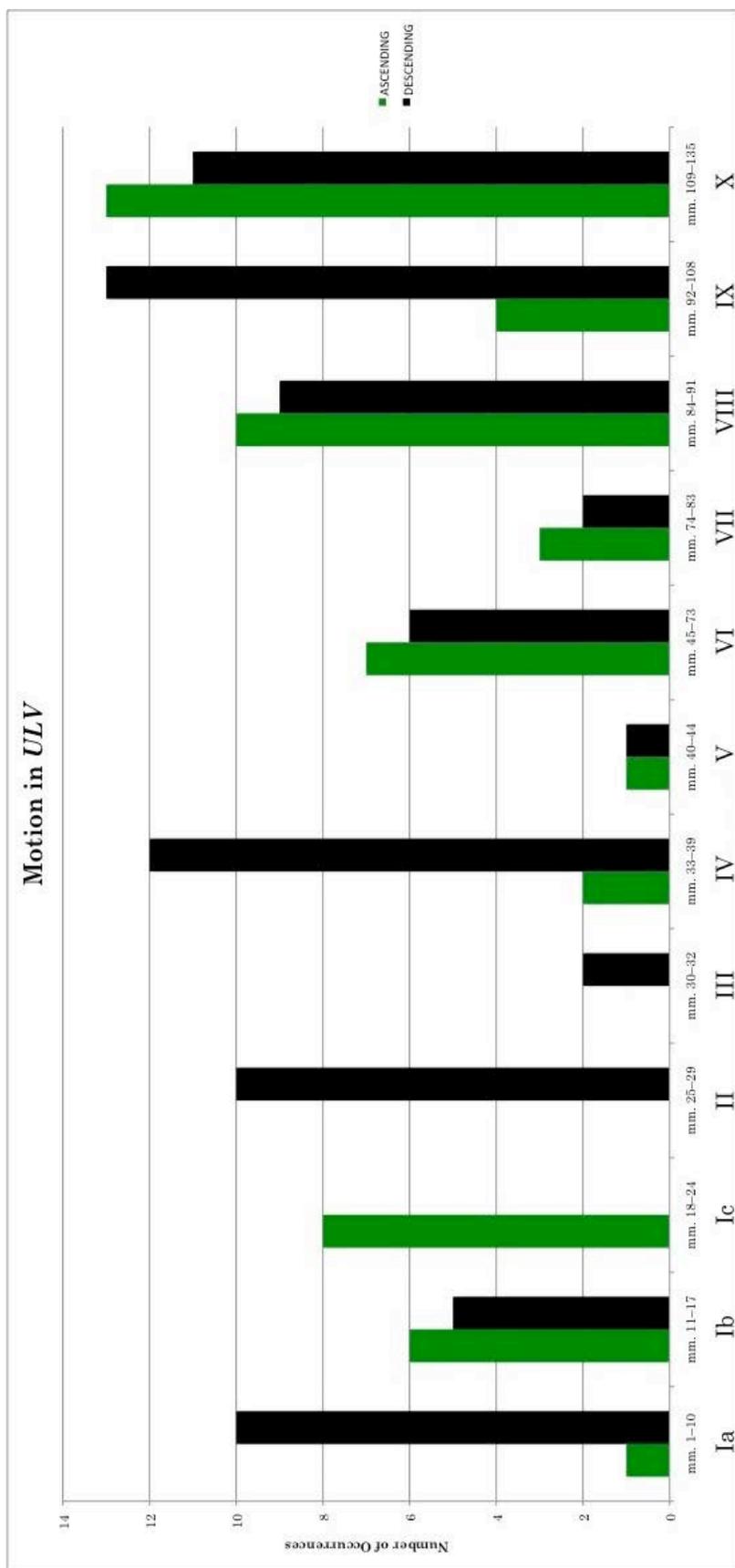


Figure 22. Motion within *Un lieu verdoyant* - *Hommage à Gérard Grisey*

3.2.3. Energy within ULV

Figure 23 details the maximum dynamic range occurring within each section; blue and green lines illustrate upper and lower limits respectively. The adjacent dynamic boundaries of Sections I through VI are quite distinct, unlike the boundaries of p-space described in 3.2.1. Some commonalities, however, can be seen when considering the dynamic trajectory of the first six sections. For example, Sections I and VI possess the same lower limit, and Sections II and IV span an identical dynamic range. Section III's dynamic intensity is the same as the lower boundary of Section V. The presence of these commonalities helps to establish links between non-adjacent musical sections.

Dynamic boundaries within the latter half of *ULV* share more similarities than those previously encountered. The upper limit of Section VI becomes the lower limit of Section VII, which is subsequently the only dynamic level present in Section VIII. This dynamic level becomes the lower limit of Section IX, which shares a common upper boundary with the final section.

While looking for additional commonalities between non-adjacent sections across *ULV* the following connections may be observed:

- 1) Sections II, IV, IX, and X all contain the same upper dynamic limit;
- 2) Sections III and VIII are the only areas to contain only one dynamic level;
- 3) The dynamic span of Sections I and X are similar.

Relative to Section III, Section VIII represents an increase in dynamic intensity. Similarly, Section X represents an increase in dynamic intensity relative to Section I. These global

trajectories are reminiscent of the dynamic intensification experienced within individual sections of music.

This process of global intensification is also exhibited through each section's average density (see Figure 24). There is a sharp increase in density from Section I to Section II, which is echoed by a density change from Section III to IV. Subsequent sections become increasingly dense as the piece progresses. Abstractly, one can see that the overall trajectory increases over time, in spite of some non-linear fluctuation in the density of adjacent sections.

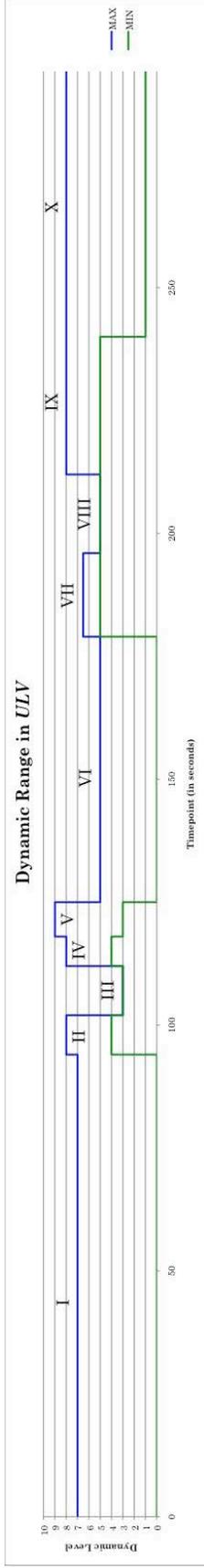


Figure 23. Dynamic intensity within *Un lieu verdoyant - Hommage à Gérard Grisey*

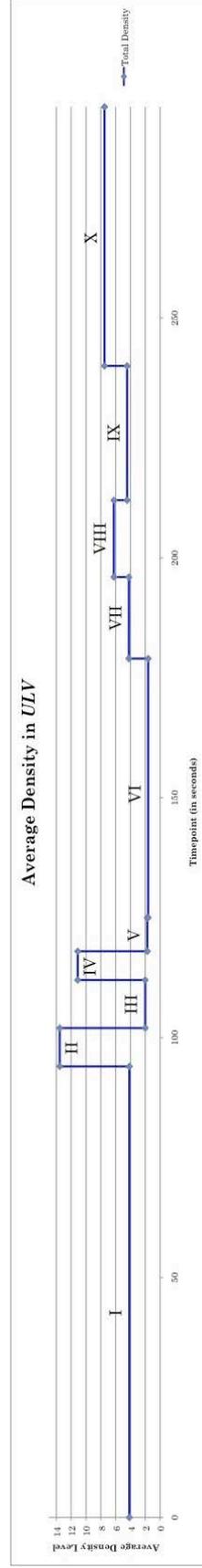


Figure 24. Average density within *Un lieu verdoyant - Hommage à Gérard Grisey*

3.3. Final Reflection

Philippe Leroux is an important contemporary composer, whose musical contributions have received international attention and recognition. Having studied in Paris during the formative years of Spectralism, Leroux has created music that contains characteristics closely associated with Spectral Music. In his tribute to Gérard Grisey, a founding member of the Spectral Movement, these characteristics permeate all structural levels.

Spectral techniques found in *ULV* have been discussed within this document at both the microscopic and macroscopic levels. Processes of expansion and intensification can be heard locally, within specific musical sections, and globally, when considering the piece as a whole. The technique of interpolation occurs between pitches through the use of *glissandi* and microtonal scales. Rhythmic interpolation is heard connecting states of relatively low and high musical density. Additional interpolation occurs through the employment of gradual tempo alterations (accelerations and decelerations), smooth dynamic changes, and subtle timbral modifications (most noticeable in Section X).

Topological transformations maintain a sense of continuity between compositional materials within *ULV*. The identity of each musical figure is preserved, since these transformations are non-destructive. Ideas are compressed, augmented, delayed, bent, or shifted both registrally and temporally. The trajectory of these changes is a scaffold beneath the musical surface; it is the essence of *ULV*.

Written during a period in which Leroux was consumed by the notion of musical continuity, *ULV* is a rich compositional soundscape grounded in simplicity. Leroux's deliberate use of techniques that are modeled on the listener's perception allows for musical processes and

gestures to be understood as states of continuous motion along a single trajectory. Ideas are connected along several musical continuums, which include pitch (p-space), energy (dynamics and density), and gesture (ascending and descending melodic motion). This connectedness facilitates an organic unfolding of sound, and creates unity within the composition.

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APPENDIX A. TEXT FOR ULV

Text by Philippe Leroux after the Lamentations of the Prophet Jeremiah
(text layout and translation by Andrew Martin Smith)

• Section I (mm. 1–24) •

Incline la tête vers la terre
Ta plaie est grande comme la mer
Que puis-je dire
Je n'ai pas vécu la moitié de mes jours
Que déjà me voici au seuil, au seuil de la
porte de la mort,
De la naissance au seuil
Au seuil
Au seuil
Seriez-vous insensible, vous tous qui passez
sur le chemin
Regardez et voyez

(English Translation)

Bow your head toward the earth
Your wound is as great as the sea
What can I say
I have not lived half of my days
Yet here I am already at the threshold, at the
threshold of Death's door,
From birth to the threshold
To the threshold
To the threshold
Would you be insensitive, all you who pass
on the path
Look and see

• Section II (mm. 25–29) •

Il a étendu un filet devant mes pas
Il m'a fait trébucher
Il m'a jeté dans la désolation où je languis
tout le jour
Il m'a fait habiter dans les ténèbres
Il a usé ma chair et ma peau

He has stretched a net before my footsteps
He has made me stumble
He has thrown me into desolation where I
languish all day
He has made me dwell in darkness
He has worn out my flesh and my skin

• Section III (mm. 30–32) •

Il m'a oté toute issue

He has removed every exit

• Section IV and V (mm. 33–44) •

Il m'a rassasié d'amertume
Il m'a entouré d'un mur
Il a brisé mes os
Il a bouleversé
Il a barré
Il fermé
Il m'a
Il
Il
Il
On me fait violence

He has filled me with bitterness
He has surrounded me with a wall
He has broken my bones
He has shattered
He has barred
He closed
He has
He
He
He
One has made an effort to overcome me

• Section VI (mm. 45–73) •

Je ne veux pas que tu abîmes ton visage pur
 Pur
 Ni soupirs
 Pur
 Froid
 Effroi
 Ni pleurs
 Ni cris
 J'ai froid
 Pourquoi

I do not want you to damage your pure face
 Pure
 Neither sighs
 Pure
 Cold
 Dread
 Nor tears
 Nor cries
 I am cold
 Why

• Section VII (mm. 74–83) •

Pourquoi assieds toi à l'écart en silence
 Peut-être y a-t-il de l'espérance

Why do you sit out of the way in silence
 Is there perhaps some hope

• Section VIII (mm. 84–91) •

Espoir que je resplendisse de ma première
 beauté

Hope that I might brightly shine with my
 initial beauty

• Section IX (mm. 92–108) •

Dans un lieu de lumière et de paix
 Un lieu verdoyant
 Là tout est splendeur ineffable

In a place of light and peace
 A verdant place
 There everything is ineffable splendor

• Section X (mm. 109–135) •

Mémoire pour Gérard

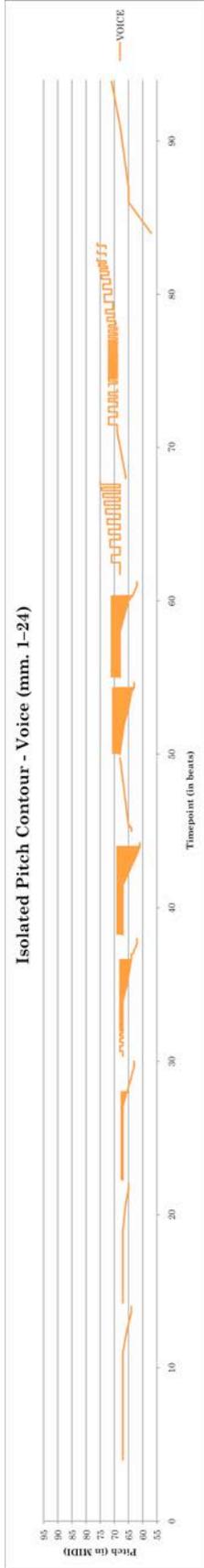
Memoire for Gérard

APPENDIX B. TEXT COMPARISON

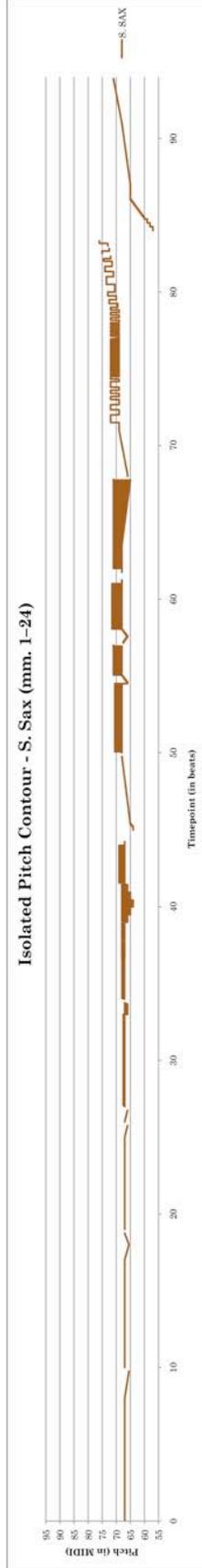
TEXT FROM LAMENTATIONS	CHAPTER : VERSE	RELATED SECTION IN <i>ULV</i>
All night long she cries; tears run down her cheeks. Of all her former friends, not one is left to comfort her.	1:2	Section VI
"Look at me, Lord," the city cries; "see me in my misery."	1:11	Section I
"Look at me!" she cries to everyone who passes by.	1:12	Section I
He set a trap for me and brought me to the ground.	1:13	Section II
Jerusalem's old men sit on the ground in silence, With dust on their heads and sackcloth on their bodies.	2:10	Section VII
Young women bow their heads to the ground.	2:10	Section I
O Jerusalem, beloved Jerusalem, what can I say? How can I comfort you? No one has ever suffered like this. Your disaster is boundless as the ocean; there is no possible hope.	2:13	Section I
People passing by the city look at you in scorn.	2:15	Section I
He drove me deeper and deeper into darkness	3:2	Section II
He has left my flesh open and raw, and has broken my bones.	3:4	Sections II and IV
He has shut me in a prison of misery and anguish.	3:5	Section II
He has forced me to live in the stagnant darkness of death.	3:6	Section II
He has bound me in chains; I am a prisoner with no hope of escape.	3:7	Section III
Yet hope returns when I remember this one thing: The Lord's unfailing love and mercy still continue, Fresh as the morning, as sure as the sunrise.	3:21–23	Sections VIII and IX
When we suffer, we should sit alone in silent patience; We should bow in submission, for there may still be hope.	3:28–29	Sections I and VII

APPENDIX C. PITCH CHARTS OF ULV

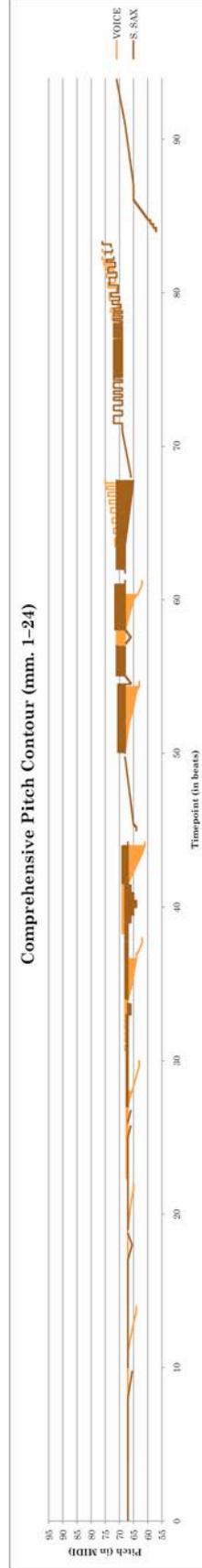
Isolated Pitch Contour - Voice (mm. 1-24)

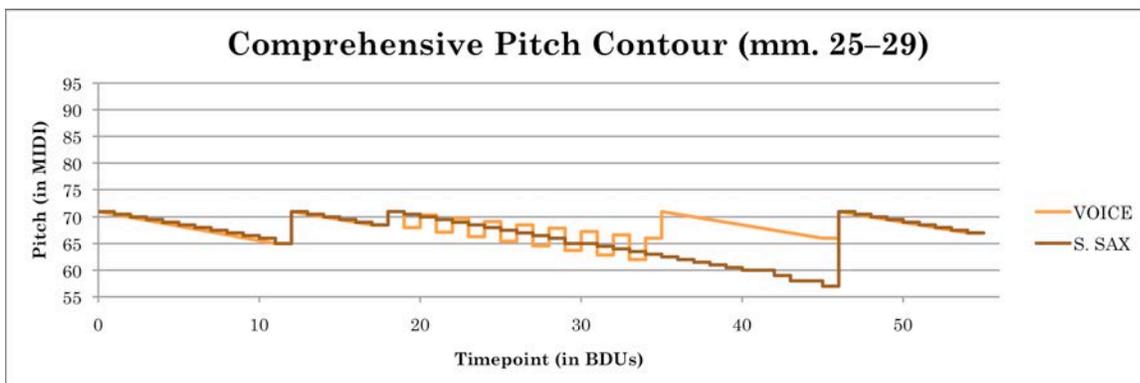
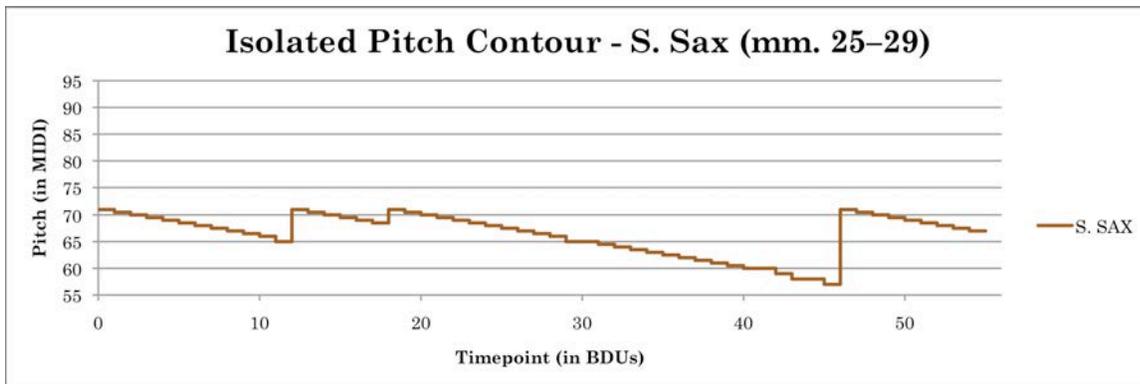
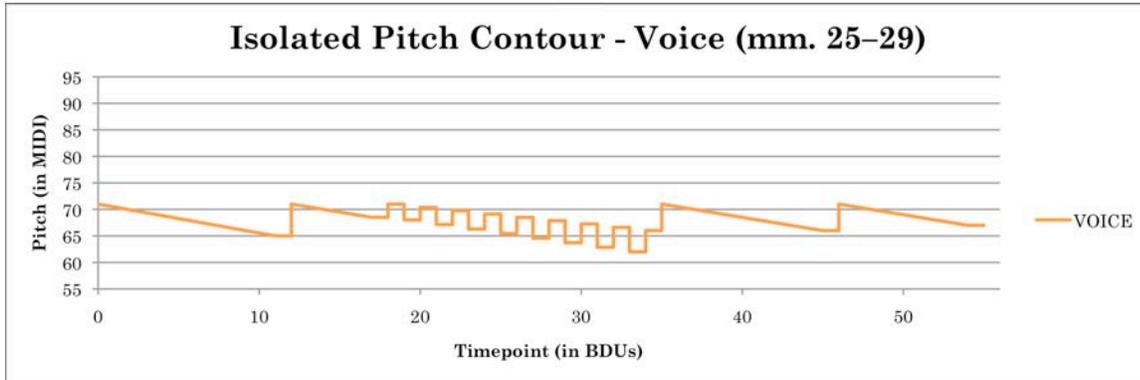


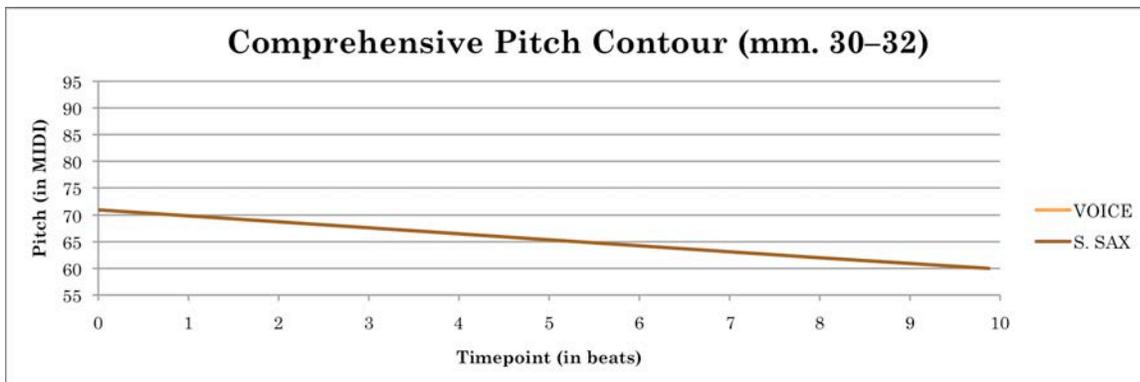
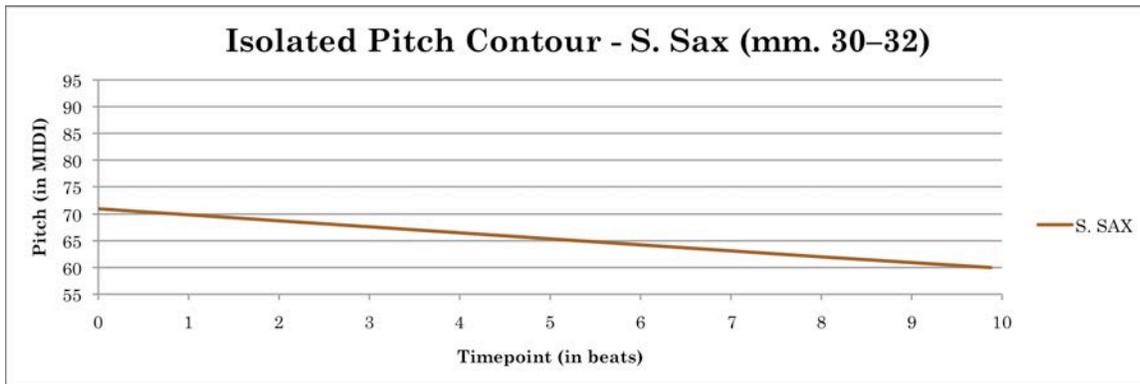
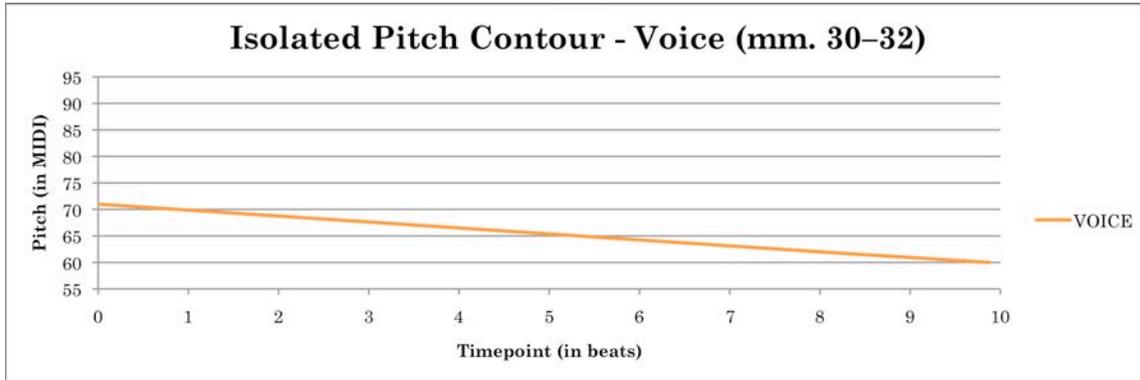
Isolated Pitch Contour - S. Sax (mm. 1-24)

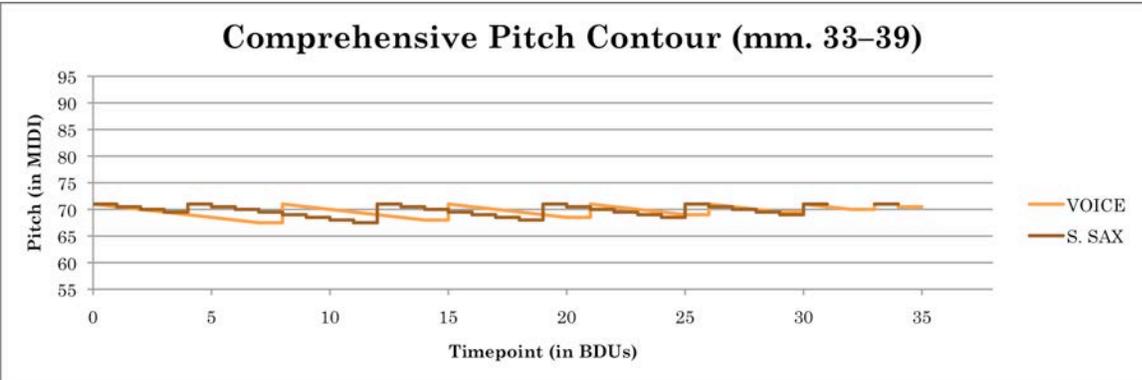
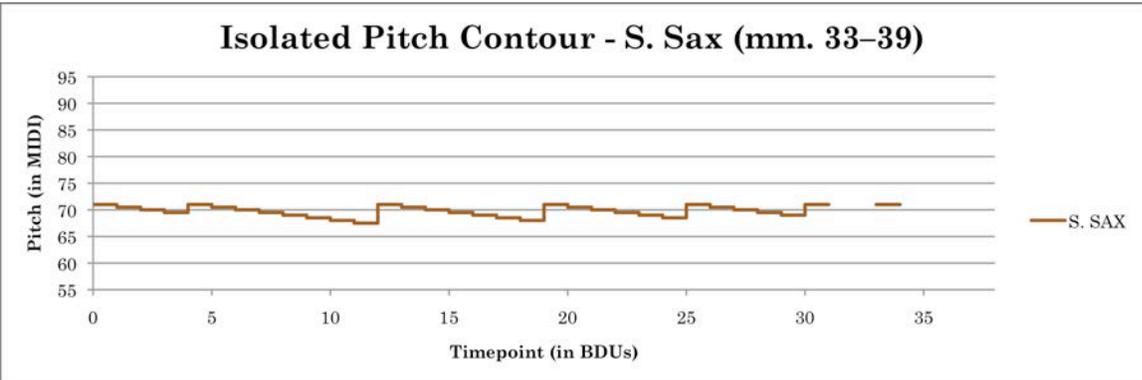
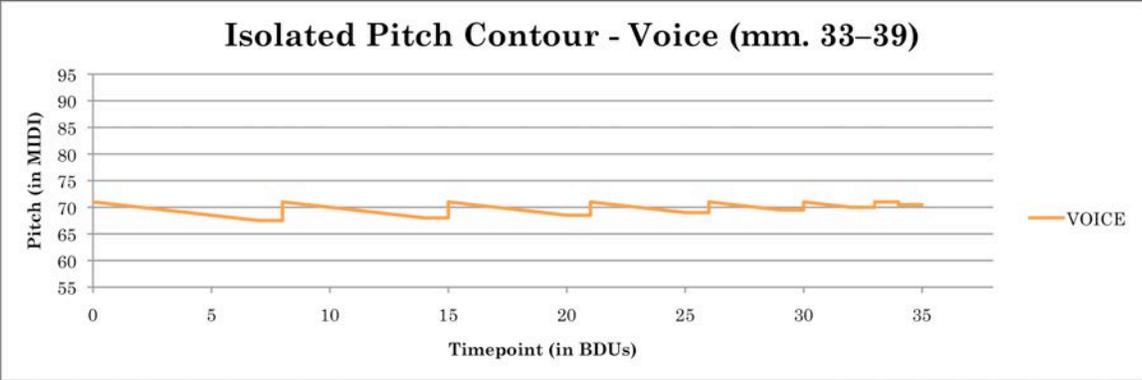


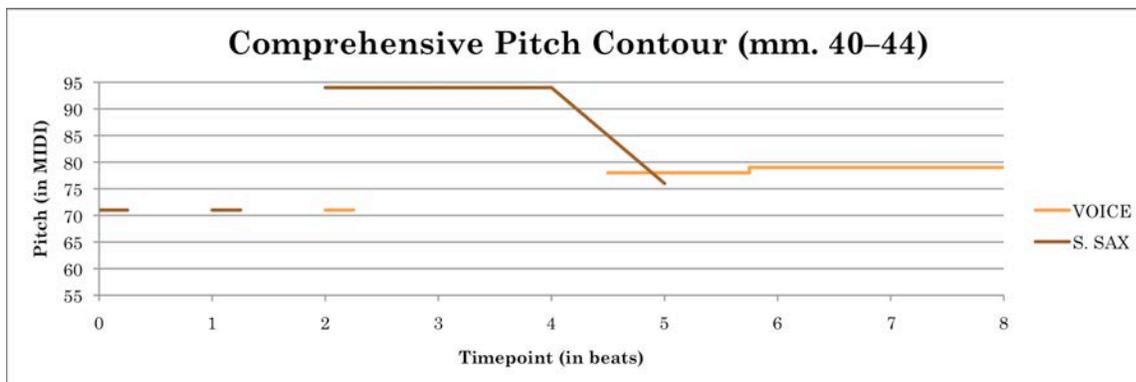
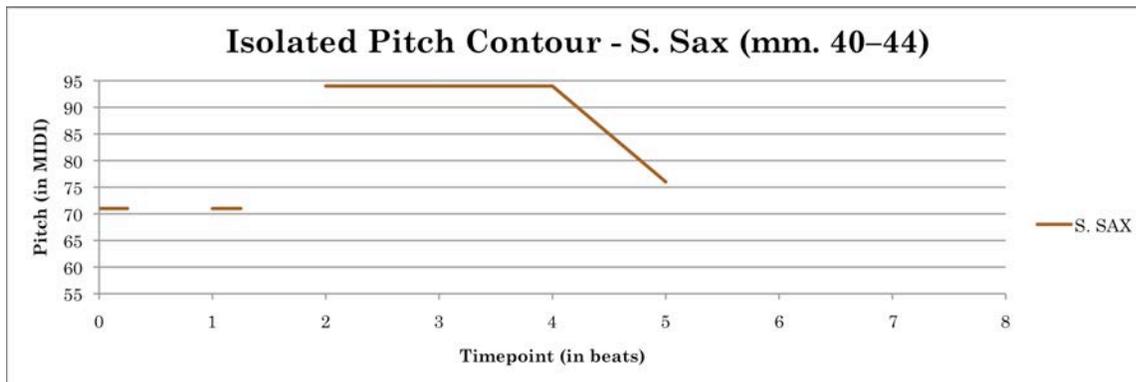
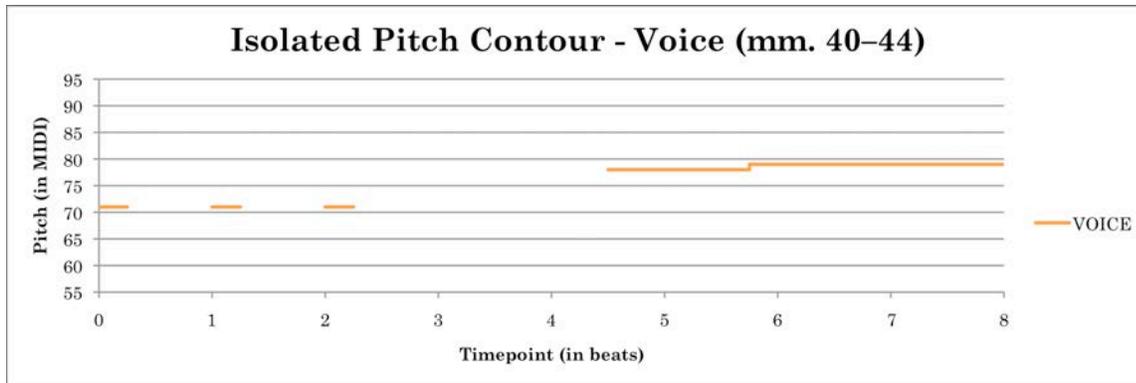
Comprehensive Pitch Contour (mm. 1-24)

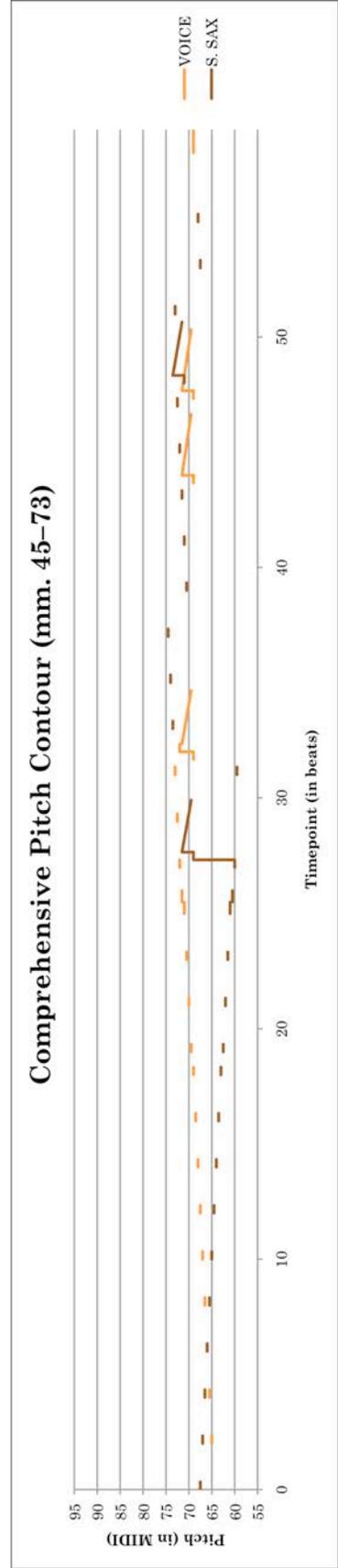
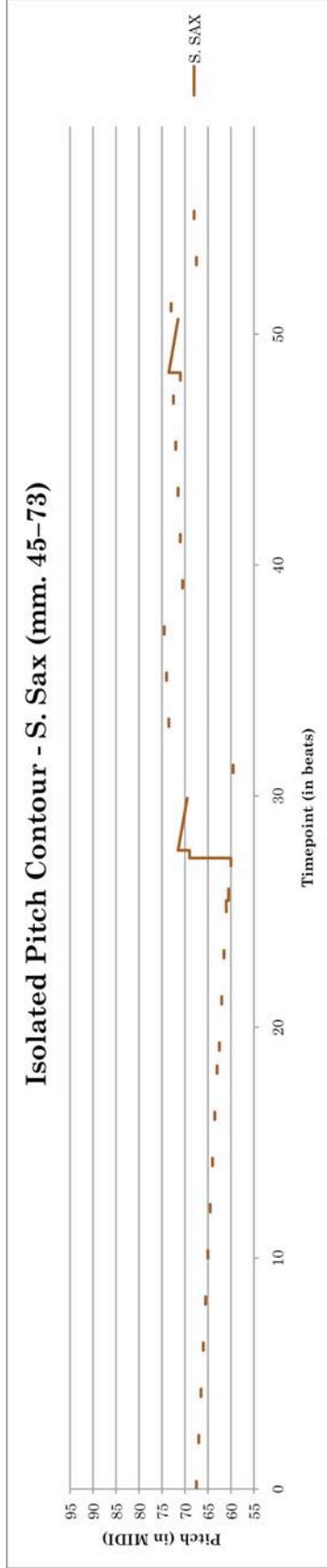
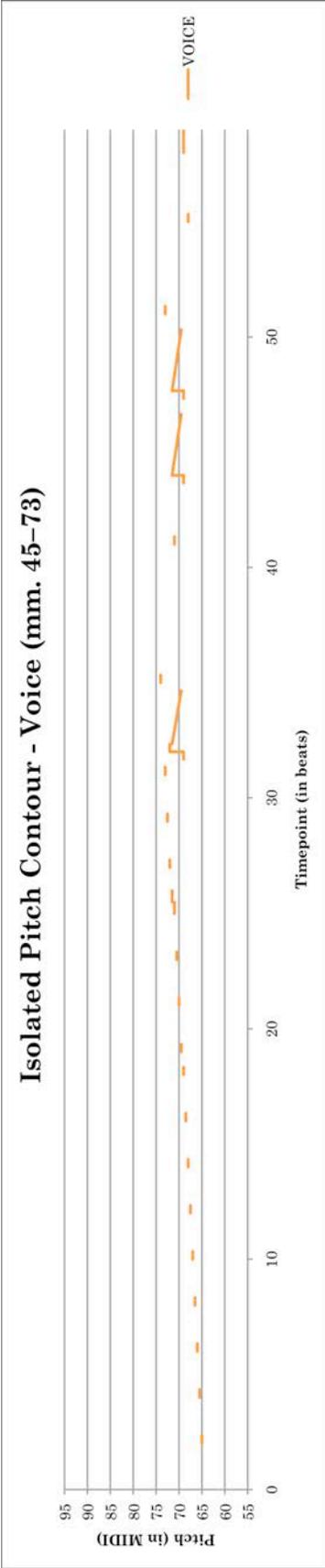


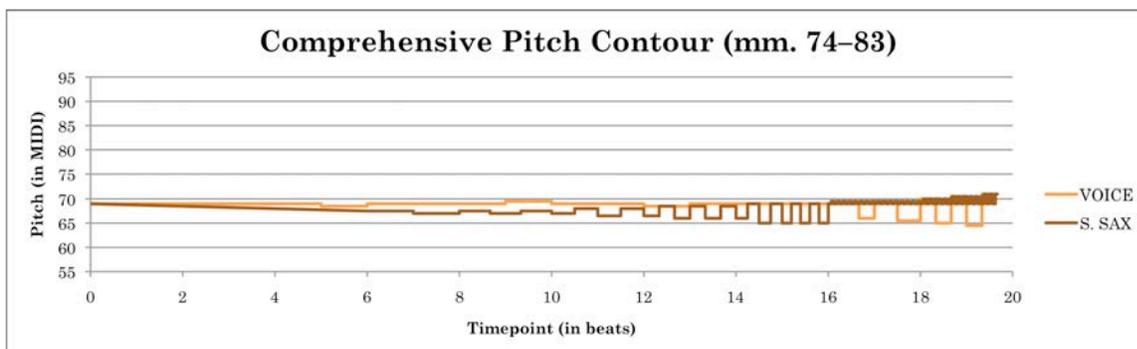
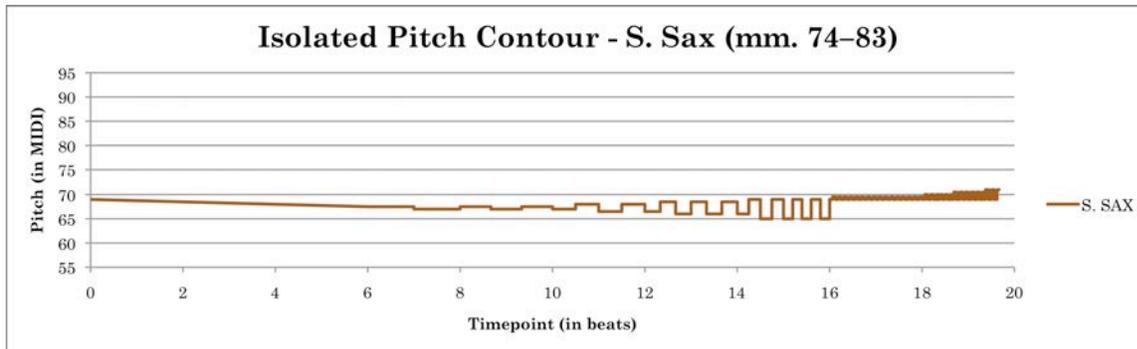
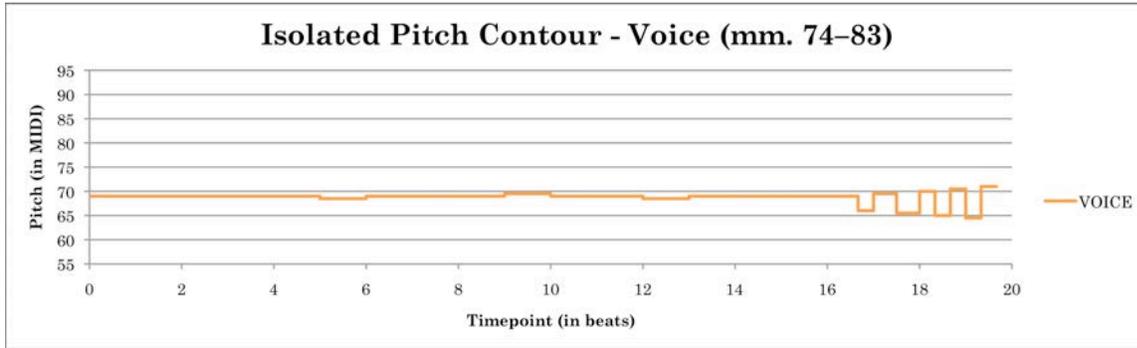


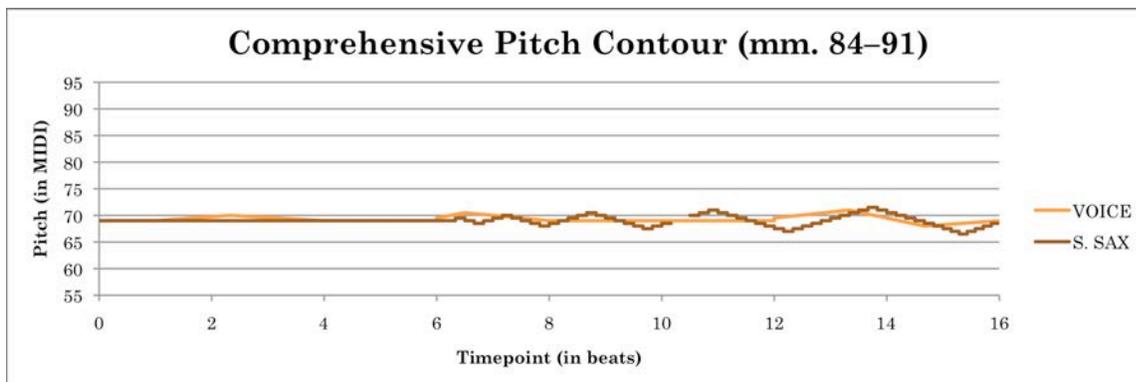
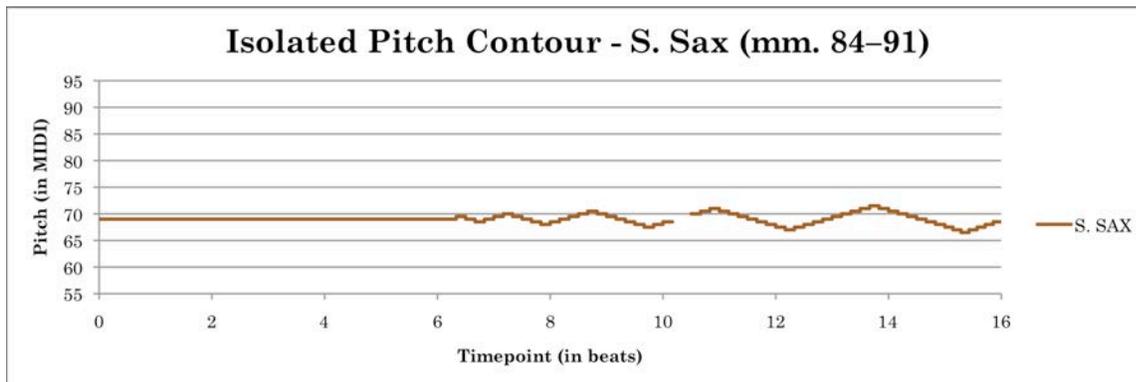
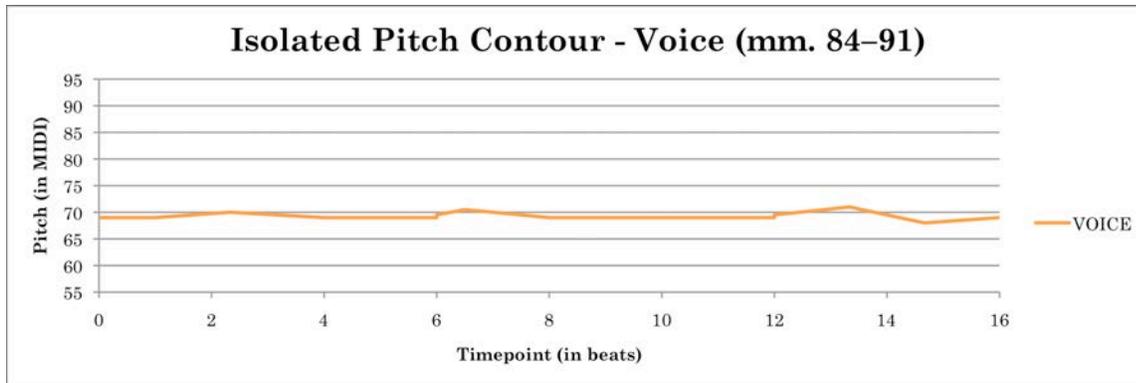


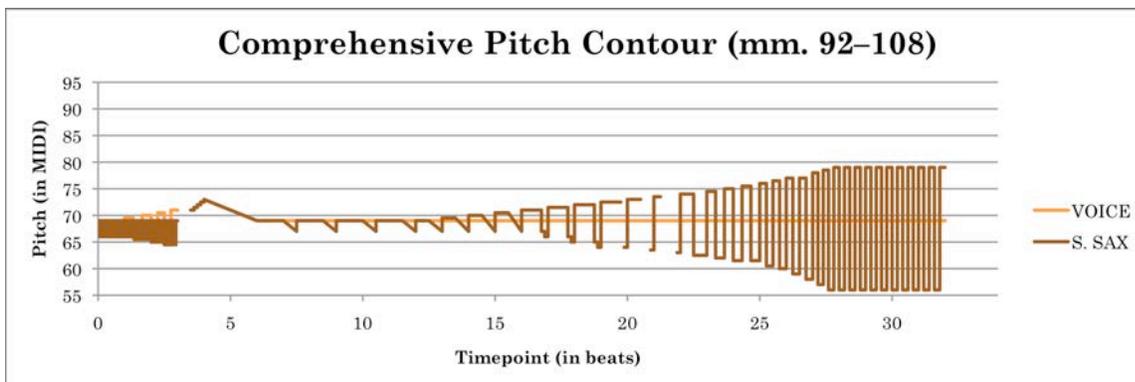
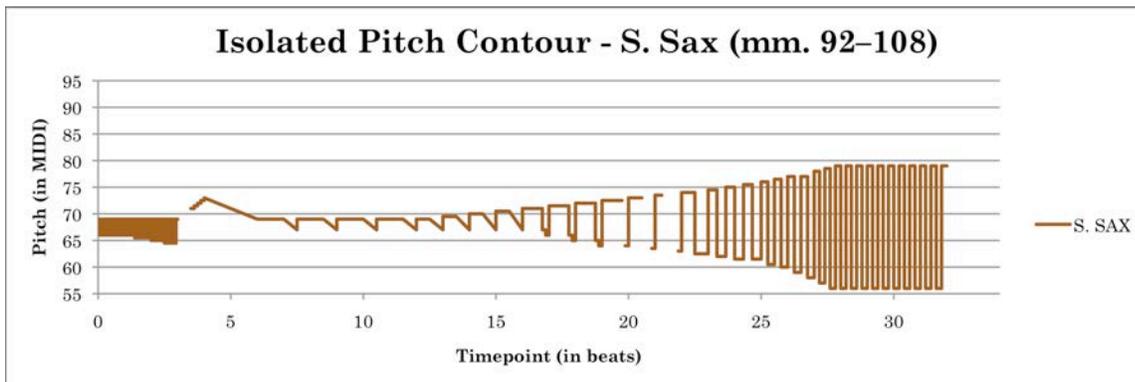
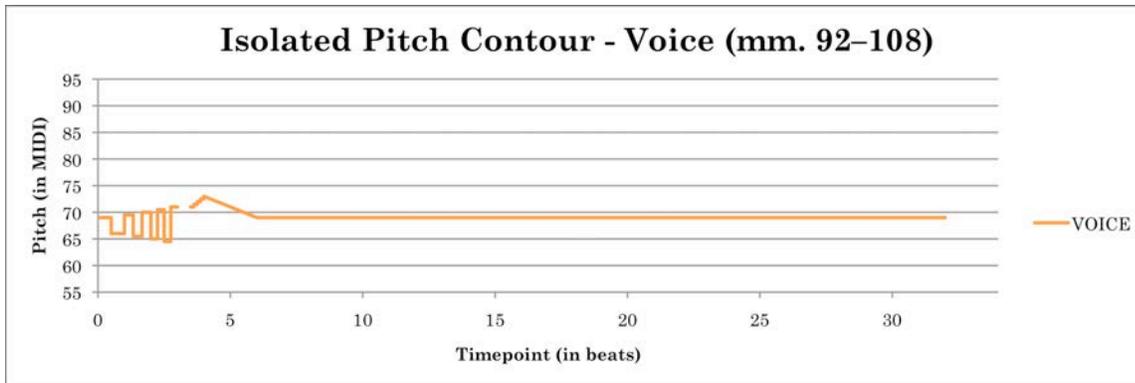


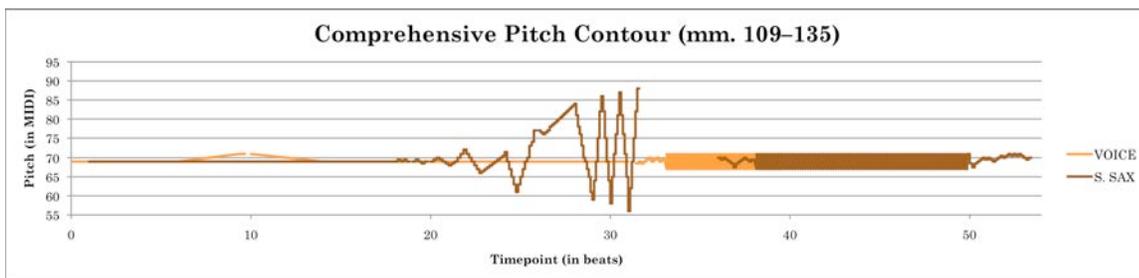
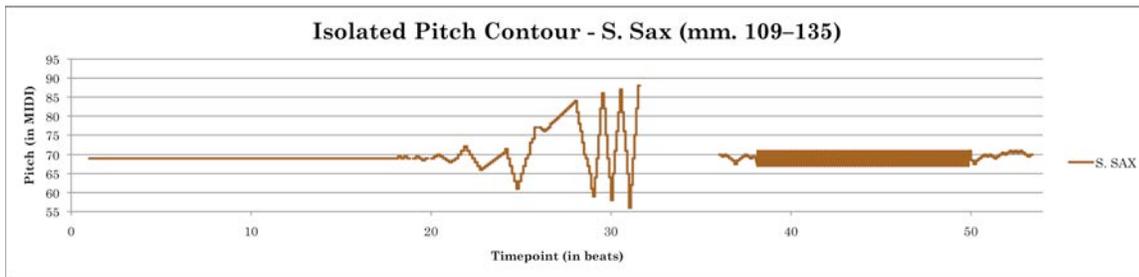
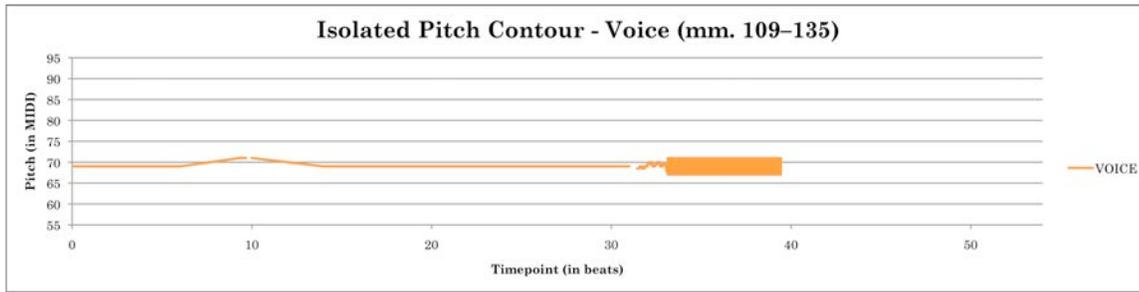


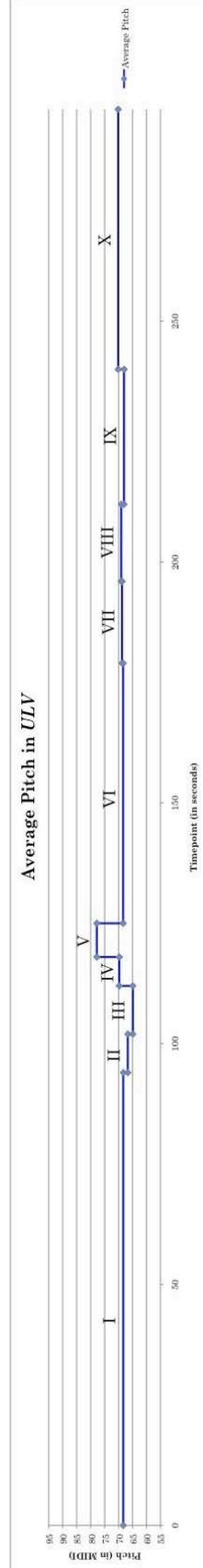
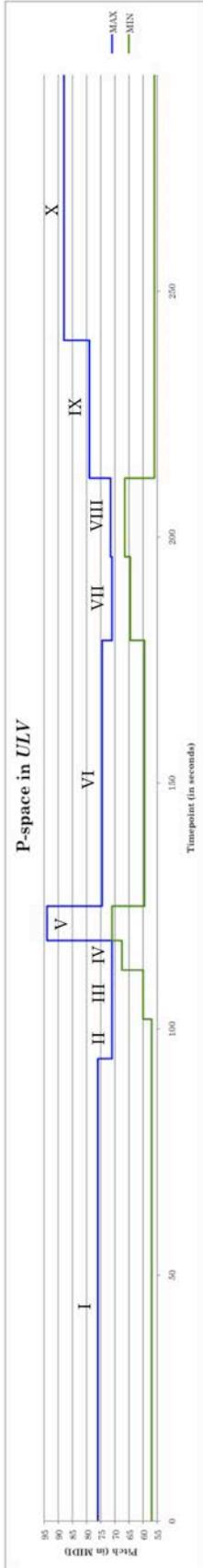




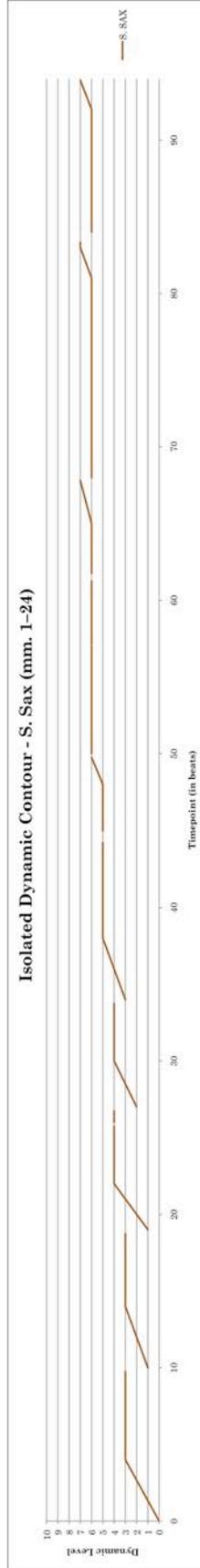
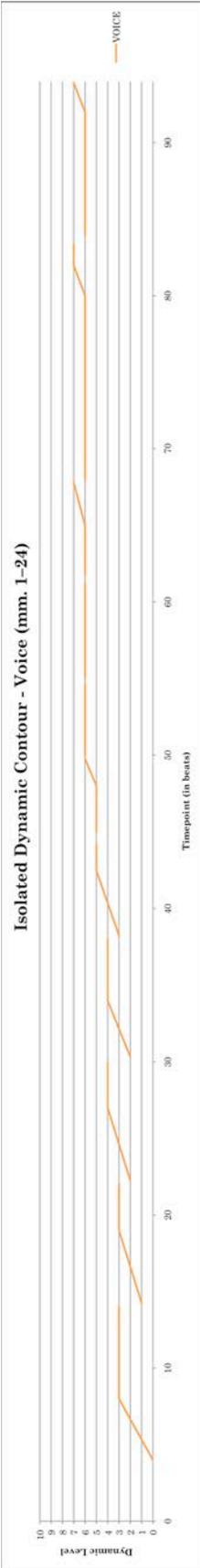


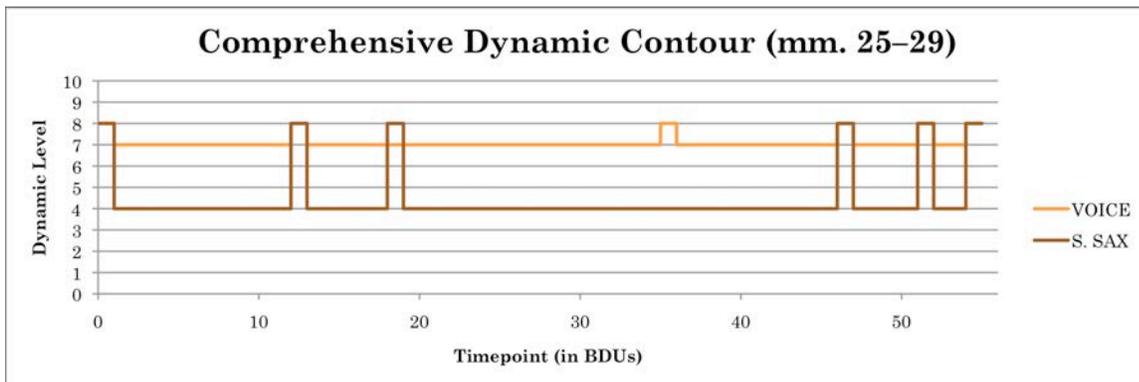
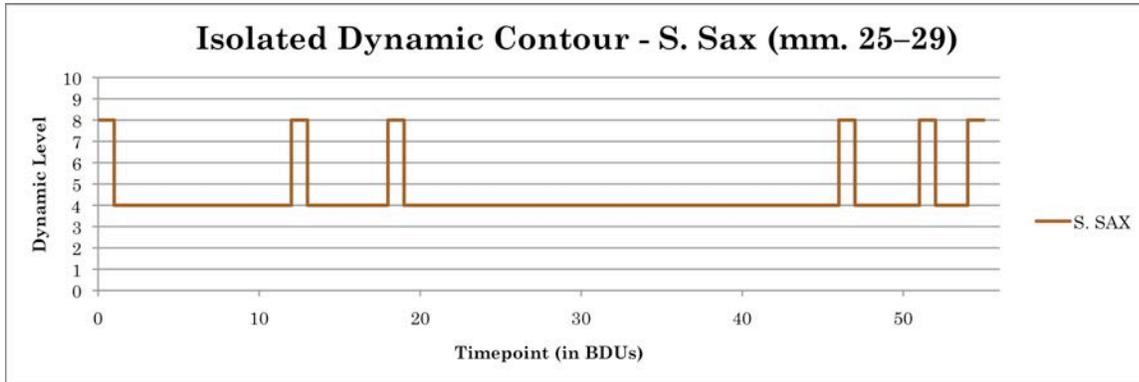
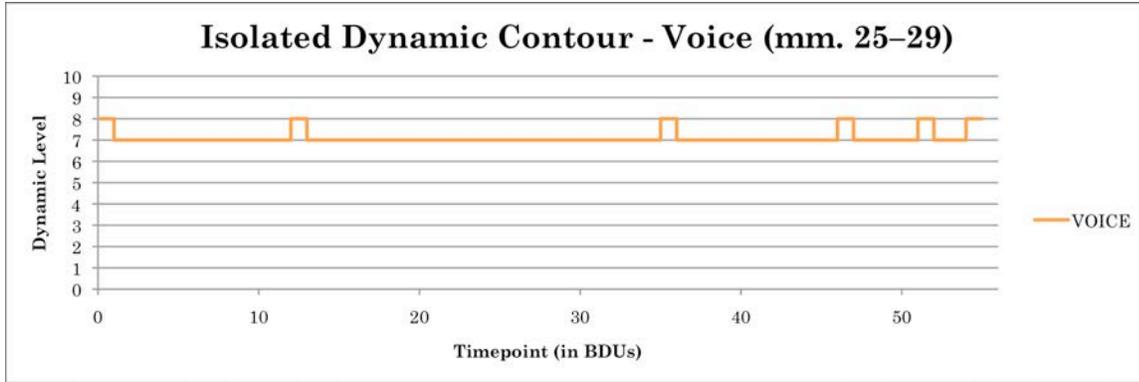


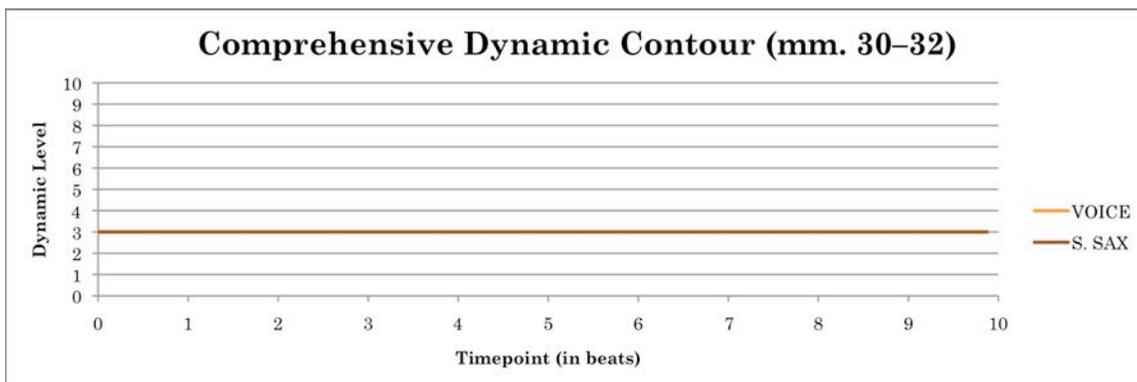
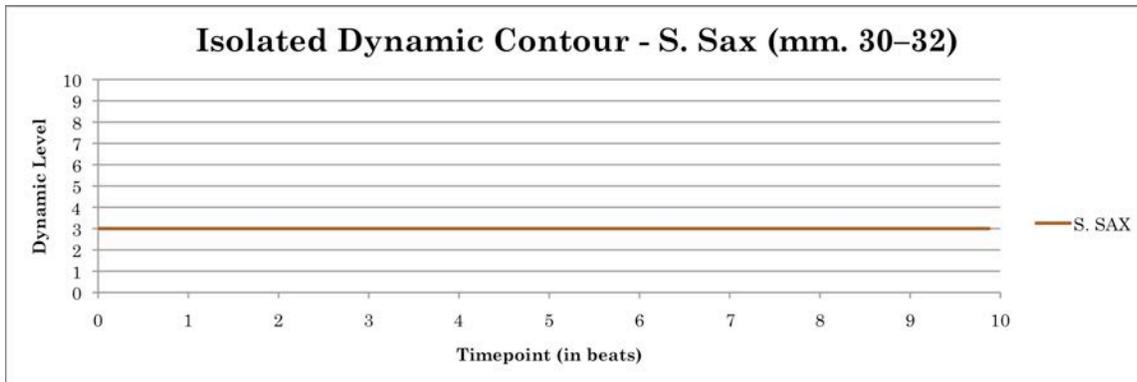
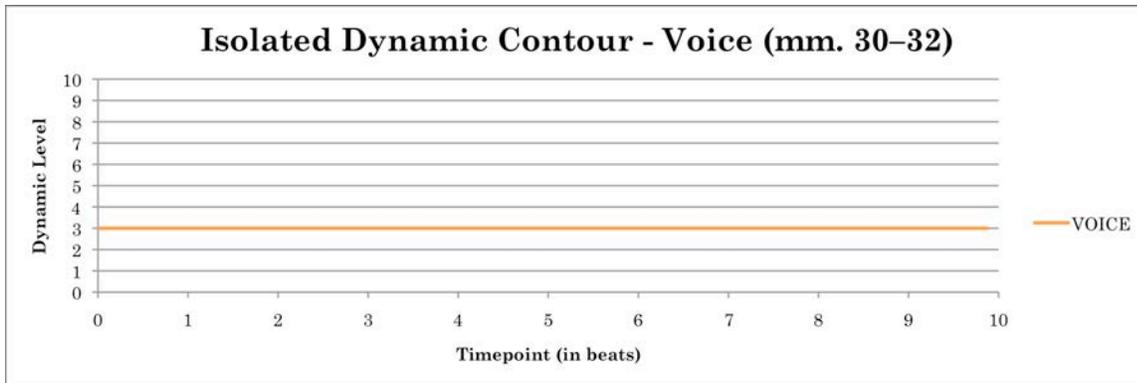


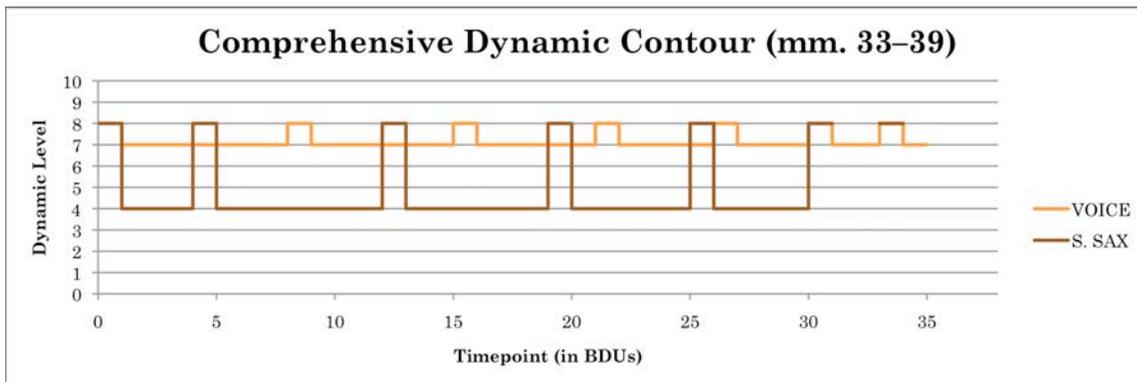
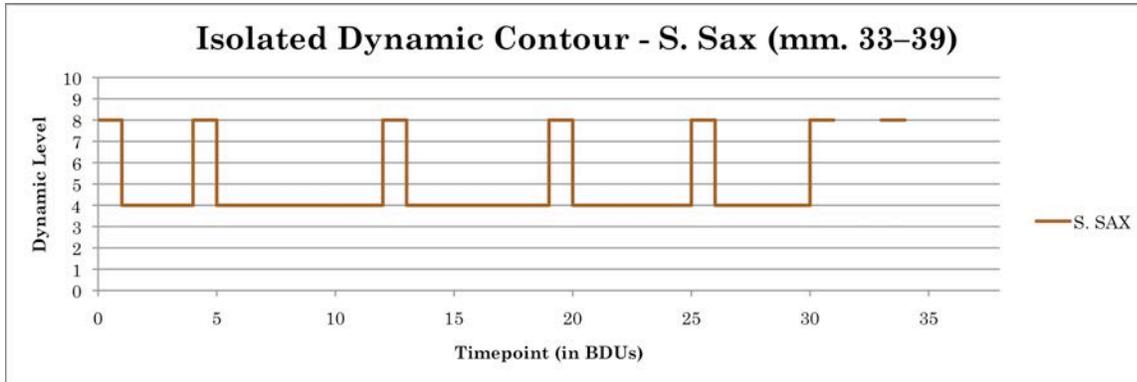
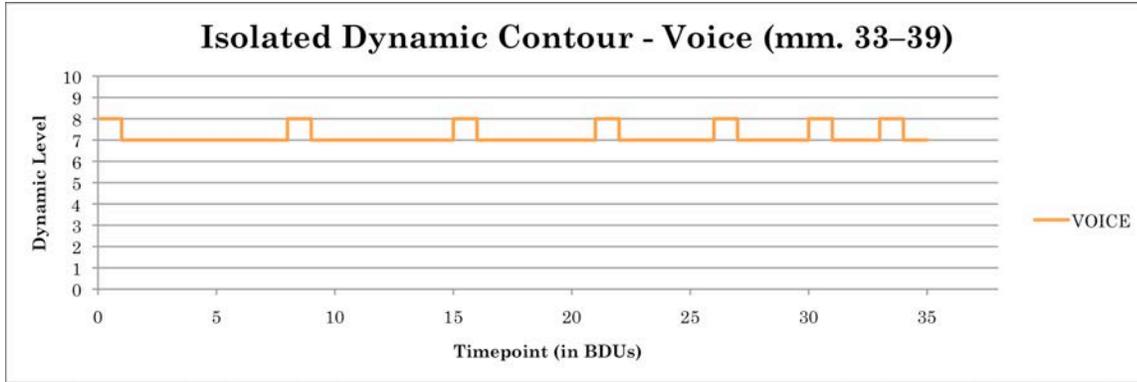


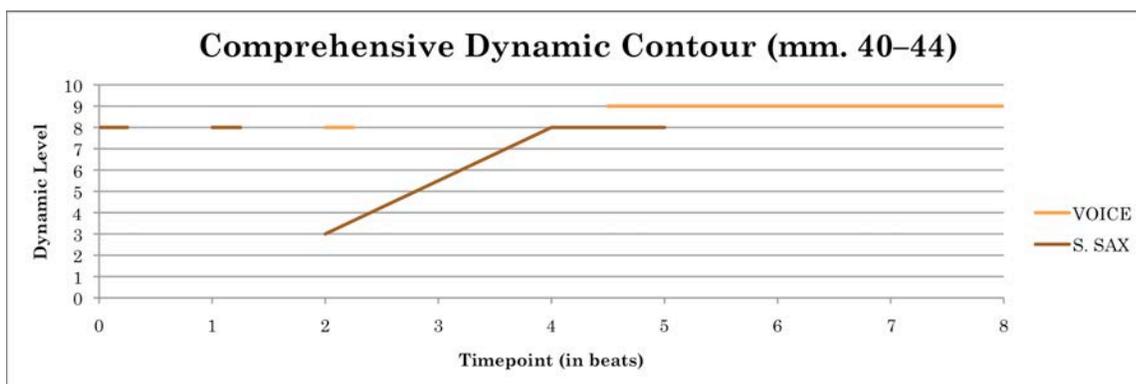
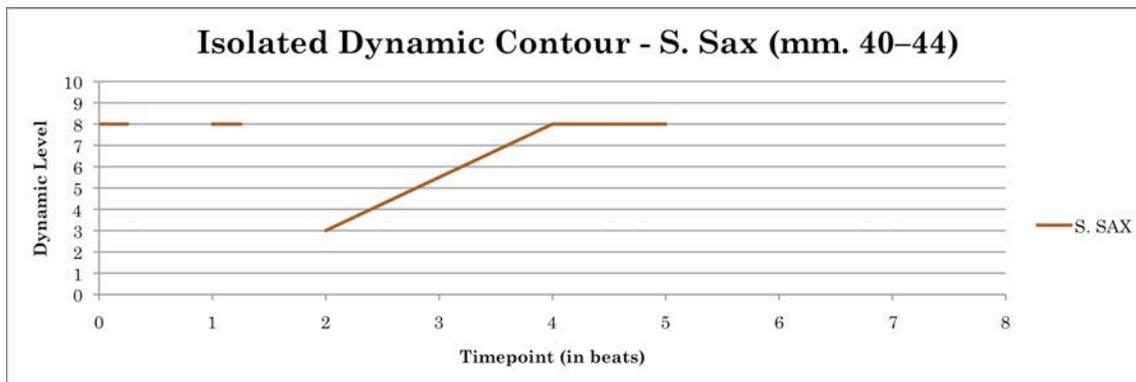
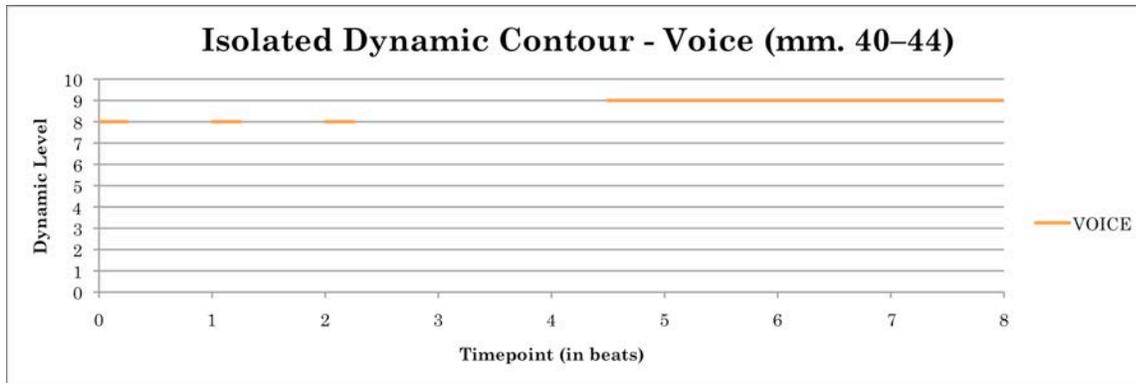
APPENDIX D. DYNAMIC CHARTS OF ULV



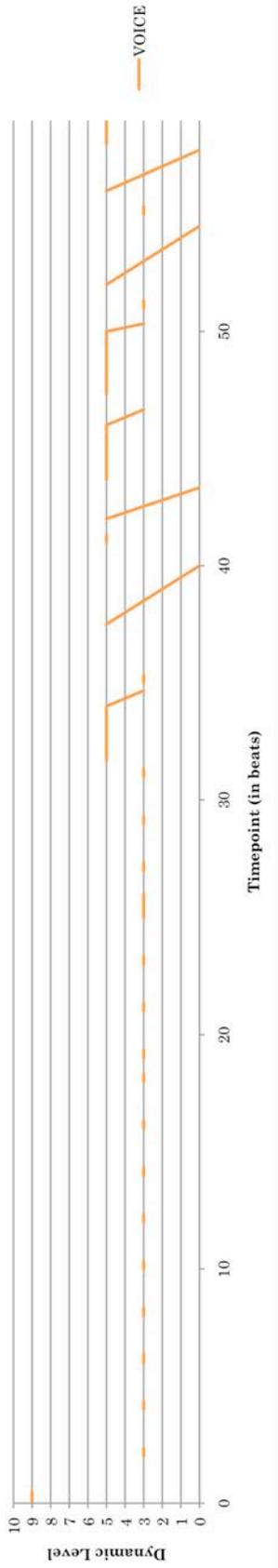




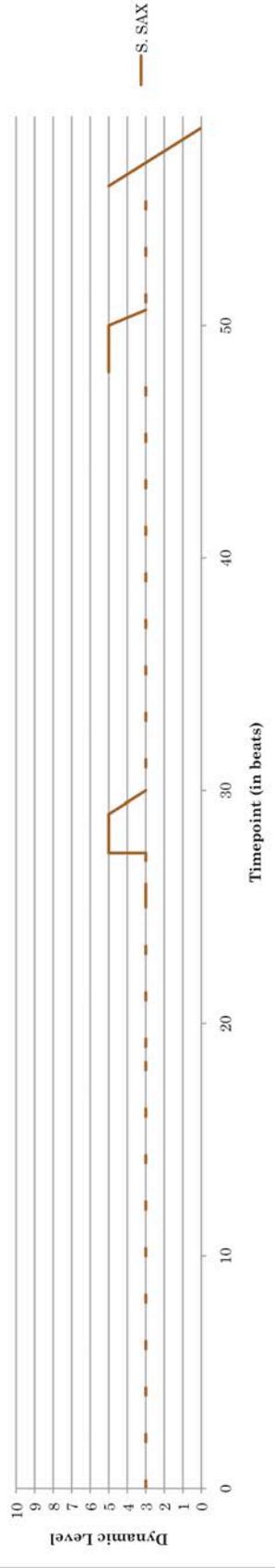




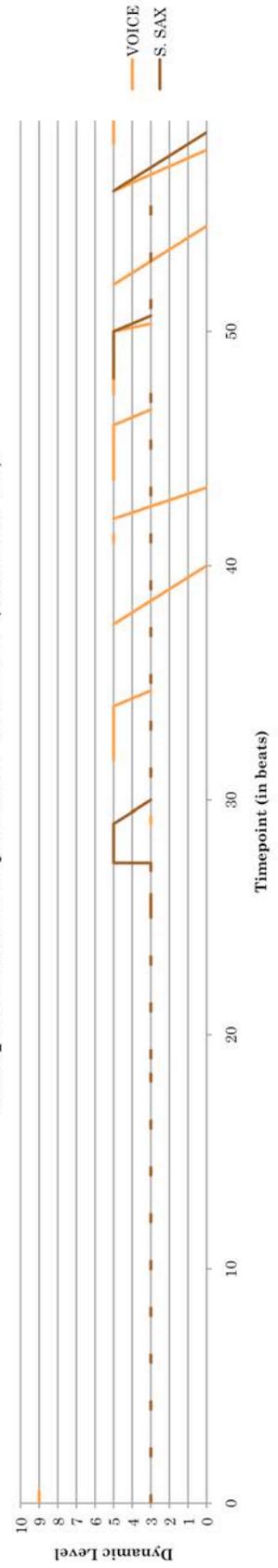
Isolated Dynamic Contour - Voice (mm. 45-73)

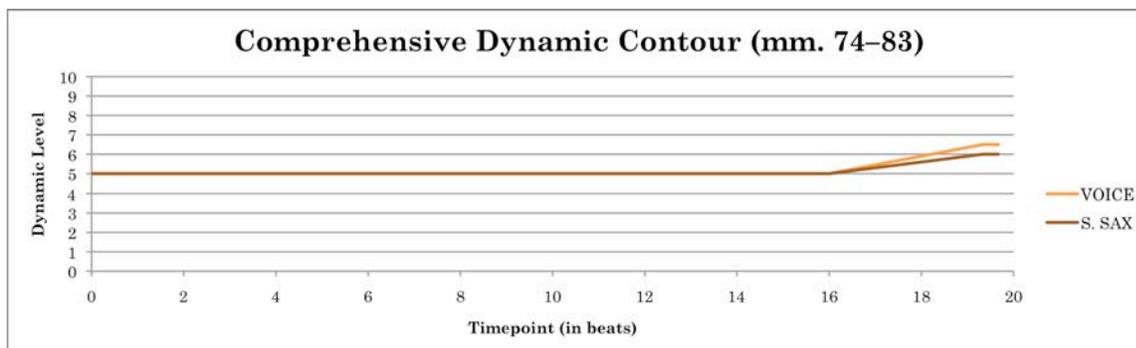
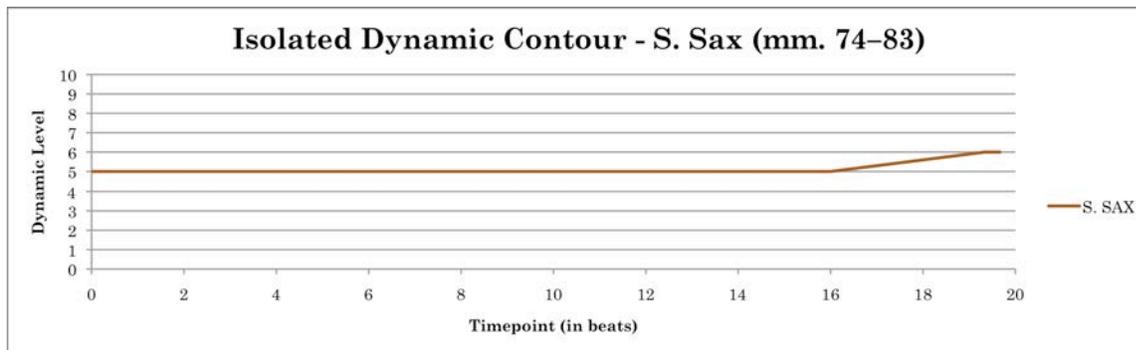
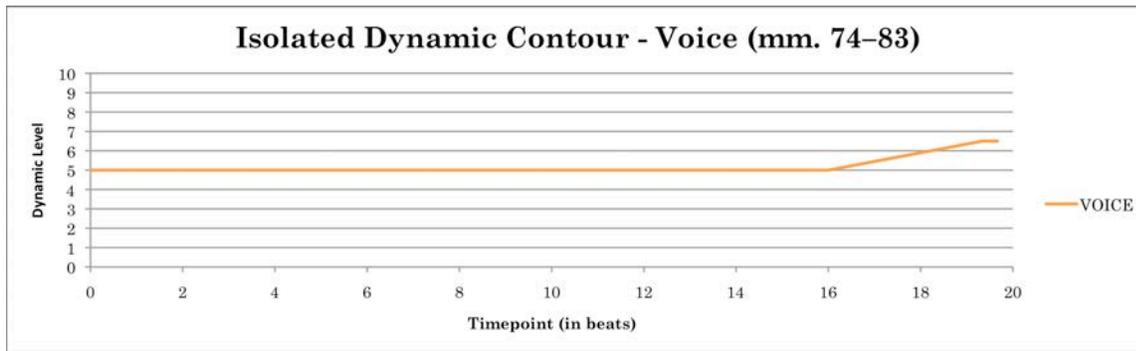


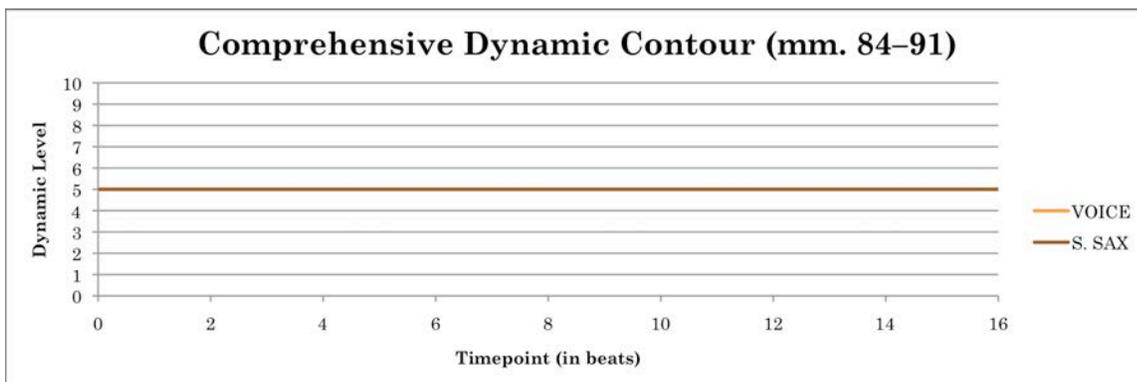
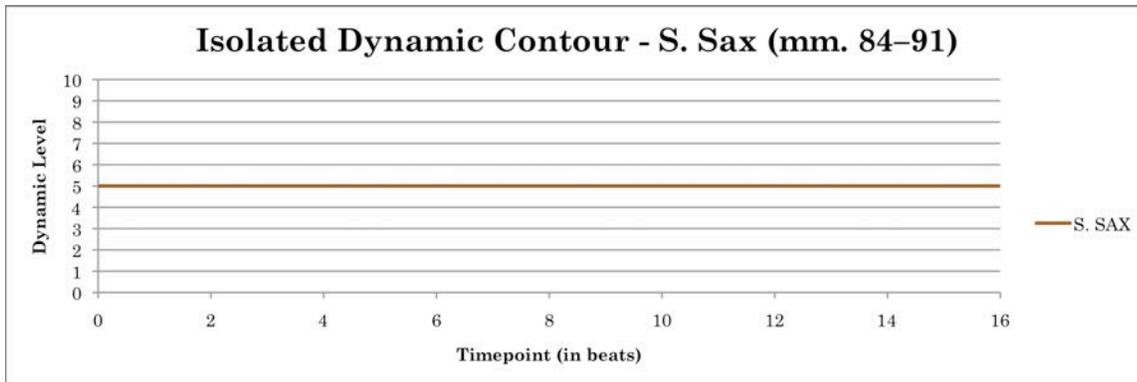
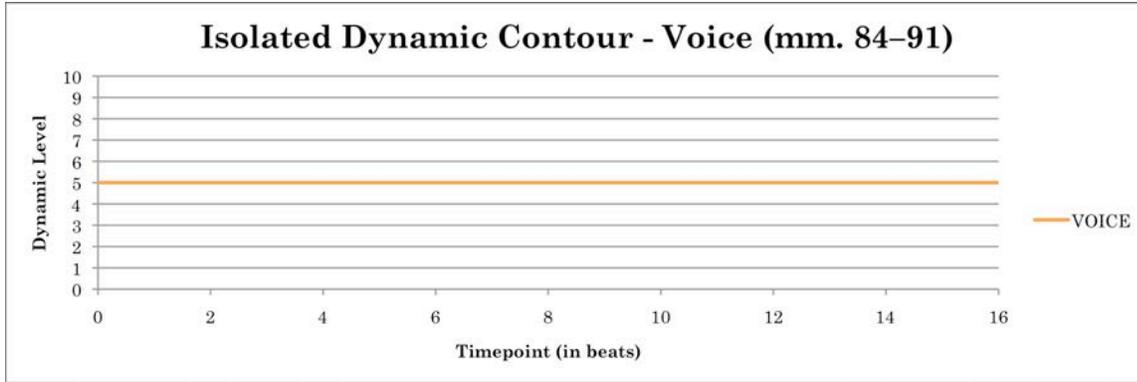
Isolated Dynamic Contour - S. Sax (mm. 45-73)

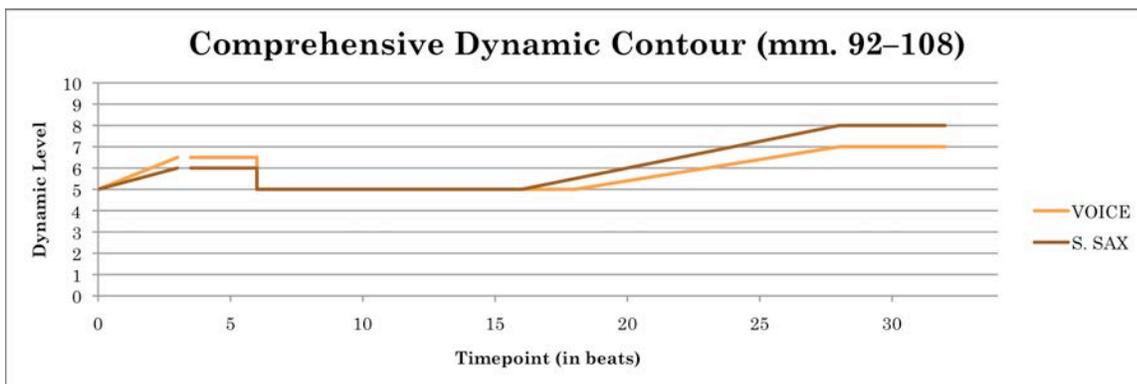
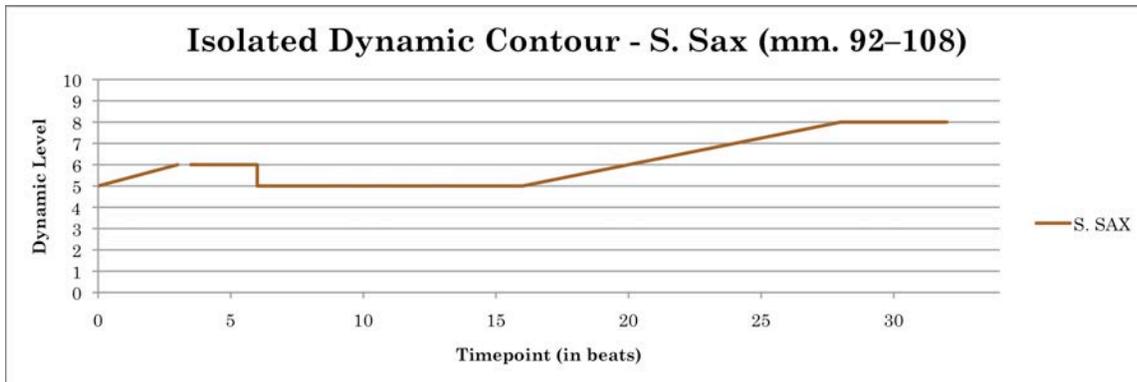
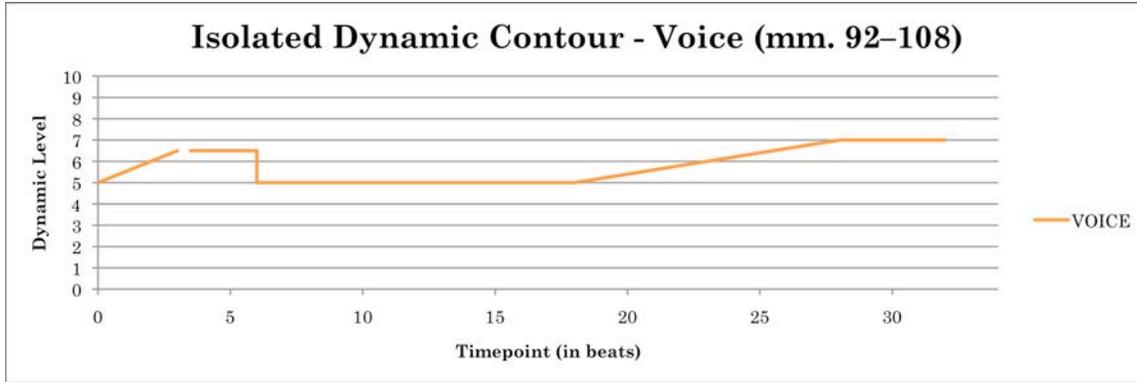


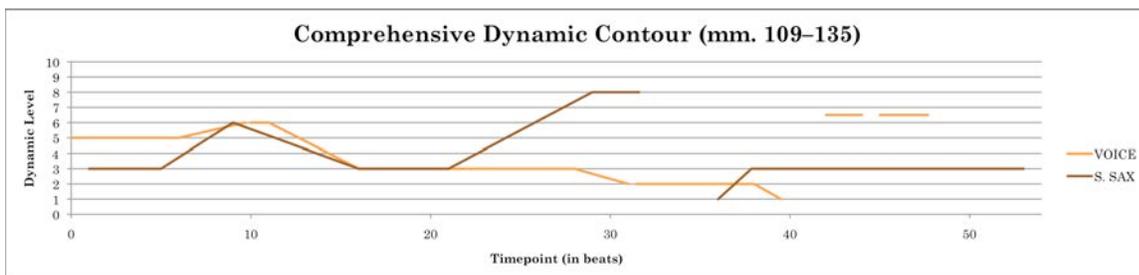
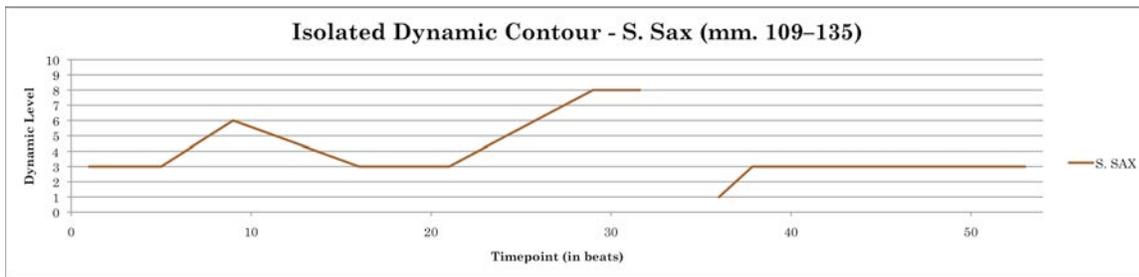
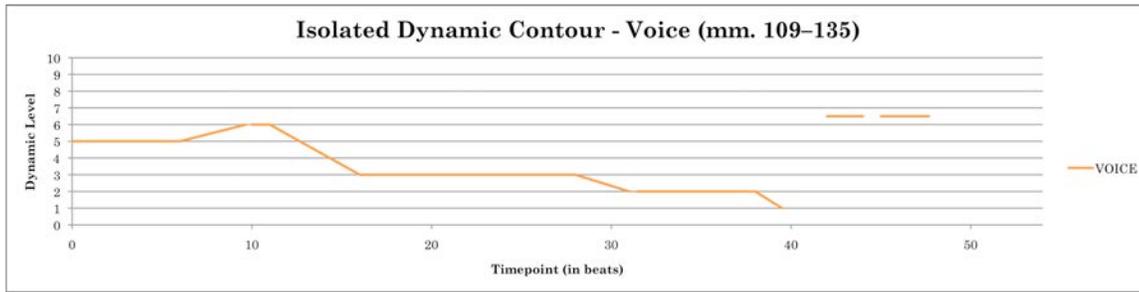
Comprehensive Dynamic Contour (mm. 45-73)

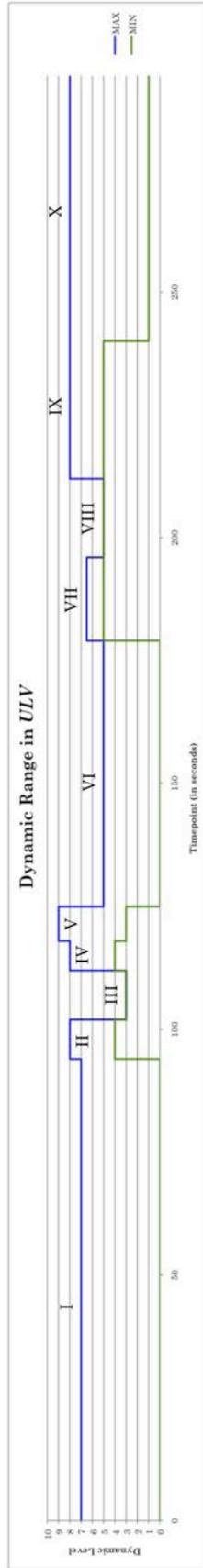




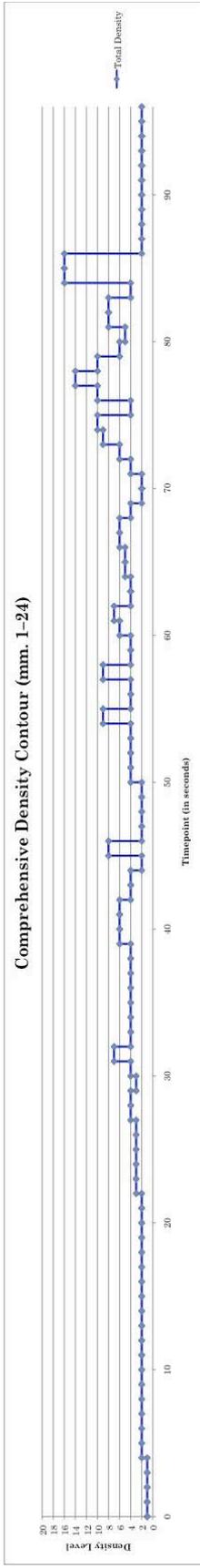


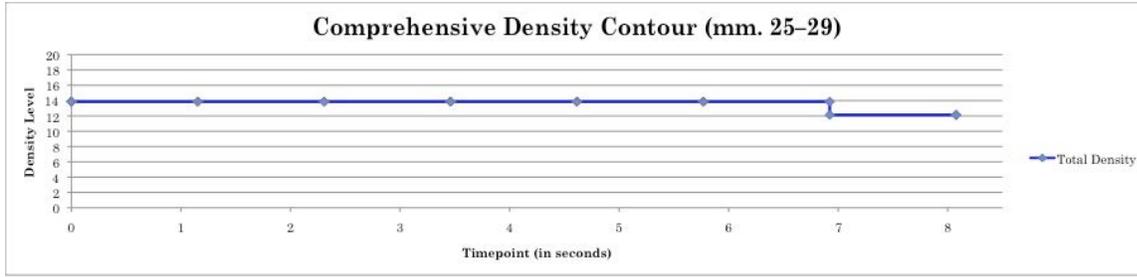




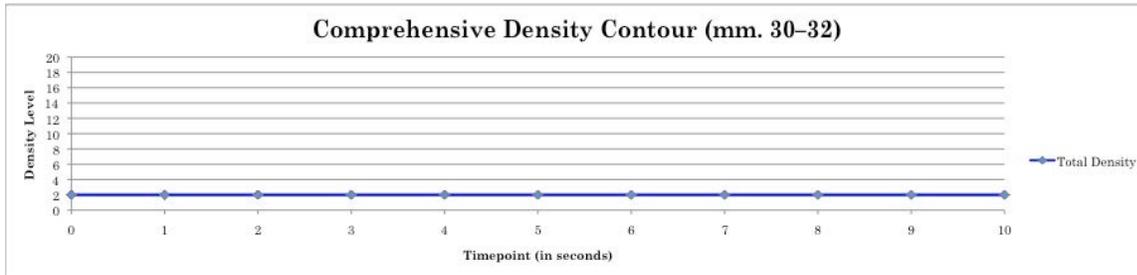


APPENDIX E. DENSITY CHARTS OF ULV

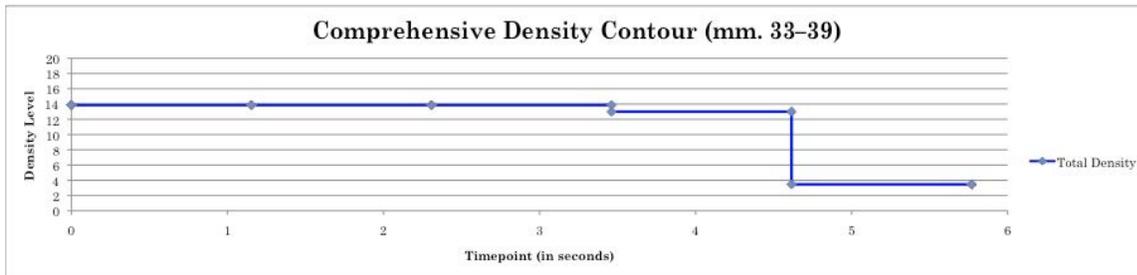




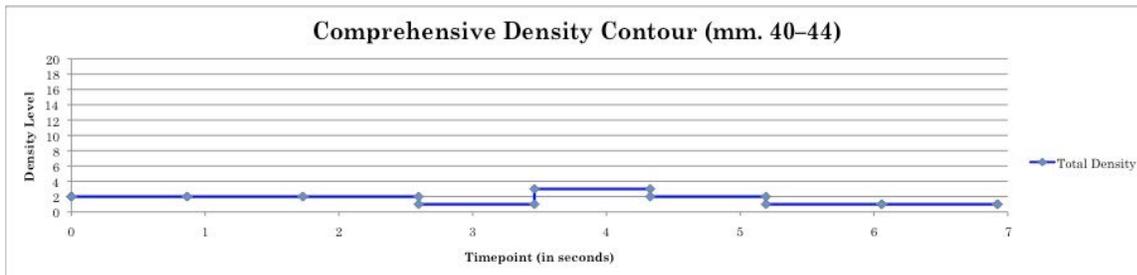
SECTION III



SECTION IV

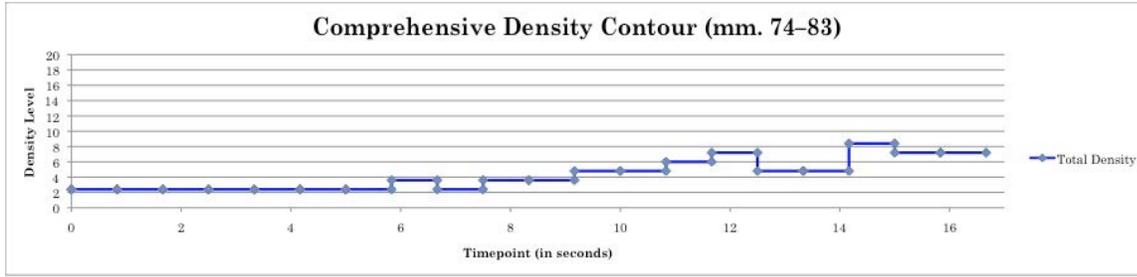


SECTION V

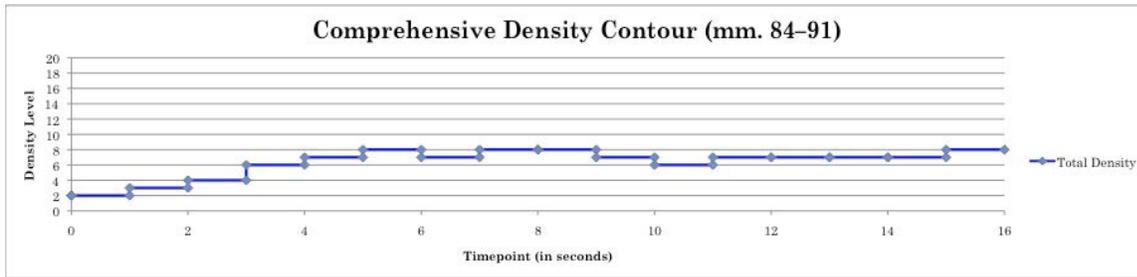


Comprehensive Density Contour (mm. 45-73)

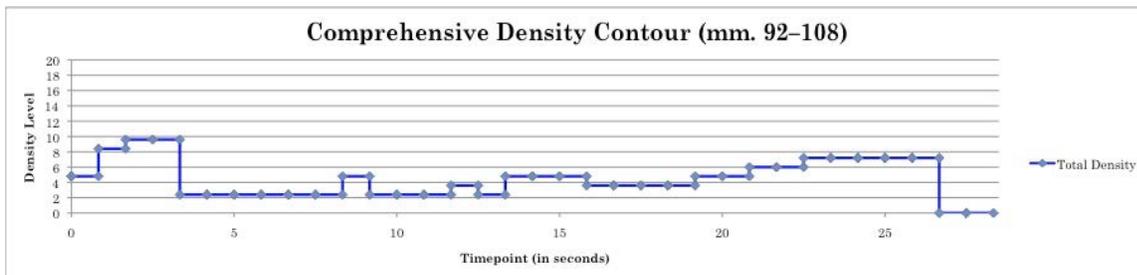




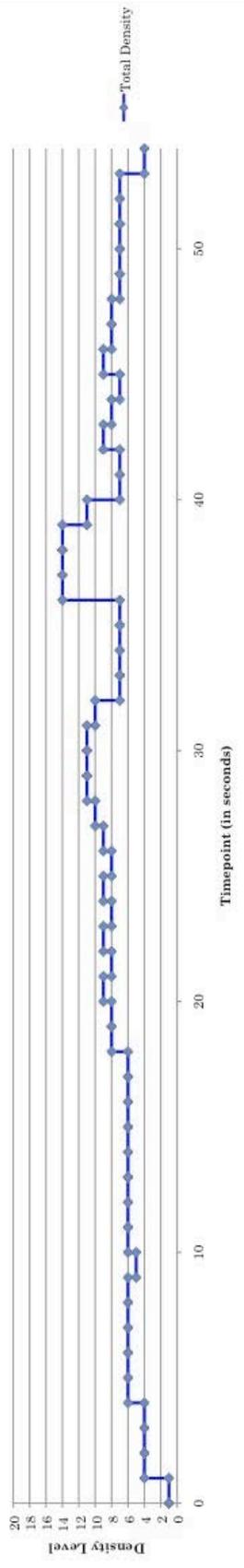
SECTION VIII

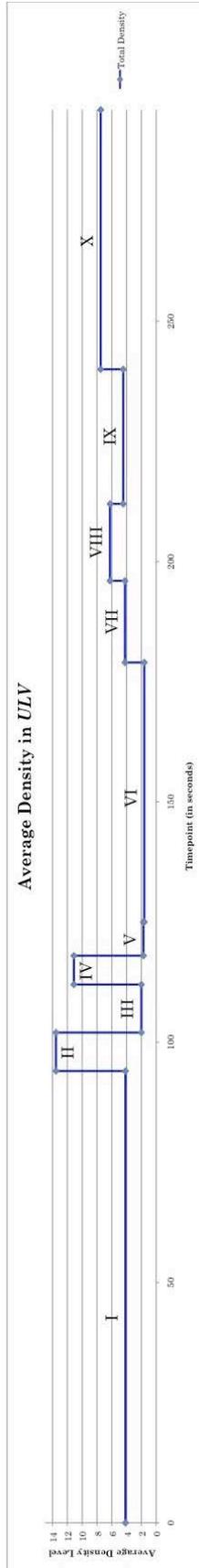


SECTION IX



Comprehensive Density Contour (mm. 109-135)





APPENDIX F. REDACTED CORRESPONDENCE WITH LEROUX (FRENCH)

Sent: Sunday, September 9, 2012
To: Philippe Leroux
From: Andrew Martin Smith

Bonjour Professeur Leroux,

S'il vous plaît pardonnez-moi, l'anglais est ma langue maternelle, et mon français n'est pas parfait, mais je vous écris pour deux raisons:

1.

Mon nom est Andrew Smith. Je suis un étudiant de Mikel Kuehn à Bowling Green State University, à Bowling Green, Ohio, et j'écris un document au sujet de votre pièce, UN LIEU VERDOYANT - HOMMAGE À GÉRARD GRISEY. Seriez-vous prêt, à un certain moment, à répondre à quelques questions au sujet de votre musique et de votre processus de composition? Je voudrais inclure vos pensées dans mon analyse!

2.

J'ai lu plusieurs articles qui figurent sur votre bibliographie (<http://www.lerouxcomposition.com/en/pages/txts.html>), mais j'ai eu du mal à acquérir une en particulier. Je voudrais lire: "La composition: jouer ou mourir. Quels sont les rapports que peuvent entretenir le jeu et la composition musicale?" Nyon, Dissonanz / Dissonance, n° 82, août 2003, p. 20-25.

Pourriez-vous me dire où trouver cet article? La bibliothèque de l'université de Bowling Green ne pouvait pas l'acquérir pour moi.

Merci beaucoup pour votre temps; il est grandement appréciée!

Musically yours,

Andrew

Sent: Monday, September 10, 2012
To: Andrew Martin Smith
From: Philippe Leroux

Bonjour Andrew,

Oui je suis d'accord pour les questions si vous me laissez du temps pour y répondre. Je vous joint l'article que vous souhaitez en pdf. Il manque la bibliographie et quelques corrections. Je vous souhaite un bon travail. Bravo pour votre français. Transmettez mes meilleures salutations à Mikel Kuehn.

Philippe

Andrew Martin Smith: Pourquoi avez-vous décidé d'écrire cet hommage à Gérard Grisey?

Philippe Leroux: Parce que c'était un ami et un des plus grands compositeurs du 20ème siècle.

AMS: Quels sont les aspects de *Un lieu verdoyant*, le cas échéant, ont été spécifiquement influencé par la musique de Gérard Grisey ou de la musique spectrale en général?

PL: Un certain travail sur les processus.

AMS: Pourquoi avez-vous choisi cette instrumentation spécifique?

PL: Son amour du saxophone et la voix de Mireille Deguy sa compagne comme contralto et j'aime aussi beaucoup la voix et le saxophone.

AMS: Avez-vous travaillé avec Mireille Deguy et Vincent David pendant le processus de composition? Avez-leur implication influencer vos choix musicaux?

PL: Non seulement quand la pièce a été finie.

AMS: Combien de temps avez-vous passé par écrit cette pièce?

PL: Un peu plus de un mois, peut-être deux.

AMS: Avez-vous apporter toutes les modifications à l'œuvre entre sa première et de la publication? Si oui, quelles étaient ces révisions? Pourquoi t'es-tu senti qu'ils étaient nécessaires?

PL: Oui, mais c'était de toutes petits changements.

AMS: Pourquoi avez-vous choisi d'écrire votre texte après les Lamentations du prophète Jérémie?

PL: Parce qu'elles parlent de la violence de la mort d'une manière très forte et en même temps elles parlent aussi de l'espoir.

AMS: Des compositeurs de plusieurs périodes historiques ont écrit de la musique à partir de ces lamentations. Avez ce fait influencer vos décisions musicales?

PL: Non.

AMS: Dans de précédentes interviews, vous avez mentionné que vous avez écrit beaucoup de texte lorsque vous étiez plus jeune, et qu'il y a un fort aspect linguistique de votre musique. Comment avez-vous abordé le réglage du texte dans *Un lieu verdoyant*? Avez-vous écrit tout le texte avant de composer la musique, ou avez-vous des idées musicales sur la composition avant de vous compléter le texte?

PL: J'ai choisi les passages du texte que je voulais prendre, puis je les ai posé devant moi comme un réservoir à la fois sémantique et aussi phonétique.

AMS: Comme une grande partie de votre musique, je crois qu'il y a un fort sentiment de geste sein *Un lieu verdoyant*. Avez-vous d'utiliser des modèles qui viennent du geste humain dans ce travail, ou est-ce le sens du geste d'un prolongement naturel de l'ajout de musique à texte?

PL: Les 2 modèles humains principaux sont l'élément descendant qui représente la mort et l'élément ascendant qui représente la vie et l'espoir. Toute la pièce se joue entre ce qui descend, ce qui monte, parfois les 2 et les intersections entre les lignes ascendantes et descendantes.

AMS: Dans plusieurs articles, vous avez écrit à propos de la continuité et la perception de structures musicales. Quand avez-vous développer un intérêt pour la cognition musicale? Avez-vous des instructeurs qui ont encouragé cet intérêt, ou avez-vous poursuivre cet intérêt indépendamment de vos enseignants?

PL: Depuis toujours je m'intéresse à cette question, car je pense qu'un compositeur doit pouvoir se situer dans le contexte esthétique général, et pour cela il a besoin de comprendre quels sont ses outils et ses buts. D'autre part j'ai aussi toujours pensé qu'une belle oeuvre reposait sur un bon équilibre entre intuition et structure. Pour trouver les bonnes structures, celle qui permettent à l'intuition de vivre et d'être cadrée, il faut se préoccuper de réflexion théorique.

AMS: Lorsque vous avez été interviewé par Yorgos Vassilandonakis pour l'article paru dans le *Computer Music Journal*, vous discuté de l'utilisation d'OpenMusic et autres outils logiciels dans votre processus de composition. Avez-vous d'utiliser des outils logiciels dans les créations de cette composition (*Un lieu verdoyant*)? Si oui, comment est le logiciel utilisé?

PL: Je ne l'ai pas utilisé dans *Un lieu verdoyant*, car j'ai commencé la pièce alors que j'étais dans une île des Canaries sans ordinateur.

APPENDIX G. REDACTED CORRESPONDENCE WITH LEROUX (ENGLISH)

Sent: Sunday, September 9, 2012
To: Philippe Leroux
From: Andrew Martin Smith

Hello Professor Leroux,

Please forgive me, English is my native language, and my French is not perfect, but I am writing for two reasons:

1.

My name is Andrew Smith. I am a student of Mikel Kuehn at Bowling Green State University, Bowling Green, Ohio, and I am writing a paper about your piece, UN LIEU VERDOYANT - HOMMAGE À GÉRARD GRISEY. Would you be willing at some time to answer a few questions about your music and your compositional process? I would like to include your thoughts in my analysis!

2.

I've read several articles that appear on your bibliography (<http://www.lerouxcomposition.com/en/pages/txts.html>), but I struggled to acquire one in particular. I want to read: "La composition: jouer ou mourir. Quels sont les rapports que peuvent entretenir le jeu et la composition musicale?" Nyon, Dissonanz / Dissonance, n° 82, août 2003, p. 20-25.

Could you tell me where to find this article? The library at Bowling Green could not acquire it for me.

Thank you very much for your time it is greatly appreciated!

Musically yours,

Andrew

Sent: Monday, September 10, 2012
To: Andrew Martin Smith
From: Philippe Leroux

Hello Andrew,

Yes I am okay with questions, if you leave me time to respond.
I attached the article you would like in pdf. It lacks a bibliography and some corrections.
I wish you good work.
Bravo for your French.
Give my best regards to Mikel Kuehn.

Philippe

Andrew Martin Smith: Why did you decide to write this tribute to Gérard Grisey?

Philippe Leroux: Because he was a friend and one of the greatest composers of the 20th century.

AMS: What are the aspects of *Un lieu verdoyant*, if any, were specifically influenced by the music of Gérard Grisey or spectral music in general?

PL: A certain work on process.

AMS: Why did you choose this specific instrumentation?

PL: [Because of Grisey's] love of the saxophone and the voice of his wife Mireille Deguy as contralto and I also love the voice and saxophone.

AMS: Did you work with Mireille Deguy and Vincent David during the composition process? Has their involvement influenced your choice of music?

PL: No, only when the piece was finished.

AMS: How long did you spend writing this piece?

PL: A little over a month, maybe two.

AMS: Did you make any changes to the work between its premiere and publication? If yes, what were these revisions? Why did you feel they were necessary?

PL: Yes, but it was all small changes.

AMS: Why did you choose to write your text after the Lamentations of Jeremiah?

PL: Because they speak of the violence of the death in a very strong manner and at the same time they also speak of hope.

AMS: Composers of several historical periods have written music based on these lamentations. Has this influenced your musical decisions?

PL: No.

AMS: In previous interviews you mentioned that you had written a lot of text when you were younger, and that there is a strong linguistic aspect to your music. How did you go about setting the text in *Un lieu verdoyant*? Did you write all of the text before composing the music, or did you have musical ideas about the composition before you complete the text?

PL: I chose the passages of text that I wanted to take, then I laid them before me as both a semantic and phonetic reservoir.

AMS: Like much of your other music, I believe that there is a strong sense of gesture within *Un lieu verdoyant*. Did you utilize any models that come from human gesture in this work, or is this sense of gesture a natural outgrowth of setting text to music?

PL: The two major human models are the descending element that represents death and ascending element that represents life and hope. The whole piece plays between that which goes down, that which goes up, sometimes both, and intersections between ascending and descending lines.

AMS: In several articles, you have written about continuity in, and the perception of, musical structures. When did you develop an interest in music cognition? Did your composition instructors cultivate this interest, or did you pursue this interest independent of your teachers?

PL: As always I am interested in this question, because I think that a composer must lie within the general aesthetic context, and for that [he/she] needs to understand [his/her] tools and goals. On the other hand I have also always thought that a beautiful piece rested on a balance between intuition and structure. To find the right structures, which allow intuition to live and be framed, one must be concerned with theoretical reflection.

AMS: When Yiorgos Vassilandonakis interviewed you for the article that appeared in the *Computer Music Journal*, you discussed the use of OpenMusic and other software tools in your compositional process. Did you utilize any software tools in the creations of this piece? If so, how was the software utilized?

PL: I have not used [OpenMusic] in *Un lieu verdoyant*, because I started the piece while I was in of the Canary Islands without a computer.

APPENDIX H. CONSENT DOCUMENTS



DATE:	October 8, 2012
TO:	Andrew Smith
FROM:	Bowling Green State University Human Subjects Review Board
PROJECT TITLE:	[382702-1] Continuity, Motion, and Energy through the Spectrum: An Analysis of Philippe Leroux's Un lieu verdoyant - Hommage à Gérard Grisey
SUBMISSION TYPE:	New Project
ACTION:	APPROVED
APPROVAL DATE:	October 5, 2012
EXPIRATION DATE:	October 4, 2013
REVIEW TYPE:	Expedited Review
REVIEW CATEGORY:	Exempt review category # 2

Thank you for your submission of New Project materials for this project. The Bowling Green State University Human Subjects Review Board has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

The final approved version of the consent document(s) is available as a published Board Document in the Review Details page. You must use the approved version of the consent document when obtaining consent from participants. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Federal regulations require that each participant receives a copy of the consent document.

Please note that you are responsible to conduct the study as approved by the HSRB. If you seek to make any changes in your project activities or procedures, those modifications must be approved by this committee prior to initiation. Please use the modification request form for this procedure.

You have been approved to enroll 1 participant. If you wish to enroll additional participants you must seek approval from the HSRB.

All UNANTICIPATED PROBLEMS involving risks to subjects or others and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office. All NON-COMPLIANCE issues or COMPLAINTS regarding this project must also be reported promptly to this office.

This approval expires on October 4, 2013. You will receive a continuing review notice before your project expires. If you wish to continue your work after the expiration date, your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date.

Good luck with your work. If you have any questions, please contact the Office of Research Compliance at 419-372-7716 or hsrb@bgsu.edu. Please include your project title and reference number in all correspondence regarding this project.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Bowling Green State University Human Subjects Review Board's records.



DATE:	October 7, 2013
TO:	Andrew Smith
FROM:	Bowling Green State University Human Subjects Review Board
PROJECT TITLE:	[382702-2] Continuity, Motion, and Energy through the Spectrum: An Analysis of Philippe Leroux's Un lieu verdoyant - Hommage à Gérard Grisey
SUBMISSION TYPE:	Continuing Review/Progress Report
ACTION:	APPROVED
APPROVAL DATE:	October 5, 2013
EXPIRATION DATE:	October 4, 2014
REVIEW TYPE:	Expedited Review
REVIEW CATEGORY:	Exempt review category # 2

Thank you for your submission of Continuing Review/Progress Report materials for this project. The Bowling Green State University Human Subjects Review Board has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

Please note that you are responsible to conduct the study as approved by the HSRB. If you seek to make any changes in your project activities or procedures, those modifications must be approved by this committee prior to initiation. Please use the modification request form for this procedure.

All UNANTICIPATED PROBLEMS involving risks to subjects or others and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office. All NON-COMPLIANCE issues or COMPLAINTS regarding this project must also be reported promptly to this office.

This approval expires on October 4, 2014. You will receive a continuing review notice before your project expires. If you wish to continue your work after the expiration date, your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date.

Good luck with your work. If you have any questions, please contact the Office of Research Compliance at 419-372-7716 or hsrb@bgsu.edu. Please include your project title and reference number in all correspondence regarding this project.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Bowling Green State University Human Subjects Review Board's records.



Informed Consent for Philippe Leroux

Introduction: My name is Andrew Martin Smith, and I am a graduate student at Bowling Green State University where I study Contemporary Music at the College of Musical Arts. My advisor is Dr. Mikel Kuehn, an Associate Professor of Music Composition at Bowling Green State University. In partial fulfillment of the requirements for the degree of Doctor of Musical Arts in Contemporary Music, I am conducting a musical analysis of, and writing a document about, your composition for voice and soprano saxophone, *Un lieu verdoyant - Hommage à Gérard Grisey*.

Purpose: This analysis will include a detailed, multilayer description of the significant temporal and harmonic features of *Un lieu verdoyant - Hommage à Gérard Grisey*. The "growth" and "continuity" of these features shall be evaluated in order to form meaningful conclusions about the work's existence as an organically unified whole. A thorough examination of this piece will not only provide readers with an understanding of the salient musical features contained within *Un lieu verdoyant - Hommage à Gérard Grisey*, but it will also present an English-speaking audience with greater insight into your music and compositional process. You may not benefit directly from your participation in this research project.

Procedure: If you agree to participate in this research project, then I will conduct an interview with you via e-mail. The interview will include questions about your musical background, the creation of *Un lieu verdoyant - Hommage à Gérard Grisey*, your compositional process, and your philosophies about contemporary music. If I have additional questions about your music (either spontaneously developed or developed as a result of this initial interview), then we will continue our correspondence via e-mail. The total correspondence should take less than four hours of your time.

Voluntary Nature: Your participation is completely voluntary. You are free to withdraw at any time. You may decide to skip questions or discontinue participation at any time without penalty. Deciding to participate or not will not affect your relationship with Mikel Kuehn, Bowling Green State University, or me in any way.

Confidentiality/Anonymity Protection: The information collected for this study will be stored on a password-protected computer. All e-mail correspondence will be removed from my University webmail inbox and stored as a single document on this computer. Given the nature of the correspondence, information that you provide will not be anonymous. I will quote you directly and reveal your name in my research document as appropriate.

BGSU HSRB - APPROVED FOR USE
 IRBNet ID # 382702
 EFFECTIVE 10/05/2012
 EXPIRES 10/04/2013

Risks: The anticipated risks associated with this interview are no greater than those encountered in daily life when engaging in written correspondence.

Contact Information: If you have any questions or concerns about this study, please feel free to contact Andrew Martin Smith at andrems@bgsu.edu or (315) 868-7900, or the project advisor, Dr. Mikel Kuehn, at mkuehn@bgsu.edu or (419) 372-2836. You may also contact the Chair, Human Subjects Review Board at 419-372-7716 or hsrb@bgsu.edu, if you have any questions about your rights as a participant in this research.

I have been informed of the purposes, procedures, risks and benefits of this study. I have had the opportunity to have all my questions answered and I have been informed that my participation is completely voluntary. I agree to participate in this research.

Participant Signature

BGSU HSRB - APPROVED FOR USE
IRBNet ID # 382702
EFFECTIVE 10/05/2012
EXPIRES 10/04/2013

To: Andrew Martin Smith <andreams@bgsu.edu>

Sent: Fri 4/18/2014 3:16 AM

Cher Monsieur,

Nous avons le plaisir de vous accorder l'autorisation de reproduire les extraits des œuvres tels qu'indiqués dans votre courriel du 7 avril, au sein de votre dissertation dans le cadre de votre scolarité à la Bowling Green State University (Bowling Green, OH, USA).

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Cordialement,

Didier MASSIAT

Directeur Adjoint chargé des Services Administratif, Juridique et Financier

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Tél. : 01 47 70 12 64

Fax : 01 45 23 22 54

www.billaudot.com

To: Didier MASSIAT <copyright@billaudot.com>

Sent: Mon 4/7/2014 8:12 AM

Bonjour M. Massiat,

Voici les mesures que je voudrais inclure dans ma dissertation:

- 1 Un lieu verdoyant - Hommage à Gérard Grisey, mm. 1–4
- 2 Un lieu verdoyant - Hommage à Gérard Grisey, mm. 16–17
- 3 Un lieu verdoyant - Hommage à Gérard Grisey, m. 22
- 4 Un lieu verdoyant - Hommage à Gérard Grisey, mm. 58–59
- 5 Un lieu verdoyant - Hommage à Gérard Grisey, mm. 82–83
- 6 Un lieu verdoyant - Hommage à Gérard Grisey, mm. 92–93

Ces treize mesures représentent environ 10% de la partition musicale.
Est-ce que c'est acceptable?

Musically yours,

Andrew Martin Smith