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A THEORETICAL MODEL FOR THE ANALYSIS OF COLLAGE IN MUSIC
DERIVED FROM SELECTED WORKS BY BERIO, ZIMMERMANN AND
ROCHBERG

by

CRISTINA CATHERINE LOSADA

A dissertation submitted to the Graduate Faculty in Music in partial fulfillment of the
requirements for the degree of Doctor of Philosophy, The City University of New York

2004

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Abstract

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Cristina Catherine Losada

Adviser: Professor Joseph Straus

Traditional techniques of music analysis are based on the assumption of a governing unity in the musical language. Thus, the musical collage of the late 1960s, which by definition subverts the concept of unity by juxtaposing fragmentary quotations from different musical styles within a single composition, poses the most stimulating questions for the analyst: What are the relationships between the disparate elements in a collage? What are the structural implications of combining such a variety of disparate elements? Finally, what analytical tools should be used to analyze music with such diverse musical idioms?

This study involves the creation of a technical model for the analysis of collage in music. The focus is to find the logic behind the combination of the disparate elements contained in works written within this aesthetic. The examples derive from three strongly contrasting but representative pieces in this style: Bernd Alois Zimmermann's *Musique pour les Soupers du Roi Ubu* (1966), the first movement of George Rochberg's *Music for the Magic Theater* (1965), and the third movement of Luciano Berio's *Sinfonia* (1968).

By emphasizing the technical, rather than the referential implications of the practice of quotation, this study describes various formal, structural, and associative relationships between disparate elements in the musical collage. It outlines two analytical

approaches, formal analysis and motivic and transformational analysis, and reveals two compositional processes, those used to achieve modulation and the technique of chromatic saturation and the significant gap (a technique that operates in registral space). These yield insights into many of the essential components of this musical style, including possible models for voice-leading, harmonic structure, form and large-scale coherence. The surprising correspondences in the way the connection between the highly distinct sound worlds is achieved in these strongly contrasting works suggest the value of this approach in creating an analytical model that can be usefully applied to this body of works as a whole.

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CHAPTER 1

The Musical Collage

Beginning in the late 1960s the musical collage, resulting from the incorporation of quotations from works in different styles within a single composition, emerged in the music of many major composers worldwide. Though related to diverse trends throughout the course of music history that used pre-existent compositions and the emulation of earlier styles as the basis for a new composition, this aesthetic is clearly distinct in several important ways. The most obvious is the sheer range of stylistic sources and tonal idioms from which it draws, even within a single work. The music also differs technically on the whole from most music written earlier in the century due to the individual prominence given to each quotation through the use of layered textures. These enable the quotations to stand out as such by separating them from the underlying musical surface and place an unprecedented stress on the concept of space.

The vogue of electronic music that immediately preceded the popularity of this type of work created this innovative focus on “spatial” as opposed to “temporal” juxtaposition. In a musical collage, the former is achieved through the simultaneous presentation of several quotations, or a quotation with musical commentary by the composer, so that they are perceived as independent layers in the musical texture. The layers can be synchronized in different ways, but generally exhibit an independent pitch content, timbre, and metrical organization. The individuality of each is further emphasized by pitch relationships that alternately converge and separate, the referential connotations of quotation from known sources and spatial aspects in the disposition of

the instruments or clearly differentiated instrumental groupings within a large ensemble. The musical collage of the 1960s thus constitutes a repertoire whose main features are virtually unprecedented, except in the music of Charles Ives.

DEFINITION

Peter Burkholder's definition of collage provides a useful starting point for any systematic approach to this repertoire. He defines the musical collage as "the juxtaposition of multiple quotations, styles or textures so that each element maintains its individuality and the elements are perceived as excerpted from many sources and arranged together, rather than sharing common origins . . . Elements in a collage differ in key, timbre, texture, meter or tempo, and lack of fit is an important factor in preserving the individuality of each and conveying the impression of a diverse assemblage."¹

The present work narrows the scope of the term collage even further. It focuses on repertoire from the 1960s that incorporates actual quotations and uncovers structural features that lead to a further refinement of the definition of collage. This definition is in accordance with that given by Burkholder to distinguish the different types of musical quotations that occur in the work of Ives: A musical collage blends all the major categories of musical borrowing, including uses of existing music that are primarily structural, through those that are both thematic and characteristic, to the purely programmatic, and results when "a swirl of quoted or paraphrased tunes is added to a

¹ J. Peter Burkholder, "Collage," *The New Grove Dictionary of Music and Musicians*, 2nd ed., v. 6, ed. Stanley Sadie, John Tyrell (London: Grove, 2001), pp. 110-111.

musical structure based on modeling, paraphrase, cumulative setting, or a narrative program.”²

Thus, the amount and variety of quotations that are incorporated in a musical collage, the degree to which these quotations maintain their individuality and refuse to be absorbed into the character of the overall composition, and the strong structural basis underlying pieces that have been traditionally considered to epitomize discontinuity, distinguish the collage practice of the late 1960s from most earlier models of musical borrowing.

ORIGINS OF THE TERM

The term collage has its roots in the visual arts. It refers to the act of pasting objects, fragments, and snippets of cloth or newspaper clippings from diverse sources onto a background. It also refers to the work of art that results from this practice, through which the work of art acquires a new dimension where depth and textural contrasts are explicit, rather than suggested. Originally developed within the realm of folk art, the collage acquired the status of a high-art form in the works of Pablo Picasso and Georges Braque.³

The Cubists’ reshaping of the time/space continuity through the expression of simultaneous views of an object and their incorporation of the technique of cutting and pasting,⁴ created a new concept of pictorial space based on unprecedented degrees of

² J. Peter Burkholder, *All Made of Tune: Charles Ives and the Uses of Musical Borrowing* (New Haven: Yale University Press, 1995), p. 4.

³ Diane Waldman, *Collage, Assemblage, and the Found Object* (New York: Harry N. Abrams, Inc., 1992), pp. 16, 22; Eddie Wolfram, *History of Collage: An Anthology of Collage, Assemblage and Event Structure* (New York: Macmillan Publishing, 1975), p. 15.

⁴ For instance in Picasso’s *Les Baigneuses* (1908) and Braque’s *Le Portugais* (1911-12), both of which incorporate fragments of writing.

disjunction and layering. The further expansion of the developments that they initiated in the realm of texture (and the exploitation of new materials), the reworking of the pictorial space, and the focus on juxtaposition in the work of art (a complication of the underlying meaning) underlies all the major currents in the visual arts in the twentieth century. In this way, the term collage evolved from a technique based on actual pasting and cutting into an idea. Conceptually, the artist Max Ernst developed collage into an artistic philosophy embodied by the “collage idea.”⁵

Ernst defined the “collage idea” as a piece of art in which dualism and pluralism replaced nineteenth-century monism. In this concept, collage constitutes the noble conquest of the irrational, “the coupling of two realities, irreconcilable in appearance, upon a plane which apparently does not suit them.”⁶ The “collage idea” discards the technical elements of cutting and pasting in favor of purely conceptual considerations: “The actual glue... does not make the collage. The adhesive that does, of course, is the adhesion and attraction of ideas pertinent to the creative orientation.”⁷ Ernst believed that this “almost-play of cutting-and-pasting (with its folk-art background) was a concept deeply germane to our time... In doing this [Ernst] came close to defining nearly all contemporary modern art as one kind of collage or another.”⁸ This tendency remains in scholars’ writing about the visual arts in the twentieth century.⁹

A common misconception involving the term collage is that the different components must necessarily be combined at random in order for a work to constitute a

⁵ Harriet Janis and Rudi Blesh, *Collage: Personalities, Concepts, Techniques* (Philadelphia: Chilton Book Company, 1967), p. 109.

⁶ Max Ernst, *Beyond Painting*, translated by Dorothea Tanning (New York: Wittenborn, Schultz, Inc., 1948).

⁷ Janis and Blesh, 1967, p. 105.

⁸ *Ibid.*, p. 97.

⁹ Waldman, 1992, p. 8. Janis and Blesh, 1967, p. 3.

true collage.¹⁰ In this view, shapelessness is a necessary condition for a piece of art to be considered a collage, and the existence of any underlying structure would tend to invalidate the underlying conception of juxtaposition that is essential to a collage.

The concept of juxtaposition that is intrinsic to the “collage idea” has been developed in one direction into techniques of aleatoric generation. Thus, randomness is clearly evident in the work of artists such as Allan Kaprow who reject the concept of a permanent work of art altogether.¹¹ However, the “collage idea” has also spawned dozens of other approaches. A collage often results from an artist elaborating the surface of a clearly projected figure or structure,¹² thus emphasizing the expressive potential of relationships that are not necessarily governed by continuity. It is also possible for a collage to result from the parsing and reassemblage of an existing structure.¹³ Furthermore, new continuities can also be created within a collage. The work of Ernst in particular demonstrates this, along with the high degree of determinacy it can contain. He used line engravings to hide the seams between disparate elements, thus fusing them into a single entity and making it difficult to discern whether the work was, in fact a collage.¹⁴

The disruption of the time/space continuum is evident in other fields besides the visual arts, such as theater, film (as in the *montage* of film in the 1930s) and literature (in works such as James Joyce’s *Ulysses* (1922), T. S. Eliot’s *The Waste Land* (1922), and Milan Kundera’s *The Unbearable Lightness of Being* (1982)). In these works, an

¹⁰ Even Berio resisted the characterization of the third movement of *Sinfonia* as a collage for this reason, as will be discussed in the following pages.

¹¹ These artists explored, in the realm of the visual arts, many of the radical concepts with which John Cage was concerned in the field of music.

¹² Juan Gris’s *The Man at the Café* (1914) provides a great example.

¹³ Richard Stankiewicz’s creations, which resulted from welding together rusted machine parts that he unearthed in his New York garden, constitute a good example.

¹⁴ Janis and Blesh, 1967, p. 99. Waldman, 1992, p. 125 discusses this technique in *The Orator*, *Two Young Girls Promenade across the Sky*, and *The Chinese Nightingale*, which were all from 1920.

underlying plot holds together the discontinuous fragments, while the juxtapositions themselves create new non-chronological associations that are essential to the projection of the meaning and to the expressive quality of the work.

One of the premises of this study is that the existence of new continuities and underlying structures in the musical collage does not contradict the aesthetic premises of these works. Furthermore, the level of disjunction that constitutes such an essential ingredient of these pieces should never be viewed as secondary to an underlying structural framework. Instead, the interaction of a disjunct surface with underlying structure provides yet one more level of juxtaposition that is essential to a work's aesthetic content.

HISTORICAL CONTEXT

Borrowing from pre-existing sources has occurred throughout music history. The different ways in which borrowed materials have been incorporated into new music are extremely varied. Even within the music written in the 1960s there is a broad range of approaches. How then does the collage practice of the 1960s relate to earlier and other contemporary models of musical borrowing? I will address this issue with respect to the different repertoires in turn, beginning with music written prior to the twentieth century that incorporates musical borrowing, continuing with musical collages written prior to the twentieth century, musical collages in the early twentieth century (with a focus on the music by Charles Ives), other uses of musical borrowing in the early twentieth century, and finally, addressing the distinction between the musical collage, as I have chosen to define the term, and other contemporary forms of musical borrowing.

In most pieces written prior to the twentieth century that incorporate borrowing, the quotations are from a single source, and are meant to conjure a specific image or reference, as in the quotations of the *Dies Irae* in Berlioz's *Symphonie Fantastique* and Liszt's *Dante Symphony*. Furthermore, the borrowed material is translated into the language of the composer for stylistic uniformity. Such is the case with the parody masses of the fifteenth and sixteenth centuries by Dufay and Josquin, which are based on secular tunes or with Johann Sebastian Bach's use of Lutheran hymns and stylistic borrowings from Italian and French contemporaries.

The musical collage before 1900

Burkholder¹⁵ and Monika Tibbe¹⁶ point out isolated instances of pieces that fit the definition of collage, as described above, in the pre-1900 repertoire. In general the multiple quotations are used to suggest several simultaneous events, whether in real life, imagination or memory. The cited examples include Biber's programmatic ensemble sonata *Battalia* (1673), which "represents soldiers before a battle by means of a quodlibet of eight folksongs in five different keys,"¹⁷ and the Act I finale of Mozart's *Don Giovanni* (1787), which "has three onstage bands playing a minuet, contredanse and waltz simultaneously."¹⁸ Other examples include Strauss's *Ein Heldenleben* (1897-8), which interweaves "counterpoint themes from his own works;"¹⁹ and Mahler's symphonies²⁰, which incorporate dances, marches and folksongs.

¹⁵ Burkholder, 2001.

¹⁶ Monika Tibbe, "Musik in Musik: Collagetechnik und Zitierverfahren," *Musica* 25 (November/December 1971): 562-63.

¹⁷ Burkholder, 2001, p. 111.

¹⁸ *Ibid.*, p. 110.

¹⁹ *Ibid.*, p. 110.

²⁰ Discussions of collage technique in the music of Mahler can be found in Tibor Kneif, "Collage oder Naturalismus? Anmerkungen zu Mahlers 'Nachtmusik I.'" *Neue Zeitschrift für Musik* 134 (1973): 623-28,

Robert Morgan²¹ points out four main distinctive features of the practice of quotation in the 1960s that distinguishes it from these earlier examples:

1. The quotations are normally treated as foreign objects.
2. The quoted music is itself transformed through distortion.
3. The quoted material is no longer confined to an isolated moment and a dramatic purpose, but often appears consistently throughout a composition.
4. The range of borrowings is unprecedented; material is chosen from radically divergent sources, which are freely joined in an eclectic mix.

Furthermore, as Tibbe points out, in all pre-1900 examples of multiple musical quotations, the quoted material tends to conform to the main musical language of the composition; only in Ives's music does the quoted material become a "principle of form" through collage technique.²² As we shall see, this is clearly the case for the collage compositions of the 1960s. Thus, in spite of these apparent early examples of musical collage, Ives constitutes the only real forerunner of this aesthetic.

The musical collage in the early twentieth century

Charles Ives

Some examples of important collage works by Ives include:²³

Overture and March "1776," (c1903-8)

Country Band March, (c1905-14)

The Fourth of July (c1914-18)

In the Inn (c1914, rev. 1923)

and Wolfgang Dömling, "Collage und Kontinuum: Bemerkungen zu Gustav Mahler und Richard Strauss," *Neue Zeitschrift für Musik* 133 (1972): 131-34.

²¹ Robert P. Morgan, *Twentieth Century Music: a History of Musical Style in Modern Europe and America* (New York: WW Norton, 1991), p. 411.

²² Tibbe, 1971, p. 563.

²³ Burkholder, 1995.

Fourth Symphony (c1915-1924)

Washington's Birthday (c1915-17)

Putnam's Camp (c1914-20)- the second movement of *Three Places in New England*

An acknowledgement of Ives as a forerunner of the collage movement of the 1960s is critical, because the work that analysts have done on his music deals with many of the issues that are central to the study of the 1960s repertoire. There are two issues that are particularly relevant: the first deals with the function of the musical quotation in the repertoire, especially considering the ways in which the various uses of musical borrowing traverse the spectrum of levels of perceptibility and centrality to the work of art. The second deals with the disputed importance of referentiality versus formalism in providing the logic behind the combination of disparate elements.

In his book *All Made of Tunes*, Burkholder²⁴ addresses the first of these issues: that of understanding the function of musical quotation within a repertoire considering the broad spectrum in the range of dependence on borrowed materials in individual compositions. Burkholder describes Ives's uses of existing music as a continuum from those "that are primarily structural, through those that are both thematic and characteristic, to the purely programmatic."²⁵ The practice is epitomized in the musical collage, which blends all other types of musical borrowing, and flourishes in Ives's mature compositional language.

Several conclusions that Burkholder reaches are relevant to the present study. The most significant relates to the germinal function of the musical quotation in a piece of music:

²⁴ Burkholder, 1995, p. 7.

²⁵ *Ibid.*, p. 8.

In most instances, Ives's original musical ideas and the forms that his music takes grow organically out of the way in which he uses his sources. Thus, the relationship between the 'quotation' and the context is usually exactly backwards from what seems at first to be the case; it is the quotation, in the sense that it represents the existing music that Ives used as a starting point, that has priority over the surrounding musical material.²⁶

Furthermore the underlying structure of collage compositions is usually derived from modeling on a preexistent work. A study of Ives's sketches for *The Fourth of July*,²⁷ demonstrates that the core musical structure (which comprises a cumulative setting of "Columbia, the Gem of the Ocean") was created first and most of the other borrowed tunes added later. Burkholder concludes:

Ives depends on his sources not only for motives and tunes but in many cases for the very structure of his works or of his themes, as well as for their overall character or style. Thus, his use of existing music is the most important factor to consider in tracing the compositional process or in analyzing the form and meaning of any work based on another. Taken together, these factors demonstrate that Ives's reworking of existing music is central to his process of creation.²⁸

Thus, the function of the musical quotation is clearly central to the understanding of this repertoire. However, it is important to note, in response to the valid objection

²⁶ Ibid., p. 11.

²⁷ Wayne Shirley, " 'The Second of July': A Charles Ives Draft Considered as an Independent Work," in *A Celebration of American Music: Words and Music in Honor of H. Wiley Hitchcock*, ed. Richard Crawford, R. Allen Lott, and Carol J. Oja (Ann Arbor: University of Michigan Press, 1990), pp. 391-404.

²⁸ Burkholder, 1995, p. 11.

brought up by musical scholars,²⁹ that the existence of an underlying structure and of multiple layers of relationships between quotations is essential to the structure the composition, but do not demonstrate an “underlying unity” that makes all other analytical work superfluous. The task of the analyst when dealing with this repertoire is necessarily more complex. The ambiguous references and variety in the levels of perception of invoked materials is essential to the conceptual basis of these works and create new expressive relationships and meanings that are essential to the pieces as works of art. As Burkholder notes,

It is as if Ives shows us the interrelationships among a number of tunes, arranging them in ways that make the relationship obvious, and invites us to continue the process ourselves. The way is open to hearing music that is not in fact alluded to, because so much is already there. . . . In this music, as in life itself, some things come easily, others with more difficulty, and our efforts to comprehend draw us deeper into the complex musical fabric, confronting ambiguity and uncertainty to achieve a fuller understanding.³⁰

The issue of referentiality versus formalism is centered on the question of whether the referential connotations or the musical structure of the disparate elements provide the primary motivation for their incorporation in a piece of music. In the context of the music of Ives, this issue has often been framed in terms of the opposition between *substance*

²⁹ Lloyd Whitesell, “Reckless Form, Uncertain Audiences: Responding to Ives,” *American Music* 12 (Fall 1994): 304-319; Jonathan Kramer, “The Nature and Origins of Musical Postmodernism,” in *Postmodern Music/Postmodern Thought; Studies in Contemporary Music and Culture*, v. 4, ed. Judy Lochhead, Joseph Auner (New York and London: Routledge, 2002), p. 14 and “Beyond Unity: Toward an Understanding of Musical Postmodernism,” in *Concert Music, Rock, and Jazz since 1945: Essays and Analytical Studies*, ed. Elizabeth West Marvin, Richard Hermann (Rochester: University of Rochester Press, 1995) pp. 11-33.

³⁰ Burkholder, 1995, p. 410.

and *manner*, which he addressed in his writings.³¹ As Burkholder³² points out, some analysts have concentrated exclusively on the semiotic function and psychological significance of the quotations citing Ives's celebration of *substance* (which they see as primarily expressive elements) as opposed to *manner* (which they view as a primarily technical element) as their justification for doing so.³³ Other analysts have sought to describe the logic behind the incorporation of musical quotations in technical terms,³⁴ which they claim provide the *substance* that upholds the surface effect of *mannered* quotation.³⁵

For instance, Gordon Cyr³⁶ has demonstrated important motivic similarities between many quotations that are included in Ives's Fourth Symphony. He also demonstrates how overlap and large-scale motivic correspondences can link quotations.³⁷ Likewise, Dennis Marshall, in discussing both Ives's First Piano Sonata and *The Fourth of July*, demonstrates how both the motivic and formal elements of borrowed materials are used as the basis for the new compositions. Furthermore, Henry and Sidney Cowell

³¹ Charles Ives, *Essays Before a Sonata, The Majority and Other Writings*, ed. Howard Boatwright (New York: Norton, 1970).

³² Burkholder, 1995, p. 2.

³³ E.g., Colin Sterne, "The Quotations in Charles Ives's Second Symphony," *Music and Letters* 52 (January 1971): 39-45; Rosalie Sandra Perry, *Charles Ives and the American Mind* (Kent, Ohio: Kent State University Press, 1974), pp. 51-53; Stuart Feder, "Decoration Day: A Boyhood Memory of Charles Ives," *The Musical Quarterly* 66 (April 1980): 234-61.

³⁴ Sydney Robinson Charles, "The Use of Borrowed Material in Ives' Second Symphony," *The Music Review* 28 (May 1967): 102-11; Dennis Marshall, "Charles Ives's Quotations: Manner or Substance?" *Perspectives of New Music* 6/2 (Spring-Summer, 1968): 45-56; Gordon Cyr, "Intervallic Structural Elements in Ives's Fourth Symphony," *Perspectives of New Music* 9/2 and 10/1 (Spring/Summer-Fall/Winter 1971): 291-303; Laurence Wallach, "The New England Education of Charles Ives" (Ph.D. diss., Columbia University, 1973): 249-61; Mary Ellison, "Ives' Use of American 'Popular' Tunes as Thematic Material," in *South Florida's Historic Ives Festival 1974-1976*, ed. F. Warren O'Reilly (Coral Gables, Fla.: University of Miami at Coral Gables, 1976), 30-34; Nora S. Josephson, "Charles Ives: Intervallische Permutationen im Spätwerk," *Zeitschrift für Musiktheorie* 9/2 (Fall 1978): 27-33; Lora L. Gingerich, "A Technique for Melodic Motivic Analysis in the Music of Charles Ives," *Music Theory Spectrum* 9 (1986): 75-93.

³⁵ Marshall, 1968.

³⁶ Cyr, 1971.

³⁷ *Ibid.*, p. 297.

discuss how, using a technique similar to Schoenberg's concept of *liquidation*, Ives is able to isolate certain fragments of a quotation. The structure of these fragments creates links to the subsequent musical components of the composition. In this way, analysts have been able to determine that Ives "develops his borrowed and paraphrased themes as he would a completely original idea."³⁸

A consensus seems to have been reached through which analysts agree that the interaction between the referential and technical contents of a musical quotation is essential to their incorporation in the music of Ives.³⁹ Philip Lambert specifically discusses an instance in which the referential connotations of the works are enhanced through specific technical means, where for instance, the layering effect of canon, achieved through contrasts in key, inversions, and contrasts in rhythm, contributes to project an extramusical idea.⁴⁰

Though not dealing specifically with pieces incorporating a variety of quotations, Lambert⁴¹ has also demonstrated that the systematic exploitation of pitch-space (through the wedge), the completion of the aggregate through pitch-class variety, the structures resulting from the interaction of different transformations, the concept of modeling and the systematic layering of musical space, are essential technical aspects of Ives's musical

³⁸ Burkholder, 1995, p. 87.

³⁹ Henry Cowell and Sidney Cowell, *Charles Ives and His Music*, 2nd ed. (New York: Oxford University Press, 1969), pp. 147-49 and 164. Charles Ward, "The Use of Hymn Tunes as an Expression of 'Substance' and 'Manner' in the Music of Charles E. Ives, 1874-1954" (M.M. thesis, University of Texas at Austin, 1969). Clayton Henderson, "Structural Importance of Borrowed Music in the Works of Charles Ives: A Preliminary Assessment," in *Report of the Eleventh Congress of the International Musicological Society Held at Copenhagen, 1972*, ed. Henrik Gahn, Soren Sorensen and Peter Ryom (Copenhagen: Wilhelm Hansen, 1974), 1, pp. 437-46. Charles Ward, "Charles Ives: The Relationship Between Aesthetic Theories and Compositional Processes" (Ph.D. diss., University of Texas at Austin, 1974): 155-73, particularly p. 157. Wolfgang Rathert, *Charles Ives* (Darmstadt: Wissenschaftliche Buchgesellschaft, 1989), pp. 95-110. Christopher Ballantine, "Charles Ives and the Meaning of Quotation in Music," *The Musical Quarterly* 65 (April 1979): 167-84.

⁴⁰ Philip Lambert, *The Music of Charles Ives* (New Haven: Yale University Press, 1997), p. 14.

⁴¹ *Ibid.*

language. Significantly, they are also vital elements of the musical language of the collage repertoire of the 1960s.

Though it does not deal specifically with the music of Ives, the current study confirms the indebtedness of the collage repertoire of the 1960s to many of the techniques that these analysts describe in his music. Disputing the idea that the musical content of this repertoire can only be described in terms of its referential connotations, this study provides concrete examples that demonstrate the structural role of the musical quotation, the prevalence of motivic relationships, and the role of liquidation and overlap in the connection between quotations. Furthermore, this study applies analytical techniques (such as transformational theory) and elucidates compositional processes (such as the systematic exploitation of pitch space and aggregate completion) that have been related to Ives's non-quotation-based musical language, to the collage repertoire of the 1960s. It demonstrates how these techniques create links between different quotations and act as determinants of structure on a deeper level, extending to whole movements of a composition. Thus, the conclusions of this study solidify the idea of a direct relationship between the music of Ives and the collage practices of the 1960s.

Other uses of musical borrowing in the twentieth century

My usage of the term collage implies a distinction between the uses of musical borrowing that took place during the 1960s and most uses of musical borrowing that occurred earlier in the century. In this way, it differs from other authors, such as Glenn Watkins, who have used the term in a much broader sense. Following the trend in the visual arts, which credits collage as the major operative force underlying virtually all the

major currents and developments of the twentieth century, Watkins postulates that all major currents of the twentieth century are based in some way on the juxtaposition of various opposing forces typified in a collage:

It should be understood from the outset, however, that the term collage is used here as a metaphor; that citation typically refers less to thematic recall of familiar tunes than to the assemblage and rearrangement of a rich parade of cultural loans involving textures, timbres, temperaments, and generative procedures ranging from the banal to the esoteric; that juxtaposition characteristically italicizes complementary qualities in the seemingly contradictory; and as a consequence surfacing questions more often evoke polychromatic illumination rather than single-hued answers.⁴²

In this way, Watkins seeks to prove “ways in which Modernism served as a natural conduit to and claimed continued residency in a Postmodern age.”⁴³ His main concern is to dispute the “current fin de siècle’s claim to the discovery of multiculturalism.”⁴⁴ His book thus discusses powerful influence of non-western cultures, folk music, primitivism, jazz, and early music on the major developments of the early twentieth century. As examples, he discusses the relationship between Cubism and Stravinsky’s juxtapositions and layered structures, and the fact that “cultural collage came with the wholesale exodus of artists, intellectual, and scientists from Europe to the United States”⁴⁵ in the 1930s. As specific instances of quotation in the early twentieth

⁴² Glenn Watkins, *Pyramids at the Louvre: Music, Culture, and Collage from Stravinsky to the Postmodernists* (Cambridge: Harvard University Press, 1994), p. 3.

⁴³ *Ibid.*, p. 7.

⁴⁴ *Ibid.*, p. 10.

⁴⁵ *Ibid.*, p. 6

century, he cites the Debussy's "Golliwog's Cakewalk" from the *Children's Corner* suite (1906-1908)⁴⁶, the practices of the Dadaists, and the music of Ives.

Citing the techniques of splicing and overlay of early electronic music, such as Pierre Schaeffer's *Etude aux chemins de fer* (1948), and the juxtapositions inherent in chance compositions, Watkins draws a direct link and a credible chronological continuity between the developments of the first half of the century and the collage practices of the 1960s.⁴⁷ He suggests, "continuity between the Modern and the Postmodern may be as operative as severance."⁴⁸

The following list provides a summary of the most important influences on the collage practices of the 1960s, without attempting a comprehensive discussion of them.

1. The early music movement of the 1960s, consisting of a renewal of interest by scholars, performers and composers in the music of the past.
2. The renewal of interest in the music of Mahler and Ives and in eclecticism.
3. Trends in theater, which often prompted the first uses of collage in music.
4. Film music and cartoon music.
5. Electronic music, including the tape recorder and splicing, which permit an exact counterpart to collage in the visual arts.
6. Post-modernity, the barrage of information and musical styles encountered on a daily basis in modern society and the resulting desire to create musical analogues for the multiple sensory bombardments of the world.

⁴⁶ Ibid., p. 399.

⁴⁷ Ibid., p. 406.

⁴⁸ Ibid., p. 424.

7. Textural disjunction common in the music of Stravinsky and in pieces using chance procedures, electronic music, film music and in the exposure of every day life.
8. The domination of the concert hall and the early education of musicians by a canonic repertoire and the resulting alienation between composer and audiences.
9. A wish to reconcile tonal and atonal musical languages.
10. The accessibility of all kinds of music because of the record industry.
11. The reaction to the complete control of total serialism.
12. The Civil Rights movement of the 1960s and the perception of the “other” as an equal.

The influences are multifaceted and, as Watkins suggests, result as much from a continuation of trends seen earlier in the century as from a disruption of them. Thus, for instance, some of these developments (such as the rise of scholarly interest in music of the past) represent the continuation of issues that were significant to the practices of borrowing that occurred earlier in the century. However, many of them, such as the influence of electronic music, and the reaction to the complete control of total serialism, represent issues that were relevant to a much greater degree in the 1960s than they were earlier in the century. I would like to suggest that it is in the exclusive vantage point of convergence between non-linear developments that the uniqueness of the music written in the 1960s resides. Thus, Watkins’s claim notwithstanding, there are fundamental distinctions between the quotation practices of the late 1960s and the uses of preexistent material in most music composed prior to that time.

Clearly, *musique concrète*, which is based on the manipulation of sounds from everyday life through splicing and dubbing, and is represented by pieces such as John Cage's *Imaginary Landscape no. 5* (1952) and Karlheinz Stockhausen's *Gesang der Jünglinge* (1955-6), provides the most direct analogy to collage practices in the visual arts. The music of 1960s, however, reflects the contemporary trend in the visual arts to expand the available materials in the creation of a work of art. In the visual arts this resulted in the incorporation of materials from everyday life and elements of pop culture. Music in the 1960s extended the available materials for the creation of a collage to the work of art itself, thus achieving different connotations.⁴⁹

Thus, the present study incorporates a narrower scope for the repertoire that is to be studied under the heading of collage than Watkins's does. In the visual arts, a collage traditionally incorporates two important technical characteristics: the technique of cutting and pasting, and the distinct textural properties of the individual components. In music, the first of these entails the incorporation of temporally and spatially juxtaposed quotations and snippets of musical material or sounds from diverse sources, as well as the fragmentation and recombination of thematic material. The second would require that the sources be stylistically distinct, and able to convey their distinct identity.

One of the primary effects of a collage is the novel way in which it exploits the spatial dimension and traverses the distance between the public and the artistic product both conceptually and literally. The incorporation of a variety of materials in a work of

⁴⁹ Although some artists, such as Larry Rivers (*Dutch Masters* and *Cigars II*, 1964), Robert Rauschenberg (*Crocus*, 1962 and *Bicycle*, 1963), and George Segal (*Sidney Janus with Mondrian's 'Composition' of 1933, on an Easel*, 1967), produced collages that used old paintings as their main material, this practice never constituted a generalized trend in the visual arts, as it did in music. Instead, artists from this time period turned increasingly to pop objects and objects from everyday life. In the visual arts collage blurred the border between painting and sculpture with the increasing use of three-dimensional space.

art (often materials from the everyday world) adds a concrete spatial dimension to the work of art and reaches out to the public on a new level through the connotations and referential meanings of the individual components. In a musical collage, the same process occurs. Technically, there is a redefinition of the spatial dimension, which is implied by the simultaneous juxtaposition of the distinct components. Likewise, the referential meanings of the individual components traverse the space between the audience and the work of art, engaging the recognition capabilities of the audience to convey deeper layers of meaning.⁵⁰

Furthermore, the collage practices of the later 1960s occupy a unique place in music history because they constitute both a response to and an outgrowth of the serialist practices of the 1950s. Morgan discusses the relationship in general terms: “Quotation technique and serialism may seem far removed from each other, yet they share at least one essential attribute: in both, the composer begins the compositional process with ‘pre-formed’ material already at hand and manipulates it through various combinatorial and permutational methods. (Most of the earliest composers to turn to quotation in the 1960s had serial origins).”⁵¹

In this view, the quotations can be seen as prefabricated material that is to be manipulated in ways that are analogous to those in which composers previously made use of the twelve-tone row. The current study draws a more concrete link between serialism and the practice of quotation. Although not apparent from the musical surface, which eschews conventional serialism, chapter five describes specific ways in which the serialist background of these composers continues to provide the basis for the structural

⁵⁰ In Berio’s music, the prevalence of the theatrical element implicit in his texts and vocal techniques that bridge the gamut from singing, through solfege, to speaking; further explore this space.

⁵¹ Morgan, 1991, p. 412.

relationships of the musical language through the systematic exploitation of chromatic saturation in pitch space.

The collage practice of the 1960s is also unique in the way in that it marks the starting point for many of the developments in musical style that have taken place since then. George Rochberg describes how for him it constituted the beginning of a “return to tonality” that has had significant implications for the musical language of the contemporary composer.⁵² Similarly, the eclecticism of its style paved the way for musical practices that incorporate even more diverse influences, setting the stage for contemporary music that is heavily influenced by rock and popular music. Thus, the collage techniques of the late 1960s represent a significant crossroads in the course of development of the musical language of the twentieth century, by constituting the birthplace of many contemporary musical styles.

Other contemporary uses of musical borrowing

The music written since the 1960s that incorporates quotation and borrowed materials constitutes a vast and diverse repertoire. There is a continuum between music that utilizes actual quotation and music that conveys a sense of juxtaposition through stylistic contrasts without using actual quotation. There is also a continuum in the number of different components that are juxtaposed. Likewise, there is a continuum in the amount of juxtaposition that exists. On one end there is the composer who embraces the adopted style wholeheartedly or the composer who absorbs borrowed material into his or her own style without an apparent seam. On the other end is the composer who uses the

⁵² Robert Reilly, “The Recovery of Modern Music: George Rochberg in Conversation.” *Tempo* 219 (February 2002): 8-12.

juxtapositions as an essential part of the compositional content. The following list provides a summary of the various approaches, although the present study concentrates exclusively on a last category.

1. Works that incorporate structural features of earlier compositions without actual quotation. The musical relationship to its source is not evident. Peter Maxwell Davies's pieces based on Taverner (two orchestral *Fantasias*, 1962, 1964) and other works such as String Quartet (1961, based on Monteverdi) use pre-existing materials in direct imitation of the parody masses of the fifteenth and sixteenth centuries. The borrowed material is used for its musical qualities and associative meanings, but is not easily recognizable as it is integrated into Davies's compositional style through serial and other types of manipulations.
2. Quotations fuse into the style into which they are imported because the musical languages are closely related. The quotations retain their original meaning to a certain extent. Example of this type are common in the music of Shostakovich (Symphony No. 15, 1971) and Tippett (Third Symphony, 1972)
3. Works that incorporate stylistic allusion with or without quotation. Collage is used as a metaphor for an aesthetic. The conceptual incorporation of different styles of music overrides the significance of the individual quotation. Examples include Alfred Schnittke's Concerto Grosso no. 1, 1977, and String Quartet No. 3, 1983.
4. Works that incorporate quotation from a limited amount of sources. The music of George Crumb (*Ancient Voices of Children*, 1970, *Vox Balanae*, 1971) provides a

good example. Other examples include Lucas Foss's *Baroque Variations* (1967), Jacob Druckman's *Prism* (1980) and Mauricio Kagel's *Ludwig van* (1969).

5. Works that incorporate sounds from everyday life and noises, or are randomly assembled. The collage aesthetic is invoked for conceptual purposes; the exact excerpts and order are not determined. Examples of this include Cage's *Williams Mix*, *Fontana Mix* (1958), and *Europera* (1988).
6. Electronic collages include musical excerpts and sounds or electronic manipulations to connect them. Examples of this include Stockhausen's *Hymnen* (1966-7), *Telemusik* (1966) and *Kurzwellen* (1968-1970).
7. Quotation for theatrical impact: The chosen excerpts, or manipulations of the excerpt, have a programmatic or overtly theatrical function. Luciano Berio's *Opera* (1960-70, rev. 77), *Recital I* (1972) and Cage's *Variations V* (1965) and *IV* (1963) provide good examples. In this category, there are many instances that predate the work of artists in the 1960s. Spike Jones's musical comedy of the 1930s and 1940s invokes Big Band sound, classical music references, popular styles, and noises for comical effect. Peter Schickele's P.D.Q. Bach work of the 1950's and 1960's juxtaposes snippets of music from the canon with commentary that ridicules the concert tradition. The cartoon music written by Carl Stalling for Warner Brothers from the 1930s through the 1950s, blends classical music, popular music, jazz and country-western sounds with the singular purpose of following the rapid action of the cartoons. All of these works borrow and juxtapose an incredible array of snippets from numerous sources. They predate even more contemporary styles of musical borrowing in their deliberate

juxtaposition of high and lowbrow styles. In all cases, there is a strong theatrical comic effect that provides the motivation behind the combination of elements.

8. Additions to a specific piece, as in Schnittke's Concerto Grosso No. 4/ Symphony No. 5 (1988) which is based on the incomplete second movement of Mahler's early Piano Quartet (1876) or Berio's *Rendering* (1988-1990), which reconstructs and amplifies Schubert's sketches for a tenth symphony.
9. Works that can most accurately be discussed in terms of a musical collage: they incorporate a variety of literal and recognizable quotations from diverse sources within a single movement. Significant works include:

Bernd Alois Zimmermann

Die Soldaten (1958-64)

Antiphonen (1962)

Presence- piano trio (1961)

Musique pour les soupers du Roi Ubu (1966)

Monologe (1960-64)

Photoptosis (1968)

Luciano Berio

Sinfonia (1968-9)

Questo vuol dire che (1969)

George Rochberg

Contra mortem et tempus (1965)

Music for the Magic Theater (1965)

Third Symphony (1968)

The current study focuses only on the pieces that belong to the last category, in which the incorporation of quotations can unambiguously be described as the main component of the musical style. In this way it seeks to focus on the logic behind the interaction between the disparate quotations, and the implications that the practice of quotation has in terms of the structure of the musical language. The application of the term collage to this music

is partially due to Bernd Alois Zimmermann, one of the Germany's leading composers who did much to popularize the term.⁵³

EXISTING LITERATURE

The categorization of a piece of music as a collage suggests the juxtaposition of fragmentary, contrasting materials with diverging connotations and references. Clearly, the contrasts in the musical idiom of each individual element must be great enough that they are perceived as being distinct. The sheer variety of styles and, more importantly, musical idioms that can be thus combined into a single composition pose the most stimulating questions for the analyst: What is the relationship between the disparate elements in a collage? What are the structural implications of combining such a variety of disparate elements? Does a collage in music epitomize the process of deconstruction of the basic structural premises of the musical language by aiming at formal as well as perceptual discontinuity, or does it mainly convey a surface discontinuity that attains its expressive goal through references to diverse sources, while retaining control in the underlying structures? Finally, what theoretical tools should be used to analyze music with such diverse musical idioms?

Serious consideration of the musical collage of the 1960s in the analytical literature has been limited because of two assumptions that are commonly held in some quarters. The first is a trend to view susceptibility to influence as an indicator of artistic immaturity. The second is the common supposition that the creative process in a musical collage is limited to choosing from a variety of fragments and that the compositional

⁵³ Burkholder, 2001, p. 111; Elmar Budde, "Zitat, Collage, Montage," in *Die Musik der Sechziger Jahre*, ed. R. Stephan (Mainz: B. Schotts Söhne, 1972), p. 31; Elliott Schwarz and Daniel Godfrey, *Music since 1945: Issues, Materials and Literature* (New York: Schirmer Books, 1993), p. 246.

technique necessary to put together one of these pieces is minimal. This assumption is closely related to the implication that the existence of an underlying structure is contradictory to the conceptualization of these pieces as musical collages.

Working primarily within the context of these assumptions, Zofia Lissa⁵⁴ disparages the musical collage as the extreme result of a misguided search for originality. She discusses historical awareness of music as one of the main factors behind the stylistic diversity of music in the late twentieth century:

The feeling of the historical aspects of every second of our lives, of the fickleness and transience of each creative act, is responsible for the rapid changes in the musical production of the twentieth century and for an ever-growing *acceleration* of change. The content of the historical feeling, its intellectual core, and the awareness of the constant transformations of the means of expression serve as an incentive to search for ever new solutions.⁵⁵

One of the most important implications of Lissa's work is that she considers that the collage aesthetic requires a limited compositional technique. Lissa acknowledges her "lack of knowledge of the characteristics of the musical language of the musical collage."⁵⁶ Following the assumption that there is no logic to the musical language besides that which was gained through the referentiality of the quotations, and citing its

⁵⁴ Zofia Lissa, "Historical Awareness of Music and its Role in Present-Day Musical Culture," *International Review of the Aesthetics and Sociology of Music* iv (1973): 17-32.

⁵⁵ *Ibid.*, p. 24.

⁵⁶ *Ibid.*, p. 28.

association with pop music as a proof of artistic commonness, Lissa concludes that the musical collage degrades music into mere material⁵⁷ and furthermore:

All the steps required of a composer before the actual composing work begins can be reduced here to the choice of the right quotations and their combination along with other passages in the way that best suits the composer's purpose.... works of this kind have no life of their own.⁵⁸

Since criticisms of this sort, which recall many of the objections that have been leveled at twelve-tone music, are responsible for the limited attention that this repertoire has received in the analytical literature, an assessment of the two assumptions on which Lissa bases her discussion is indispensable. The first is an assumption that there is a negative value to influence in music; the second is an assumption that the relationships between the disparate quotations in a musical collage are incidental.

With respect to the first point, the methodology proposed by Joseph Straus provides a particularly useful starting point.⁵⁹ Straus describes three models of understanding influence in music. In the first, which is evident in Lissa's assessment of the musical collage, a composer's susceptibility to influence is viewed as a sign of artistic immaturity. In the second, the assimilation of the tradition is essential to the formation of a great artist. In the third model, which is based on Harold Bloom's concept of the "Anxiety of Influence,"⁶⁰ the artistic reaction to influence can be described in terms of a misreading. A misreading is a form of interpretation where artists use pre-existing works to achieve their own artistic goals, thus simultaneously acknowledging and transcending

⁵⁷ Ibid., p. 31.

⁵⁸ Ibid., p. 32.

⁵⁹ Joseph Straus, *Remaking the Past: Musical Modernism and the Influence of the Tonal Tradition* (Cambridge: Harvard University Press, 1990), pp. 9-10.

⁶⁰ Harold Bloom, *The Anxiety of Influence: A Theory of Poetry* (Oxford: Oxford University Press, 1973).

their influence. From this perspective, “the relationship between a work and its predecessors crucially defines every work.”⁶¹

Straus describes powerful ways in which adopted material can be transformed in a new work, concluding that “by using these musical revisionary ratios at all levels of structure, twentieth century composers reinterpret earlier music in accordance with their own compositional needs. These strategies, more than any specific musical structure, define a twentieth century practice.”⁶² Thus, the process of transformation becomes an integral part of the compositional process. The relationship between particular qualities of the source material and the ways they are incorporated into the compositional structure (which Straus terms a misreading) is a pivotal aspect of these works. With respect to the musical collage the focus turns to the process through which composers incorporated quotations into their work, and the way in which the composer exploits features of the incorporated quotations in the new work.

Berio himself resisted the use of the term collage for the third movement of *Sinfonia*. He cited as a reason its underlying structure in which “the different musical ‘characters’ are always integrated into the flowing harmonic structure of Mahler’s *Scherzo* . . . signaling and commenting upon the events and transformations.”⁶³ Clearly, there are few pieces in the repertoire that are associated with musical collage to the extent of Berio’s *Sinfonia*. His objections stem from the negative connotations associated with the term and the misconceptions regarding the nature of the compositional process involved in creating a musical collage. The limited amount of work that has been done by

⁶¹ Straus, 1990, p. 12.

⁶² Straus, 1990, p. 17.

⁶³ Luciano Berio, commentary given by the composer, in Glenn Watkins, *Soundings: Music in the Twentieth Century* (New York: Schirmer, 1988), p. 649.

analysts on this topic (which is summarized below) has only started to dispel these assumptions.

Traditional techniques of musical analysis are based on the assumption of a governing unity in the musical language. Both Schenkerian analysis and set-class analysis, which are some of the most prevalent techniques used to analyze music, seek to elucidate underlying unity (even in works in which the unity is not strongly apparent). In this view, the relationship of each part of a composition to a whole and also to each other is a precondition for unity and is considered indispensable to a successful piece of music (or a successful analysis of it). In essence, these methodologies isolate elements that create unity and dismiss those that do not as perceptually less important. Furthermore, they depend on the structure of the musical language. Thus, the difficulty of analyzing music that openly subverts the concept of unity by juxtaposing fragments of materials from different musical styles is evident. The sheer variety of musical languages that are invoked in a musical collage through quotation from diverse sources obscures even the issue of what analytical tools should be used to approach such music. As a result, analytical work on this repertoire has traditionally been limited in scope, focused on a description of the main constituents, the referential connotations of these works or confined to a specific piece or the output of a single composer.

The musical collage, with its unprecedented power to elicit explicit referential connotations brings to the forefront the dialectic opposition regarding referential/absolute meanings in music as well as the conflict between formalist/expressionist approaches to analysis described by Leonard Meyer.⁶⁴ The specific references that can be conveyed through quotation transcend those intrinsic to any other musical device. Coupled with the

⁶⁴ Leonard Meyer, *Emotion and Meaning in Music* (Chicago: University of Chicago Press, 1956).

difficulties that the deliberate incorporation of disparate materials poses to the analytical process, this level of referential determinacy has created a tendency illustrated in the existing analyses of *Sinfonia* to concentrate almost exclusively on the referential aspects of the composition.

Analyses of pieces using this technique as a basis for their conception have been confined for the most part to a listing of the sources (which is an essential first step in any such analysis), coupled with tentative phenomenological, semiotic, or psychological conjectures regarding the motivation and effect of their combination. Concentrating almost exclusively on the referential implications of the practice of musical quotation, Michael Hicks⁶⁵ deals exclusively with the textual relationships in *Sinfonia*, while George Flynn⁶⁶ discusses the effect of the heterogeneity of the musical surface of the music and explicitly rejects any technical approach to Berio's music.

Similarly, Joan DeVee Dixon and Alexander Ringer, in discussing Rochberg's music, focus for the most part on how it reflects the composer's ideological preoccupation with the reevaluation of the musical past and his new aesthetic of stylistic pluralism, thus bypassing a technical discussion of his music altogether.⁶⁷ These approaches, while they address an important aspect of the composition as an artistic product, often fail to identify the importance of the choice of a particular excerpt from a composition as opposed to another and imply that a musical product can be created where

⁶⁵ Michael Hicks, "Text, Music and Meaning in the Third Movement of Luciano Berio's *Sinfonia*," *Perspectives of New Music* 20 (1981-2): 199-224.

⁶⁶ George Flynn, "Listening to Berio's Music," *Musical Quarterly* 61 (July 1975): 393, 420.

⁶⁷ Joan DeVee Dixon, *George Rochberg: A Bio-Bibliographic Guide to his Life and Works* (Stuyvesant, NY: Pendragon Press, 1992); Alexander Ringer, "The Music of George Rochberg," *The Musical Quarterly* 52 (October 1966): 409-430.

the specific relationship between its constituent elements is abstract, rather than defined by its technical associations.⁶⁸

Another approach includes postulating a series of analyses that extract significant elements from those functioning at any given time, and creating different and simultaneous layers of association from the extracted elements.⁶⁹ While it is true that different analytical techniques can isolate and explain elements that occur simultaneously with others that are included in different structural paradigms, in order to complete an analysis, it is necessary to understand how these different “layers” interact.

Isolated technical aspects of collage compositions have been discussed within the context of a particular piece. David Osmond-Smith’s excellent study of *Sinfonia* identifies the quotations and describes isolated technical elements (such as the sharing of common pitches, harmonic basis or melodic shapes) that associate many of the disparate components.⁷⁰ Furthermore, the discussion, contained in his book on Berio,⁷¹ of how Berio experimented repeatedly with the practice of using an existing composition as the basis for another in the years preceding the composition of *Sinfonia*,⁷² provides insight into the main structural features of these works. His discussion provided the basis for this study.

⁶⁸ Though this is certainly the case for many Dada compositions or works that rely heavily upon chance (many works of John Cage, etc.), it could hardly be applied to a work such as *Sinfonia*, where almost every single pitch and its placement are so carefully controlled.

⁶⁹ Chandler Carter, “Contemplating Diversity and Unity in Charles Ives’s ‘Tom Sails Away’” (paper presented at the SMT Conference in Philadelphia, 2001).

⁷⁰ David Osmond-Smith, *Playing on Words: A guide to Luciano Berio’s Sinfonia* (London: Royal Music Association, 1985).

⁷¹ David Osmond-Smith, *Berio* (New York: Oxford University Press, 1991).

⁷² Many of his series of *Chemins* were derived from his *Sequenza* in this way. The audibility and structural prominence of the original in the elaborated version varied in each case. At times the added parts tended to sustain or embellish the harmonic language and formal properties of the original, while at other times they obscured them completely.

Osmond-Smith describes the motivation behind the combination of disparate elements mainly in reference to the text and other extramusical associations. For example, he describes how the themes of water and death (which are central to the piece), create interrelationships that are fascinating because they function on many levels.⁷³ The associations related to the theme of water present a compelling example. In discussing the third movement of *Sinfonia*, Berio stated, “If I were asked to explain the presence of Mahler’s Scherzo [from Symphony No. 2] in *Sinfonia*, the image that would naturally spring to mind would be that of a river running through a constantly-changing landscape, disappearing from time to time underground, only to emerge later totally transformed.”⁷⁴ Thus, the image of water is used to explain the structural function of the *Scherzo* within the piece.

The image of water also makes reference to the origins of the *Scherzo* itself as an elaboration of a pre-established text. The song it rewrites has a text from *Des Knaben Wunderhorn* in which, for lack of a congregation, St. Anthony of Padua delivers a sermon to the fishes. Furthermore, the theme of water associates many of the quotations that are superimposed above the Scherzo, such as the quotations from Debussy’s *La Mer*, Schoenberg’s Op. 16, No. 3 (*Farben*), the drowning scene from Berg’s *Wozzeck*, and the quotation from Beethoven’s Symphony No. 6.

Significantly, these same quotations (most prominently the *Scherzo* itself and the quotation from *Wozzeck*) also tie into to the theme of death. The latter draws upon the title of Mahler’s Symphony No. 2 (the “Resurrection Symphony”) and specifically upon one of the programmes that Mahler suggested for the *Scherzo*. In this programme, a

⁷³ The following discussion is a summary of issues addressed in Osmond-Smith, 1985, pp. 39-71.

⁷⁴ Berio, liner notes, *Sinfonia*, Columbia MS 7268.

tortured soul gazes upon a dance from the darkness outside a ballroom. The unrelenting movement of the dancers is reflected in the steady flow of sixteenth notes in the *Scherzo*, and eventually leads him into despair.⁷⁵ Appropriately, *Das ist ein Floten und Geige*, a song from Schumann's *Dichterliebe* which depicts the wedding ball as observed by the bride's abandoned lover, is quoted in the final bars at the end of the *Scherzo* itself. The theme of death desired and the despairing quality of the unrelenting dance associates the underlying *Scherzo* with another quotation that Berio superimposes over it in *Sinfonia*, the quotation from Berlioz's *Symphonie Fantastique*. The theme of a dance and the play with waltz rhythms further ties these quotations to other prominent quotations in the piece, such as Ravel's *La Valse*, Stravinsky's *Danse de la Terre*, Strauss's *Der Rosenkavalier* and Ravel's *Daphnis and Chloe*.

The quotations that Berio uses in *Sinfonia* thus emphasize the themes implicit in the *Scherzo* itself, which relate to the way that the piece incorporates both the technique of reworking an existing composition and the practice of quotations. Other connections that Osmond-Smith discusses include the association of the texts with the quotations and the association of quotations by genre.⁷⁶ The different quotations interweave in complex ways, creating various levels of associations.

Like Osmond-Smith, Elmar Budde and Peter Altmann present isolated examples of ways in which disparate quotations are connected in *Sinfonia*, within the context of a

⁷⁵ Osmond-Smith, 1985, p. 54.

⁷⁶ The numerous other referential connotations of the pieces discussed in this study have been insightfully discussed in great detail by the authors cited in these pages. Rather than oversimplify their work by an incomplete summary of their findings, I would like to refer the reader who is interested in this perspective to these sources.

discussion of the piece in more general terms.⁷⁷ In all of these studies the technical connections are discussed in a very limited context, and the underlying large-scale process through which (in Berio's words) the different quotations comment upon the flowing harmonic structure of Mahler's Scherzo is never clearly addressed.

Neal Richardson discusses the ways in which existing music is used as a basis for quotation and also provides the motivic, formal, gestural and pitch organization of the newly composed music in Davies's *Second Fantasia on John Taverner's In Nomine* and Rochberg's *Nach Bach*, which are both works that borrow from a single source.⁷⁸ Other studies have concentrated on a single composer's output, such as Stephen Adams's study on Schafer⁷⁹, Klüppelholz's studies of the music of Mauricio Kagel⁸⁰ and the insightful discussions of the music of Zimmermann by Clemens Kühn and Peter Kiesewetter.⁸¹ The latter describes motivic connections that provide the basis for my analysis of *Musique pour les Soupers du Roi Ubu*.

Only recently has the practice of borrowing been scrutinized from a wider perspective. The work of Burkholder has been instrumental in this respect, setting up a useful typology of musical borrowing that crosses over different time periods and styles.⁸² Similarly seeking a broader outlook, David Metzger has focused on how the

⁷⁷ Elmar Budde, "Zum dritten Satz der Sinfonia von Luciano Berio." in *Die Musik der sechziger Jahre*, ed. Rudolf Stefan (Mainz: B. Schott's Söhne, 1972), pp. 128-44; Peter Altmann, *Sinfonia von Luciano Berio: Eine analytische Studie* (Vienna: Universal Edition, 1977).

⁷⁸ Neal Richardson, "Musical Borrowing in Selected Works by Peter Maxwell Davies and George Rochberg" (master's thesis, Baylor University, 1994).

⁷⁹ Stephen Adams, *R. Murray Schafer* (Toronto: University of Toronto Press, 1983).

⁸⁰ Werner Klüppelholz, *Mauricio Kagel: 1970-1980* (Cologne: DuMont, 1981) and Werner Klüppelholz, *Kagel.... /1991* (Cologne: DuMont, 1991).

⁸¹ Clemens Kühn, "Die Orchesterwerke Bernd Alois Zimmermanns," *Schriftenreihe zur Musik* 12 (Hamburg: Verlag der Musikalienhandlung Wagner, 1978); Peter Kiesewetter, "Bernd Alois Zimmermann: *Musique pour les soupers du Roi Ubu*," *Melos* 47 (1985), H.1: 28-59.

⁸² J. Peter Burkholder, "The uses of existing music: musical borrowing as a field," *Music Library Association Notes* 50 (1994): 851-70; "Borrowing," in *The New Grove Dictionary of Music and Musicians*, 2nd ed., v. 4, ed. Stanley Sadie, John Tyrell (London: Grove, 2001), pp. 5-8.

referential implications of the practice of musical quotation extend over a variety of different styles. He studies the role of quotation as a cultural agent in a variety of twentieth-century repertoires, including the music of Ives, Duke Ellington and Bubber Miley, Schoenberg, Berio, Rochberg, Sandra Bernhard and Stockhausen, among others.⁸³

Works that incorporate multiple quotations have been subjected to scrutiny as a unified body in the work of Lisa Brooks Robinson,⁸⁴ who traces the influence of Mahler in several of these compositions, including the final movement of Lukas Foss's *Time Cycle* (1959-60), the first movement of Rochberg's *Music for the Magic Theater* (1965), the third movement of Berio's *Sinfonia* (1968), and the second movement of Schnittke's *Fourth Concerto Grosso/Fifth Symphony* (1968). Applying an approach that blends referential and technical analysis, she describes intertextual associations, various structural procedures such as expansion, integration, and defamiliarization;⁸⁵ and motivic techniques in her analyses of the individual pieces. Her discussion of motivic content and continuity in *Music for the Magic Theater* provided the starting point for my analysis of that piece. She identifies four different techniques that create continuity in this piece.⁸⁶

1. Use of common textures and/or timbres in successive passages.
2. Continuation of a quotation after it has been interrupted.
3. Half step or pseudo leading-tone connections.
4. Formal overlap between gestures.
5. Use of recurring motives.

⁸³ David Metzger, *Quotation and Cultural Meaning in Twentieth-Century Music* (Cambridge: Cambridge University Press, 2003).

⁸⁴ Lisa Brooks Robinson, "Mahler and Postmodern Intertextuality" (Ph.D. diss., Yale University, 1994).

⁸⁵ A term that refers to the concept of art as a process through which perception is complicated and prolonged.

⁸⁶ Robinson, 1994, p. 115.

The only link between the processes she describes in her analyses of these different pieces is the reliance on Mahler: “many of the procedures applied to the appropriated material represent an exaggeration or intensification of procedures and techniques found in the works being quoted and/or in other works by Mahler.”⁸⁷

Thus, although isolated technical aspects relating to the musical function of the quotations with respect to the collage context into which they are introduced have been described by all these analysts, there has been no attempt to describe the large-scale structure of these pieces or to trace structural features that span different compositions. This project will address both issues, describing techniques for linking disparate elements and features of the musical language that transcend foreground events and that are common to a variety of different compositions written in this style. It demonstrates through concrete examples that the heterogeneous surface of these pieces does not reflect a simplistic rejection of deeper connections, but instead is governed by a multitude of associations that create unconventional structures and relationships. These structures are fascinating in that they do not simply ignore the contrasts in the musical language, but instead embrace these contrasts as fundamental building blocks. In this way, the present study provides a preliminary theoretical model for the analysis of collage in music.

METHODOLOGY

By emphasizing technical aspects over the referential implications of the practice of quotation, this study describes various formal, structural, and associative relationships between disparate elements in the musical collage. By focusing on three strongly contrasting but representative pieces in this style: Zimmermann’s *Musique pour les*

⁸⁷ Robinson, 1994, p. 49

Soupers du Roi Ubu (1966), the first movement of Rochberg's *Music for the Magic Theater* (1965), and the third movement of Berio's *Sinfonia* (1968), I have uncovered surprising correspondences in the way these relationships are achieved. This suggests the usefulness of this approach in creating a preliminary analytical model that can be usefully applied to this body of works as a whole.

I have identified analytical approaches and compositional techniques that have yielded insight into many of the basic components of this musical style, including possible models for voice-leading, harmonic structure, form and large-scale coherence. The analytical approaches are formal analysis, and motivic and transformational analysis. The compositional techniques are the processes used to achieve modulation, and chromatic saturation and the significant gap:

- Formal analysis illustrates how a clearly defined large-scale formal structure underlies the disparate elements contained in these works. In spite of the striking contrasts in the way that these works are conceived, they are similar in that their formal structure is derived from modeling on one of the works that is also a source for extended quotation.
- Transformational graphs illustrate how motivic recurrences on both a local and a large-scale level create structures that elucidate the logic behind the combination of disparate elements.
- Modulation refers to the foreground compositional technique through which the transition between these elements is achieved. Three different techniques for linking disparate quotations--overlap, chromatic insertion and rhythmic plasticity--interact to transverse the space between disparate quotations,

creating relationships that are akin to the sophisticated types of modulatory techniques that operate in tonal music.

- Chromatic saturation and the significant gap is a compositional technique that functions on many different levels of structure. It consists of a process through which the saturation of a chromatic space, which can be defined in different contexts as encompassing a pitch space, or a pitch-class space, provides the logic behind the harmonic, formal and voice-leading content of the piece. The significant gap refers to the way a particular pitch space is delineated and then saturated at important structural moments in the piece. This compositional approach is the most significant finding of this study, as it simultaneously subverts and transcends traditional notions of unity, thus accounting for both the disjointedness and the continuity that this music projects.

Each of the following chapters concentrates on a single issue and demonstrates how it yields insight into the underlying structural framework of each of these works. The second chapter concentrates on formal processes, the third on motivic and transformational relationships, the fourth chapter concentrates on the actual points of contact between the disparate elements, thus describing the process of modulation in the musical collage; the fifth chapter describes the technique of chromatic saturation and the significant gap

The variety and scope of the examples is reflective of the geographic and stylistic gap that these pieces span. The manifold and subtle ways in which these processes are realized in these works demonstrate the potential scope and flexibility of the theoretical

model. However, the fact that the different techniques for linking highly contrasting sound worlds can be grouped into categories that are conceptually analogous establishes a theoretical foundation for understanding the musical language of this repertoire, thus providing an essential insight into seminal aspects of this musical style.

CONCLUSION

The sheer variety of musical languages that are invoked in a musical collage, as well as the essential independence of individual layers of texture, undermine the usefulness of defining verticalities and intersecting pitch class collections as the chief components of structure. In constructing a preliminary theoretical model for the analysis of collage in music, the stress is transferred instead to technical parameters, such as form, rhythm, and motivic structure, which bridge the stylistic gap.

Collage compositions often exhibit an underlying structure that is derived from their borrowed material through the concept of modeling. This practice, which has been described in the music of individual composers (such as Davies, Ives, and Zimmermann), constitutes one of the major factors underlying the organization of a musical collage. However, the existence of an underlying structure and in these works does not necessarily imply that the music should somehow project some kind of underlying “unity” to the listener.

Disjunction clearly constitutes the underlying aesthetic content of these pieces. This study demonstrates, however, that it is not an inescapable byproduct of the incorporation of disparate materials. Chapter four demonstrates how composers can weld these materials together seamlessly by using a variety of techniques. Chapter two

demonstrates how the technique of collage, although it often disrupts the thematic flow of its components, can also create new continuities through motivic and thematic relationships that emphasize the inherent processes. Chapter three demonstrates how a transformational approach helps to elucidate the nature of the dynamic relationships that exist between disparate components, one that is characterized by the way motivic connections cut across the tonal tendencies of the disparate components. Clearly, the whole spectrum in levels of disjunction is consciously exploited.

Instead of assuming that the levels of disjunction are random, one might invoke the expressive power of juxtaposition. The complexity achieved through juxtapositions in the musical collage, when compared to straightforward presentations of a single idea creates large-scale expressive effects that are analogous to ways in which dissonance and consonance operate in tonal music. In fact, the juxtaposition of surface disjointedness and underlying structural organization can be interpreted as yet another level of disjunction, one which permeates the very core of this repertoire, because it embodies the nature of the relationship between the borrowed material and the context into which it is introduced. Thus, “the coherence of these works is won through a struggle.”⁸⁸

The subtle techniques of modulation that result from creative methods of overlap and the complex structures that arise from compositional processes which redefine the spatial dimension itself (such as chromatic saturation and the significant gap), are of paramount importance. They demonstrate how two of the most important characteristics of a musical collage, those dealing with juxtaposition and layering, which often convey a sense of randomness and shapelessness, can, in fact, participate in rigorously constructed

⁸⁸ Straus, 1990, p. 16.

formal structures and thus constitute the substance behind the expressive content of the music.

This study demonstrates that quotations were indeed used by collage composers as prefabricated materials whose properties are exploited in the composition in a way that demonstrates the composers' indebtedness to their earlier experience with serialism. The subtle and versatile role that chromaticism plays in these pieces, creating crucial structural and modulatory processes, points to the need for a further study of the transcendence and potential of post-serial usages of aggregate completion. It also demonstrates the unique place that these pieces occupy in the development of music in the later part of the twentieth century.

Furthermore, the musical collage of the late 1960s can be seen as a direct precursor of many developments in the contemporary musical languages, where popular culture, including music from films, rock 'n' roll, rap, and jazz, is drawn upon simultaneously with music preserved from a variety of different historical time-periods; and musical expressions from other cultures are drawn upon on a par with music from the Western European art tradition. In that context, understanding the language of the musical collage provides a starting point for an understanding of many contemporary musical styles.

CHAPTER 2

Formal Processes

The surface discontinuity of pieces that conform to the aesthetic of the musical collage seems to imply a concomitant randomness in the way that different musical quotations are combined. However, analyses of Zimmermann's *Musique pour les Soupers du Roi Ubu* (1966), the first movement of Rochberg's *Music for the Magic Theater* (1965), and the third movement of Berio's *Sinfonia* (1968), demonstrate that there are, in fact, numerous techniques through which disparate elements are combined to create tightly knit structures. Furthermore, though it is by no means apparent from a surface appraisal of these highly contrasting works that quote from numerous and diverse sources, similar processes contribute to the underlying structural framework.

A careful control of the overall form of a musical work constitutes one of the most pervasive means through which the disparate quotations contained in a musical collage are bound together. An easily perceivable background formal structure often underlies the superimposed disparate quotations. In this way, the musical collage is similar to the collage in the visual arts, where the widely divergent components often come together to outline a simple geometrical figure or other easily recognizable shape.¹ This practice (although it can be oversimplified by the straightforward use of a conventional formal type, such as theme and variations, ABA, etc...) has a strong potential for subtlety in both its realization and resulting implications.

¹ Some compelling examples include Juan Gris, *The Man at the Café* (1914), Picasso, *Three Musicians* (1921), Romare Bearden, *Three Folk Musicians* (1967).

A careful inspection of the formal structure of Zimmermann's *Musique pour les Soupers du Roi Ubu*, Rochberg's *Music for the Magic Theater*, and the third movement of Berio's *Sinfonia*, reveals striking similarities in the ways that the large-scale form is conceived. The form of each of these strongly contrasting pieces results from modeling on diverse aspects of a single musical composition. The pervasiveness of this practice can be deduced from the definition of collage given by Peter Burkholder in the context of his discussion of the different types of quotations that occur in the music of Charles Ives: "a swirl of quoted or paraphrased tunes is added to a musical structure based on modeling, paraphrase, cumulative setting, or a narrative program."² Thus, extensive thematic quotation from a given source indicates a deeper kind of reliance, where the source of the quotations actually becomes a model that somehow provides the large-scale structure to the piece.

Zimmermann's *Musique pour les Soupers du Roi Ubu* is modeled on a set of Renaissance dances (although actual quotation from these sources is limited to three out of seven movements in the composition). Rochberg's *Music for the Magic Theater* is modeled on Mozart's *Divertimento* in B flat, K. 287 (one of the movements is almost a literal transcription of Mozart's *Divertimento*). As was discussed in Chapter 1, Berio's *Sinfonia* is modeled on Mahler's Symphony No. 2, almost to the extreme of direct correspondence in the temporal frame of the third movement of each piece. Thus, these three pieces (which constitute some of the most well-known and prototypical examples of musical collage) present an interesting sample of different ways in which a background formal structure, derived from modeling on a given source, can provide the large-scale cohesion that underlies the superimposition of disparate quotations in the musical collage,

² Burkholder, 1995, p. 4.

while at the same time they demonstrate the enormous scope in the level of consistent relatedness and in the dramatic implications of such a practice. Furthermore, these pieces demonstrate different ways in which the technique of collage, although it often disrupts the thematic flow of its components, can create new continuities through motivic and thematic relationships that emphasize the inherent structural processes.

Bernd Alois Zimmermann- *Musique pour les Soupers du Roi Ubu* (1966)

In the case of Zimmermann's *Musique*, allusion to the Renaissance dance suite provides a dramatic element that ties in to the theatrical conception of the musical work. On the surface, it evokes the type of entertainment often played for a monarch. Simultaneously, however, the irony implicit in paying homage to this tyrant king (King Ubu, a character from Alfred Jarry's play by the same name) is directly manifested in the distortions that the collage technique provides to the relatively stable background of the underlying dances.

On a technical level, the modeling lends each individual movement a distinct and clear formal structure that goes far towards uniting the disparate quotations in the work. Several interior movements of the piece present, as an underlying layer, renditions of the dances that rely for coherence on their scheme of formal repetitions.³ Layers of quotations are juxtaposed over this base, in a way that emphasizes, rather than disrupts, the process of thematic repetition typical of the dances.⁴ Even the movements that are not based on a quotation from an actual Renaissance dance (such as the sixth and seventh movements of the piece) contain the type of repetitive formal structure that is typical of

³ Andrew D. McCredie and Marion Rothärmel, "Zimmermann, Bernd Alois," in *The New Grove Dictionary of Music and Musicians*, 2nd Ed. v. 27, edited Stanley Sadie, John Tyrell (London: Grove, 2001), p. 838.

⁴ Kiesewetter, 1985, p. 29.

these dances. Thus, the Renaissance dance suite provides the model that ties together the formal structure of this collage composition.

The underlying layer is built from actual quotations of dances of the sixteenth and seventeenth centuries at three points in the composition: A *Coranto* from William Byrd lies as a basis to the trio of the first movement, the *Saltarello* of Tilman Susatos' collection *Het derde musyck boexken* is the basis of the fourth movement, while the fifth movement is an adaptation of a *Pavana* of Orlando Gibbons.⁵ Zimmermann had orchestrated these dances four years earlier under the title *Giostra Genovese*, which also contains several newly composed movements that evoke different types of dance pieces. Except for the last movement ("Finale" with "Trio") all the movements of *Giostra Genovese* are included in *Musique pour les Soupers du Roi Ubu* thus⁶:

<i>Giostra Genovese</i>	<i>Musique</i>
Introduction	2nd Movement
1st Part	
2nd Part	4th Movement
Pavana I (identical to Pavana II)	
Moresca	1st Movement
Pavana II	5th Movement

The *Entrée*, and the third and seventh movements of *Musique*, were newly composed. The sixth movement, *Berceuse des petits financiers qui ne peuvent pas s'endormir*, is quoted from Zimmermann's radio play music to Marcel Aymé's *Die Mondvögel*.⁷

⁵ Much of the preliminary discussion of Zimmermann's work is based on two very insightful sources which specifically discuss this piece: Kiesewetter, 1985 and Kühn, 1978.

⁶ Kühn, 1978, p. 105.

⁷ Kiesewetter, 1985, p. 32.

The fifth movement of *Musique*, the *Pavane de Pissebock et Pissedoux*, provides an illustration of how the tightly knit structure of the dance piece, with its clear repetitive scheme, provides the underlying thread that holds together the diverse quotations in the movement. As discussed above, it is modeled on Orlando Gibbons's *Pavana: Lord Salisbury*. As Example 2-1 demonstrates, Gibbons's piece is organized in three different sections: the first two sections repeat and provide opportunity for added ornamentation in the repetition. As we shall see, the concept of ornamented repetition is essential in tying together the diverse quotations in the movement.⁸

Example 2-2 illustrates how in Zimmermann's *Musique*, the initial statement of each section consists of a straightforward arrangement of Gibbons's piece, based on the setting for three flutes, three trumpets, harp, two guitars, percussion and four double basses, found in the fourth movement (*Pavana II*) of *Giostra Genovese*. The repetitions of the first and second sections, however, provide the starting point for the introduction of superimposed quotations. In order to thin out the texture and allow for the introduction of new quotations, the *Pavana* material underlying the repetitions is virtually identical to the reduced ensemble setting for harp and two guitars of the *Pavana* in the second movement (*Pavana I*) of *Giostra Genovese*. Thus, Zimmermann quotes intermittently from these two different arrangements. The full texture arrangement appears for the initial presentation of the material from each section, while the thinner texture arrangement appears underlying the numerous superimposed quotations that appear in the repetition of each section.

The superimposed quotations emphasize the formal repetition scheme of the movement. A quotation from Wagner's *Siegfried Idyll*, which gradually disperses the

⁸ Kieseewetter, 1985, p. 30.

thick texture and allows for the emergence of the second section of the *Pavana*, reappears at the repetition of the second section, emphasizing the thematic parallelism in the formal scheme. The second quotation literally continues the one that occurred during the first presentation of the second section of the *Pavana*. This provides both symmetry (because the material is very similar) and continuity between the two sections, reinforcing the sense of a composed-out repetition. Further emphasis to the formal structure is created by the fact that the third section of the *Pavana* begins with yet another quotation from Wagner's *Siegfried Idyll*.

Other quotations that appear in the piece also tend to support the repetitive formal structure. Both Fortner's *Sinfonie* and Henze's *Ode an den Westwind* provide quotations that appear over the repetitions of the first two sections. In addition, Stravinsky's *Symphony in C* provides quotations that appear over the repetition of the first section and over the last section. The quotation from *Ein Feste Burg*, which appears over the repetition of the second section, is closely related to the Stravinsky quotation through its rhythmic motivic structure, as will be discussed later. Thus the formal structure of the *Pavana*, and more particularly, its repetitive scheme, hold together the introduced quotations in the movement, which become extensions of the process of elaborated repetition. In this way, Zimmermann's technique of collage creates new continuities through motivic and thematic relationships that emphasize the inherent structural processes.

The setting of the *Pavana* constitutes one of the most compelling examples of how the repetitive scheme of the quoted Renaissance dance ties together the diverse quotations that occur in the piece. Significantly, however, the following discussion will

demonstrate that much of the material that supplements the actual quotations in this piece also relies on repetition schemes for formal coherence, and uses many other devices to support the overall perception of the dance suite as the main conceptual framework of the movement.

For instance, in the first movement of *Musique: Ubu Roi, Capitaine Bordure et ses Partisans* (which follows an Introduction), the material is quoted (with some alterations) from the third movement (*Moresca*), from *Giostra Genovese*. The movement as a whole is structured in a clear repetitive scheme that is reminiscent of the minuet and trio form (which is significantly a Baroque, rather than a Renaissance dance, but is associated with a dance suite to modern ears). The trio material, as was mentioned earlier, is an adaptation of William Byrd's *First French Coranto*. The minuet material does not constitute an arrangement of an actual composition from the Renaissance. However, it is in cut time and the trumpet orchestration conveys a courtly and processional character. It is reminiscent of a *Bourrée* (which has similar associations as the minuet and trio, also being a Baroque dance).

The minuet material conforms to a tight repetitive structure (Example 2-3). It contains very few additional layers of quotation: mainly consisting of occasional interjections *in modo di Boogie-Woogie*, which appeared in the original setting in *Giostra Genovese*. These interjections are made more explicit in *Musique* by a collage technique whereby added rests offset the fluidity of the dance rhythm and separate layers that overlapped and were synchronized in various ways in their initial setting.

The trio material (as is often the case in the minuet and trio) is treated much more freely in terms of its formal repetition scheme. The repetition scheme of Byrd's original

(AA'BB') is not maintained in Zimmermann's setting. Furthermore, unlike the setting in *Giostra Genovese* where the repetition scheme (Example 2-4) almost corresponds to the "correct" scheme for the trio portion of the minuet and trio, in *Musique*, the repetitions are incomplete, outlining the scheme shown in Example 2-5. Thus, we hear a general sense of repetition of the melodic material, but the scheme is neither strict nor easily perceptible, because of the added quotations. In this case, it is the minuet and trio form that holds together the form of the movement. The trio provides the opportunity for the most significant quotations to be inserted, while the clear repetitive scheme of the minuet, and the clear contrast between the melodic material of the minuet and trio clearly delineates the large-scale structure.

The second movement of *Musique* is based on the newly composed material from the Introduction of *Giostra Genovese*. This movement in *Giostra* was originally conceived in a minuet and trio form. The minuet material was newly composed, while the trio material consisted of an arrangement of Tilman Susato's *Saltarello*. In *Musique*, Zimmermann separates the source material and makes the material from the Minuet and Susato's *Saltarello* the underlying layer for the second and the fourth movements of *Musique* respectively.

This second movement of *Musique* demonstrates once more the important role of the repetitive scheme of the dances in tying together superimposed quotations. The underlying material maintains the repetition scheme of the minuet derived from its setting in *Giostra*. This is illustrated in Example 2-6. As in the fifth movement of *Musique*, each repetition of a theme provides the opportunity for added distortions and each large-scale repetition prompts the introduction of quotations. As Example 2-7 illustrates, the

repetition of the first section spawns the introduction of a quotation from Beethoven's *Pastoral Symphony*. The initial presentation of the second section contains a few quotations, but its repetition is taken advantage for an almost complete obliteration of the underlying material by full texture superimposed quotations from Bach's Brandenburg Concerto No. 1 and Wagner's *Die Meistersinger*. The third section (which is thematically similar to the first) restates a strong reliance on the underlying material, combined with a quotation from Bach's Brandenburg Concerto No. 3, which is seamlessly woven into the texture. This quotation appeared in the original setting in *Giostra* as well. Thus, the formal repetition structure holds together the superimposed quotations. These are introduced over sections of thematic repetition, and are conceptually related by the practice of embellished repetition that is common in this repertoire.

Further formal considerations also tie together the superimposed quotations. The symmetrical format of the tripartite structure is emphasized by the placement of the quotations. The obliteration of the underlying material by full texture quotation reaches its highest point in the midpoint of the piece. Furthermore, the quotations themselves support the formal scheme in many ways. The quotation fragment from Bach's Brandenburg Concerto No. 1 that is first introduced in the first statement of the second section is provisionally submerged only to reemerge at the end of the section, at the point that it would have reached had it sounded throughout, in order to introduce a full texture quotation for the repetition of the second section. This quotation is stylistically related to the Bach quotation that occurs over the final section of the piece, which was already included in the original setting in *Giostra*. Furthermore, the Beethoven *Pastoral*

Symphony quotation recurs over both the A and the B sections, thus emphasizing the thematic link between the two.

The third movement is very similar in conception. Its formal structure is illustrated in Example 2-8. It is in ternary form, and the symmetrical aspect of its formal structure is emphasized by the insertion of a quotation exactly at its midpoint. The quotation stands out because of its metric and tonal contrast to the surrounding material, but it is framed in a way such that the formal properties incorporate it into the structure.

The fourth movement of *Musique*, which is based on Susato's *Saltarello* is very similar in its use of sections of thematic repetition for the introduction of quotations. Susato's *Saltarello* conforms to the scheme laid out in Example 2-9. This scheme is slightly modified in *Musique*, as illustrated in Example 2-10 (one repetition of both the A and the B sections is eliminated). The quotations are gradually introduced in the course of the three presentations of the A material and subside during the initial presentation of the B material. As in the previous example, thematic repetition spurs the introduction of quotations.

The relevance of the role of the repetition scheme of the dances is proven by the fact that they occur even when the material is neither derived from or emulating a dance. Thus, the sixth movement of *Musique* is in a clear-cut binary form, illustrated in Example 2-11. The movement, which is quoted from one of Zimmermann's own pieces, features flute figurations and cello melodies that are strongly reminiscent of dances from Tchaikovsky's *The Nutcracker*. Thus, once more, Zimmermann invokes the concept of the dance suite as it is perceived by modern listeners, to tie together music that is fundamentally stylistically distinct.

The formal structure of the final movement of *Musique* is reminiscent of that of the dance pieces that precede it in many respects. In the first place, the movement is composed of two main thematic sections that alternate in a perfectly straightforward scheme, which is illustrated in Example 2-12. The A section is composed of the repetition of a drum roll quoted from the fourth movement of Berlioz's *Symphonie Fantastique* (*March au Supplice*), combined with the unabashed repetition of the opening chord of from Stockhausen's *Klavierstück IX*. The B section consists of material from Wagner's *Die Walküre*. As in many of the dance pieces we have discussed above, the incorporation of quotations emphasizes elements of a symmetrical form. The beginning and ending of the movement are framed by a long presentation of the thematic material from the A section. The middle of the movement presents the next longest section, which is also drawn from the thematic material from the A section. Furthermore, the central B section of the movement (mm. 66-79) constitutes the only place in the composition where all three sources are spatially juxtaposed, thus summing up the thematic content of the movement.

In spite of the disjunct character that the movement achieves through its alternation of thematic material, there are several elements of continuity as well. Thus, the B sections constitute a mainly continuous presentation of Wagner's thematic material in mm. 1-30. The continuity is disrupted by the continuous interjection of the contrasting thematic material (A). On the other hand, the A thematic material, as described above, is recomposed into an ostinato which recurs unchanged throughout the first section of the movement. Following the central B section (m. 80), however, the A thematic material quotes a continuous section of music from Berlioz's *Symphonie Fantastique* (mm. 62-

72), which is disrupted by intermittent presentations of material from the B section. Thus, the movement can be basically described as two continuous quotations that are set in alternation with each other.

The introduction to *Musique* is the only movement of the piece where the scheme of repetitions is not as straightforward. The movement is composed of quotations from pieces by many of the members of the Berlin Academy of the Arts (the piece was written as a commission from that institution), combined with quotations from composers such as Mussorgsky, Wagner, Beethoven, Honegger and Zimmermann himself.

Although the introduction lacks the clear structure of many of the other movements, there are some important underlying similarities. Symmetry is most definitely invoked in the formal structure of the movement. Example 2-13 demonstrates how the movement essentially begins and ends with a brass fanfare based on the motive which spells out the name *Scharoun*, the president of the academy. The final fanfare is followed by a coda composed of quotation from the introductory movement of Zimmermann's *Die Soldaten* and Dallapiccola's *Canti di Liberazione*. Within this frame, quotations from Blacher's (the vice president of the academy) *Concertante Musik* appear intermittently and maintain the illusion of a continuous stylistic underlying layer (which is consistent with the treatment of the dances in the other movements, although in this case, it is only illusory, since the quotations do not maintain a strict chronological organization). This light-hearted layer is continually interrupted by more ominous quotations, such as the Dies Irae quotation from Ahrens' *Cantiones Sacrae*, the motive from Wagner's *Tristan und Isolde* and excerpts from Honegger's *Symphonie Liturgique* and Dessau's *Jüdische Chronik*.

There is a sense of alternation between the “underlying” quotation from Blacher and the more ominous quotations that interrupt the rhythmic continuity of the work. This technique is dramatically effective, in that it conveys the dual role of work, which functions initially as a tribute to the members of the academy but is brought to an end, after the “March of the Brain Crushing,” when the guests at the banquet disappear through a trapdoor, illustrating “the path of a liberal Academy under the reign of usurpers.”⁹ The technique also relates the movement conceptually to the other movements in the piece, where, as we have seen, symmetrical forms and the regular alternation of two main thematic components constitute the primary structure.

The concept of modeling on the Renaissance dance suite defines the formal scheme of the work even in the absence of actual quotation from these dance forms. The modeling occurs on a level that is one step removed from the surface, emulating subtle compositional processes such as the concept of elaborated repetition. Simultaneously, the introduction of quotations creates new continuities by emphasizing thematic interrelationships and invoking elements of symmetry as a primary structural determinant.

This piece, like those that follow, will be further discussed in the context of other analytical approaches in each of the ensuing chapters.

George Rochberg - *Music for the Magic Theater* (1965)

George Rochberg's *Music for the Magic Theater* (1965) is modeled on Mozart's *Divertimento* in B flat, K. 287: the first and second movements of Rochberg's piece

⁹ Zimmermann, Introduction to *Musique pour les soupers du Roi Ubu*, quoted in Christof Bitter, ed. *Intervall und Zeit: Aufsätze und Schriften zum Werk* (Mainz: Schott, 1974), p. 109.

present extended quotations from this work, which emulate its chronological organization. In the first movement of Rochberg's piece, the quotations are from the first movement ("Allegro") of the Mozart *Divertimento*. The middle movement of Rochberg's piece is essentially a transcription of a middle movement (the fourth movement, "Adagio") of the *Divertimento* and ends with a quotation from its last movement. Examples 2-14a and 2-14b summarize the formal structure of the first and second movements of Rochberg's piece, emphasizing the placement of the quotations from Mozart's *Divertimento*.

The formal structure of the second movement perfectly illustrates the way that formal processes provide the underlying structure in a musical collage. A rhythmically free insertion "to be played like Miles Davis," is incorporated near the end of a movement that is otherwise almost literally a transcription of the fourth movement of Mozart's *Divertimento*. Significantly, it is inserted over the sustained 6/4 sonority that introduces the cadenza in the original source. In fact, it starts on same pitch (scale-degree 3), which the cadenza elaborates. Thus, the formal concept of cadenza in the classical literature provides the framework for the insertion of the quotation. The quotation that ends the movement, from the last movement of Mozart's *Divertimento*, is introduced in the same way.

Considering the work as a whole, both the chronological organization and increasing length of the quotations indicate that the type of modeling used is one in which the *Divertimento* underlies the Rochberg piece, gradually coming to the surface (what Burkholder terms a cumulative setting within the context of the music of Ives) and then receding. The treatment of the quotations within the first movement supports that

impression. The quotation from the first movement of Mozart's *Divertimento* (mm. 6-24) goes under the surface at rehearsal No. 15 only to reemerge at rehearsal No. 20 (*Divertimento* mm. 60-66) in approximately the same amount of time as if the *Divertimento* had continued to play throughout. Thus, the type of modeling used in this work is a cumulative setting expanded by retrograde symmetrical treatment.

Luciano Berio – *Sinfonia* (1968)

A similar claim can be made for the relationship between Mahler's Symphony No. 2 and Berio's *Sinfonia*, which is often considered the prototype of a musical collage.¹⁰ The explicit correspondence between the third movements of both pieces is obvious; thus, as in Rochberg's piece, it is the middle movement of both pieces that bears the strongest resemblance. However, it is possible to extend the concept of modeling beyond it. Both pieces are in five movements and borrow from numerous musical sources. Furthermore, there are explicit connections between the corresponding movements. For instance, the fourth movement of *Sinfonia* begins with an overt reference to the fourth movement "Urlicht" of Mahler's Symphony. The four voices state the two opening pitches of the solo alto line in the same register. Furthermore, the conceptual organization of the fifth movements of both pieces is closely related: both pieces contain extended quotations from the previous movements, a feature which Berio develops within his collage aesthetic to incorporate simultaneous layering of previously presented material.

Though the piece as a whole is thus loosely modeled on Mahler's Symphony, the third movement of Berio's *Sinfonia* demonstrates the subtlety and depth that the concept

¹⁰ Burkholder, 2001, p. 110.

of modeling can comprise, as it reaches beyond the level of form. As the following discussion will demonstrate, the *Scherzo* from Mahler's Symphony No. 2 provides a background formal structure for this movement not only in the thematic sense, but also in terms of its dramatic content.

On the surface it is clear that the outer form of the third movement for the most part conforms to the structure of Mahler's *Scherzo*. The latter is utilized like a *cantus firmus* throughout most of the piece, and provides the underlying rhythmic and durational framework for nearly all of the remainder, even in the absence of actual thematic presence. Quotations are generally layered over the *Scherzo* so that they coincide with or even emphasize important subdivisions. Thematic reference to the *Scherzo* at the points of subdivision, through a resurfacing of the dominant thematic material (the reprise), is prevalent. Thus, the apparent discontinuity of the surface contrasts of the piece is somewhat abated by the clarity of the underlying formal structure of the *Scherzo*.

Within this framework, however, the thematic material of the *Scherzo* is fragmented so that it sometimes disappears altogether from the texture, while at other times it is temporally juxtaposed with other fragments. On top of this, commentary from the composer is added, in the shape of added layers, clusters, chromatic lines, distortions of the thematic material, numerous fragmentary and stylistically distinct quotations from the repertoire, and even occasional deviations from the dominant temporal framework (especially through two large insertions during the course of the piece). The commentary tends to obliterate the tonal language of the *Scherzo* and the sense of process implicit in its thematic organization on a foreground and middleground level.

The voices participate in this process by creating varying degrees of distance from the musical surface through an array of techniques that range from yelling to singing, with many intermediate stages, including the rendition of fragments of solfège. Furthermore, they explore the gamut of distance between composer, performer, audience, and philosophical commentary in a theatrical fashion, alternately being an integral part of and commenting off-handedly on the piece. This commentary often deals with surface details, such as words or titles that clarify the particular quotation that is being heard at that time.¹¹ However, the range of depth of the text runs the gamut between surface irony and philosophical questions.¹² In fact, one of the most important roles of the voices is how they comment on the most important structural idiosyncrasies of the piece, as will be demonstrated in the ensuing discussion. In this way, the voices explicitly refer to processes intrinsic to the act of composition.

As was discussed in Chapter 1, Berio claimed that *Sinfonia* should not be categorized as a collage because of the way that the music relates to the structural and harmonic profile of Mahler's *Scherzo*: "The different musical 'characters' are integrated into the flowing harmonic structure of Mahler's *Scherzo*; actually, they are signaling and commenting upon the events and transformations. Therefore, the references do not constitute a collage, but, rather, illustrate a harmonic process."¹³ Given the almost

¹¹ For example, the reference to "chamber music" during the quotation of Hindemith's *Kammermusik* (m. 23), to a "violin concerto" (being played in the other room) during the quotation from Berg's *Violin Concerto* (m. 56), to "Daphne et Chloe" underneath the quotation of *Daphnis et Chloe* (m. 88) and many other instances.

¹² The climax of the piece is introduced by a text by Berio that questions the very significance of the work of art "And when they ask, why all this, it is not easy to find an answer. For when we find ourselves, face to face, here, and they remind us that all this can't stop the wars, can't make the young older or lower the price of bread..." Berio, "Meditation on a Twelve-Tone Horse," *Christian Science Monitor* (July, 1968): Home Forum Page.

¹³ Berio, commentary given by the composer, in Glenn Watkins, *Soundings, Music in the Twentieth Century* (New York: Schirmer, 1988), p. 649.

complete obliteration of the harmonic framework of the piece, this statement requires clarification. A “harmonic process” in music by Mahler constitutes a stylistically defined essential component of a more general concept in music, one that is common to all styles: the concept of goal directed motion. The latter term refers to a segment of music that conveys a sense of gradual accumulation or dissolution of tension towards or away from a dramatic highpoint. This results from the interaction of a number of different elements, including phrase structure, rhythmic structure, harmonic and melodic structure, texture, register, dynamics and instrumentation. In the third movement of *Sinfonia*, the disparate strands mutually reinforce each other not only in articulating the larger form of the music, but in creating exact parallels to the dramatic contour¹⁴ of Mahler’s *Scherzo*.

Thus, in the third movement of Berio’s *Sinfonia*, musical strands derived from a variety of sources, while disparate in pitch organization, nonetheless share a sense of direction and shape. Climaxes in the different strands are mutually reinforcing and occur at the corresponding climactic moment of Mahler’s *Scherzo*. They exaggerate the dramatic contours of the *Scherzo*, creating a type of musical commentary on the latter. Thus, the disparate elements are linked by the way in which they contribute to parallel the goal directed motion and build upon the dramatic structure of Mahler’s *Scherzo* even in the absence of the thematic, harmonic, and occasionally even temporal components that originally created it.

Examples 2-15 and 2-16 demonstrate how contour parallelism occurs on a foreground level and can be represented by a graph. The reduced score in Example 2-15 illustrates the exact coincidence of an obliterated local climax in Mahler’s piece (m. 304)

¹⁴ Dramatic contour refers to the arch shapes achieved by goal directed motion towards and away from climactic moments.

and the quotation of the climax of Ravel's *La Valse* that is superimposed over it in the corresponding measure of Berio's piece (m. 302). The approach to this highpoint in *Sinfonia* results from an interaction of many different elements that gradually obliterate Mahler's thematic material. The modulatory process is explained in detail in the appropriate chapter. The juxtaposition of fragments from Ravel and Strauss, (which are linked by an upbeat motive), creates continuity between temporally separated excerpts from Ravel's piece. This process, the significance of which will be further discussed, encapsulates the buildup to the climax in Ravel's piece, enabling it to occur at exactly the measure that corresponds with the local climax in Mahler's piece.

The graph in Example 2-16 depicts several different and simultaneous events. The horizontal axis represents the temporal aspect of both pieces and demonstrates that the temporal framework of Mahler is retained in Berio's setting. Thus measure numbers during which musical events occur correspond throughout most of the movement (there is a consistent difference of two throughout the first 300 measures of the two pieces). The dotted line under the chart illustrates the gradual obliteration of Mahler's *Scherzo* material by added commentary and other techniques. Finally, the arch shapes in the vertical axis attempt to represent the goal directed motion of the corresponding passages in both pieces. The conclusion that can be drawn from this graph is that in spite of the gradual and almost complete obliteration of the material from Mahler's *Scherzo*, the dramatic contour of the *Scherzo* continues to operate as an organizing force in *Sinfonia*.

Example 2-17 constitutes a localized example of correspondence in goal directed motion creating contour parallelism. A quotation from Ravel's *La Valse*, 38, 10 (m. 118), which incorporates Ravel's quotation of Beethoven's Symphony No. 9 (a quotation

within a quotation), replaces the virtually obliterated developmental sequential material of Trio I (mm. 120-124), which in its original setting constitutes a local highpoint as it leads to third full statement of its obbligato material. The quotation once more exaggerates the degree of the local highpoint, as is illustrated in the corresponding place in the graph of Example 2-18.

Example 2-18 demonstrates that this relationship continues throughout most of the movement. It depicts the interaction between the dramatic contours of Mahler's *Scherzo* and the third movement of Berio's *Sinfonia* on a large scale. The goal directed motion in Mahler's *Scherzo* is represented by the solid lines and curves, and that in *Sinfonia*, when it diverges from Mahler, by thin dotted lines and curves. The thick dotted line under the chart represents the level of obliteration, which is inversely proportionate to the degree to which the Mahler material is perceptible at any given point. The numbers immediately below this line indicate the places where the temporal frame of Mahler's *Scherzo* is distorted through the addition or deletion of measures. Although this chart is necessarily subjective because goal directed motion is impossible to quantify exactly, the discussion centers on outlining features that are unambiguous. It takes into account elements of phrase structure, cadential processes, and the effect of layering, dynamics, textural and rhythmic complexity. It is intended to provide a visual aid for the presentation of these particular features, rather than a definitive quantitative representation of the goal directed motion in the piece.

The chart conveys two main issues: the straightforward parallelism of the dramatic contours (especially during the first half of the piece), and their relationship to the obliteration of Mahler's *Scherzo*. One feature that becomes immediately apparent is

that section boundaries prove to be the places where the *Scherzo* resurfaces. Thus, the parallelism in the goal directed motion is for the most part delineated by sectional boundaries. This is supported by one of the most significant instances of textual recurrences in the piece, that of vocalists' fragments "Where now?" "When now?" and "Keep Going," which are overwhelmingly associated with sectional divisions and especially the impending reprise of the initial *Scherzo* material, and the simultaneous resurfacing of Mahler's *Scherzo*.¹⁵

It is the specific combination and the structure of the commentary techniques and quotations at any given point that achieve the parallelism to Mahler's goal directed motion. Thus, the disparate elements in Berio's piece are related by structural and dramatic features that are significant by virtue of their position within the frame of Mahler's *Scherzo*. The most compelling examples, like Example 2-15 involve the quotation of climactic points from other pieces to coincide exactly with climactic points in Mahler's *Scherzo* where Mahler's thematic material is completely obliterated. As in that example, Berio often manipulates the quotations in order for the climax to coincide exactly with the corresponding measure in Mahler's *Scherzo*. This process demonstrates that the role of Mahler's *Scherzo* goes far beyond providing a mere temporal frame. Its dramatic structure exerts an intangible, but inescapable force in Berio's piece.

¹⁵ "Keep Going" appears for the first time in the middle of the first statement of theme a (m. 17), where it signals the impending continuation of the phrase. It appears later in the piece overwhelmingly related to the reintroduction of the *Scherzo* material. For instance, it introduces the second section of the initial *Scherzo* (mm. 60 and 63), the impending return of theme a in that section (m. 87), the scherzo reprise after Trio I (m. 142), Trio II (m. 368), and at the end (m. 549). The other three occurrences refer to impending or aborted attempts to return to Mahler's thematic material: after the interruption theme in the initial *Scherzo* (m. 77), at the beginning of Trio I (where the soprano attempts but is unable to reestablish Mahler's text) and to introduce the transition to Trio II (cementing the struggle between Mahler and Stravinsky at that point).

The first Scherzo reprise (represented in Example 2-19) presents another compelling example. The correspondence in the goal directed motion created by Mahler's developmental figuration leading to a highpoint (m. 185) and that of the obliterating quotation from Stravinsky's *Le Sacre*, which leads to a much more exaggerated highpoint in the corresponding measure in *Sinfonia* (m. 183) is very striking. As in Example 2-15, the section achieves a climax after a rapid alternation between excerpts (mm. 178-183). The alternation permits skipping forward in the quoted piece and encapsulating the build-up to the climax. In this way, the climax of that section of *Le Sacre* occurs at the exact same measure where the local highpoint is reached in Mahler (m. 183). Thus, as we have seen, the build-up of tension through successive juxtapositions of different excerpts is a common device in Berio's piece. Through a careful control of this process, the techniques of juxtaposition and fragmentation, which are intrinsic to the concept of collage, become essential structural compositional processes.

This excerpt demonstrates Berio's sensitivity to the characteristics of the excerpts that are quoted in addition to the importance of the temporal coincidence of the goal directed motion. Stravinsky's excerpt, through repetition and gradual, but apparently unsynchronized transformations occurring in the individual voices, conveys the impression of several simultaneously sounding layers. Berio emphasizes the independence of each layer in the texture by deleting a measure in a different place for each of the strands in the texture (the deletion in each voice is represented by an asterisk in Example 2-19).

As was stated previously, Berio's added materials for the most part coincide with and emphasize sectional boundaries. Thus, the sudden obliteration or reemergence of

Mahler's thematic material is possible and occurs at moments when it is required by its structural import. Generally, however, the successive layering of different devices creates gradual degrees of obliteration and reemergence of the thematic material. Obliteration can be prepared by a steady increase in layers of commentary within or even spanning different sections, which creates links that enhance the structural properties of the corresponding music. In the abstract, varied repetition, expansion or development can be created by a steady increase in methods of distortion and added material as well as through thematic manipulations. In both cases, thematic connections are maintained through clear references at the opening of the section and increasing deviation that retains features of the original in a comparable way.

Extended commentary leading to increasing obscurity often is motivated by and corresponds to Mahler's thematic expansions, varied repetitions, developments and transitions. Rather than obliterate the structural function of the phrase structures and larger sections thus formed along with the thematic material, however, it often furthers their function as it expands and develops, or builds and dissolves tension in its own way and incorporating added materials. In this way, Berio's collage technique emphasizes the inherent structural processes. Thus, for example, in the opening statement of the *Scherzo*, two arches in the level of obscurity, which leave the beginning and ending of each subsection completely exposed and thus parallel their thematic structure, accompany the two-part form.

Contrary to what the previous examples might indicate, however, there is no all-encompassing direct correlation between goal directed motion and obliteration of Mahler's material in Berio's piece. In fact, Berio's setting of Trio I (mm. 101-147)

represents a perfect example of an inversely proportional relationship between the two. The increased momentum created by the gradual addition of layers over an underlying ostinato in Mahler's Trio I is reflected in Berio's setting by a gradual emergence of Mahler's thematic material from the static commentary that obliterates the beginning of the section. A similar situation occurs following the full reestablishment of Mahler's text for the climax of *Sinfonia* (BB, m. 502). Its gradual dissolution through commentary parallels the process of tension release that occurs throughout the remainder of Trio II in Mahler's original.

In addition to creating parallelisms to the goal directed motion, Berio's piece also emphasizes more subtle dramatic processes that occur in Mahler, such as the suspension of forward momentum of a fugal texture, or the latent expression of romantic lushness of some of its themes. These sections demonstrate yet another way in which the technique of collage can create new continuities through motivic and thematic relationships that emphasize the inherent processes.

For instance, as Example 2-20 demonstrates, the suspension in the goal directed motion that Mahler achieves with the winding figuration of his fugato transition to Trio II in m. 189 provides motivation for commentary that similarly suspends the dramatic directionality in Berio's piece (m. 187). The section is characterized by the presentation of very small fragments of Mahler juxtaposed with similarly short snippets of diverse quotations. The snippets of thematic material extracted from Mahler emphasize the monothematic character of the section, since they are often identical or strongly related motivically. The held high C in the flute and piccolo, which is quoted from Mahler, contributes to the suspension of directionality. Furthermore, the quotations in this section

(from Debussy's *La Mer* and Stravinsky's *Agon*) prominently feature the oscillation figure and chromatic scalar passages (some of the most important motivic features of Mahler's piece), which imbue them likewise with a static quality. The texts that accompany this section refer to the level of obliteration that organizes the section, the transitional function of the section and the prototypically disjunct textural result that the collage technique of fragmented and rapid juxtapositions creates: "But you all know that they will surely bring me to the surface one day or another" in the Alto as opposed to "...maybe a kind of competition on the stage, with just eight female dancers and words falling, you don't know where, where now? Who now?" in the tenor.

Completely opposite conceptually from the previous case, the next example demonstrates the sheer range of possibilities that is inherent in the aesthetic of a musical collage. The lush string texture of the quotation from Strauss's, *Der Rosenkavalier*, Act III, 298, 5 at P8 (m. 315), increases the romantic richness that characterizes the section of Mahler's piece over which it occurs. In addition, it creates an instance where the technique of collage is used to convey seamless continuity and thematic expansion, rather than discontinuity and fragmentation. The second of the two major subsections of Trio II in Mahler (m. 272) introduces a triumphant and lyrical theme in the trumpet, which is repeated twice and finally dissolved through the isolation of the oscillation figure that it prominently features. Between the first and second statements of the theme, Mahler inserts a highly expressive figure (m. 284, Example 2-21, top staves) that acts as a thematic link between the theme and its repetition. In Berio's piece, the third appearance of the trumpet theme is followed by an insertion that constitutes the first significant disruption with respect to the temporal framework of Mahler's original. Significantly, the

disruption is hardly perceived as such because the inserted quotation creates a thematic parallel to the figure mentioned above. It presents both an inversion and a retrograde rhythmically identical form of Mahler's figure (see Example 2-21). The thematic parallel created by this insertion has no basis in Mahler. Because of the similarities in the harmonic and textural language of the two, it suggests a natural continuation of the phrase, with clear thematic correspondences elsewhere in the piece.

Significantly, in order to prepare for this combination of the musical idioms of Mahler and Strauss, Berio had added a lush string background layer to the first statement of the theme. Thus, in this instance the collage technique doesn't attempt to disrupt the surface and increase complexity through added layers, but rather, to enhance the lyricism of the triumphant and lyrical theme through the richness of Strauss's string accompaniment. Furthermore, the initial disruption of Mahler's temporal framework in *Sinfonia* is achieved by an insertion that is not perceived as such, because of thematic parallels to Mahler's material.

The sense of magnification (or exaggeration) that relates the contours of Mahler's *Scherzo* and Berio's *Sinfonia* (and was represented in Examples 2-15 through 2-18) becomes a compositional device with significant large-scale implications, since it constitutes the motivation for the most momentous disruptions of Mahler's temporal framework. As the chart in Example 2-17 illustrates, around the midpoint of the piece, having established an expectation of straightforward temporal correspondence, Berio plays upon the expectations that he has created. At this point, the temporal framework of the piece becomes more flexible, in order to further enhance the scope, while maintaining the parallelism of the dramatic contours.

The two largest insertions of material in the piece thus result from a desire to exaggerate the large-scale dramatic contours. They occur as a preparation for the low point (or nadir point of the piece, m. 356) and the climax (m. 502) respectively. Analogously, the dispersal of energy that follows the climax (and continues in essence until the end of the piece) is further emphasized and simplified by the deletion of measures. At this point, the increasing disintegration of the texture, which leads to the final dissolution of the momentum, is accompanied by the text “He is barely moving, now, almost still.” (EE7, m. 556). Thus, even at the points where the temporal framework of Mahler’s piece is partially abandoned, the goal directed motion of Mahler’s piece continues to provide the impetus for that of Berio’s. Berio’s commentary, freed from temporal constraints, elaborates and expands, but still relies upon the dramatic contours of Mahler’s *Scherzo*.

The dramatic nadir point of the piece sparks the insertion of 22 measures of material and a complete abandonment of Mahler’s thematic material and temporal framework. The process that introduces this insertion is fascinating because of the subtle stages of obliteration that Mahler’s material undergoes. In Mahler’s piece, the final repetition of the lyrical trumpet theme from Trio II and its subsequent fragmentation by way of the oscillation figure lead to the moment of greatest stasis. In *Sinfonia*, the final repetition of this theme constitutes an intermediate stage in the gradual transition from the clear emergence of Mahler’s material at the beginning of the section and the complete obliteration achieved by the larger insertion that follows.

It is prepared by a one-measure insertion, which constitutes the first full-texture disruption with regard to Mahler’s temporal framework. Furthermore, as was discussed

previously, it is followed by the more significant insertion of the six-measure thematic parallel discussed above (Strauss's *Der Rosenkavalier*, Example 2-21). The manipulation of fragments from Mahler immediately preceding this section prepare for the disruption of temporal succession, by providing both an intermediate stage in the process and a model for the insertion of material that is later realized on a large scale for the big insertion that follows.

The model functions as follows: fragments of material are displaced, transformed and juxtaposed, creating a further stage of distance than that which is achieved by layering and fragmentation alone. Eventually, the complexity of the juxtaposition prepares for the insertion of material. Example 2-22 demonstrates the process. In m. 312, Berio's commentary anticipates the Mahler figuration from the next measure, creating an echo when this material appears in the next measure in its original position. Simultaneously, in m. 313, Berio's commentary provides a retrograde of Mahler's figuration in m. 312. This retrograde is then expanded, introducing new material as Mahler's thematic material disappears under the surface. Thus, the juxtaposed displaced transformations of Mahler's material provide an intermediate stage that leads naturally to the introduction of new materials.

The process is analogous to the one that motivates the ensuing large-scale deviation from Mahler's temporal framework. Once the six-measure insertion described in Example 2-21 subsides, Berio's piece reestablishes Mahler's thematic material at P18 (m. 325) with the echoing oscillating chords (which eventually lead Mahler's piece to its climactic low point at m. 328). Beginning at the corresponding measure in Berio (Q3, m. 333) the displacement of Mahler's thematic material becomes compounded when

additional layers (originally belonging to the retransition), such as an inverted and transposed theme in the piccolo at m. 334, a transposed version in the oboe at m. 335, and a fragment of a theme in the bass, appear displaced with regard to the layer of accelerating oscillating chords (Example 2-23). Berio neutralizes the forward momentum that these displaced layers of Mahler's retransition have in their original setting through the presentation of the theme simultaneously with its inversion. Likewise the oscillating chords are extended beyond their original scope to the point that they lose all implication of forward motion. This displacement of whole themes literally undermines Mahler's temporal framework and leads naturally to the large insertion that follows. Thus, the latter results from a gradual and carefully controlled process created by techniques, such as fragmentation and the recombination of materials, that are intrinsic to the concept of collage.

The text, which constitutes one more layer in the insertion at the nadir point of the piece: "if this noise would stop there'd be nothing more to say...the show is over; all is over, but where then is the hand, the helping hand... it's a long time coming" makes explicit reference to both to the dramatic function of the music at that point and to the insertion through Berio which achieves it.

The play on expectations achieved through parallelism in the goal directed motion reaches a singular level of sophistication in the passage that leads to the second Scherzo reprise (Mahler m. 348, Berio m. 375). At this point, having established an expectation of correspondence in the goal directed motion, as well as a pattern of emergence of Mahler's thematic material corresponding to the occurrence of the Scherzo reprise, Berio breaks with both expectations for a highly effective dramatic effect.

In Mahler's piece, the retransition leads to an extremely fragmented rendition of the thematic material from the Scherzo reprise, which coheres increasingly until the fluid linearity of the theme is fully restored. The effect is such that the momentum built up in the previous retransition is gradually submerged, for it to resurface later in the piece (leading to the climax). Berio subverts the expectations created thus: having prepared the listener for a reintroduction of the Scherzo reprise during the previous retransition through the emergence of the descending chromatic motion that introduces it, he obliterates the Scherzo reprise with a wrenching quotation of the drowning scene from *Wozzeck*, which carries the tension build-up far beyond its original bounds (both dramatically and temporally). The effectiveness of this moment lies in the listener's expectation of a decrease in tension and the substitution for a quotation that not only maintains, but also increases the tension gradually and steadily to a level almost beyond endurance.

The process through which this occurs demonstrates the intimate relationship between formal and expressive elements in conveying the multiple meanings inherent in the composition, and their intimate relationship with the text. At first, Mahler's thematic material is represented only by displaced, layered fragments and an intermittent rhythmic reference. It becomes increasingly obliterated as the *Wozzeck* quotation takes over the whole texture culminating at S10 (m. 384). This complete transference of thematic material coincides with the occurrence of the chromatic oscillation figure from Mahler (clarinet and oboe, S9-10, mm. 383-384), which signals the place in Mahler's original where the linearity of the text is reestablished. Thus, chromaticism acts as a pivotal structure, a modulatory device, to transition between Mahler's material and Berio's

commentary.¹⁶ Instead of leading to a parallel reestablishment of Mahler's text, however, (as indeed, is implied by the simultaneous appearance of a text so frequently associated with that very occurrence "Keep Going"), this expectation is played upon as a literal battle between Berg and Berio ensues, illustrated by the conflict in the voices urging alternately to "Stop" and "Keep Going."

Encapsulating the conflict, Mahler and Berg are spatially juxtaposed from S13-18 (mm. 387-392). In terms of pitch, the descending chromatic lines from Mahler complement the ascending scales in *Wozzeck*. However, in terms of rhythm, the quotation from Mahler proves to be a direct affront to the rhythmic process in Berg. In Berg's piece, the gradual overlap of layers of chromatic motion in progressively slower note values gradually halts the momentum of the piece. The juxtaposition of Mahler's sextuplet chromatic scales in this section reverses the effect of slowing down of momentum that would have taken place in Berg's quotation at this exact point with the disappearance of the quintuplets in the strings. Thus, the music, instead of stopping, "Keep going" at a faster rate.

Appropriately at that point, the opening theme, representing the impending reprise of Mahler's Scherzo material, appears in the upper strings. However, the battle doesn't end there. The lower strings begin their triplet layer of chromatic material from Berg at S17 (m. 392), once more attempting to slow down the motion. Their attempt is immediately overturned as the woodwinds and strings accelerate the chromatic scales in the next measure gradually moving from a quintuplet to a sextuplet and accompanied by a glissando that culminates in a cluster. The conflict thus is resolved in favor of neither party, but is crystallized in a highpoint reached in the cluster at T (m. 395). The cluster

¹⁶ This technique will be discussed in detail in Chapter four.

itself plays a dual role. As the culmination of the process of the previous section it achieves a temporary highpoint, while it stops the rhythmic momentum of the piece. Thus, through this conflict, the reestablishment of Mahler's text is literally delayed.

The second major insertion that occurs in Berio's *Sinfonia* introduces the climax. This insertion and the process through which it leads to the climax bring to the fore the conflict between rhythmic momentum and textural complexity that is intrinsic to Berio's commentary throughout the piece and is especially evident in the juxtaposition of clusters over the tireless sixteenth-note motion of Mahler's Scherzo. Clusters halt the rhythmic momentum completely, while they epitomize the level of textural complexity.

The section over which it occurs, which corresponds to the second occurrence of Trio II, begins with a literal alternation between the rhythmic momentum of Mahler and the inherent static quality of the clusters. The rhythmically vibrant thematic material of Trio II is twice obliterated by clusters that result from the rapid successive entrances of the different instruments. Rhythmic momentum attempts to reemerge as the cluster accelerates to produce sixteenth notes, leading towards a climactic moment at Z (m. 472), which is emphasized by loud punctuating chords. This moment is short lived, and the climax is undermined, however, as a sudden change takes place. The strings shift their dynamic to piano and a decrescendo immediately begins in the wind instruments. Simultaneously, the harmonic basis transforms, as the cluster and punctuating chord constitute a twelve-note chord.

This undermined climax introduces the insertion: a section of music characterized by punctuating chords that explores the depth of textural variety inherent in the cluster through a series of dynamic transformations. The rapid punctuating chords ebb from this

point to the end of the piece, as they appear increasingly separated, though at uneven intervals. Thus, the actual climax is suspended by an insertion of material analogous to that which occurred at the climactic low point. It finally occurs when Mahler's text is fully reestablished for its climactic moment. Recapitulation of the introductory material reconnects the two by restarting the momentum of the piece and introducing the chromatic and oscillating gestures that prepare for the reestablishment of Mahler's text.

Through the insertion, the layers of commentary and quotation, which have appeared simultaneously throughout the piece, are juxtaposed through temporal adjacency at the moment of the climax. The commentary, following the processes described above achieves a climax in one realm: the realm of texture, while the climax in the realm of momentum is delayed until the Mahler reenters.

In conclusion, the relationship between the goal directed motion in the two pieces demonstrates the importance of dramatic and expressive elements in determining some of the most intricate formal processes in the composition. These processes are accompanied by texts that often emphasize subtle structural details that play upon the goal directed motion of the *Scherzo*. The disparate elements in this particular musical collage are linked by features that contribute in numerous ways to a carefully controlled formal structure that is inextricably linked to the dramatic content of the work.

Through careful control of the dramatic contour and goal directed motion of its constituents, a musical collage, although permeated with referentiality (the very awareness of goal directed motion across stylistic gaps entails a perception of the main features of each style), can achieve various levels of formal sophistication. The middleground structure created by the goal directed motions in *Sinfonia* conceptually

links the “outer form” of the *Scherzo* with the “inner form” that is created by the foreground interaction of these disparate elements: a carefully balanced pitch organization based on an implication-realization model that utilizes the concepts of chromatic saturation in pitch-space and the significant gap, and which incorporates every pitch in the composition.¹⁷ In this model, Berio articulates formal sections through a pitch process where the chromatic saturation in pitch space of a given gamut corresponds to an important formal junction. A withheld pitch, which creates a significant gap in the saturated gamut, is provided as the formal section reaches its closure, thus creating a sense of completion, and realizing the implications of the gap. The outer form provides the starting point for the deviations of the commentary; the latter can be said to elaborate the main structural and dramatic features of the former. Thus, formal and expressive elements are essential to one another at different analytical levels.

The various examples presented in this chapter deconstruct long-standing oppositions by positing a formal connection between components with clear referential meanings. Moreover, they imply a hierarchy through which the referential meanings of the individual quotations are subservient to those that they acquire by virtue of their interaction with a model composition. For example, the referential connotations of the quotation from *Wozzeck* are inextricably linked to its position within the dramatic profile of the movement. Thus, an understanding of the nature of the formal process that links quotations must necessarily enrich the perception of the multiple meanings intrinsic to the composition. The scope of the formal relationships that exist between the quotations in these pieces provides a useful model for the analysis of collage in music and an understanding of the structures that can link the disparate components that constitute it.

¹⁷ I describe this process at length in Chapter five.

CHAPTER 3

Motivic and Transformational Relationships

Motivic similarities can create associative relationships between strongly contrasting musical styles. In the musical collage, the disparate quotations are often associated by their incorporation of an important motive, which can be rhythmic or intervallic. The intervallic patterns that important motives outline, both intrinsically and in their recurrence, function as determinants in the connection between juxtaposed layers of contrasting material. Transformational graphs can represent these patterns, thus illustrating analogies between the inherent structural characteristics of the disparate musical material and the structures created by their manipulation. This chapter describes both the most important motivic structures contained in these collage compositions and the ways in which transformational graphs can represent patterns that elucidate the logic behind the placement and combination of the disparate elements that they contain.

RHYTHMIC MOTIVES

Zimmermann- Musique pour les Soupers du Roi Ubu

Rhythmic motives constitute one of the clearest ways in which composers can draw straightforward associations between music in fundamentally different styles, and with contrasting pitch organization and content. The introduction to Zimmermann's *Musique pour les Soupers du Roi Ubu* presents an example. The opening horn fanfare (Example 3-1) spells out the first four letters of the name Scharoun (the president of the Berlin Academy of the Arts, which commissioned the work) with the pitches S-C-H-A.

Its rhythmic profile creates a direct link between this excerpt and the quotation from Mussorgsky that follows nine measures later (Example 3-2).¹ It is set to the exact rhythm of the music that immediately precedes the excerpted quotation from Mussorgsky in the original source, as is represented in Example 3-3 (mm. 1-4). Thus, the rhythmic content of these two excerpts, which are fundamentally dissimilar in terms of pitch content, creates a conceptual continuity.² Although these excerpts are dissimilar in terms of pitch content, they do have significant similarities in terms of contour as well as rhythm.

In the fifth movement of *Musique*, Stravinsky's theme from the Symphony in C is adapted rhythmically (set in augmentation, Example 3-4) in order to relate it to the quotation from the Chorale *Ein Feste Burg* (Example 3-5). As was mentioned in Chapter two, the relationship between the two quotations emphasizes an important pattern of formal recurrence, and prepares for the more extensive quotations from Stravinsky's Symphony in C that appear over the last section of the movement (Example 3-6), which are heard as diminutions compared to the initial quotation. The graph in Example 3-7 (which traces the ordered intervals of the bracketed portion of the segments in Examples 3-5 and 3-6) illustrates the motivic similarities of the two excerpts. The repeated initial three-note pick-up of both motives emphasizes the relationship.

The previous examples presented cases where rhythmic motives associated quotations that were temporally separated. The fourth movement of *Musique* illustrates how rhythmic motives can associate numerous different quotations that are adjacently and even simultaneously juxtaposed. Example 3-8 extracts these quotations from the main texture of the movement in order to clarify the relationship. The quotations create a

¹ Significantly this quotation is altered with respect to the original source. It maintains the rhythmic content, but deletes two beats of the quotation in favor of the two beats that follow.

² This and the next two examples derive from Kühn's analysis of this piece. (Kühn, 1978, p. 107).

rhythmic ostinato over the underlying quotation from Susato's *Saltarello*. The rhythmic motive that associates them at first consists of an eighth note rest followed by a two sixteenth note figure, which begins the "alla Polacca" quotation and the *Dumbarton Oaks* quotation (this incidentally constitutes a slight variation of the latter's original source material, which features an eighth note instead of the two sixteenth notes). The next two quotations, from Schubert's *Marche Militaire* and Bizet's *Carmen* feature a slight variation of the motive: an eighth note followed by two sixteenth notes. The identical rhythmic structure clearly links these two quotations when they appear simultaneously in mm. 17-18.

Berio – *Sinfonia*, Third Movement

The motivic rhythmic associations found in the previous example are common in the third movement of *Sinfonia*. Example 3-9 extracts the layers that demonstrate how the dotted rhythm motive, which is so important to the *Scherzo*, relates the quotations from Ravel to the underlying Mahler material from E17-E26 (mm. 112-121). At E19 (m. 114), the dotted rhythm in Mahler's theme is preceded by a quotation from Ravel's *La Valse* (No. 18 m. 7), while the snare drum plays a slightly displaced version of the rhythmic theme. The rhythm thus saturates the texture, and contributes to the buildup of momentum that culminates with a full-texture rendition of this rhythmic figure within a quotation from Beethoven's Ninth Symphony that is contained in Ravel's piece (a quotation within a quotation).

Another clear example occurs from N17-09 (mm. 285-303). This section, which corresponds to the lyrical second part of Trio II of the *Scherzo*, is dominated by an upbeat

two-sixteenth note motive. The two-sixteenth note upbeat links the juxtaposed quotations from Ravel and Strauss, once more culminating in a climactic moment that features the dotted rhythm. Example 3-10 extracts the pertinent parts. Significantly, the first appearance of the pickup motive as part of a quotation from Ravel's *La Valse*, coincides with the place where the rhythmic figure would have appeared had the Scherzo theme continued to sound throughout (last beat of m. 289, which is circled in the example). This clearly establishes the function of the motive in linking disparate quotations. That function is confirmed with the subsequent quotations from Strauss.

In the three previous examples, the percussion provides an underlying ostinato that features the important rhythmic motive, and thus confirms the role of these motives in tying together the disparate quotations. The tambourine part which initiates the process in Example 3-10 is significant because it features the rhythm from the *Bransle Gay* from Stravinsky's *Agon*, which has been sounding as an ostinato since J9 (m. 204, Example 3-11), now displaced for the first time so that the two sixteenth notes constitute a pickup. Thus, the percussion effects a large-scale rhythmic modulation that enables the quotations that follow to fit into the prevalent rhythmic structure, while it maintains elements in common with the rhythmic structure that sounded over the whole first half of Trio II. It is significant as well that the percussion and added counterpoint over the excerpt saturate the texture (by displacing the two sixteenth notes first on to the first beat and then on to the second beat of the measure), culminating in a measure of sixteenth notes immediately before the climax.

In addition to rhythmic motives, meter constitutes one of the most consistent attributes that the various quotations in *Sinfonia* have in common. Most of the original

sources from which Berio quotes are in triple meter, which helps preserve the continuity of the rhythmic profile of the Mahler Scherzo. These include Berlioz's *Symphonie Fantastique* II, Debussy's *Jeux de vagues* (from *La Mer*), Ravel's *La Valse*, Stravinsky's *Danse de la Terre* (from *Le Sacre*), Strauss's *Der Rosenkavalier*, the excerpt from Berg's *Wozzeck*, Mahler's Ninth Symphony II, Berg's Violin Concerto II and Stravinsky's *Bransle Gay* from *Agon*,

PITCH MOTIVES AND TRANSFORMATIONAL RELATIONSHIPS

Zimmermann- *Musique pour les Soupers du Roi Ubu*

Pitch motives are clearly essential to the association between disparate quotations in Zimmermann's *Musique*. Example 3-12 provides a reduction that extracts the quotations from Bach's Brandenburg Concerto No. 1 (I, m. 15) and Wagner's *Die Meistersinger* (Vorpiel, m. 158), which occur simultaneously in the second movement of *Musique (Mère Ubu et ses Gardes)*. They are related because they present realizations of a common motive: an arpeggiated C Major triad, elaborated by lower neighbors (B and F) by an A upper neighbor (which are circled in the example). Thus, motivic qualities further unify this music that projects a common underlying harmony.³

The introduction to *Musique* presents a clear example of how motivic structures and transformational paths can interrelate to provide the logic behind the juxtaposition of quotations. In m. 19, a quotation from Wagner's *Tristan und Isolde* and a quotation from Beethoven Op. 31, III are spatially juxtaposed (Example 3-13). The T2/T0 split

³ Kühn, 1978, p. 106.

transposition⁴ outlined by the melodic material in the Wagner quotation is paralleled by a T2 transposition in the material from Beethoven. Thus, the motivic content of the quotation from Wagner replicates the harmonic path of the Beethoven excerpts.⁵ Since the initial pitch-classes of the chords in the two excerpts correspond exactly, the effect is that the Wagner melody presents a reduction of the harmonic movement in the Beethoven.

Berio – *Sinfonia*

Pitch motives and transformations also play a predominant role in Berio's *Sinfonia*. The interval of the perfect fourth is an essential motivic feature in Mahler's *Scherzo*.⁶ It is the main motivic component of all the themes in the movement. Furthermore, it governs the organization of many middleground linear events. The graph in Example 3-14, of the first and main section of the *Scherzo*, suffices to demonstrate how its counterpart (the linear descent of the perfect fifth), recurs constantly throughout the movement as a connective structural device. A linear descending fifth leading to a restatement of the main pitches C and G, governs the connection between the first theme at m. 12 and its repetition at m.31. Other linear descending fifths are indicated in the graph. Especially noteworthy is the diatonic descent from G to C that is isolated from the figuration in the clarinets (labeled X, mm. 72-75). The importance of the descending fifth is encapsulated in the climax of the movement, which features a descent from G to C

⁴ My use of split transpositions to describe musical situations where a portion of a given musical collection is transposed by a certain interval, while another portion either remains untransposed, or is transposed by a different interval, is derived from Shaugn O'Donnell, "Transformational Voice Leading in Atonal Music" (Ph.D. diss., The City University of New York, 1997).

⁵ Kühn, 1978, p. 106.

⁶ Edward Reilly identifies the perfect fourth as the central unifying element for the whole symphony in "Todtenfeier and the Second Symphony," in *The Mahler Companion*, ed. Donald Mitchell and Andrew Nicholson (New York: Oxford University Press, 1999), p. 95.

(mm. 477-480). Thus, the descending fifth is a structural feature that governs the middleground organization of the piece.

As we shall see, T5 and T7 intervals are essential motivic features of the diverse quotations in Berio's *Sinfonia* and also become important structural elements by providing the logic behind many of the transformations that connect them. The huge web of motivic and transformational relationships that exists in this movement makes any all-encompassing analysis unfeasible. However, an analysis of the introduction to the movement illustrates how these motives and transformational relationships determine the relationship between disparate materials. By using transformation patterns that are intrinsic to the motives as important middleground structural transformations, Berio is able to create networks of recursive structures that emulate the structuralist organization of Mahler's *Scherzo* within the context of his own unique musical language. As the following discussion demonstrates, the combination of T7 and T1 transformations shape the musical structure and elucidate the logic behind the juxtaposition of disparate elements, which is so essential to it.

Example 3-15 presents Chords A, B, and C from Schoenberg's *Five Pieces for Orchestra*, Op. 16 No. 4, "Peripetie." In *Sinfonia*, Chords A and B appear simultaneously, and A remains as B progresses to C. The example illustrates how all three chords consist of two trichords of the same set type and intervallic distribution, and how these trichords are transposed in opposite directions in pitch space. The importance of T4 within each chord is evident. From A to B there is a T1/T11 split transposition. From B to C there is a T6/T6 transposition. From A to C there is a T7/T5 split transposition.

The T7 path between chords A and C is emphasized by the simultaneous emphasis on the pitches B4 and F#5 immediately following the progression of Chords A through C. These pitches are presented as part of a quotation from Mahler's Fourth Symphony, Mov. I, m.1 (Example 3-16), and are simultaneously presented as the outer boundaries of the first major cluster in the piece. T11, which is another important interval of the quotation in Example 3-16, is also given structural prominence. Example 3-17 demonstrates how the B4-F#5 cluster literally transformed through an inverse T1 transformation that leads back to the main structural pitches of the *Scherzo*, C and G.

The progression to the chord that follows Chord C is also determined by the transpositional values existing within and between the initial Schoenberg chords. Chord D, from Debussy's *La Mer* (II, 1, Example 3-18) is composed of numerous T7, T5 and T1 relationships. The T5 transformational path from G#3-C#3 path followed by the bass notes of chords A through C in Example 3-15 is emphasized by the importance of these specific pitches in the quotation from *La Mer*. Chords C and D occur simultaneously, thus the common tone Db3 effects the harmonic progression.

Fragmentary quotations from these pieces continue to appear throughout the introduction. Examples 3-19 and 3-20 compare the motivic content of the quotations from Debussy's *La Mer*, II, 2 (Harp, m 5 of *Sinfonia*), Mahler's *Symphony No. 4*, I, 3. (Violin B, m. 6 of *Sinfonia*), and the opening figure from Mahler's *Scherzo*, which ends the introduction (clarinet and bassoons, m. 7). In spite of the contrasts in the rhythmic and pitch content of the three excerpts, they are clearly motivically related through emphasis on T7 and T1 in their inner structure.⁷ A T11/T1 split transposition maps the two initial trichords onto the third (which ends the introduction). This transformation (illustrated in

⁷ Osmond-Smith, 1985, p. 58.

Example 3-21) is the opposite gesture from the T1/T11 split transposition in the opening Schoenberg chords, and introduces the pitch world of Mahler's *Scherzo* through a semitonal approach from above and below. Thus, an abstract measure of symmetry created by transformational structures frames the introduction.⁸

The importance of the transformational paths described in example 3-21 is confirmed by the newly composed varied version of the *La Mer* motive that appears in the harp in m. 10 (A3, Example 3-22). This transformed motive constitutes a T11 transposition of the original quotation, which fits it exactly into the pitch-class world of the Mahler *Scherzo* that underlies it. Confirming the relationship, the piano figuration that appears adjacent to these two versions of the *La Mer* quotation (and which imitates its character as well as its pitch-class content) constitutes an actual pitch-space transposition at T11.

Thus, the seven measures of introduction to the movement demonstrate a tightly organized structure based on T7 and T11 transformations both within and spanning the appearance of different motives. These relationships can be elucidated by the use of transformational graphs. Throughout the rest of the movement, similar webs of relationships arise, as other motivic figures, most important among which is the oscillation figure (which is pervasive in all of Mahler's *Scherzo* themes, dominates many of the quotations in *Sinfonia*, and is composed of a T1 transformation followed by a T11 transformation), are exploited.

Significantly, T7 as a transformation operating in the vertical realm, combined with T1 transformations in the linear realm are extremely common in Rochberg's *Music for the Magic Theater* as well. This combination thus represents a structural feature that

⁸ The symmetry, aside from the transformational relationships is noted in Budde, 1972, pp. 143-44.

results from combining tonal quotations in an atonal context, and is a main feature of the harmonic language of these works.⁹

Rochberg - *Music for the Magic Theater*

The first movement of George Rochberg's *Music for the Magic Theater* (1965) does not feature any prominent rhythmic motives. In fact, through rhythmically free notation, Rochberg emphasizes the overt rhythmic dissimilarity of the different components, which is essential to the quality of the piece. However, this dissimilarity is compensated for by an extremely tight pitch-motivic organization that permeates the structural organization of the work on different structural levels.

The movement constitutes a prototypical example of a musical collage. It is composed of numerous successive short sections of music that are set off by textural, stylistic, tonal juxtaposition or rests from the surrounding components. These sections correspond to fragmentary quotations from a variety of pieces and are interspersed and spatially juxtaposed with original commentary by the composer. The layers of commentary incorporate a broad range of styles and textures, from freely atonal lyrical passages in the solo flute, to strident, twelve-tone based hocket-like passages in the upper woodwinds and brass. Likewise, the distinct musical languages of the incorporated quotations (from Mahler, Mozart and Varèse) contribute to a highly disjunct musical texture. Furthermore, though quotations and commentary recur in different guises throughout the piece, there is no distinct formal scheme in the recurrence. Thus, in approaching this music, the main challenge for the analyst is to develop analytical tools

⁹ In his discussion of the music of Ives, Philip Lambert notes several cases where this type of relationship is basic to the musical structure as well. See Lambert, 1997, pp. 41, 89.

that will encompass the different musical languages, and thus elucidate the nature of the local and large-scale relationships between the disparate components.

Rochberg himself pointed out the role of the chromatic trichord, set-class 3-1[012], in unifying the various disparate sections of the movement.¹⁰ In my discussion, I will demonstrate, by using transformational graphs, that the role of the chromatic trichord goes far beyond mere motivic recurrence. The 3-1[012] trichord emphasizes structural similarities between quotations composed of apparently disparate musical materials and written within different tonal languages; it infiltrates the commentary that is juxtaposed over these quotations to create meaningful connections; it is transformed through octave displacements and expanded chromatically; and it is eventually established as one of the most important harmonic sonorities and, through the concept of gap completion, voice-leading structures of the piece. In this way, it underlies and connects all of the disparate elements in the piece including even those sections and motives that do not apparently contain it.¹¹

The chromatic trichord is prominently featured in and thus motivically relates most of the juxtaposed quotations in the piece. Examples 3-23 through 3-27 demonstrate the prominence of the descending or ascending ordered 3-1[012] trichord in different quotations, where it generally constitutes either the first or last pitches of the fragment. In fact, both the Mozart quotation in Example 3-25 and the Mahler Symphony No. 9 quotation in Example 3-27 are framed by the presentation of the chromatic trichord

¹⁰ Glenn Watkins, liner notes for *Chamber Music of George Rochberg*, The New York Chamber Ensemble, New World Records 80462-2.

¹¹ In one of the few analytical approaches to music written in the style of a collage, Lisa Brooks Robinson points out the importance of the recurrence of three motives derived from the first movement of Mahler's Ninth Symphony and a motive from Varèse's *Déserts* in the first movement of *Music for the Magic Theater*. One of these motives is the chromatic trichord. My work builds upon her discussion, demonstrating that the motive is also essential to the harmonic structure, voice-leading, and large-scale organization of the piece. See Brooks Robinson, 1994, pp. 124-140.

represented by the pitch-class collection $\{Eb, E, F\}[3,4,5]$. It is especially significant that the Mozart quotation in Example 3-25 begins with the presentation of the pitches $\{Eb, E, F\}$ and ends with the same pitches in retrograde.

Isolating the 3-1[012] trichords in transformational graphs can illustrate deeper structural similarities between disparate quotations and thus bridge the stylistic gap between them. The excerpts in Examples 3-23a and 3-23b imply and partially present the same three chromatic lines represented by pitch-classes $\{Fb, Eb, D\}$, $\{Bbb, Ab, G\}$ and $\{C, Cb, Bb\}$. The graphs that accompany Examples 3-23a and 3-23b emphasize the structural role of these [012] trichords in the quotations. They represent important details in the surface organization, such as the descending chromatic lines and the intervals between them.

Although the 3-11[037] trichord formed by the beginning pitch-classes of each line $\{C, Bbb, Fb\}$ does not correspond to the primary chordal structure of the excerpts, the Ab major triad, the pitches-classes and intervals that are vertically aligned in the graph are nonetheless important structural entities. The first pitch-classes of the three lines correspond to the first three notes in the first violin and viola, where they are presented as the two appoggiatura notes and a downbeat (set off by dotted circles in Example 3-23a). Furthermore, the $\{C, Bbb, Fb\}$ trichord features the same intervals as the Ab major chord, and is an inversion of it. Significantly, the inversional axis is the pitch-class C, which is literally represented in the registral shift that occurs between the two excerpts, as Example 3-23c demonstrates. The line beginning on pitch-class C goes from being the uppermost in Example 3-23a, to the lowermost in Example 3-23b. The abstract spatial inversion represented in the example is also implied by the registral shift of the other

lines: The line containing the {Bbb,Ab} dyad goes from being the lowermost in Example 3-23a to the middle line in Example 3-23b. Finally, the line containing the {Fbb,Eb} dyad, which is the middle voice in Example 3-23a, becomes the upper voice in Example 3-23b. Thus, the importance of the vertical intervals isolated in the graphs is established.

Example 3-23d replaces the pitch-class names with numerical labels and extracts the three trichordal lines that are implied by both quotations, for easy comparison with quotations written within different tonal contexts. Example 3-24b and 3-24c represent the structurally important [012] trichords in the altered Varèse quotation at rehearsal No. 4, presented in Example 3-24a. The relationship between the bold portions of the graph in Example 3-24c and the graph in Example 3-23d is one of homomorphism. Two graphs are homomorphic when one of them is contained within the other. That is to say, when both graphs share an identical configuration of arrows and labels, and there is a function that can relate the labels of one to those of the other, but one of them simply contains more arrows and nodes than the other. In this case the labels are identical and the relationship between the graphs indicates that both sources feature important motivic references and partial presentations of the [2,3,4] trichord and the [7,8,9] trichord (represented by enharmonic spellings). Furthermore, the [T,E,0] trichord, which received important motivic representation in the first source (Mahler) is a prominent sustained sonority in the Varèse, and continues to be so throughout the rest of the piece. Notice as well the prominence of another harmonic 3-19[012] trichord in this excerpt, represented by the pitch-classes {F#,F,E}. This excerpt thus extends the role of the trichord from motivic to harmonic function.

The motivic similarities, which demonstrate the essential role of the shared trichords represented by identical pitch-classes in uniting these disparate quotations, are especially important because the original Varèse excerpt is altered significantly in Rochberg's quotation compared to the original source. Example 3-26 demonstrates how the Varèse quotation in *Music for the Magic Theater*, though clearly recognizable as such, results from a T1/T0 split transposition of the original source. Almost every pitch in the excerpt is transposed by T1. However, the {D,Ab} tritone figure (circled in Example 3-4) appears both at the original pitch level and transposed by T1. These two versions of the dyad are both temporally (see the oboe line in the quotation) and spatially (see the piano line in the quotation) juxtaposed. The split transposition thus further emphasizes the different trichordal voices that are represented in the graphs.

The Mahler Symphony No. 9 quotation in Example 3-27 demonstrates striking structural similarities to the Varèse. The graph (at the bottom of the example) that represents the chromatic trichords contained in the first measure of the second system of the quotation is almost identical to that which represents the chromatic trichords in the quotation from Varèse. The relationship is once again one of homomorphism. In fact, both the graph in Example 3-24c and the graph in Example 3-23d, which represents the chromatic trichords in the initial Mahler quotations, are homomorphic to this new graph.

In addition to the standard types of quotations that exist in *Music for the Magic Theater*, many newly composed passages contain allusions to these quotations. These are passages of music that clearly refer to a known source, but present significant deviations from it. They are significant in that they transform and emphasize certain characteristics of the quoted material in order to relate it to other materials in the piece. Furthermore, the

recurrence of these strongly related gestures creates important formal connections. One such passage features two motives derived from Mahler's Symphony No. 9 (motives Z and W), in close proximity to one another (Example 3-28). The passage governs a large section of music that occurs twice in the course of the movement, including the ending of the movement, where it appears at a T2 transposition level.

Motives Z and W are significant in that they do not contain the chromatic trichord. However, as is evident from the graphs that represented the Mahler and Varèse quotations presented above, the interval of a perfect fourth and its semitonal partner, the tritone, play an extremely important role in the movement as well. Example 3-28a illustrates the prominence of these intervals in the primary motives. Example 3-28b presents graphs that emphasize the important T7 interval within motives W and Z. The identical node and arrow configuration, node content, and labels between the bold portions of both graphs simply illustrates the fact that, in terms of pitch content, one is contained in the other. Significantly, in the actual presentation of these motives Rochberg sustains the pitch-classes B and A and adds the sustained pitch-class Bb (circled in Example 3-28). This results in a structure with very interesting characteristics. The graph in Example 3-28c represents the total pitch content of the section of music that includes both motives. This graph demonstrates the harmonic significance of the added held tone Bb in creating a shared [012] trichord (which both motives previously did not contain) that relates these two motives to one another and to the other important motives in the piece. The homomorphism between the graph in Example 3-28c, obtained by isolating the chromatic subsets of these two motives together with their added sustained note, and

the graph of Example 3-23d, demonstrates the structural similarities to the opening Mahler quotations and the quotation from Varèse discussed above.

The passage that contains motives Z and W recurs one more time in the course of Rochberg's piece, at the very end of the last movement. At that point it is presented at a T1 transpositional value compared to its first appearance and a T11 transpositional value compared to its appearance at the end of the first movement. Example 3-29a graphs the three appearances of this section of music in the piece. The graph is identical to the graph in Example 3-29b that represents the most prominent motivic structure of the piece, the chromatic trichord. The transpositional value of the section of music at the end of the piece fills the gap set up by the transpositional value of the first two appearances. Thus, its appearance at the end of the piece fulfills the structural expectations set up in the first movement, thus achieving large-scale coherence.

Example 3-30 presents another compelling instance of commentary and quotation interacting to create structures defined by semitonal subsets related by the interval of a perfect fourth. The Mozart quotation at rehearsal No. 20 (Example 3-30a) is the only literal quotation in the piece that does not immediately appear to feature the chromatic trichord. However, a tonal reduction of this quotation reveals that its voice leading is composed of an alternation between the chromatically related pitches {A,Bb} and {F,E}. The added commentary provides alternating pitches F# and B in the bass register, expanding the repeating middleground chromatic dyads {F,E} and {Bb,A} in the excerpted quotation to complete 3-1[012] trichords {F#,F,E} and {B,Bb,A}. Example 3-30b is a transformational graph that represents these relationships. Once more, the homomorphism between this graph and that in Example 3-23d demonstrates the

underlying similarities between the pitch relationships in this excerpt and the excerpts from Mahler and Varèse described above.

In addition to elucidating the similarities between apparently disparate quotations, isolating the structural chromatic trichord also clarifies the subtlety of the transformations used throughout the piece. Example 3-31 presents the various allusions to the Varèse quotation that recur throughout the piece. The recurrence of these short gestures, as in the case of the section of music described above containing Motives Z and W, creates some degree of formal coherence in the piece. The allusions are all recognizable as such by details of instrumentation, dynamic and articulation indications, texture, contour characteristics and similarity in the intervallic structure of the individual components. However, the pitch content of many of the allusions is different, and the intervals are always presented in a different order, thus resisting straightforward segmental transpositional or inversional interpretations.

Though differing in the order of presentation of the pitch-classes, and presenting different contour relationships, clearly all of these allusions contain the same three different components (or two of the three in the case of the first allusion). These are bracketed in the example, for easy identification. The first is an ordered 3-1[012] trichord, which obviously relates this motive to the other [012] based material of the piece. The second and third are two dyads related by the interval of a tritone, one ascending and one descending. These dyads are related by T1 to each other and one of the semitones that they describe when played successively is contained within the chromatic trichord. No two allusions are strictly identical. In each case either the order of

the components is permuted or transposed, or each component is presented in a retrograde or inverted form.

Simply stating that all appearances of this motive belong to same set class (set-class 5-7, the first appearance, obviously constituting a subset of it) ignores the very important motivic recurrences that occur within each allusion. The transformational networks presented to the right of each allusion, demonstrate the underlying identity relationship between the allusions without obliterating the motivic qualities that bind them together perceptually. The bold portions of all the graphs are strongly isomorphic. That is to say, they contain identical configurations of nodes and arrows and identical transformational labels, even though their node content varies. Considering the graphs in their entirety, it is clear that the graph in Example 3-31a is homomorphic to the rest (the allusion contains only one tritonal dyad). The graphs in Examples 3-31b, 3-31c, 3-31e and 3-31f are all strongly isomorphic. Furthermore, the graphs in Examples 3-31b and 3-31c are identical because they have the same node content, as in the case of the graphs represented in Examples 3-31e and 3-31f. Finally, the graphs in Example 3-31d represent the fact that this allusion is clearly an inversion of the others. This can be represented by either of the two graphs presented along with the example: The first is a graph that literally inverts the shape of the graphs in the other examples, keeping the square portion of the network comprising the pitches {Eb,D,A,Ab} as the axis. The second is a graph with an identical shape containing complementary transpositional labels.

The strong isography¹² between the networks represented in Example 3-31b and c and those in example 3-31e and f, since they include only transpositional operations,

¹² Strong isography relates networks whose graphs are strongly isomorphic (have the identical configurations of nodes and arrows, and the same transformational labels).

demonstrates the fact that in spite of the use of permutations between and retrogrades and inversions within the three original components, the two graphs represent networks that are related by network isomorphism, that is, they represent identical pitch-class sets. The pitch-class content of the allusions represented in Examples in 3-31e and 3-31f is related by T1 to that the allusions represented in Examples 3-31b and 3-31c. Example 3-32 illustrates the permutations, contour inversions and retrogrades that relate the excerpts represented in Example 3-31c and Example 3-31e. The first tritone in the excerpt on the left, {Eb,A}, is retrograded, transposed by T1 and permuted to map on to the pitches {Bb,E}, which take the place of second tritone in the excerpt on the right. Likewise, the second tritone in the excerpt on the left {D,Ab} is inverted and transposed by T1 to map on to the pitch classes {Eb,A}, which are presented as the first tritone in the excerpt on the right. The descending chromatic trichord alone is presented in a straightforward segmental transposition.

An alternate reading, which would take into account how Rochberg's quotation of the Varèse motive at rehearsal No. 4 (Example 3-31c) incorporates a split transposition of the actual pitches in the original source, as described above, also yields interesting results. The allusion to Varèse at rehearsal No. 2 (presented in example 3-31a) presents the actual pitches of the Varèse motive given a straightforward transposition by T1 from the original source. As Example 3-33a demonstrates, the allusion at No. 4 (Example 3-31c) can be seen as resulting from a split transposition by T0/T11 of the first allusion (the descending chromatic trichord and the tritone are transposed by T0, while the tritone is also transposed by T11). Similarly, as shown in Example 3-33b, the allusion at No. 28

can be seen as split transposition by T0/T1 of the same¹³. The invariance of the pc dyad {Eb,A} as the first component in most of these allusions seals the significance of the split transposition, and solidifies the aural identity relationship between the different allusions. The graph that describes the large-scale relationships between these allusions (Example 3-33c) is isomorphic to the graph of the chromatic trichord represented in Example 3-33d. In this case, the configuration on arrows and labels between the two graphs is the same. Though the node content and the labels are different, there is clearly a functional relationship between the labels. Once more, transformational graphs elucidate the relationship between the structure of the chromatic motive and the large-scale transformations that occur in the piece.

After the 3-1[012] trichord is established as an essential motivic and harmonic structural unifier, it establishes itself as a voice-leading unit through the concept of expansion and gap completion. Chromatic expansion simply means that the trichord can be extended chromatically to create a chromatic collection of a higher cardinality, as in Example 3-34, which presents a reduction of the music at rehearsal No. 8. Here, the [012] trichord is expanded chromatically to include a chromatic hexachord.

Gap completion is a more subtle device, with striking potential in terms of voice-leading implication, which interacts with chromatic expansion to elucidate the connection between the straightforward motivic renditions of the trichord in the quotations and the structural function of the chromatic collections in the highly contrasting sections characterized by freely atonal passages and twelve-tone rows. Example 3-35 shows a typical instance. At rehearsal No. 9, the pitch-classes D, Eb and C create a chromatic gap

¹³ The allusion at Rehearsal No. 3 (Example 3-9b) presents another example of a T0/T11, while the allusion at rehearsal No. 19 (Example 3-9e) presents another example of a T0/T1 transposition.

that implies the following pitch-class, C#. A similar example occurs at rehearsal No. 12 (Example 3-36), where the successive occurrence of the pitch-classes {G,F#,A} implies the pitch-class Ab, which is needed not only to saturate the gap, but also to complete the aggregate, thus emphasizing the structural role of this final pitch in the commentary, which serves to reintroduce the suspended Mozart quotation.

At rehearsal No. 13, the principle of gap saturation within the motive becomes especially important, as it dominates the structural organization on a middleground level. The layer of added commentary that occurs over a quotation from Mozart's Divertimento begins with the presentation of a gap from F# to G#, which is followed by a chromatic statement of the remaining pitch-classes of the aggregate, from A to F (Example 3-37, another instance of chromatic expansion). Significantly, the Bb is provided by both the melody line and the ostinato bass of the underlying Mozart quotation, and thus provides a link between quotation and commentary. The appearance of the F prompts a restatement of the F#-G# pitch-class gap (along with the pitch-class A). The restatement of the gap gives final preparation for the appearance of the G, which also completes the aggregate and coincides with a notated break in the music. The actual presentation of the pitch class is thus delayed by a chromatic statement of the full aggregate and a restatement of the gap. The gap thus represents a middleground voice-leading structure for this section.

The tonal/atonal juxtapositions that occur over the quotation from Mozart's Divertimento at No. 20 (see Example 3-30) also provide an interesting example of gap completion. The underlying structure created by the juxtaposition of the dominant chord built on C and the added F# in the commentary, creates a gap (Example 3-38a, between the F# and the E) that supports the tonal progression (and its pull from E to F) through the

concept of gap completion. Likewise, the juxtaposition of the F Major Triad and the added B in the commentary creates a gap (between the B and the A, Example 3-38b) that implies the B \flat of the dominant seventh chord. Thus, added notes in the commentary support the tonal voice-leading implied by the alternation between the two chords.

The sections of music in the movement that are organized by twelve-tone collections (such as the pitches in the woodwinds at rehearsal No. 15) provide a challenge to the analyst because the numerous resulting rows are not apparently related by any of the standard transformations. Significantly, it is the motivic content that governs the structure of these ordered collections. The pitch-classes come together to begin, expand, or fill in versions of the 3-1[012] trichord or chromatic expansions of it. Thus, each new pitch-class will either:

- a. Begin a new chromatic trichord.
- b. Chromatically expand a previous succession of pitch-classes to and beyond a chromatic trichord to what we will term a chromatic collection.
- c. Create a gap with a previously existing pitch-class, dyad or trichord
- d. Chromatically fill in a gap that has been created with a previously existing chromatic collection

The oboe line at No. 28 (Example 3-39) represents a perfect example of how chromatic expansion and gap saturation based on the [012] trichord provide the organizing logic behind many of the disjunct melodic lines in the piece. The chromatic gaps are immediately filled in and thus determine the next pitch-class that is to appear. Example 3-40, which represents a sample of one of the first twelve-tone lines in the piece, shows a more typical usage of this technique. Here the gap created by the

appearance of the pitch-class C is saturated only after chromatic expansion of two semitones of the pitch-class F# through pitch-classes F and E. Clearly, although any twelve-tone row will actually satisfy the conditions above if we allow for a new chromatic collection to be formed by many successive pitch-classes, the structure of these rows is special in that the amount of chromatic collections is limited and most gaps are immediately followed by the pitches that fill them.

Thus we have seen how the disparate elements in this piece are unified by their mutual use of the 3-1[012] chromatic trichord and gap-fill procedures. These two ideas are strongly related because the chromatic trichord is the prototypical filled gap. The last step of our motivic and transformational analysis will demonstrate the structural similarities between the large-scale transformations of the motives, the intervallic content of the motives themselves, and the way that that the trichords are related within the original Mahler quotation.

As Example 3-41, demonstrates, in each section, the governing chromatic trichord corresponds to the pitch-class representation of one of the component trichords of the opening Mahler quotation ($\{C,B,Bb\}$, $\{E,Eb,D\}$, $\{A,Ab,G\}$) or a semitonal transposition of one of them. Example 3-41 shows the transformational paths of the governing chromatic trichords throughout the movement. It demonstrates how all the major chromatic trichords of the piece can be interpreted as transformations by T1, T2, T10 or T11 of the trichords that appear concurrently in the initial Mahler quotations (discussed in Examples 3-23a and 3-23b).

The large-scale transformations of this motive throughout the movement replicate the chromatic structure of the motive itself. Especially significant in Example 3-41 is the

path followed by the trichord that appears at the top of the graph. It represents the most prominent [012] trichord at any point throughout the piece. The transformational path of two ascending semitones occurs twice in the course of the piece: before and after the recapitulation (rehearsal No. 27). The section that follows the recapitulation presents a condensed version of the transformational path that governs the structure of the piece preceding the recapitulation. Thus, the [012] transformational path of the most prominent chromatic trichord in the piece constitutes an important structural moment which lends large-scale coherence to the piece.

Taking this one step further, the analysis demonstrates that the vertical intervals separating the various representations of the [012] trichord are also significant as throughout the piece. This is represented by the graph in Example 3-42, where for each node, the given pitch-class represents the first pitch class of the corresponding descending chromatic trichord. The graph in Example 3-42, representing the large-scale transformations of the motive throughout the movement, and the graph in Example 3-23d (reproduced below it), which represents the structural basis underlying all of the disparate quotations, are homomorphic. That is, the bold portion of the network represented in the graph in Example 3-42 is strongly isomorphic to that represented in the graph in Example 3-23d. Thus, the large-scale transformations used in *Music for the Magic Theater* replicate the intervallic structure of the quotations themselves.

In summary, motivic similarities infiltrate the linear, harmonic, voice-leading and large-structural organization of this piece, thus providing the logic behind the combination of apparently disparate elements on many different levels of structure. These similarities can be represented in a visually compelling way through transformational

graphs. In this way, it becomes apparent that transformational and motivic analysis (both of which have been applied with success to a variety of repertoires) can reveal surprising sources of unity and continuity by traversing distinct musical languages. Thus, they elucidate the logic behind the combination of the disparate materials on many different levels of structure in a musical collage.

CHAPTER 4

The Process of Modulation

The discussion up to this point has dealt with formal, structural, and associative motivic and transformational relationships between disparate elements in the musical collage. These have yielded insight into many of the essential components of this musical style, including possible models for voice-leading, harmonic structure, form and large-scale coherence. This chapter studies the points of intersection between the juxtaposed quotations. It focuses on the specific issue of how the transition between disparate elements is achieved. In other words, it seeks to describe the process of modulation in a musical collage. Although in many cases the adjacent and simultaneous juxtaposition of disparate quotations results in formal as well as perceptual discontinuity, there are also many ways in which disparate quotations are linked to create larger spans, so that the formal structure of these works is not subservient to the aesthetic concept from which they arise. The surprising parallelism in the way the connection between distinct sound worlds is achieved in these pieces demonstrates the usefulness of this study in providing the basis for an analytical model that can be usefully applied to this body of works as a whole.

Three different techniques for linking disparate quotations emerge: overlap, chromatic insertion and rhythmic plasticity. Through the technique of overlap, elements of the ending of one quotation literally intersect in some way with elements of the beginning of another. Chromatic insertion refers to a technique that consists of achieving the connection between the pitch worlds of adjacent quotations by inserting chromatic

structures between them. Finally, rhythmic plasticity refers to ways in which the manipulation of the rhythmic profile of the music can achieve a gradual transition between adjacently juxtaposed quotations. In many cases all three techniques are used concurrently in the process of modulation.

OVERLAP

The technique of overlap traverses the spectrum of levels of subtlety and can function on many different conceptual levels.¹ Two different usages stand out in the analysis of these works: pitch convergence and textural dispersion/emergence. Pitch convergence encompasses pitch connections of different types (both literal and structural) that support the process of transition between disparate elements. Textural dispersion/emergence operates in the realm of texture and is produced when two quotations sound simultaneously and are subjected to the process of fragmentation. In this case, the modulation between quotations is achieved when a sounding quotation is gradually dispersed through fragmentation while snippets of an emerging quotation appear simultaneously in increasing lengths. Fragmentation in this context is somewhat analogous to Schoenberg's concept of 'liquidation' in the realm of phrase structure,² which "consists in gradually eliminating characteristic features, until only the uncharacteristic ones remain, which no longer demand a continuation. Often only

¹One way in which the concept of overlap can achieve a connection between layers of juxtaposed quotations is directly addressed in Rochberg's *Music for the Magic Theater*. "The technical problem I posed for myself was how to move from one epoch to another, how to 'modulate' from one musical syntax to another without creating a pastiche of 'styles.' Part of the solution was to pit these different levels against each other, successively and simultaneously. This in turn raised problems having to do with handling different times, different speeds. I have worked close to the edge of disorder and chaos to create 'perceptual dissonance' in order that passages or sections not made up of contradictory elements may then emerge with utmost aural clarity, i.e., 'perceptual consonance.'" (Dixon, 1992, p. 93).

² Arnold Schoenberg, *Fundamentals of Musical Composition*, ed. Gerald Strang (London: Faber and Faber, 1967), p. 58.

residues remain, which have little in common with the basic motive.” As we shall see, it is common for the different techniques of overlap to occur simultaneously.

Pitch Convergence

Example 4-1, from the first movement of *Music for the Magic Theater*, presents a clear illustration of how pitch convergence can achieve the modulation between various different excerpts on a foreground level. Immediately preceding rehearsal No. 3, the first violin ends the quotation from Mahler (Ninth Symphony, IV, m. 14) on the pitch D5. This exact pitch is the starting pitch of the following section of commentary by Rochberg.

Example 4-2, from the third movement of Berio’s *Sinfonia*, provides another illustration. Significantly, the convergence pitch in this case, F, is the local tonic of the underlying *Scherzo* (quoted from the third movement of Mahler’s Symphony No. 2) and is presented as a sustained note in the soprano line. At F5 (m. 126) the excerpts from Ravel’s *La Valse* (No. 39, m. 5- represented by the thick circles in the example), Mahler’s *Scherzo* (represented by the thin circles in the example) and Berlioz’s *Symphonie Fantastique* (m. 155- represented by the dashed circles in the example) converge on the pitch F5. Significantly, the last pitch of the Ravel descending chromatic line is modified from F# to F to achieve this convergence. This modification converts the last four pitches of the Ravel excerpt into a chromaticized version of the A,G,F diatonic descent in the Berlioz excerpt.

As the interlocking circles in the example demonstrate, pitch convergence is not limited to a single pitch. In m. 126, the first three pitches in the second violin (quoting

Mahler) and viola lines (quoting Berlioz) are exactly the same, which prompts a smooth, if temporary modulation in the second violin line from the Mahler material to the excerpt from Berlioz. The last two pitches in the first violin in that measure (quoted from Berlioz) correspond exactly to the missing pitches from Mahler, which lead into a reestablishment of Mahler's text in the soprano line.

Pitch convergence can also operate on a middleground level. As Example 4-3 demonstrates, at C1 (m. 43) in *Sinfonia*, the superimposition of a fragmented version of the Berlioz *Symphonie Fantastique* excerpt in the first flute over the Mahler *Scherzo* material, is determined both by pitch convergence (on C) and middleground motivic correspondences (the ordered directed intervals of both excerpts are identical, thus the Berlioz excerpt presents the Mahler *Scherzo* material in augmentation).³ These types of motivic correspondences are important in the process of modulation, as they constitute the larger framework governing the intersection of disparate quotations.

Example 4-4, from Zimmermann's *Musique pour les Soupers du Roi Ubu*, constitutes another clear example. In this case, a quotation of the *Dies Irae* as it appears in Berlioz's *Symphonie Fantastique* is superimposed over a quotation from Wagner's *Die Walküre*. The semitonal oscillation motive, which is so important in the Wagner quotation is represented by the same pitch-classes in augmentation in the *Symphonie Fantastique* quotation. Simultaneously, the forte A# in the brass, which concludes the main theme of the Wagner quotation, prepares the full-texture Bb Major of the adjacently juxtaposed quotation from Berlioz's *Symphonie Fantastique* that follows.

The concept of pitch-based overlap is extended and developed in Rochberg's *Music for the Magic Theater*, to the point that in many cases the commentary that he

³ Osmond-Smith, 1985, pp. 49-59.

inserts between quotations traverses the path between the pitch worlds of the quotations that it connects. For instance, the newly composed music that is inserted at rehearsal No. 2 (see Example 4-1) both anticipates the pitch content of the upper line of the quotation that it precedes, while it completes the implications of the quotation that it follows, by providing the pitch D as a resolution of the [01] dyad {Fb,Eb}, a resolution that is expected because of the parallel occurrence of the [012] trichords {C,Cb,Bb} and {Abb,Ab,G}(which are set off by dotted circles in the examples) as was described in Chapter three. This example is especially significant because the commentary is inserted over two quotations that are adjacent in the original source. Example 4-5 illustrates the double function of this section of commentary, isolating the way in which these two excerpts overlap both literally (through pitch duplication) and conceptually (where one excerpt fulfills the implications of the other).

Similarly, the newly composed music that is inserted at rehearsal No. 3 (last two measures of Example 4-1) between the second Mahler quotation and the quotation from Varèse (*Déserts*, m. 242) that follows at rehearsal No. 4 (which is presented in Example 4-6) provides a literal overlap between the excerpts that it connects. In this case, it emphasizes the common descending chromatic trichord in the upper line of both quotations, while it introduces the tritonal motive that is essential to the quotation that it precedes (both elements are set off with dotted circles in the examples). Example 4-7 illustrates the overlap. The free rhythmic profile of this section of commentary is significant because it links sections of music with a strict but contrasting rhythmic and metric content.

Some of the more sophisticated types of pitch convergences occur on a more conceptual basis will also be presented in other contexts. For instance, a special kind of overlap occurs when a single pitch needed to complete the aggregate in a given section is presented as the first pitch of the following section. Since the missing pitch has the double role of completing the structure set up previously, and initiating what is to follow, it functions conceptually as a convergence point, and the technique can also be viewed as a modulatory process. Chapter 5 will describe three important occurrences of this technique in *Music for the Magic Theater*. The first (Example 5-3) links the quotations discussed in Examples 4-1 and 4-6, while the other two link adjacently juxtaposed tonal and atonal passages that occur at rehearsals No. 11-12 (Example 5-4) and 20-21 (Example 5-5) respectively. Thus aggregate completion bridges the stylistic gap by structurally unifying what is otherwise perceived as a disjunct juxtaposition because of contrasts in texture, instrumentation, rhythm, meter and pitch organization.

One of the most striking techniques of modulation achieved through pitch-based overlap was also introduced in a different context. It occurs at rehearsal No. 7 in *Music for the Magic Theater* (first discussed in Chapter 3, Example 3-28). Example 4-8 demonstrates how the inserted sustained B \flat , which occurs at the juncture between Motives Z and W (derived from Mahler's Symphony No. 9), achieves the connection between the two motives, functioning as a harmonic pivot. It chromatically fills in the gap that is emphasized in these motives between the pitches A and B, thus creating an [012] trichord that motivically relates these motives to one another and this section of music to the other material of the piece (which is permeated by this motive). The fact that

the [012] trichord is a chromatic sonority also relates this example to the various types of examples we shall study where chromatic insertion functions as a harmonic pivot.

Pitch convergences can also occur on a harmonic level. Example 4-9, from the last movement of Zimmermann's *Musique*, demonstrates how the ostinato juxtaposed bass notes Gb and G, drawn from Stockhausen's *Klavierstück IX* and Berlioz's *Symphonie Fantastique* respectively, prepare for the F#/G oscillation that dominates most of the adjacently juxtaposed Wagner quotation that follows. This {F#,G} dyad, like a pedal point, constitutes a harmonic link that structurally connects the numerous ensuing juxtapositions between these two contrasting sections of music. Another harmonic link is achieved in this same example, by the retrospective enharmonic reinterpretation of Berlioz's Bb as an A# (leading tone) within the B minor tonality of the Wagner quotation.

Confirming the harmonic importance of pitch convergence, in *Sinfonia*, convergence on pitches that determine the tonality of the *Scherzo* (such as G and C) is prevalent throughout the movement. As Example 4-10 demonstrates, at E12 (m. 107), the modulation between Debussy's *La Mer* excerpt (II 'Jeux de vagues' No. 19) and Berlioz's *Symphonie Fantastique* excerpt (II, 122) is achieved by an added sustained pitch class C in the clarinet on the last beat of m. 106 and in the flute on the first beat in m. 107. The added convergence pitch emphasizes the importance of that pitch in the excerpts that it connects.

Large-scale harmonic connections that support the modulatory processes can also be achieved through pitch convergence. At the beginning of the first scherzo reprise in *Sinfonia* (which is characterized by foreground convergences on C and G), as indeed,

throughout most of the underlying *Scherzo*, the timpani plays an alternation between the pitches C and G. As the surface of the music becomes dominated by the Stravinsky quote (H16-I2, mm. 170-183) the timpani plays C F# (excerpted from the Stravinsky source), which is transformed to the C G of Mahler at I5 (m. 186) as the *Scherzo* reemerges for the end of the section. Clearly, the pitch C creates a harmonic connection that lasts throughout the whole section.

In the transitional section that follows, (I7, m. 188), pitch convergence on a sustained C (in the timpani and several octaves higher in the flutes) justifies the simultaneous quotations from Mahler and Debussy's *La Mer* (III). C is an ostinato that sounds throughout both excerpts in their original source and thus its appearance serves to unite them. Eventually, the timpani turns again to C F#, now excerpted from the quotation from Debussy's *La Mer* (III), fragments of which alternate with fragments of the scherzo and snippet quotations from Stravinsky's *Agon* throughout the transition. As the scherzo reemerges towards the end of the transition, the timpani once more centers on the pitch C. In this case, the pitch not only creates a convergence that lends coherence to this particular section, but it also relates in interesting ways to the section that precedes it and the section that is to follow.

At the transition to the next section, which corresponds to Trio II in Mahler's *Scherzo*, the timpani blends the held pitch C with the rhythmic content of the "Bransle Gay" from Stravinsky's *Agon* (which also features important references to the pitch C in the original source). Clearly, this pitch establishes a harmonic connection between the juxtaposed quotations and achieves a large-scale link between the three formal sections.

Textural Dispersion/Emergence

As was stated previously, pitch convergence can interact with the broader concept of textural dispersion/emergence in interesting ways. In Berio's *Sinfonia* the technique of textural dispersion/emergence is pervasive in the transitions between the underlying *Scherzo* and sections that overwhelmingly feature other quotations. In general there is a continuum between the increasing usage of commentary techniques that are based on the continued functional primacy of the *Scherzo's* thematic material, and techniques that obliterate Mahler's material but retain some of its structural elements. The former distort the thematic material, but do not introduce added materials. These include:

- Heterophony (canonic echoes created by slightly displaced rhythmic versions of the theme that occur simultaneously with it and create a shimmering quality and a blurring of the moving notes).
- Octave displacements (especially in the harp and keyboards, but also in the violin and flutes).
- Transformations of the original thematic material (especially retrograde and inversions of the expected materials, but also including slight chromatic alterations and near-transpositions, where the material is partially altered in terms of pitch or transposed in order to conform to the local pitch context).
- Re-scoring (purposeful deviation from the original instrumentation. It enables layers of commentary to remain distinct from original materials at places where the level of distance is slight and epitomizes the process of fragmentation and dissolution of the original material when the main thematic material is transferred

to the added instruments and voices, leaving the original Mahler orchestra available for the introduction of quotations).

The second group of commentary techniques obliterates the thematic content of Mahler's work by inserting other materials. These include quotations from other works, chromatic scales and clusters. Generally, however, the added material maintains a relationship to the obliterated material by retaining common structural elements or motives. In fact, even the practice of using chromatic structures and quoting from other works is in itself derived from Mahler's *Scherzo*, which uses chromatic scales as a common transitional element and incorporates quotations from a number of different works.

As Example 4-11 demonstrates, from N12 to O(mm. 282-295) in *Sinfonia*, various sophisticated types of pitch processes and convergences support the gradual recession of Mahler's material from the surface of the music (the modulation away from Mahler). It is gradually obliterated by quotations from Ravel's *La Valse* and chromatic lines that derive from the latter's accompaniment in the original source (though they differ in actual pitch content). Eventually, the *Scherzo* material is represented only by fragmentary snippets in the voices, while quotations from Ravel continue the process of obliteration that culminates at O (m. 295) with a quotation from Strauss's *Der Rosenkavalier*.

Example 4-12 isolates the pitch convergences between the quotation from Ravel's *La Valse* (32, 7) at m. 286 and the underlying *Scherzo*. The quotation literally reduces the corresponding figuration to longer note values, creating a process of gradual distancing that provides a particularly subtle stage in the obliteration of Mahler. A similar effect is

obtained by the developmental treatment of the underlying figuration (see Example 4-11, N20, m. 289), which, though rooted in Mahler, deviates from Mahler's material by first continuing the pitch sequence beyond its original goal and then presenting it in a measure-to-measure retrograde with accumulating chromatic alterations.

CHROMATIC INSERTION

Often presented simultaneously with overlap techniques, chromatic insertion constitutes another prevalent way in which the borders between disparate materials in a collage are drawn or blurred. Creating harmonic "pivots" which similarly absorb the pitch world of the surrounding quotations, chromatic washes (which refer to areas characterized by the saturation of the texture with chromatic scales or figurations) achieve subtle harmonic transitions and thus have a "modulatory" function as they create links by filling in the tonal spaces between disparate quotations.⁴ Significantly, the chromatic scales often originate in the quotation that is the starting point or goal of the modulatory process. By choosing quotations that feature chromatic scales and accompaniments, the chromatic components become literal convergence points as well as conceptual harmonic pivots.

Example 4-13 demonstrates how, for instance, during the second subsection of the initial scherzo in *Sinfonia*, chromatic scales infiltrate the texture beginning with the first statement of the main theme from *La Valse* (No. 32) at D12 (m. 77). These scales are initially quoted as the original accompaniment for the latter. However, as the example demonstrates, at D16 (m. 81) a diverging chromatic scale that originates from the same

⁴ This particular function of chromaticism finds a direct analogy in the visual arts in Max Ernst's usage of line engravings. Their lines could be utilized to conceal the pasted joints, so parts from different engravings can be assembled to produce a new picture, complete from edge to edge.

pitch as the quoted chromatic scale is added in the electronic harpsichord. From that point through D23 (m.88), where the modulation reaches its goal with the quotation from *Daphnis and Chloe* (No. 176, m.4), numerous other chromatic scales permeate the surface. These scales saturate the texture and contribute to obliterate the tonal functionality of the Mahler material creating a harmonic wash that achieves a pitch modulation between the tonal material from the *Scherzo* and the quotations from Ravel.

Example 4-14 demonstrates how pitch-class convergence supports the process of modulation in this section. The transposition of the original *Daphnis and Chloe* excerpt down a semitone allows it to converge on the pitch-class G with both the preceding excerpt from *La Valse* and the underlying material from the *Scherzo*. The transposition also fits the Ravel quotation into the tonality of the Mahler *Scherzo*, which is still present in the bass line at that point. A larger-scale motivic parallel (bracketed in the example) links the *Daphnis and Chloe* excerpt to the figuration from Mahler that it appears above, thus demonstrating the significance of this conceptual type of pitch convergence in the process of modulation.

Pitch convergences and textural dispersion/emergence also prepare the modulation in the previous example. The transition that precedes the section described in the example is characterized by the superimposition of an ascending scalar motive from Ravel's *La Valse* (No. 26, m. 4-6) over the repeated descending scalar motive in Mahler's *Scherzo* at C20 (m. 62, Example 4-15). The juxtaposition of scalar motives that occurs in the transition thus prefigures the modulation that follows.

Significantly, the juxtaposed scalar motives are strongly related by pitch convergence. The scalar motive from *La Valse* is placed over the Mahler in two different

ways, both of which underline the importance of pitch correspondences between quotations that occur simultaneously. As can be seen by the circled pitches in Example 4-15, in both alignments there is a common pitch (G then D).⁵ The two excerpts converge even more closely on a more abstract level. They have a similar pitch content (except for the pitches B and F). Furthermore, the Ravel fragment has an identical pitch content to the third measure of the main theme from Mahler (circled in the example). The superimposed scalar excerpt from Ravel drops out of the texture at the exact same moment (D3, m. 68) that its exact pitch content is restated as part of the thematic material from Mahler. It then reemerges as an added layer. This seals the significance of the pitch convergence between the two excerpts in determining their juxtaposition.

Textural dispersion occurs throughout this transition as the thematic material is increasingly distorted and fragmented to the point that it almost disappears from the texture altogether. This occurs as a gradual process. At *D4* (m. 69), Berio distorts the scherzo material through heterophony, deviation from the original instrumentation (including a transfer of the material to the voices) and octave displacements in the strings & flutes (*D9*, m. 74). Added layers, such as a chromatic tremolo in the flute and oboe, gradually saturate the surface. Fragments of the scalar passage from Ravel's *La Valse* continue to appear under the texture until the emergence of its main theme (*La Valse*, No. 32) at *D12* (m. 77). From that point on the quotations from the latter piece permeate the section, gradually superseding the Scherzo material, as described in Example 4-13.

The passage discussed in Example 4-11 presents another example of chromatic insertion. Beginning at *N18* (m. 286), contrary motion chromatics saturate the texture

⁵ In order to emphasize these types of relationships, the quotations that Berio uses as commentary are generally treated much more freely than the Mahler material itself is. In this case, the Ravel fragment is consistently played minus one pitch, and expanded through repetition beyond its appearance in the original.

until the section reaches its modulatory goal at O (m. 294). These chromatic scales are derived from the original accompaniment to the Ravel quotation, expanded far beyond its original confines in terms of both range and timbre.

From P16 to P17 (323-324) chromatic scales and an encapsulated version of Mahler's figuration link a full texture quotation of Strauss, *Der Rosenkavalier* (Act III, No. 298, m. 5) to a reestablishment of Mahler's thematic material at P18 (m. 325) accompanied by a superimposed quotation from Brahms's Fourth Symphony (Mov. 4, m. 69) at Q (m. 327). The relationship between the original Mahler figuration (*Scherzo*, m. 318), and the altered version that appears in Berio is shown in Example 4-16. The chromatic scales that appear at P16 and P17 anticipate the ensuing Brahms's quotation at Q (m. 327), by extracting, juxtaposing and expanding different descending chromatic layers from it.

As Example 4-17 demonstrates, the chromatic line in the viola (which doubled in the clarinet- a feature which is not apparent from the reduced score) literally separates the two implicit lines in Brahms's figuration, and extracts the descending chromatic line as a separate layer. The pitch correspondence is exact. Moreover, once this line is extracted, Berio expands its span, continuing the chromatic motion beyond the original goal. Thus this example constitutes an illustration of how subtly chromatic scales extracted from the quotation that is the goal of the modulatory process can achieve the conceptual transition.

In other sections, chromatic washes are incorporated without necessarily being related to the accompanying quotation, but still creating a conceptual link in the musical languages. For example, from E18 to E23 (m. 114-118, Example 4-18), as fragmentary quotations from *La Valse* permeate the texture alternating with fragments of Mahler's

Scherzo, chromatic washes in the keyboard instruments introduce the highly chromatic language and range of the quotation from Ravel (*La Valse*, No. 38, m. 10) that leads to the ending of the section and a temporary highpoint.

The approach to the climax of *Sinfonia* demonstrates how the chromatic content of a quotation determines its position within the piece and how chromaticism can achieve a large-scale modulation between different quotations, in this case contributing to an important structural moment. As Example 4-19 demonstrates, in Mahler's *Scherzo*, the approach to the climax is realized through the convergence of two separate chromatic motions: the fast, ascending chromatic scale in the woodwinds that occurs the measure before the climax, and the slower descending chromatic line in the trombones that begins two measures before the climax.

In *Sinfonia*, Berio inserts a recapitulation of his opening material immediately prior to the reestablishment of Mahler's text for the climax of the movement. This opening material begins with a quotation from Schoenberg's *Fünf Orchesterstücke* Op. 16, No. 4, m. 2 (Example 4-20), which is restated once more at the ending of the recapitulation (two measures before the climax). It achieves the modulation that reestablishes Mahler's material by presenting diverging chromatic lines that replicate the pitch-class content of the original Mahler material. As a comparison between Example 4-19 and Example 4-20 demonstrates, the lowest chromatic line in Schoenberg's excerpt corresponds in terms of pitch to the final descending chromatic line in the trombones in Mahler's piece, while the highest chromatic line in Schoenberg's excerpt ascends to the same pitch-class as does the ascending chromatic line in the woodwinds in Mahler.

Interestingly, the type of chromatic washes that achieve the modulation in Berio's *Sinfonia* find their analogy in Rochberg's *Music for the Magic Theater* in gestures that are also chromatic, but on a smaller scale. His descending chromatic motive, based on the [012] trichord is essential to the process of modulation. For instance, at No. 12, the F that begins the quotation of Mozart's divertimento is also the final pitch of a descending chromatic trichord that starts in the Bb Clarinet (Example 4-21). Smaller chromatic motions are also important in the process of modulation. For instance, at rehearsal No. 2, the A that initiates the Varèse allusion in the commentary is related by a semitone to the last pitch in the upper voice of the preceding quotation. Similarly, the opening pitch of the second Mahler quotation is related by a semitone to the last pitch of the commentary that precedes it at No. 2 (see Example 4-1).

Semitonal relationships bolstered by symmetrical appearances of the [012] trichord also occur in this piece. For instance, at rehearsal No. 15 (Example 4-22), the descending [012] trichord {D,C#,C} that ends the Mozart quotation is followed in the next section by the pitches {C#,D} which create a retrograde elided trichord {C,C#,D}. This retrograde chromatic relationship, thus links sections characterized by abrupt contrasts in texture, instrumentation, dynamics and pitch organization.

A similar example occurs between rehearsal Nos. 19 and 20. As Example 4-23 demonstrates, the {F, E, Eb} trichord that ends the allusion to Varèse at rehearsal No. 19 is followed by the pitches {F,E,F} at the beginning of the Mozart quotation at rehearsal No.20. In both of the previous examples, the pitches can be seen as linked to the ones in the previous section through gap saturation as well as a simple elided retrograde. In either case, it is the chromatic trichord that links these sections.

RHYTHMIC PLASTICITY

Rhythmic plasticity is essential to the process of modulation in these pieces. The term refers to ways in which the rhythmic profile of the music is manipulated in order to gradually introduce or lead away from a quotation. In *Sinfonia*, increasing rhythmic complexity often aids the process of modulation to an excerpt that features a faster rhythmic momentum. For instance, at E (m. 96, shown in Example 4-24) the chromatic lines quoted from Mahler, which end the previous section, give rise to an added chromatic layer in the first clarinet, which increases the rhythmic momentum through the presentation of slightly faster note values (mimicking the heterophonic treatments elsewhere in the piece). As the example demonstrates, the gesture rhythmically introduces the faster momentum of the Debussy, *La Mer* quotation that ensues in the solo violin and oboe.

The last movement of Zimmermann's *Musique* also presents an interesting example of the use of rhythmic plasticity for modulation. The piece is characterized by the alternation between the cut time of the Berlioz's *Symphonie Fantastique* IV (March to the Scaffold) quotation and the 9/8 meter of the quotation from Wagner's *Die Walküre*. Example 4-4 represents the section of music that leads to the first full-texture quotation from Berlioz *Symphonie Fantastique* (IV, m. 62). As will be discussed more thoroughly in Chapter five, in this case, Zimmermann chooses to create a link between the two quotations, rather than presenting a straightforward juxtaposition. He achieves this in part through the rhythmic hemiola effect created by the inserted *Dies Irae* quotation from Berlioz's *Symphonie Fantastique* (V, m. 186) at m. 76 (the first few notes of the

quotation are circled in Example 4-4). This type of rhythmic plasticity demonstrates the potential instability created by inserting a quotation into a foreign metric content, and the implications it can have in terms of the musical language.⁶

Example 4-25 demonstrates how in *Music for the Magic Theater*, the straightforward quotation from Mahler's Ninth Symphony (I, mm. 383-390) from rehearsal Nos. 24-26 is prepared and left through rhythmically free presentations of selected layers that precede and follow the actual quotation in the original source. As the example demonstrates, at rehearsal No. 23, the horn plays melodic material that precedes the quotation in the original source, but in a rhythmically free fashion. Similarly, at rehearsal No. 26, the brass and double bass continue to play melodic material that follows the quotation in the original source, but, once again, in a rhythmically free fashion.

The surviving layers at rehearsal No. 26 are juxtaposed spatially with added layers, which contribute to phase out the quotation by slowly transforming its texture and intervallic content as well as its rhythmic profile. As the example demonstrates, the flute line develops to a climactic point by both expanding the intervals and reaching for a pitch highpoint. Furthermore, an added newly composed line in the tuba begins by replicating the motivic material of the double Bass in the previous quotation, but deviates from it, incorporating wider leaps and pitch elements from both the original bass line and the flute line until it winds down the section completely. Thus, rhythmic, motivic, and phrase structure processes achieve the connection between the quotation and the section of commentary that follows it.

⁶ Another good example of this is illustrated in the metrically distorted quotations from Wagner's *Die Meistersinger* and Bach's Brandenburg Concerto No. 1, presented in Example 3-12

Immediately following this passage, Rochberg achieves a recapitulation through the restatement of the Mahler quotations from the beginning of the piece (initially presented as Example 4-1). I will demonstrate that this very passage achieves the harmonic modulation that prepares this recapitulation in very subtle ways. As will be discussed in Chapter 5, the chords that are superimposed in the woodwinds and upper strings throughout the quotation (which are isolated in Example 5-11) are symmetrical around C5 (which was the sustained note in the introduction that preceded the Mahler quotation at the opening of the piece- see Example 5-1). Furthermore, as was discussed in Chapter 3, the passage presents the three original trichords from the Mahler quotation (C,B,Bb) (E,Eb,D) and (A,Ab,G) at the original pitch levels (last measure of the first system in example 4-25). More importantly, the horns, trombone and trumpets achieve a poignant modulation from the operative {F,E,Eb} trichord (which introduced the quotation at rehearsal No. 23 and ends the quotation at rehearsal No. 26) to the {E,Eb,D} trichord of the opening.

This modulation is achieved at rehearsal No. 26 through the superimposition of a sustained D in the second Horn and the simultaneous occurrence of {F,E,Eb} and {F,E} chromatic motions in the trumpet and trombone respectively. The last notes in each dyad are sustained creating a final [012] sonority comprised of the pitches {E,Eb,D}. This motion is accompanied by an obvious reference to the other chromatic trichords that were featured at the opening. {C,B,Bb} appears in the flute line. Furthermore, the {A,Ab,G} trichord is restated following the excerpts represented in the example. Thus, the trichordal levels of the opening are reinstated immediately prior to the reintroduction of the Mahler quotation that contains them.

In order to create a seamless transition from one quotation to another, all of the above-mentioned techniques of modulation can occur simultaneously. A clear example occurs in the section that corresponds to the first scherzo reprise in the third movement of *Sinfonia* (G17 to I6, mm. 147-187). During this section (represented in Example 4-26, Berio achieves a complete transition from Mahler's *Scherzo* to a full texture quotation from Stravinsky's *Le Sacre du Printemps, Danse de la Terre* (No. 75, m. 11). The transition is completed by H16 (m. 170). The modulation is achieved through textural dispersion/emergence, supported by pitch convergences, chromatic insertion and rhythmic plasticity.

Example 4-26 (which provides a comparison between Berio's score and the underlying material from Mahler's *Scherzo*) demonstrates how rhythmic plasticity and added chromatic layers contribute to saturate the texture immediately before the full transition takes place (beginning at H12, m. 166). The rhythmic plasticity in this example is achieved through heterophony (which refers to the simultaneous rhythmic displacement of the same material in several voices, see staves 2 and 3 of the Berio portion of Example 4-26, corresponding to the upper string parts). The ubiquitous chromatic lines in the lower strings also contribute to accelerate the rhythmic momentum. Thus, immediately before the beginning of the quotation from Stravinsky's *Le Sacre* (on the second beat H 15, m. 169), its accelerated rhythmic profile has been prepared by the 32nd-note rendition of Mahler's figuration in the violin A at m. 168, and 32nd-note chromatic lines in Violins A and C on the first beat of m. 169 (see the fourth stave of Example 4-26). Furthermore, as Example 4-27 demonstrates, in m. 169, a highly chromaticized version of Mahler's figuration in the saxophone and the violin B (in faster

note values) constitutes a concrete bridge of chromatic proliferation that links the *Scherzo* to the Stravinsky pitch world.

Another type of conceptual link can be created by the gamut of the chromatic scales that achieve the modulation. From G19 to I5 (mm. 149-188), the added chromatic layers that gradually permeate the whole texture originate in Mahler's *Scherzo* itself.⁷ As in the other examples, they are expanded far beyond their original scope in both range and texture. The gamut of the chromatic lines throughout this section is significant in the process of modulation, because it emphasizes the register of the Stravinsky quote that is the goal of the section. In spite of the fact that the chromatic gamut of the section preceding the modulation extends in the lower register to G1, the chromatic lines emphasize a lower boundary of C2 (the lowest note in the Stravinsky quote) through emphasis on its upper and lower neighbors, B1 (m. 166) and Db2 (m. 164). More importantly, the upper boundary of the gamut of the chromatic scales (Bb5) coincides with the upper boundary for all of the material in the Stravinsky quote, except for the chords that end the section. The importance of this upper boundary is underlined by the fact that the only appearance of the pitch B5 in the whole section is as a brief appoggiatura at *H 9* (m. 163). Thus, it becomes clear how chromaticism introduces the textural and pitch world of the quotation from *Le Sacre* that follows. The chromatic wash effects a modulation from the pitch world of the Mahler quotation to that of Stravinsky, while the emphasis on a particular segment of this gamut sets up the emergence of the latter.

⁷ Significantly, this section constitutes one of the most notable examples of Mahler's use of chromatic proliferation as a form of expansion and development. In the original source, the chromatic proliferation in this section saturates the whole chromatic gamut from C3 to G6 with the exception of a single note, F#5.

Details of instrumentation (which are obscured by the reductive quality of the example) are also essential to the gradual process of modulation. The chromatic lines begin in the added instruments, such as saxophone, keyboards and the violin C, but eventually permeate the whole of the string texture, gradually upsetting the balance of original vs. added instrumentation. The process culminates as Mahler is almost completely obliterated by the beginning of the quotation from *Le Sacre* at H16 (m. 170), and remains only in its altered version in the keyboards and, briefly, in a highly chromaticized version in the saxophone (which are both instruments that are not found in Mahler's score). Thus, as in many points throughout the piece, the interplay between original instrumentation and added colors reflects the degree of distance from the surface of the thematic material of Mahler.

Following the almost complete eradication of Mahler's music by a full texture presentation of Stravinsky's *Le Sacre*, H24 (m. 178) yields a measure-by-measure alternation between Stravinsky and Mahler. The latter leads, after the ensuing quotation of the climactic chords from Stravinsky's *Le Sacre*, to the eventual reestablishment of Mahler's text. The measure-to-measure alternation between the two excerpts demonstrates the importance of pitch convergences in the process of modulation. At H25 (m. 179), the C to which the Mahler should resolve introduces the Stravinsky fragment on that pitch (the pitch convergence is illustrated in example 4-26 by dotted circles in the two pieces).

Pitch-classes C and G constitute important common tones between the underlying *Scherzo* and the Stravinsky climactic chords from H27-H29 (mm.181-183). In both excerpts, these three measures are organized by a chordal structure that features C in the

bass and G in the uppermost voice.⁸ In fact, the G that initiates the flute part at m. 183, which brings the Mahler thematic material back to the foreground, is supplied by the G an octave higher in the piccolo in the Stravinsky chords. Throughout this whole section, even though the rhythmic and durational profile of Mahler's Scherzo is maintained, the Stravinsky excerpts appear as discontinuous fragments in order to achieve these pitch connections. Thus, through the use of textural overlap, supported by specific pitch convergences, a temporary modulation to the sound world of Stravinsky's *Le Sacre* is achieved. However, the structural primacy of the *Scherzo* (which is the tonic by analogy) is always maintained in the background.

In this chapter I have demonstrated through concrete examples how the techniques of overlap, chromatic insertion and rhythmic plasticity can achieve links between disparate quotations. These techniques interact to traverse the space between contrasting musical languages, creating relationships that are akin to the sophisticated types of modulatory techniques that operate in tonal music on both a local and large-scale level. The variety and scope of the examples is reflective of the geographical and stylistic gap that these pieces present. However, the fact that the different practices can be grouped into categories that are conceptually analogous establishes a theoretical foundation for understanding the musical language of this repertoire, thus providing an essential insight into a seminal aspect of this musical style.

⁸ Example 4-26 demonstrates how these three measures in the Mahler excerpt outline a harmonic progression in c minor (see m. 183).

CHAPTER 5

Chromatic Saturation and the Significant Gap

Chromatic saturation plays a major role in determining the adjacent and simultaneous juxtaposition of excerpts in a musical collage. This chapter will examine the different ways in which it is used in the pieces that I have chosen as representative of this aesthetic. In general, its usage is non-serial and runs through a gamut of stages of complexity. On one end, aggregate completion in pitch-class space plays a major organizational role by both linking simultaneously juxtaposed disparate components within a section and enhancing the structural continuity between adjacently juxtaposed fragmented sections of music.¹ On the other end, the potential of the concept for implying various levels of structure is epitomized in the complex usage of chromatic saturation in pitch-space used in Berio's *Sinfonia*.

This range of stages of complexity locates the source of these techniques in the straightforward strictly serial manipulation of musical elements that reached its vogue in the 1950's, and in which these composers were immersed at previous stages in their careers.² Through increasingly complex usages of aggregate completion and the extension of the concept to emphasize and relate important structural and dramatic components, these composers were able to transcend their own frequently voiced objections to the mechanization and overwhelming dominance of the twelve-tone school

¹ Lambert, 1997, pp. 17, 81-88, discusses the importance of this technique in the music of Ives.

² Although in approaching this music, most writers have focused on the ways in which it diverges from the earlier twelve-tone practice found in the music of these composers, I posit the novel standpoint that in spite of the aural contrasts, these pieces constitute an extension of the musical language found in their earlier style. Morgan, 1991, p. 412 discusses relationship between the composers' serialist background and the manipulation of quotations in more general terms, without demonstrating specific technical correspondences.

of composition, while maintaining and refining, rather than negating, some of its principles.

Rochberg - *Music for the Magic Theater*

Chromatic saturation in the first movement of George Rochberg's *Music for the Magic Theater* is for the most part related to aggregate completion of pitch classes and does not operate in the realm of actual pitch space (as it does in the other pieces that we shall discuss). It plays a primary role in enhancing the sense of structural completion of many sections throughout the piece, in creating links between sections, and most significantly, in clarifying pitch relationships between spatially and adjacently juxtaposed disparate quotations, thus functioning on a multitude of levels of musical structure.

As was discussed in the previous chapter, the movement is generally composed of numerous short and contrasting sections set off by rests or clearly distinct breaks in the rhythmic momentum from the surrounding music. A general effect of discontinuity and fragmentation results from the successive juxtaposition of very distinct textures and musical languages. The most straightforward examples of chromatic saturation in this piece involve cases where this fragmented quality is somewhat abated by self-contained pitch structures organized by aggregate completion. Example 5-1 presents a reduction of the first section of music in the movement (the introduction). It consists of original material by Rochberg and is clearly set off from the music that follows by a fermata rest in all instruments except the first horn, which sustains the pitch C through the beginning of the following section. As the example demonstrates, the presentation of pitch-classes 3 and 9 (Eb and A) within the last chord that appears in the section completes the aggregate.

A similar example of this occurs in rehearsal Nos. 9-10 (Example 5-2). Once more, this newly composed section is set off from the surrounding music by contrasts of texture, instrumentation, dynamics and a distinct rhythmic treatment whereby it both arises from and disappears into a pianissimo sustained sonority. The appearance of the last pitch-classes needed to complete the aggregate, E and T (B and Bb), coincides with the last sustained sonority of the section. The discontinuous quality of the musical surface is thus ameliorated. The elements contained in these isolated sections are both set off and linked to those in adjacent sections through the sense of structural completion thus achieved.

Chromatic saturation of the aggregate can also function as a link between adjacent sections. This is the case when a single pitch is withheld and provided at the appropriate place in the following section. Example 5-3 demonstrates this process. The first Mahler quotation in the piece (first measure of the example) presents a complete aggregate except for the pitch-classes 2 and 6 (D and F#). The following section (rehearsal no. 2), which is newly composed, acts as an interruption between two originally successive fragments of Mahler and presents the pitch D as the resolution pitch of the (0,1) dyad E, Eb. This resolution is expected because of the parallel presentation of the trichords (C, B, Bb) and (A, Ab, G) in the first measure. It anticipates the parallel resolution that takes place in the following measure when the Mahler fragment resumes. Pc 6 (F#) is withheld throughout all these sections and finally occurs very prominently as the fortissimo first pitch class of the Varèse quotation at rehearsal no. 4. The overall effect of this usage of chromatic saturation is thus to provide continuity and structurally link these adjacent and strongly contrasting sections of music.

Another such example occurs at rehearsal No. 11: a hoquet-like, rhythmically free passage in the woodwinds and horn that is followed by a quotation from Mozart's divertimento. The only withheld pitch-class in the rhythmically free passage is pitch-class 5 (F), which appears prominently as the first and uppermost pitch of the tonal quotation that follows (Example 5-4). The effect in this case is that the tonal and textural gap between the sections is somewhat ameliorated by the pitch connection.

Similarly, at rehearsal No. 20, the repeating bass chords in the layer of commentary that is juxtaposed under the Mozart quotation complement the pitch structure of the quotation by presenting all but one of the pitches of the aggregate (Example 5-5). This missing pitch-class 8 (G#) appears prominently as the first major pitch-class of the next section, a rhythmically free lyrical atonal passage in the solo flute. Thus aggregate completion bridges the stylistic gap by structurally unifying what is otherwise perceived as a disjunct juxtaposition because of the contrasts in texture, instrumentation, rhythm, meter and pitch organization.

One of the most important usages of chromatic saturation in this movement, however, occurs in the sections which feature spatial juxtaposition of a quotation with commentary. Example 5-6 (which reproduces Example 3-36) presents a reduction of the music at rehearsal no. 12. The tonal quotation from Mozart's Divertimento, K. 287 is literally suspended as an arpeggiated figure is interpolated in the commentary. This figure complements the pitch-class content of the quotation. The presentation of the complete aggregate with pc 9 (Ab) both ends the interjection, and implies the resumption of the quotation. The aural effect of chromatic completion in this example is one of cohesiveness between the two disparate layers.

Example 5-7 demonstrates how aggregate completion plays a major role in the interaction of disparate layers at rehearsal no. 13. This time both layers are simultaneously spatially juxtaposed. The lower layer continues the tonal quotation from Mozart's divertimento, while the upper layer presents shrill and piercing pitches in the woodwinds and trumpets. These pitches generally occur in a higher register than those in the underlying quotation, but occasionally infiltrate the texture of the quotation. The overall effect of disjunction and disruption, however is somewhat abated by the fact that the ostinato Bb bass note (and tonic) of the Mozart quotation complements the pitch structure of the spatially juxtaposed quotation.

The layer of commentary presents every other pitch-class in the aggregate. Except for the initial gap between pitch-classes 6 and 8 (F# and G#, a gap that is restated before the appearance of the final pitch-class in the aggregate, G) all the pitch-classes are presented in ascending chromatic order. Thus, the placement of the Bb as both a melody pitch and bass note of the Mozart quotation appearing between the pitch-classes 9 and E (A and B) in the commentary, creates a sophisticated temporal synchronization between the two layers. The importance of pitch-class completion of the aggregate is made evident in that the moment of completion is emphasized by a break and a change of register in the layer of commentary as it fades out and allows for a complete reemergence of the Mozart quotation.

Significantly, this layer of commentary recurs in an almost identical form at the end of the second movement of the piece. Here it appears above a completely different tonal quotation (from the sixth movement of Mozart's Divertimento), which exhibits contrasting meter, rhythmic and textural qualities, but which is also organized by a pedal

Bb bass note. The completion of the aggregate in this instance is followed by an even clearer break than in the first movement (Example 5-8). Thus it is clear that aggregate completion provides the logic behind the spatial juxtaposition of the tonal quotation and the layer of commentary that appears above it.

Besides aggregate completion, other uses of chromatic saturation occur in this piece. In chapter three I discussed how gap completion combined with the chromatic expansion of the [012] motive to create foreground voice-leading tendencies. Chromatic saturation in pitch-space as a structural marker and link between sections, which, as we shall see, is pervasive on many different levels in Zimmermann's *Musique* and in Berio's *Sinfonia*, occurs in *Music of the Magic Theater* as well.

The section that reintroduces the quotation from Mahler that marks the beginning of the piece (the recapitulation) is structured by chromatic saturation in pitch space of a significant gap. The section has two components. The first (from No. 23 through No. 25), comprises an extended quotation from Mahler's Symphony No. 9. This quotation is followed by a section of music by Rochberg (at No. 26), which, in spite of its rhythmically free content, is perceived as a continuation of the Mahler quotation and leads naturally to the recapitulation of material from earlier in the piece. The surface continuity between adjacently juxtaposed quotation and commentary is supported by many factors. In the first place, the pitches that continue the Mahler quotation appear under the commentary by Rochberg now in a rhythmically free form (as was discussed in Chapter four). Secondly, there is a structural scheme through which the Rochberg commentary completes the significant gaps suggested by the Mahler quotation.

Example 5-9 presents a reduction of the music from No. 23 through No. 26. The flute, horn and double-bass lines present a quotation from Mahler, while the sustained pitches in the other instruments present added commentary by Rochberg. The upper boundary note of the significant gap is the C7 that is prominently featured at No. 24. The lower boundary note is the F#1 that occurs repeatedly in the lower line of the quotation. The ranges from F#1 to Bb2 and from G3 to C7 (see Example 5-10) are almost completely saturated by this quotation. The missing pitches, as represented in the example, are Bb6, C#6, G#3, G#2 and Ab1. These pitches are prominently featured in the immediately following section (the C#6 is the first pitch of the next section, and the Ab1 appears almost at the end, they are circled in the Example 5-9 for easy reference). The section also restates the uppermost and lowermost boundary pitches of the gap many times, as is represented by the dotted circles in Example 5-9. In fact, these boundary pitches comprise the last sustained notes of the excerpt. Thus, the adjacent juxtaposition of Rochberg's commentary following the quotation from Mahler's piece completes the structural implications of the latter. The quotations are united by their complementary contributions to this scheme.

The commentary made up of sustained tones that is spatially juxtaposed over the above-mentioned quotation from Mahler throughout Nos. 24 and 25 (see Example 5-9) is carefully organized through saturation in pitch space, but with a completely separate structure that through its very cohesiveness, remains distinct from the layer of quotation. Eight successive chords appear, each one resulting from motion within a chromatic dyad, trichord, or tetrachord within each voice. The eight chords can be grouped into two groups of three and one group of two (Example 5-11). This grouping, which results from

saturation of the total chromatic in pitch-class space, also coincides with pitch space saturation of a given gamut. The first three chords saturate the pitch space from F#4 to F#5; the next three saturate the pitch space from F4 to G5, and the remaining two, from F4 to F#5. Since each tone oscillates up and down by a quarter tone, the pitch space is even further saturated. The whole passage is thus symmetrical in pitch-space around C5. This is the very pitch that is sustained at the introduction of the piece (see Example 5-1), which supports the fact that the quotation over which these chords are juxtaposed functions as a preparation for the recapitulation.

On the largest scale, the chromatic saturation in pitch-space of an upper register gap (termed a significant gap because of its structural import) emphasizes the structural significance of the thematic recurrence that occurs between different movements of the piece. The upper register gap to D7, presented in the first measure of the piece (see Example 5-1) is expanded throughout the first movement by semitonal extension with presentations of Motive X at pitches E7 Eb7 D7 at No. 4 and F7 E7 Eb7 at No. 19. A gap up to G7 is presented with the shrill twelve-tone commentary layer at No. 13 (see Example 5-7). The gap (created by the absence of the pitch F#7) remains unsaturated throughout the movement. However, the recurrence of this layer of commentary (which was referred to earlier) at the very end of the second movement of the piece (Example 5-8) reintroduces the significant gap from the first movement. Significantly, the third movement begins with yet another statement of the upper boundary note. After some chromatic extension throughout the movement (G#7 and A7), the gap is finally filled with the presentation of the pitch F#7 at rehearsal No. 86 immediately before the final cadence of the movement and after a restatement of the opening of the first movement

(rehearsal No. 84). Thus, the chromatic saturation in pitch space of the gap set up in the opening movement interacts with thematic recurrence from material from the first movement to enhance the formal structure and in this way to provide closure to the whole piece.

Berio – *Sinfonia*

The different usages of chromatic saturation that appear in Rochberg's piece are extended to include every pitch of the composition in Berio's *Sinfonia*, thus creating a model for large-scale pitch organization of an inclusiveness that has rarely been described in post-tonal music. The structural model obtained by an analysis of this piece, considered by many the prototype of a musical collage, explains the combination of the dozens of musical quotations it incorporates and is based on concepts that simultaneously subvert and transcend traditional notions of unity.

The apparently disparate musical layers are related in a variety of ways, including pitch relations of exclusion (which become a paradoxical source of unity through the concept of chromatic completion). Moreover, through the use of chromatic saturation in pitch space, the model exploits the redefined concept of musical space, which the musical collage gives special emphasis to through its reliance on layering and referentiality, as the basis for structural connections that function on many different and simultaneous levels.

Thus, the apparently disparate strands of quotations that Berio includes in *Sinfonia* are closely connected by intricate pitch relationships that cannot be uncovered using conventional theoretical tools. The following discussion outlines the major features of these pitch connections and demonstrates their intimate relationship to the formal and

dramatic structure of the piece, thus uncovering surprising sources of unification and continuity.

As was discussed in chapter two, the third movement of Berio's *Sinfonia* relies heavily on formal aspects of the *Scherzo* from Mahler's Symphony No.2. Sectional boundaries and the reprise of important thematic elements constitute the motivation for the resurfacing of its material. Inserted quotations emphasize the sectional divisions. Thus, the ABACABCA formal structure of the *Scherzo* can be dimly perceived and is operative on some level in Berio's setting. This reliance on Mahler's *Scherzo*, however, constitutes only one "layer" in the analysis: the "outer form" of the piece. In fact, in spite of the numerous ways in which Berio emphasizes the structural characteristics of Mahler's piece, it is apparent that there are important structural moments that are unrelated to the *Scherzo*. The most important example on the large-scale is the inserted recapitulation immediately preceding the climax of the movement, a move that has no basis in Mahler. The following discussion will elucidate the essential structural significance of this insertion.

Similarly, on a localized level, the interaction of disparate elements, musical languages, and musical styles (including that of Mahler's *Scherzo*) is in itself significant and creates structures and associations more formally encompassing than those in Mahler's piece. The relationship between these disparate elements thus constitutes yet another layer of analysis, that of "inner form," which is of primary concern in this analysis. Without making an assumption about overriding unity or primacy of a given element, the current approach focuses on the structures created by these disparate and juxtaposed technical components, which through layering and referentiality give special

emphasis to the spatial dimension. The following discussion will demonstrate how the systematic reworking of musical space, represented by saturation in pitch space, constitutes the structural paradigm for this piece.

The concept of chromatic saturation plays a major role in determining the adjacent and simultaneous juxtaposition of excerpts in this movement. Significantly, it is an essential feature of Mahler's developmental and variation techniques in the figuration of the *Scherzo*. Thus the main structural property of Berio's work is based on an important characteristic of the main musical text he uses.

Chromatic saturation subverts assumptions of unity by positing complementation, rather than intersection of pitch-class collections or motivic similarity, as the governing criterion for combination of elements. Excerpts interact with one another to saturate specific pitch-space chromatic gamuts. Densely packed quotations, as well as misquotations of Mahler, tend to complement each other in terms of pitches and to fill in chromatic gaps. Thus, the pitch content of a given quotation, and the way it complements the chromatic content of the excerpts that surround it, determine the exact choice of the quotation to be used and its placement at any point throughout the movement. This structural model thus offers, for the first time, an explanation for the choice of quoting a particular excerpt from a composition as opposed to another.³

Examples 5-12 and 5-13 demonstrate the way in which chromatic complementation works on a foreground level to create saturated spaces. Example 5-12 extracts two excerpts that are juxtaposed through temporal adjacency in Berio's piece.

³ As I stated in the introduction, other authors, such as Osmond-Smith, have offered compelling explanations as to why a specific piece is referred to at any given time in the composition. These explanations are based on the referential connotations obtained by quoting from a specific piece at any given time, and how they relate to the text or dramatic content of the piece. However, they often fail to identify why a specific excerpt from a given piece is chosen as opposed to any other.

Example 5-13 extracts the pitches in the oboe and flute that are circled in Example 5-12 to demonstrate how Berlioz's *Symphonie Fantastique* quotation at *E 12-13* (mm. 107-108), provides two previously unheard pitches, A5 and Bb5, that registrally connect the space opened up by the Debussy *La Mer* excerpt that precedes it.⁴

Through the saturation of a given gamut, each section of music is governed by a sense of structural completion, the weight of which coincides with the functional importance of its formal boundaries. Although in nearly every section there are pitches that appear which do not constitute part of the foreground saturated gamut, these pitches become integral to gamuts at higher structural levels.

Example 5-14 demonstrates the process of chromatic saturation of the Trio I excerpt that contains Example 5-12, subdivided into its initial two subsections. The initial subsection (*E 6-E 15*, mm. 101-110) presents a fully saturated gamut from E3 to C6. Significantly, the F#3 that is provided by the misquotation of Mahler at *E9* (m. 104) provides the only appearance of that pitch in this section. Thus, it becomes apparent how Berio uses misquotations of the original material, not only to signal the degree of distance from it at the given moment, but also to adapt it to his structural scheme. The pitches outside of the chromatically saturated gamut in the lower register outline the pitch boundaries of the middleground structure (D2) and the background structure (E1) respectively, while the gap created by the missing C#6 in the upper register signals the incomplete structural function of the section.

⁴ The columns in Example 5-13 represent measure numbers. The rows in the example represent pitches laid out chromatically in pitch-space, with the lower pitches appearing at the bottom and increasing by a semitone with each successive row. The numbering system that I have used is that in which C4 represents middle C; the shaded areas represent the measure where a specific pitch first appears in the excerpt and the roman numerals over the shades indicate which quotation provides the particular pitch.

The following subsection complements this scheme in significant ways. The chromatic scales that appear in the second subsection (*E15- E25*, mm. 110-120, Example 5-15) both reiterate the gamut of the initial subsection by emphasizing the pitches E3 and C6, and saturate the middleground gamut it outlines in the lower register (down to the pitch D2). Simultaneously, quotations from Ravel's *La Valse* (No. 19) provide the C#6 that was missing in the first subsection and open up a middleground upper boundary (a significant gap) to the pitch A6. The eventual saturation of the gamut up to this new upper boundary pitch provides structural completion to the whole section that contains this excerpt and introduces the first scherzo reprise. Although local sections of music saturate gamuts, it requires the combination of structurally linked local sections to achieve the saturation of a middleground significant gamut. Thus, it is rarely the case that a local section will contain a chromatic gamut that is equal to that of the section as a whole.

Through the concept of the significant gap, the pitch organization reaches a high level of sophistication. Expectations of completion through the presentation of a specific pitch or the saturation of a given gamut are both possible and used in such a deliberate manner that distinct structural levels are obtained through gaps that clarify important local and large-scale formal boundaries and dramatic shapes. These structural levels are based on a hierarchical system intimately connected to pitch space and range. The system constitutes the pitch criteria for large-scale coherence and elucidates the structural import of the different sections of the movement.

In this way, elements of twelve-tone composition (represented in the concept of aggregate completion) extended to pitch space and structures akin to those of traditional

voice leading interact to create a large-scale pitch organization of an inclusiveness that has rarely been described in post-tonal music. Every pitch in the movement contributes to the model. Furthermore, the interaction between the pitch structures and the formal organization of the piece on a large-scale, demonstrates both the depth of the formal reliance on Mahler's *Scherzo* and the importance of the inserted recapitulation, which constitutes the major formal deviation from it.

The graph in Example 5-16 summarizes the structures formed by chromatic saturation and the significant gap and their function on three different structural levels. The ABACABCA formal structure of Mahler's *Scherzo* and the inserted recapitulation constitute the main subsections in the large-scale pitch organization of the movement. The significant gaps and chromatic gamuts within these sections constitute pitch relationships that substitute for the obliterated and transcended tonal language of Mahler's *Scherzo* in creating innate links that give depth as they interact with the superficial structures created by thematic recurrence. Simultaneously, the pitch structure of the piece emphasizes the dramatic outlines of its large-scale directed tension spans through chromatic expansion of the boundaries.

Example 5-17 provides a key to the notation contained in Example 5-16. As Example 5-17a illustrates, unfilled noteheads provide the boundary pitches of fully saturated spaces within a section. Example 5-17b demonstrates that when they are connected by a thick spiral, they represent actual chromatic clusters in the music. Filled noteheads above and below the fully saturated gamuts (as represented in Example 5-17c) represent significant gaps that are linked with a slur to the unfilled notehead that represents the moment when the gap is filled. Filled noteheads in parenthesis represent

missing pitches, and are linked by a dotted slur to the place where the pitch finally appears. This is illustrated in Example 5-17d. Finally, as Example 5-17e demonstrates, lines connecting noteheads represent large-scale extensions of the overall boundary notes through chromatic expansion in both the upper and lower registers.

Formally, the background graph (lower two staves of Example 5-16, extracted in Example 5-18), demonstrates how the complete saturation of the significant gap from Eb7 to Ab7 constitutes the primary structure of the piece. This is achieved by the systematic presentation of each of the encompassed pitches as background upper boundary notes, culminating with the presentation of E7 as the background upper boundary in the recapitulation of the movement.

The pitch E7 appears briefly during Trio I (B) in a chromatic scale that saturates the background gamut to the boundary pitch A7. Similarly, it constitutes part of a chromatic scale in the second scherzo reprise, which saturates the gamut to the boundary pitch F#. Not until the reprise of Trio II, where it contributes to saturate the gamut to the upper-boundary pitch F7, does the pitch E7 appear independently of a chromatic scale. By this time, it is apparent that a large-scale scheme has been laid out through which the gap from Eb7 to Ab7 (first extended by a semitone to the pitch A7), is gradually and systematically filled in by successive chromatic pitches appearing as background upper boundaries (G7 from the first scherzo reprise through Trio II, F#7 during the second scherzo reprise, and F7 during the reprise of Trio I and Trio II). This scheme reaches its culmination in the recapitulation. At this point, the gap from Eb to Ab of the beginning is restated, but is immediately followed by the pitch E7. This pitch thus takes up its post as the background upper boundary through a literal semitonal extension of the previously

operative Eb7. In this way, the significant gap from Eb7 to Ab7 is finally saturated on a large scale.⁵

Subtle details on the foreground and middleground levels within this model emphasize the significance of this structure. For instance, throughout the first section of the movement, which corresponds to the introduction and the initial presentation of the scherzo (A), the gap from Eb7 to Ab7 is filled with the exception of the pitch E7. Thus, the significance of the appearance of this pitch and the concurrent saturation of the initial gap are established and replicated on a foreground level. Throughout this section, the registral and pitch specific structural gaps are emphasized by textural and coloristic treatment. The Ab7 initially appears as a sustained harmonic that is separated in color and texture from the main body of the piece. From A20-A24 (mm. 27-31), this harmonic expands chromatically into a harmonic cluster that progressively absorbs the pitches G7, Gb7 and F7. Thus, the conceptual gap is further emphasized by color and texture considerations. When the gap is finally filled later in the piece, these textural distinctions disappear as well.

The background lower boundary notes also emphasize the essential structural function of the recapitulation. In the opening section of the movement, a gap from F#1 to C1 is set up. This gap remains unsaturated until the transition to the second scherzo reprise (which is an important structural boundary in Mahler's Scherzo, signaling the moment when all the main components of the movement have been presented). At this point, the gap is finally filled in by the presentation of the pitches D1 and Eb1 (Example 5-19).

⁵ Significantly, as can be seen in Example 5-19, there is a parallel symmetrical process through which the middleground boundary notes rise chromatically from C7, C#7, D7 and finally reach the Eb7 of the recapitulation.

In the recapitulation, this structural process is presented in a condensed form by an F#1 to C1 chromatic motion in the bass (Example 5-20), which constitutes an important gesture that connects the recapitulation and leads to reestablishment of Mahler for the climax of the piece and the reestablishment of C1 as the principal lower boundary note.

Immediately following the recapitulation, the harmonic rhythm of the movement slows to an unprecedented degree as the process of saturation of a gamut extends over larger portions of music. The sense of completion achieved by the recapitulation is illustrated in the timing of the saturation of its gamut (Example 5-21). The C1- E7 gamut outlined in the inserted recapitulation (*AA1-AA14*, mm. 488-501) is not completely saturated until the final scherzo reprise. This final scherzo reprise functions dramatically like a coda, or an echo that dissolves the built-up tension. The gap in the upper register to E7 only reaches chromatic saturation with the presentation of the pitch A6 at *EE10* (m. 559) in a quotation from Webern's *II Kantate* (Op. 31, Mov. 5), immediately preceding the final scherzo reprise. A similar situation occurs with the lower boundary. C1 is presented at the climax of the piece, m. 502. Chromatic saturation of the space it outlines, however, does not take place until FF8 (m. 575) with the appearance of the pitch Bb1 as the final scherzo reprise evaporates.

Thus, the recapitulation provides large-scale closure to the piece as it fulfills the structural expectations set up by the pitch structure of the initial sections, while it introduces boundary pitches of a gamut whose gradual saturation coincides with the ending. In this way, the recapitulation both clarifies and resolves the large-scale structural implications of the piece in a way that is analogous to processes that occur in tonal music.

Each of the structural background boundary notes Ab7 and C1 are expanded by chromatic motion of two semitones in the corresponding direction during the course of the piece. The pitches B0 and Bb0 extend the gamut of the piece as a whole in the lower direction as do the pitches A7 and B7 in the upper direction (Example 5-22). With the exception, of the pitch A7, none of these pitches function as middleground or background boundary notes. Thus, it is only by viewing the piece as a whole that they fit into the pitch structure of the piece and achieve their function. The range from Bb0 to Bb7 constitutes the total chromatically saturated gamut for the piece, and this gamut would provide the ultimate reduction of the background structure of the piece. Since these chromatic extensions of the background gamut have no middleground function, their significance to the background structure of the piece becomes the focus of attention.

Significantly, it is the goal directed motion and dramatic contours of the piece that motivate the appearance of these background chromatic extensions of the gamut. The gradual build-up of tension that occurs from the beginning of the piece through the initial appearance of Trio II is accompanied by the chromatic extension of the background upper-boundary note from Ab7 to A7. The temporary dissolution of built-up tension during the course of Trio II, which leads the piece to its nader point, is accompanied by the chromatic extension of the lower-boundary pitches by two semitones to the pitch low point of the piece.⁶ Finally, in a move that seals the significance of these chromatic extensions, immediately following the structural completion achieved by the recapitulation in Berio's piece, the climax is reached through a quotation of Mahler's climax, which extends the upper-boundary note for a final time from A7 to Bb7, the

⁶ The B0 appears in the contrabassoon as part of the cluster (*M 15*, m. 269). The Bb0 appears in the same instrument at the local climax created by the Ravel *La Valse* quotation during the second statement of theme n (*O 9*, m. 303).

highpoint of the piece. Evidently, the dramatic contour of the piece is emphasized by its pitch structure through the concept of chromatic extension.

The large-scale goal directed motion of the piece also correlates to and is emphasized by parallel processes in the harmonic rhythm (which describe the rate of formation of a fully saturated gamut). Clusters represent the maximum extreme of this trend and occur both accompanying the build-up to the avoided climax in the initial presentation of Trio II and the actual occurrence of the climax in the piece following its reprise. The slowing of the harmonic rhythm following the climax has been described above. Similarly, the second half of Trio II (*N-R10*, mm. 270-356), which leads the piece to its climactic low point, parallels the dispersion of energy of the avoided climax with a marked deceleration in the harmonic rhythm. From *N-Q7* (mm. 270-333), the pitches outlining the upper boundary *C7* are repeatedly referred to. However, only in the last section of the Trio, from *Q8-R10* (mm. 334-356), is the gap finally saturated, through the presentation of the pitch *F6* (m. 348).

The aleatoric passage in this movement of *Sinfonia* is brilliantly introduced at a point where it can only modify the background structural paradigm that has been set up to a very moderate degree. It appears immediately preceding the final scherzo reprise, where, as described above, the background structure of the piece has achieved completion and only two pitches are required to complete the governing gamut that will give the piece final closure. This gamut (*C1* to *E7*) is large enough to accommodate most passages of music. If either of the missing pitches (*A6* or *B1*, which are pretty extreme) were presented by the included aleatoric passage (specified as a passage from a piece that follows *Sinfonia* in the program), it would only accelerate the chromatic completion by a

few measures. If, on the other hand, the aleatoric passage were to include pitches beyond the governing gamut, it would only create a new significant gap that would conceptually relate this piece to the piece that would be heard later in the program.

The most striking element of the pitch organization of this movement involves the clarity of distinction in structural levels that it is possible to achieve through the concept of the significant gap. Thus, though on a background level it is clear that the structural pitch organization of the movement is defined by the gap from Eb7 to Ab7 and the expectation of the saturation of that gap through the presentation of the pitch E7, as described above, the subsections within this music also demonstrate completely organized pitch structures that illustrate the correlation between structural completeness and the saturation of a significant gap in a compelling way.

For instance, the first subsection of the initial scherzo (W, mm. 1-61) is governed by a significant gap in the higher register that is presented in the first chord of the movement (Example 5-23). The latter consists of a chromatic cluster from G3 to E5 that saturates and verticalizes the first two chords of Schoenberg's *Five Pieces for Orchestra*, Op. 16, No. 4 "Peripetie" (Chords A and B, Example 5-24). Berio clearly distinguishes the separate components of Chord A and B through reference to Schoenberg's original instrumentation. As in Schoenberg's original, Chord B is given to the brass and Chord A is given to the strings, while the percussion, strings and woodwinds chromatically saturate the gamut. Above the chromatic cluster, there is another layer, which consists of notes from the C Major/minor scale (the tonality of the *Scherzo*) and extends to the pitch Eb7 (the lower boundary note of the background significant gap).

The final saturation of the gap from E5 to Eb7, with the presentation of the pitch C7 (in a quotation in the solo violin from Berg's *Violin Concerto at C 15* (m. 57), coincides with the ending of the first half of Section A of the *Scherzo* (Example 5-25, the excerpt from Berg is represented in Example 5-26). The way that the excerpt arpeggiates up to the pitch C7, thus subtly reaching into the upper register as the section ends, makes the choice of this excerpt particularly satisfying to the listener. In this way, the saturation of the initial significant gap of the movement coincides with the end of the first major subsection. The Eb7 is the upper boundary note of a significant gap operative in the middleground structure.

It is even possible to further subdivide this section through the concept of the significant gap. At B5 (m. 37), the Hindemith excerpts expand the cluster that appears at B (m. 33) in the upper direction. Except for the C7, they eventually saturate the space up to the D a major seventh above the previous limit (D7, see the foreground graph of Example 5-25). Thereby, the upper register space opened up by the first sonority of the piece is for the first time partially subjected to chromatic saturation. The reference to and partial saturation of the initial gamut coincides with the end of the repetition of theme a in the Mahler *Scherzo* and introduces the section of contrasting material. Thus, partial chromatic saturation provides a measure of structural completion on a localized level.

Significant gaps in the lower register also contribute to the process. Throughout the first section of the initial scherzo, the saturation of the gap down to F#1 (subsequently expanded to F1) becomes a middleground event through the fact that no one subsection contains a fully saturated gamut down this pitch. Only by viewing the section as whole is a fully saturated gamut reached. The process culminates with the presentation of A2,

Bb2 and B2 at the densest textural moment in the first section of the piece (the local climax and midpoint of the section) from *B* to *C* (mm. 30-42). As Example 5-25 demonstrates, the pitches F#3 and A3⁷, which are missing in the beginning and end of the section respectively, provide a further a structural link to the music that surrounds the midpoint.

The graph in Example 5-16 provides clear evidence that the correspondence between the saturation of a significant gap and important structural boundaries continues throughout the movement. As in the initial subsection of the opening scherzo (*W*), discussed above, it is often the case that the particular missing pitch is presented by a quotation that is inserted towards the end of the section. The correlation between structural completeness and final saturation of a gap through the presentation of a specific pitch thus demonstrates the essential technical role of a particular excerpt and its placement within *Sinfonia*.

A clear example of this occurs in the second part of Section A (*W'*, *C20-E5*, mm. 62-100, extracted in Example 5-27). This section continues to be structurally organized by chromatic saturation of a given gamut, even though the gamut is not expressed literally through clusters as it was in the previous section. A quotation from Ravel's *La Valse* (*D9*, m. 74) and the octave displacement of Mahler's *Scherzo* material in the flute (*D10*, m. 76) open up (without chromatically filling in) the higher boundary to Ab6. The gap is emphasized when the Ab6 is once more traced by a transposed version of a quotation from Ravel's *Daphnis and Chloe* No. 176, m. 4.⁸ The missing F#6 is provided

⁷ The appearance of A3 results, significantly, from the alteration of the A from Mahler's original for Ab in m. 59

⁸ The transposition of this quotation down a semitone from the original can thus be explained by the upper boundary pitch that it establishes.

by a quotation from Debussy *La Mer* at *E 2* (m. 98, Example 5-28) in the last few measures of the section. Thus, once more, quotations provide completion to a harmonic structure that has been carefully set up to govern the section.

The compelling structural power of this system is demonstrated by the existence of sections where more than two levels of structure occur simultaneously. The most important of these sections is the passage at m. 188 that achieves the transition between the first scherzo reprise and Trio II. True to its nature as a transition, the passage both literally provides structural completion to the previous section while it sustains a significant gap that is to be saturated in the next section. As can be seen by the graph in Example 5-16, the first scherzo reprise (m. 146) presents three different boundary notes, G6, C7 and G7 (this section of the graph is extracted in Example 5-29). The most local gap, which achieves completion in the transitional section that follows, is the gap up to G6. The saturation of this gap is achieved by the presentation of the missing pitches, B5 and F#6, which are the last pitches to appear in the transitional section and correspond exactly to those that were missing to fill the gap in the Scherzo reprise; thus, the transition can be seen as a structural extension of the Scherzo reprise, which culminates when the gamut to the upper boundary of G6 is finally filled.

Above it, the middleground gap up to C7 is initially referred to in the last chords of the Scherzo reprise. This C7 is held as a sustained note throughout the transitional section that follows and becomes the upper boundary of a cluster at the beginning of Trio II. The final gap presented in this first scherzo reprise is that up to the pitch G7, which constitutes the background upper boundary for this whole section through the second scherzo reprise. These structural pitches receive distinctive treatment in the manner of

their presentation. The chords that end the scherzo reprise (quoted from Stravinsky's *Le Sacre*) emphasize all three important upper boundary tones. The sustained middleground upper boundary pitch, C7, is quoted from Mahler's *Scherzo*, and the gap it outlines is literally and immediately filled when it becomes the upper boundary of the chromatic cluster that occurs at the beginning of Trio II.

Other aspects of middleground organization show the power of this system to provide significant structural links on different structural levels. For instance, it is often the case, as in the transitional section discussed above, that significant gaps provide pitch relationships between adjacent sections, when a pitch initially appearing as a gap becomes the operative upper boundary of a significant gap in the following section. Thus, for example, the Bb6 at *D II* (m. 76) anticipates the foreground upper boundary note for the Trio I that follows.

Furthermore, large-scale and middleground upper boundary notes are often separated by an octave from the foreground sectional gamuts that they contain. For example, throughout the first subsection of the initial scherzo (W), the upper boundary notes of the clusters are Eb6, an octave below the middle-ground upper boundary pitch Eb7. Likewise, the second section of this initial scherzo has an upper boundary pitch Ab6, an octave below the background upper boundary pitch Ab7. Similarly, the first scherzo reprise presents a foreground upper boundary pitch G6, which is an octave below the background upper boundary pitch, G7.

The lower boundary pitch of a given cluster is often reinforced through its appearance as a bass note an octave below. For instance, the background extensions of the chromatic gamut through the presentations of the pitches E1 (mm. 104, 270) and B1

(m. 269) are bolstered by foreground gamuts with lower pitches octaves above them. Likewise, in the initial section of the piece (Section A), the background lower boundary note C1 is reinforced through the foreground lower boundary note C4, and the implication of middle-ground lower boundary pitches C3 and C2, by chromatically dense spaces above them.

Local events sometimes prepare important structural configurations. The Electric Organ part at *K 10* (beginning of Trio II) presents a chromatically saturated cluster from C1 to C7. In the graph, this cluster is represented as foreground event, because of limited appearance of the encompassed pitches.⁹ Thus the lower boundary is represented as a significant gap that restates the gap presented earlier in the piece. However, it becomes a middleground lower boundary that is extended during the course of Trio II.

Thus, the chromatic saturation of a given gamut provides the motivation behind the combination of excerpts that do not otherwise relate in an obvious way through motivic or pitch similarities. The gamuts and boundary notes of these chords in adjacent sections interact to create important structural relationships that interact with and emphasize the formal and dramatic structure of the piece.

Zimmermann- *Musique pour les Soupers du Roi Ubu*

The potential for chromatic saturation in pitch space to constitute the main structural paradigm for a whole movement is confirmed by a discussion of the last movement of Zimmermann's *Musique pour les Soupers du Roi Ubu*.

⁹ The graph in Example 5-16 at several points interprets pitches appearing as part of a discrete chromatic entity (such as a scale or cluster) as functioning on a different structural level than those appearing independently of a chromatic entity.

Broadly speaking, the movement is composed of the alternation of two sections of music, comprising materials from Berlioz's *Symphonie Fantastique* and Wagner's *Die Walküre* respectively (see Example 5-30, which reproduces Example 2-12). The first 65 measures of the piece (which constitute an introduction) feature the alternation of introductory material from both pieces. The A section (mm. 1-24, 27-30, 35-42, 50-65) comprises material derived from the introductory timpani roll of the fourth movement of *Symphonie Fantastique* spatially juxtaposed with a relentless ostinato chord from Stockhausen's *Klavierstücke IX*. The B section (mm. 25-26, 31-34, 43-49) is composed of quotations of the introductory semitonal oscillation theme from Wagner's *Die Walküre*. The introduction ends with the appearance of the main theme from Wagner's piece at m. 66.

The appearance of this main theme thus initiates the main body of the movement. It features the spatial juxtaposition of the previously adjacently juxtaposed sources (including material derived from Berlioz, Stockhausen and Wagner) from mm. 70-75. At m. 76, coinciding with the end of the main theme of the Wagner quotation, the process of layering reaches its highpoint with the introduction of an additional layer of material, the quotation of the *Dies Irae* as it appears in the last movement of *Symphonie Fantastique*.¹⁰ This quotation prepares for the ensuing full texture quotation of the main theme from the fourth movement of *Symphonie Fantastique* in m. 80. The appearance of the quotation from *Symphonie Fantastique*, thus fulfills the expectation set up from the very beginning movement by the timpani drum roll and delayed by the various interjections of material from *Die Walküre*.

¹⁰ The accompaniment to the quotation of the *Dies Irae* clearly draws from the accompaniment in the original source (especially in terms of rhythmic content because of the emphasized upbeats). However, in terms of pitch organization the accompaniment notes are drawn from the Stockhausen chords).

The movement continues with an alternation between full-texture quotations from both pieces. At m. 96, the material from the four opening measures of the piece, intensified by the addition of an organ pedal, added doublings in the piano, percussion instruments, and an enhanced dynamic content, returns. It is incessantly repeated without variation until the piece ends, without reaching closure. The two most striking structural moments of the piece thus are the section of music from m. 76 to m. 79 (represented in Example 5-31), which presents a spatial juxtaposition of material from the three sources used in the movement and introduces the quotation of the main theme of the fourth movement of Berlioz's *Symphonie Fantastique*, and the final section of the piece, which restates the material from the opening.

The following discussion demonstrates how chromatic saturation organizes the pitch structure of the movement by emphasizing the structural function of the various components. Example 5-32a presents the first four measures of the piece. Example 5-32b illustrates the gap created by the added newly composed double bass figure with respect to the pitch range set up by the Stockhausen chords and the drum roll from Berlioz. The meandering chromatic ascending motion of the double bass figures that underlies the A section throughout the introductory section (Example 5-33), begins the process of filling in the gap set up by the opening material.

The B section (beginning on the upbeat to m. 25, Example 5-34) is initially related to the opening material through chromatic complementation.¹¹ As Example 5-35 demonstrates, the first few notes of the Wagner quotation contribute to fill in the pitch space outlined by the opening. However, the quotation immediately proceeds to expand

¹¹ In Chapter four I describe how the pitch convergence on F# and G between the two quotations creates a harmonic pedal point that ties the two contrasting sections together harmonically, in spite of the otherwise distinct pitch content.

the range in the upper register. The subsequent alternation between the two sections continues the process of chromatic saturation of the opening pitch space and expansion of the pitch space in the upper register. It is very significant that some of these pitches are provided by rearrangements in registral space of the Stockhausen chords from the opening and the progressive chromatic ascent of the newly composed double bass line, both of which are elements that also contribute to intensify the dramatic direction of the piece.

Example 5-36 represents the F#1 to D7 pitch space that is outlined and almost completely saturated by the material presented through m. 76 (which, as was stated previously, is an important structural moment where the main theme of Wagner's piece ends, and all of the previously adjacently juxtaposed materials are spatially juxtaposed in order to introduce the quotation of the main theme from the fourth movement of *Symphonie Fantastique*). As Example 5-36 demonstrates, the pitches that have not been presented are C7, Bb6, Bb5, Bb 3, E2, and Ab1. Clearly, the pitch-class Bb gains special significance by its absence in many registers. In fact, the Bb4 was only reached in m. 76 as the final pitch of the main theme of *Die Walküre* in the trombone, trumpets and horns.¹²

Example 5-36 illustrates how, with the important exception of Ab1, all of the missing pitches are presented in the ensuing full texture Bb Major quotation of the main theme from *Symphonie Fantastique* (see Example 5-31). The Bb6 and C7 are provided by the quotation from Berlioz only because Zimmermann adds a piccolo part to the original

¹² In Chapter four I describe this A# as a convergence point that is essential to the transition between the two excerpts.

quotation. Thus it is clear that the chromatic saturation of a given pitch space organizes the juxtaposition of these two themes at a critical structural moment.

Example 5-37 illustrates how the quotation of the *Dies Irae* from mm. 76-79 (see Example 5-31) opens up a new significant gap down to the pitch C#1. This new gap is filled only with the presentation of the pitches C1, D1, E1 and F#1 as part of the organ pedal that is sustained over the last section of the piece. This organ pedal, which coincides with and is added over the recurrence of the material from the opening of the piece, thus provides the exact pitches that fill the structural scheme. Thus, the two main structural moments of this movement are organized by the concept of chromatic saturation of a given pitch range in the upper and lower registers respectively.

The concept of the unsaturated significant gap is essential to the aesthetic content of this piece, embodying the perceived lack of closure. As was described earlier, the only pitch that does not conform to the large-scale structural scheme of the movement is Ab1. The absence of this pitch throughout the movement creates a significant gap that is set up from the very beginning of the piece. The first four measures of the movement (represented in Example 5-32a) feature the repeated figure {F#,G,A,Bb} in the double basses. This figure, which is apparently newly composed by Zimmermann, comprises a chromatic structure with a significant gap, created by the absence of the pitch Ab1. The significance of this gap is sealed by its reappearance at the end of the movement. The double bass figure returns and is incessantly repeated over the last section of the movement, and in fact ends the piece, thus contributing to the aesthetic lack of closure that is so important to the perception of the piece as a whole.

Critical comments from Berio, directed at the “formalism and escapism” of the twelve-tone composition school in which he was trained,¹³ have led commentators to justify analyses of his music that outline very generally the aesthetic and dramatic effects of the composition, thus “emphasizing [Berio’s] fundamental preoccupation with poetic and dramatic clarity and his concomitant rejection of musical ‘systems’ meant to be discovered, discussed, and heard as such from the listener’s point of view.”¹⁴ Significantly, the composition of *Music for the Magic Theater* also coincided with Rochberg’s aesthetic rejection of the dominance of the twelve-tone school.

It is the mechanization of the twelve-tone system to which these composers objected, the use of the system without a deeper preoccupation with underlying links and the subjection of the artistic imagination and its product to routine processes of composition and analysis.¹⁵ The task of the analyst, likewise, is not merely to extract pitch patterns, but to understand the relationship of these patterns and the structures that they form to the dramatic content of the work. Rather than discredit the interpretations that have been reached through the careful study of the textual relationships and extramusical associations, this analysis seeks to shed further light on these relationships

¹³ “Shuffling notes with the illusion that one is dealing with the formation of music is like using words like “peace” and “freedom” in speaking about Vietnam without touching the underlying relationships that constitute the real and horrifying meaning of that rotten war.” “A theory cannot substitute for meaning and idea: a discrete analytical tool can never be turned to creation by dint of polishing and perfecting it. It is the poetics which guide discovery and not procedural attitudes; it is idea and not style.” (Luciano Berio, “Meditation on a Twelve-Tone Horse” *Christian Science Monitor* (July, 1968): Home Forum Page).

¹⁴ Flynn, 1975, p. 420.

¹⁵ “What I’m against is the use of serialism in the abstract sense...it becomes a sort of immobile, static world revolving around itself.” (Berio, 1976, p. 548). “Never has the composer come so dangerously close to becoming an extraneous or merely decorative figure in his own society”; they occupy themselves with “the assembly-line production and collection of well-made, cleverly musical objects.” (Berio, 1968, Home Forum Page).

by demonstrating how elements (textual and technical) function within the structure of the piece to contribute to its dramatic content.¹⁶

The structures created by the interaction of disparate elements in the different pieces discussed in this chapter clearly owe their underlying conception of aggregate completion to the twelve-tone system. More importantly, however, they rework this concept through a new emphasis and systematic exploitation of the spatial dimension that the collage aesthetic brings to the fore. These structures are not merely formalistic, but carry a much deeper connotation. The concept of harmonic progression has been related to the Aristotelian principle that the “Imperfect by nature strives for the Perfect”¹⁷ Structures such as those described above, which exploit the implications of a significant gap and its systematic saturation, clearly embody this principle. Thus, the composers’ goal of contributing to the “invention and elaboration of patterns of expectations...creating modes of conditioning and perception,”¹⁸ is clearly realized.

It is not the structure that motivates the relationships, but the nature of the relationships, the contrast between the disparate components in itself, that consolidates the structure of the pieces, which complements the poetic and dramatic content of the work in creating a pattern of expectation that transcends mere formalism. Through the use of chromatic saturation, collage composers were able to resolve what Max Paddison calls Adorno’s “modernist dilemma”: “How to construct a unity which does not conceal the fragmentary and chaotic state of the handed-down musical material, and yet which

¹⁶ In Chapter two I discussed ways in which the text of the movement correlates to and emphasizes important dramatic and formal boundaries of the music.

¹⁷ Carl Dalhaus, “Ist Rameaus Traité de l’harmonie eine Harmonielehre?,” *Musiktheorie 1* (1986): 126.

¹⁸ Berio, 1968, Home Forum Page.

does not simply mirror fragmentation through identification with it, but which is able to embody, negate, and transcend it.”¹⁹

¹⁹ Max Paddison, *Adorno's Musical Aesthetics* (Cambridge: Cambridge University Press, 1993), p. 158.

CONCLUSIONS

The Musical Collage and the Postmodern Debate

During the last forty years the use of musical quotations and the juxtaposition of contrasting styles have become overwhelmingly common in both concert and popular music. This has created an unprecedented level of heterogeneity in the musical language. The disruption of traditional concepts of time and space, which is epitomized by this practice, is central to the postmodern aesthetic and has placed this repertoire at the core of the discussion of postmodernism in music.¹

Since analytical models are based on the concept of unity, any attempt to analyze this music brings to the forefront one of the dominant issues of the postmodern discussion: that of the applicability of the conception of unity as a necessary characteristic of a musical language and as a prefabricated model which is imposed on a piece of music when it is heard or analyzed.² Clearly, in many of these works, the disruptions are obvious and constitute an essential characteristic of the musical fabric. Both the quality and effect of the disruptions created by the juxtapositions, however, are unique to each piece and constitute an essential part of the expressive quality of the music. Thus, in order to approach this music it is necessary to understand the elements that constitute the expressive quality of this music. This leads to two fundamental questions: What is the relationship between the disparate components in this music?

¹ Judy Lochhead presents a summary of the scholarship that has emerged dealing with this repertoire in the context of postmodernism, discussing it within three different categories: English-language writing about popular music, German-language writing about concert music, and English-language writing about concert music. "Introduction," in *Postmodern Music/Postmodern Thought; Studies in Contemporary Music and Culture*, v. 4, ed. Judy Lochhead, Joseph Auner (New York and London: Routledge, 2002), p. 1.

² Kramer, 2002, p. 14 and 1995, pp. 11-33.

What analytical tools should be used to approach such works? Precisely by addressing these questions, the current study seeks to create a technical model for the analysis of this music.

As was described in chapter one, the music written since the 1960s that is based on preexistent music covers a wide range of styles and approaches, ranging from works that incorporate a single quotation to those that seek to emulate an earlier style without quotations. The present study seeks to understand the relationship between disparate elements in a given composition. The musical *collage* epitomizes the practice of musical quotation and stylistic disjunction. By choosing pieces that work within this aesthetic, were composed during the same time period and span a wide stylistic gap and geographic range, the current study seeks to provide an adequate sample of the musical languages that resulted from the prevalent use of musical quotation during the 1960s, when this practice first became pervasive. Since the existing literature on this repertoire focuses mainly on the referential implications of the practice of quotation, the current study purposefully stresses the technical implications.

The principal achievement of this study is that it demonstrates that in spite of the obvious contrast between the disparate elements these pieces include, the musical language of these works incorporates several common techniques for linking musical quotations. In the first place, chapter two demonstrates that the underlying structure of these works is often tightly controlled, in stark contrast to the apparent shapelessness implied by surface disjunctions. This is not to say that the underlying unity overcomes the surface disjunctions, but that there is interplay between the two that is essential to the character of these works. On the other hand, one of the most important findings in this

chapter is that the technique of collage, besides creating surface disjunction, can also create new continuities on all levels of musical structure. Furthermore, in its discussion of the role of the quotation from *Wozzeck*, this chapter presents an example of how an understanding of structural relationships that exist between disparate materials can interact with the purely referential connotations to create deeper and more interesting layers of meaning.

Chapter three demonstrates many local and large-scale motivic connections between disparate materials. These are represented by transformational graphs. One of the main findings of this chapter is the preponderance of T5 and T7 relationships in the vertical realm and T1/T11 connections in the linear (horizontal) realm. Rather than demonstrate that disparate quotations are linked mainly through their motivic content and should thus be perceived as unified and homogeneous, it is important to view these motivic connections as links that are constantly strained by the divergent tonal pulls and referential connotations of the disparate quotations. This is analogous to the technique of “serial tonality” found in Kagel’s music,³ which “treats tonal material (i.e. triads) serially. Chords are assigned numbers, and their sequence is governed by numerical rows.”⁴

Chapter four focuses temporarily on the foreground issue of how the disparate materials are actually connected. It finds that these works use common techniques for achieving these connections, which are summarized as overlap (pitch and textural), chromatic insertion, and rhythmic plasticity. Technically, one of the most important

³ Werner Klüppelholz, *Mauricio Kagel, 1970-1980* (Cologne: DuMont, 1981), pp. 74-100; and Werner Klüppelholz, ed. *Kagel... /1991* (Cologne: DuMont, 1991), pp. 11-55.

⁴ Björn Heile, “Collage vs. Compositional Control: The Interdependency of Modernist and Postmodernist Approaches in the Work of Mauricio Kagel,” in *Postmodern Music/Postmodern Thought; Studies in Contemporary Music and Culture*, v. 4, ed. Judy Lochhead, Joseph Auner (New York and London: Routledge, 2002), p. 292.

findings of this chapter is the widespread use of Schoenberg's concept of liquidation, applied to both the pitch and textural profiles of the musical materials, to achieve transitions. The most important conclusion of this chapter is that disjunction is not an inescapable byproduct of the incorporation of disparate materials. Composers can weld together disparate materials seamlessly, and thus are able to exploit the whole spectrum of levels of disjunction at will for expressive purposes.

The final chapter, which deals with chromatic saturation and the significant gap, reveals a compositional process based on the implication-realization model that is capable of controlling all levels of the musical structure. This compositional process is significant in that it is based on the most essential characteristic of this music, the contrast between the disparate materials itself. Thus, the chromatic saturation of a significant gap through chromatic complementation subverts and transcends traditional notions of unity. One of the most interesting findings of this chapter is the extent to which these composers, all of which were active serialists prior to this time, continue to incorporate post-serial techniques of aggregate completion in their music.

The results of this study provide models for voice-leading, harmonic structure, modulation, form and large-scale coherence in these works, thus constituting a preliminary analytical model. Significantly, the very techniques that create surface discontinuity and contribute to the redefinition of the spatial definition, juxtaposition and layering, also constitute carefully controlled compositional processes (as in the case of chromatic saturation in pitch-space and modulation through overlap) that are essential to the structure of these works.

The analytical findings of this study do not seek to demonstrate that these apparently disjunct works of art are in fact necessarily governed by an all-encompassing unity. Instead, they prove that disjunction and discontinuity are not necessary byproducts of the incorporation of materials from diverse sources in a work of art. The ways in which these diverse materials are incorporated into a given work traverses the spectrum in the level of disjunction. In other words, composers have complete control over the levels of disjunction on discontinuity of their works, regardless of the materials that they seek to incorporate. A wholly unified work of art is clearly not the goal of these works. The interaction of disjunction and unity in these works is essential to their conceptual process. Thus, in these works, the composers do not necessarily defy the idea of unity, but they critically engage in the postmodern debate over the function of unity in music, by making it an essential aspect of the expressive content.

Since this study engages many of the issues of the postmodern debate, the abstract discussion of issues that are central to postmodernism can be provocatively reexamined within the context of the concrete findings of this study. Two major issues have been addressed. The first relates to the function of unity in postmodernism. It questions the existence of unity in a the postmodern musical composition, posits the transference of unity from the composition to the listener (what Kramer calls textual unity versus perceptual unity), and calls for “analytical methods that are no longer biased toward the elucidation of unity.”⁵ The second concerns the debate regarding the prevailing existence of continuity or discontinuity between the postmodern and modern trajectory.

Writers on musical postmodernism have urged analysts to avoid approaching these works with analytical techniques that seek to elucidate an underlying unity, and

⁵ Kramer, 1995, p. 11

instead to create new approaches which take disjunction and disunity as the essential aspect. The works included in the present study, which are undeniably fundamentally postmodern in conception, have long been known to possess integrative elements, which unify the disparate components.⁶ However, the nature of these integrative techniques has only been described by noting isolated motivic, intervallic and referential connections within each individual work. Thus, the concrete analytical findings in this study are valuable to the degree that they shed light upon ways in which composers can draw connections between materials that derive from distinct sources on many different levels.

The conclusions of this study demonstrate that unity continues to be operative in postmodern composition and demonstrates specific techniques that are used to achieve connections. Furthermore, it demonstrates that similar techniques are used in works that span wide stylistic gaps. However, it does not advocate an analytical approach to postmodern works that merely extracts connections and unity in order to explain an underlying structure, but instead posits that the postmodernism of these works lies, not in the way that they deny traditional notions of unity, but in the way they call it into question in order to create the expressive content of the composition. As Rochberg put it: “Pluralism, as I understand it, does not mean a simplistic array of different things somehow struck together in arbitrary fashion but a way of seeing new possibilities of

⁶ Hermann Danuser discusses such connections in Rochberg’s music in “Zur Kritik der musikalischen Postmoderne,” *Neue Zeitschrift für Musik* 149/12 (1988): 8-9; as well as in Zimmermann’s and Berio’s music in “Musikalische Zitat—und Collageverfahren im Lichte der (Post)Moderne-Diskussion,” in *Jahrbuch 4 der Bayerischen Akademie der Schönen Künste*, ed. Oswald Georg Baur, Sylvia Riedmaier (Schaftlach: Oreos Verlag, 1990), pp. 402-403. From Joakim Tillman, “Postmodernism and Art Music in the German Debate,” in *Postmodern Music/Postmodern Thought; Studies in Contemporary Music and Culture*, v. 4, ed. Judy Lochhead, Joseph Auner (New York and London: Routledge, 2002), pp. 78-79.

relationships; of discovering and uncovering hidden connections and working with them structurally; of joining antipodes without boiling out their tensions.”⁷

To draw a concrete analogy, one might invoke the concepts of consonance and dissonance in tonal music. The existence of dissonance depends on an established perception of consonance. “The emancipation of dissonance” is equivalent to the demise of the concept and its concomitant expressive power. Likewise, in postmodern works, the concept of disunity can only exist in contrast to an established perception of unity. It is the interaction of the two that constitutes the expressive power of this music. “The conflicts and tensions between the two principles of collage and control, and more generally of heterogeneity and unity, run through the history of twentieth-century music. Indeed, it is these conflicts, not a work’s ideological cohesion, that make twentieth-century music so fascinating.”⁸

One of the main findings of this study is the model of chromatic saturation and the significant gap, which embraces the very disjointedness and diversity of the components in a given work, as a main constructive principle. The model appropriately responds to Kramer’s request for a postmodern analytical approach, one that is based on the concept of difference⁹, rather than unity. The concept of the significant gap and chromatic complementation takes as its basis the difference, the contrast between the various components in a musical composition. It does not seek to vanish the dissimilarities, but rather builds upon them.

⁷ George Rochberg, “On the Third String Quartet,” in *Aesthetics of Survival*, ed. William Bolcom (Ann Arbor: University of Michigan Press, 1984), p. 241. From Mark Berry, “Music, Postmodernism, and George Rochberg’s Third String Quartet,” in *Postmodern Music/Postmodern Thought; Studies in Contemporary Music and Culture*, v. 4, ed. Judy Lochhead, Joseph Auner (New York and London: Routledge, 2002), p. 239.

⁸ Heile, 2002, p. 288.

⁹ Kramer, 1995, p. 12

The second issue that this study engages is one that is central to Watkins book, as was described in chapter one, that of the prevailing continuity or discontinuity between modernism and postmodernism. This study demonstrates that these pieces combine a modernist organizational aesthetic and a postmodern musical surface. While this may simply indicate that these works belong to “neoconservative postmodernism,”¹⁰ “blend aspects of modernism and postmodernism,”¹¹ or “dialectically grapple and contend with postmodernist ideas”¹² and thus do not reflect the organizational principles of radical postmodernism, it might reflect the historical position of these works in the late 1960s, a time where the avant-garde sought to renew modernism¹³ (an idea that engages issues of historical influence that are questioned by the postmodernist perspective). The repertoire included in this study chronologically and conceptually provides a bridge between modernism and postmodernism, situated as it is, as an early response by these composers to their previous serial practices.

One of the implications of this work is thus that postmodernism is not as much a rejection, as an extension of modernism. The music of the late 1960s provides the starting point of a period of unprecedented heterogeneity in the musical language. Thus, an understanding of the musical language of this time may provide the basis for an understanding of the more contemporary practices that follow many of the same aesthetic issues. In order to validate these claims, it is essential to widen the scope of this study in terms of repertoire that is analyzed. This should include an examination of more *collage* works that are contemporary with those included in this study (such as Stockhausen’s

¹⁰ Kramer, 1995, p. 21.

¹¹ Kramer, 1995, p. 23.

¹² Kramer, 2002, p. 22

¹³ Kramer, 1995, p. 30.

Hymnen and *Telemusik*), works that represent different types of musical borrowing (such as Schnittke's *Concerto Grosso* no. 1, 1977 or Lucas Foss's *Baroque Variations*), and more contemporary works, such as John Corigliano's *The Ghosts of Versailles* or Paul Schoenfield's *Café Music*. In this context it would also be particularly rewarding to examine works that exemplify radical postmodernism, such as John Zorn's *Forbidden Fruit*, in which elements that achieve disunity are said to supersede elements that achieve unity.¹⁴

From a technical standpoint, this study raises interesting questions that point to the need for further development in many different areas. These include an examination of the potential of post-serial usages of aggregate completion, a thorough assessment of ways in which referential meanings interact with structural elements in the association of disparate materials and an examination of the specific ways in which motivic relationships interact with the tonal pulls of contrasting excerpts.

¹⁴ Kramer, 1995, p. 28.

EXAMPLES

CHAPTER 2

Formal Processes

Example 2-1 Formal scheme of Orlando Gibbons's *Pavana*

A	A'	B	B'	C
----------	-----------	----------	-----------	----------

Example 2-2 Formal scheme of the fifth movement (*Pavane de Pissebock et Pissedoux*) of Zimmermann's *Musique pour les soupers du Roi Ubu*

A	A'	B	B'	C
Gibbons <i>Pavana-Giostra</i> Mov. IV	Gibbons <i>Pavana-Giostra</i> Mov. II	Gibbons <i>Pavana-Giostra</i> Mov. IV	Gibbons <i>Pavana-Giostra</i> Mov. II	Gibbons <i>Pavana-Giostra</i> Mov. IV
No quotations	Henze <i>Ode an den Westwind</i> Fortner <i>Sinfonie</i> Stravinsky <i>Symphony in C</i>	Wagner <i>Siegfried Idyll</i>	Henze <i>Ode an den Westwind</i> Wagner <i>Siegfried Idyll</i> Fortner <i>Sinfonie</i> <i>Ein Feste Burg</i>	Wagner <i>Siegfried Idyll</i> Stravinsky <i>Symphony in C</i>

Example 2-3 Formal scheme of the material from the first movement of *Musique* that was newly composed for the third movement (*Moresca*) of *Giostra Genovese*

A	A:	B	B:	A	A	TRIO	A	A	B	B	A	A
----------	-----------	----------	-----------	----------	----------	------	----------	----------	----------	----------	----------	----------

Example 2-4 Formal scheme of the material from Byrd's *Coranto*, as it appears in the trio of the third movement (*Moresca*) of *Giostra Genovese*

A	A	A'	A'	B	B	A
----------	----------	-----------	-----------	----------	----------	----------

Example 2-5 Formal scheme of the material from Byrd's *Coranto*, as it appears in the trio of the first movement of *Musique*

A	A	A'	B
Dissolves and is replaced by quotation "in modo di 'Cool Jazz'" (played by a jazz combo)	Truncated	Ornamented	Dissolves and is replaced by Radecki <i>Marsch</i>

Example 2-6 Formal scheme of the second movement: *Mère ubu et ses gardes* from *Musique* (the whole formal scheme described below repeats)

A A:	B B:	A A
-------------	-------------	------------

Example 2-7 Formal scheme of the second movement of *Musique*, including the placement of quotations

A	A	A	A	B	B	B	B	A	A
	Beethoven Pastoral Symphony	Bach Brandenburg Concerto No. 1	Beethoven Pastoral Symphony	Wagner, <i>Die Meistersinger</i>	Bach Brandenburg Concerto No. 3				
						Bach Brandenburg Concerto No. 1			

Example 2-8 Formal scheme of the third movement of *Musique: Pile, Cotice et L'Ours*

A	A'	B	Quotation from Schubert's <i>Marche Militaire</i>	B	A	A'
----------	-----------	----------	---	----------	----------	-----------

Example 2-9 Formal Scheme of Susato's *Saltarello*

A	A'	A	A'	B	B
----------	-----------	----------	-----------	----------	----------

Example 2-10 Formal scheme of the fifth movement of *Musique: Le Cheval a Phynances et les larbins de Phynances*, including the placement of quotations

A	A'	A'	B	(int.)	B (cont.)
Stravinsky <i>Dumbarton Oaks</i>		Stravinsky <i>Dumbarton Oaks</i>		Boogie-Woogie	
		Schubert <i>Militarmarsch</i>			
		Bizet <i>Carmen</i>			
		Wagner <i>Die Meistersinger</i>			

Example 2-11 Formal scheme of the sixth movement of *Musique: Berceuse des Petits Financiers qui ne Peuvent pas s'endormir*

A	A'	B	B'	coda
----------	-----------	----------	-----------	-------------

Example 2-12 *Musique pour les Soupers du Roi Ubu VII: Marche du Décervelage*.
Formal scheme

							<i>m. 66</i>							<i>m. 96</i>	
A	B	A	B	A	B	A	B'	A'	B'	A'	B'	A'	A		
Berlioz Stockhausen	Wagner						Wagner Stockhausen Berlioz								
X(Intro)							Y							X	

Example 2-13 Formal scheme of the introduction to *Musique: Entrée de l'académie*

Fanfare	A	B	A	B	A	B	A	B	A	Fanfare	Coda
Scharoun	Blacher	Fortner Ahrens Mussorgsky	Blacher and Chemin-Petit	Ahrens Hindemith and Fortner Wagner and Beethoven	Blacher	Honegger Fortner	Blacher and Pepping	Honegger and Dessau Ahrens	Blacher	Scharoun	Zimmermann and Dallapiccola

Example 2-14a Formal structure of the first movement of Rochberg's *Music for the Magic Theater*

Introduction-Rochberg	
Quotation-Mahler's Ninth Symphony IV, m. 13	A
Rochberg- Allusion to Mahler	
Quotation-Mahler's Ninth Symphony, IV, m. 14	
Rochberg- Allusion to Varèse	
Quotation-Varèse, Deserts, m. 242	B
Rochberg- Allusion to Mahler	A
Rochberg- based on motives from Mahler	C
Recapitulation	
Rochberg- Twelve Tone	D
Quotation- Mozart Divertimento, I, mm. 6-24 Rochberg	E
Allusion to Varèse	B
Rochberg, Twelve-Tone	D
Rochberg-Allusion to Mahler	A
Rochberg- Twelve-Tone	D
Rochberg- Allusion to Varèse	B
Quotation-Mozart Divertimento I, mm. 60-66 Rochberg	E
Rochberg- Feely Atonal	
Quotation-Mahler's Ninth Symphony II, mm. 383-390	F
Recapitulation	
Rochberg- Allusion to Mahler	A
Mahler's Ninth Symphony	
Rochberg- Allusion to Varèse	B
Rochberg- Twelve-Tone	D
Rochberg- Allusion to Mahler	A
Rochberg, Based on Motives from Mahler	C

Example 2-14b Formal structure of the second movement of Rochberg's *Music for the Magic Theater*

A	(cadenza)	A	
<p style="text-align: center;">Quotation-Mozart, Divertimento IV</p>	<p style="text-align: center;">Rhythmically free trumpet solo "to be played like Miles Davis"</p>	<p style="text-align: center;">Rochberg, newly composed allusion to Mozart's <i>Divertimento</i></p>	<p>Quotation-Mozart, Divertimento VI m. 25-32</p>

Example 2-15 Reductive comparisons of Mahler's m. 287 and Berio's m. 285, demonstrating the exact correspondences of the sectional climax of Mahler with the quoted climax from Ravel's *La Valse*.

The image displays a musical score for piano, comparing two passages: Mahler's m. 287 (top) and Berio's m. 285 (bottom). The score is written in treble and bass clefs with a key signature of two sharps (D major). The tempo is marked *Andante*. The score includes several annotations and dynamic markings:

- Mahler's m. 287:**
 - Dynamic markings: *mf*, *p*, *ppp*.
 - Annotations: "Mahler's frag. (Solf.)" appears at the beginning and end of the passage.
- Berio's m. 285:**
 - Dynamic markings: *ppp*, *sempre ppp*.
 - Annotations: "Ravel, *La Valse*, 32. 7. (TI) Acts as a reduction of Mahler's Figuration" and "Develops Mahler's figuration in Retrograde" are placed between the two staves.

The score shows a clear structural and melodic correspondence between the two passages, with Berio's version being a reductive comparison of Mahler's original.

Mahler SECTIONAL CLIMAX

Mahler

294

Strauss, *Der Rosenkavalier* II, 250

Ravel, *La Valse*, 82

Strauss, *Der Rosenkavalier* II, 254 10

Ravel, *La Valse* 92, 3

Ravel CLIMAX

Mahler's Frag (Solf.)

Ravel, *La Valse*, 81 6

Mahler frag (Solf.)

Berio *Sinfonia*

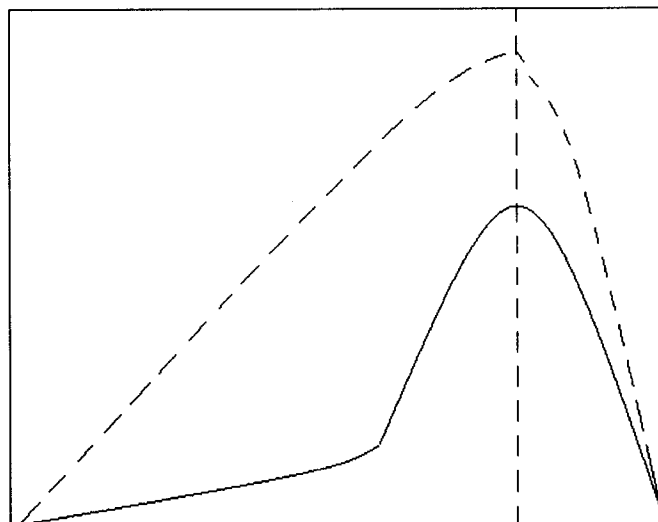
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Mahler *Symphony No. 2*

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Example 2-15 (cont.)

Example 2-16 A comparison between the dramatic contours of corresponding measures of Mahler's *Scherzo* and Berio's *Sinfonia*.



Berio	m. 285	m. 302
Mahler	m. 287	m. 304

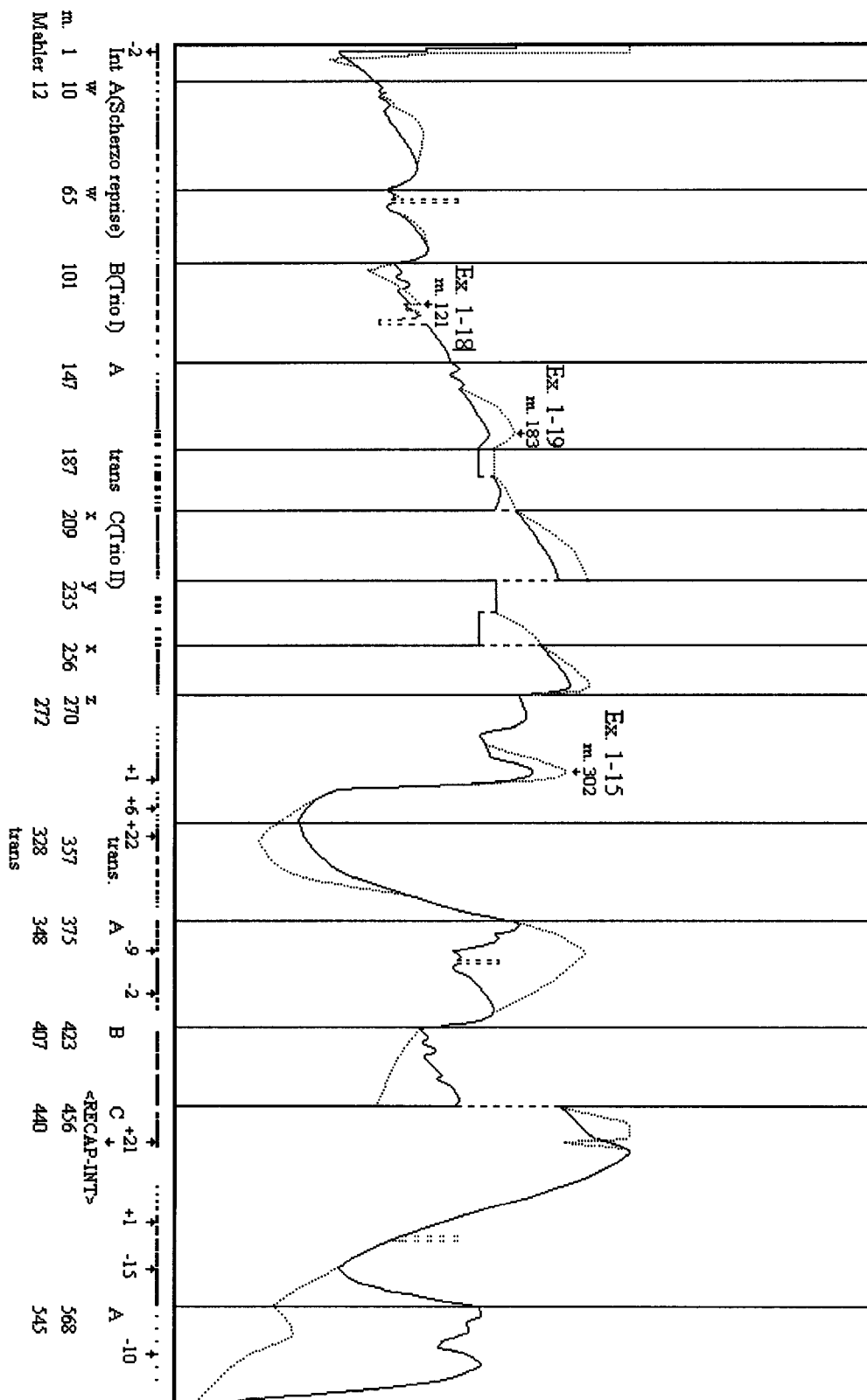
Example 2-17 Correspondence in the goal directed motion of Mahler's *Scherzo* (m. 123) and that of the quotations that obliterate it in Berio's movement (m. 121).

Goal of Directed Motion

Berio *Sinfonia*
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Example 2-18 Chart that compares the large-scale dramatic contours of Mahler's *Scherzo* and the third movement of Berio's *Sinfonia*



Example 2-19 Reductive comparisons of Mahler's m. 168 and Berio's m. 166, demonstrating the exact correspondence of the sectional climax in Mahler's piece with the quoted climax from Stravinsky's *Le Sacre*

* Indicates Deletion of a Measure

Stravinsky, *Le Sacre du Printemps*, *Danse de la Terre*, 75, 11

Example 2-19 (cont.)

The image displays a musical score for Example 2-19 (cont.), comparing two musical fragments. The score is written for a string quartet, with parts for Violin I, Violin II, Viola, and Cello/Double Bass. The top system is labeled 'Mahler frag.' and the bottom system is labeled 'Stravinsky 77-5'. The Mahler fragment begins at measure 173 and features a melodic line in the Violin I part with a dynamic marking of *ppp* (pianississimo). The Stravinsky fragment also begins at measure 173 and features a more complex, rhythmic texture in the Violin I part with a dynamic marking of *f* (forte). The score includes various musical notations such as notes, rests, slurs, and dynamic markings. A double bar line separates the two fragments, and a small asterisk is placed below the Stravinsky fragment. The page number '175' is visible in the top right corner.

Mahler frag. Stravinsky 77-5

Mahler frag.

Mahler SECTIONAL CLIMAX

The musical score is divided into two main sections: Mahler and Berio. The Mahler section (top) consists of three staves (treble, alto, and bass clefs) with measures 183 and 184. The Berio section (bottom) consists of five staves (treble and bass clefs) with measures 181, 182, 183, 184, and 185. The score includes various dynamic markings such as *sf*, *ff*, *ppp*, and *pp*. There are also performance instructions like *pizz.* and *ppp* in the Mahler part, and *sf*, *ff*, and *pp* in the Berio part. The Berio part features complex rhythmic patterns and triplets.

Stravinsky, 78 leads into

CLIMAX

Mahler frag.

Stravinsky, last measure

Berio Sinfonia

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Example 2-19 (cont.)

Example 2-20 Reductive comparison of Mahler's m. 189 and Berio's m. 187, demonstrating the motivic relationships and static quality in the quotations that alternate with fragments of Mahler

Mahler

p sempre

ff *p* sempre

Stravinsky, *Agon*, 61- Oscillation figure

Stravinsky, *Agon*, 62

Berio

188

188

188

Debussy, *Dialogue du vent et de la mer*, 2, then 4- Chromatic scale

Debussy, 6

ff *f* pizz *p* arco *pp* *p* *pp* *f* pizz *pp* arco *f* *pp*

Mahler fragment (024) Mahler (024) Mahler (024)

Berio *Sinfonia*
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Example 2-21 Thematic parallel between Mahler's theme and the inserted quotation with which Berio first disrupts Mahler's temporal framework

Mahler Symphony No. 2, III, m. 284 **X**

Mahler

284 *molto espress.*

Strauss, *Der Rosenkavalier*, III, 298, 5 **R(X)**

Berio

315 *mf espress.*

315 *mf espress.*

I(X)

Berio *Sinfonia*
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Example 2-22 Reductive comparison of Mahler's m. 313 and Berio's m. 312. The juxtaposition of fragments leads to the incorporation of new materials

Mahler

313 *molto espress.*

313 *mf espress.*

313 *mf espress.*

Berio

312 **Anticipation**

312 **Retrograde**

312 **Extension, introduction of new materials**

Strauss, *Der Rosenkavalier*, III, 298, 6

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Example 2-23 Reductive comparison of Mahler's m. 328 and Berio's m. 333 demonstrating the juxtaposed layers of transformed materials that lead to the first major disruption of the Scherzo's temporal framework.

The image shows a reductive comparison of two musical passages. The top system, labeled 'Mahler', shows measures 328-332. It features a piano (*pp*) texture with oscillating chords in the upper voices and a more active bass line. A bracket underlines the chords from m. 328 to 332, with the annotation 'Mahler's Oscillating Chords, displaced by +6'. A specific chord in m. 330 is marked with a 'Y'. The bottom system, labeled 'Berio', shows measures 333-337. It features a piano (*p*) texture. A bracket underlines a fragment from m. 333 to 335, with the annotation 'Mahler Fragment, displaced by +7'. Another bracket underlines a transposition of the 'Y' chord from m. 330, with the annotation 'Tonal Transposition of Y displaced by +2'. A third bracket underlines a fragment from m. 333 to 335, with the annotation 'I(Y), displaced by +3'. The Mahler system ends with a *pp* dynamic, while the Berio system ends with a *p* dynamic.

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CHAPTER 3

Motivic and Transformational Relationships

Example 3-1 Zimmermann, *Musique pour les soupers du Roi Ubu*, m. 1. Horn fanfare, spells out the name of the president of the academy.

♩ = 104
a 3 maestoso

3 corni

S C H A R O U N "Monsieur le president"

ff

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Example 3-2 Zimmermann, *Musique pour les soupers du Roi Ubu*, m. 11. Altered quotation from Mussorgsky's *Pictures at an Exhibition*, Promenade, m. 5

Lo stesso tempo
a 2

3 trb. ni

ff

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Example 3-3 Mussorgsky, *Pictures at an Exhibition*, Promenade, m. 1.

Moderato comodo e con delicatezza

(woodwinds and piano)

Corno

p Provides the source for the horn fanfare in Zimmermann's *Musique* *p*

4 Horn takes over again

Provides the source for the quotation in Zimmermann's *Musique*, m. 11

Example 3-4 Zimmermann, *Musique pour les soupers du Roi Ubu*, V (Pavane), m. 20. Augmented quotation from Stravinsky's *Symphony in C*.

Stravinsky, *Symphony in C*

Tromba

fp fp fp fp fp fp

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Example 3-5 Zimmermann, *Musique pour les soupers du Roi Ubu*, V (Pavane), m. 38. Quotation from *Ein' feste Burg*

Ein' Feste Burg

Tromba

mf

quasi canto fermo

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Example 3-6 Zimmermann, *Musique pour les soupers du Roi Ubu*, V (Pavane), m. 41. Quotation from Stravinsky's *Symphony in C*, I, Rehearsal No. 5

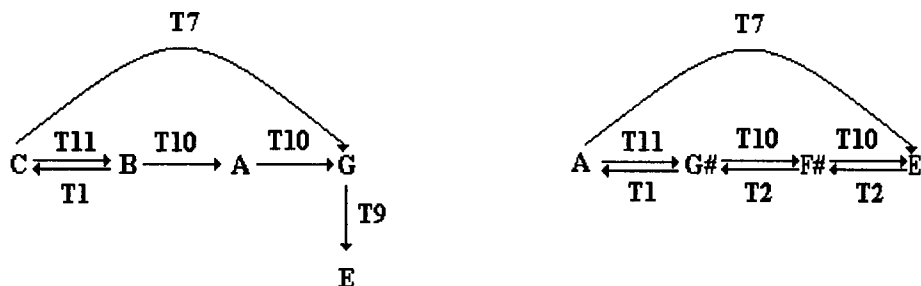
Tempo primo $\text{♩} = 60-66$

Oboe

f

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Example 3-7 Graphs that trace the ordered intervals described by the segments presented in Examples 3-5 and 3-6



Example 3-8 Extracts the quotations that appear over Tilman's *Saltarello* in Zimmermann's *Musique IV (Le Cheval a Phynances et les Larbins de Phynances)* mm. 2-19

The musical score is organized into three systems, each with a different key signature and time signature:

- System 1 (Top):** Key of G major, 2/4 time. It features quotations from Schubert's *Marche Militaire* (Op. 51, No. 1, D. 733) in the Trombone, Bass Tuba, and Mandolin parts. The Mandolin part is marked *mf* and *sim.* (sustained).
- System 2 (Middle):** Key of D major, 2/4 time. It features a quotation from Bizet's *Carmen*, Prelude, m. 13, in the C Trp. 1, C Trp. 2, Tbn., and B. Tbn. parts. The C Trp. 1 part is marked *f*.
- System 3 (Bottom):** Key of D major, 2/4 time. It features a quotation from Stravinsky's *Dumbarton Oaks II*, m. 3, in the Trombone, Bass Tuba, and Mandolin parts. The Trombone and Bass Tuba parts are marked *mp* and *mf*, while the Mandolin part is marked *p*.

The percussion parts (Tamb., Perc., Bsn.) provide a rhythmic accompaniment throughout the piece, with the Bsn. part marked *ff* in the first system.

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Example 3-9 *Sinfonia*, Third Movement, E17-E26 (mm. 112-121). The dotted rhythm motive permeates the texture.

112 Ravel's *La Valse* (No. 18 m. 7)

Mahler's *Scherzo*, m. 116

Ravel's *La Valse* (No. 38, m. 10) Including his quotation of Beethoven's Ninth Symphony

Oboe

Clarinet

Percussion

p *pp* *f*

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Example 3-10 *Sinfonia*, Third Movement, N17-09 (mm. 285-303). The two-sixteenth note pickup permeates the texture and links the disparate quotations.

Mahler

f
espress hervortretend

285

Berio

Tambourine

Mahler's frag (Solf.)

Ravel, *La Valse*, 78, 2

296

Mahler

Mahler SECTIONAL CLIMAX

294

Berio

Snare Drum

Ravel, *La Valse*, 82

Strauss, *Der Rosenkavalier* II, 254-10

Ravel, *La Valse* 92, 3

Ravel CLIMAX

Added counterpoint

p *f* *ff*

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Example 3-11 *Sinfonia*, Third Movement, J9 (m. 204). The rhythmic figure quoted from Stravinsky's *Agon*, *Bransle Gay*, m. 310, appears in preparation for Trio II and continues as an ostinato throughout the first half of it.



Example 3-12 *Musique II (Mère Ubu et ses Gardes)*, m. 25. Extracted quotations present a common motive: an arpeggiated C Major triad embellished by lower and upper neighbors.

The image displays a musical score for Example 3-12, showing extracted quotations of a common motive: an arpeggiated C Major triad embellished by lower and upper neighbors. The score is divided into three systems, each with a different instrument group:

- Top System:** 3 Oboes, Flute and 2 Piccolos. The notation shows a sequence of notes: C4, E4, G4, F4, E4, D4, C4. The first two notes (C4, E4) are circled, and the last two notes (F4, E4) are also circled. A tempo marking of $\text{♩} = 152$ is present.
- Middle System:** Horns and Bassoons. The notation shows a sequence of notes: C4, E4, G4, F4, E4, D4, C4. The first two notes (C4, E4) are circled, and the last two notes (F4, E4) are also circled.
- Bottom System:** Four Double Basses. The notation shows a sequence of notes: C4, E4, G4, F4, E4, D4, C4. The first two notes (C4, E4) are circled, and the last two notes (F4, E4) are also circled.

Additional markings include dynamics such as *f*, *mf*, and *fp*, and performance instructions like *espr. molto*, *Wagner, Die Meistersinger, Vorspiel, m. 158*, and *pizz.*

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Example 3-13 *Musique*, Introduction, mm. 17-21. The Wagner and Beethoven quotations describe a common transpositional path.

T2/T0

The image displays a musical score for the Introduction of Wagner's *Musique*, measures 17-21. It features five staves: Oboe, English Horn, Bassoon, Four Double Basses, and Piano. The Oboe staff has a tempo marking of ♩ = 104 and a dynamic marking of *f espr. (gut hervortreten)*. The English Horn staff has a dynamic marking of *f espr.*. The Bassoon staff has a dynamic marking of *f espr.*. The Four Double Basses staff has a dynamic marking of *f espr.* and a tempo marking of *espr. molto (gut hervortreten)*. The Piano staff has a dynamic marking of *poco dim.* and a tempo marking of *mf*. The score includes two quotations: Wagner's *Tristan und Isolde*, opening, and Beethoven's Op. 31 No. 3, I, mm. 35-36 and 39-40. A solid line with arrows indicates a transpositional path from the Wagner quotation to the Beethoven quotation, labeled T2/T0. A dashed line with arrows indicates a transpositional path from the Beethoven quotation to the Wagner quotation, labeled T2.

T2

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Example 3-14 Graph of the first and main section of Mahler's *Scherzo*, from his Symphony No. 2, demonstrating the importance of the descending fifth to its structure.

The image displays a musical score for Mahler's *Scherzo* from his Symphony No. 2, spanning measures 31 to 103. The score is presented in two systems, each with a treble and bass staff. A graph is overlaid on the score, illustrating the intervallic structure of the music. The graph consists of a series of horizontal lines representing intervals, with vertical lines connecting them to specific notes in the score. The intervals are labeled as follows:

- At the beginning (measure 31), the interval is labeled $c: i$.
- At measure 45, the interval is labeled $C: I$.
- At measure 64, the interval is labeled $c: i$.
- At measure 75, the interval is labeled i .
- At measure 90, the interval is labeled $V: C: I$.
- At the end (measure 103), the interval is labeled $m. 103$.

Other labels include V (Vivace) and X (Xenon). The graph shows a descending fifth interval (V) between measures 31 and 45, and another descending fifth interval (V) between measures 64 and 75. The graph also shows a descending fifth interval (V) between measures 75 and 90. The graph is a complex diagram of intervallic relationships, with various lines and curves connecting notes across the score.

Example 3-15 Chords A, B, and C from Schoenberg's *Five Pieces for Orchestra*, Op. 16 No. 4 "Peripetie."

The diagram shows three chords, A, B, and C, on a grand staff. Chord A is in the bass clef (F, C, G, C), chord B is in the treble clef (F#, C#, G#, C#), and chord C is in the bass clef (Fb, Cb, Gb, Cb). Arrows indicate transformations: T11 from A to B, T6 from B to C, T7 from A to C, T1 from A to B, and T5 from A to C.

Example 3-16 *Sinfonia*, m. 1 Quotation from Mahler's Fourth Symphony, I, m. 1, Demonstrating the important motivic role of T11 and T7 within the quotation.

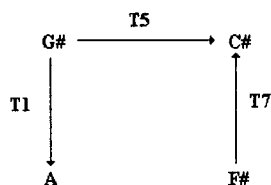
The diagram shows two staves for Flute 1 and Flute 2. Flute 1 has a melodic line with a T11 transformation indicated by a curved arrow. Flute 2 has a rhythmic accompaniment. A T7 transformation is indicated by a curved arrow connecting the end of the Flute 1 line to the end of the Flute 2 line. The dynamic marking *p* is present in both staves.

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Example 3-17 *Sinfonia*, mm. 1- .The B4-F#5 cluster is literally transformed through a T1 transformation that leads back to the main structural pitches of the *Scherzo*, C and G.

The diagram shows a single staff with a melodic line. A T7 transformation is indicated at the beginning, and a T1 transformation is indicated by a large curved arrow spanning the entire line, showing the transformation of the B4-F#5 cluster back to the main structural pitches of C and G.

Example 3-18 *Sinfonia*, m. 4 Quotation of the opening chord from Debussy's *La Mer*, II, m. 5 and the transformational graph that illustrates the importance of T7, T5 and T11 within the chord.

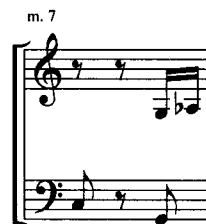


D

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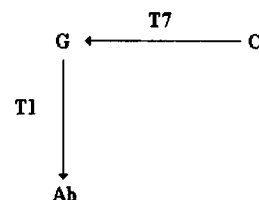
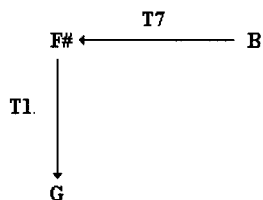
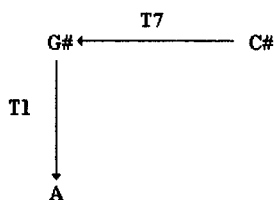
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Example 3-19 Fragmentary quotations from Debussy's *La Mer*, II, 2 (Harp, m 5 of *Sinfonia*), Mahler's *Symphony No. 4*, I, 3. (Violin B, m. 6 of *Sinfonia*), and the opening figure from Mahler's Scherzo (m. 7 of *Sinfonia*).

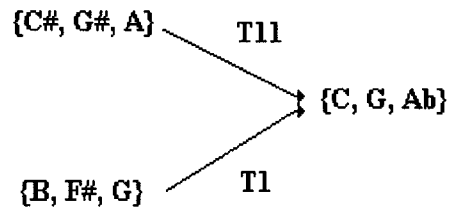
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Example 3-20 Transformational graphs that represent the intervallic content of the preceding excerpts.



Example 3-21 Transformational graph that demonstrates the role of T11 and T1 transformations in introducing the pitch world of Mahler's *Scherzo*.



Example 3-22 *Sinfonia*, m. 10. Transformed rendition of the figuration from Debussy's *La Mer*, first presented in m. 5 (Example 3-20).

m. 10

mf *f* 3

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Example 3-23 The 3-1[012] trichord in *Music for the Magic Theater*, first movement quotations, along with graphs that represent the structural role of the trichord

a. Mahler's Symphony No. 9, Fourth Movement, m. 13 (between Nos. 1 and 2 in MMT)

Adagio ("Straffer im Tempo"); do not drag
impassioned
tutti

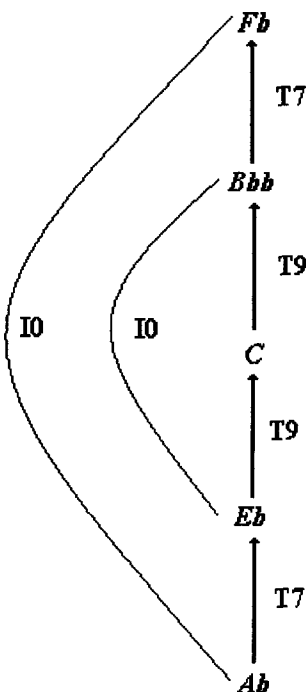
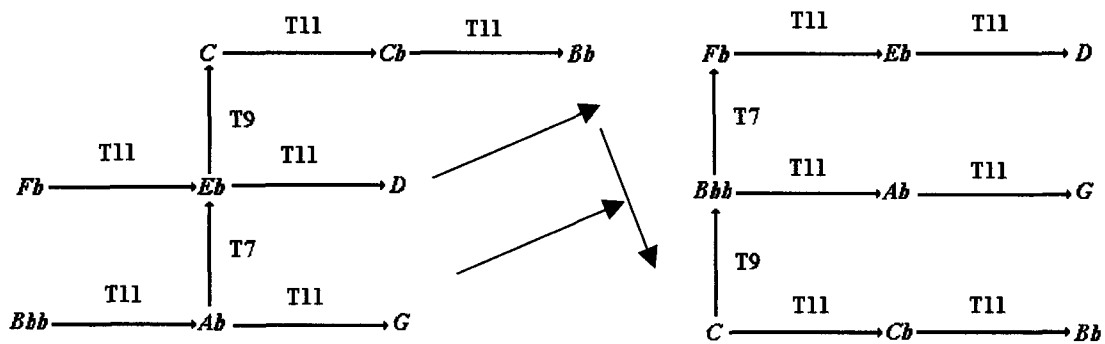
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b. Mahler's Symphony No. 9, Fourth Movement, m. 14 (between Nos. 2 and 3 in MMT)

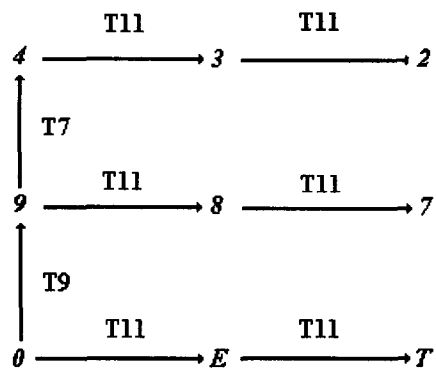
impassioned

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c.



d.



Example 3-24 *Music for the Magic Theater I* (rehearsal no. 4).

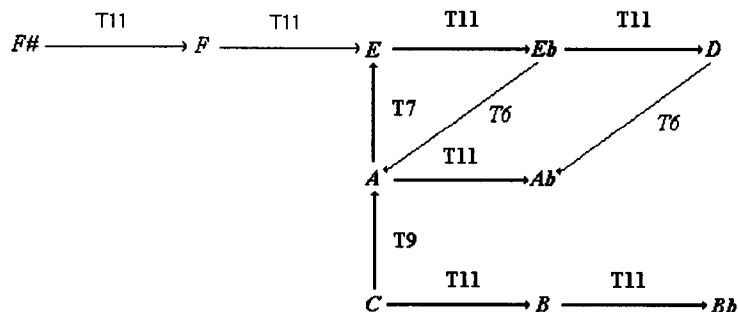
a. Varèse *Déserts*, m. 242 (Rehearsal No. 4 in MMT)

Annotations in the score:

- Top staff: 3-1[012] {E, Eb, D} [2,3,4]
- Right side (Oboe/Clarinet/Bassoon): 3-1[012] {E, Eb, D} [2,3,4] and 2-1[01] {A, Ab} [8,9]
- Right side (Horns/Trumpet/Tuba): 3-1[012] {C, B, Bb} [T, E, 0]
- Right side (Piano): 2-1[01] {F#, F} [5,6], 3-1[012] {F#, F, E} [4,5,6], 3-1[012] {E, Eb, D} [2,3,4], and 2-1[01] {A, Ab} [8,9]
- Bottom right: 3-1[012] {C, B, Bb} [T, E, 0] and 2-1[01] {F#, F} [5,6]

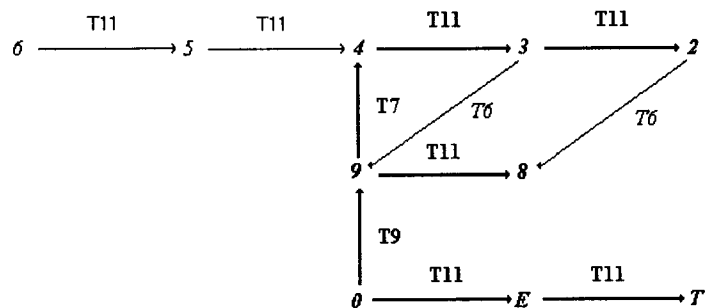
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b. Structurally important 3-1[012] trichords in the altered Varèse quotation at No. 4



Example 3-24 (cont.)

c.



Example 3-25 Mozart Divertimento, K. 287, First Movement, mm. 6-24 (Rehearsal No. 12-14 in MMT. The example eliminates interpolations and other simultaneous layers that occur in its actual presentation)

Example 3-25 Mozart Divertimento, K. 287, First Movement, mm. 6-24 (Rehearsal No. 12-14 in MMT. The example eliminates interpolations and other simultaneous layers that occur in its actual presentation)

Measure 12: "Allegro" $\text{♩} = 114$. Dynamics: *pp* *dolcissimo*, *f*, *p*. Pitch class set: $3-1[012] \{Eb, E, F\} [3,4,5]$.

Measure 13: Dynamics: *f*, *p*. Pitch class set: $3-1[012] \{F, E, Eb\} [3,4,5]$ (Retrograde of beginning pitches).

Measure 14: Dynamics: *f*, *p*. Pitch class set: $3-1[012] \{D, C\#, C\} [0,1,2]$. Same pitch level as beginning of excerpt.

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Example 3-26

Original source in Varèse's *Déserts*

Varèse Quotation in MMT, No. 4

The image displays a musical score comparison between two versions of a piece. On the left is the 'Original source in Varèse's *Déserts*' and on the right is the 'Varèse Quotation in MMT, No. 4'. The score is arranged in two columns, with various instruments listed on the left of each column. The instruments are: Piccolo, Flute and Eb Clarinet, Bb Clarinet, Trumpets in C, Trombones, Tuba, Piano, and Xylophone. The original source uses a variety of instruments, while the quotation uses a different set of instruments. Transpositions are indicated by 'T1' and 'T0' labels. A large arrow points from the original source to the quotation, with 'T1/T0' written below it. The score includes dynamic markings such as *ff*, *fff*, and *pp*, and tempo markings like $\text{♩} = 176$. The quotation includes a circled number '4' and a tempo marking $\text{♩} = 176$ with a bar line.

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Example 3-27 Mahler Symphony No. 9, First Movement, mm. 383-390 (Rehearsal Nos. 23-26 in MMT. The example eliminates added layers that occur simultaneously with the quotation)

Rhythmic and pitch alteration of Mahler emphasizes the (0,1,2) trichord

Beginning of Quotation

3-1[012] {F,E,D#} [3,4,5] "Plötzlich bedeutend langsamer (Lento) und leise"

Flute (23) *ff* *pessime* *ff* *p* *f* *p* *p*

Horn in F *poco f* *quasi 3*

Rhythmically free horn line with pitches from Mahler leads gradually into actual quotation

Double Bass *pp* *morendo*

3-1[012] {F,E,D#} [3,4,5]

*Three trichords constitute same pitches as in the first Mahler quotations-Example 2-1a and 2-1b

3-1[012] *3-1[012] {A,G#,G} [7,8,9] 4-1 [0123] {F,E,Eb,D} [2,3,4,5]

Flute (25) *p subito*

Horn *cresc.* *f* *p subito*

Double Bass *f* *pp subito*

*3-1[012] {E,D#,D} [2,3,4] *cresc.*

*3-1[012] {A#,B,C} [A,B] 4-1 [0123] {Bb,A,G#,G} [7,8,9,A]

End of Quotation Pitches from Mahler presented in a rhythmically free form

3-1[012] 2-1[01] 3-1[012] {F,E,Eb} [3,4,5]

Flute (26) *ff* *f* *ff*

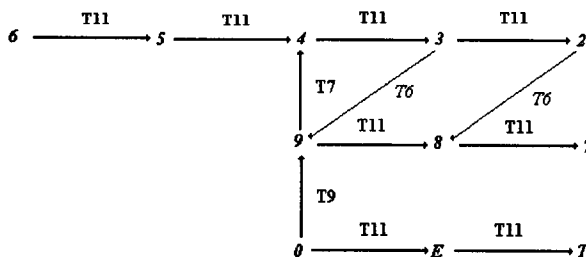
Horn *f* *f* *ff*

Double Bass *ff* *f* *ff*

4-1[0123] 4-1[0123]

2-1[01] {G#,A} [8,9]

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Example 3-28a. Intervallic content of all the primary motives

Motive W: Treble clef, 4/4 time. Notes: B4, D5, E5, F#5, G5. Intervals: T5 (B-D), T5 (D-E), T5 (E-F#), T11 (B-F#).

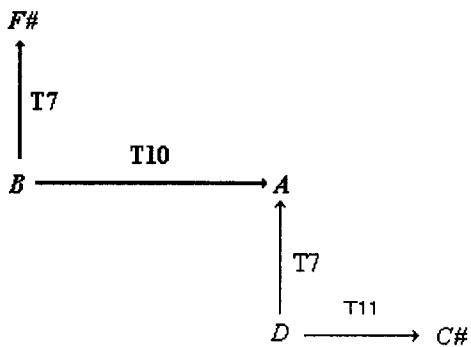
Motive X: Treble clef, 4/4 time. Notes: B4, D5, E5, F#5. Intervals: T11 (B-F#), T11 (D-E).

Motive Y: Treble clef, 4/4 time. Notes: B4, D5, E5, F#5, G5, A5. Intervals: T6 (B-D), T6 (D-E), T11 (E-F#), T11 (F#-G), T1 (B-D), T1 (D-E).

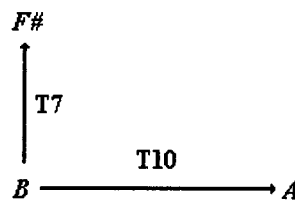
Motive Z: Treble clef, 4/4 time. Notes: B4, D5, E5, F#5, G5. Intervals: T5 (B-D), T5 (D-E), T5 (E-F#), T5 (F#-G).

Example 3-28b. Graphs of motives W and Z

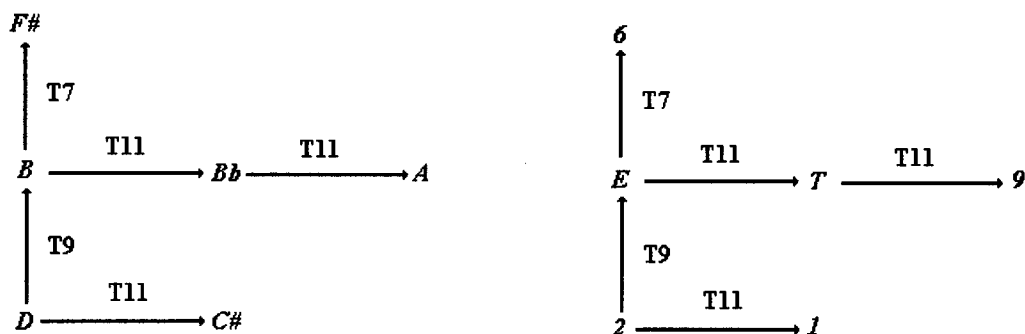
Motive W



Motive Z

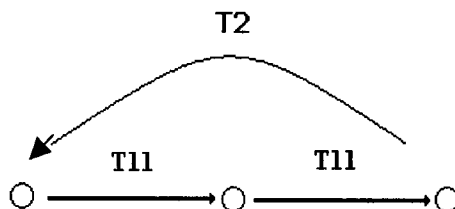


Example 3-28c. Graph of the total pitch-content of the sections of music that contain motives W and Z (rehearsal Nos. 6 through No. 7 and, at a T2 transpositional level, rehearsal No. 32 to the end)

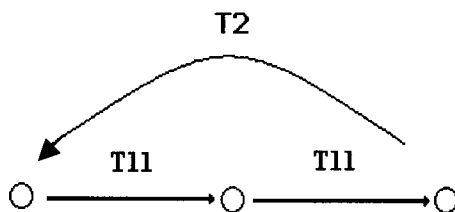


Example 3-29

a. Graph that represents the large-scale transformation of the section of music that contains motive W and Z



b. Graph that represents the most prominent motivic structure of the piece (the chromatic trichord)



Example 3-30

a. Rochberg, *Music for the Magic Theater*, rehearsal no. 20. Quotation from Mozart *Divertimento*, K. 287, First Movement, mm. 60-66

"Allegro"

Violin I and II

Viola, Cello and Double Bass

Reduction

Added pitches

Gap Analysis

2-1[01] {A, Bb}

2-1[01] {F, E}

[021] {E, F, F#}

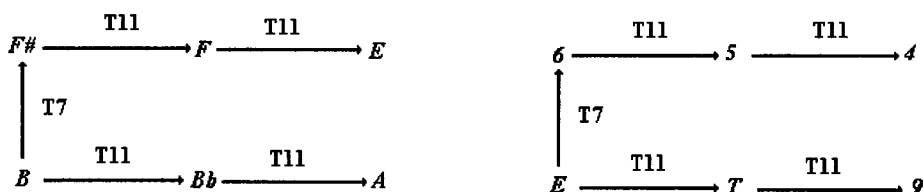
GAP

[021] {A, B}

GAP

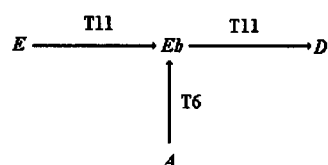
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b. Graphs that represent the 3-1[012] trichord created by the interaction of voice-leading structures and added commentary in the Mozart Divertimento quotation at rehearsal No. 20

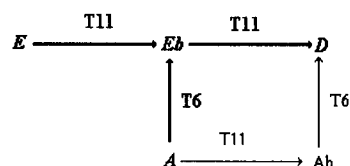


Example 3-31

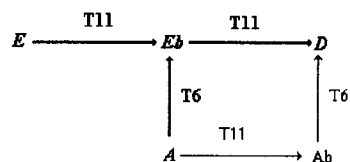
a. Allusion to Varèse at rehearsal No. 2 (rhythmically free version in the trumpet)



b. Allusion to Varèse at rehearsal No. 3 (rhythmically free version involving piano, woodwinds and trumpet)



c. Altered Quotation from Varèse at rehearsal No. 4 (presents the contour, rhythmic and pitch content that underlies all the allusions)



Example 3-31 (cont.)

d. Allusion to Varèse at rehearsal No. 15 (rhythmically free inverted version in the piano)

Musical notation for rehearsal No. 15 shows a sequence of notes: $\sharp C$, $\flat B$, $\flat A$, $\flat G$, $\flat F$, $\flat E$. A chord D is indicated above the notes. The pitch-class diagram shows the following relationships: $E\flat \xrightarrow{T11} D \xrightarrow{T11} C\sharp$; $C\sharp \xrightarrow{T1} D \xrightarrow{T1} E\flat$; $A \xrightarrow{T11} A\flat$; $A\flat \xrightarrow{T1} A$; $A \xrightarrow{T6} E\flat$; $E\flat \xrightarrow{T6} A$.

e. Allusion to Varèse at rehearsal No. 19 (rhythmically free version in the piano)

Musical notation for rehearsal No. 19 shows notes: $\flat B$, $\flat A$, $\flat G$, $\flat F$, $\flat E$, $\flat D$. The pitch-class diagram shows: $F \xrightarrow{T11} E \xrightarrow{T11} E\flat$; $E \xrightarrow{T6} B\flat$; $E\flat \xrightarrow{T6} A$; $B\flat \xrightarrow{T11} A$.

f. Allusion to Varèse at rehearsal No. 28 (rhythmically free version in the piano)

Musical notation for rehearsal No. 28 shows chords: F , E , $E\flat$. The pitch-class diagram shows: $F \xrightarrow{T11} E \xrightarrow{T11} E\flat$; $E \xrightarrow{T6} B\flat$; $E\flat \xrightarrow{T6} A$; $B\flat \xrightarrow{T11} A$.

Example 3-32 Permutations, inversions and retrogrades between the Varèse allusions at rehearsal No. 4 and No. 19

Musical notation for rehearsal No. 4 shows notes: $\flat B$, $\flat A$, $\flat G$, $\flat F$, $\flat E$, $\flat D$. Chords E , $E\flat$, and D are indicated above. Rehearsal No. 19 shows notes: $\flat B$, $\flat A$, $\flat G$, $\flat F$, $\flat E$, $\flat D$. Transformational arrows connect the two: $T1$ (top), $I(T1)$ (middle), and $R(T1)$ (bottom).

Example 3-33

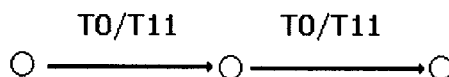
a. Allusion to Varèse at rehearsal No. 4 as a T0/T11 split transposition of the allusion at rehearsal No. 2

Musical notation for Example 3-33a. It shows two staves of music. The first staff is marked with a circled '2' and contains a sequence of notes. The second staff is marked with a circled '4' and contains a sequence of notes, including a triplet. A curved line labeled 'T0' connects the first staff to the second. Below the second staff, there are three chord diagrams labeled 'F', 'Eb', and 'D'. A curved line labeled 'R(T0)' connects the first staff to these chord diagrams. Below the chord diagrams, there is a label 'RI(T11)'. The notes in the second staff are circled, and some are connected to the chord diagrams by lines.

b. Allusion to Varèse at rehearsal No. 28 as a T0/T1 split transposition of the allusion at rehearsal No. 2

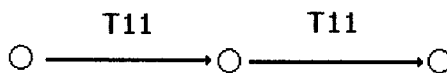
Musical notation for Example 3-33b. It shows two staves of music. The first staff is marked with a circled '2' and contains a sequence of notes. The second staff is marked with a circled '28' and contains a sequence of notes. A curved line labeled 'T1' connects the first staff to the second. Below the second staff, there are three chord diagrams labeled 'F', 'E', and 'Eb'. A curved line labeled 'R(T1)' connects the first staff to these chord diagrams. The notes in the second staff are circled, and some are connected to the chord diagrams by lines.

c. Graph that represents the large-scale transformations of the allusions to Varèse throughout the movement



Example 3-33 (cont.)

d. Graph that represents the most important motivic component of the piece, the sc3-1[012] trichord



Example 3-34 *Music for the Magic Theater I* (rehearsal no. 8). Chromatic expansion from ordered trichordal chromatic collections to ordered hexachordal collections.

8

WW and Brass Reduction

3-1[012] {A,G#,G} [7,8,9]

5

Piano

3-1[012] {F#,F,E} [4,5,6]

3-1[012] {A,Bb,B} [9,T,E]

5

Complementary hexachords complete 12-tone collection

6-1[012345] {C#,D,Eb,E,F,F#} [1,2,3,4,5,6]

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Example 3-35 The chromatic gap created by the presentation of pitch-classes D, Eb and C is saturated by the subsequent presentation of the pitch-class C#

9

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Example 3-36 The chromatic gap created by the successive presentation of pitch-classes G, F#, and A implies the subsequent presentation of the pitch-class Ab. Mozart quotation in the strings juxtaposed with added commentary in the piano and woodwinds

GAP (0,1,3)

Piano and Woodwinds

mf *p* *fff* *f* *espr*

12 "Allegro" ♩ = 144

Violin I *pp* *dolcissimo* *f* *p*

Violin II *pp* *dolcissimo* *f* *p*

Viola *pp* *dolcissimo* *f* *p*

Cello and Double Bass *f* *p*

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Example 3-37 The chromatic gap created by the presentation of pitch-classes F#, G#, and A implies the subsequent presentation of the pitch class G.

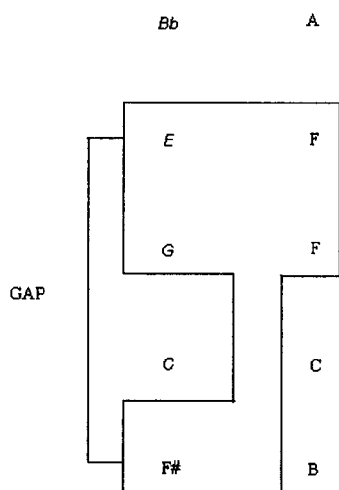
Musical notation for Example 3-37, labeled "Woodwinds and Brass" and marked with a circled "13". The notation shows a sequence of notes on a staff. Above the staff, a bracket labeled "GAP {6,8,9}" spans the first three notes. Further right, another bracket labeled "GAP {6,8,9}" spans three notes, with "F" above the first note and "G" above the third note. A checkmark is placed above the final note of this second gap.

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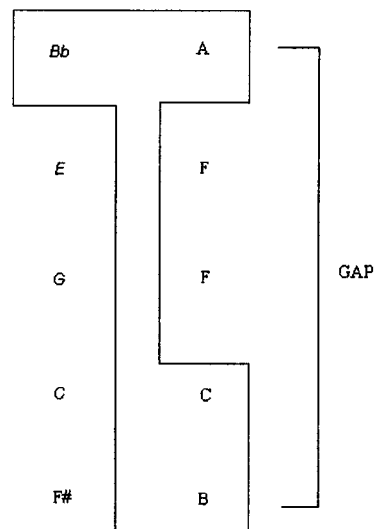
Musical notation for Example 3-38, showing a sequence of notes on a staff. A dashed line connects the first and last notes, indicating a gap.

Example 3-38 Gap analysis of the Mozart Divertimento quotation at rehearsal No. 2, together with the added bass pitches F# and B in the commentary. The gap-fill implications support the tonal voice leading and its pull from E to F and from Bb to A.

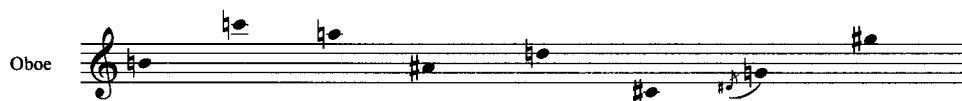
a.



b.



Example 3-39 Gap analysis of the oboe line at rehearsal No. 28



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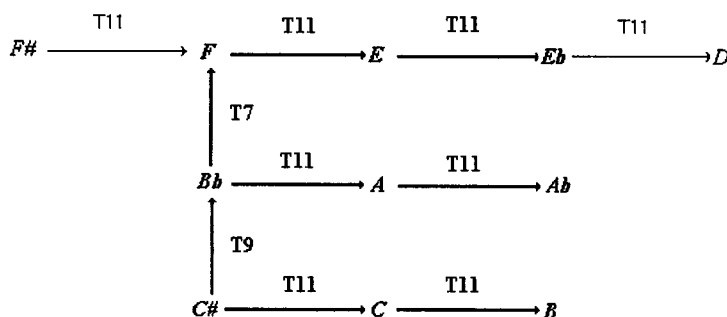
Example 3-40 Gap analysis of the second twelve-tone collection in the oboe at No. 15—typical example of gap completion as it works in the twelve-tone lines in the piece



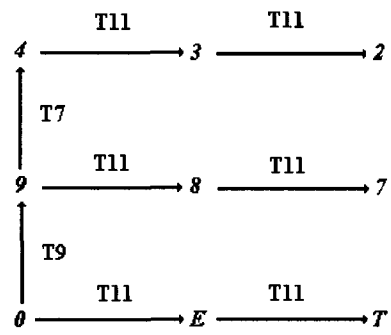
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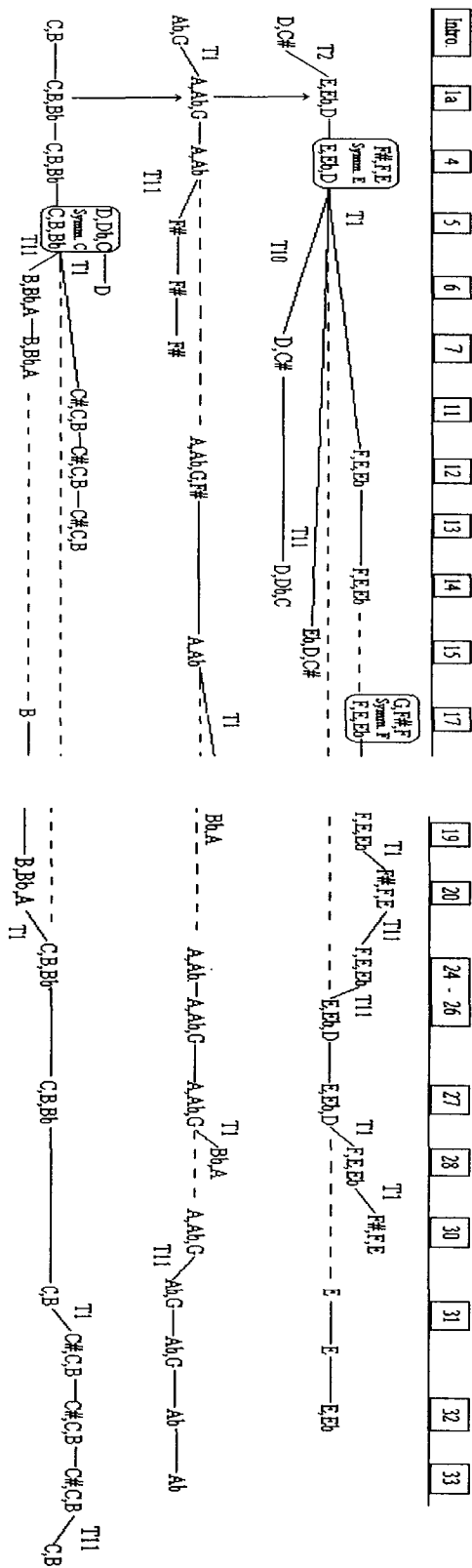
Example 3-42 Large scale transformations of the motive throughout the movement



Reproduction of Example 3-23d for purposes of comparison



Example 3-41 Transformational paths followed by the governing chromatic trichords throughout the movement



CHAPTER 4

The Process of Modulation

Example 4-1 Music for the Magic Theater I (rehearsal nos. 2-3). Includes quotations from Mahler interspersed with commentary by Rochberg.

Pitch Convergence on D5

Adagio ("Straffer im Tempo"); do not drag

Arrival point within interruption

Beginning of Varèse Quotation

Mahler, Symphony No. 9 Mov. IV, m. 13 Commentary interrupts Mahler quotation Mahler (cont) m. 14 Commentary prepares Varèse Quotation

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Example 4-3 *Sinfonia* III (C1, m. 43) excerpt. Pitch convergence and exact intervallic and contour correspondences determine the juxtaposition of the Berlioz's *Symphonie Fantastique* quotation over the material from Mahler's *Scherzo*.

Berlioz, *Symphonie Fantastique*, II, 120 replicates the intervallic structure of the underlying Mahler exactly
(+9,+1,-1,-2)

The image shows a musical score excerpt for Example 4-3, comparing Berlioz's *Symphonie Fantastique* (II, 120) with Mahler's *Scherzo*. The score is written for Flute 1, Flute 2, Clarinet in Bb, and Timpani. The key signature is one flat (Bb), and the time signature is 3/4. The excerpt begins at measure 43. The Flute 1 part has a dynamic marking of *p* and a melodic line with a slur over the first four notes. The Flute 2 part has a dynamic marking of *mf* and a similar melodic line. The Clarinet in Bb part has a dynamic marking of *mf* and a similar melodic line. The Timpani part has a dynamic marking of *p* and a rhythmic pattern. Annotations include "Pitch convergence on C" with a bracket under the first four notes of the flute parts, and the intervallic structure "(+9,+1,-1,-2)" written above the flute parts. A horizontal line with a bracket below it spans the first four notes of the flute parts, with the intervallic structure "(+9,+1,-1,-2)" written below it.

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Example 4-4 *Musique pour les Soupers du Roi Ubu VII* (mm. 73-80). The juxtaposition of the Berlioz *Symphonie Fantastique* quotation over Wagner's *Die Walküre* presents the semitonal motive in augmentation.

The image displays a complex musical score for a piano arrangement. The score is divided into two main sections. The upper section, starting at measure 73, is titled "Wagner, Die Walküre, Dritte Aufzug, m. 20". It features multiple staves for various instruments: Flauto, Clarinetto in Bb 1, Clarinetto in Bb 2, Fagotto 1/tenore, Oboe 1, Oboe 2, Flauto 2, Clarinetto in Bb 1, Clarinetto in Bb 2, Trombe in C, Trombone, Fagotto 2/basso, Timpani 1, Timpani 2, and Piano 1. The lower section, starting at measure 186, is titled "Berlioz, Symphonie Fantastique V, m. 186". It features staves for: Trombe in C, Trombone, Fagotto 2/basso, Piano 1, and Piano 2. A large oval highlights a specific semitonal motive in the Berlioz section, which is then shown in augmentation in the Wagner section. A box on the right side of the score contains the text "Berlioz, Symphonie Fantastique IV, m. 62" with an arrow pointing to the highlighted motive in the Berlioz section. The publisher information "Stockhausen, Klavierstück IX" is located at the bottom left.

Wagner, *Die Walküre*, Dritte Aufzug, m. 20

Berlioz, *Symphonie Fantastique* IV, m. 62

Berlioz, *Symphonie Fantastique* V, m. 186

Stockhausen, *Klavierstück IX*

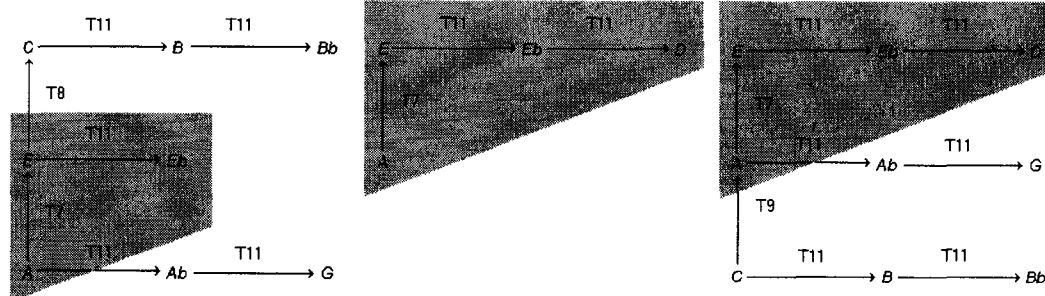
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Example 4-5 The commentary inserted between the quotations isolates features of both quotations and thus creates a conceptual overlap. The pitches are represented by enharmonic spellings.

Mahler, Symphony No. 9
Mov. IV, m. 13

Commentary by Rochberg

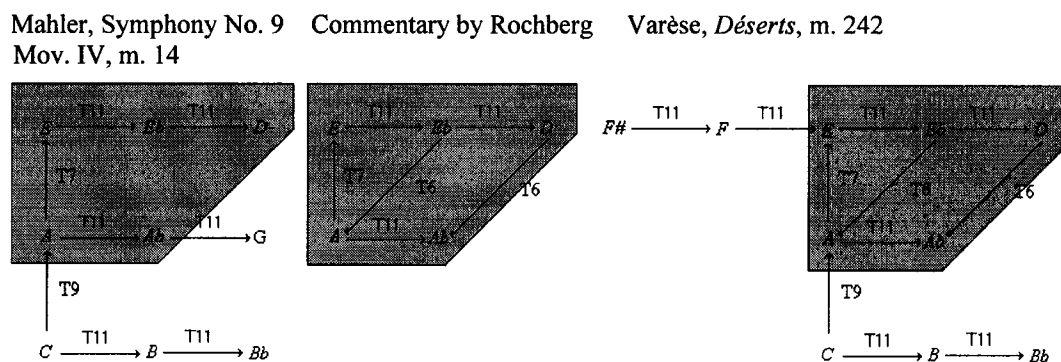
Mahler, Symphony No. 9
Mov. IV, m. 14



Example 4-6 *Music for the Magic Theater I* (rehearsal no. 4). Quotation from Varèse (*Déserts*, m. 242). Follows the excerpt in Example 4-1.

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Example 4-7 The commentary inserted between the quotations from Mahler and Varèse at rehearsal No. 3 creates a literal overlap.



Example 4-8 *Music for the Magic Theater* I (rehearsal no. 7). The [012] trichord that occurs at the juncture between Motives W and Z achieves the modulation.

⑦

Motive W

Horn 1 *closed*

Horn 2 *open*

Trombone

Cello

Double Bass

pp

poco fp

Motive Z

ppp *ppp* *ppp* *ppp*

[012] trichord [A, Bb, B]

The musical score shows Motive W in Horn 1 and Horn 2, and Motive Z in Cello and Double Bass. A [012] trichord [A, Bb, B] is highlighted at the juncture between Motive W and Motive Z. Dynamics include pp, ppp, and fp.

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Example 4-9 *Musique pour les Soupers du Roi Ubu VII* (mm. 21-27). The {Gb, G} ostinato bass notes and the {F#, G} semitonal oscillations provide a harmonic pedal point that binds strongly contrasting adjacently juxtaposed quotations.

The musical score is presented in a multi-staff format, comparing two different musical excerpts. The top staff is labeled '21 $\text{♩} = 84$ ' and 'Wagner, *Die Walküre*, *Dritte Aufzug*, m. 1'. The bottom staff is labeled 'Berlioz, *Symphonie Fantastique* IV, m. 1'. The score includes staves for Flutes and Piccolo, Oboes and English Horn, Clarinets, Timpani 1, Timpani 2, and Piano. The Wagner excerpt features a prominent bass line with semitonal oscillations between Gb and G, and a dynamic marking of *ff*. The Berlioz excerpt features a similar bass line with a dynamic marking of *p*. The Piano part in the Berlioz excerpt is marked with *p* and includes a reference to 'Stockhausen, *Klavierstück* IX'. The score is oriented vertically on the page.

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Example 4-10 *Sinfonia* III (E9, m. 104) excerpt. Added pitch C creates a convergence

Added Pitch C
 Debussy, *La Mer* II, No. 19 creates convergence Berlioz, *Symphonie Fantastique* II, m. 122

The musical score is arranged in a system with the following parts from top to bottom: Flute 1 & 2, Oboe, English Horn, Clarinet 1&2, Violin I, Violin II, Violin, Viola, Cello, and Double Bass. The key signature is one sharp (F#) and the time signature is 3/4. The score begins at measure 104. Dynamics include *p* (piano), *ppp* (pianissimo), and *quasi niente Pont.* (quasi niente, *Pont.*). Performance markings include *alla punta* and *pizz.* (pizzicato). Annotations for "Added Pitches" are present in the Oboe, Clarinet 1&2, Violin II, and Cello parts. A circled note in the Flute 1 & 2 part is also highlighted. The score ends with a double bar line.

Mahler *Scherzo*, m. 109

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Example 4-11 Reductive comparison of Mahler's *Scherzo* m. 287 and Berio's *Sinfonia* III, m. 285. The scherzo material gradually recedes from the musical surface culminating at O, with alternating quotations from Ravel's *La Valse* and Strauss's *Der Rosenkavalier*.

The image displays a musical score for piano, comparing two passages. The score is divided into two main sections: Mahler (left) and Berio (right). The Mahler section begins at measure 285 and includes annotations such as 'Ravel, La Valse, 32. 7 (II) Acts as a reduction of Mahler's Figuration', 'Ravel, La Valse, 78, 2', 'Develops Mahler's figuration in Retrograde', and 'Mahler's frag. (Solf.)'. The Berio section includes the annotation 'espress hervorreichend' and 'sempre pp'. The score features multiple staves for piano, with various musical notations including notes, rests, and dynamic markings like 'mf', 'p', and 'ppp'. The Mahler section concludes with 'Mahler's frag. (Solf.)' and 'sempre pp'.

Example 4-11 (cont.)

Mahler

295

295

295

295

Strauss, *Der Rosenkavalier* II, 250

Ravel, *La Valse*, 82

Strauss, *Der Rosenkavalier* II, 254-10

Ravel, *La Valse* 92, 3

294

Mahler's Frag (Solf.)

Ravel, *La Valse*, 81-6

Mahler frag (Solf.)

Berio

Berio *Sinfonia*

Mahler *Symphony No. 2*

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Example 4-12 Isolates the pitch processes and correspondences in the previous example.

Mahler

286

Berio

286

Ravel, *La Valse*, 32, 7 (T1) Acts as a reduction of Mahler's figuration

Commentary develops Mahler's figuration beyond original goal and then in retrograde

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Example 4-13 *Sinfonia* III (D12-23, mm. 77-88). Isolates the Ravel quotations, its accompanying chromatic scales and the added chromatic scales that permeate the texture.

The image displays a musical score for Example 4-13, which isolates Ravel quotations and chromatic scales from the third movement of Mahler's *Sinfonia* III. The score is arranged in a standard orchestral format with the following instruments from top to bottom: Flute 1, Flute 2, Flute 3, Piccolo, Oboe, Piccolo Clarinet, Clarinet, Horn, Trumpet in C, Piano, and Electric Harpsichord. The score is divided into three systems, each starting at measure 77. The first system (measures 77-88) features a prominent Ravel quotation in the Flute 1 part, circled in black and labeled "Ravel, *La Valse*, No. 32". A dashed circle labeled "Displaced Ravel Accompaniment" encompasses the piano accompaniment in the first system. The second system (measures 89-90) shows a Ravel quotation in the Flute 1 part, circled in black and labeled "Ravel, *Daphnis and Chloe*, No. 176, m. 4". The third system (measures 91-92) continues the piano accompaniment. A large bracket on the left side of the piano part spans measures 77-92 and is labeled "Added chromatic lines; converge with chromatic lines that accompany Ravel". The score includes various musical notations such as dynamics (e.g., *ppp*), articulation marks, and slurs.

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Berto *Sinfonia*

Example 4-14 *Sinfonia* III (D19, m. 84). Pitch convergence determines the juxtaposition of the excerpts from *La Valse* and the transposition level of the quotation from *Daphnis and Chloe*.

The image displays a musical score for Berio's *Sinfonia* III, Example 4-14, focusing on measures 84 and 85. The score is arranged in a standard orchestral format with the following parts from top to bottom: Flute, Clarinet in B-flat, Bassoon, Timpani, Violin I, Violin II, Violin III, Viola, Violoncello, and Double Bass. The key signature is one flat (B-flat major/D minor) and the time signature is 4/4. The score is divided into two systems. The first system, measures 84-85, features a quote from Ravel's *La Valse*, No. 33, starting at measure 84. The second system, measures 86-87, features a quote from Ravel's *Daphnis and Chloe*, No. 176, m. 4. A dashed oval highlights the pitch convergence on the note G in the flute part across both systems. A solid oval highlights a similar motif in the violin parts. The text 'Pitch convergence on G' is written across the flute staff. The text 'Motivically similar to the *Daphnis and Chloe* quotation' is written above the violin parts. The text 'Mahler, *Scherzo*, m. 86' is written below the cello and double bass parts. Dynamics include *mf*, *p*, *pp*, and *ppp*.

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Example 4-15 *Sinfonia III* (C20, m.62) excerpt. A scalar motive from Ravel's *La Valse* is superimposed over the repeating descending scale in Mahler's Scherzo.

62

Ravel
La Valse
26, 4-6

Mahler
Scherzo

Bassoon *p*

Contrabassoon *p*

Piano

Violin A *pp*

Violin B *pp*

Viola *pp*

Cello *p*

Double Bass *p*

Scherzo theme

Transition *p*

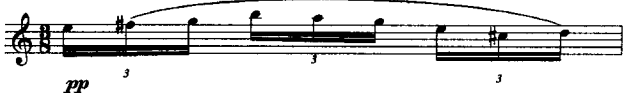
Second subsection of the initial Scherzo

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Example 4-16 Comparison of the figure in *Sinfonia*, m. 323 and Mahler's *Scherzo*, m. 318. Demonstrates how the figure in *Sinfonia* encapsulates Mahler's figuration and thus prefigures the reestablishment of Mahler's material two measures later


Sinfonia, m. 323

323

Violin I 

Scherzo, m. 318

318

Violin I 

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Example 4-17 *Sinfonia III* (P16-Q2, mm. 323-329) Altered version of Mahler figuration and chromatic lines prepare the reestablishment of Mahler's material and the superimposed quotation from Brahms's Fourth Symphony.

323

Flute 1

Contrabassoon

Trumpet in C 1

Trumpet in C 2

Harp

Violin 1

Violin 2

Violin 3

Viola

Cello

Double Bass

Encapsulates Mahler

Anticipate Brahms

Brahms, Symphony No. 4, IV, m. 69

Mahler, *Scherzo*, m. 320

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Example 4-18 *Sinfonia* III (E18-E26, mm. 113-121) Chromatic washes in the keyboards introduce the highly chromatic language and range of the quotation from Ravel's *La Valse* that they introduce.

The image displays a musical score for Example 4-18, which is a chromatic wash in the keyboards from Ravel's *La Valse*, No. 38, m. 10. The score is written for four instruments: Flute 1, Trumpet, Piano, and E. Harpsichord. The music is in 3/4 time and features a highly chromatic language. The score is divided into measures 113 through 121. A circled section highlights a quotation from Ravel's *La Valse*, No. 38, m. 10, which is marked *p* (piano) and *f* (forte). The quotation is a chromatic wash in the keyboards, characterized by a series of half notes moving chromatically across the keyboard. The score includes dynamic markings such as *ppp*, *pp*, *mf*, and *f*, as well as articulation marks like accents and slurs. The E. Harpsichord part is marked *ppp* and features a series of half notes moving chromatically across the keyboard. The Piano part is marked *ppp* and features a series of half notes moving chromatically across the keyboard. The Flute 1 and Trumpet parts are marked *mf* and feature a series of half notes moving chromatically across the keyboard. The score is written in a standard musical notation with a treble clef and a key signature of one flat.

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Example 4-19 Mahler's *Scherzo* (m. 463). Chromatic approach to the climax.

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Example 4-20 *Sinfonia* III (m. 500). The approach to the climax is achieved through chromatic motion that replicates that which appears in Mahler's *Scherzo*.

Sinfonia, m. 500. Chromatic approach to the climax

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Example 4-21 *Music for the Magic Theater I* (rehearsal nos. 11-12). The [012] trichord achieves the modulation between the two sections.

Rhythmically free hocket-like passage in the woodwinds and trumpets over sustained notes in the cello and bass

Beginning of quotation from Mozart *Divertimento* K. 287, mm. 6-24

Fl. *f sf* ca. 1-2" *p* ca. 1/2-1" *poco f p* ca. 1" *mp* *pp* "Allegro" *pp*

Tpt. *p* ca. 1/2-1" *poco f p* ca. 1" *mp* *pp*

Ob. *poco f p* ca. 1" *mp* *pp*

Bsn. *poco f p* ca. 1" *mp* *pp*

Hn. *poco f* *pp* *pp*

Cello and Bass *pp*

Cl. [012] {G, F#, F} Completes the aggregate

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Example 4-22 *Music for the Magic Theater I* (rehearsal nos. 14-15). The elided retrograde of the [012] trichord represented by the pitches {D, C#, C} achieves the modulation between the quotation from Mozart's *Divertimento* and the highly atonal passage that follows.

Mozart, *Divertimento*, K. 287, I, m. 18-24

3-1[012] {F, E, Eb} [3, 4, 5]

Violin I *p* *f*

Violin II *p*

Viola *p* 3-1[012] {D, C#, C} [0, 1, 2]

Cello and Double Bass *p*

Piano *P leggiero* *ff ben marcato* {C#, D}

Allusion to Varèse
Beginning of highly atonal passage

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Example 4-23 *Music for the Magic Theater I* (rehearsal Nos. 19-20). The elided retrograde of the [012] trichord represented by the pitches {F,E,Eb} achieves the modulation between the highly atonal allusion to Varèse and the Mozart quotation that follows.

Violin I and II

Viola, Cello and Double Bass

Piano

19

20

"Allegro"

ben marcato

f

8va

Mozart *Divertimento*, K. 287, I, mm. 60-66

Commentary by Rochberg
(Allusion to Varèse)

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Example 4-24 *Sinfonia* III (D29, m. 94). Added chromatic layer over the chromatic lines that end the section achieves a rhythmic modulation to the Debussy, *La Mer*, II excerpt.

Debussy, *La Mer*, II
No. 24, 2

Solo Violin

Oboe

Clarinet 1

Clarinet 2

Clarinet 3

Bassoon 1

Bassoon 2

Scherzo
m. 96

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Example 4-25 *Music for the Magic Theater I* (rehearsal nos. 23-26). The quotation is both introduced and left through a rhythmically free presentation of selected layers that precede and follow the quoted material in the original source.

"Plötzlich bedeutend langsamer (Lento) und leise"
Beginning of Quotation

*3-1[012] {A,G#,G} [7,8,9]

* Rhythmically free horn line with pitches from Mahler leads gradually into actual quotation

End of Quotation

*Pitches from Mahler presented

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Example 4-26 *Sinfonia* III (H12-I5, mm. 166-186). First scherzo reprise excerpt compared to its original source in Mahler. Transition from Mahler's *Scherzo* to full texture quotation of Stravinsky's *Le Sacre* and eventual reemergence of the *Scherzo*.

The image displays a side-by-side comparison of musical scores for measures 166-186. The top section, labeled 'Mahler', shows the original score with dynamics such as *p* and *sempre ppp*. The bottom section, labeled 'Berio', shows a reworked version with several annotations: a circled area labeled 'Heterophonic treatment of Mahler', a dashed line labeled 'Added chromatic layers', and a dotted line labeled 'Full texture quotation'. A legend at the bottom left states: '* Indicates Deletion of a Measure'.

Example 4-26 (cont.)

The image displays a musical score for Mahler and Stravinsky. The top system, labeled 'Mahler', contains measures 173 through 178. The bottom system, labeled 'Basso', contains measures 173 through 178. The score is annotated with several key features:

- Mahler frag. Stravinsky, 77, 5 Mahler frag.:** A dotted line above measures 176-177 in the Basso system indicates a comparison between Mahler's fragment and Stravinsky's work.
- Pitch convergence on C:** A circled note in measure 176 of the Basso system is annotated with this text.
- Measure by measure alternation between *Le Sacre* and the *Scherzo*:** A note at the bottom of the page explains the alternating measure structure.
- Dynamic markings:** *f* (forte), *p* (piano), and *pp* (pianissimo) are used throughout the score.
- Other markings:** Asterisks (*) are placed above measure 173 and below measure 176 in the Basso system.

Example 4-27 *Scherzo* (m. 170) and *Sinfonia* III (m. 168) comparison. Demonstrates how the saxophone and violin B present chromaticized versions of Mahler's figuration.

Scherzo, m. 170

Violin 2

pppp *p*

Mahler Symphony No. 2
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Sinfonia, III, m. 168

Alto Saxophone

Violin

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CHAPTER 5

Chromatic Saturation and the Significant Gap

Example 5-1 *Music for the Magic Theater* I. Aggregate completion in the introduction to the movement (newly composed by Rochberg).

Act I: in which the present and the past are all mixed up and it's difficult to decide or to know where reality is

Woodwinds

Horn 1

Horn 2

Trumpet in C

Trombone

Tuba

Piano

Strings

Annotations: *sfz*, *ff*, *f*, *sfz p*, *pppp*, *brilliant, make piano ring*, *floating, veiled, barely perceptible*, *Complete the aggregate*, *stab the air*

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Pitch classes in order of appearance											
7	8	E	1	2	4	T	6	5	0	9	3
0	1	2	3	4	5	6	7	8	9	T	E
Order numbers											

Example 5-2 *Music for the Magic Theater I* (rehearsal nos. 9-10). Aggregate completion.

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Pitch classes in order of appearance											
2	3	0	1	5	4	7	8	6	9	E	T
0	1	2	3	4	5	6	7	8	9	T	E
Order numbers											

Example 5-3 *Music for the Magic Theater I* (rehearsal nos. 2-3 and 4). Aggregate completion linking several successive sections.

Adagio ("Straffer im Tempo"); do not drag

Trumpet in C

Piano and WW

Violin I

Violin II

Viola

Violoncello

Double Bass

Arrival point within interruption

Beginning of Varèse Quotation

Completes the aggregate

Mahler, Symphony No. 9
Mov. IV, m. 13

Commentary interrupts
Mahler quotation

Mahler (cont) m. 14

Commentary prepares
Varèse Quotation

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Pitch classes in order of appearance

9	4	8	3	0	E	7	1	T	5	2	6
0	1	2	3	4	5	6	7	8	9	T	E
Order numbers											

Example 5-4 *Music for the Magic Theater I* (rehearsal nos. 11-12) reduction. Chromatic saturation as a link between highly contrasting sections.

Rhythmically free hocket-like passage in the woodwinds and trumpets over sustained notes in the cello and bass

Beginning of quotation from Mozart, *Divertimento K. 287*, I mm. 6-24

Fl. ca. Tpt. ca. Ob. Bsn. Cl. Hn. Cello and Bass

f sf p poco f mp pp

11 12

"Allegro"

Completes the aggregate

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Pitch classes in order of appearance											
0	E	4	8	2	3	6	T	9	1	7	5
0	1	2	3	4	5	6	7	8	9	T	E
Order numbers											

Example 5-5 *Music for the Magic Theater I* (rehearsal nos. 20-21). Aggregate completion achieves the transition from the Mozart *Divertimento I* (mm. 60-66) quotation to an original lyrical passage in the solo flute.

"Allegro" (20)

End of Mozart Quotation

Beginning of lyrical flute line

Fl. (21)

Completes the aggregate

Violin I and II

Viola, Cello and Double Bass

Added pitches

Pitch classes in order of appearance

5	4	7	9	0	4	5	6	7	1	3	6	8	2	8
0	1	2	3	T	6	7	E	9	T	E				
Order numbers														

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Example 5-6 *Music for the Magic Theater I* (rehearsal no. 12). Aggregate completion relates the Mozart *Divertimento I* (mm. 6-9) quotation and the interpolated layer of commentary.

The image shows two musical excerpts. The top excerpt is for Piano and Woodwinds, featuring a sequence of notes with dynamic markings *mf*, *p*, *fff*, and *f espr*. An arrow labeled "Completes the aggregate" points to a specific note, and another arrow labeled "Interpolated layer of commentary" points to a subsequent section. The bottom excerpt is rehearsal mark 12, titled "Allegro" with a tempo of quarter note = 144. It shows staves for Violin I, Violin II, Viola, and Cello and Double Bass. Dynamics include *pp dolcissimo*, *f*, and *p*. Arrows indicate where the "Mozart quotation is suspended" and where it "resumes".

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Pitch classes in order of appearance											
5	3	2	7	T	0	4	9	1	E	6	8
0	1	2	3	4	5	6	7	8	9	T	E
Order numbers											

Example 5-7 *Music for the Magic Theater I* (rehearsal no. 14). Aggregate completion relates the Mozart *Divertimento I* (mm. 9-24) quotation to the strident juxtaposed commentary. Pitch-class T (Bb) is provided by the ostinato bass and the Mozart melody line

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Pitch classes in order of appearance	Order numbers
6	8
0	1
1	2
2	3
T	4
E	5
0	6
1	7
2	8
3	9
4	T
5	E
7	

Notated break in the music coincides with aggregate completion

Example 5-8 *Music for the Magic Theater II* (rehearsal no. 57). Aggregate completion relates the Mozart *Divertimento VI* (mm. 25-32) to the same strident juxtaposed commentary that appeared in Example 5-7. Pitch-class T (Bb) is provided by the ostinato bass and the Mozart melody line

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Pitch classes in order of appearance	Order numbers
T	0
9	1
E	2
6	3
8	4
0	5
1	6
2	7
3	8
4	9
5	T
7	E

Notated break in the music coincides with aggregate completion

Example 5-9 *Music for the Magic Theater I* (rehearsal nos. 23-26). Chromatic Saturation in pitch-space and the significant gap provide continuity in the music.

"Plötzlich bedeutend langsamer (Lento) und leise"
Beginning of Quotation

Flute
Oboe, Clarinet
Bassoon, Trumpet
Horn
Viola, Violin and Cello
Double Bass

Upper boundary note of the significant gap

* Rhythmically free horn line with pitches from Mahler leads gradually into actual quotation

Fl.
Ob. Cl.
Bsn. Tpt.
Hn.
Vin., Vla. Cello
D.B.

Lower boundary note of the significant gap

End of Quotation

Fl.
Ob. Cl.
Bsn. Tpt.
Hn.
Vin., Vla. Cello
D.B.

Restatement of upper boundary note

Pitches that saturate the gap

Restatement of lower boundary note

*Pitches from Mahler presented in a rhythmically free form

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Example 5-10 The saturated gamuts and significant gaps that structurally organize the Mahler quotation from rehearsal No. 23 through rehearsal No. 25



Example 5-11 Chromatic saturation in pitch space and pitch-class space interact to organize the commentary from rehearsal No. 24 through rehearsal No. 25

24 Saturated gamut from F#4 to F#5

Chords, Nos. 24-25

25 Saturated gamut from F4 to G5

Saturated gamut from F4 to F#5

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Example 5-12 *Sinfonia III E9- E15* (mm. 104-110) excerpt, in concert pitch

Debussy, *La Mer* II, 19
Berlioz, *Symphonie Fantastique* II, m. 122

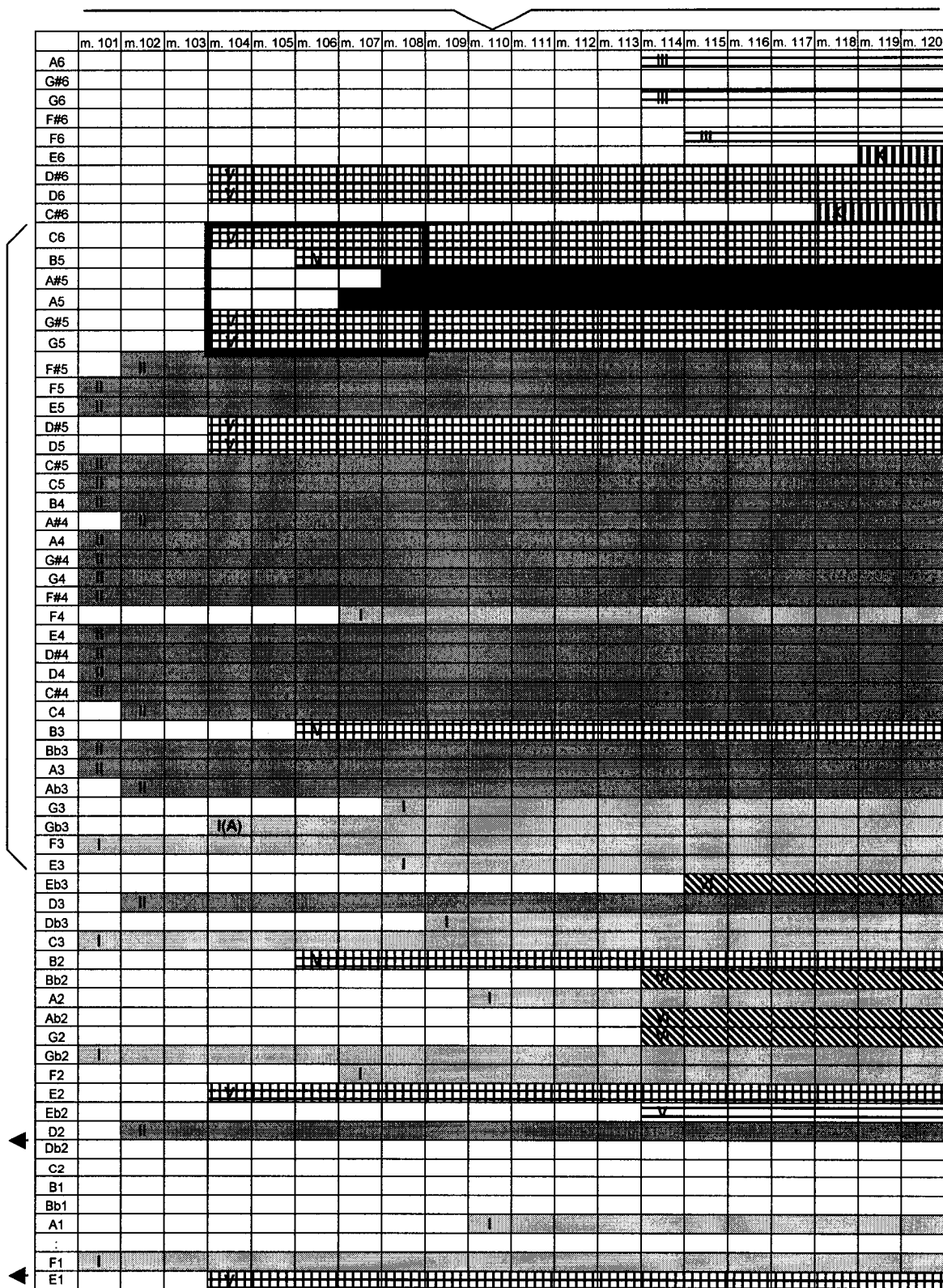
The score includes parts for Flute 1 & 2, Oboe, English Horn, Clarinet 1&2, Violin I, Violin II, Viola, Cello, and Double Bass. Dynamics range from *p* to *ppp*. Performance markings include *quasi niente Pont.* and *alla punta*.

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Example 5-13 Chromatic complementation- oboe and flute lines E9-E13 (mm. 104-108)

	m.104	m.105	m. 106	m. 107	m.108
C6	IV				
B5			IV		
Bb5					
A5					
G#5	IV				
G5	IV				

V- Debussy *La Mer* II, No. 19
 IV- Berlioz *Symphonie Fantastique* II, m. 122

Example 5-14 Chromatic Saturation of Trio I excerpt, *E6-E25* (mm. 101-120)


I- Mahler's *Scherzo*

II- Debussy, *La Mer* II, No. 24 m. 2

III- Ravel *La Valse*, No. 18, m. 7

IV- Berlioz, *Symphonie Fantastique* II, m. 122

V- Debussy, *La Mer* II, No. 19

VI- Chromatic Lines in Keyboard

X- Ravel *La Valse*, No. 18, m. 10

I(A)- Altered Mahler quotation

Example 5-15 Berio *Sinfonia*, III, E 18-E 24 (mm. 113-119) Range E2-C6 with gaps

The image shows a musical score for two instruments: Piano and E. Harpsichord. The score is written in 3/4 time and consists of six measures. The Piano part is in the upper system, and the E. Harpsichord part is in the lower system. Both parts start with a *ppp* dynamic marking. The Piano part features a melodic line with several notes circled in red, and a long horizontal line with a '10' above it indicating a gap in the notation. The E. Harpsichord part also features a melodic line with several notes circled in red, and a long horizontal line with a '10' above it indicating a gap. The score ends with a *mf* dynamic marking and a fermata over the final note.

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Example 5-16

The musical score is organized into three systems, labeled I, II, and III at the top. System I (measures 1-502) includes:

- Intro (measures 1-2)
- Section A: Initial Scherzo (measures 11-19)
- Section B: Trio I (measures 62-74, 98-101, 104-140)
- Section A: 1st Scherzo Reprise (measures 146-181, 188-210)
- Section B: Trio II (measures 210-230, 233-255)
- Section A: 2nd Scherzo Reprise (measures 266-308, 342-357, 375-394)
- Section B: Trio I Reprise (measures 423-437)
- Section C: Trio II Reprise (measures 488-496)
- Section A: Final (measures 502-559)

System II (measures 560-600) and System III (measures 605-650) continue the piece with various musical notations and dynamics. The score includes numerous musical symbols such as notes, rests, slurs, and dynamic markings like *mf*, *fz*, and *z*.

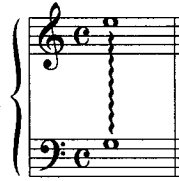
Example 5-17

a.



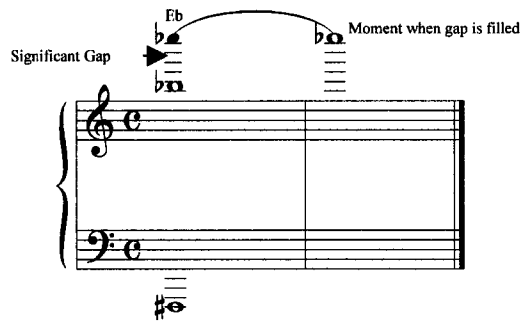
Represents a space that is saturated by all pitches within a section. The space is outlined by the boundary pitches Db3 and Bb5

b.

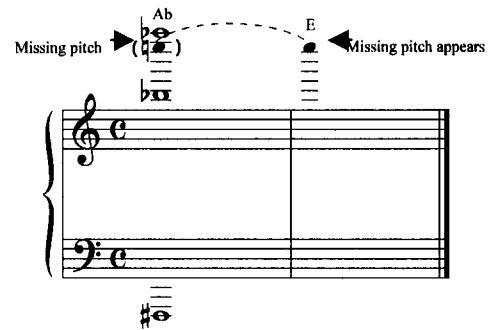


Represents a simultaneously sounding chromatic cluster from G3 to E5

c.

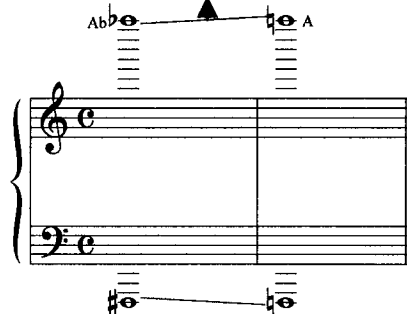


d.



e.

Chromatic Extension of the boundary notes



Example 5-18 Large-Scale Upper-Register Significant Gap

Example 5-19 Large-Scale Significant Gaps, upper and lower registers, with parallel motion from the middleground upper boundary pitches

Example 5-20 Gesture that connects the recapitulation with the reestablishment of Mahler for the climax of the piece. AA13- BB1 (mm. 500-502)
Condensed filling in of the Lower- Register Significant Gap from F#1 to C1

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Example 5-21 Saturation of the Significant Gap from the Recapitulation to the end of the Piece

8ve

E

<Recap> m. 488

C (continued)-CLIMAX m. 502

(m. 559)

A (Final Scherzo Reprise) m. 568

(m. 575)

C1

Detailed description: This musical score illustrates a significant pitch gap between E5 and Eb7. The top staff shows a treble clef with a dashed line indicating the 8ve range. A circled 'E' is placed above the staff. The bottom staff shows a bass clef with a circled 'C1' below it. The score is divided into sections: '<Recap> m. 488', 'C (continued)-CLIMAX m. 502', '(m. 559)', and 'A (Final Scherzo Reprise) m. 568 (m. 575)'. Dashed lines connect the E5 note in the recap section to the Eb7 note in the final section, showing the saturation of the gap.

Example 5-22 Large-Scale Chromatic Boundary Extensions

8ve

Ab

A

* CLIMAX

Bb

m. 1 101 146 210 375 423 457 488 568

A B A C A B C <RECAP> A

Initial Scherzo Trio I 1st Scherzo Reprise Trio II 2nd Scherzo Reprise Trio I Reprise Trio II Reprise Recapitulation Final Scherzo Reprise

F#1

C1

* CLIMACTIC LOW-POINT

Detailed description: This musical score shows large-scale chromatic boundary extensions. The top staff has a treble clef with notes Ab, A, and Bb. A circled 'Ab' is above the first note, a circled 'A' is above the second, and a circled 'Bb' is above the third. A dashed line indicates the 8ve range. The bottom staff has a bass clef with notes F#1 and C1. A circled 'F#1' is below the first note and a circled 'C1' is below the second. A dashed line indicates the climactic low-point. The score is divided into sections: 'm. 1', '101', '146', '210', '375', '423', '457', '488', and '568'. The sections are labeled: 'Initial Scherzo Trio I', '1st Scherzo Reprise', 'Trio II', '2nd Scherzo Reprise', 'Trio I Reprise', 'Trio II Reprise', '<RECAP>', and 'Final Scherzo Reprise'. A circled 'F#1' is below the first note and a circled 'C1' is below the second. A dashed line indicates the climactic low-point.

Example 5-23 Initial chord of the piece. Presents a Significant Gap from E5 to Eb7

Significant Gap from E5 to Eb7

Detailed description: This block shows two musical staves. The left staff shows a treble clef with a chord of E5 and Eb7. The right staff shows a treble clef with a chord of E5 and Eb7. An arrow points to the gap between E5 and Eb7 with the text 'Significant Gap from E5 to Eb7'.

Example 5-24 First three chords from Schoenberg's *Five Pieces for Orchestra*, Op. 16, No. 4 "Peripetie"

Example 5-25 Middleground Significant Gap- Initial section of the opening Scherzo

Example 5-26 Sinfonia, III (mm. 55-58). Quotation from Berg's Violin Concerto (I, m. 169)

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Example 5-27 Middleground Upper-Register Significant Gap- Second Subsection of the Initial Scherzo

m. 62 m. 98

w' (second part of initial Scherzo)

Example 5-28 Sinfonia, III (mm. 97-98). Quotation from Debussy *La Mer* II (No. 24, m. 2)

Solo Violin

*Pitch F#6

mf

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Example 5-29 Middleground Upper-Register Significant Gap- First Scherzo Reprise and Transition

m. 146 m. 188 m. 210 m. 308 m. 342

A(Scherzo Reprise) Transition C (Trio II)

Example 5-30 *Musique pour les Soupers du Roi Ubu VII: Marche du Décervelage.*
Formal scheme.

							<i>m. 66</i>	<i>m. 80</i>					<i>m. 96</i>
A	B	A	B	A	B	A	B'	A'	B'	A'	B'	A'	A
Berlioz Stockhausen	Wagner						Wagner Stockhausen Dies Irae	Berlioz Main Theme					
X (Intro)							Y						X

Example 5-31 *Musique pour les Soupers du Roi Ubu VII*, mm. 73-79. The ending of the main theme of Wagner's *Die Walküre* and the juxtaposition of material from all three sources prepares the entrance of the main theme from Berlioz' *Symphonie Fantastique*.

Wagner, *Die Walküre*, Dritte Aufzug, m. 20

Berlioz, *Symphonie Fantastique* IV m. 62

Stockhausen, *Klavierstück IX*

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Example 5-32a *Musique pour les Soupers du Roi Ubu VII*, mm. 1-4.

Berlioz, *Symphonie Fantastique* IV, m. 1

Timpani 1

Timpani 2

Piano

Stockhausen, *Klavierstück IX*

Added material

Four Double Bases

p sempre

mp

The score shows four staves. The top two staves are for Timpani 1 and 2, with Berlioz's original triplet patterns. The third staff is for Piano, with Berlioz's original block chords. The bottom staff is for Four Double Bases, showing Stockhausen's original material and 'Added material' in a lower register. Dynamics include *p* sempre and *mp*.

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Example 5-32b Gap created by the contrast in registral space between the material from Berlioz and Stockhausen on one hand, and the added material on the other.

The image shows a grand staff with a treble clef on the upper staff and a bass clef on the lower staff. The upper staff is empty, while the lower staff contains a dense cluster of notes in the bass register, with a sharp sign below it, illustrating the large gap between the two registers.

Example 5-33 Ascending, discontinuous chromatic line in the double basses underlying the A section throughout the introduction.

The image shows two staves of music in bass clef. The top staff shows a sequence of notes: G2, A2, B2, C3, D3, E3, F3, G3, A3, B3, C4, D4, E4, F4, G4, A4, B4, C5. The bottom staff shows a similar sequence of notes, but with some chromatic alterations and a more complex rhythmic pattern, illustrating the ascending, discontinuous chromatic line.

Example 5-34 *Musique pour les Soupers du Roi Ubu VII*, mm. 21-25. Presents the juncture between the end of the first A section and the beginning of the first B section.

21 $\text{♩} = 84$

Wagner, *Die Walküre*, Dritte Aufzug, m. 1

Flutes and Piccolo

Oboes and English Horn

Clarinets

Timpanti 1

Timpanti 2

Piano

Four Double Basses

Berlioz, *Symphonie Fantastique IV*, m. 1

Stockhausen, *Klavierstück IX*

Added material

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Example 5-35 Chromatic complementation relates the material from the B section (mm. 24-25, drawn from Wagner's *Die Walküre*), to the material from the A section.

	m. 1	m. 2	m. 10	m. 18	m. 24	m. 25
G4					IV	IV
F#4					IV	IV
F4						
E4					IV	IV
D#4						
D4					IV	IV
C#4					IV	IV
C4	I	I	I	I	I	I
B3					IV	IV
Bb3						
A3						
Ab3						
G3	I	I	I	I	I	I
Gb3	I	I	I	I	I	I
F3						
E3					IV	IV
Eb3						
D3					IV	IV
Db3	I	I	I	I	I	I
C3	I	I	I	I	I	I
B2					IV	IV
Bb2	II	II	II	II	II	II
A2						
Ab2						
G2	II	II	II	II	II	II
Gb2	I	I	I	I	I	I
F2				III	III	III
E2						
Eb2				III	III	III
D2				III	III	III
Db2						
C2			III	III	III	III
B1			III	III	III	III
Bb1		III	III	III	III	III
A1		III	III	III	III	III
Ab1						
G1		III	III	III	III	III
F#1		III	III	III	III	III

I- Stockhausen, *Klavierstücke*
 II- Berlioz, *Symphonie Fantastique*

III- Added double bass line
 IV- Wagner, *Die Walküre*

Example 5-36 Pitch space that is outlined and almost completely saturated by the material presented through m. 76. With the important exception of Ab1, all of the missing pitches are presented in the ensuing full texture Bb Major quotation of the main theme from *Symphonie Fantastique*

Gamut outlined by mm. 1-76

Gamut is saturated by the quotation from Berlioz' *Symphonie Fantastique* at m. 80

Example 5-37 The quotation of the *Dies Irae* from mm. 76-79 opens up a new significant gap down to the pitch C#1, which is filled only with the last sustained chord of the piece.

Significant gap created by the *Dies Irae* in mm. 76-79

Gap is filled (and expanded) by the organ pedal that sounds under the return of the opening material at the end of the piece (m. 96)

BIBLIOGRAPHY

- Adams, Stephen. *R. Murray Schafer*. Toronto: University of Toronto Press, 1983.
- Altmann, Peter. *Sinfonia von Luciano Berio: Eine analytische Studie*. Vienna: Universal, 1977.
- Ballantine, Christopher. "Charles Ives and the Meaning of Quotation in Music." *The Musical Quarterly* 65 (April 1979): 167-84.
- Berio, Luciano. "Meditation on a Twelve-Tone Horse." *Christian Science Monitor* (July, 1968): Home Forum Page.
- . "Luciano Berio on New Music: An Interview with David Roth." *Musical Opinion* 99 (September, 1976): 548-51.
- . *Two Interviews*. Translated by David Osmond-Smith. New York: M. Boyars, 1984.
- . Berio. Liner notes. *Sinfonia*. Columbia MS 7268.
- Berry, Mark. "Music, Postmodernism, and George Rochberg's Third String Quartet." In *Postmodern Music/Postmodern Thought; Studies in Contemporary Music and Culture*. V. 4. Edited by Judy Lochhead, Joseph Auner. New York and London: Routledge, 2002.
- Bitter, Christof, ed. *Intervall und Zeit: Aufsätze und Schriften zum Werk*. Mainz: Schott, 1974.
- Block, Steven D. "George Rochberg: Progressive or Master Forger?" *Perspectives of New Music* 21/1-2 (1982-83): 407-9.
- Bloom, Harold. *The Anxiety of Influence: A Theory of Poetry*. Oxford: Oxford University Press, 1973.
- Budde, Elmar. "Zitat, Collage, Montage." In *Die Musik der Sechziger Jahre*, ed. Rudolph Stephan. Mainz: B. Schott's Söhne, 1972.
- . "Zum dritten Satz der Sinfonia von Luciano Berio." In *Die Musik der sechziger Jahre*, ed. Rudolph Stephan. Mainz: B. Schott's Söhne, 1972.
- Burkholder, Peter. "Collage." In *The New Grove Dictionary of Music and Musicians*, 2nd Ed., vol. 6. Edited by Stanley Sadie, John Tyrell. London: Grove, 2001.

_____. *All Made of Tunes: Charles Ives and the Uses of Musical Borrowing*. New Haven: Yale University Press, 1995.

_____. "The uses of existing music: musical borrowing as a field." *Music Library Association Notes* 50 (1994): 851-70

_____. "Borrowing," in *The New Grove Dictionary of Music and Musicians*. 2nd Ed., v. 4. Edited by Stanley Sadie, John Tyrell. London: Grove, 2001.

Burkholder, Peter, Andreas Giger and David C. Birchler, eds. *Musical Borrowing: An Annotated Bibliography*. Center for the History of Music Theory and Literature. www.music.indiana.edu/borrowing/ June, 2003.

Campbell, Mary R. "Tonal Reform or Radical Tonality? A Study of Neoromanticism in American Music, with an emphasis on the music and thought of George Rochberg, David Del Tredici and Stephen Albert." Ph.D. Dissertation: University of Connecticut, 1994.

Carter, Chandler. "Contemplating Diversity and Unity in Charles Ives's 'Tom Sails Away'." Paper presented at the SMT Conference in Philadelphia, 2001.

Cott, Jonathan. *Stockhausen: Conversations with the Composer*. New York: Simon and Schuster, 1973.

Cowell, Henry and Sidney Cowell. *Charles Ives and His Music*, 2nd Ed.. New York: Oxford University Press, 1969.

Cyr, Gordon. "Intervallic Structural Elements in Ives's Fourth Symphony." *Perspectives of New Music* 9/2 and 10/1 (Spring/Summer-Fall/Winter 1971): 291-303.

Dahlhaus, Carl. "Ist Rameaus Traité de l'harmonie eine Harmonielehre?." *Musiktheorie* 1 (1986): 123-7.

Danuser, Hermann. "Zur Kritik der musikalischen Postmoderne." *Neue Zeitschrift für Musik* 149/12 (1988): 4-9.

_____. "Musikalische Zitat—und Collageverfahren im Lichte der (Post)Moderne-Diskussion." In *Jahrbuch 4 der Bayerischen Akademie der Schönen Künste*. Edited by Oswald Georg Baur, Sylvia Riedmaier. Schaftlach: Oreos Verlag, 1990.

Dixon, Joan DeVee. *George Rochberg: A Bio-Bibliographic Guide to his Life and Works*. Stuyvesant, NY: Pendragon Press, 1992.

Dömling, Wolfgang. "Collage und Kontinuum: Bemerkungen zu Gustav Mahler und Richard Strauss." *Neue Zeitschrift für Musik* 133 (1972): 131-4.

Duffalo, Richard. *Trackings: Composers Speak with Richard Duffalo*. New York: Oxford University Press, 1989.

Ellison, Mary "Ives' Use of American 'Popular' Tunes as Thematic Material," in *South Florida's Historic Ives Festival 1974-1976*, ed. F. Warren O'Reilly. Coral Gables, Fla.: University of Miami at Coral Gables, 1976.

Ernst, Max. *Beyond Painting*. Translated by Dorothea Tanning. New York: Wittenborn, Schultz, Inc., 1948.

Escal, Françoise. "La technique du collage dans *Ludwig van de Mauricio Kagel*." *Montages/Collages: Actes du second colloque du CICADA*. Pau, France: Université de Pau, 1993.

Feder, Stuart. "Decoration Day: A Boyhood Memory of Charles Ives," *The Musical Quarterly* 66 (April 1980): 234-61.

Flynn, George W. "Listening to Berio's Music." *Musical Quarterly* 61 (July 1975): 388-421.

Gingerich, Lora L. "A Technique for Melodic Motivic Analysis in the Music of Charles Ives," *Music Theory Spectrum* 9 (1986): 75-93.

Griffiths, Paul. "Quotation, Integration." *Modern Music: The Avant-garde Since 1945*. New York: George Braziller, 1981.

———. *Modern Music: A Concise History*. New York: Thames and Hudson, 1994.

Heile, Björn. "Collage vs. Compositional Control: The Interdependency of Modernist and Postmodernist Approaches in the Work of Mauricio Kagel." In *Postmodern Music/Postmodern Thought; Studies in Contemporary Music and Culture*. V. 4. Edited by Judy Lochhead, Joseph Auner. New York and London: Routledge, 2002.

Henderson, Clayton. "Structural Importance of Borrowed Music in the Works of Charles Ives: A Preliminary Assessment." in *Report of the Eleventh Congress of the International Musicological Society Held at Copenhagen, 1972*, ed. Henrik Gahn, Soren Sorensen and Peter Ryom. Copenhagen: Wilhelm Hansen, 1974.

Hicks, Michael. "Text, Music and Meaning in the Third Movement of Luciano Berio's Sinfonia." *Perspectives of New Music* 20 (1981-2): 199-224.

———. "The New Quotation: Its Origins and Functions." Ph.D. Diss., University of Illinois at Urbana-Champaign, 1984.

- Hoffman, Katherine. "Collage in the Twentieth Century: An Overview." *Collage: Critical Views* (Ann Arbor, 1989): 1-38.
- Hiekel, Jorn Peter. "Bernd Alois Zimmermanns 'Surrealismus'." *Musica* (Germany) 49/4 (July-August 1995): 227-32.
- Ives, Charles. *Essays Before a Sonata, The Majority and Other Writings*. Edited by Howard Boatwright. New York: Norton, 1970.
- Jahnke, Sabine. "Materialien zu einer Unterrichtssequenz: Des Antonius von Padua Fischpredigt bei Orff-Mahler-Berio." *Musik und bildung* v (1973): 615-22.
- Janis, Harriet and Blesh, Rudi. *Collage: Personalities, Concepts, Techniques*. Philadelphia: Chilton Book Company, 1967.
- Johnson, Timothy. "Chromatic Quotations of Diatonic Tunes in Songs of Charles Ives." *Music Theory Spectrum* 18/2 (1996): 236-61.
- Josephson, Nora S. "Charles Ives: Intervallische Permutationen im Spätwerk." *Zeitschrift für Musiktheorie* 9/2 (Fall 1978): 27-33.
- Kiesewetter, Peter. "Bernd Alois Zimmermann: *Musique pour les soupers du Roi Ubu*." *Melos* 47 (1985): 28-59.
- Klüppelholz, Werner. *Mauricio Kagel, 1970-1980*. Cologne: DuMont, 1981.
- Klüppelholz, Werner, ed. *Kagel... /1991*. Cologne: DuMont, 1991.
- Kneif, Tibor. "Collage oder Naturalismus?: Anmerkungen zu Mahlers 'Nachtmusik I.'" *Neue Zeitschrift für Musik* 134 (1973): 623-8.
- Kolodin, Irving. "Berio, Rochberg and the Musical Quote." *Saturday Review* 2 (February 8, 1975): 36-38.
- Kramer, Jonathan. "Beyond Unity: Towards an Understanding of Musical Postmodernism." In *Concert Music, Rock and Jazz since 1945: Essays and Analytical Studies*, ed. Elizabeth West Marvin and Richard Hermann. New York: University of Rochester Press, 1995.
- . "The Nature and Origins of Musical Postmodernism." In *Postmodern Music/Postmodern Thought; Studies in Contemporary Music and Culture*. V. 4. Edited by Judy Lochhead, Joseph Auner. New York and London: Routledge, 2002.
- Krellmann, Hanspeter. "Mit Collage und Kurzwelle: Mauricio Kagels und Karlheinz Stockhausens Beiträge zum Beethoven-Jahr." *Fono Forum* 15 (September 1970): 608-9.

Krieger, Georg and Wolfgang Martin Stroh. "Probleme der Collage in der Musik aufgezeigt am 3. Satz der "Sinfonia" von Luciano Berio." *Musik und Bildung* 3 (1971): 229-235.

Kühn, Clemens. "Die Orchesterwerke Bernd Alois Zimmermanns." *Schriftenreihe zur Musik* 12 (Hamburg: Verlag der Musikalienhandlung Wagner, 1978): 103-113.

———. *Das Zitat in der Musik der Gegenwart*. Hamburg: Wagner, 1972.

Lambert, Philip. *The Music of Charles Ives*. New Haven: Yale University Press, 1997.

Lissa, Zofia. "Historical Awareness of Music and its Role in Present-Day Musical Culture." *International Review of the Aesthetics and Sociology of Music* 4 (June 1973): 17-32.

———. "Ästhetische Funktionen des musikalischen Zitats." *Die Musikforschung* 19 (1966): 364-78.

Lochhead, Judy. "Introduction," In *Postmodern Music/Postmodern Thought; Studies in Contemporary Music and Culture*. V. 4. Edited by Judy Lochhead, Joseph Auner. New York and London: Routledge, 2002.

Maconie, Robin, ed. *Stockhausen on Music: Lectures and Interviews*. New York: M. Boyars, 1989.

———. *The Works of Karlheinz Stockhausen*. Oxford: Clarendon Press, 1990.

Marshall, Dennis. "Charles Ives's Quotations: Manner or Substance?," *Perspectives of New Music* 6/2 (Spring-Summer, 1968): 45-56.

McCredie, Andrew and Marion Rothärmel. "Zimmermann, Bernd Alois." In *The New Grove Dictionary of Music and Musicians*, 2nd Ed. v. 27. Edited Stanley Sadie, John Tyrell. London: Grove, 2001.

McCutchan, Ann. *The Muse that sings: composers speak about the creative process*. New York: Oxford University Press, 1999.

Metzer, David. *Quotation and Cultural Meaning in Twentieth-Century Music*. Cambridge: Cambridge University Press, 2003.

Meyer, Leonard. *Emotion and Meaning in Music*. Chicago: University of Chicago Press, 1956.

Morgan, Robert P. *Twentieth Century Music: a History of Musical Style in Modern Europe and America*. New York: W.W. Norton, 1991.

_____. "Spatial Form in Ives." In *An Ives Celebration: Papers and Panels of the Charles Ives Centennial Festival-Conference*, edited by H. Wiley Hitchcock and Vivian Perlis. Urbana: University of Illinois Press, 1977.

Nyman, Michael. *Experimental Music: Cage and Beyond*, 2nd Ed. New York: Cambridge U. Press, 1999.

O'Donnell, Shaugn. "Transformational Voice Leading in Atonal Music." Ph.D. diss., The City University of New York, 1997.

Osmond-Smith, David. "Berio and the Art of commentary." *The Musical Times* xvi (October 1975): 871-72.

_____. *Playing on Words: A guide to Luciano Berio's Sinfonia*. London: Royal Music Association. Cambridge: B Jordan Music Books, 1985.

_____. *Berio*. New York: Oxford University Press, 1991.

Paddison, Max. *Adorno's Musical Aesthetics*. Cambridge: Cambridge University Press, 1993.

Perry, Rosalie Sandra. *Charles Ives and the American Mind*. Kent, Ohio: Kent State University Press, 1974.

Rathert, Wolfgang. *Charles Ives*. Darmstadt: Wissenschaftliche Buchgesellschaft, 1989.

Ravizza, Victor. "Die Melos-Analyse: Sinfonia für acht Singstimmen und Orchester von Luciano Berio." *Melos* XLI/5 (September/October 1974): 291-297.

Reilly, Edward. "Todtenfeier and the Second Symphony." In *The Mahler Companion*, ed. Donald Mitchell and Andrew Nicholson. New York: Oxford University Press, 1999.

Reilly, Robert. "The Recovery of Modern Music: George Rochberg in Conversation." *Tempo* 219 (February 2002): 8-12.

Reise, Jay. "Rochberg the Progressive." *Perspectives of New Music* 19(1980-81): 395-407.

Richardson, Neal. "Musical Borrowing in Selected Works by Peter Maxwell Davies and George Rochberg." Master's Thesis, Baylor University, 1994.

Ringer, Alexander. "The Music of George Rochberg." *The Musical Quarterly* 52 (October 1966): 409-430.

Rochberg, George. *The Aesthetics of Survival: A Composer's View of Twentieth-Century Music*. Edited by William Bolcolm. Ann Arbor: University of Michigan Press, 1984.

- _____. "Reflections on the Renewal of Music." *Current Musicology* xiii (1972): 75-82.
- _____. "Bernd Alois Zimmerman: Perspektiven (1956)." *Notes: The Quarterly Journal of the Music Library Association* XIV (March, 1957): 197-198.
- Robinson, Charles S. "The Use of Borrowed Material in Ives' Second Symphony," *The Music Review* 28 (May 1967): 102-111.
- Robinson, Lisa Brooks. "Mahler and Postmodern Intertextuality." Ph.D. diss., Yale University, 1994.
- Ruf, Wolfgang. "Zimmermann und Jarry: Zur *Musique pour les Soupers du Roi Ubu*." In *Zwischen den Generationen Regensburg*. Regensburg: Germany: Bosse, 1989.
- Salzman, Eric. "Rochberg: Chamber Symphony, Duo Concertante, Music for the Magic Theater, Ricordanza, String Quartet No. 1." *Stereo Review* 27/1 (1976): 111.
- Schoenberg, Arnold. *Fundamentals of Musical Composition*. Edited by Gerald Strang. London: Faber and Faber, 1967.
- Schwartz, Elliott and Daniel Godfrey. *Music since 1945: Issues, Materials and Literature*. New York: Schirmer Books, 1993.
- Schwartz, Elliot and Barney Childs, eds. *Contemporary Composers on Contemporary Music*. New York: Da Capo Press, 1998.
- Shirley, Wayne. "'The Second of July': A Charles Ives Draft Considered as an Independent Work." In *A Celebration of American Music: Words and Music in Honor of H. Wiley Hitchcock*, ed. Richard Crawford, R. Allen Lott, and Carol J. Oja. Ann Arbor: University of Michigan Press, 1990.
- Simms, Bryan. *Music of the Twentieth Century: Style and Structure*. New York: Schirmer Books, 1986.
- Skrzynska, Anna. and others. "Collage w Muzyce." *Forum* x (1971): 1-39.
- Sonntag, Brunhilde. "Untersuchungen zur Collage-Technik in der Musik des 20. Jahrhunderts." In *Perspektiven zur Musikpädagogik und Musikwissenschaft*. Vol. 3. Regensburg: Bosse, 1977.
- Sterne, Colin. "The Quotations in Charles Ives's Second Symphony." *Music and Letters* 52 (January 1971): 39-45.
- Stockhausen, Karlheinz. *Texte zur Musik 1963-1970*. Köln: DuMont Schauberg, 1971.

_____. *Towards a Cosmic Music*. Translated by Tim Nevill. Longmead Shaftsbury, Dorset: Element Books, 1989.

Straus, Joseph N. *Remaking the Past: Musical Modernism and the Influence of the Tonal Tradition*. Cambridge: Harvard University Press, 1990.

_____. "The 'Anxiety of Influence' in Twentieth-Century music." *The Journal of Musicology* 9 (Fall 1991): 430-447.

Tannenbaum, Mya. *Conversations with Stockhausen*. New York: Oxford U. Press, 1987

Tibbe, Monika. "Musik in Musik: Collagetechnik und Zitierverfahren." *Musica* 25 (November/December 1971): 562-3.

Tillman, Joakim. "Postmodernism and Art Music in the German Debate." In *Postmodern Music/Postmodern Thought; Studies in Contemporary Music and Culture*. V. 4. Edited by Judy Lochhead, Joseph Auner. New York and London: Routledge, 2002.

Varnedoe, Kirk, and Adam Gopnik, eds. *Modern Art and Popular Culture: Readings in High and Low Art*. New York: Museum of Modern Art, 1990.

Waldman, Diane. *Collage, Assemblage, and the Found Object*. New York: Harry N. Abrams, Inc., 1992.

Wallach, Laurence. "The New England Education of Charles Ives." Ph.D. diss., Columbia University, 1973.

Ward, Charles. "The Use of Hymn Tunes as an Expression of 'Substance' and 'Manner' in the Music of Charles E. Ives, 1874-1954." Master's thesis, University of Texas at Austin, 1969.

Ward, Charles. "Charles Ives: The Relationship Between Aesthetic Theories and Compositional Processes." Ph.D. diss., University of Texas at Austin, 1974.

Watkins, Glenn. *Soundings: Music in the Twentieth Century*. New York: Schirmer Books, 1988.

_____. *Pyramids at the Louvre: Music, Culture, and Collage from Stravinsky to the Postmodernists*. Cambridge: The Belknap Press of Harvard University Press, 1994.

_____. Liner notes for *Chamber Music of George Rochberg*. The New York Chamber Ensemble. New World Records 80462-2, 1994.

Weiss, Jeffrey S. "Picasso, Collage, and the Music Hall." In *Modern Art and Popular Culture: Readings in High and Low Art*. Edited by Kirk Varnedoe, Adam Gopnik. New York: Museum of Modern Art, 1990.

Whitesell, Lloyd. "Reckless Form, Uncertain Audiences: Responding to Ives." *American Music* 12 (Fall 1994): 304-319.

Wolfram, Eddie. *History of Collage: An Anthology of Collage, Assemblage and Event Structures*. New York: Macmillan Publishing, 1975.

Wörner, Karl Heinrich. *Stockhausen, Life and Work*. Berkley: U of California Press, 1973.