Clusters, Clouds, and Constellations:
Twelve-Tone Techniques and Variation Strategies
in Two Concertos by Ginastera

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ABSTRACT

In the late 1950s and early 1960s, Alberto Ginastera turned to twelve-tone composition. The personal twelve-tone language he developed during this time was largely an extension of the motivically-driven, sequentially-patterned, chromatic language he favored in his earlier, non-twelve-tone works. The primary objective of this study is twofold: (1) it illustrates the general characteristics of Ginastera's compositional approach that remain consistent regardless of whether or not he uses a twelve-tone row as a point of departure; and (2) it demonstrates specific twelve-tone organizational strategies in the context of two of his earliest serial works, the Piano Concerto No. 1, Op. 28 (1961) and Violin Concerto, Op. 30 (1963).

Clusters, *clouds*, and *constellations* are metaphors—proposed by Ginastera himself—that invoke both the spirit of Ginastera's twelve-tone music and the analytical approach advanced in this study. These metaphors suggest ways of analytically and aurally interpreting the motivic characteristics of this music and the manner in which deeper-level events are organized. Motivic sequences pervade the pitch structure of both concertos and interact in meaningful ways with the concertos' primary row classes, thereby underscoring compositional techniques like serial derivation in the Piano Concerto and pitch-class/order-number isomorphisms in the Violin Concerto. Significantly, these motivic processes compose-out a select few collections on the music's structural middleground; these collections include the familiar octatonic (set class 8-28 (0134679t)) and what this study calls the 8-note collection (set class 8-9 (01236789)), and also prominent subsets of these collections, including their abstract complements, (0369) and (0167).

These motivic processes are intimately bound to the variation structure that organizes the two concertos. Both works are variation forms that replace the conventional "theme" with

lengthy *Cadenza* sections. These *Cadenzas* establish essential motives, pitch-class centers, and row relations that are varied in subsequent variations. In addition to traditional issues of twelve-tone invariance, this study is concerned with the way in which novel techniques—like row *surrogacy*, row *derivation*, and row *families*—act as vehicles for variation.

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PREFACE

The notation in this study assumes C = 0, C♯ = 1, . . . , B♭ = "t," B = "e."[1] Prime (P) and inversion (I) row forms are identified by their initial pitch class, while retrograde (R) and retrogade-inversion (RI) rows are identified by their final pitch class. For example, P_1 indicates a prime row form that begins with a C♯ (or D♭); RI_1, on the other hand, indicates a retrograde-inversion row form that ends with a C♯ (or D♭).

Collections shown within curly brackets { } indicate unordered collections, and those shown within square brackets [ ] indicate normal order. When the order of the complete twelve-tone row, or a contiguous segment of it, is of paramount concern, such segments will be shown within angled brackets < >. All collections shown within parentheses ( ) begin with 0 and thus represent the prime form of a set class. For example, the collection {G, B, D} may be expressed in normal order as [7e2], which is a member of set class (037). Set classes will sometimes be referred to by their Forte numbers (e.g., set class 3-11 indicates (037)).

The individual order numbers of a row's twelve pitch classes are given in integer notation and will always be indicated by italics. Order numbers range from *0* (the first pitch class of a row) through "*e*" (the final pitch class of a row). For example, collection {*6789te*} represents the second hexachord of a twelve-tone series, and like pitch-class sets, order-number sets may also be expressed in prime form: {*6789te*} is a member of set class (*012345*).

A pitch-class integer followed by an asterisk indicates that its order-number position deviates from the original series order. Such designations usually indicate that two pitches have swapped places: for example, the series shown as <1, 4*, 7, 8, 2, 9, e, 0, t, 5, 6, 3*> indicates that

[1] The initials "t" and "e" stand for "ten" and "eleven."

pitch-classes 4 and 3 have swapped places, and that 4 now appears where 3 normally would have been. A number appearing in parentheses within a series indicates that it does not literally sound in the music: for example, the series shown as <1, 4, 7, (8), (2), (9), e, o, t, 5, 6, 3> indicates an incomplete row presentation in which the second discrete trichord does not appear in the music. The use of quotations “ ” around a row-form label (e.g., “P_2”) indicates that the row is substantially truncated or re-ordered from its original form but nonetheless strongly suggests the row implied by the label.

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CHAPTER 1:

INTRODUCTION

This study is devoted to the music and compositional techniques of one of the most celebrated Latin American composers of the twentieth century, Argentine composer Alberto Ginastera (1916–1983). In the late 1950s and 1960s, Ginastera's compositional style underwent a transition: the quasi-tonal, "nationalistic" sound of his early works yielded to an "expressionist" style in which he embraced the twelve-tone method championed by Schoenberg and Berg. Despite the interest Ginastera's music has received, and continues to receive, from performers and conductors around the world, relatively little scholarship is devoted to the analysis of his music, especially these "later," twelve-tone works. The purpose of this dissertation is thus twofold: (1) it seeks to shed light on Ginastera's works from the 1960s that are overshadowed by his more popular "early" works; and (2) it seeks to frame the compositional materials and strategies of his 1960s works—especially the twelve-tone Piano Concerto No. 1, Op. 28 (1961) and Violin Concerto, Op. 20 (1963)— within the composer's general style. More specifically, this dissertation focuses on a group of twelve-tone techniques integral to variation sets from these works.

Scope and Organization of this Study

This study comprises five chapters, which are briefly described below. The first three chapters survey broader issues related to Ginastera's career and compositional approach, paying particular attention to the esoteric characteristics of his style that led to his adoption of the twelve-tone method. The last two chapters culminate in detailed analyses of the twelve-tone

techniques and variation strategies Ginastera employs in the first movements of his Piano Concerto No. 1, Op. 28 (1961) and Violin Concerto, Op. 20 (1963).

The present chapter focuses on events, both professional and personal, in Ginastera's life that contributed to his burgeoning success as a composer and influenced his move toward twelve-tone composition. The discussion is divided into three parts. The first part addresses the commonly-accepted division of Ginastera's works into three stylistic periods, the third of which encompasses the works analyzed in this study. The second part explores how Ginastera's international experiences in the United States and Europe in the late 1940s and 1950s, along with the increasing exposure of his works to an international audience, helped shape directly and indirectly the ongoing development of his compositional approach in the 1960s. Significantly, both the Piano Concerto and the Violin Concerto, composed only two years apart, emerge from a period when Ginastera was in close contact with some of the most highly regarded figures in art music, music education, and cultural life. The third and final part of this chapter summarizes the current state of scholarship on Ginastera and his music, especially his serial works from the period in which both concertos were composed.

Chapter 2 explores the general characteristics of Ginastera's compositional style and highlights how these characteristics integrated naturally into the development of his twelve-tone language and approach. The chapter begins by invoking the metaphors of *clusters*, *clouds*, and *constellations*, referenced in the title of this dissertation. These metaphors capture both the spirit of Ginastera's musical language and the analytical approach advanced throughout this study. Ginastera's works from the 1960s are oftentimes described as "freely" twelve-tone, which is meant to imply that, from a compositional perspective, Ginastera takes great "liberties" with the

row and its musical deployment. Indeed, much of his serial music resists a conventional "twelve-count" analysis. Thus, chapter 2 highlights how earlier musical characteristics lead the way to Ginastera's idiosyncratic twelve-tone language.

The analytical methodology used throughout the remainder of this study is introduced in chapter 3. In particular, this chapter addresses a variety of organizational strategies common to Ginastera's twelve-tone approach. The *surrogate* relation forms the basis of many of these strategies. The second part of chapter 3 uses this relation, amongst others, to explore the ways in which variation techniques manifest within his compositional language. While in some sense this study is concerned with traditional issues of twelve-tone invariance, in a broader sense it explores the way in which novel techniques—like row *surrogacy*, row *derivation*, and row *families*—act as vehicles for variation.

Finally, chapters 4 and 5 comprise the analytical core of the dissertation. Chapter 4 addresses the Piano Concerto, showing how variation techniques in the first movement center around three interrelated processes: (1) the large-scale organization of rows based on *surrogate* relations; (2) the sequential projection of serially-derived motives; and (3) the use of composing-out procedures to complete the aggregate. Like the previous chapter, chapter 5 follows a similar analytical trajectory, investigating the first movement of the Violin Concerto. Although the twelve-tone language is similar, the variation strategies are decidedly different: where the variations of the Piano Concerto vary the "theme" in a traditional sense, those of the Violin Concerto vary the properties of the row itself.

Works and Stylistic Periods

From a performance perspective, Ginastera's music is often admired for its spirited combination of driving rhythms and percussive articulations and the balance it strikes between melodic-motivic intensity and exuberant playfulness. His most popular works comprise a variety of genres, including character pieces for piano, ballets, songs and choral works, and string quartets. Many of Ginastera's piano works, in particular, are standards in the twentieth-century repertoire and are excellent pedagogical studies in asymmetrical rhythms, changing meters, articulation, lyricism, and, sometimes, sheer physical endurance. Popular representatives of his piano works include *Danzas argentinas*, Op. 2 (1937), *Malambo*, Op. 7 (1940), *Doce preludios americanos*, Op. 12 (1944), *Suite de danzas criollas*, Op. 15 (1946), and the Piano Sonata No. 1, Op. 22 (1952).[1] Some of the more popular and regularly performed of Ginastera's non-piano works include the orchestral ballet suites from *Panambí*, Op. 1 (1937) and *Estancia*, Op. 8 (1941), *Variaciones concertantes*, Op. 23 (1953), and the String Quartets No. 1, Op. 20 (1948) and No. 2, Op. 26 (1958, rev. 1968).[2]

More recently, major performers and concert halls have given some of Ginastera's works a revival of sorts. In 2010, the New York City Ballet premiered the first choreographed US performance of *Estancia*, Op. 8 (1941). The following year, in December of 2011, the University of Michigan held the ¡Viva Ginastera! Festival during which renowned pianist, Barbara Nissman

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[1] In the last two years of his life, Ginastera wrote two more piano sonatas, the last of which was left incomplete upon his death. The latter sonatas differ dramatically in style and scope from the critically acclaimed Piano Sonata No. 1. In an interview conducted by Barbara Nissman shortly before his death, Ginastera admitted to feeling anxiety about whether any subsequent sonata could "live up to" the success of the first; tellingly, nearly thirty years separate the composition of the first and second sonatas. See Nissman, "Alberto Ginastera: Composer of Latin America," *Keynote* 7, no. 6 (1983): 8–13.

[2] Ginastera's final quartet, the String Quartet No. 3, Op. 40 (1973, rev. 1978), is not so widely performed in part because requires a soprano soloist—no doubt a nod to Schoenberg's instrumentation of the same genre in his second quartet.

—dedicatee of his final work, the Piano Sonata No. 3, Op. 54 (1982)—was invited to premiere the *Concierto argentino* (1935), a never before heard piece which Ginastera withdrew from his catalogue early in his career. At the festival, Nissman also performed and recorded Ginastera's Piano Concertos Nos. 1 and 2, the first of which forms the central analytical focus of this dissertation.[3]

Ginastera's compositional style has typically been divided into the following three stylistic periods: "objective nationalism" (1937–47), "subjective nationalism" (1947–57), and "neo-expressionism" (beginning in 1958).[4] All of the aforementioned popular piano works, except for the Piano Sonata No. 1, date from Ginastera's "objective nationalism" period. Generally speaking, the style of this first period is indicative of the *gauchesco* tradition, featuring

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[3] This recording was produced by the Pierian Recording Society and is available through Naxos. Like the *Concerto argentino*, the Piano Concerto No. 2, Op. 39 (1972) is only available for rental from Boosey & Hawkes. The last piano concerto dates from a fairly experimental period in the early 1970s when Ginastera also produced the cantata, *Milena*, Op. 37 (1971), based on the love letters of Kafka; the dark-themed two-act opera, *Beatrix Cenci*, Op. 38 (1971); and the String Quartet No. 3, Op. 40 (1973), which calls for a soprano soloist.

[4] It was Ginastera himself who first identified these periods and he did so in the 1960s, some twenty years before his death in 1983. Deborah Schwartz-Kates, a leading Ginastera scholar, has suggested the grouping of his last works from 1976–83 into a fourth period, which she refers to as the "final synthesis." For an overview of the characteristics of these periods in relation to Ginastera's compositional output, see Schwartz-Kates, "Ginastera, Alberto," in *The New Grove Dictionary of Music and Musicians*, 2d ed., ed. Stanley Sadie (New York: Macmillan, 2001), 9: 875–79.

In a 1983 interview conducted shortly before his death, Ginastera recanted his periodization from the 1960s, citing instead two broader periods: "tonal and polytonal" works and "atonal" works. Although he does not indicate the dates or works associated with these periods, it is likely that he saw his previously defined "neo-expressionism" period (starting circa 1958) as the beginning of his "atonal" period. See Lillian Tan, "An Interview with Alberto Ginastera, " *American Music Teacher* 33, no. 3 (1984): 6–8.

Although the present study is informed by the scholarship that discusses Ginastera's stylistic periods, it does not intend to engage the debate over these periods directly. What matters most to this study is that a shift in Ginastera's compositional approach occurred in 1958, upon the publication of his first twelve-tone work, the String Quartet No. 2, Op. 26. The discussion in chapter 2 thus compares the tendencies between his early works (composed prior to 1958) and twelve-tone works (composed after 1958), noting that some elements of his style changed very little even as he adopted the principles of serialism. For more commentary on the similarities (rather than differences) between the composer's periods of "subjective nationalism" and "neo-expressionism," in particular, see Jessica R. Barnett, "Alberto Ginastera's String Quartets Nos. 1 and 2: Consistencies in Structure and Process," (Master's thesis, University of Cincinnati, 2007) and David L. Sommerville, "Consistency, Context and Symmetry in Alberto Ginastera's String Quartets Nos. 1 (1948) and 2 (1958, First Version)," (Ph.D. diss., The University of Rochester, Eastman School of Music, 2009).

folk-inspired melodies and rhythms of the composer's Argentine homeland.[5] The style of Ginastera's second, "subjective nationalism" period is only subtly different from the previous period: Ginastera still draws upon Argentine elements, but often in purposefully ambiguous ways and in the context of an increasingly "polytonal" musical language.[6]

Following the "nationalistic" stylized works of his early career, and beginning with the String Quartet No. 2, Op. 26 (1958), Ginastera's compositional approach turned more toward twelve-tone serialism, and, significant to the present study, the Piano and Violin Concertos (composed in the early 1960s) emerge from this shift in the composer's creativity. In works as early as the String Quartet No. 1, Op. 20 (1948), Ginastera was experimenting with ways to systematically complete the aggregate and use it as a governing force within the music's structural background. Twelve-tone rows appear in the second and third movements of the Piano Sonata No. 1, Op. 22 (1952), but serve only secondary roles in the music's deeper-level organization. Ultimately, it was during the 1960s when Ginastera explicitly embraced the twelve-tone method and sought out a personal expression of its fundamental tenets.

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[5] For a thorough study of the *gauchesco* tradition in Ginastera's music, see Schwartz-Kates, "Alberto Ginastera, Argentine Cultural Construction, and the *Gauchesco* Tradition," *Musical Quarterly* 86, no 2. (2002): 267–74; and also Schwartz-Kates, "The *Gauchesco* Tradition as a Source of National Identity in Argentine Art Music (ca. 1890–1955)" (Ph.D. diss., University of Texas, 1997). Erik Carballo's dissertation also provides a discussion of the *gauchesco* tradition and its impact on Ginastera's interpretation of traditional folk rhythms, especially the *malambo*; see Carballo, "De la Pampa al Cielo: The Development of Tonality in the Compositional Language of Alberto Ginastera" (Ph.D. diss., Indiana University, 2006), chapters 3–4, 8.

[6] Looking beyond the tripartite periodization of Ginastera's style, one of the main contributions of Carballo's dissertation is his Schenkerian-inspired investigation of the development of tonality in Ginastera's musical language over the course of his career. Carballo's analyses show that, from a "tonal" perspective, works across Ginastera's three stylistic periods are in fact very similar in terms of their background harmonic structures; however, the author intentionally does not consider any of Ginastera's twelve-tone works within the scope of his investigation. See Carballo, "De la Pampa al Cielo: The Development of Tonality in the Compositional Language of Alberto Ginastera," chapters 5–7.

In addition to the Piano Concerto No. 1, Op. 28 (1961) and the Violin Concerto, Op. 30 (1963), the analytical focus of this dissertation concerns works from Ginastera's transition to twelve-tone composition. This study is thus necessarily limited to works composed in the 1950s and early 1960s. The analyses that comprise chapters 4 and 5 deal exclusively with the Piano Concerto and Violin Concerto. Not only are these works representatives of the same genre—the concerto—but they both feature the same first-movement formal plan—theme + variations. Significantly, even though Ginastera's compositional *strategies* changed when he adopted the twelve-tone system, his compositional *language* changed very little. This study thus draws upon examples of the compositional techniques Ginastera employed in his earlier works, such as the Piano Sonata No. 1 and the String Quartets Nos. 1 and 2, and other works composed around the same time as the two concertos, such as the Piano Quintet, Op. 29 (1963) and the opera, *Don Rodrigo*, Op. 31 (1963–4).[7]

[7] Although it is out of the scope of this dissertation, nine works from this period, including opp. 26–34, are all remarkably similar in style and approach. In addition to the String Quartet No. 2, Op. 26 (1958), the Piano Concerto No. 1, Op. 28 (1961), the Piano Quintet, Op. 29 (1963), the Violin Concerto, Op. 30 (1963), and *Don Rodrigo*, Op. 31 (1963–4), all mentioned above, the other four works include the *Cantata para América mágica*, Op. 27 (1960), the *Cantata Bomarzo*, Op. 32 (1964), the *Concerto per corde*, Op. 33 (1965, rev. 1967)—which, like the solo concertos, begins with a theme + variation form based on the fourth movement of the String Quartet No. 2—and the opera *Bomarzo*, Op. 34 (1966–67).

International Experiences and Acclaim

While the discussion above gave a general summary of the trajectory of Ginastera's compositional career, including his move toward serialism in the 1960s, the ensuing discussion explores the historical and personal context in which Ginastera composed the Piano Concerto and the Violin Concerto.[8] A great number of composers turned toward serialism following WWII, and, in a sense, Ginastera came to experience his own "reinvention" of sorts in the late 1950s after the fall of the Perón regime in Argentina.[9] This discussion will consider three major influences that coincided with Ginastera's shift in stylistic orientation.[10] The first influence was a very personal one and involves Ginastera's multi-decade relationship with Aaron Copland. Ginastera's interaction with Copland also happened to overlap with the increasing number of visits Ginastera made to the United States beginning in the mid-1940s and the exposure he had to the curriculum of North American music schools. The second influence came from the International Society for Contemporary Music, the annual festivals of which both put Ginastera in professional contact with the leading composers of the day and helped to expose his music to

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[8] Both concertos were commissioned works. The Piano Concerto was commissioned by the Serge Koussevitzky Music Foundation in the Library of Congress; it premiered in 1961 with soloist João Carlos Martins and the National Symphony Orchestra under the direction of Howard Mitchell. The Violin Concerto was commissioned by the New York Philharmonic in celebration of its inaugural season at the Lincoln Center for the Performing Arts; it premiered in 1963 with soloist Ruggiero Ricci and the New York Philharmonic under the direction of Leonard Bernstein.

[9] In her introduction to Ginastera's life and works, Schwartz-Kates specifically categorizes this period as one of "expansion and innovation in the post-Perón years;" see Schwartz-Kates, *Alberto Ginastera: A Research and Information Guide* (New York: Routledge, 2010), 9.

[10] Although this study is primarily concerned with Ginastera's shift to serialism in the 1950s, there are certainly other influences in the decades prior to this shift worth exploring. One influence on a young Ginastera was the formation of the "Grupo Renovación" and "Conciertos de la Nueva Música" by fellow Argentine composer, Juan Carlos Paz (1901–1972). Founded in 1929 and 1936, respectively, these groups represented a modernist movement aimed at advancing international techniques, including twelve-tone composition, in Argentine music. For a summary of the period in which Ginastera came of age as a student in Argentina's music conservatories, see two articles by Gilbert Chase, "Alberto Ginastera: Portrait of an Argentine Composer," *Tempo* 44 (1957): 11–17 and "Creative Trends in Latin American Music-I," *Tempo* 48 (1958): 28–34; and also Schwartz-Kates, *Alberto Ginastera: A Research and Information Guide*, 1–3.

the world stage. The third major influence on Ginastera's burgeoning career as an international musician came from a personal friend and professional liaison, Harold Spivacke, who served as chief of the Music Division at the Library of Congress from 1937 to 1972.

Ginastera first met Copland when the elder composer visited Buenos Aires in 1941. At the time, Copland was acting as a cultural ambassador for the Committee for Inter-American Artistic and Intellectual Relations, and his extended stay was sponsored by the Guggenheim Foundation.[11] By the following year, Ginastera himself was awarded a Guggenheim Fellowship to travel to the United States in order to "promote Inter-American exchange."[12] Ultimately, Ginastera's trip was delayed due to WWII, and he did not make it to the United States until 1945; in the meantime he managed to remain in contact with Copland through letters.[13] During this time he also dedicated one of his *Doce preludios americanos*, Op. 12 (1944) to Copland and published two articles in Argentine journals that praise Copland as one of the greatest living composers.[14] The two composers eventually met in person again when Ginastera attended the Berkshire Summer Music Festival in Tanglewood in 1946.[15] After a while, according to Deborah

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[11] Upon his return to the United States, Copland published his account of musical life in Argentina, praising the talent of Ginastera, in particular; see Copland, "The Composers of South America," *Modern Music* 19, no. 2 (1942): 75–82. Copland returned to Buenos Aires a second time in 1947.

[12] Schwartz-Kates describes the relationship between Ginastera and Copland as "reciprocal and complex." An excellent summary of their musical and personal interaction can be found in Schwartz-Kates, *Alberto Ginastera: A Research and Information Guide*, chapter 1.

[13] For a summary of the letters exchanged between Ginastera and Copland, as well as his correspondence with other notable individuals, see Schwartz-Kates, "The Correspondence of Alberto Ginastera at the Library of Congress," *Notes* 68, no. 2 (2011): 284–312.

[14] See Ginastera, "Aaron Copland," *Ars* 7, no. 35 (1947) and "Aaron Copland y su tercera sinfonía," *Sur* 16, no. 152 (1947): 79–84.

[15] During his residency in the United States, and under the terms of his Guggenheim Fellowship, Ginastera participated in the Music Educators' National Conference (MENC) in Cleveland and visited music schools at Columbia, Yale, Harvard, Juilliard, and Eastman. His observations at these schools ultimately helped him in founding the Conservatorio de Música y Arte Escéncio at the Universidad Nacional de La Plata in Buenos Aires in 1948 and later the Facultad de Artes y Ciencias Musicales at the Universidad Católica Argentina, where he served as Dean until 1963. For a summary of these trips, see Schwartz-Kates, *Alberto Ginastera: A Research and Information Guide*, 6–9.

Schwartz-Kates, "Ginastera and Copland came to regard each other as equals" and the tone of their correspondence became more personal, with Ginastera addressing Copland as "Dear friend" or "Dear Aaron."[16]

The exchange of musical ideas between the two composers must have been truly special, for there are striking parallels between their respective careers. Significantly, at their first meeting in 1941, Ginastera was working on his second ballet, *Estancia*, Op. 8 (1941), and, although Copland had already experienced success with his own ballet, *Billy the Kid* (1938), he had not yet composed *Rodeo* (1942)—the narrative themes of which echo those in *Estancia*. Schwartz-Kates points out that "both [Ginastera's *Estancia* and Copland's *Rodeo*] take place on the open range, use stories that mirror one another, and employ kinetically charged finales based on vernacular dance rhythms."[17]

Later, in the 1950s, and in the midst of the populist Perón government, Ginastera was pressured to supplement his income by composing film scores, a medium Copland had also explored—albeit willingly—in the late 1930s and 1940s.[18] After the fall of the Perón government in 1955, Ginastera finally had the time and artistic freedom to explore other genres and stretch the limits of his compositional approach, so to speak.[19] It is, therefore, no coincidence that he turned to twelve-tone composition around this time. Ginastera's own published writings from

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[16] Schwartz-Kates, "The Correspondence of Alberto Ginastera at the Library of Congress," 294.

[17] Ibid., 297.

[18] Ginastera wrote to Copland of his struggles to compose freely under the oppression of the Perón government. He witnessed and endured many hardships during this time. For instance, his long-time composer friend and early promoter, Juan José Castro, was ultimately forced to flee the country to find employment, and in 1952 Ginastera, too, was removed from his position as director of the conservatory in La Plata. See Schwartz-Kates, "The Correspondence of Alberto Ginastera at the Library of Congress," 294–95.

[19] By 1958, Ginastera was able to return to the United States as a guest of the United States government. During this trip he once again attended the annual MENC conference in Los Angeles (see note 15 above) and visited the music schools at Northwestern University, Indiana University, UCLA, and the University of California at Berkeley.

this time reflect a familiarity with the twelve-tone method and its development in the works of Schoenberg, Webern, and Berg.[20]

Significantly, during his transition to serialism, Ginastera's experimentations with form and genre parallel those of Copland in the 1950s.[21] To be sure, Ginastera did not show any specific interest in Copland's serial approach, per se; instead, their shared tendencies are evident primarily in instrumentation.[22] For example, in terms of chamber music, Copland wrote his Piano Quartet in 1950 and Ginastera his Piano Quintet, Op. 29—the fourth of his serial works—in 1963.[23] Following the premiere of Copland's opera, *The Tender Land* in 1954, Ginastera eagerly wrote to Copland of his interest in the same genre and eventually produced two operas himself, the sixth and ninth of his serial works, *Don Rodrigo*, Op. 31 (1963–64) and *Bomarzo*, Op. 34 (1966–67).[24] It is also worth noting that Ginastera's use of variation form in the Piano Concerto and Violin Concerto parallels the same form used by Copland in his *Piano Variations* (1930)—a much earlier work that some scholars, and even Copland himself, have suggested was his first serial composition, featuring a seven-tone row.[25]

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[20] See, in particular, the following two articles by Ginastera: "El compositor argentino y la música atonal," *Buenos Aires Musical* 7, no. 104 (1952): 1 and "El xxxiii festival de la Sociedad Internacional de Música Contemporánea," *Boletin Interamericano de Música*, 14 (1959): 3–4.

[21] Schwartz-Kates, "The Correspondence of Alberto Ginastera at the Library of Congress," 296, note 29.

[22] Copland's involvement with twelve-tone and serial composition is, in its own right, a very complicated and understudied subject. For a discussion of Copland's early serial works, see Bryan R. Simms, "Serialism in the Early Music of Aaron Copland," *Music Quarterly* 90, no. 2 (2007): 176–96; and for a discussion of his later works, see Lisa Behrens, "Cyclic Organization in the Twelve-Tone Works of Aaron Copland," (Ph.D. diss., City University of New York, 2013).

[23] Copland's Piano Quartet (1950) is widely considered to be his first, explicitly twelve-tone work.

[24] Excerpts of these letters are reproduced in Schwartz-Kates, "The Correspondence of Alberto Ginastera at the Library of Congress," 296.

[25] See Edward T. Cone, "Conversation with Aaron Copland," *Perspectives of New Music* 6 (1968): 66.

The second factor that substantially contributed to Ginastera's adoption of serialism concerns his involvement with the International Society of Contemporary Music (hereafter, ISCM). Five of Ginastera's works were performed at the annual ISCM Festivals between 1951 and 1965. The 25th ISCM Festival in Frankfurt (1951) marked the first time Ginastera traveled to Europe.[26] It was here that his String Quartet No. 1, Op. 20 (1948) received its international premiere. Two years later, although Ginastera was not in attendance, the exceptionally popular Piano Sonata No. 1, Op. 22 (1952) received its international premiere at the 27th ISCM Festival in Oslo (1953). He eventually returned to the 30th ISCM Festival in Stockholm (1956) for a performance of *Pampeana No. 3*, Op. 24 (1954, rev. 1967), a symphony in three movements.[27] Finally, the 39th ISCM Festival in Madrid (1965) featured a performance of the *Cantata Bomarzo*, Op. 32—the subject matter of which ultimately formed the basis of Ginastera's second opera.

Of all these European performances, it was the 33rd ISCM Festival in Rome (1959) that marked a turning point in Ginastera's international exposure. First of all, the pivotal String Quartet No. 2, Op. 26 (1958) was performed here, showcasing Ginastera's new interest in serialism to an international audience. Second of all, it was at this particular ISCM Festival that Ginastera attended performances of serial works by Boulez, Nono, and Dallapiccola, and his reaction to these works appeared in an article published later that year.[28] Ginastera begins the article: "For the composer who comes to Europe from a distant country, especially a Latin

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[26] Schwartz-Kates, *Alberto Ginastera: A Research and Information Guide*, 8.

[27] This is the last of three works that bear the same name: *Pampeana No. 1*, Op. 16 (1947) is a rhapsody for violin and piano and *Pampeana No. 2*, Op. 21 (1950) is a rhapsody for cello and piano. Despite their varied instrumentations, all of three works reflect the "pampeana," or central plains of Argentina.

[28] See Ginastera, "El xxxiii festival de la Sociedad Internacional de Música Contemporánea," *Boletin Interamericano de Música*, 14 (1959): 3–4.

American country, contact with the intellectual and artistic [culture] of Europe is interesting and instructive, in that it can confront the problems of artists who have a national tradition."[29] He continues: "It is also interesting that the Festival establishes the link between composers, critics and musicologists from all over the world who have time to exchange ideas and expand their concepts."[30]

Broadly speaking, Ginastera's published reaction to the ISCM Festival in Rome suggests an underlying interest in exploring new compositional approaches that would help him move away from the "nationalistic" tendencies of his early career. In the remainder of the article, Ginastera summarizes the kind of compositions he heard in Rome, saying: "With rare exceptions, we can say that the compositions [at the Festival] belong to one of two major trends in contemporary music: serial expressionism and post-Webern pointillism."[31] He then gives examples of works belonging to these two trends, and, although his commentary is not particularly analytical, it reflects a clear understanding of the newest compositional techniques. He also expressly identifies his String Quartet No. 2 as an example of "subjective" serialism, or

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[29] "Para el compositor que llega a Europa desde un lejano país, y especialmente si ha nacido en un país latinoamericano, el contracto con los ambientes intellectuales y artísticos del continente europeo es interasante y aleccionador, ya que puede confrontar los problemas de los creadores que tienen una tradición sólidamente cimentada con los de los artistas que luchan en su patria por crear una tradición nacional." Ibid., 3. All translations from this source are mine.

[30] "También es interesante el Festival por la vinculación que se establece entre compositores, críticos y musicólogos de todas partes del mundo, quienes tienen ocasión así de intercambiar ideas y ampliar sus conceptos." Ibid., 3.

[31] ". . . salvo raras excepciones, podemos decir que las composiciones pertenecían a alguna de las dos principales tendencias de la música actual: la del expresionismo serial y la del puntillismo post-weberniano." Ibid., 4.

"expressionism in the Schoenbergian sense," where the "serial technique is adapted to the expressive needs of the music."[32]

Ginastera's international exposure and experiences abroad, including his visits to various ISCM Festivals in Europe and his interaction with composers and music schools in the United States, made an impact on his professional and compositional career. The third major influence came not from a composer, however, but from Harold Spivacke, chief of the Music Division at the Library of Congress. As Schwartz-Kates points out, Spivacke was a vocal advocate of Ginastera's music, especially during the time when Ginastera was expanding his approach to serialism. Spivacke served many roles in cultural life in the United States, but his primary capacity at the Library of Congress made him a valuable resource to Ginastera.[33] Spivacke was first introduced to Ginastera during the composer's visit to the United States in 1946. Upon his return to South America, Ginastera kept in close contact with Spivacke, especially as he embarked on establishing three music schools in Argentina.[34] Ginastera wrote to Spivacke for advice on acquisitions and requested publications be sent from the Library of Congress to help build the new schools' collections.

Spivacke's position at the Library of Congress also put him in a unique position to promote commissions for Ginastera's music. Both the Elizabeth Sprague Coolidge Foundation

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[32] "Las obras pertenecientes al primer grupo poseen ciertas cualidades de subjetividad que tienen su origen en el expresionismo musical schoenbergiano y la técnica serial en estos casos se adapta a las necesidades expresivas de la música." Ibid., 4.

[33] Spivacke was a founding member of the American Musicological Society (1934), vice president of the American Society for Comparative Musicology (1933–37), president of the Music Library Association (1951–53), and served as advisor to the Fulbright Advisory Selection Committee, the Pan American Union, and UNESCO. See Schwartz-Kates, "The Correspondence of Alberto Ginastera at the Library of Congress," 297ff.

[34] The Conservatorio de Música y Arte Escénico in La Plata was founded in 1948; the Universidad Católica Argentina in Buenos Aires was founded in 1958; and the Centro Latinoamericano de Altos Estudios Musicales (CLAEM) at the Instituto Torcuato di Tella in Buenos Aires opened in 1962.

and the Serge Koussevitzky Music Foundation, supporters of Ginastera's new serial music, fell under the auspices of the Library of Congress and Spivacke organized premieres of these works in Washington, D.C.. The String Quartet No. 2, which proved to be such a pivotal work for Ginastera at ISCM in 1959, premiered the previous year at the First Inter-American Music Festival held at the Library of Congress; the work was commissioned by the Elizabeth Sprague Coolidge Foundation and is dedicated to Harold Spivacke.[35] The *Cantata Bomarzo*, Op. 32 (1964) is also dedicated to Spivacke and his wife, Rosemary, and was commissioned by the Elizabeth Sprague Coolidge Foundation. At the Second Inter-American Music Festival (1961), again held at the Library of Congress, Ginastera premiered two more serial works, the *Cantata para América mágica*, Op. 27 (1960) and the Piano Concerto No. 1, Op. 28 (1961), the latter of which was commissioned by the Serge Koussevitzky Music Foundation and is dedicated to Serge and Natalie Koussevitzky.

Survey of Scholarship

As was previously mentioned, the existing scholarship on Ginastera generally lacks rigorous analytical studies of his music, especially his serial works. The present dissertation thus seeks to address this scholarly gap and give appropriate attention to a composer whose works were both influenced by and influential to the aesthetic trends of the mid-twentieth century. The following discussion is not a comprehensive survey of scholarship on Ginastera, but rather a summary of sources that are particularly relevant to the subject matter of this dissertation. These sources include (1) the scholarship of prominent authors dealing with Ginastera's music, both

[35] For a published review of the premiere of the String Quartet No. 2 and the impression it made on one contemporary critic, see Howard Taubman, "Three New Works Heard in Capital: Quartets by Ginastera, Salas, and Villa-Lobos Played at Inter-American Festival," *New York Times* 20 April 1958, 79.

from analytical and historical perspectives, and (2) some of the most recent analytical studies of Ginastera's music, especially his "later" works. The reader who is interested in a more detailed summary of Ginastera's life and music, a catalogue of his works, and/or a perspective on the current state of Ginastera research, including an annotated bibliography of primary and secondary sources, will find Deborah Schwartz-Kates's very thorough research guide, published in 2010, to be an invaluable resource.[36]

With few exceptions, the analytical sources mentioned below are limited to authors who discuss Ginastera's twelve-tone works composed between 1958 and 1967—that is, works spanning the publication of the String Quartet No. 2, Op. 26 and the opera *Bomarzo*, Op. 34. The beginning of the survey focuses on the first two major Ginastera scholars, whose publications date from late 1950s and early 1960s. Instead of proceeding chronologically, the remainder of the scholarship is introduced according to its relevance to the subject matter of the present study, which focuses exclusively on the Piano Concerto No. 1, Op. 28 (1961), the Violin Concerto, Op. 30 (1963), and other works composed around the same time.

Gilbert Chase and David Wallace are among the first scholars of Ginastera's music. Chase, a highly regarded scholar of Ibero-American music, published an article in *Musical Quarterly* in 1957 that first introduced Ginastera's music to an English-speaking audience.[37] His historically-oriented approach identifies many of the nationalistic traits in Ginastera's early

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[36] See Schwartz-Kates, *Alberto Ginastera: A Research and Information Guide*. Another highly influential research guide, written in Spanish, is Pola Suárez Urtubey's biography of Ginastera. This source provides descriptions of works up to 1965 and quotes from various published reviews of these works; it also contains several interviews and family photos contributed by Ginastera himself. See Suárez Urtubey, *Alberto Ginastera* (Buenos Aires: Ediciones Culturales Argentinas, 1967).

[37] See Gilbert Chase, "Alberto Ginastera: Argentine Composer," *Musical Quarterly* 43, no. 4 (1957): 439–460. Chase also wrote the entry on Ginastera in the first edition of the *New Grove Dictionary of Music and Musicians* (1980); this entry has since been updated by Schwartz-Kates (2001) and includes commentary on Ginastera's final compositions before his death in 1983.

music, including his imitation of *malambo*, the "guitar chord," and other *gauchesco* traditions. Wallace, on the other hand, wrote a dissertation on Ginastera's music only a few years later, in 1964, that is entirely analytical in scope.[38] Writing long before the end of Ginastera's life, Wallace's research begins with the composer's earliest works and ends with a discussion of what he calls "recent tendencies" in the works from 1958–1963, including the Piano Concerto and Violin Concerto, discussed in this dissertation. As would be expected, Wallace's discussion of the music's pitch structure lacks a certain amount of detail, given that many modern set-theoretical tools used in twelve-tone analysis today had either not yet been codified or were not commonplace at the time of Wallace's research. The analyses Wallace presents tend to focus on the more general characteristics of Ginastera's style and how the gradual dissolution of nationalistic elements in his music afforded the composer the freedom to experiment with twelve-tone composition.

In the years following Wallace's seminal analytical study, Ginastera's Piano Concerto No. 1 receives brief but specific attention in dissertations by John Robert Hanson, Steven Smith, and Pablo Eduardo Furman. Hanson's dissertation, from 1969, focuses exclusively on formal procedures in piano concertos by a variety of twentieth-century composers including Bartók, Copland, Gershwin, Prokofiev, Schoenberg, and many others.[39] His commentary on Ginastera's Piano Concerto is limited to less than four pages of text, wherein he primarily describes the formal plan of each of the four movements. Hanson does, however, note a couple of the row's symmetrical characteristics, astutely pointing out that Ginastera relies on "row segmentation as

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[38] See David Edward Wallace, "Alberto Ginastera: An Analysis of His Style and Techniques of Composition, " (Ph.D. diss., Northwestern University, 1964).

[39] See John Robert Hanson, "Macroform in Selected Twentieth-Century Piano Concertos," (Ph.D. diss., The University of Rochester, Eastman School of Music, 1969).

an organizing principle rather than row serialism . . . [and that] sequential patterns are an important element of the style."[40] Following Hanson's study, Smith's dissertation, from 1978, provides an extraordinarily lengthy survey of piano concertos composed after WWII, and his commentary about Ginastera's concerto relies in large part on Hanson's prior research.[41] Smith points out interesting correspondences between Ginastera's compositional language and that of Bartók, whom the younger composer greatly admired. Lastly, Furman's dissertation, from 1987, is in two parts, with an analysis of Ginastera's Piano Concerto comprising part one and an analysis of one of the author's own compositions comprising part two.[42] Furman's analysis points out set-theoretical details about the music's pitch structure and serial content. Unfortunately, Furman provides only a limited number of musical examples; his commentary, however, is thought-provoking in its aim to draw a connection between Ginastera's early "nationalistic" style and his turn to serial "neo-expressionism."

Two analyses of Ginastera's Violin Concerto have appeared relatively recently. The first of these analyses, and the most thorough, appears in Christopher Anderson Fobes's master's thesis from 1998.[43] Fobes's analysis provides an exhaustive summary of the row permutations used in all four movements and offers an interpretation of how secondary rows are formed from reordered versions of the primary row. In her 2009 D.M.A. document, Sheri Renee Lee discusses the Violin Concerto from a performer's perspective, exploring articulation, melodic construction,

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[40] Ibid., 126.

[41] See Steven Smith, "The Piano Concerto After Bartók: A Survey for Performers of the Piano Concerto Literature with Emphasis on the Postwar Era, 1945–70," (D.M.A. document, The University of Rochester, Eastman School of Music, 1978).

[42] See Pablo Eduardo Furman, "An Analysis of Alberto Ginastera's Piano Concerto No. 1 (1961); *Dialogues* for Two Percussion Soloists and Orchestra," (Ph.D. diss., UCLA, 1987).

[43] See Christopher Anderson Fobes, "Twelve-Tone Techniques in Alberto Ginastera's Violin Concerto," (Master's thesis, Bowling Green State University, 1998).

and formal divisions.[44] Drawing from Fobes's research, Lee identifies the row's most characteristic set class motives and some of their most musically prominent recurrences. Interestingly, her analysis posits "clear large-scale dominant to tonic motion" among the tonal centers of certain variations in the first movement.[45]

Extending the research of his own master's thesis, Fobes's dissertation, from 2006, represents a serious theoretical investigation of Ginastera's twelve-tone language.[46] His commentary primarily focuses on the structure (and construction) of row forms in Ginastera's serial works spanning more than twenty years and includes mention of the Piano Concerto No. 1 and the Violin Concerto. The present dissertation is very much informed by Fobes's careful attention to smaller collections, such as trichords, tetrachords, and hexachords, and their gradual accumulation into aggregate formations. In contrast to Fobes's study, however, this study is less concerned with the pre-compositional *generation* of twelve-tone row structures and is instead most interested in the compositional *strategies* these rows are subjected to in order to create a sense of variation. With every subsequent twelve-tone composition, Ginastera's approach to serialism reflects a style that is less beholden to the strict confines of the row and more focussed on the continual development of parts of the row, which typically combine in perpetually varied sequential patterns to complete the aggregate.

Other authors who have specifically dealt with Ginastera's serial works include Malena Kuss, James Edward Richards, Jr., Michelle Tabor, David L. Sommerville, and the current

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[44] See Sheri Renee Lee, "Four Twelve-Tone Violin Compositions: Performance Practice and Preparation," (D.M.A. document, University of Cincinnati, 2009).

[45] Ibid., 97–98.

[46] See Fobes, "A Theoretical Investigation of Twelve-Tone Rows, Harmonic Aggregates, and Non-Twelve-Tone Materials in the Late Music of Alberto Ginastera," (Ph.D. diss., State University of New York at Buffalo, 2006.)

author. Kuss is an extremely prolific scholar of Ginastera's life and music; her numerous articles have appeared in both English- and Spanish-language journals. In her introduction to Ginastera's catalogue of works, Kuss was among the first scholars to assert that the tripartite periodization of Ginastera's style is misleading; see argues that "it is more accurate to view the fifty-four opus-numbered works that represent his total oeuvre (1937–83) as an uninterrupted search for synthesis between the sounds that carry the stamp of his culture and the 20th-century techniques he learned to master with consummate virtuosity."[47] Indeed, the analyses presented in this dissertation largely support Kuss's inference that Ginastera's move toward serialism in the late 1950s and 1960s reflects a natural and continual evolutionary experience—one which was shaped by the previously mentioned international experiences and personal relationships with other musicians.[48]

Of Kuss's varied research topics, the most relevant to this dissertation is her discussion of derivation techniques in Ginastera's serial opera, *Don Rodrigo*, Op. 31 (1963–64).[49] Kuss does not generally use set-theoretical language, but her commentary essentially identifies (0167) as the most meaningful tetrachord of the basic series in *Don Rodrigo*; to Kuss, this tetrachord represents a "native idiom" structurally related to the melodic series of the six-string guitar tuning, commonly called the "guitar chord" in Ginastera scholarship. In a later article, Kuss likens her own analytical approach to those of Antokoletz (on the music of Bartók) and Perle and

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[47] See Malena Kuss, Introduction to *Alberto Ginastera: A Complete Catalogue*, rev. ed. (New York: Boosey & Hawkes, 1986), 8.

[48] This "evolutionary" path is observable in Ginastera's works leading up to the 1960s and is discussed in more detail in the following chapter.

[49] See Kuss, "Type, Derivation and Use of Folk Idioms in Ginastera's *Don Rodrigo* (1964)," *Latin American Music Review* 1, no. 2 (1980): 176–95 and also "Nativistic Strains in Argentine Operas Premiered at the Teatro Colón (1908–72)," (Ph.D. diss., University of California, Los Angeles, 1976).

Jarman (on the music of Berg), identifying (0167)—the so-called "Z cell"—as a *structural* and *generative* element, *derived* from its diatonic "folk" origins as (027) and (0257) in Ginastera's early "nationalistic" works.[50] Richards's dissertation, from 1985, also deals exclusively with *Don Rodrigo*.[51] His analytical approach is more traditional than Kuss's in that it investigates, in detail, the intervallic structure and invariance properties of each row and the order in which various row transformations appear. Although their analytical conclusions differ, both Kuss and Richards devote considerable attention to how different row forms are associated with specific dramatic functions within the opera's narrative.

Tabor's influential 1994 article, which appeared in *Latin American Music Review*, combines a historical and analytical approach that considers Ginastera's late instrumental style, or "neo-expressionistic" works, within the broader perspective of the composer's complete oeuvre.[52] Her analyses center around three representative works: the Piano Quintet, Op. 29 (1963), *Puneña* No. 2, Op. 45 (1976), and the Guitar Sonata, Op. 47 (1976). Of particular relevance to this dissertation is her commentary on the multi-movement Piano Quintet, which was written at the same time as the Violin Concerto. Significantly, the formal structure of the Piano Quintet features three *Cadenzas* interspersed between the genre's more normative "fast," "scherzo," "slow," and "finale" movements. As this dissertation will show, *Cadenzas* are integral to the variation formal plans of both the Piano Concerto and Violin Concerto and there is much

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[50] See Kuss, "The Structural Role of Folk Elements in 20th-Century Art Music," in Angelo Pompilio, ed. *Trasmissione e recezione delle forme di cultura musical*: Proceedings of the 14th Congress of the International Musicological Society, Bologna, 27 August–1 September, 1987, vol. 3 (Turin: Edizione de Torino, 1990): 99–120.

[51] See James Edward Richards, Jr., "Pitch Structure in the Opera *Don Rodrigo* of Alberto Ginastera," (Ph.D. diss., The University of Rochester, Eastman School of Music, 1985).

[52] See Michelle Tabor, "Alberto Ginastera's Late Instrumental Style," *Latin American Music Review* 15, no. 1 (1994): 1–31.

to be gleaned from Ginastera's adoption of this particular formal function, especially as he turned to serial composition.[53]

The current author's master's thesis, from 2007, focuses specifically on stylistic consistencies between the non-serial String Quartet No. 1 and the first of Ginastera's serial works, the String Quartet No. 2.[54] Regardless of whether or not Ginastera uses a twelve-tone row as a point of departure, his compositional approach remains very much the same: he begins most of his works with a trichordal or tetrachordal *basic motive*—often (014), (016), (0257), or (0167)—and then uses this *basic motive*, and all its defining characteristics, as source material for the rest of the piece. The final chapter of the thesis deals exclusively with composing-out techniques—specifically, how small motivic or intervallic events are projected over larger spans of music, forming a network of relations known as the *associational pathway*. Similar composing-out processes are addressed in chapter 3 of the present study and are akin to the *constellations* metaphor. This author's approach has always been, and continues to be, sensitive to the music's most salient relationships. The analyses in the present dissertation thus continue to underscore organizational strategies that inform the listening experience of Ginastera's music.

Sommerville's dissertation, from 2009, also considers the String Quartets Nos. 1 and 2.[55] His analytical methodology, which involves a combination of traditional pitch-class set theory, transformation theory, and theories of pitch cycles, derives extensively from the varied research

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[53] Schoenberg, for example, uses the *cadenzas* in both his Violin Concerto and Piano Concerto as structural "nexus" points from which much of the music's motivic material is derived and/or resolved in service of more long-range organizational strategies. Chapter 3 addresses this point more explicitly and draws upon the research of Andrew Mead and Brian Alegant.

[54] See Barnett, "Alberto Ginastera's String Quartets Nos. 1 and 2: Consistencies in Structure and Process," (Master's thesis, University of Cincinnati, 2007).

[55] See Sommerville, "Consistency, Context and Symmetry in Alberto Ginastera's String Quartets Nos. 1 (1948) and 2 (1958, First Version)," (Ph.D. diss., The University of Rochester, Eastman School of Music, 2009).

of David Lewin, George Perle, and Dave Headlam. Sommerville concludes that the motivic foregrounds and tonal structure of both quartets, despite their differences in style, exhibit similar patterns of interval cycles (e.g., the 3-cycle and 5-cycle) and thus consistently give rise to the same referential collections (e.g., octatonic and diatonic). Much like the present dissertation, Sommerville finds strong correlations between the pitch structure of Ginastera's music—including his serial and non-serial language—and that of Bartók, Webern, and Berg.

Finally, the extensive research of Schwartz-Kates cannot go without acknowledgment. In addition to her recent research guide on Ginastera mentioned above, Schwartz-Kates has long contributed to the discourse on Latin-American traditions and Ginastera's position within an ever-expanding international scene of composers, performers, and intellectuals. Her unique historical perspective on the longstanding *gauchesco* tradition from which Ginastera emerged, the Perón government under which his compositional freedom was challenged, and the personal contacts he made with eminent 20th-century composers has influenced this study in countless—albeit sometimes tangential—ways.

CHAPTER 2:

DEVELOPMENT OF A TWELVE-TONE LANGUAGE

> I think I achieved what I wanted to back in 1944. My ballet *Estancia* and some minor pieces for piano, violin and cello as well as song cycles, are the expression of an objective Argentine feeling . . . so I am no longer searching for a national style, but a personal style.[1]
>
> – Ginastera (1962)

Ginastera experienced a shift in his compositional approach in the late 1950s and came to embrace the twelve-tone method, which he employed in several major works in the 1960s. In the spirit of the quotation above, the primary objective of this chapter is to provide a general introduction to Ginastera's compositional style and tendencies, especially those that he continued to use as he developed his "personal style," that is, his personal twelve-tone language. To this end, the discussion explores the harmonic and melodic-motivic language of his early works (composed before 1960)—including those early works that feature a twelve-tone row but are not serial compositions in the traditional sense—and compares them to certain stylistic tendencies in his twelve-tone works (composed during the 1960s). In general, the development of Ginastera's style included a greater focus on completing the aggregate through sequential repetition; an increased use of dissonance that underscores a dissociation with his early "nationalistic" sound; and an emotionally charged approach to melodic design that heightens the "expressionistic" spirit he to which he felt drawn in the late 1950s.[2]

The chapter is divided into five parts and each part expands upon the ideas discussed in the previous part(s). The first part begins with an explanation of *clusters*, *clouds*, and

[1] Ginastera, "Alberto Ginastera Speaks," *Musical America* 82, no. 10 (1962): 10–11.

[2] See chapter 1 for a discussion of Ginastera's stylistic periods.

constellations (referenced in the title of this dissertation) and focuses on how the imagery conjured up by these words resonates with both Ginastera's style and the analytical methodology adopted in this dissertation. The second part identifies the most common trichordal and tetrachordal motivic materials in Ginastera's early music and highlights the recurring interval classes that give rise to these motives. This part of the discussion pays special attention to certain motives that Ginastera continued to favor as his twelve-tone language developed. The third part explains the nature of symmetrical structures in Ginastera music and the role symmetry plays in organizing longer spans of music. The fourth part concerns how the aggregate is generated, which usually involves symmetrically projected interval patterns and the interaction of the octatonic or hexatonic collections. The fifth part deals exclusively with twelve-tone row structures in Ginastera's music—specifically in works leading up to and surrounding the composition of the Piano and Violin Concertos—and highlights recurring characteristics explained in earlier parts of the chapter.

Finally, the conclusion of this chapter considers Ginastera's personal style within the broader context of other twentieth-century composers, specifically those whose names are firmly established within the canon of Western art music. The discussion first compares Ginastera's compositional tendencies to members of the Second Viennese School and then considers other contemporaries of Ginastera such as Bartók, Stravinsky, Copland, and Dallapiccola, all of whom —by Ginastera's own published accounts—influenced the Argentine composer's compositional aesthetic.[3]

[3] See also chapter 1 for a discussion of Ginastera's personal and professional contact with Copland.

Clusters, Clouds, and Constellations as Musical Metaphors

> I have employed three kinds of different techniques in the texture [of my second twelve-tone opera, *Bomarzo*]: *clusters*, which are massive sounds of chords like big sonorous columns, *clouds* and *constellations*. *Clouds* are sounds which are produced in an aleatory form and which stay suspended in the air but change slowly in color and form, as clouds do. *Constellations* are bright flashes of sounds which suddenly appear and which disappear the same way.[4]
>
> – Ginastera (1967)

"Clusters, Clouds, and Constellations," referenced in the title of this dissertation, alludes to the quotation above, in which Ginastera, speaking from a period in the mid-1960s, describes certain features of his compositional style. Although his comments are specifically in reference to textural and timbral gestures in his opera *Bomarzo*, Op. 34 (1967)—the last of his major twelve-tone works that span opp. 26–34[5]—the suggestive power of these words can help us understand more general characteristics of Ginastera's twelve-tone language. In this sense, *clusters*, *clouds*, and *constellations* are vivid clues to the composer's imagination and they offer a metaphorical lens through which we might interpret Ginastera's music. This study does not seek to formulate an unequivocal definition of *clusters*, *clouds*, and *constellations* but rather use these terms to evoke the spirit that imbues Ginastera's music.

Much like the conventional sense of the term, this study imagines *clusters* to be relatively "dense" entities. Thus, this study uses *clusters* to refer specifically to chromatic segments of the aggregate. Aside from smaller *clusters* like set classes (012) and (0123), there are three regularly recurring types of larger *cluster* collections in Ginastera's twelve-tone language. These larger

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[4] Ginastera, "How and Why I Wrote *Bomarzo,*" *Central Opera Service Bulletin* 9, no. 5 (1967): 10–13. Emphasis mine.

[5] See chapter 1 for an overview of Ginastera's stylistic periods and the position of these nine works within the composer's oeuvre.

cluster types include: (1) the entire twelve-tone aggregate, (2) a single hexachordal segment of the aggregate, and (3) an eight-member collection consisting of two chromatic tetrachords a tritone apart (i.e., set class 8-9 (01236789)).[6] Sometimes Ginastera introduces *clusters* with a grandiose gesture, as in the harmonic or "sonorous columns" he describes in the quote above, and sometimes these *clusters* emerge more gradually via interval patterns or motivic sequences. This study frequently invokes the analytical notation of *transpositional combination* to describe the formation of larger collections, including *clusters*, in Ginastera's music.[7]

One of the more common textural-motivic devices in Ginastera's music is the tremolo and its general musical behavior is akin to the *clouds* the composer describes above. Appearing in several of his 1960s works, tremolo figures are commonly assigned to stringed instruments and usually involve double stops, thereby creating a trichordal or tetrachordal wash of sound that is usually best described in terms of transpositional combination.[8] Even as these tremolos maintain a continuous sonic background, their pitch structure typically changes incrementally,

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[6] Set class 8-9 (01236789) is so ubiquitous in Ginastera's musical language that this study proposes it be called the *8-note* collection. A more formal discussion of this *cluster*-type collection appears below in the section on completing the aggregate.

[7] Richard Cohn describes transpositional combination (or TC) on multiple occasions in his scholarship. According to his 1988 article, "Operations of transpositional combination take the form of a mathematical expression, with the operation signified by a star (*). The expression will appear as A * B = C, where A and B are set-class operands and C is the set-class product." See Cohn, "Inversional Symmetry and Transpositional Combination in Bartók," *Music Theory Spectrum* 10 (1988): 28.

The present approach does not necessarily require that both A and B be set classes; instead, B oftentimes indicates the T_n value at which set class A is patterned within a sequence. For example, (0123) * T_6 = set class 8-9 (01236789), that is, the eight-member type of *cluster* described above. In the generation of tetrachordal sets, A might be described more generically as a pitch-class (or pitch) interval or an interval class (e.g., i11 * T_6 = set class (0167), likewise ic1 * T_6 = (0167)). This more flexible notation allows for compound, or recursive, interval patterns. For example, (ic3 * T_1) * T_6 describes an intervallic pattern that moves first (perhaps locally) by T_1 and then second (perhaps more long range) by T_6, thereby composing-out the octatonic collection (i.e., set class 8-28 (0134679t)). As this chapter will show, Ginastera's compositional strategies—much like those described by Cohn with respect to Bartók—frequently result in the octatonic collection.

[8] For example, when the tremolo involves harmonic dyads of the same pitch interval or interval class (x), we might describe the oscillation as x * T_n = set class y. The value of n reflects the interval of transposition and is always expressed as an ordered pitch-class interval (±1–11). See the formation of tetrachords in the first violin of Example 2.1(b) below.

swapping out one or two pitch classes while keeping the others as common tones; thus, they tend to participate in compositional strategies that generate larger collections, such as *clusters*.

The final term, *constellation*, is bit more elusive but arguably the most provocative when interpreted with respect to Ginastera's use of complex twelve-tone strategies. *Constellations* capture stylistic characteristics as varied as isomorphic order-number partitions, the composing-out of deeper-level motivic events, and row organizational strategies involving pitch-class invariant *mosaic* profiles.[9] Constellations in our solar system are formed by visualizing a connection among separate and distinct celestial bodies, which when combined together form a single larger image; likewise, through Ginastera's twelve-tone organizational strategies, outwardly distinct musical events unfold a larger narrative when viewed in relation to one another. Thus, while individual parts of a *constellation* may indeed "suddenly appear and disappear the same way," as Ginastera describes above, their significance is far-reaching and better appreciated in light of their connections to one another. These connections create an audible pathway of associations that guides and enhances one's listening experience.

The two excerpts discussed below are from the Piano Quintet, Op. 29 (1963) and represent highly typical motivic gestures in Ginastera's style, thus offering a glimpse at *clusters*, *clouds*, and *constellations* in context. The Quintet lies at a critical moment in Ginastera's foray into twelve-tone composition in the 1960s. It was composed after the Piano Concerto No. 1, Op. 28 (1961) and around the same time as the Violin Concerto, Op. 30 (1963). Of the Quintet's seven movements, only movements III, V, and VII are serial in the conventional sense in that

[9] All of these strategies are discussed in more detail below and in the following chapter. The term *mosaic* refers to a set of non-overlapping segments that make up the twelve-tone row. Like a traditional art mosaic, these segments are associated with a particular "color," or, in this case, a particular set of pitch classes, and together all the "tiles," or segments of the aggregate, come together to complete the larger image, that is, the twelve-tone row. A row's *mosaic* profile is thus similar to a *constellation* in the sense that its full impression is only realized when its outwardly distinct parts are organized and connected.

they each begin with a clear linear presentation of a twelve-tone row and are organized by traditional transformations of that row. The Quintet's remaining four movements are still "twelve tone" but in a "looser" sense: each features aggregate completion (and not row presentation) as a primary means of structural organization.[10] Significantly, the means by which Ginastera completes the aggregate—including his reliance on recurring intervallic motives, his concentrated use of particular trichordal and tetrachordal set classes, and his penchant for symmetrical designs—are similar to the twelve-tone strategies he employs in the Piano and Violin Concertos examined in chapters 4 and 5.

Example 2.1(a) shows the opening two measures of the Quintet. Two aggregate statements are demarcated below the staff. The first aggregate is formed by two harmonic *clusters*: the [789t] grace-note *cluster* and the strings' [123456] hexachordal *cluster*[11] joined by the piano's [e0] dyad. The formation of the second aggregate is more complex and is created by *constellation*-like unfoldings of set classes (0167) and (0369). Indicated at the top of the example, [56e0], a member of set class (0167), is presented melodically in the first violin and viola and is harmonized in the second violin and cello by [47t], a segment of (0369) that is completed upon the arrival of D♭ in the piano. Together these tetrachords form set class 8-9 (01236789)—that is, the 8-note *cluster* collection (per the discussion above) made up of two

[10] The serial movements of the Piano Quintet bear more traditional movement titles like *Scherzo fantastico* (mvt. III), *Piccola musica notturna* (mvt. V) and *Finale* (mvt. VII). In contrast, the non-serial movements, aside from the *Introduzione* (mvt. I), are all instrumental cadenzas—*Cadenza I per viola e violincello* (mvt. II), *Cadenza II per due violini* (mvt. IV), and *Cadenza III per pianoforte* (mvt. VI). The *cadenza* is a recurring formal unit in several of Ginastera's twelve-tone works; the following chapter will explore this idea in more detail, especially as it concerns how the *cadenza* functions as the "theme" proper in the theme + variations formal plan of both the Piano Concerto and Violin Concerto.

[11] This hexachord is made up of stacked thirds in the configuration ic3 * T_{11}. Ginastera seems to prefer this configuration in building harmonic *clusters*: notably, the exact same pitch classes appear at the opening of the pianist's *Cadenza* movement (mvt. VI) of the Quintet and also in the brass accompaniment at the end of *Studio V* in the Violin Concerto (see Example 5.41(a) in chapter 5).

chromatic tetrachords a tritone apart. The (0167) tetrachord missing from the aggregate at this point is provided by the combination of the pianist's last three descending sixteenth-notes, [238], a member of set class (016), and the repeated As in the second violin and cello.

Example 2.1(b) shows the first six measures of the Quintet's fourth movement, the *Cadenza* featuring the first and second violins. The first violin's tremolo gestures are indicated in terms of *transpositional combination* above the staff. Like the *clouds* Ginastera describes above, these tremolos change gradually: G3 forms a common tone throughout the passage, while the other members of the tetrachord move by semitone or whole step. The first two tremolos form "minor" and "major" versions of the symmetrical tetrachord (0347): the first oscillates between minor sixths (i8) a minor third apart (T_3) and the second oscillates between major sixths (i9) a major third apart (T_4). The final tremolo of the passage emphasizes a descending minor third between two major sevenths (i11), thereby forming another symmetrical set class, (0134).[12]

Beneath the *clouds* of the first violin, the second violin in Example 2.1(b) presents motivic material more in keeping with the imagery of *clusters* and *constellations*. Wedge-like chromatic scales in mm. 2–3 complete the aggregate via *clusters* emanating from E5.[13] In mm. 5–6 the aggregate is completed via two descending presentations of different octatonic collections (labeled OCT). This "mini" *constellation* network begins locally with minor sixths descending by minor thirds, which is indicated as the compound expression (i8 * T_{-3}) * T_{-6} and

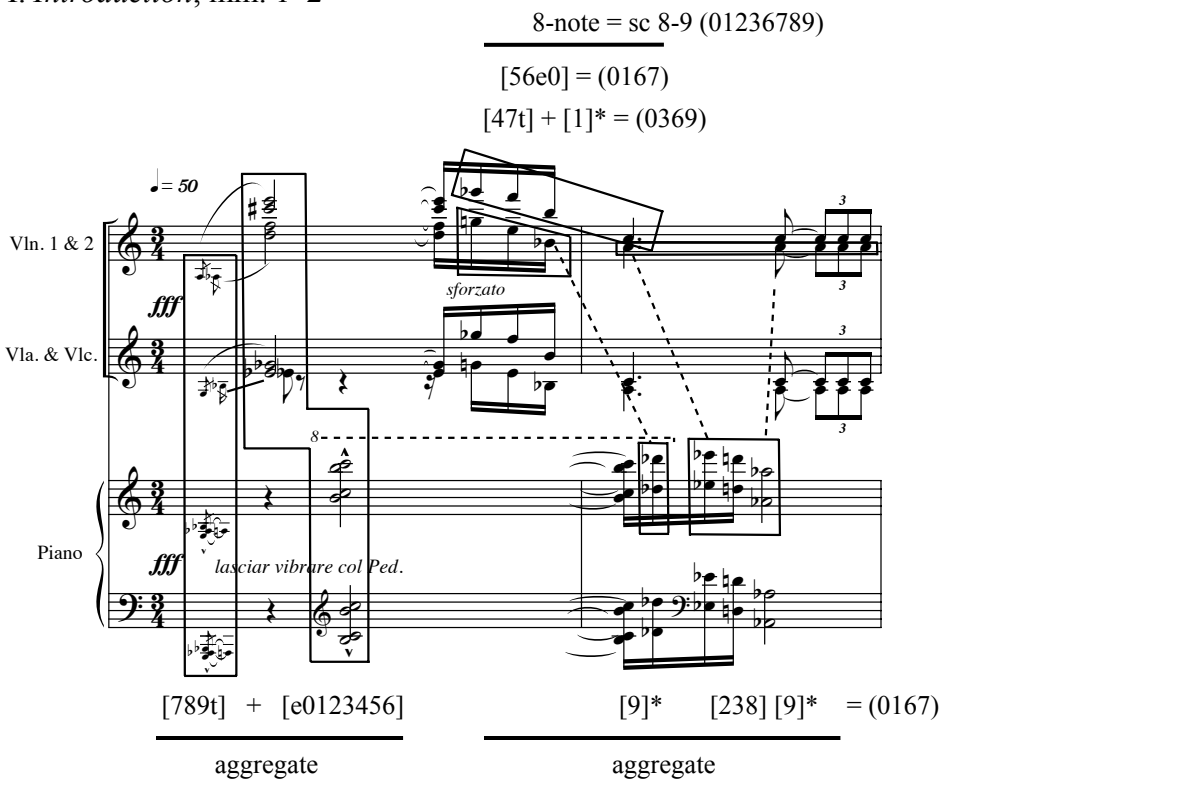
[12] Per the discussion in note 7 above, the interval of transposition is always expressed as an ordered pitch-class interval (± 1–11); by convention, when it appears without a + or - sign, a + is always assumed.

[13] Such wedge-like gestures involving a pedal tone and an ascending or descending chromatic scale are common in virtuosic solo passages in Ginastera's music. From this period, see the fourth-movement theme + variation form of the String Quartet No. 2, Op. 26 (1958, rev. 1968)—which was later recomposed as the first movement of the Concerto for Strings, Op. 33 (1965, rev. 1967)—and also the soloist's opening *Cadenza* of the Violin Concerto.

completes $OCT_{0,1}$. Although the gesture is rhythmically varied in the following measure, the general "$T_{-5/-7}$" transposition introduces $OCT_{2,3}$ and thus completes the aggregate.[14]

Example 2.1 *Clusters*, *clouds*, and *constellations* in the Piano Quintet, Op. 29 (1963)

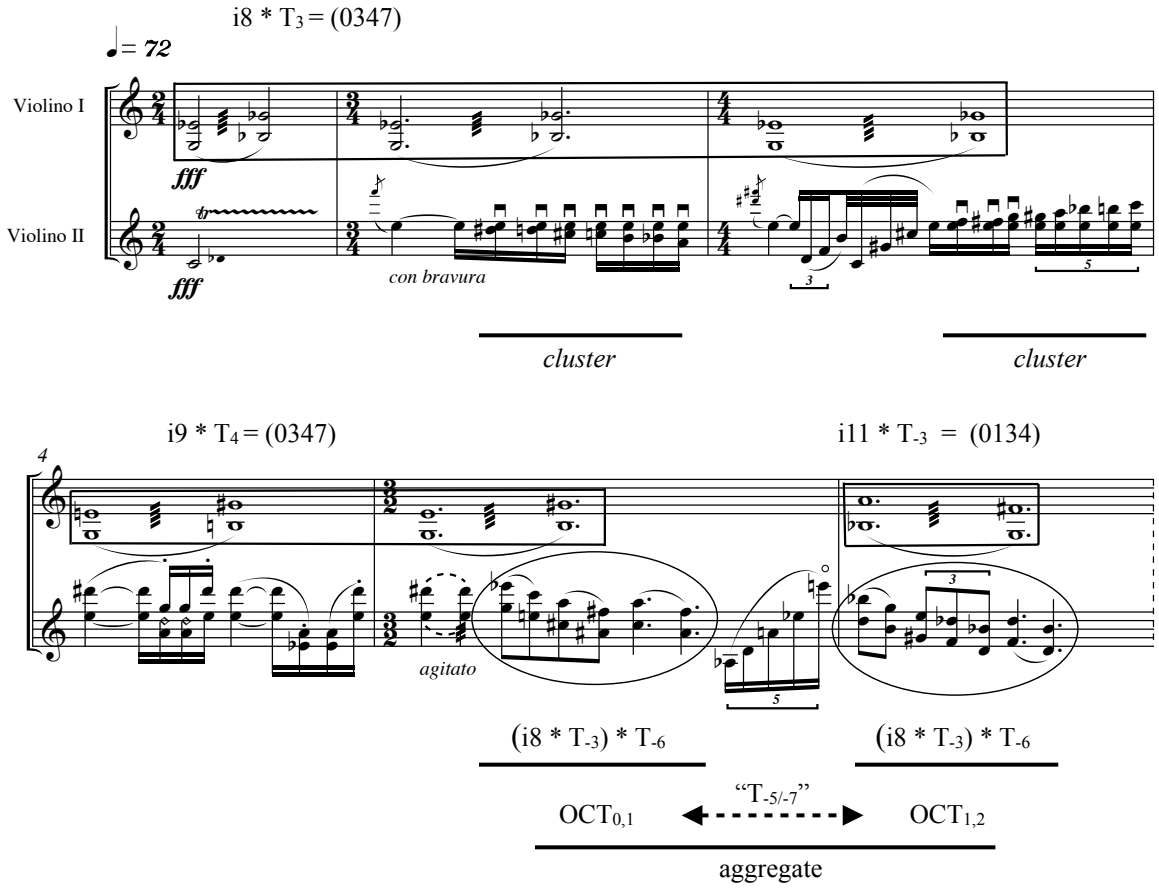
(a) I. *Introduction*, mm. 1–2



* Denotes a shift in instrumentation

[14] The beginnings of each octatonic collection clearly project a large-scale T_{-5} transposition, but, given the addition of the triplet in the second collection, the dotted-quarter-note cadential gestures in both measures clearly project a large-scale T_{-7} transposition.

(b) IV. *Cadenza II per due violini*, mm. 1–6



Trichordal and Tetrachordal Motivic Materials

The discussion below compares common trichordal and tetrachordal set classes in Ginastera's early works with those in his twelve-tone works. According to Schwartz-Kates, "As [Ginastera's] career progressed, the composer called upon heightened levels of chromaticism to raise the level of emotional intensity in his works. The resulting severe and dissonant musical language arose as the *sine qua non* of his serial compositions and formed the basis of the pathological world of his operas."[15] Although the following examples represent only a mere

[15] Schwartz-Kates, *Alberto Ginastera: A Research and Information Guide*, 28.

sampling of Ginastera's motivic tendencies, his development toward a more dissonant twelve-tone language, as Schwartz-Kates describes, is readily observable. To be sure, some motives remain consistent throughout this development, especially those involving ic3 and ic4, but it is the uniting of these interval classes with ic1 and ic6, in particular, that comes to define the chromatic intensity of his 1960s works. The motives discussed below are represented in every example in this chapter and their contribution to the "pathological world of his operas" culminates in the discussion of rows from *Don Rodrigo* towards the end of the chapter.

Example 2.2 separates the twelve set classes of trichords into two groups: those pervasive in Ginastera's works prior to 1960 are shown on the left and those pervasive in his serial works from the 1960s are shown on the right.[16] Although both (012)—a segment of minor seconds—and (024)—a segment of major seconds—are common in Ginastera's early "nationalistic" works, the chromatic *cluster* (012) recurs more frequently in his serial works where it is often built into twelve-tone row structures.[17] The next four trichords listed in Example 2.2—(013), (014), (015), and (016)—are followed by an abstract description of the most frequent musical realization associated with each trichord. To be sure, these four set classes arise from a number of other interval unions than those indicated; however, given Ginastera's penchant for constructing melodies from thirds and semitones and his predilection for quartal/quintal sonorities, these set

[16] The articulation of trichords (and tetrachords discussed below) in Ginastera's music comes about in a variety of textures and metric/rhythmic contexts. The purpose of the present chapter is to investigate these contexts in a more general sense, given the composer's stylistic tendencies. For a concise overview of Ginastera's signature "sound," including his adaptation of folk melodies and rhythms, see Schwartz-Kates, *Alberto Ginastera: A Research and Information Guide*, chapter 2.

The present author's master's thesis discusses the melodic-motivic origins of several of these trichords in Ginastera's String Quartets and further explores how they are enlarged, or composed-out, over larger spans of music. Significantly, the study compares the stylistically "different" String Quartet No. 1, Op. 20 (1948) with the first of Ginastera's twelve-tone compositions, the String Quartet No. 2, Op. 26 (1958, rev. 1968), concluding that they are *not* so "different" after all. See Barnett, "Alberto Ginastera's String Quartets Nos. 1 and 2: Consistencies in Structure and Process."

[17] For instance, see the row from the second movement of *Iubilum: Symphonic Celebration* shown in Example 2.18(a) below.

classes most frequently result from the union of two intervals—one of which is always a semitone—that have a single pitch-class intersection. In his serial works, Ginastera continues to favor the interval of a third, but the perfect fourth and fifth are sometimes replaced by their dissonant, inversionally symmetrical counterpart, the tritone; thus, (016) is described on the right side of Example 2.2 as the union of either [05] or [06] and a semitone that shares a single pitch-class intersection.[18]

Similar to (015) in construction, (025) and (027) also tend to result from Ginastera's frequent use of partial quartal/quintal interval cycles. (025), the union of [05] and a whole step that intersects it, [02], is a common melodic motive in Ginastera early works, especially those that incorporate diatonic, modal, and/or pentatonic folk melodies. (027), which often results from the union of the same interval classes as (025), occurs in both the melodic and harmonic dimensions of Ginastera's early works. Harmonically, (027) most frequently appears as a quartal/quintal sonority (i.e., stacked fourths or fifths). In his serial works, Ginastera tends to replace the "tonal" sounding (025) and (027) with (026), effectively replacing the perfect fourth or fifth with the tritone.

Finally, the bottom of Example 2.2 indicates that (036), (037), and (048)—that is, the diminished (°), major (M), minor (m), and augmented (+) triads associated with tonal music—frequently emerge from both periods in Ginastera's compositional career. In his early works, however, these trichords are remnants of the tonal tradition that underlies Ginastera's "nationalistic" language.[19] When these trichords appear in his serial works from the 1960s,

[18] The twelve-tone rows in the first and fourth movements of the *Cantata para América mágica*, shown in Examples 2.17(a) and (b) below, clearly illustrates this duality: both rows are uniformly derived of (016) trichords, but the first movement emphasizes ic5 while the fourth movement emphasizes ic6.

[19] Traditional fifth relations, such as tonic and dominant, abound in much of Ginastera's early music, albeit in a non-functional capacity. In most cases they mimic the tonal conventions typical of cadences.

shown on the right side of Example 2.2, they are typically part of a more generic interval pattern or motivic sequence involving ic3 and/or ic4. Furthermore, when they do appear in Ginastera's twelve-tone works, they tend to combine in ways that complete the twelve-tone aggregate in a more general sense, apart from a work's primary row and its transformations.[20]

Example 2.2 Trichords in Ginastera's early works and 12-tone works

Early Works (pre 1960)	12-Tone Works (post 1960)
(012) = chromatic *cluster*	(012) = chromatic *cluster*
(024) = whole tone segment	
(013) = [03] ∪ [01]	(013) = [03] ∪ [01]
(014) = [04] ∪ [01]	(014) = [04] ∪ [01]
(015) = [05] ∪ [01]	
(016) = [05] ∪ [56]	(016) = [05] ∪ [56] [06] ∪ [01]
(025) = [05] ∪ [02]	
	(026) = [06] ∪ [02]
(027) = [05] ∪ [02]	
(036) = ° tonal remnants	(036) = ic3 interval pattern
(037) = M/m tonal remnants	(037) = alternating ic3/ic4 pattern
(048) = + tonal remnants	(048) = ic4 interval pattern

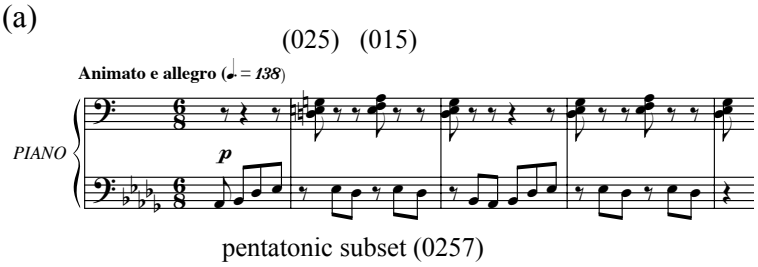
Example 2.3 shows two excerpts from *Danzas Argentinas*, Op. 2 (1937), a representative work from Ginastera's early "nationalistic" style, and highlights some of the composer's most common motivic gestures. Naturally, the *Danzas*, written by a young Ginastera, differ dramatically from the twelve-tone works discussed throughout this chapter. They are filled with folk-inspired melodies and rhythms indicative of the composer's Argentine heritage—

[20] Aggregate formations based on combinations of (036), (037), and (048) are discussed in more detail below; see especially the discussion of Example 2.8.

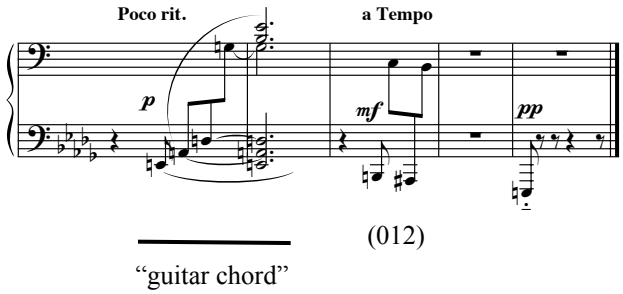
characteristics he deliberately sought to avoid in the development of his twelve-tone language much later. The beginning of the lively, rhythmic dance, shown in example (a), features a pentatonic melody consisting of only "black keys" in the left hand and a "hocket" effect in the right hand, which alternates between (025) and (015) sonorities.[21] The end of the "Danza del viejo boyero," shown in example (b), deliberately evokes the open strings of the guitar—a recurring gesture in Ginastera's music—and results in another pentatonic collection. The resonant, "open" sound of the guitar motive is ultimately interrupted by a rhythmically-charged (012) *cluster* that ends the dance.

Example 2.3 Trichordal motives in *Danzas argentinas*, Op. 2 (1937), I. "Danza del viejo boyero" [Dance of the Old Herdsman]

(a)



(b)



[21] The "bitonal" characteristics of this dance are similar to those in Ginastera's "Danza Criollo," the third prelude in *Doce preludios americanos*, Op. 12 (1945), which is cited as an example of "polytonality" in Robert A. Melcher, Willard F. Warch, and Paul B. Mast, *Music for Study: A Source Book of Excerpts*, 3d ed. (New Jersey: Prentice Hall, 1988), 224.

Tetrachordal motives in Ginastera's music underwent a similar development as trichords during the composer's transition to twelve-tone composition. A summary of tetrachords commonly found in Ginastera's early and serial works is shown in Example 2.4. Significantly, the tetrachords on this list fit into one or more of the following three groups: (1) subsets of interval cycles (e.g., (0123) = ic1 cycle, (0246) = ic2 cycle, (0257) = ic5 cycle, (0369) = ic3 cycle); (2) intervallically symmetrical sets that are "pinched" with ic1 at either end of their prime forms (e.g., (0167), (0156), (0145), (0134)); and/or (3) subsets of the octatonic collection (e.g., (0167), (0134), (0347), (0369)). As with the list of trichords shown above, some tetrachords are featured in both compositional periods; these set classes include (0123), (0347), and (0369). In Ginastera's early works, the chromatic *cluster* (0123) typically appears locally emphasized and acts as a catalyst for completing the aggregate, appearing alongside multiple T_4 or T_8 transpositions of itself. In his twelve-tone works, *cluster* segments (of varying sizes) are frequently built into the structure of the row class.

Example 2.4 Tetrachords in Ginastera's early works and 12-tone works

Early Works (pre 1960)	12-Tone Works (post 1960)
(0123) = chromatic *cluster*	(0123) = chromatic *cluster*
(0246) = partial ic2 cycle	
(0257) = partial ic5 cycle	
	(0167) = "pinched" version of (0257)
	(0156)
	(0145)
	(0134)
(0347) = M/m modal duality	(0347) = octatonic strategies
(0369) = ic3 cycle	(0369) = ic3 cycle, octatonic strategies

As a subset of both the octatonic and hexatonic collections, (0347) is a familiar tetrachord in several post-tonal repertoires and Ginastera's music is no exception. The relatively "tonal" sound of Ginastera's early works is due in part to his frequent emphasis on pitch centers and pedal tones; these structurally prominent pitches are, in turn, often harmonized as modally-ambiguous triads (e.g., any major triad combined with its parallel minor creates a (0347) tetrachord). As Ginastera's music becomes increasingly twelve-tone and less diatonic—as in the String Quartet No. 2 (1958), for example—(0347) tends to participate in composing-out strategies that complete the octatonic collection on various levels of the music's structure, and the octatonic collection, in turn, interacts with transpositions of itself to complete the aggregate (as in Example 2.1(b) discussed above).[22]

Another familiar octatonic subset ubiquitous in Ginastera's music is (0369)—a "fully diminished" tetrachord that represents a complete ic3 cycle. Sometimes it appears as a locally-emphasized motive on the music's surface, but more often than not, in both his early works and his twelve-tone works, (0369) is composed-out via a $T_{3/9}$ transpositional sequence of some other surface-level motive.[23] Large-scale projections of (0369), like (0347) mentioned above, tend to interact with transpositions of itself, thereby participating in organizational strategies that complete the octatonic on the music's structural middleground.

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[22] The octatonic collection plays a structural role in both concertos, especially the Piano Concerto discussed in chapter 4. On the surface of the music, it is composed-out via various interval patterns and motivic sequences—much like it is in the String Quartet No. 2. Significantly, the octatonic collection is structurally intertwined with the primary twelve-tone rows of both concertos and is readily generated from specific and uniform order-number partitions within each row.

[23] Interval patterns and various projections of (0369) are discussed in more detail below; see especially the discussions of Example 2.10(b) from the non-twelve-tone Piano Sonata No. 1 and Example 2.14 from the twelve-tone Piano Concerto No. 1.

Of the remaining tetrachords listed in Example 2.4 above, (0257) and (0167) are the most quintessential tetrachords of Ginastera's pre-1960 and post-1960 works, respectively. (0257) frequently emerges in Ginastera's early works due to his predilection for quartal/quintal harmonizations and his use of folk-inspired pentatonic melodies that result in (025)/(027) trichordal motives—like those in the *Danzas argentinas* discussed above (see Example 2.3). In his later works, however, Ginastera shifts his melodic-motivic emphasis from ic2/ic5 to ic1/ic6, thereby replacing (0257) with (0167) as the most prominent tetrachord.[24] Abstractly, one can think of (0167) as a chromatically "pinched" version of (0257) in which the tetrachord's boundaries are now ic1 instead of ic2.[25] Interval class 1 becomes increasingly common in Ginastera's serial works; thus, listed below (0167) in Example 2.4 are other "pinched," inversionally-symmetrical tetrachords—(0156), (0145), and (0134).[26]

The following examples compare tetrachordal motivic materials in two of Ginastera's early works (shown in Example 2.5) with two movements from his twelve-tone Piano Concerto (shown in Example 2.6). Significantly, the excerpts share certain similarities with respect to their rhythmic profiles, melodic-motivic contours, and tetrachordal harmonic structures. The key differences between the pre-1960 and post-1960 works, however, concern the replacement of quartal/quintal set classes such as (025)/(027) and (0257) with "pinched" set classes such as

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[24] Malena Kuss describes (0167) as a "descendent" of the "guitar chord": she claims that the intervallic structure of the so-called "Z-cell" [i.e., (0167)] represents a "hemitonic derivation" of the "unhemitonic" set class (027), a partial segment of the guitar's open-string fourths. See Kuss, "The Structural Role of Folk Elements in 20th-Century Art Music" in *Transmission and Reception of Musical Culture: Proceedings of the XIVth Congress, International Musicological Society*, edited by Lorenzo Biaconi, et. al., (Torino, Italy: EDT/Musica, 1990) 3: 99–120.

[25] Like (0347) and (0369) mentioned above, (0167) is a subset of the octatonic collection and thus also tends to participate in octatonic strategies on the music's structural middleground.

[26] (0145) and (0134) are common subsets of the hexatonic and octatonic collections, respectively; these larger collections are discussed in more detail below.

(016) and (0167). Example 2.5(a) shows the opening of the seventh prelude, "Para las octavas," from *Doce preludios americanos*, Op. 12 (1944). Virtually the entire prelude is characterized by parallel motion between both hands. The allegro 𝄋 meter accentuates the trichordal structure of the melody and the preponderance of ic5 and ic2 results in several (027) trichords throughout the piece. The melody's overall ascent in m. 1 and mm. 2–3 is characterized by two (0257) tetrachords, which together complete the pentatonic collection via a partial ic5 cycle—[G, C, F, B♭, E♭]. After the climax in m. 3, the melody descends outlining another ic5-derived trichord, (025), and filling in a G-Lydian scale via (024) and (013) motives.[27]

The excerpt in Example 2.5(b), from the final movement of the Piano Sonata No. 1, Op. 22 (1952), also emphasizes ic5 and ic2.[28] The first four measures of the excerpt (mm. 21–24) emphasize a (027) pedal consisting of alternating ic5s in either hand, which is briefly interrupted by contrary stepwise motion in m. 22 and ic5 leaps in the right hand in m. 24. The first phrase ultimately arrives at a fuller quartal/quintal sonority, forming a brief (0257) pedal in mm. 25–26. The following phrase (mm. 27–36) begins ***ff*** with another (027) pedal in the left hand, which continues, like the previous six measures, to emphasize A in the lowest registral voice. Meanwhile, the right hand in m. 27 begins a folk-like diatonic melody that includes melodic (025) and (027) trichords in m. 31 and (016) trichords in m. 33. The passage closes on another

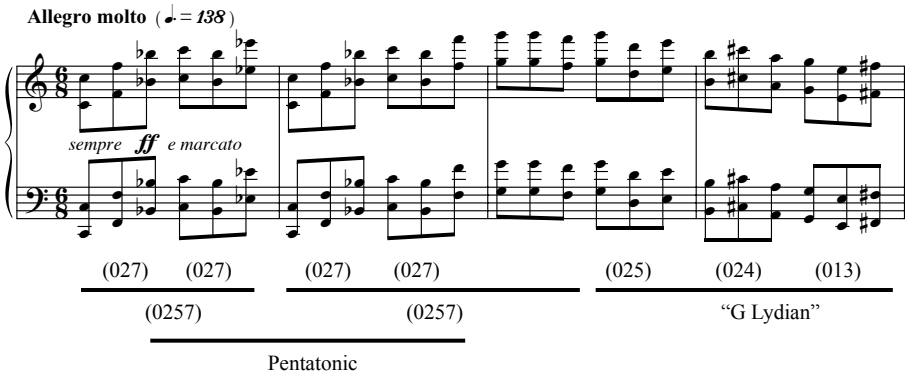
[27] This four-measure melody recurs several times throughout the prelude. Interestingly, it consists of only eleven pitch classes, making it one pitch class short of completing the twelve-tone aggregate. Ginastera uses the same unison texture and rapid 𝄋 meter in the second movement of the Piano Sonata No. 1, Op. 22 (1952), shown in Example 2.16 below, and in this context he presents all twelve members of the aggregate, without repeating any pitch classes, in the first two measures.

[28] This passage is cited as an example of "quartal harmony" in Melcher, Warch, and Mast, *Music for Study: A Source Book of Excerpts*, 218.

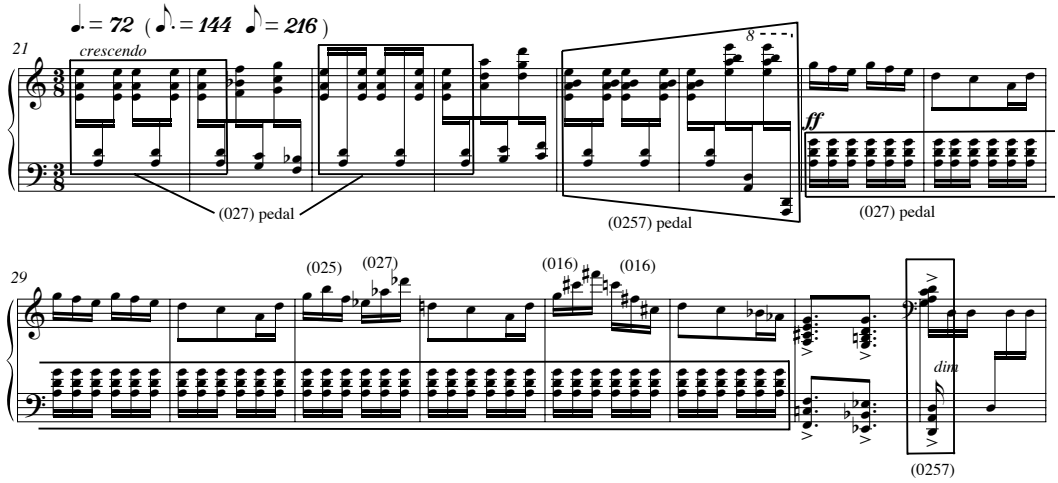
(0257) tetrachord, where D—a fifth lower than the previously emphasized A—takes over as the new pedal tone.[29]

Example 2.5 Motivic emphasis on (0257) and its trichordal subsets, (027) and (025)

(a) *Doce preludios americanos*, Op. 12 (1944), VII. "Para las octavas"



(b) Piano Sonata No. 1, Op. 22 (1952), IV, *Ruvido ed ostinato*



[29] The general affect of this passage mimics a cadential expansion in which the "dominant" (A) is prolonged by a pedal and resolves to "tonic" (D) upon the structural downbeat in m. 36. The arrival of D is further accentuated by Phrygian-esque descending motion, F-E♭-D, in the lowest register of the penultimate measure.

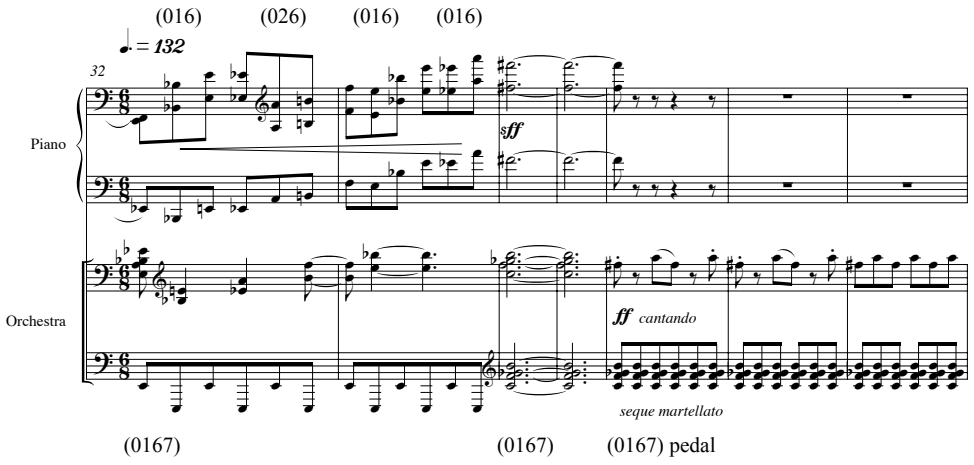
The general rhythmic and melodic-motivic profiles of the pre-1960s works discussed above have parallelisms in the twelve-tone context of Ginastera's serial works including the Piano Concerto No. 1 shown in Example 2.6 below. Significantly, the perfect intervals of (0257) so prominent in Ginastera's early works, are replaced with tritones, forming (0167) tetrachords throughout much of his twelve-tone music. The pianist's part in the fourth-movement toccata, shown in Example 2.6(a), features the same parallel octave motion as in the prelude shown in Example 2.5(a) above; however, in the context of his twelve-tone language, Ginastera replaces ic5s and ic2s with ic6s and ic1s. When parsed according to the $\frac{6}{8}$ meter, the trichordal structure of the piano part consists of (016) and (026) trichords (instead of (027) and (025) trichords, like those in the prelude shown above). Furthermore, the orchestra presents three harmonic instances of (0167) tetrachords, which are indicated below the staff in Example 2.6(a). The general "stacked" intervallic structure of each (0167) tetrachord in the Piano Concerto is comparable to the "stacked" quartal/quintal sonorities involving (0257) and (027) in the Piano Sonata shown above (see Example 2.5(b)). In m. 36 of the Piano Concerto, a *cantando* folk-like melody emerges above the (0167) pedal, much like it did above the (027) pedal in m. 27ff of the Piano Sonata.

Example 2.6(b) is an excerpt from the slow third movement of the Piano Concerto. As is characteristic of Ginastera's twelve-tone language, the pianist's harmonic tetrachords—(0134), (0167), and (0156)—consist entirely of "pinched," inversionally-symmetrical set classes, like those listed in Example 2.4 above. One more general characteristic of his compositional style—a characteristic that will be explored in more detail below—concerns the large-scale projection of ic3 and/or ic4, which is usually effected by a musically emphasized transposition of a small

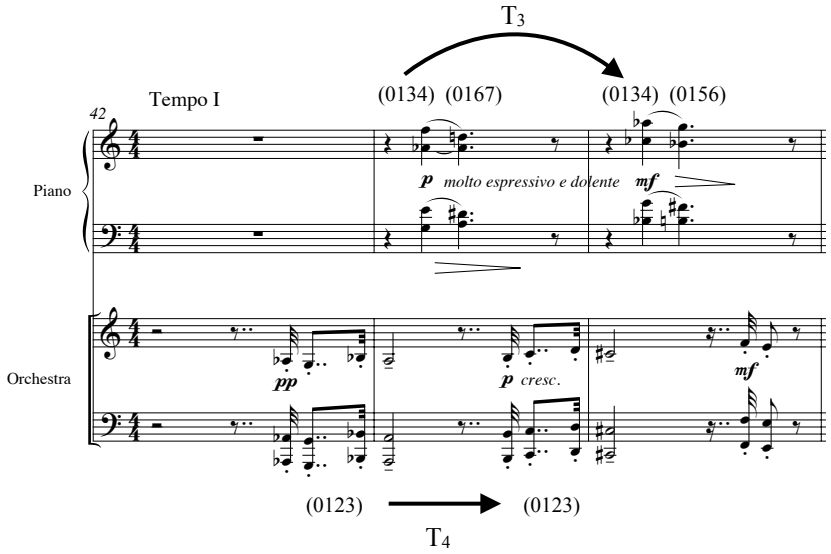
motivic cell by $T_{3/9}$ and/or $T_{4/8}$. In Example 2.6(b), the pitch classes of the orchestra's (0123) *cluster* are immediately transposed up a major third (T_4) and the pianist's initial (0134) harmonic tetrachord is transposed up a minor third (T_3).

Example 2.6 Motivic emphasis on (016), (0167), and other "pinched" tetrachords

(a) Piano Concerto No. 1, Op. 28 (1961), IV, *Toccata concertata*



(b) Piano Concerto No. 1, Op. 28 (1961), III, *Adagissimo*



Role of Symmetry

Symmetrical structures are an integral part of Ginastera's compositional style and remain so throughout all his compositional periods, even as his musical language developed toward serialism. Sometimes symmetry is overtly observable on the surface of the music, where it may arise from palindromic interval patterns, inversional imitation (or canon), pitch-space symmetrical "wedge" projections, and the like.[30] At other times, symmetry emerges on more abstract levels of the music's surface where inversionally-symmetrical motives (such as, (0369) or (0167)) are composed-out over longer spans of music and/or the music's formal design interacts with the organization of larger collections such as the aggregate, the octatonic, and the hexatonic.[31] Like Bartók and Webern, for example, Ginastera often creates large-scale symmetrical designs by strategically manipulating a work's formal plan in accordance with its projection of "tonal" areas—that is, passages clearly marked by certain pitch-class centers or collections of rows.[32] In order to summarize Ginastera's more general compositional tendencies, the following discussion focuses on surface-level symmetrical structures in two works from stylistically different periods.[33]

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[30] Symmetrical structures are also discussed in Richards's dissertation. Although Richards's research deals exclusively with the twelve-tone opera, *Don Rodrigo*, the author identifies four general types of symmetry found specifically among *non-serial* structures in the opera. These symmetry types, which are not mutually exclusive, include the following: (1) literal intervallic symmetry, (2) interval class symmetry, (3) intervallic patterning, and (4) "wedge rows" [perhaps more aptly termed, "wedge aggregates"]. See Richards, "Pitch Structure in the Opera *Don Rodrigo* of Alberto Ginastera," 58ff.

[31] The symmetrical designs of Ginastera's motives are indeed so characteristic of his style that they tend to make even his twelve-tone works "sound" octatonic or hexatonic, despite the presence of all twelve tones. The following section will address this issue in more detail.

[32] Similarities between Ginastera's style and these other prominent twentieth-century composers are discussed in the conclusion of this chapter.

[33] Because symmetry is a fundamental principle of organization in Ginastera's music—frequently occurring on multiple structural levels and in varying degrees of abstraction—it is observable in nearly all of the musical examples in this chapter. See especially the discussion of Examples 2.10(b), 2.12–15 and the twelve-tone rows shown in Examples 2.16, 2.17(a) and (b), 2.18(a), 2.19(a), and 2.20(b) and (c).

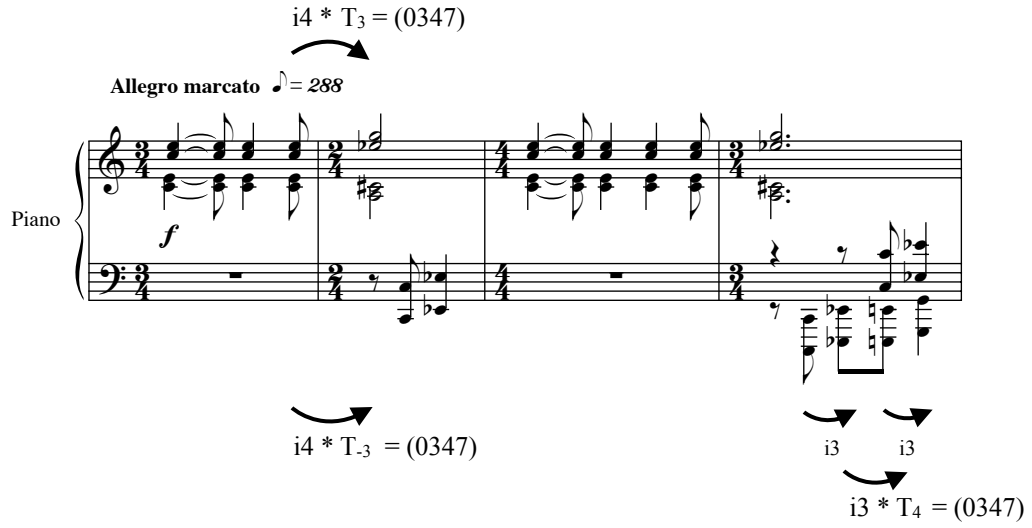
The opening of the Piano Sonata No. 1, Op. 22 (1952), shown in Example 2.7(a), shares several structural similarities with the second movement of the Piano Quintet, Op. 29 (1963), shown in Example 2.7(b). The primary motivic material of both works centers around interactions between major and minor thirds. In Example 2.7(a), the pianist's i4 dyad is subjected to a symmetrical transpositional projection that composes-out (0347) tetrachords in both hands: the upper dyad moves by T_3 and the lower dyad moves by T_{-3}, thereby creating tonal ambiguity between C major/minor in the right hand and A major/minor in the left hand.[34] The pianist's left hand answers the opening i4 * $T_{\pm 3}$ motive by exchanging the intervals in the transpositional projection to i3 * T_4: the melodic i3 dyad in m. 2 recurs in m. 4 and is immediately transposed by T_4, thereby composing-out the same (0347) tetrachord featured in the right hand and reinforcing C as the tonal center.[35]

[34] Although it does not always result in (0347) tetrachords, the opening motive of the Piano Sonata No. 2, Op. 53 (1981) involves the same $T_{\pm 3}$ wedge motion between i4 dyads in either hand.

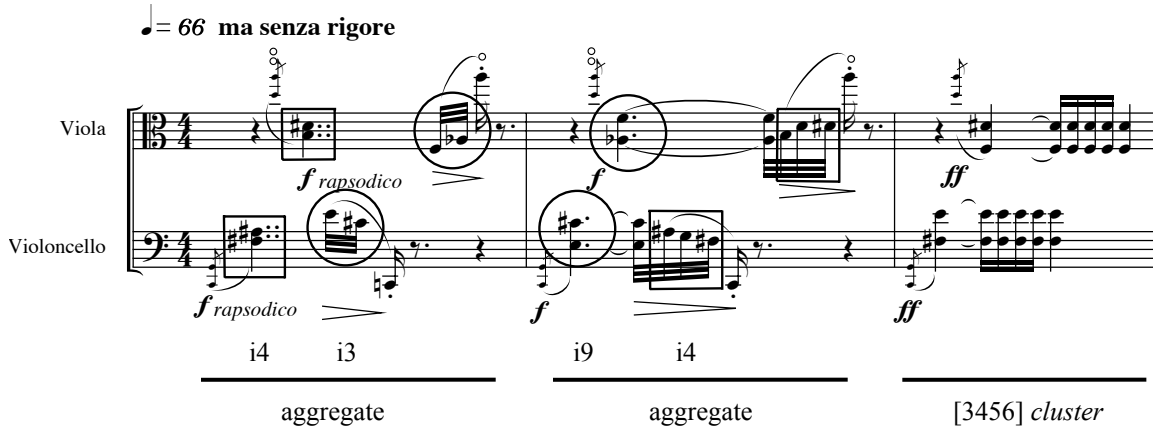
[35] Composed-out (0347) tetrachords appear extensively in both the Piano and Violin Concertos discussed in chapters 4 and 5; see especially the *Cadenza* of the Piano Concerto (Examples 4.9 and 4.53) and *Studio II* of the Violin Concerto (Example 5.52).

Example 2.7 Inversional symmetry involving the interaction of i3 and i4

(a) Piano Sonata No. 1, Op. 22 (1952), I



(b) Piano Quintet, Op. 29 (1963), II. *Cadenze I per viola e violincello*



In the second movement of the Piano Quintet, shown in Example 2.7(b) above, Ginastera again uses i3 and i4 in a display of inversional symmetry, but now the goal is aggregate completion.[36] The cello's part in example (b) is imitatively echoed by the viola, creating

[36] The opening of the Quintet's fourth movement—*Cadenza per due violini*—was discussed at the beginning of this chapter (see Example 2.1(b) above). In this previous example, a similar sort of interaction between i3 and i4 is represented by complementary intervals, i9 and i8: the first violin's interval patterning—i8 * T_3 and i9 * T_4—composes-out (0347) tetrachords in mm. 1–5. Notice also the "wedge-like" inversional symmetry in the second violin (mm. 2–3), which completes the aggregate via two *cluster* motives emanating from an E pedal tone.

inversional symmetry around a B♭3/B3 axis.[37] The first two measures of the *Cadenza* both independently complete the aggregate. An open-fifth grace note in m. 1 leads to a harmonic i4 (the pitches of which are boxed in the example) and is followed by a melodic i3 dyad (the pitches of which are circled in the example). In m. 2 the same sequence of pitch-class dyads is reversed and expressed with complementary intervals: the i3 dyad, now spelled as a harmonic i9 dyad, appears first and the i4 dyad follows as an embellished melodic dyad. The opening phrase ultimately leads to a *cluster* tetrachord repeatedly emphasized in m. 3.

The remainder of this chapter will continue to note recurrences of motives involving ic3 and ic4 in the development of Ginastera's twelve-tone language and further explore how these intervals combine and interact in different musical dimensions. Sometimes certain combinations of ic3 and ic4 appear to mimic "tonal" sonorities such as major, minor, diminished, or augmented triads. At other times these interval classes are involved in more systematic interval patterns and/ or transpositional sequences that result in symmetrical collections like the octatonic and hexatonic. The ensuing discussion concerns completing the aggregate and these other familiar symmetrical collections.

[37] The form of this movement is ABA. Interestingly, the contrasting B section also features inversional imitation as in Example 2.7(b), but the viola takes over the role of *dux* to the cello's *comes*. The second A section marks the return of the movement's primary motivic material now T_7 higher.

Completing the Aggregate

The twelve-tone aggregate was a part of Ginastera's compositional language long before he turned to twelve-tone serialism in the traditional sense. In his early works the aggregate is most often incidentally (or coincidentally) completed by some other compositional process(es)—usually the sequential repetition of a small motivic cell. Such aggregate statements tend to occur at significant moments within the music's formal structure.[38] The following discussion focuses on how Ginastera goes about completing the aggregate in a more general sense, in both serial and non-serial works, and apart from strict row presentations. The discussion then continues in two parts, investigating how the aggregate is sometimes completed by either (1) sequential interval patterns that locally emphasize and compose-out set class (0369) or (2) more complex processes that involve the completion and interaction of octatonic, 8-note (i.e., set class 8-9 (01236789)), and hexatonic collections.

A typical twelve-tone row class in Ginastera's music does *not* tend to include tonally-associated trichordal segments such as (037), (036), or (048).[39] These trichords are nonetheless present in the composer's twelve-tone compositions and frequently combine to complete the aggregate. However, rather than featuring them in passages dominated by row presentations, Ginastera tends to utilize them in non-serial passages that stand in stark contrast to the surrounding serial material and in a capacity that is oftentimes "ornamental" in nature.[40] The

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[38] With respect to Ginastera's twelve-tone works in particular, part of Fobes's research investigates non-serial passages that complete the aggregate—usually harmonically—and play a role in articulating musical form. See Fobes, "A Theoretical Investigation of Twelve-Tone Rows, Harmonic Aggregates, and Non-Twelve-Tone Materials in the Late Music of Alberto Ginastera," chapter 3.

[39] Specific twelve-tone row structures are discussed later in this chapter.

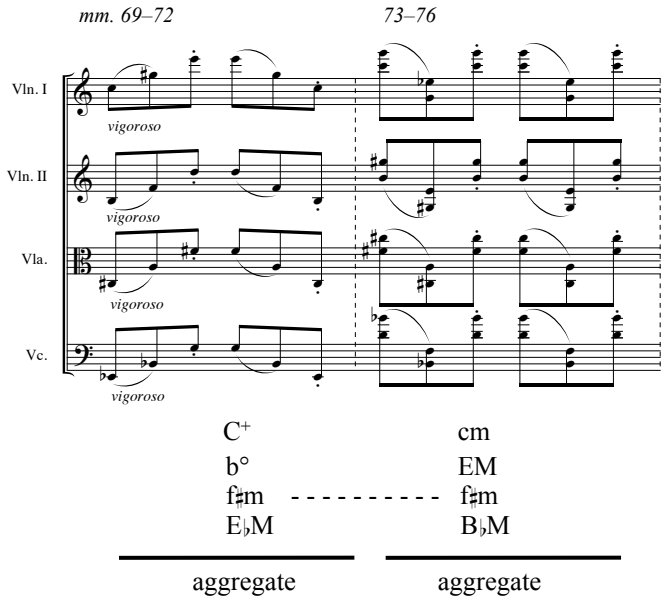
[40] Richards comes to the same conclusion in his analysis of the twelve-tone opera, *Don Rodrigo*; see Richards, "Pitch Structure in the Opera *Don Rodrigo* of Alberto Ginastera," 66.

following example shows excerpts from transitional passages in two of Ginastera's serial works. The first excerpt, Example 2.8(a), shows a reduction of the eight-measure transition that elides with the coda of the Piano Quintet's last movement.[41] In both four-measure halves of the passage (mm. 69–72 and mm. 73–76), the strings simultaneously arpeggiate different major, minor, diminished, and augmented triads, which are summarized below the staff. Only the viola maintains the same arpeggio (f♯m) throughout all eight measures. Collectively, the combined arpeggiations complete the aggregate twice. Example 2.8(b) also shows aggregate-completing arpeggiations, which occur at the very end of the Violin Concerto's opening *Cadenza* and lead into the beginning of the first variation, *Studio I*. With each tuplet grouping, the soloist completes the aggregate via an ad-hoc collection of major, minor, diminished, and/or augmented triads.

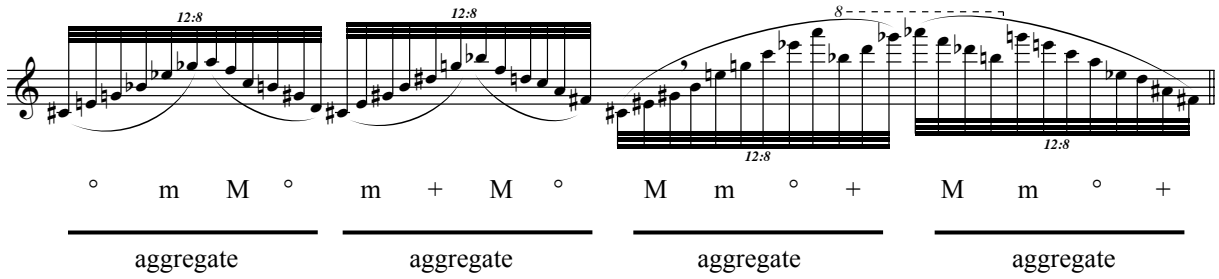
[41] Fobes's cites this passage as an example of a "non-discrete [harmonic] aggregate segmentation," that is, he distinguishes this type of registral voicing from one in which each part presents the chromatic segment (012)—what this study calls a *cluster*. See Fobes, "A Theoretical Investigation of Twelve-Tone Rows, Harmonic Aggregates, and Non-Twelve-Tone Materials in the Late Music of Alberto Ginastera," 81–82. An example of a *cluster*-based formation of the aggregate is shown in Example 2.10(b) below.

Example 2.8 Aggregate completion involving M, m, °, and + triads

(a) Piano Quintet, Op. 29 (1963), VII. *Finale*



(b) Violin Concerto, Op. 30 (1963), I, *Cadenza*, p. 3/7–8[42]



Interval Patterns and the Recursive Nature of (0369)

Motives featuring a concentration of certain interval classes are clearly a characteristic part of Ginastera's compositional style, and several of the examples discussed above have illustrated the pervasiveness of ic3 and ic4, in particular. Sometimes a specific interval or combination of intervals participate in a pattern, creating a motivic sequence of sorts.

[42] The *Cadenza* of the Violin Concerto is unmeasured; therefore, this study will refer to specific passages with a page number, followed by a slash and a number indicating a specific staff system or range of staves. The edition referenced is Boosey & Hawkes, Inc., 1966.

Significantly, a large number of these patterns involve set class (0369), which may appear locally on the music's surface or composed-out (i.e., enlarged) on the music's structural middleground. No matter the level of abstraction in which (0369) emerges, its musical unfolding typically results from Ginastera's recursive use of $T_{3/9}$ and/or T_6 within a multi-layered interval class pattern. The following examples represent interval patterns that complete the aggregate and involve (0369).

Example 2.9(a) shows interval patterns in two measures from the *Coda* of the Violin Concerto. In contrast to the previous excerpts in Example 2.8, which involved M/m/°/$^+$ trichords, here Ginastera exclusively uses arpeggiations of (0369)—a fully-diminished tetrachord in its three unique transpositions, [0369], [147t], and [258e]—to complete the aggregate.[43] These arpeggiations are extremely straightforward, unfolding on the surface of the music. In Example 2.9(b), however, the unfoldings of (0369) are composed-out on multiple levels of the music's structure due to a multi-layered interval pattern. The top staff shows a passage from the end of the soloist's opening *Cadenza* in the Violin Concerto, which Ginastera's marks *precipitato* and *tutta la forza, con fuoco*, and the staff below shows a reduction of the interval pattern. The pattern consists of four levels of abstraction: (1) each sixteenth-note grouping follows an i8 * T_{-6} pattern;[44] (2) the first sixteenth-note grouping is transposed by T_{-3}; (3) this pair of sixteenth-note groupings, in turn, is transposed by T_{-7}; and (4) the entire descending gesture is repeated T_{-5} lower in the second half of the phrase. As the reduction shows, each (i8 * T_{-6}) * T_{-3} grouping (now expressed as eighth notes) linearly unfolds set-class (0369) in both registral voices, thereby

[43] To be sure, the trichordal segments in Example 2.9(a) also involve a series M/m/° trichords; but, unlike Example 2.8(b), the pitch-class order systematically unfolds all three transpositions of (0369) via a series of ic3s.

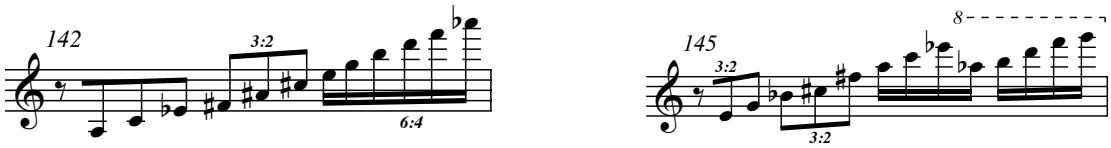
[44] This local-level pattern composes-out set class (0257)—a remnant of Ginastera's "tonal" language in his earlier works (see Examples 2.4–5 above) and a nod to the violin's open strings, which collectively form the same set class in an abstract sense.

completing the octatonic collection at the level of the half note. When this local pattern is repeated at T_{-7}, the third and final transposition of (0369) is provided, thereby completing the aggregate.[45] Finally, by repeating the aggregate a second time at T_{-5}, Ginastera is able to end the passage with the same transposition of (i8 * T_{-6}) * T_{-3} with which it began.

Ginastera continues to use layered interval patterns in the six variations that follow the *Cadenza* of the Violin Concerto. Example 2.9(c) shows a brief transitional passage from the third variation, *Studio III*. Each registral voice unfolds a transposition of (0369), which is summarized at the bottom of the example, and, as in the previous example, the aggregate is presented twice, once in each measure. The original (i8 * T_{-6}) * T_{-3} pattern from example (b) is varied in example (c) so that the upper two registral voices again form i8 dyads but now descend via an ic3 cycle—here expressed as (i8 * T_{-3}) * T_{-6}. This pattern is then repeated a whole step lower (T_{-2}) in the following measure. Meanwhile, the oboes present a complete T_3 cycle of ascending tritones—or, (i6 * T_3) * T_4.

Example 2.9 Aggregate completion involving (0369) in the Violin Concerto, Op. 30 (1963), I

(a) Solo violin in the *Coda*



< 3, 3, 3, 4, 3, 3, 3, 4, 3, 3, 3 >

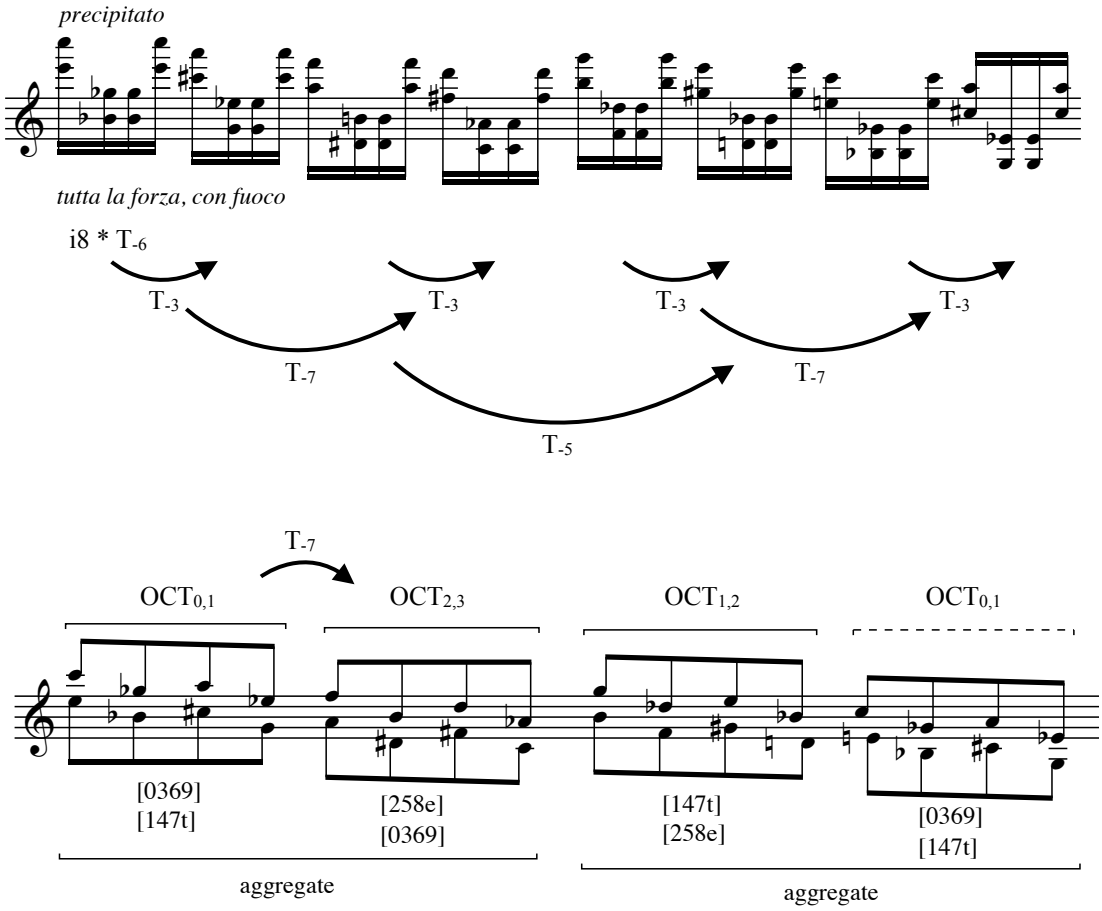
[0369] + [147t] + [258e]

< 3, 3, 3, 5, 3, 3, 3 5, 3, 3, 3, 2 >

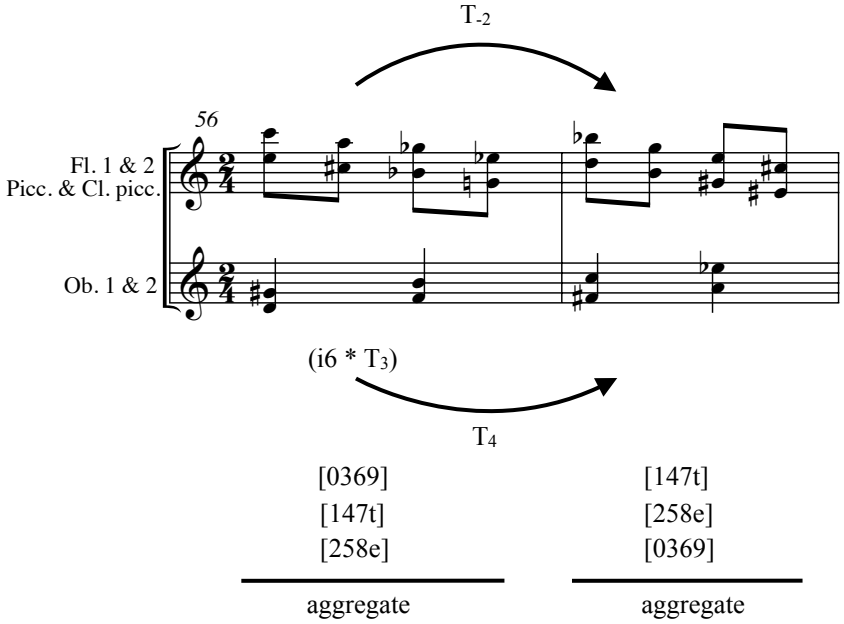
[147t] + [0369] + [258e] + [7]

[45] A similar pattern is shown above in Example 2.1(b) from the Piano Quintet; the second violin presents a (i8 * T_{-3}) * T_{-6} motive that at first completes the octatonic and is then repeated generally a fourth lower (T_{-5}) to complete the aggregate. Composing-out strategies that result in the octatonic collection (i.e., set class 8-28 (0134679t)) are discussed in more detail in the following section.

(b) Solo violin in the *Cadenza*, p. 3/6



(c) Orchestral accompaniment in *Studio III*



Although some enlargements of (0369) may appear to be mere surface-level embellishments, this tetrachord is oftentimes built into the structure of Ginastera's twelve-tone rows.[46] Thus, large-scale projections of (0369) tend to participate in more complex twelve-tone strategies where they play an integral role in the music's deeper-level organization. The following shows the opening of the third movement of the Piano Sonata No. 1, Op. 22 (1952). This movement is not serial in the traditional sense; however, it is loosely based on a twelve-tone row presented at the end of the piece—the first hexachord of which begins the movement and is shown in Example 2.10(a). The opening hexachord is a subset of the octatonic collection and consists of two, T_3-related (016) trichords.[47] Significantly, given the gesture's series of ascending intervals, the T_3 relationship between these trichords is expressed in retrograde as RT_3; thus, the gesture projects a large-scale ic3 that spans the first note, B, to the last, D, and includes a centrally located symmetrical unfolding of (0369)—pitch classes {F♯, C, E♭, A} (indicated in the example by a box).

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[46] See the rows shown in Examples 2.17(b), 2.18(a), and 2.20(d) and (e).

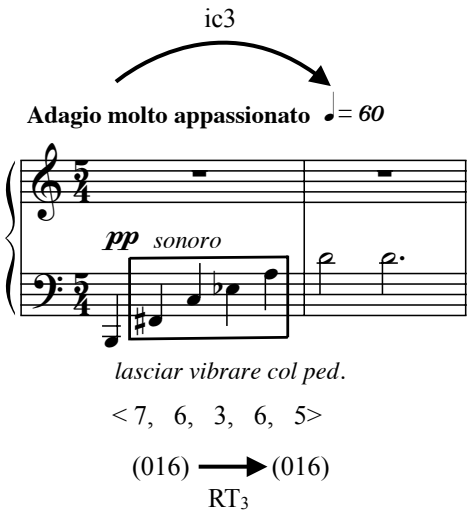
[47] The hexachord is a member of set class 6-27 (013469). Of the ten possible hexachordal subsets in the octatonic universe, eight of these are Z-related pairs; thus, 6-27 is one of only two hexachords (the other being 6-30 (013679)) that can map onto its complement. This seemingly simple property has rather large ramifications from a twelve-tone compositional perspective. In short, composers who build 6-27 or 6-30 hexachordal classes into their rows have the potential to build *families* (or regions) of combinatorially-related rows—thereby limiting the normal number of 48 distinct row forms to twelve distinct *families* made up of four rows in the case of 6-27 and six *families* made up of eight rows in the case of 6-30.

More importantly, in the present study of Ginastera's twelve-tone music, 6-27 (and also 6-30) has the potential to complete the octatonic under transposition and to generate the twelve-tone aggregate under inversion. Thus, the octatonic collection tends to be generated on the structural middleground of Ginastera's music, even as the twelve-tone aggregate is completed on the surface of the music—making his serial language "sound" octatonic. In their recent research on Dallapiccola's music, Brian Alegant and John Levey posit what they call "octatonic serialism," that is, hexachordal strategies within a twelve-tone context that generate the octatonic collection and cause some passages of Dallapiccola's music to "sound" octatonic, despite the presence of all twelve tones. See Alegant and Levey, "Octatonicism in Luigi Dallapiccola's Twelve-Note Music," *Music Analysis* 25, nos. 1–2 (2006): 39–88 and also the discussion of stylistic similarities between the music of Ginastera and Dallapiccola presented at the end of this chapter.

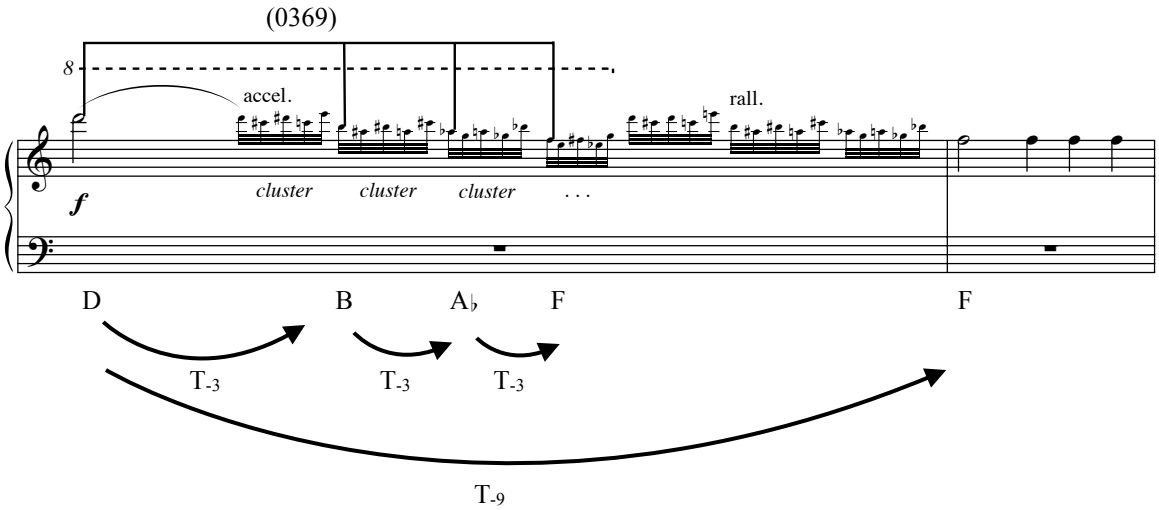
Example 2.10(b) shows the climax of the first phrase only a few measures later. Here Ginastera emphasizes a new transposition of (0369), {D, B, A♭, F}—the first two pitch classes of which are invariant with the boundary pitch classes, B and D, of the movement's opening hexachord. The new tetrachord in example (b) is composed-out via successive T_{-3} transpositions of quintuplet chromatic *clusters*, which form symmetrical "wedges" around each pitch class of (0369) and thus gradually complete the aggregate as the sequence descends.

Example 2.10 Composing-out (0369) in the Piano Sonata No. 1, Op. 22 (1952), III

(a)



(b)



Octatonic, 8-Note, and Hexatonic Collections

The majority of musical examples shown thus far highlight Ginastera's predilection for set classes and interval patterns involving major and/or minor thirds and their inversions (ic3/4), tritones (ic6), and semitones (ic1). In addition to the aggregate, which is typically generated in Ginastera's music as a natural consequence of the aforementioned interval patterns, three other collection classes also recur in both the composer's early works and his serial works from the 1960s. Two of these collections include the familiar octatonic (i.e., set class 8-28 (0134679t)) and hexatonic (i.e., set class 6-20 (014589)) collections, which share a common tetrachordal subset, (0347), frequently found in Ginastera's music.[48] The third collection, which will hereafter be referred to as the 8-note collection, is set class 8-9 (01236789).[49] Like the octatonic collection (hereafter, OCT collection) the 8-note collection is readily distinguished from the aggregate by its "missing" complement: the OCT collection is "missing" a single transpsition of set class (0369) and the 8-note collection is "missing" a single transposition of set class 4-9 (0167).[50]

Instances of (0369) and (0167) are ubiquitous in Ginastera's music. They appear frequently as surface-level motives and are sometimes composed-out over larger spans of music, where they emerge as part of the music's structural middleground. Because (0369) and (0167) are the basic building blocks of the OCT and 8-note collections, one must recognize their limited transpositions and understand how they combine to complete these larger collections. Example 2.11 shows the three unique transpositions of (0369) on the left and the six unique transpositions

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[48] See Examples 2.1(b) and 2.7(a) above, both of which feature (0347) motives and the former of which features two successive octatonic collections that together complete the aggregate.

[49] This collection was first identified as a type of *cluster* in the discussion of *clusters*, *clouds*, and *constellations* at the beginning of this chapter; see Example 2.1(a).

[50] There are thus three unique transpositions of the OCT collection and six unique transpositions of the 8-note collection.

of (0167) of the right. When combined, any two transpositions of (0369) complete the OCT collection. The combination of any two non-overlapping transpositions of (0167), on the other hand, complete *either* the OCT or the 8-note collection. The 8-note collection can also be generated by the combination of one (0167) tetrachord and one non-overlapping (0369) tetrachord. In any case, the simplest way to visualize the 8-note collection is to first imagine the aggregate and then *remove* one instance of (0167); thus, 8-note collections in this study are identified by the single transposition of (0167) each does *not* contain. For example, [34569te0] is the 8-note collection missing [1278].[51]

Example 2.11 Unique transpositions of (0369) and (0167)

(0369)	=	[0369]	(0167)	=	[0167]	[1278]
		[147t]			[2389]	[349t]
		[258e]			[45te]	[56e0]
Any two create the OCT			Any *non-overlapping* two create either the OCT or 8-note			

Examples 2.12 and 2.13 shown below illustrate how Ginastera's motivic tendencies, which typically involve ic3/4 interaction and sequential patterns, compose-out the OCT collection. The first example shows excerpts from the first two movements of the String Quartet No. 1, Op. 20 (1948), one of Ginastera's early works, and the second example shows an excerpt from Ginastera's first twelve-tone work, the String Quartet No. 2, Op. 26 (1958, revised 1968). The primary motivic content is remarkably similar between the two quartets: both generally feature the same sequential intervallic motion, <+4, -1>, and begin with the same three pitch

[51] Similarly, one can quickly visualize the three unique transpositions of the OCT by imagining the single transposition of (0369) each does *not* contain: $OCT_{0,1}$ is missing [258e], $OCT_{1,2}$ is missing [0369], and $OCT_{2,3}$ is missing [147t].

classes, {D, F♯, F♮}. Furthermore, Examples 2.12(a) and 2.13 are textually similar in that the primary motive in both passages is first introduced in the cello part and imitatively echoed by the other instruments.

In Example 2.12(a), each instrument presents an i4 tremolo and, in *cloud*-like fashion, the successive T_3 transpositions of this motive systematically generate $OCT_{2,3}$.[52] This motivic gesture, i4 * T_3, harkens back to the dramatic opening of the quartet, shown in Example 2.12(b). In mm. 1 and 4 the first violin and cello play in unison the primary hexachordal motive, <+4, -1, +4, -1, +4>, while the second violin and viola, playing *pizzicato*, double only the minor thirds that make up set class (036).The hexachord created by the entire interval pattern (set class 6-Z49 (013479)) is a subset of the same OCT collection in example (a).[53] The harmonic sonorities, indicated by boxes in example (b), illustrate another instance in which Ginastera uses conventional major and minor triads in order to saturate the aggregate.[54] As summarized below the staff, Ginastera first assigns an F minor triad to the upper strings and a D major triad to the lower strings—thus reinforcing the same pitch classes presented by the motive in m. 1—and then in m. 5 he transposes both triads by T_2, switching parts so that G minor appears in the lower strings and E major in the upper strings.[55]

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[52] The first pitch class assigned to each instrument composes-out a (0369) tetrachord, and this tetrachord thus oscillates with a T_4 transposition of itself (via the i4 tremolos) to complete the OCT collection. One might also think of the passage in terms of two registral pairs: the i4s in the cello and viola together form a (0347) tetrachord, which is echoed at T_6 by the first and second violins—that is, (i4 * T_3) * T_6 = OCT.

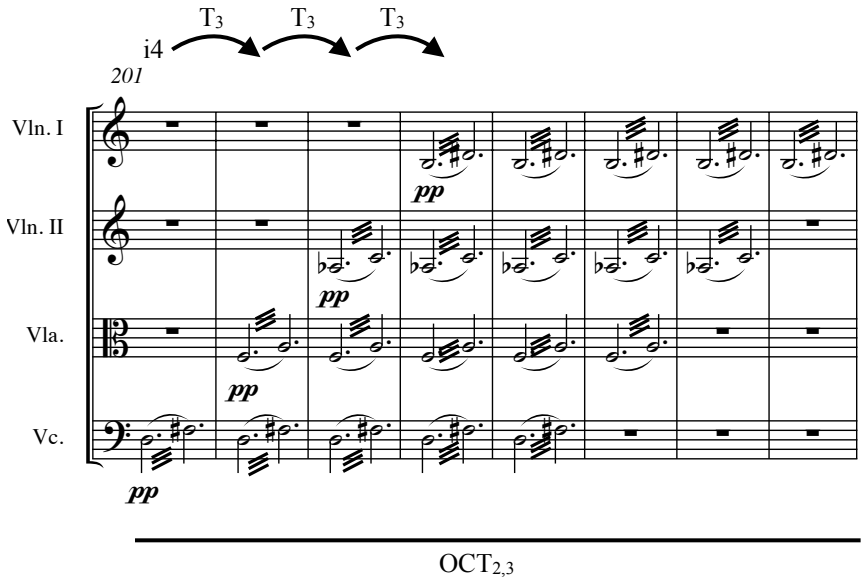
[53] One can think of the hexachord as either a series of interlocking (014) trichords or two overlapping (0347) tetrachords—that is, the combined "major/minor" forms of DM/m and FM/m. For an analysis of this opening motive see Barnett, "Alberto Ginastera's String Quartets Nos. 1 and 2: Consistencies in Structure and Process," 27ff and Sommerville, "Consistency, Context and Symmetry in Alberto Ginastera's String Quartets Nos. 1 (1948) and 2 (1958, First Version)," 47ff.

[54] Similar triadic configurations are shown in Example 2.8 above.

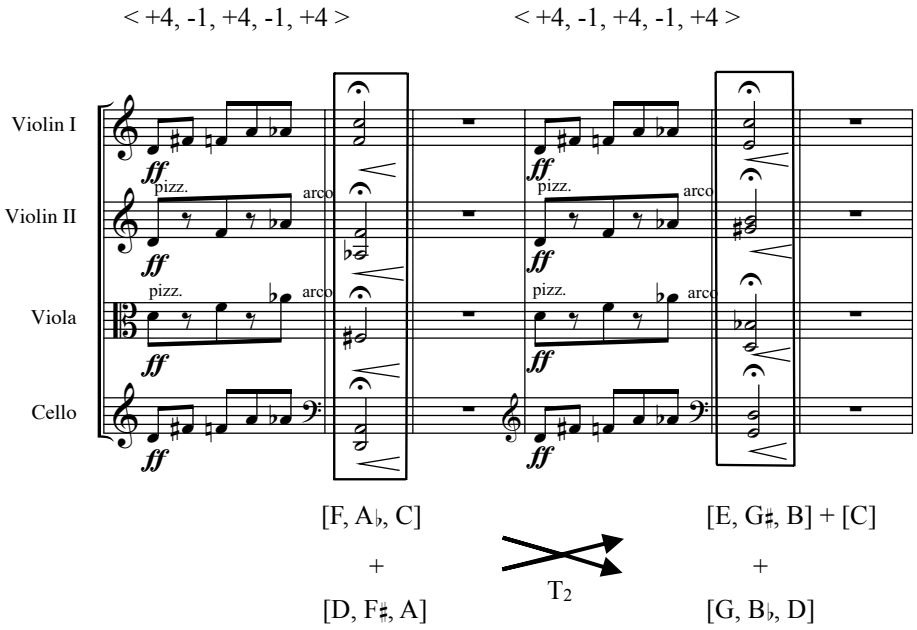
[55] This T_2 relationship is somewhat undermined by the sonorities' non-uniform registral distribution, the lowest voice of which emphasizes an ascending perfect fourth from D to G—mimicking a kind of "dominant" to "tonic" motion.

Example 2.12 OCT collection and its subsets in the String Quartet No. 1, Op. 20 (1948)

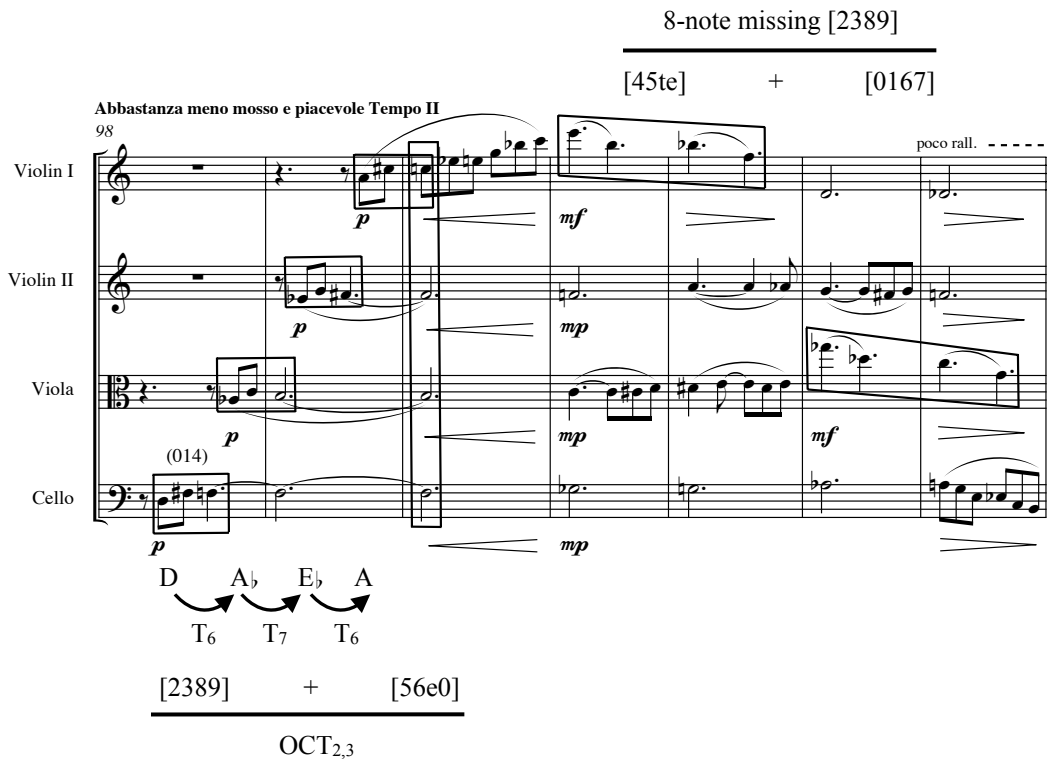
(a) Transitional passage in mvt. II, mm. 201–208



(b) Introduction to mvt. I, mm. 1–6



Example 2.13 OCT and 8-note collections in the String Quartet No. 2, Op. 26 (1958), I



In the first movement of the twelve-tone String Quartet No. 2, shown in Example 2.13 above, the composing-out process is a bit more complex than in the first quartet. Even though completing the aggregate is now the primary objective, the OCT and 8-note collections nonetheless emerge from the music's structural middleground. As in the previous example, the four instruments present the basic motive imitatively; this time, however, the motive consists of an (014) trichord, which is successively transposed in the symmetrical pattern <T_6, T_7, T_6>. The entire passage is thus not so much a *cloud* of sound (as in Example 2.12(a) above) but a *constellation* of interrelated motives. The first pitch class in each instrument, {D, A♭, E♭, A}, composes-out a (0167) tetrachord; the $OCT_{2,3}$ is then composed-out when this tetrachord is combined with its T_3 counterpart on the downbeat of m. 100, formed harmonically by the last pitch class in each (014) motive, {F, B, F♯, C}.

The remainder of the phrase in Example 2.13 is characterized by two more linear projections of (0167) in the first violin and viola—now unfolded in the symmetrical interval pattern <-5, -1, -5>—and general chromatic saturation, or *clusters*, in the other parts.[56] The two (0167) tetrachords at the end of the phrase do not complete the OCT collection as they did in the first half of the phrase; instead, they complete the 8-note collection missing [2389]. This "missing" tetrachord actually appears as the very first (0167) tetrachord of phrase, which is composed-out by the initial pitch class in each instrument. Thus, the entire phrase consists of four prominent motivic gestures involving (0167): the first two gestures complete $OCT_{2,3}$ and the last two complete an 8-note collection, and together these larger collections generate the twelve-tone aggregate in a systematic manner and with minimal pitch-class duplication.

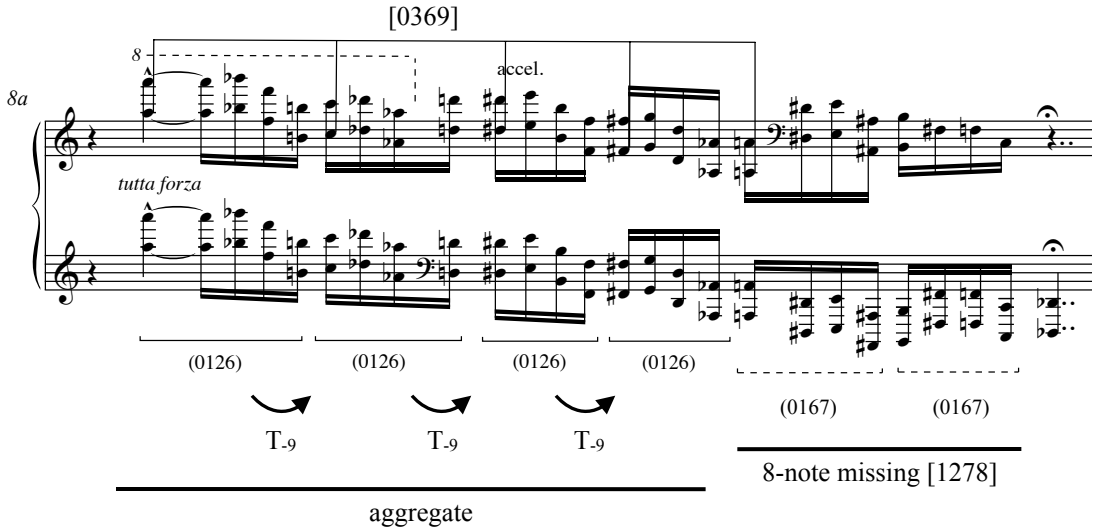
The 8-note collection continually emerges in Ginastera's twelve-tone language as much as, if not more than, the OCT collection does. In the Piano Concerto No. 1 the 8-note collection is a discrete segment of the first movement's primary row and is thus part of the music's pitch structure and formal design on every level.[57] Example 2.14 shows the second of two sequences presented by the soloist at the very beginning of the concerto, following the orchestra's presentation of the twelve-tone row. The first tetrachord of the row, a (0126) tetrachord, is first subjected to a descending sequence of successive T_{-9} transpositions that compose-out a large-scale (0369) tetrachord, indicated at the top of the example. This sequence ultimately completes the aggregate, but after doing so, the (0126) motive dissolves and is transformed into two (0167) tetrachords that complete the 8-note collection missing [1278]. Significantly, [0369] composed-

[56] The *clusters* in the second violin and cello are formed by pitch classes [F, F♯/G♭, G♮, A♭, A♮] and in the viola and first violin by [C, C♯/D♭, D, D♯, E].

[57] This feature is explored in greater detail in chapter 4.

out in the first half of the passage is the only transposition of (0369) that lies within the 8-note collection missing [1278]—a fact that reinforces the structural status of this particular 8-note collection throughout the concerto.[58]

Example 2.14 Aggregate and 8-note completion in the Piano Concerto No. 1, Op. 28 (1961), I



Instead of generating the OCT and 8-note collections, sometimes Ginastera's use of sequential motivic patterns and/or symmetrical structures results in the hexatonic collection (hereafter, HEX collection).[59] Example 2.15 shows three excerpts in which a symmetrical interval pattern generates the HEX collection. Example (a), from the Violin Concerto, is the final sonority presented by the accompanimental woodwinds and sustained throughout the recapitulation of the third variation, *Studio III*. The upper woodwinds' D♭-major triad is juxtaposed against the lower woodwinds' A-minor triad, thereby completing $HEX_{0,1}$. The

[58] The analysis in chapter 4 will explain the significance of this 8-note collection in more detail. Suffice it to say for now, the missing [1278] tetrachord is a recurring motive throughout the variations and it gives rise to several *surrogate* row relations, which determine the organization of row forms throughout the movement. *Surrogate* relations are defined in chapter 3.

[59] The HEX collection, set class 6-20 (014589), has four unique transpositions: $HEX_{0,1}$, $HEX_{1,2}$, $HEX_{2,3}$, and $HEX_{3,4}$.

intervallic structure, shown to the right of the example, reflects a pitch-space symmetrical alternation of major sixths (i9) and perfect fifths (i7).[60] Example 2.15(b), also from the Violin Concerto, shows a grace-note figure leading into the soloist's presentation of a new row form, R_3. Each registral line melodically unfolds in a pattern of alternating minor thirds (i3) and perfect fourths (i5), composing-out $HEX_{0,1}$ below and $HEX_{2,3}$ above. The juxtaposition of these two patterns thus completes the aggregate and projects a pattern of harmonic dyads that alternates major sevenths (i11) and minor sixths (i9).[61]

Finally, Example 2.15(c) shows a transitional passage in the third movement of the String Quartet No. 2. The imitative texture and recurrences of (014) are reminiscent of Examples 2.12(a) and 2.13 discussed above; however, unlike in these previous examples, the primary (014) motive in Example 2.15(c) is subjected to inversion rather than transposition and thus generates the HEX collection instead of the OCT. Each instrument enters T_{-2} lower than the previous instrument, resulting in the imitative alternation of $HEX_{2,3}$ and $HEX_{0,1}$, which together complete the aggregate.

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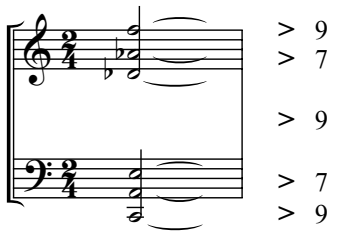
[60] Ginastera often builds hexachordal harmonic sonorities by combining conventional major and minor triads; see, for instance, Example 2.12(b) above. Unlike the present example, however, the hexachords in Example 2.12(b) are neither HEX collections nor symmetrically arranged.

[61] Both i11 and i9 are significant intervals in the structure of the primary row. The opening i9 dyad of R_3, for instance, can be seen at the end of Example 2.15(b).

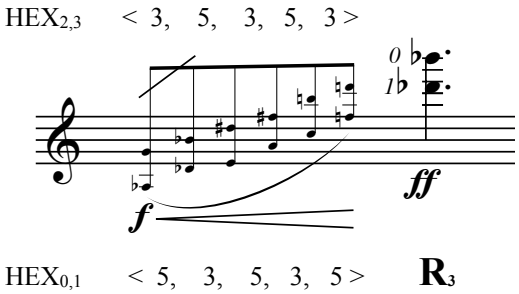
Example 2.15 Various symmetrical structures resulting in the HEX collection

(a) Violin Concerto, Op. 30 (1963), I, *Studio III*, mm. 64–7

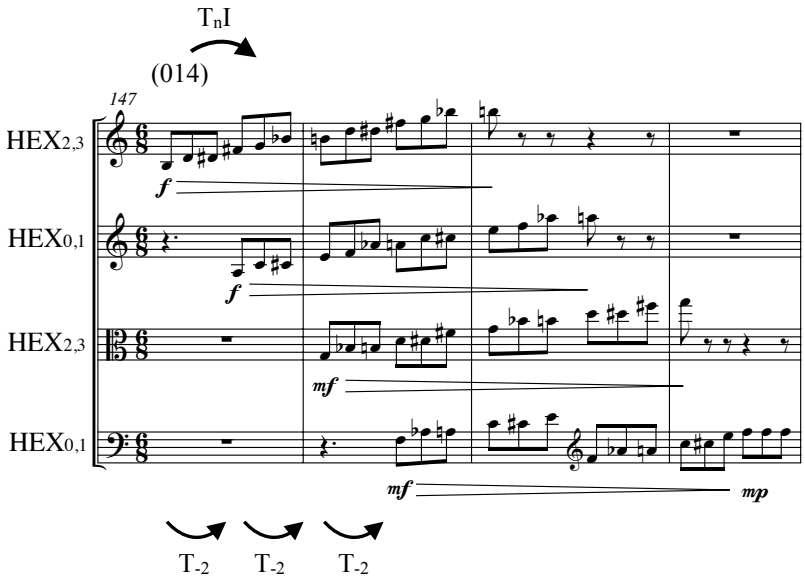


$HEX_{0,1}$

(b) Violin Concerto, Op. 30 (1963), I, *Cadenza*, p. 2/1



(c) String Quartet No. 2, Op. 26 (1958), III, mm. 147–50



Twelve-Tone Row Structures

As his interest in serialism grew, Ginastera's musical language developed in ways that enabled him to keep much of his characteristic "sound," even as his approach moved expressly toward composing with twelve-tone rows. The "personal style" he was searching for—per the quote at the beginning of this chapter—is represented in his continued use of certain trichordal and tetrachordal motives (especially those that are subsets of the octatonic and 8-note collections) and the sequential and symmetrical deployment of these motives. The following discussion focuses exclusively on the structural characteristics of twelve-tone row classes in Ginastera's music. The examples of row classes below are taken from five representative works completed before, during, and after the composition of the Piano and Violin Concertos studied in chapters 4 and 5 of this dissertation.[62] Significantly, the characteristics shown in the following examples are consistent with Ginastera's compositional tendencies discussed thus far in this chapter and also with the tendencies reflected in his approach to the Piano and Violin Concertos.

Three general trends are explored below. The first trend concerns Ginastera's use of uniformly ordered (or patterned) row classes that are compositionally *generated*[63] by the same interval patterns and/or motivic sequences discussed in the examples above—many of which feature ic3 cycles (in varying degrees of abstraction), patterns that unfold via various

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[62] See chapter 1 for a discussion of the personal, professional, and historical context in which Ginastera came to fully embrace twelve-tone composition in the 1960s. The five works discussed here include the following: (1) the Piano Sonata, Op. 22 (1952), which features a twelve-tone row at the beginning of the second movement; (2) the *Cantata para América mágica*, Op. 27 (1960), composed before the Piano Concerto No.1; (3) the Piano Quintet, Op. 29 (1963), composed the same year as the Violin Concerto; (4) the opera, *Don Rodrigo*, Op. 31 (1963–64), composed while Ginastera was working on the Violin Concerto; and (5) the "symphonic celebration," *Iubilum*, Op. 51 (1979–80), one of Ginastera's final compositions before his death in 1983.

[63] *Generated* row classes, which involve strict order relations among pitch classes, are discussed in Fobes, "A Theoretical Investigation of Twelve-Tone Rows, Harmonic Aggregates, and Non-Twelve-Tone Materials in the Late Music of Alberto Ginastera," chapter 2. A formal definition of *generated* row classes, following Fobes research, is provided in chapter 3 of this dissertation.

combinations of ic3, ic4, and ic1, or motives that emphasize a dichotomy between ic5 and ic6.[64] The second trend concerns the emergence of (0167) and (0369) as increasingly significant structural components of Ginastera's row classes—a fact that, in turn, tends to reinforce the structural significance of the OCT and/or 8-note collections and their potential for interacting with the aggregate.[65] The third trend concerns Ginastera's increasing use of complex row structures, which offers him the compositional potential for more sophisticated twelve-tone strategies such as combinatoriality and the formation of row *families*, pitch-class/order-number isomorphisms, and row *derivation* based on these isomorphisms.[66]

Example 2.16 shows the opening twelve-tone row of the second movement of the Piano Sonata No. 1, Op. 22 (1952). To be clear, the movement is not serial in the traditional sense; yet this twelve-tone row is an influential part of the movement's formal organization, recurring as the refrain of a five-part rondo. The *presto* $\frac{6}{8}$ meter accentuates the trichordal partitions of the row, which consist of two (015) trichords in the first hexachord and two (016) trichords in the second hexachord.[67] Both hexachords are members of set class 6-7 (012678) and, as the series of ordered pitch-class intervals (i.e., the adjacency interval series or AIS) below the example shows,

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[64] Of the examples discussed thus far in this chapter, the most representative (and oft cited) set classes fitting this description include (014), (016), (0347), (0369), and (0167).

[65] OCT and 8-note compositional strategies are particularly relevant to the Piano Concerto, as was mentioned in conjunction with Example 2.14 above.

[66] Row *families*, pitch-class/order-number isomorphisms, and the process of row *derivation* are defined and discussed in more detail in chapter 3.

[67] Discrete (016) trichords are also featured in the third movement, where they begin the movement and constitute the first hexachord of the row presented at the end of the movement; see the discussion of Example 2.10(a) above.

both are individually symmetrically arranged.[68] The first hexachord is retrograde symmetrical so that the first (015) trichord maps onto the second at RT_6. The second hexachord is RI-symmetrical so that the first (016) trichord maps onto the second at RT_6I.[69]

As one would expect, the structure of the twelve-tone row in the Piano Sonata No. 1—a "non-twelve-tone" composition—betrays characteristics of Ginastera's pre-1960s style; nevertheless, within this structure lie relationships that are fundamental to row classes and twelve-tone strategies employed in his twelve-tone works of the 1960s. For instance, while the row in Example 2.16 is made up of (015) and (016) trichords, Ginastera avoids ic1 within the AIS and instead maximizes the instances of ic5 and ic6. Perfect fifths even emerge from rhythmic groupings, where D and A are accentuated in the first measure and F and C in the second. In contrast, rows from Ginastera's later works tend to be derived (or *generated*) from only one trichordal or tetrachordal set class (often (016) or (0167)), and ic1 is almost always prominently emphasized within the AIS. A simple placement swap of the last two pitches of each discrete trichord in Example 2.16(b) would achieve maximum ic1 occurrences in the AIS.

Another remarkable feature of the Piano Sonata's twelve-tone row concerns its hexachordal partitioning scheme, which consists of two interlocking *cluster* hexachords indicated above the staff in Example 2.16. The "first" *cluster* ascends uniformly by ic1. The "second" *cluster*, in contrast, consists of two trichordal *clusters*, the first of which descends

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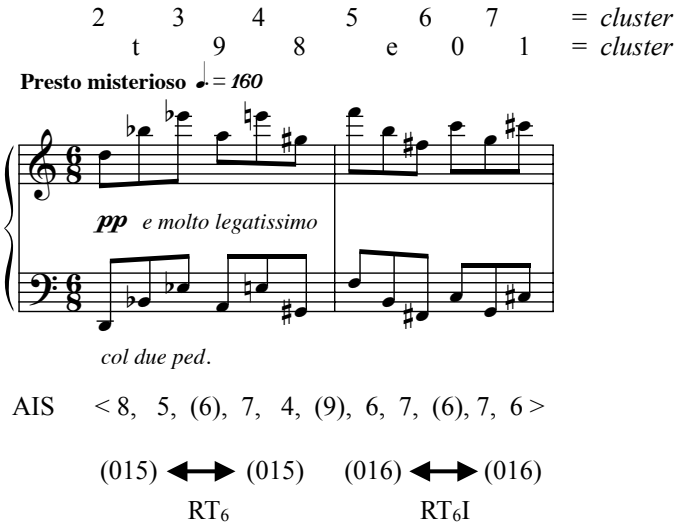
[68] The symmetries created by either hexachord accentuate perfect fifth relations on strong beats: D and A are emphasized in m. 1, while F and C are emphasized in m. 2. The T_3 relationship between fifths helps to reinforce the abstract T_3 relationship between the hexachords, which is obscured by their individual symmetrical configurations.

[69] Because either hexachord consists of different trichordal subsets, and are thus *generated* via different operations, Fobes considers this type of row class to be *partially generated*, as opposed to *fully generated*; see Fobes, "A Theoretical Investigation of Twelve-Tone Rows, Harmonic Aggregates, and Non-Twelve-Tone Materials in the Late Music of Alberto Ginastera," 17. The difference between these classifications is explained in the following chapter.

while the second ascends.[70] In his later works, Ginastera uses such non-segmental partitions of the row in one of the two following ways: (1) to form a *derived* row (i.e., a type of secondary row class) or (2) to imply a *surrogate* row relation (i.e., the substitution of one row for another based on their structural similarities).[71]

Example 2.16 Twelve-tone row structure in the Piano Sonata No. 1, Op. 22 (1952), II



Between his first serial work, the String Quartet No. 2, Op. 26 (1958), and the Piano Concerto No. 1, Op. 28 (1960), Ginastera composed the six-movement *Cantata para América mágica*, Op. 27 (1960). Despite the music's "nationalistic" characteristics, which includes folk-inspired melodies and a scoring for 53 percussion instruments (some unique to Latin America), the pitch material is largely organized by twelve-tone rows presented by the soprano soloist, two

[70] Interestingly, had Ginastera organized the "second" *cluster* hexachord so that it ascended uniformly like the "first" *cluster* hexachord, then the row's adjacent trichords would all be (016) trichords. Such alteration only requires swapping B♭ (t) and G♯ (8) within the first measure. Fobes's research concludes that a common feature of *partially-generated* row classes in Ginastera's music is their ability to transform into *generated* row classes with small alterations such as these; see ibid., 17ff.

[71] Both *derived* rows and *surrogate* relations are types of variation strategies and are discussed in more detail in chapter 3.

pianos, and pitched percussion instruments.[72] Example 2.17 shows the row classes used in the first, fourth, and final movements. Significantly, the intervallic structure of the rows reflects Ginastera's continued interest in ic1, ic5, and ic6—intervals that are integral to the formations of (016), (0167), (0369), and *clusters* like (0123).

The rows in Example 2.17(a) and (b) consist entirely of discrete (016) trichords.[73] Interestingly, the AIS of both rows reflects a clear shift from a concentration of ic1 and ic5 in the first movement to ic1 and ic6 in the fourth movement. The row in example (b) is especially unique because it is retrograde symmetrical.[74] Furthermore, the row's symmetrical configuration results in discrete tetrachords of only two types, (0167) and (0369)—set classes that become increasingly common among row classes in Ginastera's serial works from the 1960s.[75] Despite their intervallic differences, the rows in examples (a) and (b) are similarly *generated*: the pairs of trichords within each hexachord are related by T_nI operations, while the central pair of trichords in each row are related by a minor third transposition—T_3 in example (a) and RT_3 in example

[72] For a general overview of the cantata's poetic text and basic compositional techniques, see Suárez Urtubey, "La *Cantata para América mágica* de Alberto Ginastera," *Revista Musical Chilena* 17, no. 84 (1963): 19–36, and also Wallace, "Alberto Ginastera: An Analysis of His Style and Techniques of Composition," 271ff.

[73] The row in Example 2.17(a) is defined by Fobes as a trichordally *generated* row class; see Fobes, "A Theoretical Investigation of Twelve-Tone Rows, Harmonic Aggregates, and Non-Twelve-Tone Materials in the Late Music of Alberto Ginastera," 15.

[74] That is, the second half of the AIS shows the complement intervals in reverse. The movement itself is also symmetrical in that the second half is an exact retrograde of the first half. Precedents of this large-scale symmetrical design include Berg's "Film Music Interlude" in the opera *Lulu* (1935) and the third movement of Bartók's *Music for Strings, Percussion, and Celesta* (1936), two works Ginastera is known to have been familiar with (based on his writings). See the discussion of these composer's at the end of the chapter.

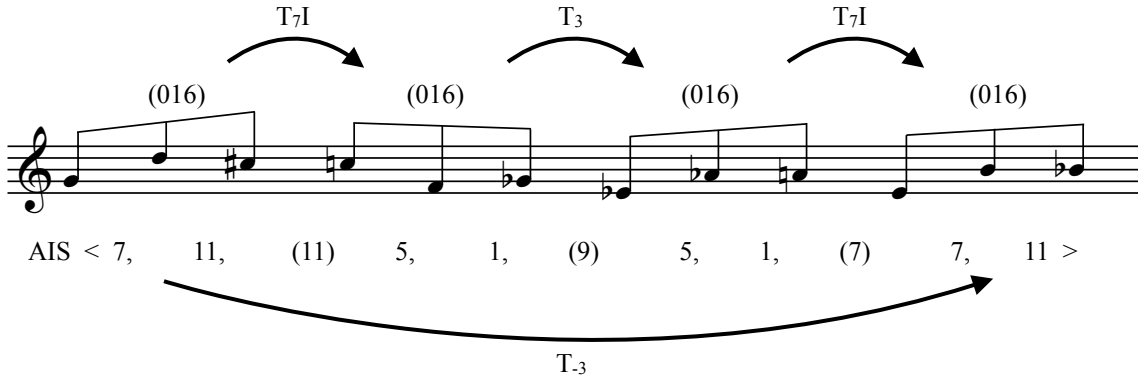
[75] Both the trichordal and tetrachordal partitions shown in Example 2.17(b) are emphasized musically: the trichordal partitions are emphasized more at the beginning and end of the symmetrically designed movement (see the previous note), while the tetrachordal partitions are emphasized more in the contrasting middle portion of the movement.

(b).[76] The boundary trichords in example (a) and boundary tetrachords in example (b) are also related by an overarching minor third transposition, T_{-3} and RT_3, respectively.

The row from the final movement of the cantata, shown in Example 2.17(c), consists entirely of *cluster* tetrachords, that is, set class (0123).[77] The AIS shows five instances of ic1, three instances of ic3, two instances of ic2, and only a single tritone, ic6. *Clusters* are, of course, a relatively simple and efficient means for completing the aggregate; thus, Ginastera tends to use *clusters* in compositional strategies that redirect the focus away from strict row presentations and more toward combinatorial procedures that involve *families* of rows with invariant *clusters*.[78]

Example 2.17 Rows from select movements of *Cantata para América mágica*, Op. 27 (1960)

(a) I. "Preludio y canto a la aurora" [Prelude and Song of Dawn]

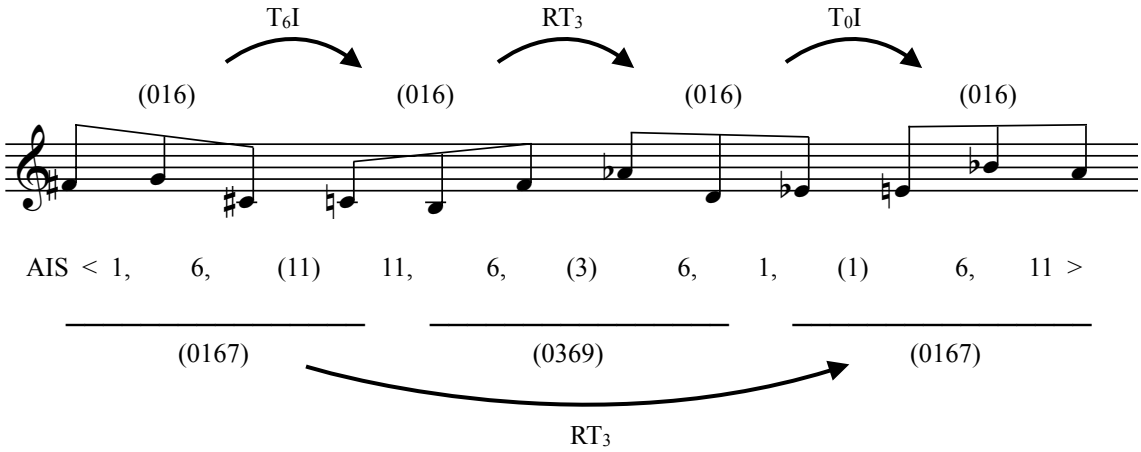


[76] Following Fobes, the relationships among discrete segments of the row are shown with a single arrowhead; this is meant to underscore the specific order relations of a *generated* row class. Whether the relationship is one of T_n, I_n, RT_n, or RI_n, the pitch-class mappings are always described "left-to-right" so that, for example, under the operations T_n and I_n the first pitch in the first trichord maps onto the first pitch in the second trichord and, conversely, under the operations RT_n and RI_n the first pitch in the first trichord maps onto the last pitch in the second trichord.

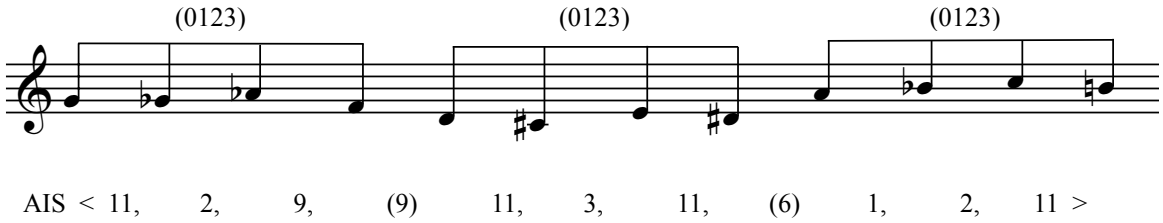
[77] *Cluster* segments are common in a number of Ginastera's row classes, including the primary row classes of the following works: the first movement of the Violin Concerto, Op. 30 (1963), Don Rodrigo's row ("The King") in *Don Rodrigo*, Op. 31 (1963–64), and the second movement of the Sonata for Cello and Piano, Op. 49 (1979).

[78] Such strategies are discussed in more detail in chapter 3.

(b) IV. “Interludio fantástico” [Fantasy Interlude]



(c) VI. “Canto de la profecía” [Song of Prophecy]



Ginastera oftentimes uses *clusters* in conjunction with deeper-level composing-out strategies, wherein multiple chromatic segments (usually uniform in length) are used to embellish more structurally significant motives. Example 2.10(b) above showed quintuplet *clusters*, which Ginastera used to embellish a large-scale projection of (0369) in the third movement of his Piano Sonata No. 1, Op 22 (1952). *Iubilim: Symphonic Celebration*, Op. 51 (1979–80), on the other hand, is one of Ginastera’s last works and yet still reflects the composer’s usual stylistic tendencies, including his proclivity for symmetrical configurations,

like those involving (0369) in the Piano Sonata.[79] In Example 2.18(a) shown below, (0369) is again composed-out via *cluster* segments, but here the *clusters* generate an explicit twelve-tone row, of which (0369) is a structural component.[80] Although the T_6 relationship between the hexachordal *clusters* of the row is obscured, the relationship between their trichordal *clusters* is symmetrically "balanced" so that the trichords in the first hexachord express T_{-3} while those in the second hexachord express T_3.

Example 2.18(b) shows the beginning of the coda section of the *Chorale*. The strings are divided so as to project the three transpositions of (0369): [147t] is sustained by the second violins and violas, and the first violins unfold [258e] in a ascending arpeggio while the cellos unfold [0369] in a descending arpeggio. The entire symmetrical wedge thus culminates in the aggregate at the end of the phrase. Significantly, the first transposition of (0369) that begins the coda, [147t], is invariant with the composed-out partition of the primary row shown in Example 2.18(a).[81]

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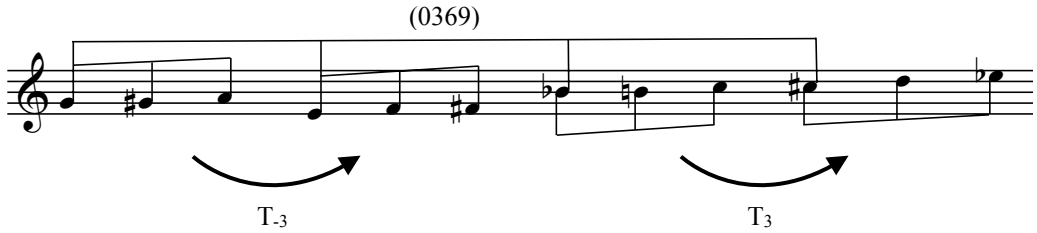
[79] The tripartite formal plan (A^1, A^2, A^3, Coda) of the second movement of *Iubilum* is like a mini-variation form; see, Fobes, "A Theoretical Investigation of Twelve-Tone Rows, Harmonic Aggregates, and Non-Twelve-Tone Materials in the Late Music of Alberto Ginastera," 211–13. Although it is out of the scope of this dissertation, the variation strategies in *Iubilum*—which rely in large part on the row's completely uniform pitch-class/order-number isomorphic structure and thus its ability to create rather large *families* of *surrogate* row forms—share several affinities with the variations strategies employed in the first movements of the Piano and Violin Concertos discussed in chapters 4 and 5.

[80] The emergence of set class (0369) at order-number partition {*0369*} represents a pitch-class/order-number isomorphism. Given the uniform ascending contour of each *cluster* in Example 2.18(a), the remaining two transpositions of (0369) are also composed-out via the middle pitch class of each trichord, order numbers {*147t*}, and the last pitch class of each trichord, order numbers {*258e*}. Pitch-class/order-number isomorphisms are particularly characteristic of Ginastera's 1960s twelve-tone works. Other such isomorphisms involving (0167) and (048) can be found in Examples 2.20(a), (b), and (d) from the opera *Don Rodrigo*, discussed below. A more formal definition of pitch-class/order-number isomorphisms is provided in chapter 3.

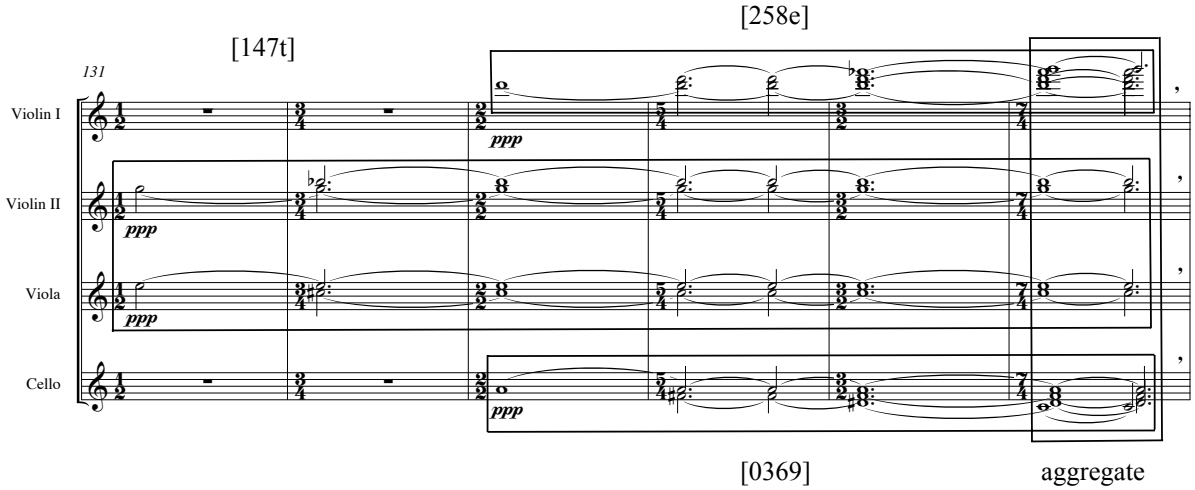
[81] The partitioning scheme involving (0369) in this example comes at the end of movement's mini-variation form (see note 79 above) and actually belies a more complex process of row *derivation* in which a structurally prominent partition of the row—and usually one that forms a pitch-class/order-number isomorphism—is used to *derive* a *surrogate* row form that substitutes for the primary row. *Derivation* techniques thus support variation strategies, and both are discussed in more detail in chapter 3.

Example 2.18 *Clusters* and (0369) in *Iubilum: Symphonic Celebration*, Op. 51 (1979–80)

(a) Primary row of mvt. II. *Chorale*



(b) II. *Chorale*, beginning of the coda



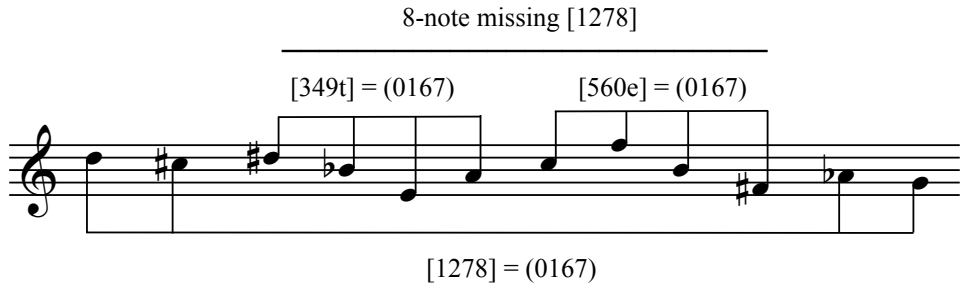
Although symmetrical structures commonly occur in Ginastera's music, they usually either involve only a portion of the row or result from reordering the row into complex partitioning schemes, like those involving (0369) partitions in the previous example. Only a small number of the composer's twelve-tone row classes are entirely symmetrical. Example 2.19 shows a palindromic row from the third movement of the Piano Quintet, Op. 29 (1963). Interestingly, the symmetrical characteristics of this row are never fully realized in pitch space and the row itself is almost immediately reconfigured into a new aggregate formation.[82] The structure of the row contains an 8-note collection in the middle of the row that is made up of

[82] It is curious that symmetry does, however, play a fundamental role in the organization of the previous movement, the *Cadenza I per viola e violoncello*, which is not one of the Quintet's serial movements. See the discussion of Example 2.7(b) above.

adjacent (0167) tetrachords; the 8-note's missing (0167) complement, [1278], is thus formed by the boundary dyads of the row, order numbers {*01te*}. These partitions, including the specific transpositions of (0167) with which they are associated, are subsequently used to derive new aggregate formations, some of which are shown in Example 2.19(b). In this passage, the pianist's trichordal gestures actually unfold a descending series of (0167) tetrachords, followed by an ascending series of the same tetrachords in a different order. Both the ascent and the descent begin with the 8-note collection derived from the center of the row shown in example (a) and end with the row's boundary pitches, [1278].[83]

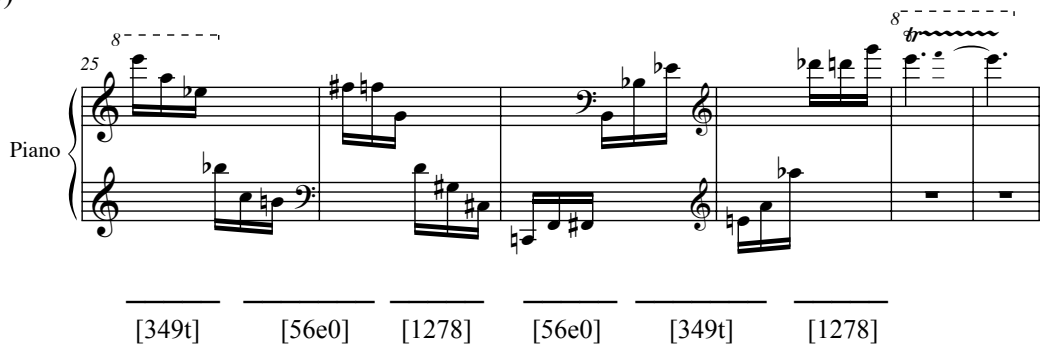
Example 2.19 Primary row from the Piano Quintet, Op. 29 (1963), III. *Scherzo fantastico*

(a)



AIS < 11, 2, 7, 6, 5, 3, 5, 6, 7, 2, 11 >

(b)



[83] The cycles of (0167) in the piano part thus represent *derived* row forms, the likes of which were discussed in conjunction with Example 2.18(b) above. In other words, they do not constitute "new" rows, per se, but variations—or *derivations*—of the original row.

Ginastera's first twelve-tone opera, *Don Rodrigo*, Op. 31, has received a good deal of analytical attention since its completion in 1964.[84] Of the nine rows identified in Richards's dissertation—the most thorough analytical study of *Don Rodrigo* to date—the ensuing discussion focuses on the five most prominent rows (shown below in Example 2.20), which recur several times throughout the opera and are associated with particularly dramatic events in the plot.[85] Significantly, all five rows bear striking structural similarities that involve segments and/or partitions of (0167). The importance of this set class within each row is further underscored by the three levels of transposition at which it consistently appears—specifically, [1278], [349t], and [56e0]. The consistency of these transpositional levels makes each row a kind of variation on (or reconfiguration of) one or more of the other rows.[86] The structural similarities shared by these rows thus help to musically strengthen the relationships that develop between the opera's main characters, Don Rodrigo and Florinda, and underscore the trajectory of the narrative, which ranges from victory to defeat, revenge to forgiveness, and passionate love to redeeming love.

The opera's most pervasive row, shown in Example 2.20(a), signifies the heroism of Don Rodrigo and his Spanish army. The row's discrete trichords all belong to set class (016);

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[84] Among others, see Suárez Urtubey, "Ginastera's *Don Rodrigo*," *Tempo* 74 (1965): 14–21; Juan Orrego-Salas, "*Don Rodrigo* by Ginastera," *Hispanic Arts* 1 (1967): 94–133; Malena Kuss "Type, Derivation, and Use of Folk Idioms in Ginastera's *Don Rodrigo* (1964)," *Latin American Music Review* 1, no. 2 (1980): 176–95; and James Edward Richards, Jr., "Pitch Structure in the Opera *Don Rodrigo* of Alberto Ginastera," (Ph.D. diss., The University of Rochester, Eastman School of Music, 1985). More recently, Elliott Antokoletz has expanded the commentary on Ginastera in his earlier *Twentieth-Century Music* (Englewood Cliffs, NJ: Prentice Hall, 1992) to include a more thorough analysis of pitch structures in *Don Rodrigo*; see Antokoletz, *A History of Twentieth-Century Music in a Theoretic-Analytical Context* (New York: Routledge, 2013), chapter 23.

[85] The rows in Example 2.20 are labeled according to Richards's categorization; see Richards, "Pitch Structure in the Opera *Don Rodrigo* of Alberto Ginastera," 26. Those rows *not* included in Example 2.20 are Richards's "Row D: Rodrigo the King," which consists entirely of (0123) *cluster* tetrachords; "Row F: Tragedy," which consists of two *cluster* tetrachords followed by a (0127) tetrachord; "Row G: Hallucination Series," which consists of two (0126) tetrachords followed by a (0167) tetrachord; and "Row J: The Arab Series," which consists, unusually, of three different tetrachords, (0145), (0125), (0156), none of which are found in the other eight rows.

[86] In *Don Rodrigo* and in other of Ginastera's multi-row works, this sense of "variation" among different row classes often belies a more rigorously defined *derived* row relation. *Derived* rows and various processes of *derivation* are discussed in chapter 3. See also the discussion of "tropes" in Berg's music in the following section.

however, the partitions bracketed in the example represent the row's more structurally significant collections, which form the basis of subsequent row forms.[87] The first tetrachord of either hexachord represents set class (0167): [349t] begins the first hexachord and [1278] begins the second. These tetrachords have different intervallic profiles, which recur in the opera's other row classes: the AIS of the first tetrachord is <1, 5, 1> and the second is <1, 6, 11>. The aggregate's remaining transposition of (0167), [56e0], is formed by the boundary dyads of each hexachord.

The row associated with Rodrigo's oath to protect the people of Spain is shown in Example 2.20(b). Significantly, the discrete tetrachords of this row are derived from the same transpositions of (0167) shown in the Heroic Series (example (a)) and are order related so that the AIS of each is <1, 6, 11>.[88] The first tetrachord of Rodrigo's row, {G, G♯, D, C♯}, is an exact retrograde (RT_0) of the second segment of (0167) in the Heroic Series, {C♯, D, A♭, G}. Florinda's row, shown in Example 2.20(c), also consists entirely of (0167) tetrachords, the order of which represents a rotation of Rodrigo's row: the pitch classes forming the last tetrachord of Rodrigo's row, [56e0], form the first tetrachord of Florinda's row and the first two tetrachords of Rodrigo's row, [1278] and [349t], shift "rightward" in Florinda's row. Unlike Rodrigo's row, which uniformly emphasizes ic1 and ic6, the tetrachords of Florinda's row each have a unique AIS that includes at least one instance of ic5.

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[87] Kuss claims that this particular row is the generator of all the other rows in the opera and that the first tetrachord of the row, [349t], is a chromatic "descendent" of the "guitar chord." See Kuss, "Type, Derivation, and Use of Folk Idioms in Ginastera's *Don Rodrigo* (1964)," *Latin American Music Review* 1, no. 2 (1980): 176–95 and "The Structural Role of Folk Elements in 20th-Century Art Music" in *Transmission and Reception of Musical Culture: Proceedings of the XIVth Congress, International Musicological Society*, edited by Lorenzo Biaconi, et. al., (Torino, Italy: EDT/Musica, 1990) 3: 99–120.

[88] Like the rows from the *Cantata para América mágica*, shown in Examples 2.17(a) and (b) above, Don Rodrigo's row is *generated*; more specifically, it is tetrachordally *generated* by successive T_8 transpositions of (0167), which complete an ic4 cycle and thus compose-out a large-scale (048) tetrachord.

At the climatic center of the opera (act II, scene 5) Rodrigo rapes Florinda and the row associated with his crime is shown in Example 2.20(d). Interestingly, the order and transposition of this row is identical to the primary row Ginastera uses in the Violin Concerto, composed at the same time.[89] The second hexachord is a T_6 transposition of the first; thus, (0167) tetrachords in this row emerge from a partitioning scheme that systematically joins the first and second dyads of each hexachord. The first partition of this sort consists of [1278] and is invariant with the first tetrachord of Don Rodrigo's row (example (b)). The third partition, formed by the last dyad in each hexachord, introduces a new—albeit familiar—tetrachord, set class (0369).

When Florinda contemplates her revenge and eventual forgiveness of Rodrigo her new row, shown in Example 2.20(e), is derived from the three partitions shown in example (d) and recalls intervallic motives from her earlier row (example (c)) and Rodrigo's earlier row (example (b)). The central tetrachord of example (e) is [0369], derived from the third partition of example (d). The first tetrachord, [1278], and its AIS, <11, 7, 11>, is consistent with the second tetrachord of Florinda's row in example (c). The last tetrachord, [45te], is derived from the second partition of example (d), and the interval pattern, <11, 6, 1>, is an inversion of that used in every tetrachord of Rodrigo's row (example (b)).[90]

In sum, the various row classes in *Don Rodrigo* are all related to one another—some in explicit ways and others in more abstract ways. All of these relationships are founded on pitch-

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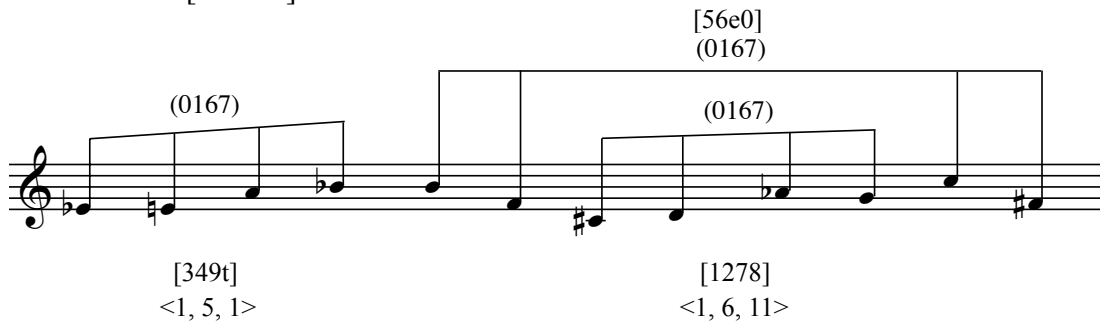
[89] Ginastera similarly uses the same row class that served as the primary row of the Piano Concerto No. 1 to signify Don Rodrigo's dream of an Arab rebellion (not shown above); see "Row G: Hallucination Series" in Richards, "Pitch Structure in the Opera *Don Rodrigo* of Alberto Ginastera," 26.

[90] In support of the dramatic narrative and while Florinda contemplates the atrocities of Rodrigo, Ginastera begins Florinda's "forgiveness" by combining a reminder of the perpetrator—represented by the pitch classes [1278] from the first tetrachord of Rodrigo's row (example (b)) and the highly "dissonant" AIS, <11, 6, 1> —with a reminder of the victim—represented by the more "consonant" AIS <11, 7, 11> from Florinda's ic5-dense row (example (c)). Furthermore, the crime that she seeks to "forgive"—the rape—is represented in row (e) by the second (and different!) tetrachord, (0369), which derives from the final partition of the "rape" row (d).

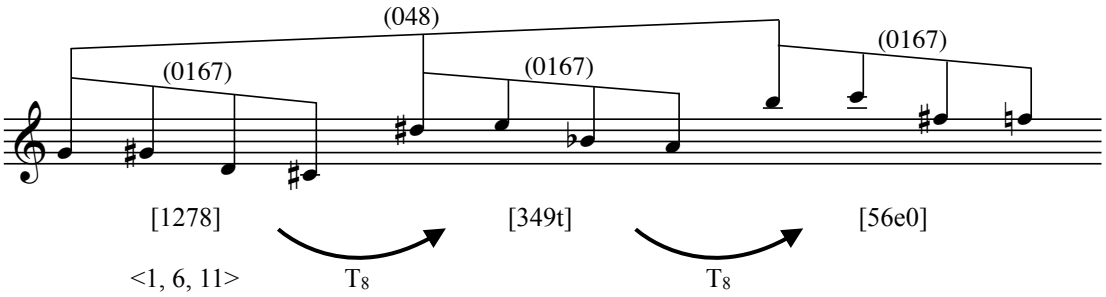
class invariances involving (0167). Generally speaking, Ginastera's row classes in other works from the early 1960s are structured in a similar manner that readily allows for the derivation of meaningful collections such as (0167) and (0369). The analyses of the Piano Concerto and Violin Concerto in the second half of this dissertation will more fully investigate how techniques of row derivation, similar to those described here, are an integral characteristic of Ginastera's twelve-tone language and contribute to its complexity.

Example 2.20 Select rows involving (0167) from the opera Don Rodrigo, Op. 31 (1963–64)

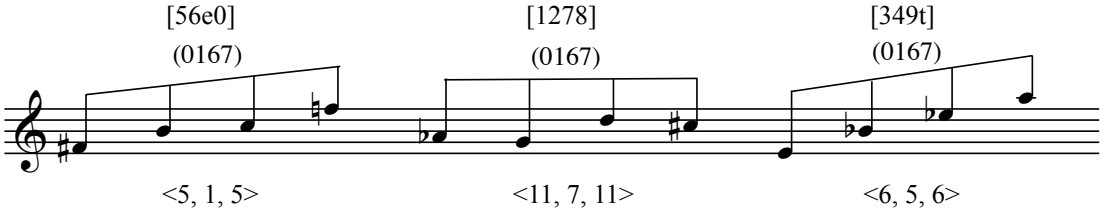
(a) Heroic Series [Row A]



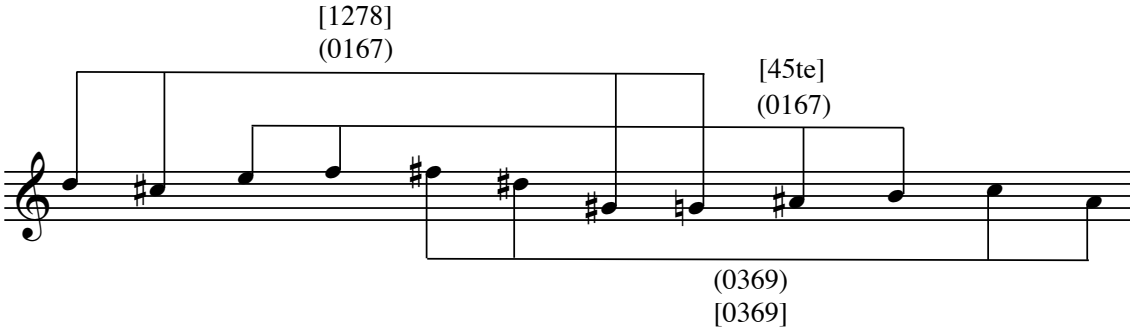
(b) Don Rodrigo: The Oath and Violation of the Oath [Row H]



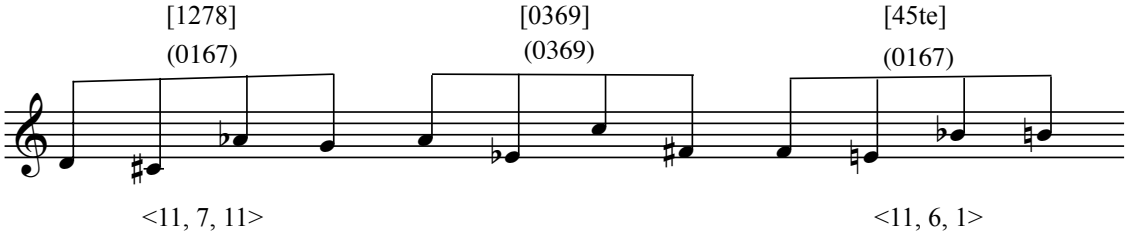
(c) Florinda [Row C]



(d) Rodrigo: The Crime of the Rape [Row B]



(e) Florinda: Revenge and Forgiveness [Row E]



Conclusion

This chapter traced the development of Ginastera's twelve-tone language by illustrating stylistic tendencies that remained consistent over the course of his career, even as the language itself became increasingly chromatic. These tendencies include the composer's predilection for (1) certain trichordal and tetrachordal motivic materials, especially those which highlight the dichotomies between ics 3 and 4 and ics 5 and 6; (2) symmetrical designs, both on local and more global scales; and (3) completing the aggregate through interval patterns, most of which involve symmetrical collections that first complete the octatonic, 8-note, or hexatonic collections.

With respect to the first of these tendencies, Ginastera's early "nationalistic" works, such as the *Danzas argentinas*, Op. 2 (1937) and the *Doce preludios americanos*, Op. 12 (1944), tend to emphasize diatonic motives, for example, (015) and (0257). In his later works, beginning as

early as the Piano Sonata No. 1, Op. 22 (1952) and continuing into his works from the 1960s, these motives are increasingly found alongside, or entirely replaced by, dissonant versions of themselves; thus, emphasis on the perfect fifth in (015) is typically replaced by emphasis on the tritone in (016) and (0257) is more often "pinched" at both extremes resulting in (0167) instead. As Ginastera's musical language developed toward serialism, purely chromatic motives, or *cluster* segments, also gained prominence. *Clusters* are integral to the compositional fabric of the Piano Quintet, Op. 29 (1963) and the Violin Concerto, Op. 30 (1963), and they form the basis of select twelve-tone rows in the *Cantata para América mágica*, Op. 27 (1960), *Don Rodrigo*, Op. 31 (1963–64) and *Iubilum*, Op. 51 (1979–80).

Throughout his career, symmetry plays a significant role in creating the aforementioned set classes and gives rise to larger collections like the octatonic, the 8-note collection (set class 8-9 (01236789)), and the aggregate. In fact, Ginastera became even more reliant on symmetrical designs as he turned to twelve-tone composition, eventually using symmetrical patterns to generate his row classes. These patterns, some of which are formed by complex *constellation*-like networks, tend to compose-out structurally significant motives such as (0369), which, like (0167), becomes increasingly more integral to Ginastera's twelve-tone language in works like the String Quartet No. 2, Op. 26 (1958, rev. 1968) and the Piano Concerto, Op. 28 (1961). Symmetry thus has deeper-level ramifications as a principle of organization in Ginastera's music and it contributes to the middleground emergence of octatonic and 8-note collections, even in works that are categorically twelve tone.[91]

[91] Organizational strategies such as these are the central topic of the following chapter.

Ginastera and the Second Viennese School

> As a musician I feel nothing but a deep admiration for the works of Schoenberg, Berg, Webern, and Dallapiccola, and as a teacher I feel a strong obligation to teach my students the procedures used by these illustrious artists, who have modified the technique and renovated the structure of our art.[92]
>
> – Ginastera (1952)

> An aspect of a work by another composer may set my fantasy in motion: I imagine the way I would approach it. . . . When I was young, Bartók and Berg influenced me in this way. . . . When I was feeling my way toward dodecaphony, I was gripped by the expressive power of Berg's music.[93]
>
> – Ginastera (1981)

Ginastera was familiar with the compositional techniques of the Second Viennese School. His quotes cited above, separated by nearly thirty years, suggest a life-long recognition of the influences Schoenberg, Webern, and especially Berg had on his music and pedagogy. In light of the development of Ginastera's twelve-tone language discussed in this chapter, it is worth pointing out a few specific correlations between the Argentine composer's style and those of the original proponents of the twelve-tone method.

Schoenberg's influence on Ginastera can be seen, most obviously, in his choice of instrumental genres: both composed a string quartet that includes a soprano voice—Schoenberg's String Quartet No. 2, Op. 10 (1908) and Ginastera's String Quartet No. 3, Op. 40 (1973, rev. 1978)—and, of more relevance to this study, both composed a Violin Concerto and Piano Concerto—Schoenberg's Violin Concerto, Op. 36 (1935–36) and Piano Concerto, Op. 42 (1942)

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[92] "Como músico no siento sino una profunda admiración por las obras de Schönberg, de Alban Berg, de von Webern o de Dallapiccola y como profesor siento la ineludible obligación de enseñar a mis alumnos los procedimientos empleados por estos ilustres creadores que han modificado la técnica y renovado la estructura de nuestro arte." Ginastera, "El compositor argentino y la música atonal," *Buenos Aires Musical* 7, no. 104 (1952): 1. Translation mine.

[93] Ginastera is quoted here in Bálint András Varga, *Three Questions for Sixty-Five Composers* (Rochester, NY: University of Rochester Press, 2011), 94.

and Ginastera's Violin Concerto, Op. 30 (1963) and Piano Concerto, Op. 28 (1961). But these concertos share more than just a superficial genre distinction: both Schoenberg's and Ginastera's concertos feature markedly significant *Cadenza* sections that serve as integral "nexus" points, wherein structurally prominent motives are recalled (in the case of Schoenberg) or foreshadowed (in the case of Ginastera).[94] Moreover, the motives Schoenberg tends to favor in his Violin Concerto are identical to those Ginastera uses in both of his concertos. In Schoenberg's Violin Concerto all but one of the most prominent motives contain a discrete pair of half steps: the "emblematic" motive of the concerto, (0134), along with (0123), (0145), and (0347) are achieved through various partitioning schemes, and (0156) and (0167) appear as discrete segments of the row.[95] Prominent motives in Ginastera's Violin Concerto include (0123) and (0167), and in the Piano Concerto include (0145), (0347), and (0167).

Most significant of all, however, is the common partitioning schemes both Schoenberg and Ginastera use in order to musically emphasize the aforementioned motives and others in their serial works. When certain motives are not available among the discrete segments of the row, both composers favor two non-segmental order-number partitions in particular, (*0369*) and (*0167*).[96] On more abstract levels of the music's structure, both composers also tend to engage

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[94] In contrast to Schoenberg, Ginastera places the *Cadenza* in both his Piano and Violin Concertos at the beginning of the movement, thus giving it the function of the theme proper in the overall theme + variations form.

[95] See Brian Alegant and Andrew Mead, "Having the Last Word: Schoenberg and the Ultimate Cadenza," *Music Theory Spectrum* 34, no. 2 (2012): 107, 110.

[96] These order-number partitions sometimes form isomorphisms with their associated pitch classes in both composers' works (see Examples 2.18(a) and 2.20(a), (b), and (d) above). Isomorphisms are explained in detail in the following chapter. Several authors have discussed pitch-class/order-number isomorphisms, among them, Andrew Mead's work has influenced this study the most; see Mead, "Large-Scale Strategy in Arnold Schoenberg's Twelve-Tone Music," *Perspectives of New Music* 24, no. 1 (1985): 120–57 and "Some Implications of the Pitch Class/Order Number Isomorphism Inherent in the Twelve-Tone System: Part One," *Perspectives of New Music* 26, no. 2 (1988): 96–163. See also Ethan Haimo and Paul Johnson, "Isomorphic Partitioning and Schoenberg's Fourth String Quartet," *Journal of Music Theory* 28, no. 1 (1984): 47–72 and David Lewin's seminal article, "A Theory of Segmental Association in Twelve-Tone Music," *Perspectives of New Music* 1, no. 1 (1962): 89–116

organizational strategies in which regions (or *families*) of row forms are used to compose-out specific pitch-class members of the primary row.[97]

The compositional styles of Webern and Ginastera differ a great deal aesthetically,[98] yet the row classes of their serial works exhibit similar properties. Speaking generally, Schwartz-Kates identifies three twelve-tone techniques that Ginastera and Webern share: both composers (1) use bilateral symmetrical designs, (2) tend to build rows that have a limited number of transpositions, and (3) exhibit a predilection for embedding semitones within their row classes.[99] The second of these characteristics is particularly relevant to this study in that it hints at Ginastera's propensity to construct rows whose potential for invariance under transposition (and also inversion) allow him, in turn, to construct *families* of rows, the members of which may be compositionally employed in place of one another—that is, function as *surrogates* for one another. The following chapter will expound on this and other issues of row organization in more detail.

By far the most recognizable and widely acknowledged influence on Ginastera's twelve-tone style comes from Berg's music.[100] In support of this claim, several scholars have noted how freely Ginastera treats his rows—abandoning, reordering, fragmenting, and segmenting their

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[97] This and other strategies are discussed in Mead, "Twelve-Tone Organizational Strategies: An Analytical Sampler," *Intégral* 3 (1989): 93–169 and two articles by Lewin: "A Study of Hexachord Levels in Schoenberg's Violin Fantasy," *Perspectives of New Music* 6, no. 1 (1967): 18–32 and "Inversional Balance as an Organizing Force in Schoenberg's Music and Thought," *Perspectives of New Music* 2, no. 2 (1968): 1–21.

[98] One exception to this is the striking textural and rhythmic affinities between Ginastera's Strings Quartets Nos. 1 and 2 and Webern's *Five Movements for String Quartet*, Op. 5.

[99] Schwartz-Kates, *Alberto Ginastera: A Research and Information Guide*, 28f.

[100] General commentary on Berg's influence can be found in Schwartz-Kates, "Ginastera, Alberto (Evaristo)," in *The New Grove Dictionary of Music and Musicians*, edited by Stanley Sadie and John Tyrrell, 2d ed., vol. 9 (New York: Macmillan, 2001), 875–79. For commentary on Berg's influence on Ginastera's Violin Concerto, in particular, see Fobes, "Twelve-Tone Techniques in Alberto Ginastera's Violin Concerto," (Master's thesis, Bowling Green State University, 1998), 81–3 and Sheri Renee Lee, "Twelve-Tone Violin Compositions: Performance Practice and Preparation," (D.M.A. diss., University of Cincinnati, 2009), 94.

contents whenever he sees fit. Furthermore, both Berg and Ginastera tend to treat their primary rows like "derivational" source sets from which segments or partitions can be extracted and combined in new ways to either generate the aggregate in a more general sense (aside from traditional transformations of the row) or create multiple row classes that function interdependently within a single work.[101] Like Berg, Ginastera also shows a certain fondness for opera and (0167) is a particularly prominent motive in both Berg's *Lulu* and Ginastera's *Don Rodrigo*.[102] Interestingly, both composers tend to favor the same three transpositions of (0167)—[1278], [349t], and [56e0]—in several of their serial and non-serial works and both frequently employ interval cycles to complete the aggregate and build deeper-level transpositional networks, many of which compose-out instances of set class (0369).[103]

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[101] The concept of *derivation* in Berg's music has been explored by several scholars. Among others, see George Perle, "Berg's Master Array of the Interval Cycles," *The Musical Quarterly* 63, no. 1 (1977): 1–30 and *The Operas of Alban Berg Vol. 2: Lulu* (Berkeley: University of California Press, 1979); Dave Headlam, "The Derivation of Rows in *Lulu*," *Perspectives of New Music* 24, no. 2 (1985): 198–233 and *The Music of Alban Berg* (New Haven: Yale University Press, 1997); and Philip Lambert, "Berg's Path to Twelve-Note Composition: Aggregate Construction and Association in the Chamber Concerto," *Music Analysis* 12, no. 3 (1993): 321–42. Douglas Jarman's earlier research refers to derivation in the historical sense of a "trope"; see Jarman, *The Music of Alban Berg* (Berkeley: University of California Press, 1979).

[102] Primary motives in both operas are summarized and can be readily compared in Antokoletz, *A History of Twentieth-Century Music in a Theoretic-Analytical Context* (New York: Routledge, 2013), chapters 3 and 23. See also a comparison of the role of (0167) in *Don Rodrigo* versus *Lulu* in Kuss, "The Structural Role of Folk Elements in 20th-Century Art Music," 101f.

[103] Transpositional networks involving T_0, T_3, T_6, and T_9 permutations of the primary row can be found in Berg's *Lulu* and *Lyric Suite*.

Ginastera and His Contemporaries

> I did not imagine at the time [when I first heard *The Rite of Spring*] that this would be one of the works which would influence me most in later years. Four years later I wrote my first orchestral piece, the ballet *Panambí*, and with all the ingenuousness and innocence of youth I employed in it the same percussive effects, the same changing rhythms, using an immense orchestra with the percussion occupying pride of place—in other words, the same ingredients as Stravinsky had made use of of for the first time in that musical prodigy known as *The Rite of Spring*.[104]
>
> – Ginastera (1967)

> [Bartók's] *Allegro barbaro* filled in all the gaps I felt in my conception of forging a national music. The rhythmic strength of that admirable piece . . . the construction of the melody from cells and repetition of parts of those cells; the impression of a new kind of pianism . . . its main changes being in the percussive element . . . all these aspects captivated me.[105]
>
> – Ginastera (1981)

These quotes, along with the two quotes from the previous section that also mention Bartók and Dallapiccola, reflect the admiration Ginastera had for many of his contemporaries. It takes little imagination to hear the broader influences of Bartók, Stravinsky, and even Copland, among others, in Ginastera's music. Ginastera's motivic preferences and compositional tendencies discussed in this chapter resonate with those of these well-known composers. Although it is out of the scope of this dissertation, a more thorough investigation of these composers' influences on Ginastera's compositional technique is certainly warranted and would prove a fruitful investigation in and of itself. The present discussion will touch only briefly on the influences of three composers in particular: Stravinsky, Bartók, and Dallapiccola.[106]

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[104] Ginastera, "Personal Viewpoint," *Tempo* 81 (1967), 28.

[105] Ginastera, "Homage to Béla Bartók," *Tempo* 136 (1981), 4.

[106] Copland's influence on Ginastera is also worth noting, and the reader should refer to the prior discussion of their relationship in chapter 1, *International Experiences and Acclaim*. In the wealth of Ginastera's published writings, interviews, and/or personal letters, he mentions several other composers who influenced him, including Debussy, Ravel, de Falla, Varèse, and Milhaud.

From a very young age, Ginastera had always admired Stravinsky's groundbreaking compositions, especially *The Rite of Spring*, which he heard for the first time when he was 14. A few short years later, in 1937—the year following Stravinsky's first visit to Buenos Aires—the young Ginastera completed and saw the premiere of his first composition, the ballet *Panambí*, Op. 1 (1937). According to Ginastera's comments above, "percussive effects, . . . changing rhythms, . . . [and] an immense orchestra with the percussion occupying pride of place . . ." are all elements that his own ballet has in common with *The Rite*. But besides these textural and timbral similarities, the pitch structure of Ginastera's early music reflects a great deal of Stravinsky's influence as well. The "bitonal" characteristics of Ginastera's "nationalistic" style frequently result in the formation of octatonic collections, much like they do in Stravinsky's early works. Such collections, however, continue to play a role in Ginastera's serial works, where in Stravinsky's they do not.

Nevertheless, both Stravinsky and Ginastera approached serial composition in much the same way: each developed a highly personal, idiosyncratic serial language, bending and adapting the traditional "rules," so to speak, in order to make the twelve-tone method adapt to their already established musical styles. Their respective serial compositions, coincidentally, underwent similar structural metamorphoses, as well. The musical gestures that were so conspicuously presented on the music's surface in both composers' early works later tended to

appear in more concealed and abstract formations on deeper structural levels in both composers' serial works.[107]

Bartók's musical influence on Ginastera is even more tangible than Stravinsky's. Per the quote above, Ginastera's admiration for Bartók is most clearly represented in his life-long fascination with motivically-driven music composed of "cells and repetition of parts of those cells." Like Bartók, Ginastera tends to favor both local and large-scale symmetrical designs, including a predilection for inversionally symmetrical "cells" like set classes (0123), (0246), and (0167)—the so-called *x*, *y*, and *z cells* widely recognized in Bartók scholarship—and the octatonic subsets (0134), (0235), and (0347).[108] Of these motives, (0167) seems to play the most prominent structural role in both composers' works, where it frequently forms the chromatic climax of a phrase or is composed-out on some middleground level as part of a larger collection like the octatonic.[109]

Because Bartók and Ginastera shared a fondness for the aforementioned motivic "cells," their compositions both invite a similar analytical approach—one that describes the music's pitch

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[107] Stravinsky's music has been discussed by several authors. More recently, Joseph Straus has taken the stance that while a connection between Stravinsky's early and late works most certainly exists, this connection is most significant on more abstract levels of the music and involves complex processes of "sublimation, attenuation, abstraction, and concealment." See Straus, *Stravinsky's Late Music* (Cambridge: Cambridge University Press, 2001). David Carson Berry has also shown that Stravinsky's serial techniques have precursors in the composer's use of variation sets; see Berry, "Stravinsky's 'Skeletons': Reconnoitering the Evolutionary Paths from Variation Sets to Serialism," (Ph.D. diss., Yale University, 2002).

[108] Inversional symmetry and interval cycles (especially those that result in the *x*, *y*, and *z cells*) in Bartók's music were concepts first discussed by George Perle in his article, "Symmetrical Formations in the String Quartets of Béla Bartók," *Music Review* 16 (1955): 300–12. Scholarship on Bartók's music is extensive, but this study is particularly informed by the work of Elliott Antokoletz and Richard Cohn. See Antokoletz, *The Music of Béla Bartók: A Study of Tonality and Progression in Twentieth-Century Music* (Berkeley: University of California Press, 1984); and two articles by Cohn, "Inversional Symmetry and Transpositional Combination in Bartók," *Music Theory Spectrum* 10 (1988): 19–42 and "Bartók's Octatonic Strategies: A Motivic Approach," *Journal of the American Musicological Society* 44, no. 2 (1991): 262–300.

[109] Such similarities are particularly evident between the first movements of Bartók's String Quartet No. 4 and Ginastera's String Quartet No. 2 (an excerpt of which is shown in Example 2.13 above). Several published analyses of Bartók's Quartet No. 4 exist, but a concise summary of the main points can be found in Antokoletz, *The Music of Béla Bartók* and also Kuss, "The Structural Role of Folk Elements in 20th-Century Art Music."

organization based on the manipulation and interaction of these "cells." The compositional tendencies of both composers are largely "generative" and thus can be effectively discussed in terms of transpositional combination, as much of this study does. Cohn's research on "octatonic strategies" in Bartók's music has pointed out many properties that this study has found to be ubiquitous in Ginastera's music, too. Among his many points, Cohn highlights the exceptional status of two set classes among the twenty-nine possible octachords: the first of these is set class 8-28, the familiar octatonic collection, and the second is set class 8-9, what this study calls the 8-note collection, made up of two *cluster* tetrachords a tritone apart.[110] The fact that these two collections recur with such frequency in Ginastera's music—in both his early works and continuing into his twelve-tone works— is without a doubt due to his using similar compositional strategies as Bartók, especially those that involve increasing the chromatic intensity of the music through interval patterns and other generative motivic procedures.

Finally, the relationship between the music of Dallapiccola and Ginastera cannot go without mention. In many respects it is perhaps more appropriate to speak of Ginastera's admiration for Dallapiccola's music, rather than point out any specific influences. Their relationship was a personal one. When Ginastera was appointed director of the Centro Latinoamericano de Altos Estudios Musicales [Latin American Center for Advanced Musical Studies] (or CLAEM) in 1962, part of his responsibilities was to invite internationally-renowned

[110] Cohn notes that these two octachord collections, above all others, are exceptionally "fertile"—meaning they yield an unusually large number of transpositionally-related tetrachordal partitions—and "potent"—meaning they also yield an unusually large number of transpositionally-related dyadic partitions. See Cohn, "Bartók's Octatonic Strategies: A Motivic Approach," 268–70.

composers to join the faculty as artists-in-residence. Dallapiccola was among these distinguished guests, as were Copland, Messiaen, Maderna, Xenakis, and Nono.[111]

The stylistic characteristics of Dallapiccola's music that Ginastera seemed to admire are very much the same as those he admired in Berg's music. And yet, ironically, both their respective twelve-tone compositional processes tend to emphasize an underlying octatonic language that is more in keeping with Bartók's music than Berg's. Ginastera's published comments on Dallapiccola's opera, *Il Prigioniero*, praise the composer's handling of the twelve-tone method in a manner that respects the expressive needs of the music.[112] Like Dallapiccola, Ginastera does not confine his compositional approach to conventional, strictly-ordered transformations of the row (i.e., P, R, I, and RI row forms); instead, he oftentimes treats the

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[111] Schwartz-Kates, *Alberto Ginastera: A Research and Information Guide*, 12. As an interesting aside, Dallapiccola, who happened to be traveling from Buenos Aires to New York in 1964, actually hand-delivered Ginastera's manuscript of the *Cantata Bomarzo*, Op. 32 to a courier in New York, who then carried it to Washington, D.C., a mere eight days before its premiere. The details of this exchange are discussed in Schwartz-Kates, "The Correspondence of Alberto Ginastera at the Library of Congress," 308, note 53.

[112] ". . . Dallapiccola tiene la naturaleza exaltada propia de los espíritus esencialmente románticos. Esta afirmación, aplicada a un músico que se ha dedicado con ahinco a la disciplina dodecafónica, puede parecer paradójica, sobre todo para aquellas personas que creen que solamente un carácter frío y cerebral puede dedicarse a las severas normas del constructivismo musical. Pero es que la naturaleza apasionada y ardiente de Dallapiccola se manifiesta en su manera de pensar, de sentir y de expresarse en música."

"Dallapiccola has a distinguished style that is essentially romantic in spirit. This statement, applied to a musician who has worked earnestly in the twelve-tone discipline, may seem paradoxical, especially for those who believe that only a cold and cerebral character can devote himself to the strict rules of this type of musical construction. But the passionate and ardent nature of Dallapiccola is manifested in his way of thinking, feeling, and expressing music." Ginastera, "Luigi Dallapiccola y su obra *Il Prigioniero*," *Polifonía* 9, nos. 84–5 (1954): 6. Translation mine.

A comparative study of Berg's *Lulu*, Dallapiccola's *Il Prigioniero*, and Ginastera's *Don Rodrigo* would undoubtedly reveal some striking similarities with respect to each composer's use of a symmetrical architectonic scheme, multiple twelve-tone structures, and their shared choice of (0167) as a recurring motive with dramatic significance.

twelve-tone aggregate as a malleable collection of trichordal or tetrachordal subsets that are generally ordered among themselves, but whose contents may be unordered.[113]

Both Dallapiccola's and Ginastera's twelve-tone music eludes a traditional analytical approach and instead invites a broader interpretation that embraces the ambiguity of row presentations and acknowledges that these ambiguities are oftentimes participating in deeper-level, unconventional organizational strategies. Once such strategy that has been meaningfully discussed in Dallapiccola's music concerns "octatonic serialism." Building on his earlier research with John Levey, Brian Alegant suggests that Dallapiccola's preference for hexachords that are subsets of the octatonic results in middleground strategies that complete the octatonic.[114] It seems only fitting that Ginastera's music also invites an interpretation of "octatonic" strategies—more specifically, those that complete either the familiar octatonic or the equally fascinating 8-note collection. These strategies are discussed in more detail in the following chapter and are illustrated in the analyses in chapters 4 and 5.

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[113] For example, both composers sometimes use conventional triads to complete the aggregate (see Example 2.8 above). While such triads may always occur in a specific order (e.g., M, m, +, °), their respective pitch-class contents may appear in any variety of orderings. Paul Sheehan proposes five types of "twelve-tone entities" in Dallapiccola's twelve-tone music and distinguishes them based on their fixed ordering in time, register, or both. See Sheehan, "Composing with a Multitude of Twelve-Tone Entities: Luigi Dallapiccola's *Il prigioniero*," *Perspectives of New Music* 51, no. 1 (2013): 103–05. The present study recognizes similar entities in Ginastera's music and thus proposes the concept of *surrogate relations* (defined in chapter 3) to account for rows that share the same *mosaic* profile but, strictly speaking, represent different row classes.

[114] Two of these hexachords, set classes 6-27 and 6-30, are discussed in note 47 above. "Octatonic serialism" occupies the whole of chapter 5 in Alegant, *The Twelve-Tone Music of Luigi Dallapiccola*, (Rochester: University of Rochester Press, 2010) and is largely based on Alegant and Levey, "Octatonicism in Luigi Dallapiccola's Twelve-Note Music," *Music Analysis* 25, nos. 1–2 (2006): 39–88.

CHAPTER 3:

ORGANIZATIONAL STRATEGIES

The primary objective of this chapter is to illustrate the organizational strategies Ginastera tends to use in much of his twelve-tone music and especially in his "variation" forms.[1] The very nature of Ginastera's variations, and variations in general, is to create a sense of ambiguity—a sense that something is masquerading as something new but is really something familiar. This chapter lays the methodological groundwork for the analytical chapters that follow. Although the variation forms of Ginastera's Piano Concerto and Violin Concerto are the central focus of this study, the terminology set forth in this chapter, which ranges in scope from types and tokens of row classes to strategies for large-scale row organization, is applicable to all of the Ginastera's twelve-tone works.

The chapter is divided into the following three parts: (1) definitions of terms, (2) preference rules for analysis, and (3) variation strategies. The definitions in the first part introduce seven terms used in the analyses of the Piano Concerto and Violin Concerto in chapters 4 and 5. These terms are in keeping with the spirit of *clusters*, *clouds*, and *constellations*, referenced in the title of this study and explained in the previous chapter. They are thus intended to complement and explicate Ginastera's stylistic tendencies in several of his works—including his predilection for certain motivic cells, interval patterns, and symmetrical structures—and also reflect the organizational potentialities of these tendencies.

[1] Although chapters 4 and 5 of this study deal exclusively with theme + variation sets in the Piano and Violin Concertos, the term "variation" may be loosely applied to many forms that rely on some sense of contrast as a compositional imperative. Variation form is one of oldest forms in the history of western music and its diverse manifestations underly other conventional forms such as the refrains of rondos and the recapitulations of sonatas.

Generally speaking, the terms are introduced in order from most concrete to most abstract. The first four terms—*mosaic*, *generated* row, *partition*, and *pitch-class order-number isomorphism*—describe readily identifiable and immutable properties of a given twelve-tone row class. The final three terms—*derived* row, *surrogate* relation, and row *family*—describe similarity relations among two or more row forms and thus prove useful in understanding variation strategies. Each term is supported with an example from Ginastera's twelve-tone works (besides the Piano and Violin Concertos) and, for purposes of clarity, some terms are illustrated with a hypothetical twelve-tone row class, the structural properties of which are in keeping with Ginastera's own row classes.[2]

The second part of this chapter briefly discusses three preference rules that guide the analytical approach of this study. Because Ginastera's variation procedures are often complex and multifaceted, sometimes the underlying row form and variation procedure are hard to determine. Furthermore, the music's most prominent motives are not always part of a complete row statement but rather serially derived from the primary row.[3] These motives garner deeper-level significance by participating in sequences and/or recurring at different structural points throughout the movement; therefore, it is still necessary to identify the row form(s) from which they derive. As in most analytical endeavors, it is frequently the case that there is more than one possible interpretation. The three preference rules thus pertain to issues of parsing the music's surface and applying the most contextually appropriate row label that both clarifies Ginastera's motivic tendencies and highlights the larger-scale variation strategy.

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[2] See chapter 2 for a summary of typical twelve-tone structures in Ginastera's music.

[3] Serially-derived motives are especially integral to the variation strategies of the Piano Concerto, discussed in chapter 4.

The third part of this chapter broadly assesses the variation strategies Ginastera uses in both concertos and shows evidence of similar strategies in other works from this period in his career. Significantly, variation forms in Ginastera's works typically engage another formal-rhetorical design, the *cadenza*. The *cadenza* in the Piano Concerto and Violin Concerto appears not at the end of the first movement, as is characteristic of the concerto genre, but at the beginning of each piece, serving as the theme proper of the variation form and the crucial "nexus" point from which all of the movement's motivic materials are drawn. This part of the chapter is subdivided into three topics. The first topic concerns the role of the aforementioned *cadenza* in Ginastera's variation forms and in his twelve-tone works in general. The second topic elaborates on one of the main contributions of this study, the role of *surrogate* row forms, which are quintessential means of instilling a sense of variation in the formal narratives of Ginastera's concertos. The third topic focuses on composing-out processes and how they support different kinds of variation strategies.

Finally, the conclusion of this chapter briefly invokes three "myths" about serialism, which stem from a larger collection of "myths" proposed by Joseph Straus in his recent book on American serialism.[4] These myths challenge preconceived, and often negative, notions about twelve-tone music and its organization—the topic of this chapter. As the previous chapter explained, Ginastera's approach to serialism is extremely idiosyncratic and oftentimes seems to break with conventional approaches, most of which we associate with the Second Viennese School. With that said, one must keep in mind basic truths: Ginastera's twelve-tone music is not

[4] Straus reminds the reader that "myths" are, by definition, "'a widespread but untrue or erroneous story or belief; a widely held misconception; a misrepresentation of the truth' (*Oxford English Dictionary*)" and, as such, they "implicate a wider anti-modernist mythology" that inadequately describes twelve-tone music; see Straus, *Twelve-Tone Music in America* (Cambridge: Cambridge University Press, 2009), 177.

Schoenberg's twelve-tone music and Ginastera's compositional approach is not Schoenberg's compositional approach. While comparing their different styles is certainly interesting and informative, one must not blindly assume that there exists only one way to compose serially.[5] There are no compositional "rules" in twelve-tone music that are akin to "rules" in tonal music. The three myths discussed at the end of this chapter thus challenge our interpretation of any and all kinds of serial music and reinforce the flexibility of the analytical approach advanced in this study.

Definitions of Terms

Mosaic

> A twelve-tone *mosaic* refers to two or more unordered pitch-class collections that represent disjunct, contiguous segments of the row. These collections may be of different cardinalities—that is, they may or may not correspond to the row's discrete hexachords, tetrachords, trichords, or dyads—but together they represent all twelve pitch classes of the row.

Just as in the visual art form, where mosaics consist of individual, disjunct pieces of tile that come together to create a whole picture or pattern, *mosaics* of a twelve-tone row are likewise formed by discrete segments that range in size (i.e., cardinality) and which each have a distinct identity (i.e., pitch-class content). The term *mosaic* is more specific than the general term *partition* (defined below). Where a *partition* may refer to either pitch classes or order numbers

[5] Misguided assumptions such as this stem from what Straus calls the "Myth of Serial Orthodoxy," a myth that is not discussed in this chapter but nonetheless informs the three myths that are. According to Straus, "The Myth of Serial Orthodoxy maintains that there is one normative standard way to compose serial music (Schoenberg's way) and everything else represents a deviation or a liberty"; ibid., 177.

and is not limited to contiguous segments, a *mosaic* refers strictly to unordered pitch-class contents and is further limited to adjacencies only.[6]

Example 3.1 Tetrachordal *mosaic* profiles of two rows in *Don Rodrigo*, Op. 31 (1963–64)

Don Rodrigo's row	7	8	2	1	3	4	t	9	e	0	5	6
Florinda's row	6	e	0	5	8	7	2	1	4	t	3	9

The *mosaic* profiles of different rows can highlight instances of pitch-class invariance and are especially useful for showing comparisons among different row classes, such as *derived rows* and *secondary rows* (discussed below). Examining the *mosaic* profiles of different row classes also helps draw attention to certain set class transpositions that Ginastera tends to prefer. Example 3.1 above shows two different row classes from the composer's first twelve-tone opera, *Don Rodrigo*, Op. 31 (1963–64).[7] The primary rows of the opera's two main characters are not members of the same twelve-tone row class; nonetheless, the pitch-class contents of their

[6] There is some disagreement among scholars as to the difference between a *mosaic* and a *partition*. Donald Martino was the first to use the term *mosaic* and only in reference to a row's disjunct and contiguous segments without regard for the pitch-class contents contained therein; see Martino, "The Source Set and Its Aggregate Formations," *Journal of Music Theory* 5, no. 2 (1961): 224–73. Martino tends to reserve the term especially for the discrete trichords of a row, which he calls "trichordal mosaics." The main discrepancy between *mosaic* and *partition* comes about in two articles—one by Andrew Mead and the other co-authored by Robert Morris and Brian Alegant—which were published in the same year: Mead, "Some Implications of the Pitch Class/Order Number Isomorphism Inherent in the Twelve-Tone System: Part One," *Perspectives of New Music* 26, no. 2 (1988): 96–163 and Morris and Alegant, "The Even Partitions in Twelve-Tone Music," *Music Theory Spectrum* 10 (1988): 74–101.

Mead maintains Martino's original concept of the *mosaic*, defining it as "an unordered collection of collections whose elements add up to the aggregate" (103), and further adds the concept of the *mosaic class*, which takes into account the pitch-class contents and requires that, among members of a *mosaic class*, all the segments of all the rows must be T_n- and/or T_nI-related to one another. For example, two *different* row classes, both made up entirely of discrete (013) trichords, are members of the same *mosaic class* although the rows themselves are not related by T_n, I_n, RT_n, or RI_n. Morris's and Alegant's article conversely defines a *partition* in Mead's sense of a *mosaic* and defines a *mosaic* in the sense of Mead's *mosaic class*. This study seeks to simplify the terminology, using *mosaic* in reference to specific pitch-class contents and only with respect to discrete segments of a row and using *partition* in a more generic sense to refer to any collection of events (i.e., pitch classes or order numbers) that may or may not form adjacencies within a row.

[7] These and other row classes in *Don Rodrigo* are discussed in chapter 2; see Example 2.20.

tetrachordal *mosaics* are identical. The unordered content of the last tetrachord of Don Rodrigo's row is invariant with that of the first tetrachord of Florinda's row and the first two tetrachords of Don Rodrigo's row are shifted rightwards in Florinda's row. The rows' identical tetrachordal *mosaics* are especially significant in that together they emphasize three unique transpositions of (0167), the primary motive of the opera. Thus, the two rows offer variety in the form of different row classes and unity in the form of a single, distinct *mosaic* profile.

Generated Row

> A *generated* row consists of discrete segments of a given size that are all members of the same set class and that are all order-related by one or more of the following operators: T_n, I_n, RT_n, and RI_n. A row may be *generated* by two hexachords, three tetrachords, four trichords, six dyads, or any combination of these cardinalities.[8]
>
> Alternately, a *partially-generated* row consists of two or three discrete trichords, two pairs of discrete trichords, and/or two discrete tetrachords that are members of the same set class and that are order-related by one or more of the following operators: T_n, I_n, RT_n, and RI_n. *Partially-generated* rows in Ginastera's twelve-tone music typically involve pairs of discrete trichords and, among these types of rows, both pairs of trichords exhibit order relations among their constituent parts.[9]

According to Schwartz-Kates, Ginastera "remained aware of the structural potential that he embedded in his rows and its relationship with his cellular melodic conception," and, in his written correspondence with the musicologist Malena Kuss, he noted his tendency to "organize

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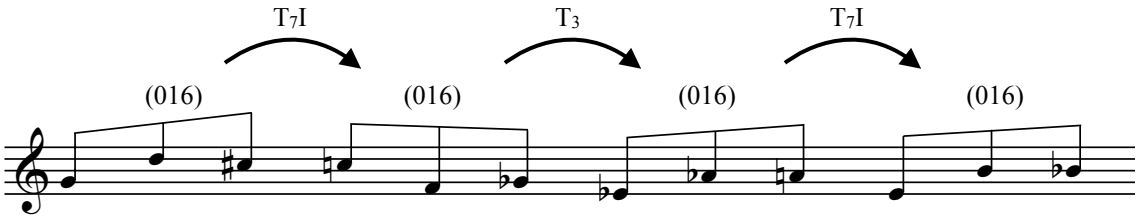
[8] This definition follows Fobes, "A Theoretical Investigation of Twelve-Tone Rows, Harmonic Aggregates, and Non-Twelve-Tone Materials in the Late Music of Alberto Ginastera," 13. Like Fobes, the present author recognizes that some scholars refer to this type of series as a "derived series" because it, too, is "derived" from a single set class. The term *generated*, however, is used to avoid confusion with what this study calls a *derived* row (defined below)—that is, a row with discrete segments that may or may not be members of the same set class. *Derived* rows in this study refer to subsidiary row classes that have been constructed through a process of *derivation* from the primary row.

[9] Ibid., 17.

symmetrical series on the basis of three or four notes."[10] The concept of *generated* (and *partially-generated*) row classes thus supports Ginastera's stylistic tendencies by pointing out that the significance of such rows is not just that they are made up of only one (or two) set classes, but that these set classes are organized in a manner that proves complementary to his compositional approach. *Partially-generated* rows, in particular, offer Ginastera a balance between unity and variety, enriching their structural potential.

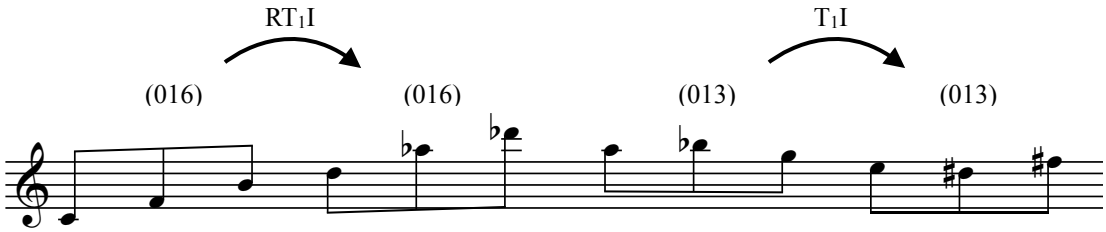
Example 3.2 Trichordally *generated* and *partially-generated* row classes [11]

(a) *Cantata para América mágica*, Op. 27 (1960), I



AIS < 7, 11, (11) 5, 1, (9) 5, 1, (7) 7, 11 >

(b) String Quartet No. 2, Op. 26 (1958, rev. 1968), III



AIS < 5, 6, (3) 6, 5, (8) 1, 9, (9) 11, 3 >

[10] Schwartz-Kates, *Alberto Ginastera: A Research and Information Guide*, 28.

[11] These rows are also shown in Examples 2-1 and 2-6 of Fobes, "A Theoretical Investigation of Twelve-Tone Rows, Harmonic Aggregates, and Non-Twelve-Tone Materials in the Late Music of Alberto Ginastera," 151, 156.

Example 3.2(a) shows a row from the first movement of Ginastera's *Cantata para América mágica*, Op. 27 (1960). This row class is completely *generated* via (016) trichords. The adjacent interval series (labeled AIS) below the staff clarifies the T_n/T_nI transformations shown above the staff. Adjacent trichords are order-related such that the first member of each trichord maps onto the first member of the subsequent trichord, the second onto the second, and the third onto the third. The same T_nI relationship between trichord pairs within each hexachord assures that for every prime row form there exists some inversional row form that shares the exact same trichordal *mosaics*. In other words, four row forms—a prime and inversional row pair, along with their retrograde forms—exhibit invariant pitch-class content among their discrete trichords. From a compositional perspective, *generated* rows are thus especially efficient starting points for building row *families* and inspiring *surrogate* row relations, two concepts (discussed below) that are integral to Ginastera's twelve-tone language.

Example 3.2(b) shows the primary row from the third movement of Ginastera's first twelve-tone work, the String Quartet No. 2, Op. 26 (1958, rev. 1968). This row class is *partially-generated* because its discrete trichord pairs are members of different set classes. Like the row in example (a), the T_nI relationships between trichords within each hexachord are the same—although the first is retrograde ordered[12]—and, like in example (a), this ensures that there exists an inversionally-related row pair, along with their retrogrades, that exhibit invariant trichordal *mosaics*.

Generated and *partially-generated* row classes like those shown above are particularly common in Ginastera's twelve-tone music, especially given his predilection for symmetrical

[12] RT_n and RT_nI transformations map the first member of each trichord onto the last member of the subsequent trichord, the second onto the second, and the third onto the first.

structures and composing with motivic "cells and repetition of parts of those cells."[13] Because these same tendencies are evident in the pre-compositional structure of Ginastera's row classes, it is a natural consequence that they are also reflected in the musical structure of his twelve-tone works. Indeed, many of the deeper-level organizational strategies discussed in this chapter and demonstrated in the analyses of the Piano Concerto and Violin Concerto are in large part motivated by the *generated* or *partially-generated* nature of these works' twelve-tone rows.

Partition

A *partition* is any unordered collection of either pitch classes or order numbers, which are members of a twelve-tone row. A *partition* may be formed by a contiguous segment of the row or by non-adjacent members of the row.[14] In theory, the cardinality of a *partition* may range from one member to twelve, although in this study *partitions* are normally tetrachords or hexachords.

Partitions are significant in Ginastera's music for two reasons: (1) they tend to participate in composing-out strategies where they either interact with transpositions of themselves to emphasize a motive on the music's foreground, or they are enlarged themselves over longer spans of music to complete larger collections and/or join formal sections on the music's background; and (2) when they involve non-adjacent members of the row, they oftentimes create pitch-class/order-number isomorphisms (which are defined below). The following example

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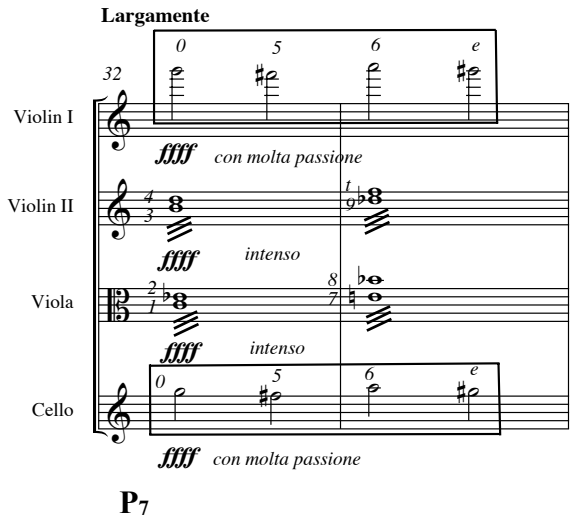
[13] Ginastera, "Homage to Béla Bartók," 4. See the discussion of this quote at the end of chapter 2, *Ginastera and His Contemporaries*.

[14] Because a partition may be formed by a collection of non-adjacent members of the row, some authors substitute the term *partition* for the more general term, "extraction," which implies that certain members have been "extracted" from their normal positions within the row and accentuated as a unit in some manner. For example, Daniel Starr describes "polyphonizing" as a type of combinatorial composition in which "extractions"—whether "loosely" or "neatly" arranged—are distributed compositionally so that aggregates may form both horizontally and vertically and straddle two series forms; see Starr, "Sets, Invariance, and Partitions," *Journal of Music Theory* 22 (1978): 1–42. Less specific usage of *extraction* as a synonym for *partition* can be found in Stephen Peles, "Interpretations of Sets in Multiple Dimensions," *Perspectives of New Music* 22, no. 2 (1984): 303–52 and also Haimo and Johnson, "Isomorphic Partitioning and Schoenberg's Fourth String Quartet," *Journal of Music Theory* 28, no. 1 (1984): 47–72.

illustrates how partitions may be emphasized musically in a variety of ways and used to highlight some of Ginastera's preferred set classes, which may not otherwise be available as a discrete segment within the row.

Example 3.3 Musical emphasis of various tetrachordal *partitions*

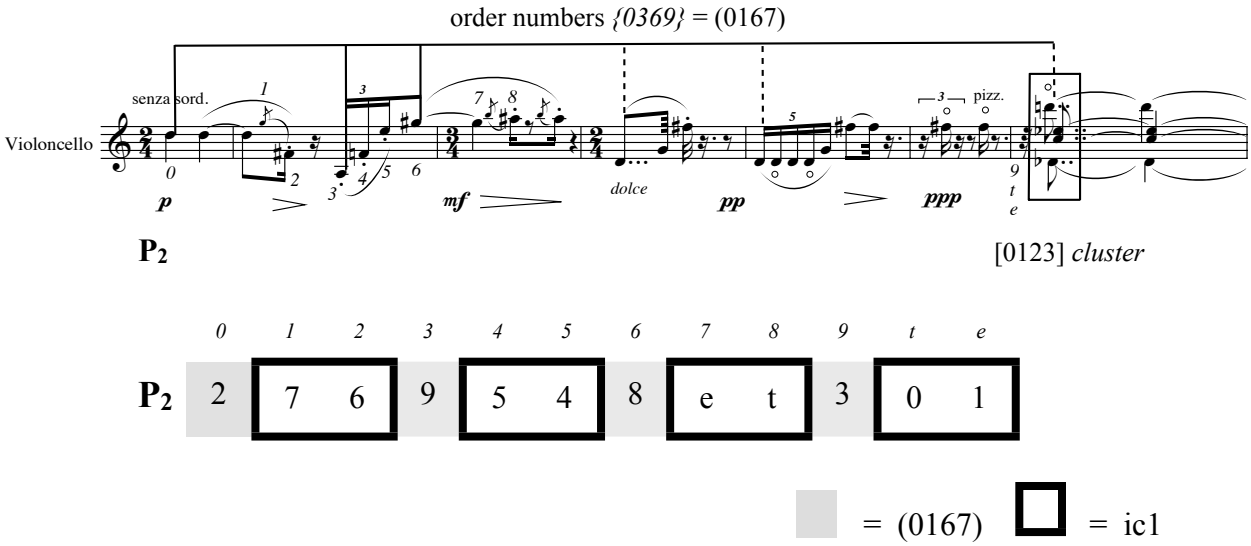
(a) String Quartet No. 2, Op. 26 (1958, rev. 1968), II



	0	1	2	3	4	5	6	7	8	9	t	e
P7	7	0	3	e	2	6	9	4	t	1	5	8

= *cluster* = (0134) = (0147)

(b) Piano Quintet, Op. 29 (1963), V. *Piccola musica notturna*



Example 3.3(a), shown above, is an excerpt from the ***ffff*** climax in the middle of the slow second movement of the String Quartet No. 2 and the row is indicated with pitch-class integers below. This climatic partition, formed by the boundary pitches of each hexachord—order numbers {*056e*}—is a fairly prominent partition in several of Ginastera's twelve-tone works.[15] Here, the {*056e*} partition melodically emphasizes a recurring chromatic *cluster* motive[16]—pitch classes [6789]—and throws into relief two harmonically realized octatonic subsets—(0134) at order-number partition {*1234*} and (0147) at order-number partition {*789t*}.

Example 3.3(b), from the Piano Quintet, Op. 29 (1963), shows how Ginastera uses a delicate combination of register, rhythm, duration, and repetition that results in an emphasis on the first member of the row's first three discrete trichords—order-number partition {*0369*},

[15] It is especially significant in the structure of the Violin Concerto's primary row discussed in chapter 5.

[16] This motive is a T_9 transposition of the familiar BACH motive, {B♭, A, C, B♮}, which is featured in several of Ginastera's works. Its large-scale organizational power is discussed in conjunction with Example 3.14(a) below.

which melodically frames[17] one of the Quintet's emblematic motives, (0167). The first note, D, is stated twice at the beginning, then repeated several times in the middle of the phrase, and appears once more as a natural harmonic and the highest note at the end of the phrase. The lowest note of the phrase, A, is rhythmically accentuated by the melody's only triplet figure, which dramatically ascends to the melody's longest and loudest note, G♯. The final member of the {*0369*} partition, E♭, arrives when the other instruments join the cello (indicated by a box in the example). At this moment the harmonic D is assigned to the first violin and the E♭ is assigned to the second violin, so that the {*9te*} trichord is projected in descending registral order and emphasizes two i11s. The resulting sonority punctuates the phrase with a *cluster* tetrachord—formed by order-number partition {*09te*}—that echoes the regularly recurring instances of ic1 within the row.[18]

Pitch-Class/Order-Number Isomorphism

A *pitch-class/order-number isomorphism* exists when a given pitch-class partition, along with the order-number partition at which it occurs, are both members of the same set class.

Pitch-class/order-number isomorphisms are relatively common occurrences among Ginastera's row classes. This is partly due to his tendency to devise *generated* (or *partially-generated*) rows (defined above). Even when a row is not *generated*, however, Ginastera oftentimes still manages to emphasize musically some order-number partition that forms an

[17] According to Joseph Straus, the "melodic frame" is one of eight ways of composing-out motives in atonal music; see Straus, "Atonal Composing-Out," in *Order and Disorder: Music-Theoretical Strategies in 20th-century Music*, the fourth publication in the series *Collected Writings of the Orpheus Institute*, edited by Peter Dejans (Leuven, Belgium: Leuven University Press, 2004), 41–42. This and other composing-out processes are discussed in more detail later in this chapter.

[18] *Cluster* motives, whether non-serial or serially-derived, are prominently featured throughout the Piano Quintet. See especially Examples 2.1(a) and (b), discussed in the previous chapter, from the first and fourth movements and also Example 3.14, discussed below, from the final movement.

isomorphism with its pitch classes.[19] Isomorphisms also play a role in the formation of *derived* rows (defined below).

Example 3.4 Hypothetical row with isomorphisms typical of Ginastera's row classes

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
P_0	0	e	2	9	4	7	6	5	8	3	t	1

order-number partition {*02468t*} = set class (02468t)
{*0369*} = set class (0369)
{*0167*} = set class (0167)
{*056e*} = set class (0167)

Example 3.4 shows a hypothetical row that is not unlike some of the row classes in Ginastera's twelve-tone works. In fact, it exhibits many of the same structural properties as the primary row of the Violin Concerto. The row is hexachordally *generated* so that the first six pitch classes map on to the last six pitch classes, in order, at T_6.[20] Furthermore, every other order number is shaded gray to point out that the row also consists of two interlocking whole-tone collections: WT_0 ascends along the even order numbers and WT_1 descends along the odd order numbers.

The row's "tight-knit" construction gives rise to four pitch-class/order-number isomorphisms, which are listed below the row.[21] The aforementioned interlocking whole-tone scales create the largest isomorphism. The remaining isomorphisms all involve tetrachords and

[19] For instance, the [0123] harmonic *cluster* that ended the previous example, Example 3.3(b) above, forms an isomorphism with its order-number partition, {*09te*}. Isomorphisms can also be found in the rows shown in Examples 2.18 and 2.20(a), (b), and (d) in the previous chapter.

[20] It is also *partially-generated* trichordally so that (013) and (025) represent the first and second trichords of each hexachord.

[21] These happen to be consistent with four of the isomorphic partitions in the Violin Concerto; see the discussion of Example 5.13 in chapter 5.

highlight (0369) and (0167)—the collection classes that most frequently form isomorphisms in Ginastera's own row classes. (0369) emerges at order numbers {*0369*}, that is, the partition formed by the first member of each discrete trichord. (0167) emerges from two order-number partitions: the first is formed by the boundaries of each hexachord, {*056e*}, and the second by the initial dyad of each hexachord, {*0167*}.

Derived Row

> A *derived* row refers to a twelve-tone row whose structure can be traced back to the primary row through a set of contextually-defined stages involving order-number partitions and/or specific set classes. A *derived* row is *not* related to the primary row by any of the following operators: T_n, I_n, RT_n, and RI_n.[22]

Derived rows in Ginastera's music frequently function in *surrogate* capacities (discussed below) and participate in variation strategies. The specific structural properties that define the *surrogate* relationship between a *derived* row and a primary row are also those very properties that define how the row was *derived* to begin with. The unique set of stages that result in a *derived* row concern the *derivation* process. Although these stages are always contextually defined—usually by a work's recurring motives—they invariably begin in one of two ways: (1) with a division of the row into certain order-number partitions; or (2) with a division of the row

[22] It is worth pointing out that the definition of a *derived* row in this study is not entirely the same as a "derived row-class relationship" as defined by Fobes. His definition requires that two rows have in common "at least two ordered segments greater than or equal to the size of a trichord, or one ordered segment greater than or equal to the size of a pentachord." See Fobes, "A Theoretical Investigation of Twelve-Tone Rows, Harmonic Aggregates, and Non-Twelve-Tone Materials in the Late Music of Alberto Ginastera," 23.

In contrast, the present definition does not require that a *derived* row exhibit order relations among its segments, nor does it limit the relationship to "segments," that is, adjacencies only. Instead, the definition is "looser" and intended to include any contextually-significant reconfiguration of the primary row—whether it involves discrete segments or partitions made up of non-adjacencies, and whether or not these maintain the order relations of the primary row or reflect a more general sense of invariance among the *derived* row's *mosaic* profile. A *derived* row in this study is akin to a "derived" row in Berg's music; that is, its structure is somewhat of a "trope" or "variation" on the primary row. A *derived* row is thus not to be confused with certain row classes common in Webern's music—what this study calls a *generated* row. See note 8 above.

into certain unordered pitch-class sets. Both processes tend to result in *derived* rows that exhibit unique and contextually significant *mosaic* profiles.[23]

From an analytical perspective, *derived* rows in Ginastera's music encourage grappling with the complexity of the composer's twelve-tone language and discourage settling for nondescript labels, like "row B" or "row 2," which some scholars apply to "secondary" rows.[24] Furthermore, *derived* rows help account for passages in this music that might, at first glance, appear to be non serial or mere aggregate saturation. Because *derived* rows frequently underscore *surrogate* relations, their very nature invites a more nuanced analytical approach. As this study shows, *derived* rows afford Ginastera the freedom to break with the confines of the primary row and play an integral role in the variations strategies of both the Piano Concerto and Violin Concerto.

Example 3.5 shows *derived* rows that relate back to a hypothetical primary row in two different ways, through specific order-number partitions and through unordered pitch-class sets. (The hypothetical row here is the same as in the previous example.) As was previously mentioned, this hypothetical row is structurally similar to many of Ginastera's twelve-tone rows in that its intervallic content is highly uniform and therefore rife with a number of interesting relationships, including the pitch-class/order-number isomorphisms discussed above. The first

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[23] Although *derived* rows are musically realized in most, if not all, of Ginastera's twelve-tone works, the significance of a *derived* relationship primarily lies in how its structure corresponds to—that is, *derives* from—the primary row. Thus, one can also speak more abstractly of a *derived* "profile" or "partitioning scheme" shared by two or more rows, which engenders their *surrogate* relation to one another but does not result in the musical realization of a *derived* row, per se. *Derived* rows and *derivation* processes are especially integral to the twelve-tone language of the Piano Concerto discussed in the following chapter.

[24] This study generally refrains from using the term "secondary" row, unless a row recurs at several points in a piece, elevating its structural status on par with the primary row. The best examples of true "secondary" row classes in Ginastera's music are those associated with no less than nine different characters and events in the opera, *Don Rodrigo*, Op. 31 (1963–64). Even still, certain of these "secondary" rows exhibit *derived*-row relations with each other; see the discussion of Example 2.20 in the previous chapter.

derived row in Example 3.5(a) assumes its structure from the isomorphic whole-tone partitions {*024689t*} and {*13579e*}; thus, it is labeled with *WT* in italics to indicate that its derivation is based on order-number partitions (rather than pitch classes).[25] The second *derived* row, shown at the bottom of Example 3.5(a), begins with the primary row's isomorphic {*0167*} partition and assumes the rest of its structure from a complete and systematic division of the primary row into (*0167*) partitions: {*0167*} is indicated by a solid line below, {*2389*} by a solid line above, and {*45te*} by a dotted line below. The two partitions indicated by solid lines form isomorphisms with set class (0167), while the remaining partition forms set class (0369).[26]

Example 3.5 *Derived* rows based on (a) order-number partitions and (b) pitch-class sets

(a)

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
P_0	0	e	2	9	4	7	6	5	8	3	t	1
WT-Derived	0	2	4	6	8	t	e	9	7	5	3	1
			WT_0						WT_1			
					(0167)							
(*0167*)-Derived	0	e	5	6	2	9	8	3	4	7	t	1
	(0167)								(0369)			

[25] The *derived* row's WT hexachords and the pitch-class contents therein could, theoretically speaking, appear in any number of orderings. In other words, the general *mosaic* profile of the *derived* row matters more than whether or not the segments of the *derived* row are ordered with respect to the original partitions of the primary row.

[26] Again, even though this example involves a hypothetical primary row, Ginastera's row classes are often capable of the very same derivation processes. Set classes (0167) and (0369) are ubiquitous in his twelve-tone language and are frequently assigned to order-number partitions that form isomorphisms or "exchanges" —that latter of which occurs when (0167) appears at order-number partition {*0369*} and/or (0369) appears at order-number partition {*0167*}. The row in the fifth movement of the Piano Quintet, shown in Example 3.3(b) above, exhibits such an "exchange" and in this case the composed-out {*0369*} partition represents set class (0167).

(b)

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
P_0	0	e	2	9	4	7	6	5	8	3	t	1
(0369)-Derived	0	9	6	3	e	2	5	8	4	7	t	1

The row in Example 3.5(b) above is derived with a different goal in mind: here, the tetrachordal *mosaic* of the *derived* row consists of only set class (0369). The first tetrachord of the *derived* row emerges from the isomorphic {*0369*} partition of the primary row. The *generated* nature of the primary row, however, ensures that the two remaining (0369) tetrachords also emerge from uniform order-number partitions, both of which represent set class (*0167*). The pitch classes derived from {*1278*} are indicated by solid lines and those derived by {*45te*} are indicated by dotted lines.[27]

The following two examples show *derived* rows featured in Ginastera's *Iubilum*, Op. 51 (1979–80) and in the Piano Quintet, Op. 29 (1963). The primary row of the second movement of *Iubilum* is shown in Example 3.6(a). The row is trichordally *generated* by set class (012), which significantly limits the interval content available between adjacent pitch classes. Interestingly, the way in which Ginastera's introduces variety to the music—that is, by creating a *derived* row—actually results in a new kind of intervallic control that replaces ic1 in the primary row with ic3 in the *derived* row. The boxes in Example 3.6(b) indicate three sonorities that each unfold via

[27] Note that this particular ordering of the *derived* row—where all three tetrachords are order-related to one another—reflects a *generated* structure. In principle, however, this does not have to be the case. The contents within each tetrachord could be ordered in any number of ways, as could the tetrachords themselves. (See note 25 above.) Case in point, if we shuffle the pitch classes of the first two tetrachords so that the AIS of each tetrachord is entirely unique—e.g., <0, 3, 9, 6, e, 5, 2, 8, 4, 7, t, 1>—it creates a *derived* row that is no longer *generated*, nor even *partially-generated*.

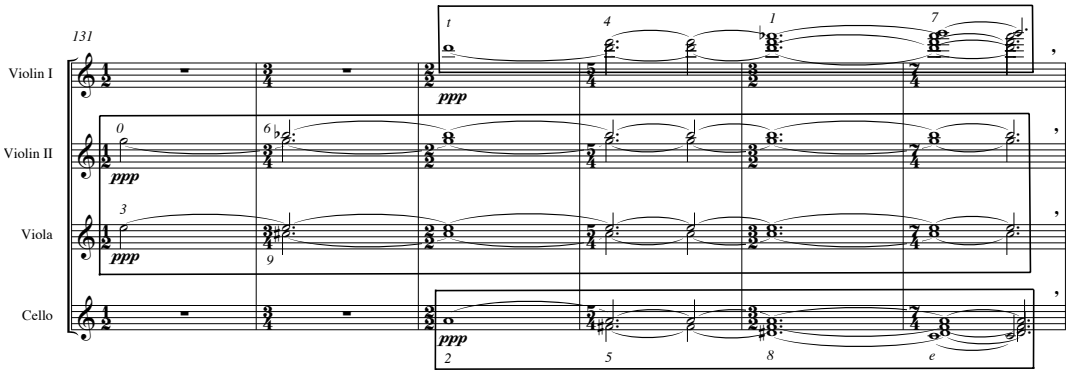
gradually accumulating ic3s. The resulting (0369) tetrachords correspond to the three isomorphic (*0369*) partitions of the primary row. The pitch classes presented by the second violin and viola derive from order-number partition {*0369*}, while the pitch classes presented by the first violin and cello derive from order-number partitions {*147t*} and {*258e*}, respectively.[28]

Example 3.6 *Derived* row in *Iubilum*, Op. 51 (1979–80), II. *Chorale*

(a)

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
P$_7$	7	8	9	4	5	6	t	e	0	1	2	3
(*0369*)-Derived	7	4	t	1	2	5	8	e	9	6	3	0

(b)



Example 3.7(a) shows the primary row from the third movement of the Piano Quintet.[29] The discrete trichords of the row—(012), (016), (016), and (012)—represent prominent motives of the piece, but the discrete tetrachords of the row—(0125), (0158), and (0125)—do not.

[28] Fobes, too, mentions this excerpt in his discussion of "harmonic aggregates"; see Fobes, "A Theoretical Investigation of Twelve-Tone Rows, Harmonic Aggregates, and Non-Twelve-Tone Materials in the Late Music of Alberto Ginastera," pp. 52ff and his Example 3-5. Fobes's analytical approach, however, does not acknowledge pitch-class/order-number isomorphisms, nor their compositional potential. Furthermore, Fobes's definition of *derived* rows is order restrictive (see note 22 above) and thus cannot account for harmonic contexts such as this.

[29] The properties of this row are also discussed in chapter 2; see Example 2.19.

Instead, the tetrachordal motive Ginastera actually emphasizes in the Quintet is (0167) and the three transpositions of this motive he tends to prefer—[1278], [349t], and [56e0][30]—are readily accessible within the row's structure: [349t] and [56e0] are central segments within the row, lying at order-number partitions {*2345*} and {*6789*}, and [1278] emerges from the boundary dyads of the row, order-number partition {*01te*}.[31] The two *derived* rows shown at the bottom of Example 3.7(a) represent rows presented by the piano upon its entrance. These rows are indicated by boxes in Example 3.7(b). They are not members of the same row class as the primary row but are (0167)-*derived*. More specifically, their derivation holds invariant the central 8-note collection of the primary row and places it at the beginning of both *derived* rows (see example (a)).[32]

Example 3.7 Primary row from the Piano Quintet, Op. 29 (1963), III. *Scherzo fantastico*

(a)

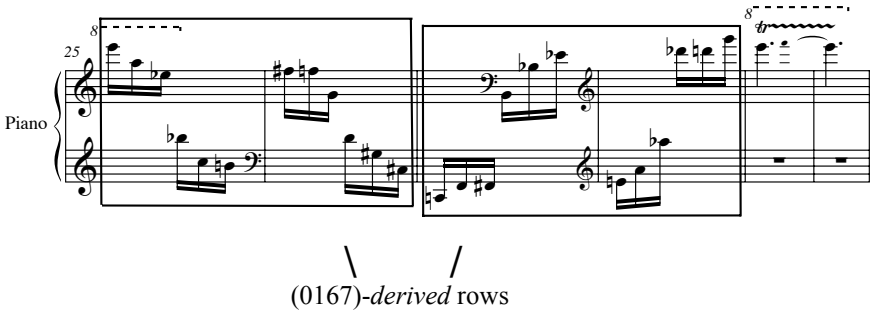
	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
P_2	2	1	3	t	4	9	0	5	e	6	8	7
			8-note missing [1278]									
(0167)-Derived	4	9	3	t	0	e	6	5	7	2	8	1
(0167)-Derived	0	5	6	e	t	3	4	9	8	1	2	7

[30] Ginastera predilection for these particular transpositions of (0167) is discussed in chapter 2; see their multiple recurrences in row classes from *Don Rodrigo*, shown in Example 2.20.

[31] All three instances of (0167) thus emerge from *cluster* partitions within the row, that is, members of set class (*0123*).

[32] The 8-note collection refers to set class 8-9 (01236789), the abstract complement of 4-9 (0167). Its significance in Ginastera's twelve-tone language is discussed in the previous chapter.

(b)



Surrogate Relation

A *surrogate* relation exists when two or more rows share certain structural properties with respect to their pitch-class contents (e.g., their *mosaic* profiles or specific *derived* profiles) and/or they are compositionally employed in a manner that underscores any contextually-significant feature(s) of their structural correspondences (e.g., the pitch-class invariance they exhibit given a particular order-number partitioning scheme). A *surrogate* row may be T_n-, I_n-, RT_n-, or RI_n-related to the primary row, or it may be *derived* from the primary row. Given its specific structural identity, a *surrogate* row has the potential to act as a substitute for another row (usually, but not always, the primary row) or a *family* of rows of which it is a member.

In order for two or more rows to form a *surrogate* relation with one another they must exhibit one or more of the following criteria:

(a) Corresponding *mosaic* profiles among hexachords, tetrachords, trichords, or dyads, or a combination of these discrete partitions;

(b) Corresponding unordered pitch-class content among specific order-number partitions that are contextually defined within a piece or passage;

(c) Corresponding unordered pitch-class content among certain *derived* order-number partitions that are contextually defined within a piece or passage.

Surrogate relations are, in essence, similarity relations that help explain why certain rows look, sound, and/or function like other rows. The colloquial sense of a surrogate is implied here: when compositionally employed, *surrogate* rows are those which are substituting for, or taking the place of, another row. Some *surrogate* relations are highly exclusive and involve only two to four row forms, while others are more inclusive and reflect how a large number of rows might bear certain resemblances to each other.[33] There is no limit to the number of *surrogate* relations one row can participate in.

Surrogate row forms are most meaningful when they are musically deployed; thus, the concept of the *surrogate* relation opens the potential for a great number of analytical observations, some of which may be considered more "reasonable" or "intuitive" than others. *Surrogate* relations should be invoked judiciously and with careful consideration of the surrounding musical context and the known tendencies of the composer.[34] *Surrogate* relations can be used to interpret several musical scenarios, including, but not limited to, the following: (1) compositional strategies that help define the music's formal organization; (2) structural and aural affinities of outwardly disparate events; and (3) the long-range trajectory of events, such as the large-scale unfolding of a prominent motive or the aggregate itself. In the context of the Piano Concerto and Violin Concerto, *surrogate* relations underlie all of Ginastera's variation strategies and offer the most succinct explanation of which properties of the primary row remain the same and which are varied.

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[33] The discussion below of row *families*, sub-*families*, and super-*families* elaborates more on this point.

[34] See the *Preference Rules for Analysis* below.

Examples 3.8 and 3.9 shown below illustrate the power of *surrogate* relations to unite a limited number of row forms. Out of context, the rows in these examples appear to be different from one another. It is not hard, however, to imagine a compositional situation in which they might be manipulated to look, sound, and/or function like one another.[35] The primary motivation for the *surrogate* relations in both examples concerns the discrete tetrachords of the primary row. Each of these tetrachords represents a different set class. Two of these set classes, (0235) and (0123), recur at other uniform partitions in the primary row, one of which forms a pitch-class/ order-number isomorphism.[36] These rows thus have the potential to form invariances at different order-number partitions besides their tetrachordal *mosaic* profiles.

Example 3.8(a) provides a reference of the discrete tetrachords of the primary row, which is the same hypothetical row as before. In Example 3.8(b), P_0 and I_{11} (along with their respective retrograde forms) represent a P_x / $I_{(x-1)}$ pair of *surrogates* that exhibit invariant tetrachordal *mosaics* due to the mapping of each tetrachord onto itself under the same T_nI operation.[37] Significantly, these tetrachords also emerge from a uniform partitioning of the row into (*0235*) order-number partitions—that is, the row's (*0235*)-*derived* profile—and one of them forms a pitch-class/order-number isomorphism. There is only one way to uniformly partition a row into

[35] For example, rows that are related by certain partitioning schemes might be musically realized so that their invariant partitions are emphasized in a specific register, by a specific instrument, in conjunction with a specific rhythm, or as a structural component of a melody's contour (e.g., a compound melody or melodic "frame" like that indicated in Example 3.3(b) above). Several of these scenarios are addressed in the discussion of composing-out processes at the end of this chapter.

[36] In Ginastera's row classes pitch-class/order-number isomorphisms are oftentimes part of the motivation behind the *surrogate* row forms he chooses. For example, in the Piano Concerto and Violin Concerto, Ginastera draws upon *surrogates* for the primary row that are uniquely capable of either (1) holding invariant a specific pitch-class/order-number isomorphism (usually {*0369*}, {*0167*}, or {*056e*} in the Violin Concerto); or (2) allowing a discrete segment of the primary row (like the 8-note collection in the Piano Concerto) to appear reconfigured within a *surrogate* row form so that one or more partitions now emphasize pitch-class/order-number isomorphisms where they did not before. Both of these techniques are illustrated in the hypothetical scenarios of Examples 3.8 and 3.9.

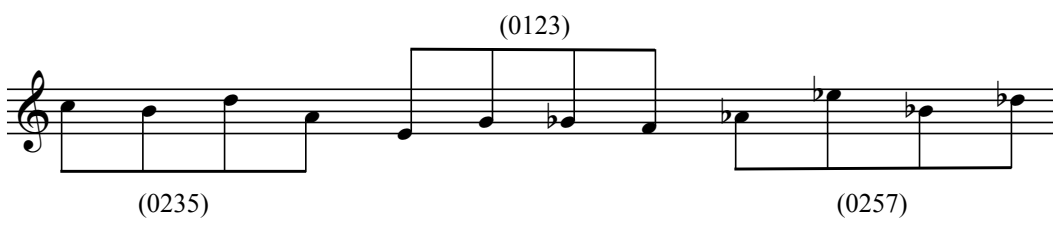
[37] P_x and $I_{(x-1)}$ row pairs are also capable of *surrogate* relations involving the isomorphic order-number partition *{0167}*. See the discussion of Example 3.10 below.

three instances of the octatonic subset (*0235*): two of the partitions must interlock at order numbers {*1346*} and {*578t*}, and the third must "wrap around" the row at order numbers {*029e*}.

The bottom of Example 3.8(b) identifies these partitions within two retrograde row forms, R_4 and RI_7. The "wrap around" partition, {*029e*}, is shaded gray and represents set class (0123); {*1346*} is indicated by a solid line below and forms an isomorphism with set class (0235); and {*578t*} is indicated by a dotted line above and represents set class (0257). For every R_x row form there exists an $RI_{(x+3)}$ row form that holds the pitch-class contents of these three partitions invariant. Furthermore, for every P_x / $I_{(x-1)}$ row pair there exists an R_x / $RI_{(x+3)}$ row pair (and their retrogrades) whose (*0235*)-*derived* profiles are invariant with the former pair's tetrachordal *mosaics*. The arrows in the middle of the example indicate the mappings of the first and third tetrachords of the P_x / $I_{(x-1)}$ pair onto {*1346*} and {*578t*}, respectively, of the R_x / $RI_{(x+3)}$ pair.[38]

Example 3.8 *Surrogates* involving (*0235*) partitions of the primary row

(a)



[38] Note that R_4 and RI_7, in comparison to their retrogrades P_4 and I_7, form a "stronger" (or more exclusive) *surrogate* relation to the primary row in the sense that the pitch-class contents of their {*1346*} and {*578t*} partitions remain generally "ordered" (left-to-right) with respect to the position of the primary row's discrete tetrachords from which they derive. The contents of the first tetrachord of P_0 stays "leftward" and maps onto {*1346*} of R_4 and RI_7, and the contents of the last tetrachord of P_0 stays "rightward" and maps onto {*578t*}.

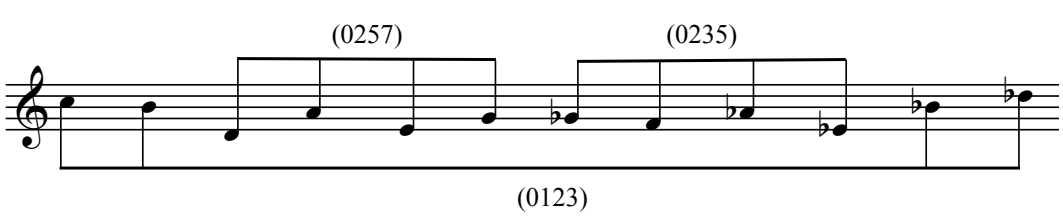
(b) P_x / $I_{(x-1)}$ tetrachordal *mosaics* are invariant with (*0235*)-*derived* profiles of R_x / $RI_{(x+3)}$

mosaic of **P_0**	0	e	2	9	4	7	6	5	8	3	t	1	**R_0**
mosaic of **I_{11}**	e	0	9	2	7	4	5	6	3	8	1	t	**RI_0**
	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*	
(*0235*) partitions of **R_4**	5	2	7	0	9	t	e	8	1	6	3	4	**P_4**
(*0235*) partitions of **RI_7**	6	9	4	e	2	1	0	3	t	5	8	7	**I_7**

Like the previous example, Example 3.9 shown below involves a set of *surrogate* row forms that are related to the primary row through a tetrachordal partitioning scheme that is different from, but related to, the row's discrete tetrachords. All three of these tetrachords, (0235), (0123), and (0257), are shown in Example 3.9(a) emerging from three (*0123*) order-number partitions other than the usual discrete tetrachords of the row (which were shown in Example 3.8(a) above). The row's discrete boundary tetrachords, (0235) and (0257), now appear in Example 3.9(a) in the opposite order and as adjacent segments in the center of the row—order-number partitions {*2345*} and {*6789*}. The row's discrete *cluster* tetrachord, (0123), now forms another isomorphism with the boundary dyads of the row—order-number partition {*01te*}. Example 3.9(b) shows two pairs of P_x / $I_{(x-1)}$ *surrogates*. The second pair is shown in retrograde order as R_6 and RI_5 because these forms maintain the relative order of the (0257) and (0235) tetrachords with respect to the primary row.

Example 3.9 *Surrogates* involving other (*0123*) partitions of the primary row

(a)



(b) P_x / $I_{(x-1)}$ and $R_{(x\pm6)}$ / $RI_{(x+5)}$ *surrogates*

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*	
(*0123*) partitions of **P_0**	0	e	2	9	4	7	6	5	8	3	t	1	**R_0**
(*0123*) partitions of **I_{11}**	e	0	9	2	7	4	5	6	3	8	1	t	**RI_{11}**

mosaic of **R_6**	7	4	9	2	e	0	1	t	3	8	5	6	**P_6**
mosaic of **RI_5**	4	7	2	9	0	e	t	1	8	3	6	5	**I_5**

In sum, the row forms in example 3.8(b) and 3.9(b) represent a collection of rows that exhibit *surrogate* relations with one another and therefore can be musically deployed as *surrogates* for one another.[39] These row collections form *row families*, which are defined immediately below. *Surrogate* relations help explain the association of rows based on conventional combinatorial properties like segmental invariance and also unconventional similarity relations like those involving *derived* profiles. The compositional usages of *surrogate* rows in Ginastera's works, especially as they pertain to his variation strategies, are discussed later in this chapter.

[39] N.B. *Surrogate* relations that involve complex partitioning schemes like those described here may not necessarily appear in the music as *derived* rows, per se, but rather as "ordinary" P_x, I_x, R_x, or RI_x rows with "extraordinary" musical realizations that emphasize these partitions in some manner. See also note 35.

Row Family

Generally speaking, a *row family* consists of two or more rows that exhibit the same *surrogate* relation(s) with one another. The terms sub-*family* and super-*family* refer to the relative number of row members within the *family*—the former assumes a higher degree of similarity among a smaller number of members (usually ≤ 4 rows) and the latter a lesser degree of similarity among a larger number of members (usually ≥ 8 rows). As in the traditional notion of a family, the number of members may be quite large (as in a super-*family*) and yet certain smaller groups (as in sub-*families*) within the *family* may be more closely related to one another than they are to the greater whole. Row members of a super-*family* tend to exhibit multiple *surrogate* relations. In contrast, row members of sub-*family* tend to exhibit a single, highly specific *surrogate* relation and usually one that takes into account the relative order of pitch-class relations.

One particular type of r*ow family* is the *index-number family*, which consists of four distinct row forms (P_x, I_x, R_x, and RI_x) that begin or end on the same pitch class (e.g., P_1, I_1, R_1, and RI_1 all begin or end on C♯/D♭).[40] Members of an *index-number family* may or may not participate in *surrogate* relations with one another. However, given Ginastera's penchant for *generated* and *partially-generated* rows—most of which involve inversionally symmetrical set classes arranged so that certain partitions form isomorphisms— the four members of an *index-number family* almost always form at least one type of *surrogate* relation with one another.

Example 3.10 illustrates how one particular row *family* is formed.[41] The primary row, shown in Example 3.10(a), is once again the same hypothetical row used in the examples above. The partitioning scheme of the row highlights one isomorphic order-number partition, {*0167*}, and two segments that constitute members of set class (0257). Because the row is hexachordally *generated* at T_6, this entire partitioning scheme will remain invariant—that is, the (0167) tetrachord will map onto itself and the two (0257) tetrachords will both map onto each other and

[40] Ginastera frequently employs a complete four-member *index-number family* at the beginning of his twelve-tone compositions, and this is the case in the opening *Cadenza* of the Violin Concerto. He also sometimes uses *index-number families* as a local organizational strategy that has large-scale consequences; see the discussion of Example 3.16 below, in which *index-number families* are used to compose-out a primary motive of String Quartet No. 2.

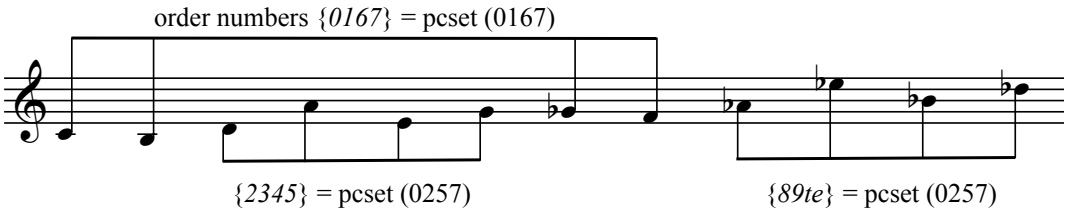
[41] This particular *family* is strictly limited to rows that are T_n-, I_n-, RT_n-, or RI_n-related to the primary row; theoretically speaking, however, a *family* may also be made up of *derived* rows that exhibit *surrogate* relation(s) with the primary row. See criteria (c) in the definition of *surrogate* relations above.

themselves under transposition and inversion—within eight rows forms. In other words, four row forms (plus their four retrograde forms) exhibit the same *surrogate* relation and thus form a *family* of rows that resemble each other.

Example 3.10(b) shows a matrix with the eight members of this particular *family* identified. The isomorphic partition is shaded gray, while pitch classes [2479] are indicated by solid lines and pitch classes [8t13] are indicated by dotted lines. The *family* consists of two T_6-related P_x row forms (and their retrogrades) and two T_6-related I_x row forms (and their retrogrades). Example 3.10(c) limits the eight-member *family* to a four-member sub-*family* whose members preserve the relative order of the two (0257) tetrachords. This sub-*family* includes the primary row and the three other rows that most resemble it; that is, those rows in which [2479] appears in the first hexachord and [8t13] appears in the second hexachord. The arrows in example (c) explicitly define the *surrogate* relation among row forms in a sub-*family* of this type. Any rows related by RT_6, $I_{(x-1)}$, or $RI_{(x+5)}$ have the potential to act as *surrogates* for one another because they all have the same (0167) isomorphic partition and they all have the same segments of (0257) appearing in the same relative order.[42]

Example 3.10 Row *family* with invariant {*0167*}, {*2345*}, and {*89te*} order-number partitions

(a)



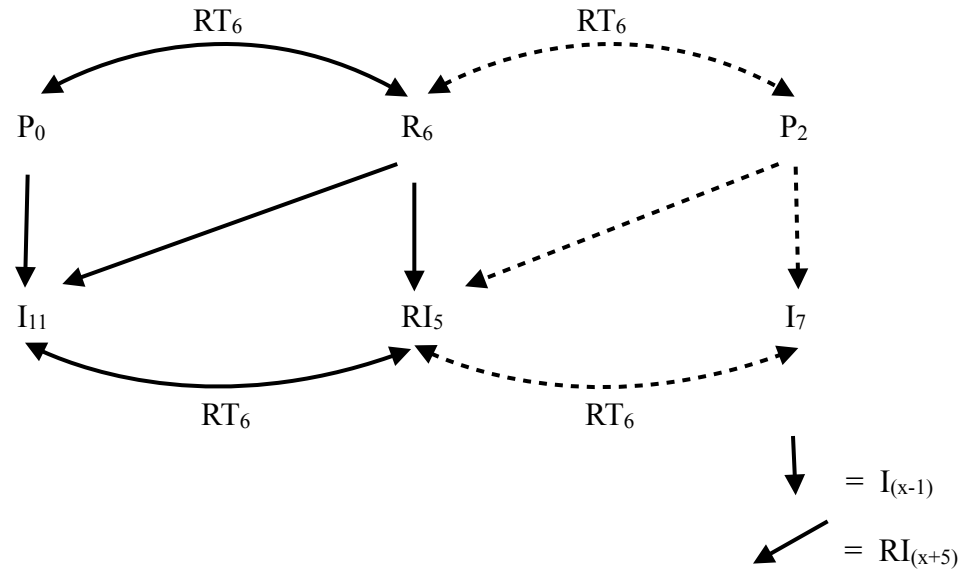
[42] Note that members of this sub-*family* exhibit other characteristics besides those highlighted in Example 3.10. All four members exhibit the same dyadic *mosaic* profile. Furthermore, the (*0123*) partitioning scheme of P_x / $I_{(x-1)}$ row pair—like that described in Example 3.9 above— will map onto the discrete tetrachordal *mosaics* of the $R_{(x \pm 6)}$ and $RI_{(x+5)}$ row forms. In other words, the row sub-*family* in Example 3.10(c) is made up of the same *surrogates* shown in Example 3.9(b), and these *surrogates* exhibit more than one type of structural similarity, per the partitioning schemes in Example 3.9(a) and 3.10(a).

(b)

		I_{11}						I_5				
P_0	0	e	2	9	4	7	6	5	8	3	t	1	R_0
	1	0	3	t	5	8	7	6	9	4	e	2	
	t	9	0	7	2	5	4	3	6	1	8	e	
	3	2	5	0	7	t	9	8	e	6	1	4	
	8	7	t	5	0	3	2	1	4	e	6	9	
	5	4	7	2	9	0	e	t	1	8	3	6	
P_6	6	5	8	3	t	1	0	e	2	9	4	7	R_6
	7	6	9	4	e	2	1	0	3	t	5	8	
	4	3	6	1	8	e	t	9	0	7	2	5	
	9	8	e	6	1	4	3	2	5	0	7	t	
	2	1	4	e	6	9	8	7	t	5	0	3	
	e	t	1	8	3	6	5	4	7	2	9	0	
		RI_{11}						RI_5					

= [56e0] = [2479] = [8t13]

(c)



Preference Rules for Analysis

The analytical approach used throughout this study follows three preference rules for interpreting and labeling row forms. Each rule dictates that the musical context is the ultimate deciding factor, and that, in general, it is best to choose the interpretation that is most musically intuitive and analytically revealing in terms of the underlying musical narrative. The first rule concerns choosing a row label with the most salient musical support. The second rule has two parts concerning whether or not (1) general pitch-class content is takes precedence over order and (2) pitch-class/order-number isomorphisms play a role in the music's motivic structure. The third rule concerns choosing a row label when the musical context is particularly ambiguous, as in passages with incomplete presentations and *derived* rows.

The need for these preference rules is warranted for two reasons. First of all, some scholars' analyses (especially as they concern row-form labels) differ in significant ways from the analyses presented in chapters 4 and 5 of this study and it is necessary to understand how these discrepancies come about.[43] Second of all, this study's discussion of composing-out and variation strategies necessitates an analytical approach that looks beyond the surface of the music and considers the presence of deeper-level structural continuities, which have the potential to be overlooked or obscured by the choice of row label.

[43] This study's analyses tend to differ from those in Wallace, "Alberto Ginastera: An Analysis of His Style and Techniques of Composition," (Ph.D. diss., Northwestern University, 1964); Fobes, "A Theoretical Investigation of Twelve-Tone Rows, Harmonic Aggregates, and Non-Twelve-Tone Materials in the Late Music of Alberto Ginastera," (Ph.D. diss., State University of New York at Buffalo, 2006); and idem., "Twelve-Tone Techniques in Alberto Ginastera's Violin Concerto," (Master's thesis, Bowling Green State University, 1998).

Preference Rule 1

It is preferable to consider the complete musical fabric and all its rhythmic, timbral, registral, dynamic, and articulative nuances so that each row label reflects a contextually salient interpretation. Given that saliency comes with a certain amount of subjectivity on the part of the analyst, some contexts may invite more than one interpretation. In general, the second preference rule should be invoked to reconcile possible differences in interpretation that arise from different criteria for saliency.

Preference Rule 2a

When general pitch-class content is contextually more important than order, it is preferable to assign a P_x or I_x label instead of an R_x or RI_x label.

Preference Rule 2b

In contexts where pitch-class invariance and/or order-number partitions play a significant role in the music's organization, it is preferable to assign a row label that best reflects such invariances.

Preference Rule 3

When interpreting incomplete row statements (or possible *derived* row forms) it is preferable to assign a row label (a) with which the presentation in question shares the largest ordered collection of pitch classes, or (b) from which the presentation in question can be most succinctly derived, considering all structurally significant order-number partitions. The label should also be in keeping with preference rules 1 and 2.

Variation Strategies

This section explores the role variation forms play in general in Ginastera's works (not just his serial works) and also summarizes some of the specific techniques and organizational strategies he uses in the variation forms of the Piano Concerto and Violin Concerto. After a brief discussion of Ginastera's employment of variation form, this section continues with three topics related to the variation strategies that are unique to his music. The first topic concerns Ginastera's use of the *Cadenza*, which appears in several of his twelve-tone works and acts as the "theme" proper in the theme + variation forms of both concertos. The second topic revisits the concept of *surrogate* relations defined above and examines the role they play in organizing row forms in both concertos. The third topic explores typical composing-out processes in Ginastera's twelve-tone music more generally and illustrates ways in which these processes relate to and support variation strategies at different structural levels.

To be clear, variation strategies in Ginastera's music are not limited to variation forms, per se. The homogenous characteristics of Ginastera's twelve-tone language—which include his tendency to use a select number set classes and *generated* row classes, and his affinity for symmetrical designs—contributes to a compositional environment wherein variation techniques are imperative in order to add musical interest. Variation, as both a strategy and a formal structure, provides a necessary sense of contrast in the face of overwhelming uniformity. Interestingly, as Ginastera experimented more and more with the twelve-tone method, he turned increasingly toward variation form instead of sonata form, which had proven useful in his earlier,

non-serial works.[44] In addition to the Piano Concerto and the Violin Concerto, variation sets appear as the first-movement forms in the following two works: the Concerto for Strings, Op. 33 (1965, rev. 1967) and the Piano Concerto No. 2, Op. 39 (1979), titled *32 Variazioni sopra una accordo di Beethoven*.[45] The Concerto for Strings is actually a recasting of four of the five movements of Ginastera's first complete twelve-tone work, the String Quartet No. 2, Op. 26 (1958, rev. 1968): the quartet's theme + variations fourth movement is repurposed as the first movement of the concerto, while the quartet's original sonata-form first movement is entirely omitted from the later work.[46]

The variation forms of the Piano Concerto and Violin Concerto are, in some respects, similar. They both constitute "virtuoso variations," which rely on the instrumental prowess of the soloist and orchestra members in order to execute elaborate ornamental variations. Indeed, Ginastera places extraordinary technical demands on all instruments and these demands are

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[44] Prior to his adoption of the twelve-tone method, Ginastera used variation form in only one work, his oft-performed *Variaciones concertantes*, Op. 23 (1953). This work exemplifies Ginastera's increasing interest in "concertante" style, a style he would continue to draw upon in his symphonic and chamber works alike and as he turned to twelve-tone composition toward the end of the decade. The work's eleven variations are devoted to the solo virtuosity of individual instruments. Two later non-serial works, *Glosses sobre temes de Pau Casals*, Op. 46 (1976)—recomposed for full orchestra and published the following year as Op. 48—and *Variazioni e Toccata sopra "Auroro luci rutilat"*, Op. 52 (1980), also use variation form but in different ways. The five "glosses" on Casals's themes are not a set of theme + variations in the conventional sense but rather decorative variations (or elaborations) in the musico-historical sense. The *Variazioni e toccata* for organ is more conventional; however, it begins unusually with the first of twelve variations and reveals the *Largo* theme only at the end of the piece, after the toccata.

[45] This work is now out of print, but it can be heard on a 2010 recording of all three of Ginastera's piano concertos (including his early, unpublished *Concierto argentino*) performed by Barbara Nissman and the University of Michigan Symphony Orchestra under the direction of Kenneth Kiesler. Interestingly, Ginastera published an article many years earlier in which he praised Beethoven as the master of variation form, possessing "an instinct for developing a musical idea in different ways, to find all the possibilities offered by a theme to draw from its purest essence (translation mine)." ["En efecto, Beethoven poseía un instinto especial para desarrollar una idea musical" de distintas maneras, para buscar todas las posibilidades que ofrece un tema hasta extraer de él su esencia más pura."] Ginastera, "La variación en Beethoven," *Ars* 15, no. 70 (1955), no page numbers.

[46] Composing-out processes in this variation form, including ways in which the primary theme is derived from the original sonata-form movement, are discussed below; see Example 3.13.

oftentimes part of the underlying variation strategy.[47] The variation strategies in both concertos also rely on *surrogate* row forms in order to vary the "theme." However, it is Ginastera's concept of "theme" that differs substantially between the two concertos. The Piano Concerto features a fairly conventional theme, with an established rhythmic and melodic-motivic profile. The ten variations that follow recall this theme in more or less readily recognizable guises, even while promoting various *surrogate* row forms. The Violin Concerto, on the other hand, does not feature a theme in the conventional sense; instead, the movement begins with a seemingly ad hoc collection of fragmentary motivic gestures that are structurally related to the primary row. Thus, each of the six variations focus not on varying one thing—that is, one theme—but rather on varying several different properties of the row that are represented by these fragmentary motives. The variation strategies in the Violin Concerto are like "developing variations" in the sense that each variation gathers musical meaning through its relationship to the surrounding variations as well as to the motives presented in the opening *Cadenza*.[48]

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[47] Tremolo figures, rapid grace-note figures and other rhythmic complexities, harmonics, quarter tones, double, triple, and quadruple stops in the strings, and registral extremes in all instruments are just a few of the advanced techniques Ginastera uses as the basis of some of his variations. Many of these characteristics are typical of 20th-century concertos and variation forms in general. See the discussion of Ginastera's works in the context of other contemporary composers in Steven Smith, "The Piano Concerto After Bartók: A Survey for Performers of the Piano Concerto Literature with Emphasis on the Postwar Era, 1945–70," (D.M.A. diss., The University of Rochester, Eastman School of Music, 1978) and Lucius Reynolds Wyatt, "The Mid-Twentieth-Century Orchestral Variation, 1953–63: An Analysis and Comparison of Selected Works by Major Composers," (Ph.D. diss., The University of Rochester, Eastman School of Music, 1973).

[48] Carballo observes similar variation strategies in the *Variaciones concertantes*, Op. 23 (1953), noting that "instead of always developing the theme, some variations concentrate on a specific feature presented in the theme [and still others] develop a feature presented in a previous variation (variation of the variation)." See Carballo, "*De la pampa al cielo*: The Development of Tonality in the Compositional Language of Alberto Ginastera," 178.

Role of the Cadenza

The *cadenza* is a formal function that recurs in several of Ginastera's twelve-tone works. The characteristics historically associated with the *cadenza* fit well with his compositional style. These characteristics include (1) solo virtuosity and ornamental display, (2) a motivically-driven sectional form that shifts frequently and abruptly from section to section, (3) a sense of rhythmic freedom or improvisation, and (4) the special use of tutti forces to punctuate the music's most essential motives. More than providing a framework for these surface-level characteristics, the *cadenzas* in Ginastera's music tend to act as "nexus" points from which all the music's material is drawn.[49] The *cadenzas* in the Piano Concerto and Violin Concerto appear at the very outset of each work, fulfilling the role of the "theme" proper in each variation form. They provide the music's basic motives, including those that make up the primary row, those that are derived from it, and those that are non-serial, appearing in opposition to the row's basic structure.

The role of "nexus" point as embodied by Ginastera's *cadenzas* is evident in the composer's longstanding employment of rhetorically charged introductory sections, which appear in several of his ensemble works, including those that are not expressly serial. The first movement of the non-twelve-tone String Quartet No. 1, Op. 20 (1948) begins with a forceful six-measure tutti gesture punctuated by fermatas and measure-long silences.[50] The short but powerful introductory gesture constitutes the *basic motive* and is analogous to the primary row

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[49] The *cadenza* as "nexus" point is a concept borrowed from Alegant and Mead's research on the *cadenzas* in Schoenberg's Violin Concerto and Piano Concerto. Although Schoenberg's *cadenzas* appear more conventionally towards the ends of his concertos, they serve similar functions, only in retrospect. Alegant and Mead observe that "the final cadenza of [Schoenberg's] Violin Concerto serves as a summary for the entire work, just as the opening cadenza encapsulates the events of the first movement," and that the "second cadenza of [Schoenberg's] Piano Concerto functions in a similar manner: the orchestral tutti recasts the events of the solo piano cadenza and brings to a culmination several other partitioning strategies that pervade the work." See Alegant and Mead, "Having the Last Word: Schoenberg and the Ultimate Cadenza," 107.

[50] This introduction is reproduced as Example 2.12(b) in the previous chapter.

presented at the beginning of most of Ginastera's twelve-tone works. This *basic motive* acts as a source collection, containing within its structure the fundamental intervallic, melodic, harmonic, and rhythmic elements of the entire quartet.[51] In the first movement of the String Quartet No. 2, Op. 26 (1958, rev. 1968), Ginastera once again employs a prominent five-measure tutti introductory gesture, which is part of a much larger introduction section (mm. 1–23). As in his first quartet, this opening gesture acts as a source collection from which subsequent material is drawn. And although the introduction in the second quartet is based on a presentation of the primary row, Ginastera's liberal handling of the row betrays specific pitch classes and intervallic combinations that prove to be most influential to the other four movements of the quartet.[52]

The *cadenza* as "introduction" is also evident in the Piano Quintet, Op. 29 (1963), which was composed between the Piano Concerto and Violin Concerto. The first of the Piano Quintet's seven movements is titled *Introduzione* and functions like a tutti "nexus" point, providing the basic motivic materials for the work's even-numbered *cadenza* movements—II. *Cadenza I per viola e violoncello*, IV. *Cadenza II per due violini*, and VI. *Cadenza III per pianoforte*.[53] Ginastera utilizes a similar instrument-specific format for the theme + variations first movement in the Concerto for Strings, Op. 33 (1965, rev. 1967). In this case the movement's multiple *cadenza*-like solos function as individual variations and the first of these solos functions as the

[51] For a more thorough investigation of this introduction, see the discussion of "source collections" in Barnett, "Alberto Ginastera's String Quartets Nos. 1 and 2: Consistencies in Structure and Process," 25–36.

[52] The first five measures of this introduction and its influence on subsequent movements are discussed in conjunction with Examples 3.13 and 3.15–16 below.

[53] Excerpts from the *Introduzione*, *Cadenza I*, and *Cadenza II* are discussed in conjunction with Examples 2.1 and 2.7 in the previous chapter.

"nexus" point theme.[54] The opening *tema*, while engaging the entire ensemble, is centered around a violin I soloist. The following four variations feature a different soloist from each of the string sections—in the order, cello, violin II, viola, and double bass.[55] As in the Piano Concerto and Violin Concerto, Ginastera's general inspiration for variation form in the Concerto for Strings is predicated on the melodic-motivic, rhythmic, and all-around ornamental "freedom" of the solo *cadenza*, coupled with its power to interact meaningfully with tutti forces.

Role of Row Surrogates

Like the *cadenza*, *surrogate* rows are part of the motivating impetus behind the narratives of Ginastera's variation forms. They are frequently featured as substitutes for the primary row within individual variations; however, it is also common for certain *surrogate* relations that prove to be essential to the entire movement to be first introduced in the *cadenza*. For instance, the opening *cadenzas* of both the Piano Concerto and the Violin Concerto introduce variation strategies—namely, *surrogate* relations—that are later realized on a larger scale in the variations that follow. These relations vary in complexity from index-number *families* to rows with invariant isomorphic partitions. What all *surrogate* relations have in common, however, is their

[54] The overview of "variation strategies" above explained that the first movement of the Concerto for Strings is actually a recomposition of the fourth movement of the String Quartet No. 2. Attributes of this theme + variations form, as it originally appeared in the String Quartet No. 2, are discussed in Barnett, "Alberto Ginastera's String Quartets Nos. 1 and 2: Consistencies in Structure and Process," 24–25. See also the discussion of the theme in Example 3.13(b) below.

[55] Per the previous note, the final variation for double bass is newly composed with respect to the original string quartet version.

ability to be compositionally employed in ways that contribute to the music's variety and reinforce its underlying organizational strategies.[56]

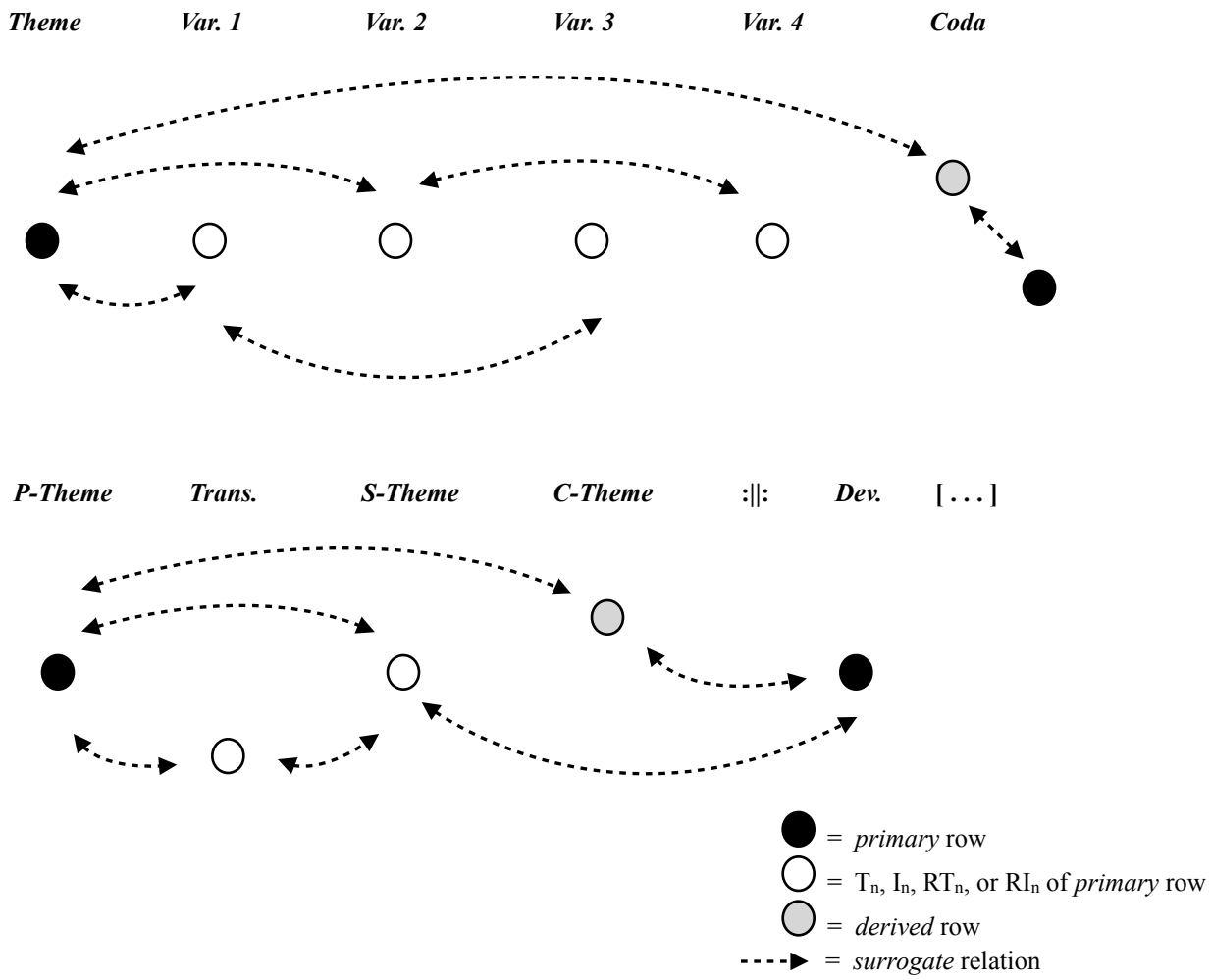
The real value of *surrogate* relations lies in their compositional and analytical flexibility. As similarity relations, they have the potential to draw connections between multiple row forms and even different row classes. Example 3.11 illustrates the associative power of *surrogate* relations in the context of two hypothetical formal models: a theme + variation set appears at the top of the example and the exposition of a sonata form appears at the bottom. The *surrogate* relations, which are indicated by dotted lines, are not explicitly identified by type because the example is not meant to reflect how each *surrogate* relation is formed nor how exclusive each is, but rather to reflect the role each *surrogate* relation plays in the formal narrative of the piece. Naturally, both scenarios are merely hypothetical and could, in context, vary greatly in size, scope, and degree of interconnectedness.

Within the theme + variations scenario, all four variations introduce a row form that is a *surrogate* for the primary row presented in the opening theme. Furthermore, the odd-numbered and even-numbered variations are interlocked by their own *surrogate* relations. The *coda* marks the return of the primary row, which, in this scenario, is prefigured by a *derived*-row *surrogate.* The hypothetical row organization of the sonata-form exposition follows a similar narrative as the variations above, but the formal units are obviously more prescribed. Here, the imagined formal plan involves a transitional *surrogate* row that is related to both the primary and secondary themes, which are also *surrogates* for one another. The closing theme, like in a

[56] The observations this study makes with regard to the organization of *surrogates* are, in part, related to similar observations Milton Babbitt has made with respect to "structural orchestration" and "form" in Schoenberg's music. The combinatorial properties of *surrogates* in Ginastera's music, as in Schoenberg's, are always contextually supported by multiple musical parameters—register, timbre, rhythm, etc. See Babbitt, "Set Structure as a Compositional Determinant," *Journal of Music Theory* 5 (1961): 72–94.

classical sonata, is perhaps based on motives from the primary theme and, therefore, in this scenario utilizes a *derived* row form that is also based on the primary row. The development in this hypothetical model begins with a *surrogate* row that is related to both the primary theme and the *derived*-row closing theme.

Example 3.11 Hypothetical *surrogate* relations in a sonata exposition and theme + variations



Although the formal models in Example 3.11 are hypothetical, they still hint at the possibilities Ginastera must have at least considered as he developed his twelve-tone language. Interestingly, the changes in his approach to pitch structure are met with changes in his approach

to form. The first movements of several of Ginastera's early works, including his Piano Sonata No. 1 and his String Quartets Nos. 1 and 2, adhere (remarkably clearly) to the conventional sonata formal model, consisting of an exposition with two or three themes, a development that is motivically driven, and a recapitulation that reprises the main themes and "resolves" any unfinished tonal and/or motivic strategies. Ginastera abandons this sonata model entirely in his 1960s twelve-tone works and instead adopts the theme + variations model. There are two possible explanations for this change and they are not mutually exclusive. The first explanation is that Ginastera might have found the traditions of virtuosic embellishment associated with the concerto more readily adaptable to the "freer" variation model. The second explanation is that his twelve-tone language might have been developing in ways he found were less suited to the strict confines of sonata form and more suited to the boundless potential of variation form.

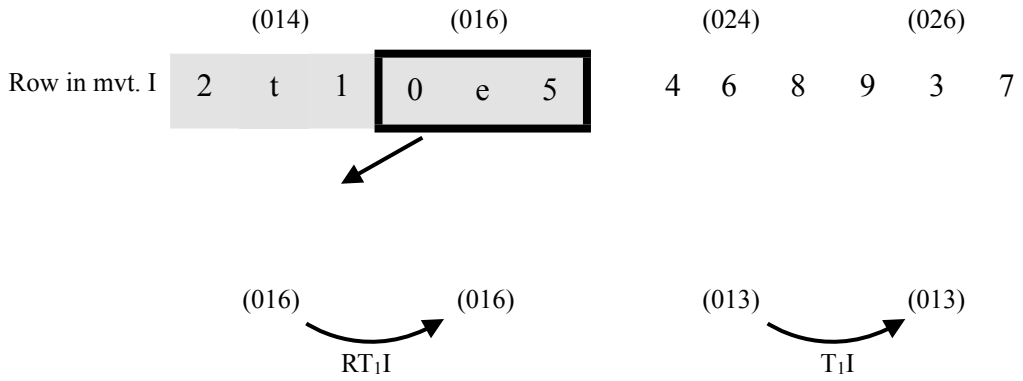
Surrogate relations become increasingly common in Ginastera's twelve-tone language, especially after he adopted the variation formal model. Compositional precedents for *surrogates*, however, exist in the composer's first twelve-tone work, the String Quartet No. 2. In this five-movement work, Ginastera began experimenting with multiple rows that resemble each other structurally—or, more specifically, secondary rows that appear to be variations on the primary row.[57] Example 3.12 illustrates the structural similarities between the primary row of the quartet's first movement and the row that recurs throughout the third movement.[58] The row class in the first movement is unusual in that it consists of four different discrete set classes. In contrast, the row in the third movement is *partially-generated* by (016) and (013) trichords and

[57] Example 3.1 at the beginning of the chapter also pointed out structural similarities between secondary rows in Ginastera's twelve-tone opera, *Don Rodrigo*.

[58] The third movement is a *scherzo* with two trio sections and its form is discussed in more detail below; see Example 3.16.

thus resembles the types of *generated* row classes Ginastera tends to prefer in his later serial works. The first trichord of the third movement's row is invariant with the second tetrachord of the first movement's row. Furthermore, the rows' hexachordal *mosaics* are nearly invariant, differing by a single exchange of pitch-class "t" for pitch-class "8" (see the shaded portions of each row). The row in the third movement thus appears to be a variation on—or perhaps a *surrogate* for—the primary row.

Example 3.12 Row relations in the String Quartet No. 2, Op. 26 (1958, rev. 1968)



Ginastera's tendency to exploit the properties of a row that give rise to *surrogate* relations is particularly remarkable and, in the theme + variation formal contexts of both the Piano Concerto and the Violin Concerto, *surrogate* rows play a key role in providing the necessary aesthetic balance between consistency and change—resemblance and reinterpretation. One of the variation strategies first suggested in the *Cadenza* of the Piano Concerto includes the use of *derived* rows. In the opening few measures of the *Cadenza*, Ginastera makes the malleability of the primary row apparent by presenting the aggregate twice in immediate succession and in two different harmonic configurations. The *surrogate* relation between these two configurations is based on a mutable contiguous 8-note collection of the row and, by extension, the invariant

(0167) tetrachord that remains after the 8-note collection is extracted. As Hanson observes, "the tetrachord *content* rather than the specific *ordering* of the notes is the unifying compositional factor, from which materials for the rest of the movement are derived."[59] Noting the ambiguity such a compositional premise creates, Hanson concludes that "row segmentation [is the] organizing principle rather than row serialism."[60] Thus, the *surrogate* relations described in the following chapter, which deals exclusively with the Piano Concerto, largely rely on invariant *mosaic* profiles shared by members of a row *family* and the *derived* partitioning schemes certain members within that *family* are capable of.

In contrast, the *surrogate* relations in the Violin Concerto are largely dependent upon the row's strict *generated* structure. Some *surrogates* are defined by hexachordal and trichordal invariance, creating conventional combinatorial *families* of rows and substantially narrowing the number of unique row forms. Other *surrogate* relations are determined by the row's ability to hold invariant certain pitch-class/order-number isomorphic partitions or map these partitions onto other isomorphic partitions under transposition or inversion. The most musically significant isomorphisms involve order-number partitions {*0167*}, {*056e*}, and {*0369*}—that is, set classes that are hallmarks of Ginastera's twelve-tone language. Though Ginastera's variation strategies may differ from piece to piece, and even from variation to variation within a single work, *surrogate* relations are always as integral part of the music's organization.

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[59] Hanson, "Macroform in Selected Twentieth-Century Piano Concertos," 123. Emphasis mine.

[60] Ibid., 126.

Composing-Out Processes

This final section explores the manner in which multiple rows, especially *surrogate*-related rows, form connections with one another on deeper levels of the music's structure. Composing-out processes in post-tonal music can take many shapes.[61] In Ginastera's music, composing-out processes appear in varying degrees of abstraction, from localized motivic associations to entire formal plans based on the large-scale projection or migration of a single motive. Some composing-out processes involve *surrogate* relations and/or *derived* rows, the partitioning schemes of which oftentimes result in the middleground emergence of significant larger collections like the octatonic, 8-note, and aggregate. The concept of *constellations*, referenced in the title of this study, is instructive in the following discussion of different composing-out processes. The many shapes that composing-out processes take, whether obvious or obscure, is akin to the many types of *constellations*—some, more than others, may be "brighter" or "clearer," so to speak, but all are a part of larger organizational strategies. These strategies are always contextually supported by the music's most salient characteristics and thus enhance one's listening experience.

Example 3.13 shows two excerpts from Ginastera's Sting Quartet No. 2, both of which illustrate composing-out processes that lie nearer to the surface of the music. The tutti introduction, shown in example (a), presents the primary row of the piece. This presentation

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[61] Composing-out (*Auskomponierung*) and the related topics of enlargement (*Vergrößerung*) and concealed repetition (*verborgene Wiederholung*) are concepts typically associated with Schenkerian analysis and issues of prolongation in tonal music. This study, given its twelve-tone subject matter, does not recognize prolongational relationships in Ginastera's music but rather *associational* relationships. A great deal of scholarship deals with this differentiation; among others, see Straus, "The Problem of Prolongation in Post-Tonal Music," *Journal of Music Theory* 31, no. 1 (1987): 1–22 and Alegant and McLean, "On the Nature of Enlargement," *Journal of Music Theory* 45, no. 1 (2001): 31–72. More recently, Straus has identified eight ways in which motives in post-tonal music may be composed-out. All of these techniques involve "projecting the motives of the musical surface into the deeper levels of structure, deploying them over significant time spans"; see Straus, "Atonal Composing-Out," 31.

includes three instances of repeated pitch classes (indicated by circles in the example), which result in (016) and (027) trichords that are not discrete segments within the second hexachord of the row.[62] The repeated pitch classes, B♭ and C♯, are members of the accentuated head motive in m. 1; more importantly, their repetition in mm. 3–4 allows for two statements of (016)—a structural motive that recurs throughout the quartet—and subtly shifts the last member of the row, G, to the downbeat in m. 5, where it is repeatedly emphasized for the remainder of the 23-measure introduction. The melodic frame of this opening phrase composes-out a large-scale (016) trichord, consisting of the first, longest, and last notes (D, C♯, and G). In Example 3.13(b), the same trichord, made up of the same three pitch classes in a different order, is composed-out again as the melodic frame of the theme + variations fourth movement. G is now emphasized at the beginning and end of the phrase and is repeated throughout. D and C♯ are emphasized by their proximity and gestural contour: the melody descends incrementally to D and then ascends immediately to C♯, which is held at length as it was in Example 3.13(a).

The structural relationships shared by both melodic excerpts in Example 3.13 are similar to the types of *surrogate* relations found in the Piano Concerto and Violin Concerto. The relative "looseness" with which Ginastera presents the primary row in the String Quartet No. 2 draws attention to (016), a motive he returns to in the non-serial fourth movement. In the grander scheme of things, Ginastera does more than just return to this motive: he subjects it to a series of variations in which each instrument has a chance to reimagine the motive in a *surrogate* sense.[63]

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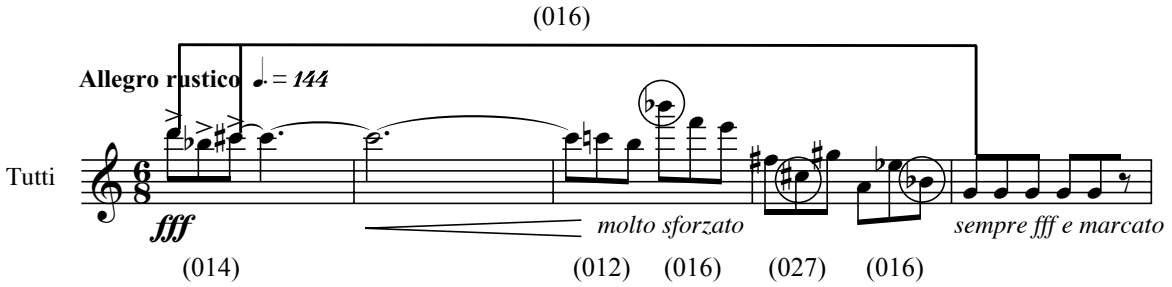
[62] The structure of this row is discussed in Example 3.12 above. The lengthy tied C♯ in Example 3.13(a), coupled with the compound meter, also introduces set class (012) in m. 3, which is not one of the four discrete trichords of the row.

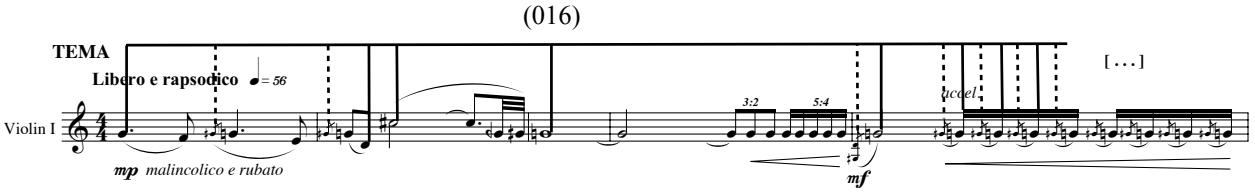
[63] The reader will recall that the theme + variations fourth movement of the String Quartet No. 2 was evidently meaningful enough to Ginastera that he recomposed it as the first movement of his Concerto for Strings, Op. 33 (1965, rev. 1967). See the discussion of the *Role of the Cadenza* above.

Example 3.13 Melodic composing-out processes in the String Quartet No. 2, Op. 26, I and IV

(a) Melodic frame of mvt. I composes-out (016)



(b) Melodic frame of mvt. IV composes-out the same (016)[64]



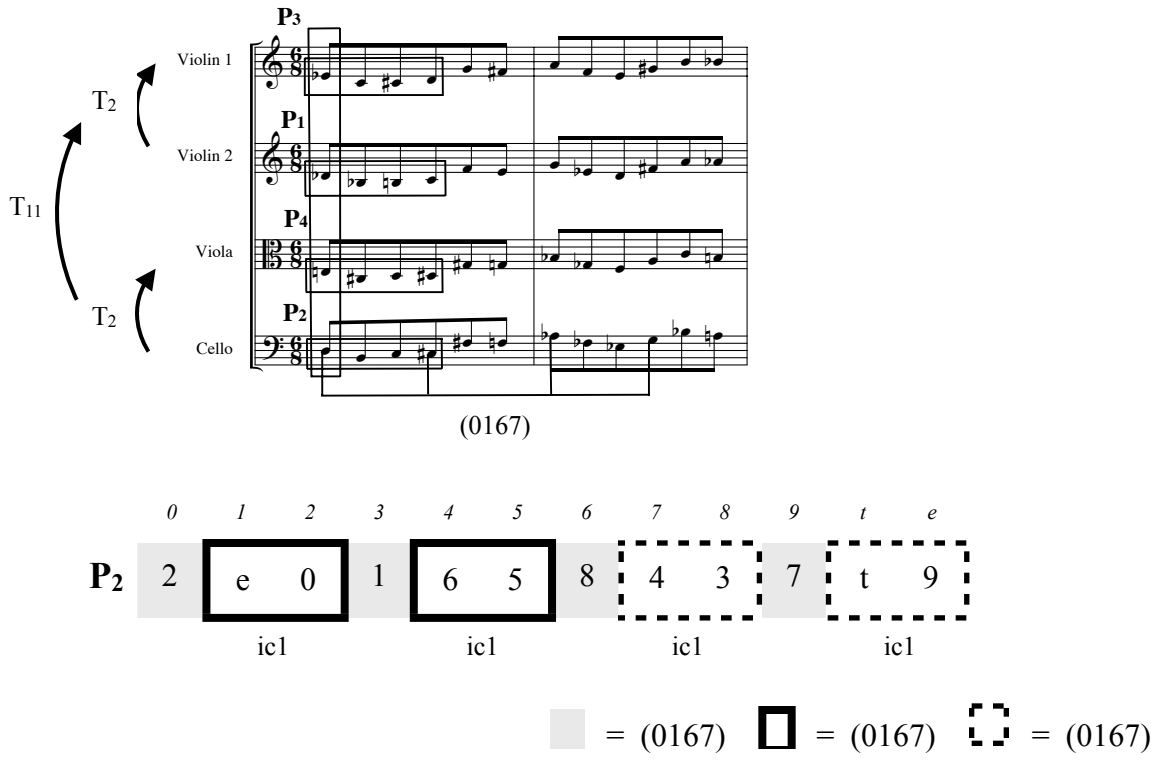
Composing-out processes also contribute to the local-level organization of multiple row forms in Ginastera's music. Example 3.14 shows the opening measures of the Piano Quintet's finale. The four string instruments are each assigned a different prime row form and the rows are registrally paired so that the cello and viola sound a whole step (T_2) apart, the first and second violins also sound a whole step apart, and both pairs sound a major seventh (T_{11}) apart. This configuration of four different rows draws attention to two structural features. First of all, ic2, which is not available as an adjacent interval within the row, is projected by the transpositional relations between the instrumental pairs. Second of all, each and every simultaneity—that is, every harmonic "slice" of the music—results in a (0123) *cluster* tetrachord, which is the first discrete tetrachord of the row and one of the Quintet's most pervasive motives. (The boxes in

[64] The dotted lines in this example indicate the recurrences of a G♯ (quarter tone), which both emphasizes G as the governing pitch of the passage and also suggests a composing-out of (0167). This tetrachord is a particularly prominent motive in the quartet, especially in the first movement, where it forms the basis of the secondary theme; see Example 2.13 in the previous chapter.

Example 3.14 indicate *clusters*.) Thus, Ginastera's choice of rows and his paired configuration of these rows composes-out a structural feature of the row harmonically.[65]

From a melodic perspective the rows in Example 3.14 are presented in a manner that emphasizes another structurally significant motive in the Quintet: (0167). This tetrachord emerges from order-number partition {*0369*} of the row and is emphasized by the music's compound meter. The cello's row, P_2, is shown at the bottom of the example and is annotated to show that ic1 within each discrete trichord reveals the emergence of two other uniform instances of (0167) in either hexachord. The partitioning scheme shown here is later used as the basis of motives in other sections.

Example 3.14 Harmonic composing-out processes in the Piano Quintet, Op. 29 (1963), VII



[65] A similar instance of this type of composing-out occurs in Act III, Scene 8 of *Don Rodrigo*: after the messenger collapses on stage, protesting the "river of blood" in the final battle scene, the orchestra enters with Rodrigo's row (shown in Example 2.20(b)) harmonized at four different transpositions—P_0, P_6, P_{11}, and P_5—that together compose-out set class (0167).

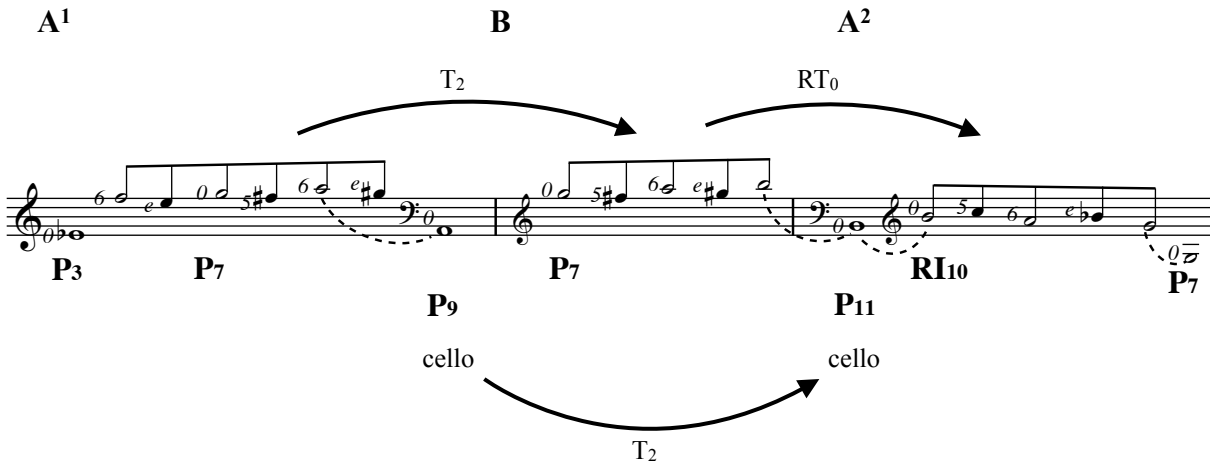
The next two examples illustrate larger-scale organizational strategies that involve entire movements. Example 3.15(a) is a reduction of prominent order-number partitions, including the row forms from which they derive, in the slow second movement of the String Quartet No. 2. The ternary form of the movement is indicated at the top of the example and the row forms within each section are shown at the bottom. The "primary" row of the movement is shown in Example 3.15(b): its "primary" distinction is debatable, given that P_7 is the only row form that recurs in all three sections. In any case, the pitch structure of P_3 is a crucial part of the composing-out processes in this movement and is linked more abstractly to the first movement of the quartet. The first, second, and fourth discrete trichords are all members of set class (037) and the third trichord represents set class (016)—one of the quartet's most ubiquitous motives discussed in Examples 3.12–13 above. The three most prominent row forms in the A^1 section, P_3, P_7, and P_9 shown in Example 3.15(a), derive from the first pitch class of each discrete trichord in P_3—3, 7, and 9. Furthermore, these three pitch classes are invariant with the final trichord of the first movement's primary row (see Example 3.12 above).

The cello's two unaccompanied solos further contribute to the articulation of the movement's ternary form. As the bottom of Example 3.15(a) shows, these solos appear in the framing A sections: P_9 is presented in A^1 and P_{11} is presented in A^2. The large-scale T_2 transposition that relates the two rows is prefigured in the motivic composing-out processes within each section. The most prominent structural motives in this piece involve *cluster* tetrachords derived from order-number partition {*056e*}.These motives are beamed within each section of the reduction and are indicated by order numbers. Significantly, all of the partitions shown below are "elongated" on one side or the other so that each {*056e*} *cluster* motive

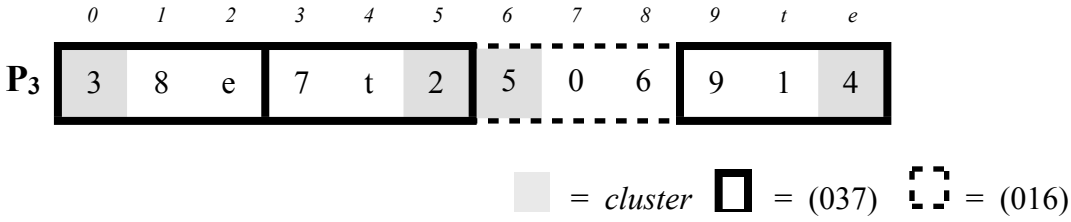
actually contributes to middleground motion by whole step. The first motive begins with {*6e*} of P_3 and is joined by {*056e*} of P_7 so that the middleground gesture ascends F-G-A. The second motive—G-A-B, which appears in the B section and forms the climax of the piece—begins T_2 higher than before, prefiguring the cello's large-scale T_2 motion: the motive begins with another projection of {*056e*} of P_7 and concludes with one more whole step that foreshadows the arrival of the cello's P_{11} at the beginning of the A^2 section.[66] When the stepwise motive recurs for a final time in the A^2 section, it appears in retrograde (B-A-G) and is invariant with the structural motive in the B section. Ginastera thus chooses RI_{10} in the A^2 section because the {*056e*} partition of this row reverses the *cluster* motive and links seamlessly to the beginning of P_7.

Example 3.15 Deeper-level composing-out processes in the String Quartet No. 2, Op. 26, II

(a)



(b)



[66] This climatic partition involving *{056e}* of P_7 is also shown in Example 3.3 above.

Example 3.16 returns again to Ginastera's String Quartet No. 2 and illustrates how multiple row *families* in the third movement participate in composing-out processes on the deepest levels of the music's structure. The third movement of the quartet is a *scherzo* with two trios; the overall form thus resembles a five-part rondo (ABACA) and features subtle but distinct variations among the individual A sections. These variations are primarily effected by row *families*, which are listed below each formal section in Example 3.16(a). The three refrain sections consist specifically of three different index-number *families*. The primary row, P_0, along with the other three members of its index-number *family*, form the A^1 section, and part of that same *family*, P_0 and I_0, forms the final A^3 section. Both of these sections emphasize pitch-class C, which, in context, is repeated several times and consistently recurs in the lowest register, often presented by the cello. In contrast, the central A^2 section features the interaction of two T_6-related index-number *families*: index-number 11 appears as a complete *family*, wherein pitch-class B is contextually emphasized by all members, and index-number 5 is represented by its two retrograde forms, wherein pitch-class F, the last pitch-class of both rows, is contextually emphasized.[67] Given the emphasis of their respective pitch-class centers, these three row *families* compose-out a large-scale (016) trichord; more specifically, the emphasized pitch classes within each *family* compose-out the first trichord of the primary row (shown in Example 3.16(b)).[68]

Ginastera's use of these three particular index-number *families* is not restricted, however, to their collective participation in composing-out the row's primary motive. Certain rows also

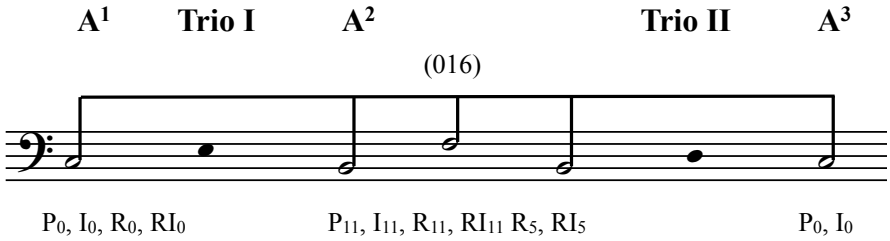
[67] Note that the row itself spans a tritone from its first pitch class to its last; thus, the T_6 relation between index-number *families* 11 and 5 ensures that all row forms within these two *families* share the exact same boundary pitch classes, B and F.

[68] The *partially-generated* structure of this row is discussed in Example 3.2(b) above. See also the discussion of Example 3.12, which illustrates how this row, and especially its first trichord, are derived from the primary row of the quartet's first movement.

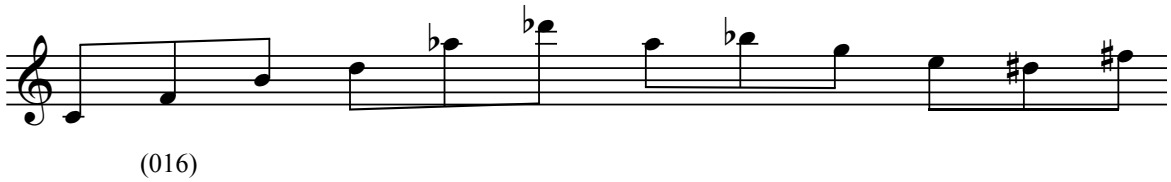
form *surrogate* relations with rows outside of their index-number *family* and thus add a sense of unity to the unusually different refrain sections. Even though Ginastera departs from the primary row's index-number *family* in the A^2 section, he significantly begins this section with P_{11}, a row whose hexachordal and trichordal *mosaic* profile is invariant with the inversional forms of the primary row, I_0 and RI_0. Example 3.15(c) compares the final row of the A^1 section, RI_0, with the first row of the A^2 section, P_{11}. The second refrain begins with the same ordered hexachord that ended the first refrain. Naturally, the second hexachord of P_{11} is also invariant with the first hexachord of RI_0, but in P_{11} the pitch-class members within each trichord appear in retrograde order in comparison to RI_0.

Example 3.16 Composing-out processes involving row *families* in the String Quartet No. 2, III

(a)



(b)



(c)

RI_0	6	9	8	5	2	3	e	4	t	1	7	0
P_{11}	e	4	t	1	7	0	8	9	6	3	2	5

Conclusion

The terminology and preference rules for analysis defined in this chapter are all critical to understanding Ginastera's twelve-tone language, especially as it manifests itself in the contents of the Piano Concerto and Violin Concerto. Twelve-tone organizational strategies like those discussed in the examples above are certainly not unique to Ginastera's music.[69] The composing-out processes that contribute to the music's organization may unfold in a myriad of ways—some more explicit and some more abstract. Significantly, composing-out processes are characteristic of Ginastera's compositional approach in general. The examples above especially focus on his approach to form and pitch structure in the String Quartet No. 2, Op. 26 (1958, rev. 1968) and the Piano Quintet, Op. 29 (1963), two works from the period during which he was working on both concertos.

As the following analytical chapters will demonstrate, organizational strategies in the Piano Concerto and Violin Concerto are expressly designed to add support and cohesion to the theme + variations formal model. Composing-out processes in these works are thus largely effected by the organization of *surrogate* row forms, which inspire a sense of variety that is mirrored on multiple levels of the music's structure. Where the processes illustrated in this chapter compose-out smaller motives on the music's middleground, like (016) and tetrachordal

[69] One notable example comes to mind: the large-scale organization of row *families*, like those shown in Example 3.15, is also a feature of Schoenberg's Piano Concerto. Several scholars have noted that the succession of hexachordal regions in Schoenberg's Concerto is based on a series of pitch classes in the primary row—certainly what this study would consider to be an example of composing-out. Among others, see Alegant and McLean, "On the Nature of Enlargement," 47–49; Alegant and Mead, "Having the Last Word: Schoenberg and the Ultimate Cadenza," 123; and also Mead, "Twelve-Tone Organizational Strategies: An Analytical Sampler," 103–128

clusters, the organization of *surrogate* rows in the concertos tends to compose-out larger collections like the octatonic, 8-note, and even the aggregate.[70]

Three Myths About Serialism

To put into perspective the characteristics of Ginastera's twelve-tone language that have been explored in the present and previous chapters, the following commentary briefly invokes three of Straus's myths about serial music.[71] These myths address common misunderstandings about twelve-tone music in general. The three myths below help to contextualize our understanding of the flexibility and ingenuity of Ginastera compositional approach and, by extension, they underscore the validity of the analyses in the following chapters.

The Myth of Serial Purity

> The Myth of Serial Purity maintains that serial compositions follow certain generic rules (including alleged rules about avoiding placing emphasis on any one of the twelve tones through repetition or doubling, avoidance of tonal references, and using only one series and deriving every note from it or its transformations) in relation to which nonconforming tones are understood as freedoms or liberties.[72]

"Rules" in twelve-tone music are contextually defined and certainly in no sense does Ginastera avoid any of the "alleged rules" mentioned above. To the contrary, Ginastera's twelve-tone organizational strategies more or less rely upon emphasizing specific pitch classes and partitions in order to draw deeper-level structural connections. *Surrogate* relations and *derived*

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[70] These larger collections are discussed in detail in the previous chapter. They commonly result from Ginastera's more general stylistic tendencies and not just his approach to twelve-tone composition in the concertos.

[71] In all, Straus identifies 19 so-called "myths" and categorizes them according to the composition, history and reception of twelve-tone music in America; see Straus, *Twelve-Tone Music in America*, 175–235.

[72] Ibid., 180. This myth bolsters the Myth of Serial Orthodoxy, which "maintains that there is one normative, standard way to compose serial music (Schoenberg's way) and everything else represents a deviation or a liberty" (p. 177).

rows, for example, are fundamental components of Ginastera's compositional approach and they are, in essence, predicated on taking so-called "liberties" with the row's structure.

The Myth of the Matrix

> The Myth of the Matrix holds that the pitches of a twelve-tone piece can be referred to the forty-eight members of a row class enshrined in the familiar twelve-by-twelve matrix: twelve primes, twelve inversions, twelve retrogrades, and twelve retrograde-inversions.[73]

Surrogate relations in Ginastera's music actually break down the concept of the twelve-by-twelve matrix by grouping rows into *families* whose members share certain structural properties that allow them to look, sound, and/or function alike when musically deployed. The combinatorial properties of Ginastera's *generated* (and *partially-generated*) row classes, in particular, limit the number of distinct row forms and account for a great deal of *surrogate* relations. In musical contexts, *surrogate* relations create ambiguity and ambiguity challenges our perspective of what particular row is in "control" at any given moment. Along those same lines, Straus observes that: "In many cases, a work might derive only some of its material explicitly from the series and its transformations – the remaining music might be loosely derived from the series or strongly contrasted with it."[74] Indeed, non-serial and serially-derived motives are as much a part of Ginastera's compositions as any row(s) he introduces.

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[73] Ibid., 188–89.

[74] Ibid., 189.

The Myth of Theory

> The Myth of Theory maintains that twelve-tone theory bears an illegitimate and destructive relationship to twelve-tone music in which the theory comes first and the music follows mechanistically.[75]

This last myth underlies a lot of negative criticism—or more often, negative assumptions—about twelve-tone music in general. As is the case with other composers who turned to serialism later in their careers, Ginastera's twelve-tone compositions are often overlooked, ignored, or, worst of all, assumed to be mere "experimental" works in which he "dabbled" with a now outmoded idiom. This kind of thinking is due, in part, to a lack of understanding of how Ginastera's twelve-tone music works: his music does not readily lend itself to "conventional" analytical approaches, like those described in the Myth of Serial Purity and the Myth of the Matrix above. Instead, the structural attributes of Ginastera's twelve-tone music largely follow compositional tendencies he had always practiced, long before turning to serialism. The analyses in this study only scratch the surface of Ginastera's twelve-tone music, but they nonetheless reveal a composer who was truly engaged in developing his own language—a language that is anything but a "mechanistic" realization of somebody else's theory.

[75] Ibid., 218.

CHAPTER 4:

PIANO CONCERTO, OP. 28 (1961), I

PART I: PRELIMINARY OBSERVATIONS

The present discussion is Part I of a two-part chapter that focuses exclusively on the first movement of Ginastera's Piano Concerto, Op. 28 (1961). The theoretical observations made in this chapter deal largely with abstract concepts involving the compositional potential of the concerto's primary twelve-tone row. This portion of the chapter is divided into four parts. The first part provides a brief overview of the layout of the concerto's opening *Cadenza*, which serves as a crucial "nexus" point from which all subsequent materials—pitch, intervallic, motivic, rhythmic, etc.—are derived.[1] The second part of this chapter explores the general properties of the twelve-tone row and how Ginastera first introduces the row in the context of the *Cadenza's* introduction. The last two parts explore what makes Ginastera's twelve-tone row sound "octatonic"[2] and what kinds of *row surrogate* relations contribute to the meaningful grouping of multiple row forms. Both of these last two topics will be broken down into smaller sections that deal specifically with different "octatonic" collections and different types of *surrogate* relations.

The twelve-tone row is a malleable, often elusive, compositional feature of Ginastera's Piano Concerto. Many sections within the concerto feature presentations of the aggregate that do not relate in a straightforward way to the primary row. Some sections even feature pitch-organizational strategies that do not project complete aggregates. When the projection of the

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[1] See chapter 3 for a discussion of the typical role *cadenzas* play in several of Ginastera's works.

[2] That is, what motivic processes cause the OCT (set class 8-28 (0134679t)) and 8-note (set class 8-9 (01236789)) to emerge. See the detailed explanation of these collections in chapter 2, Example 2.11.

twelve-tone aggregate does not constitute a traditional permutation of the row (P_x, I_x, R_x, or RI_x), it nonetheless exhibits close structural ties to the primary row. A row that bears a striking structural resemblance to the primary row usually constitutes a *derived* row.[3]

Techniques of row derivation greatly impact the compositional strategies adopted by Ginastera in the Piano Concerto. Broadly speaking, the idea of creating a "new" row by reconfiguring elements from a previously-established primary row fits very neatly with the general characteristics of "variation" form. After all, what appears to be a "different" thing in a variation, is most often a subtle derivation of the original thing. Multiple row derivations are certainly possible and are indeed used in the Piano Concerto. The concepts of row *surrogates* and row *families* generalize these multiple row derivations in order to deal with the analytical complexities they give rise to, but for now, the immediate discussion will focus on how the derivation process works. The ensuing discussion begins with an overview of the layout and most recognizable features of the *Cadenza*, which acts as a focal point from which the primary row and all its related materials derive.

Formal Characteristics of the Cadenza

The opening *Cadenza* of the Piano Concerto serves as the traditional "theme" in the theme + variations form. Unlike the *Cadenza* that begins the Violin Concerto, which features only the soloist and no orchestra, the *Cadenza* of the Piano Concerto draws upon all the instrumental forces of the orchestra and engages them in a dramatic dialog with the soloist. Like

[3] See chapter 3 for a formal definition of *derived* rows. Generally speaking, a *derived* row is a type of *surrogate* row in the sense that it embodies some kind of structural similarity with the primary row. In the Piano Concerto, the most basic *derived* row is that which reconfigures the first two T_nI-related (0126) tetrachords of the primary row into different set classes, while still maintaining the original eight pitch-class members. See the discussion of "octatonic" properties of the row below.

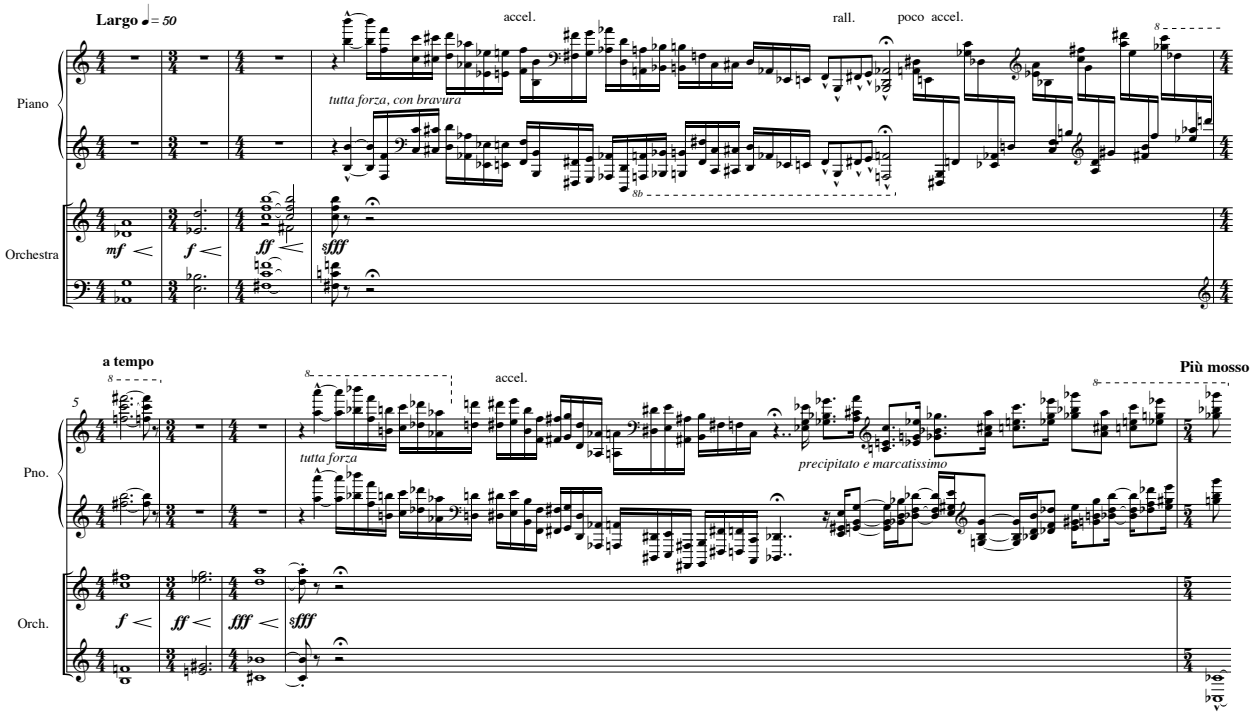
a "theme" proper, the *Cadenza* introduces all the motivic material that participates in the variations to follow. Above all, the *Cadenza* introduces the twelve-tone row from which Ginastera draws all subsequent pitch material—both serial and non-serial.

In terms of proportion, the complete *Cadenza* takes up approximately one third of the entire movement; furthermore, a rather significant portion of thematic material presented within the *Cadenza* is actually repeated within the *Coda* that ends the movement. The ten variations at the center of the movement are therefore exceptionally brief in comparison to the *Cadenza* and follow one another without any pause. The motivic material on display in each variation, as one would expect, is derived from the *Cadenza*; yet the most remarkable characteristic of the variations as a whole is their apparent lack of row presentations. To be sure, most (if not all) of the motivic materials can be traced back to some pitch- and/or interval-specific feature of the primary row.

The *Cadenza* begins with a *Largo* introduction, in which not one but two distinct twelve-tone rows are presented. Both rows are stated by the orchestra alone as a series of three harmonic tetrachords. By presenting the aggregate harmonically in both phrases, Ginastera draws attention to the *content* of the rows' discrete tetrachords rather than their unique serial *order*.[4] The discussion below will explore ways in which Ginastera manipulates the pitches of the first twelve-tone collection so as to create the different tetrachordal sonorities in the second collection.

[4] Throughout the entire first movement, there are only two instances in which a complete, linearly presented row form appears: these two row presentations, which both occur within the first variation, involve the original transposition of the primary row (as stated in mm. 1–3) and its retrograde form. A list of the movement's row forms—including those presented harmonically and with structural modifications—is provided in part II of this chapter; see Example 4.30.

Example 4.1 *Largo* introduction of the *Cadenza* consists of two phrases (mm. 1–4, 5–8)



The eight-measure introduction of the *Cadenza*, shown in Example 4.1 above, divides equally into two four-measure phrases.[5] Both phrases unfold in a similar manner, which helps to articulate the introduction's clear formal boundaries. The first three measures of each phrase begin with the orchestra's statement of the row in harmonic tetrachords (mm. 1–3, 5–7) and conclude with the soloist's presentation of two motivic gestures, the first of which cascades in an unmetered display of bravura that is rather typical of a traditional cadenza. The fermatas in the middle of mm. 4 and 8 demarcate the soloist's two motivic gestures in each phrase. For the remainder of this study, the span of the first gesture in each measure will be referred to as mm. 4a and 8a, and the span of the second gesture will be referred to as mm. 4b and 8b.

[5] A reduction of the *Largo* introduction is provided in part II of this chapter; see Example 4.29.

Generally speaking, the orchestra's three tetrachords ascend in register and dynamic level, thereby increasing the music's dramatic tension. In turn, the soloist at first releases this tension with parallel octaves arranged in a descending sequence of tetrachords that are derived from the first twelve-tone row (mm. 4a, 8a). Immediately thereafter, the soloist rebuilds the music's tension by ascending with a new motivic sequence (mm. 4b, 8b). The soloist's final sonority at the end of the first phrase elides with the beginning of the second phrase (m. 5) and emphasizes a restatement of the pitch classes presented by the orchestra's tetrachord in m. 3. As the orchestra's second phrase introduces a new configuration of the twelve-tone row, so too does the soloist's second set of sequential gestures appear intervallically varied.

The remainder of the *Cadenza* consists of three sections that are each distinguished by a new and specific tempo marking. The motivic materials presented in each of these sections derive exclusively from the eight-measure *Largo* introduction; yet, each section also contributes something new and memorable to the quality of the "theme." The second and third sections, marked *Più mosso* and *Con moto*, involve a pronounced rhythmic motive (or *leitrhythm*) that recurs at significant structural moments throughout the movement. Lastly, the final *Larghetto* section leads to a dramatic climax within the *Cadenza* before drawing to a quiet close. Together all four of these distinct but interrelated sections of the *Cadenza* are integral to the overarching variation process.

General Properties of the Twelve-Tone Row

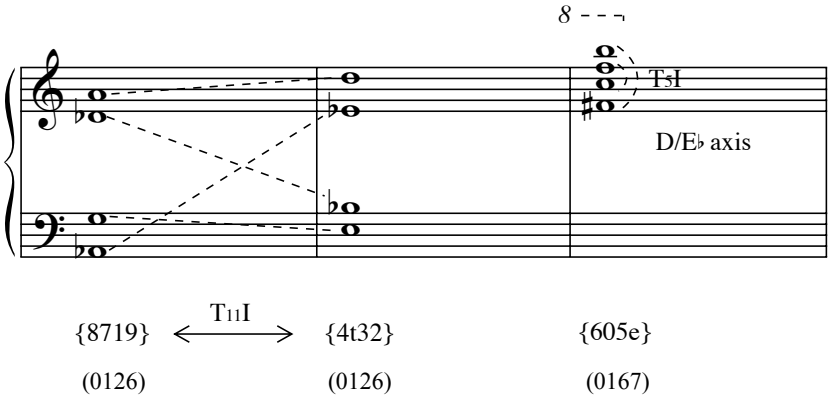
The following discussion focuses on the internal properties of the twelve-tone row (presented in mm. 1–3) and its immediate reconfiguration (presented in mm. 5–7).[6] Example

[6] The row's reconfiguration in the second phrase of the *Cadenza* constitutes a type of *derived* row and the details of its derivation are discussed in the following section.

4.2(a) is a reduction of the orchestra's tetrachordal presentation of the first row. The first two tetrachords constitute inversionally-related members of set class (0126), while the third tetrachord is a member of set class (0167).[7] The adjacency interval series (labeled AIS) of the row is shown at the bottom of Example 4.2(b), and the intervals between tetrachords are shown in parentheses. The AIS is a mutable characteristic of the row, especially given that Ginastera, focusing more on *content* over *order*, frequently rearranges the pitches of each tetrachord; nonetheless, this initial configuration of the row introduces the intervals that are featured most prominently throughout the concerto. Noticeably absent from the inventory of interval classes are ic2 and ic3; on the other hand, the most pervasive interval classes—and those that link (0126) and (0167)—are ic6, ic5, and ic1.

Example 4.2 Presentation of the primary row (mm. 1–3)

(a)

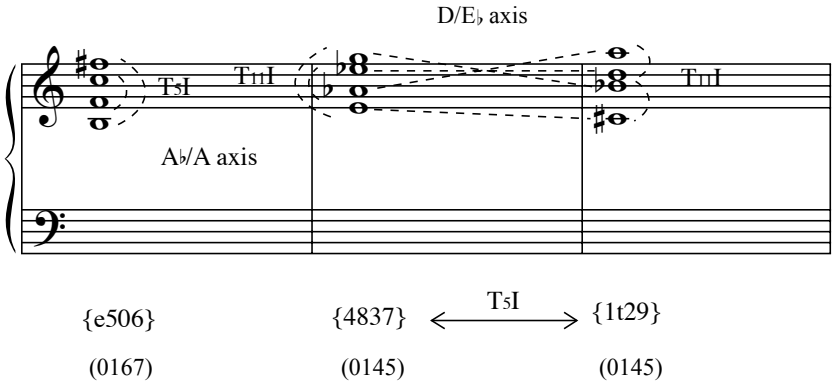


(b)

P8	8	7	1	9	4	t	3	2	6	0	5	e
AIS	<11	6	8	(7)	6	5	11	(4)	6	5	6>	

[7] Ginastera's predilection for (0167), especially in his twelve-tone works, is discussed extensively in chapters 2 and 3.

Example 4.3 Reconfiguration of the row (mm. 5–7)



Example 4.3, shown above, reproduces the beginning of the second phrase of the *Largo* introduction where the original twelve-tone row is immediately reconfigured. The structural properties of the new configuration exhibit three features in comparison to the primary row: (1) pitch-class invariance involving set class (0167); (2) invariant inversional relations involving $T_{11}I$ and T_5I; and (3) similar interval-class content among discrete tetrachords. The first of these features, which unites the first row presentation with the second presentation four measures later, involves the single (0167) tetrachord they share, that is, [56e0]. The pitch classes of the last tetrachord of the first row are invariant with the first tetrachord of the second row. Thus, the beginning of the second phrase gives the impression that a retrograde presentation of the first row is underway; in further support of this interpretation, the registral projection of the second (0167) tetrachord appears flipped upside down from the original presentation in m. 3. The remainder of the row, however, does not continue with the expected (0126) tetrachords, but instead divides this portion of the row into two inversionally related (0145) tetrachords.

The inversionally-related adjacent tetrachords in both mm. 1–2 and 6–7 also contribute to the structural similarities between these two seemingly related, yet different, row presentations.

The dotted lines in Examples 4.2(a) and 4.3 indicate the inversional mappings that occur horizontally *between* like tetrachord classes and vertically *within* inversionally-symmetrical set classes. The horizontal mapping between (0126) tetrachords in Example 4.2(a) is formed by $T_{11}I$; however, as the irregular dotted-lines show, the symmetrical potential of the mapping is not made manifest in pitch space. The configuration of the final (0167) tetrachord, on the other hand, is symmetrically projected around pitch classes D/E♭, expressing T_5I.

Significantly, T_5I and $T_{11}I$ relations are also present in the second configuration of the twelve tone row, but their previous "horizontal" and "vertical" realizations swap places (see Example 4.3). The $T_{11}I$ relation that first appeared horizontally in Example 4.2 (a), mapping the two (0126) tetrachords of mm. 1–2, now appears vertically in the harmonic projection of both (0145) tetrachords in Example 4.3. The vertical configuration of the first (0145) tetrachord is symmetrically balanced in pitch space around B4/C5.[8] The second (0145) tetrachord expresses $T_{11}I$ symmetry in a different manner and exploits the axis a tritone away: two registrally distinct dyads—{D, A} above and {C♯, B♭} below—are both symmetrically projected around pitch classes F/F♯ an octave apart. Conversely, T_5I is manifest in the second phrase as the operation that relates the two (0145) tetrachords horizontally, and the expressed D/E♭ axis between the tetrachords is in keeping with the previous vertical configuration of (0167) in m. 3 of the first phrase. The dotted lines highlight the symmetrical balance among the three upper pitches of the (0145) tetrachords. With regard to the (0167) tetrachord of m. 5, because the

[8] The term *balance* is used here in accordance with Straus's sense of symmetry expressed in pitch space; see Straus, "Uniformity, Balance, and Smoothness in Atonal Voice Leading," *Music Theory Spectrum* 25, no. 2 (2003), 311–14.

pitches appear inverted in relation to their original appearance in m. 3, the new axis of symmetry, A♭/A, appears T_6 away.[9]

The affinities between the two twelve-tone row configurations are not limited to their analogous properties of inversional symmetry. Indeed, (0126) and (0145) have similar structural properties as (0167).[10] The networks shown in Example 4.4(a) use transpositional arrows to indicate the intervallic structures of (0167) and (0126). The common (016) subset of both tetrachords lies along the L-shaped corner of both networks. Both tetrachords have an additional T_1 arrow outside of (016): within (0126), this arrow emanates from a different pitch-class member (located in the lower-right corner) and forms a (012) subset. Significantly, only one arrow forms the substantial difference between the two collections: where (0167) has an additional T_6 arrow, (0126) has an entirely unique T_4 arrow.[11]

Example 4.4(b) compares the networks of set classes (0167) and (0145). One of the easiest ways to imagine both set classes is to compare their intervallic structures in terms of *transpositional combination*.[12] Both tetrachords represent the union of two semitones separated by a fixed interval. In the case of (0167), these semitones (shown by the T_1 arrows in Example 4.4) are removed by a tritone (see the T_6 arrows): i1 * T_6 (or i6 * T_1). In the case of (0145), the

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[9] Together the T_6-related axes themselves abstractly form set class (0167): D/E♭ + A♭/A = [2389]. Likewise, the T_6-related axes in mm. 6 and 7—F/F♯ and B/C—form [56e0], another member of set class (0167). The abstract combination of [2389] and [56e0] completes octatonic collection $OCT_{2,3}$, which acts as kind of "tonic" scalar background throughout much of the movement. The octatonic collection and its tetrachordal subsets are discussed in detail in the following section.

[10] See chapter 2 for a discussion of "pinched," inversionally-symmetrical tetrachords, like (0167) and (0145), which become increasingly common in Ginastera's twelve-tone language.

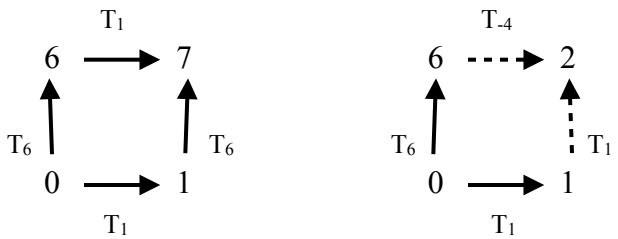
[11] Ginastera was undoubtedly aware of the intervallic similarities between (0126) and (0167); with the exchange of just two pitch classes, he is able to morph the entire twelve-tone row into a series of (0167) collections. Ginastera uses multiple row classes made up entirely of set class (0167) in his twelve-tone opera, *Don Rodrigo*, Op. 31 (1963–63); see Example 2.20 in chapter 2. Interestingly, two of the opera's row classes are identical to the primary rows of both the Piano Concerto and Violin Concerto.

[12] A formal definition of *transpositional combination* is provided in chapter 2, note 7.

semitones are removed by a major third (see the T_4 arrows): i1 * T_4 or (i4 * T_1). Significantly, the presence of T_4 within the structure of (0145) complements the structure of (0126), which differs from (0167) by a single T_4 arrow.[13]

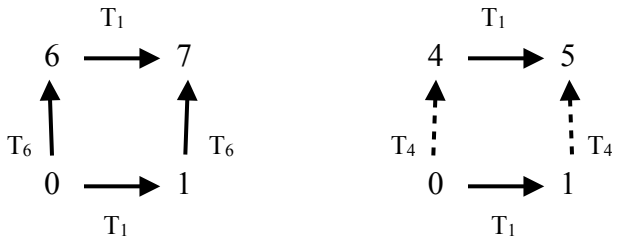
Example 4.4 Intervallic structure of (0167), (0126), and (0145)

(a)



(0167) (0126)

(b)



(0167) (0145)

"Octatonic" Properties of the Row

Chapter 2 explored the development of Ginastera's twelve-tone language and noted the ways in which this language represented an extension of the same stylistic tendencies exhibited in his early "nationalistic" works. Ginastera tends to favor small motivic cells and he frequently subjects these motives to recursive transpositional operations, forming sequences that compose-

[13] The discussion of row *surrogates* later in this chapter will explore how Ginastera systematically derives (0145) from (0126) by taking advantage of their common ic1/ic4 intervallic structure.

out larger pitch-class collections. These motivic sequences oftentimes complete of the entire twelve-tone aggregate; however, depending on the set class of the original motive and the recurring interval of transposition, sometimes the sequential path results in pitch-class duplication and thus the aggregate is not achieved. In instances where the motivic sequence does *not* complete the aggregate, usually an eight-member collection is projected instead.

The uniform and systematic nature of Ginastera's compositional approach in the Piano Concerto means that the emerging "octatonic" collections invariably constitute one of two classes: (1) the familiar octatonic collection, 8-28 (0134679t) or (2) the composite of two chromatic tetrachords, 8-9 (01236789). The significance of these "octatonic" collections is not, however, limited to the motivic processes that give rise to them; the real interest lies in how these "octatonic" collections derive from and interact with the twelve-tone aggregate on multiple structural levels. From here on, the commonly recognized octatonic collection (set class 8-28) will be referred to simply as the octatonic collection (without quotation marks) or abbreviated OCT. Alternately, collection class 8-9 (01236789), which, as we will see below, is inherent to the structure of the primary row, will be referred to as the 8-note collection.[14]

The OCT and the 8-note collection share two common subsets: (0369) and (0167). These subsets also happen to be the abstract complements of both "octatonic" collections: 4-28 (0369) and 8-28 (0134679t) are complements, as are 4-9 (0167) and 8-9 (01236789). Chapter 2 discussed in detail the uniqueness of these two tetrachord collections.[15] Together, (0369) and (0167) represent two of only three tetrachord classes that are both transpositionally and

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[14] The emergence of OCT and 8-note collections in Ginastera's musical language is discussed in chapter 2; see the sections on *Completing the Aggregate* and *Octatonic, 8-Note, and Hexatonic Collections*.

[15] See especially the discussion of Example 2.11.

inversionally symmetrical.[16] The transpositionally "cyclic" nature of Ginastera's compositional approach often begins with, or immediately gives rise to, foreground presentations of (0167) and (0369), and, when these collections recur at different different structural points throughout the piece, they participate in middleground completions of even larger transpositionally invariant collections—specifically the OCT and the 8-note collections.

Emerging OCT *Collections*

The three distinct forms of the familiar octatonic collection are indicated by pitch-class integers in Example 4.5. One of the quickest ways to arrive at the octatonic collection from the twelve-tone aggregate is to imagine the octatonic collection in terms of the four pitch-class members it does *not* contain: that is, the four members of its complement, collection-class (0369).[17] The specific transposition of (0369) that is not present within a given OCT collection is indicated by parentheses at the bottom of each example. The labeling system used for the three different OCT collections is fairly conventional. Each collection consists of two T_3-related instances of set class (0167), shown in normal order above each collection.[18] The numbers applied to the OCT label not only indicate pitch-class pairs that are unique to the individual

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[16] The other tetrachord that has this dual property is (0268).

[17] It is certainly not a coincidence that (0369) and its OCT complement are both featured so prominently in Ginastera's music. Chapter 2 provides examples from different periods in Ginastera's compositional career in which an emphasis upon either collection also has a way of musically "marking" the other, either literally or abstractly. The cyclic structure of both collections suggests that they may also be interpreted as byproducts of the transpositional sequences that give rise to them. For a thorough investigation of these and other unique set classes, see Cohn, "Properties and Generability of Transpositionally Invariant Sets," *Journal of Music Theory* 35, no. 1/2 (1991): 1–32.

[18] The OCT collection can also be interpreted as the composite of two T_n-related (0369) collections. However, with only three unique transpositions of (0369), each OCT collection naturally shares a common transposition of (0369) with the other OCT collections. As the rest of this chapter will show, a "(0167) interpretation" of the OCT collection allows for more specificity as to what collections are being emphasized on the musical foreground, while on the other hand, a "(0369) interpretation" allows for more general and long-term observations such as what eight-member portion of the aggregate is being composed-out on the structural middleground.

octatonic collections, but also imply one of the two unique transpositions of (0167) contained therein. For example, $OCT_{1,2}$ is the only octatonic collection that contains [1278].

Example 4.5 Three OCT collections, each with a missing transposition of (0369)

$OCT_{1,2}$ = [1278] + [45te]

	1	2		4	5		7	8	t	e
(0)			(3)			(6)			(9)	

$OCT_{2,3}$ = [2389] + [56e0]

0		2	3		5	6		8	9	e
	(1)			(4)			(7)		(t)	

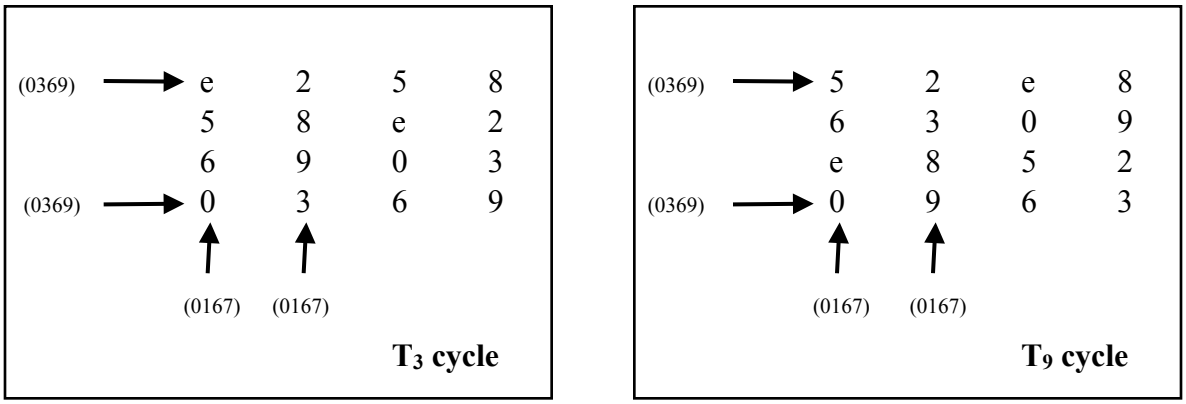
$OCT_{0,1}$ = [0167] + [349t]

0	1		3	4		6	7		9	t
		(2)			(5)			(8)		(e)

By all accounts, $OCT_{2,3}$ has the most in common with the primary row of the Piano Concerto; furthermore, this particular collection is composed-out on the music's structural middleground more frequently than the other OCT transpositions. Two factors contribute to the predominance of $OCT_{2,3}$ in the Piano Concerto. Firstly, [56e0], the final tetrachord of the twelve-tone row (presented in m. 3), as well as the first tetrachord of the row's immediate reconfiguration (presented in m. 5), is a subset of only $OCT_{2,3}$ and neither of the other two octatonic collections. Secondly, as the ensuing analysis of the Piano Concerto will show, when Ginastera begins with a motive—usually one containing two or more pitch-class members of

[56e0]—and forms a sequence by applying T_3 (or T_9) continuously, the result is a deeper-level unfolding of (0369). Oftentimes the sequential motive is arranged strategically in a manner that emphasizes its registral boundaries; such a situation is abstractly illustrated in Example 4.6, where the arrows indicate the registral boundaries of a series of (0167) tetrachords. Given the arrangement of vertical (0167) tetrachords, two horizontal projections of set class (0369) emerge —{e258} in the upper register and {0369} in the lower. Whether the cycles in Example 4.6 are interpreted harmonically as the alternation of two (0167) tetrachords, or melodically as the simultaneous projection of two (0369) collections, the result is a complete realization of $OCT_{2,3}$.

Example 4.6 Verticalities of [56e0] subjected to $T_{3/9}$ compose-out [258e] and [0369], resulting in $OCT_{2,3}$



Even as the music's middleground structure may reveal the emergence of an octatonic collection, this does not preclude the presence of the entire twelve-tone aggregate on the music's surface. Example 4.7(a) shows the soloist's entrance in m. 4, immediately following the orchestra's harmonic presentation of the row. Example 4.7(b) is a reduction of the passage, which illustrates how the regular sixteenth-note rhythm emphasizes a tetrachordal sequence moving by T_{-9} (or T_3). The actual music repeats this sequence twice, but the reduction shows

only one complete cycle. The tetrachord used as the basis of the sequence is (0126)—the same set class that forms the first two tetrachords of the primary row. Significantly, the initial (0126) tetrachord presented by the soloist is not explicitly related to either of the (0126) tetrachords presented by the orchestra in mm. 1–2; instead, the motive is derived from the top three pitch classes of the orchestra's third tetrachord, {605e}. In other words, the sequence is initiated by the common (016) subset shared by (0167) and (0126) and represented by pitch classes {B, F, C}.

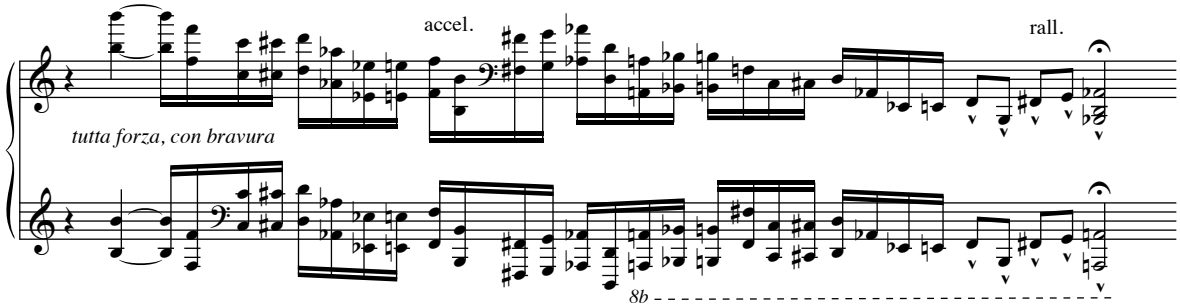
With respect to the larger-scale projection of pitch-class collections, several other features emerge as a result of the regular T_{-9} motion. To begin with, Example 4.7(b) shows that{e258}, a member of set class (0369), is composed-out on a more abstract level, accentuated by the first pitch class of each tetrachord.[19] The intervallic pattern <-6, -5, +1> of each (0126) tetrachord, along with the pronounced importance of the (016) subset, invites a further reduction of the music's surface that includes only the descending <-6, -5> gestures of each (016) sonority.[20] Considering only these (016) trichords, the T_{-9} sequence composes-out the complete $OCT_{2,3}$ collection. Only when we factor back in the missing pitch classes forming <+1> gestures on the music's surface do we understand the entire twelve-tone aggregate to be a secondary consequence of the sequential pattern.

[19] Interestingly, the same transposition, [258e], is also built into the structure of the Violin Concerto's primary row and composed-out over the span of the concerto's first phrase; see chapter 5, Example 5.31(a).

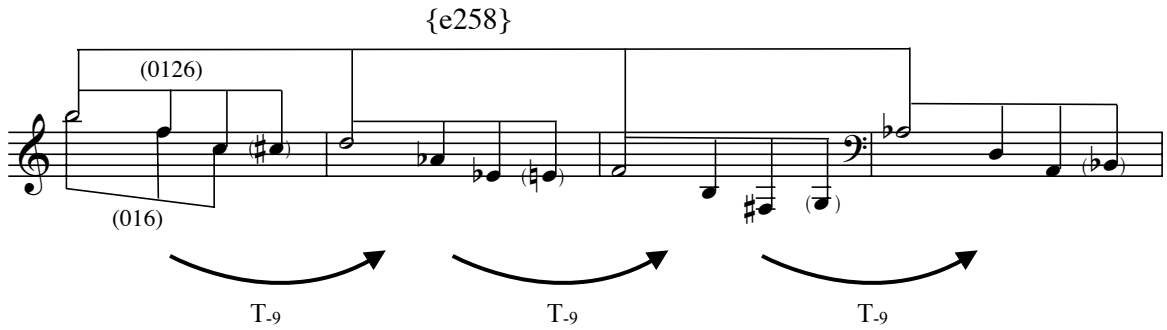
[20] The <+1> ascents that link the end and beginning of each tetrachord are interpreted in this context as "chromatic passing tones," and are therefore shown in parentheses in Example 4.7(b). Wallace interprets this passage similarly; see Wallace, "Alberto Ginastera: An Analysis of His Style and Techniques of Composition," 251ff.

Example 4.7 Soloist's entrance in m. 4a features a T_{-9} sequence of (0126) tetrachords

(a)



(b)

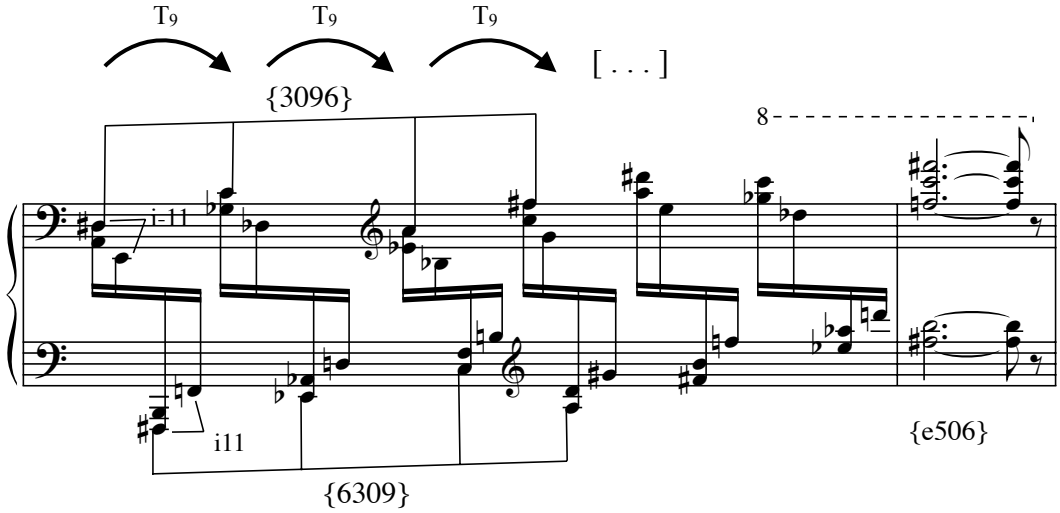


After the dramatic (0126) * T_{-9} sequence, the soloist continues in the second half of the unmetered measure with a new sequence that reverses the motion and now ascends by T_9. The pitch material used in this passage further underscores the idea that the twelve-tone aggregate is merely a byproduct of a deeper-level process in which the octatonic collection gradually emerges. Example 4.8(a) reproduces the ascending sequence: the pianist's right and left hands both present (016) trichords that continually move upwards by T_9. While the registral boundaries of each (016) trichord span i11 (indicated in the example), the two hands are significantly *not* symmetrically related: the right hand consists of a harmonic tritone (i6) and the left hand a perfect fourth (i5). The pitch classes in either hand are actually related by T_2, but the registral boundaries of the entire gesture (i.e., the highest note of the right hand and the lowest note of the

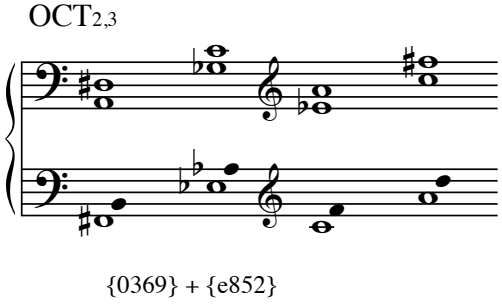
left hand) instead place greater emphasis on ic3 throughout the sequence, thereby undermining the T_2 relation. Together, the registral boundaries of both hands compose-out T_3-related rotations of pitch-class set [0369], which are beamed in Example 4.8(a).

Example 4.8 Continuation of soloist's sequence in m. 4b features (016) * T_9

(a)



(b)



Example 4.8(b), shown above, provides a reduction of the sequence. Only the rhythmically accentuated harmonic dyads of each hand are considered. The open noteheads represent members of pitch-class set [0369] and the incongruent ic5s of the left hand, forming [258e], are designated by closed noteheads. The combination of three unfoldings of [0369] and a

singular [258e] together form the octatonic collection $OCT_{2,3}$. This particular octatonic collection is further supported by the soloist's arrival at the end of the sequence (see Example 4.8(a)) upon the "original" {e506} motive—a moment that coincides with the orchestra's initiation of the second phrase and reconfiguration of the primary row.

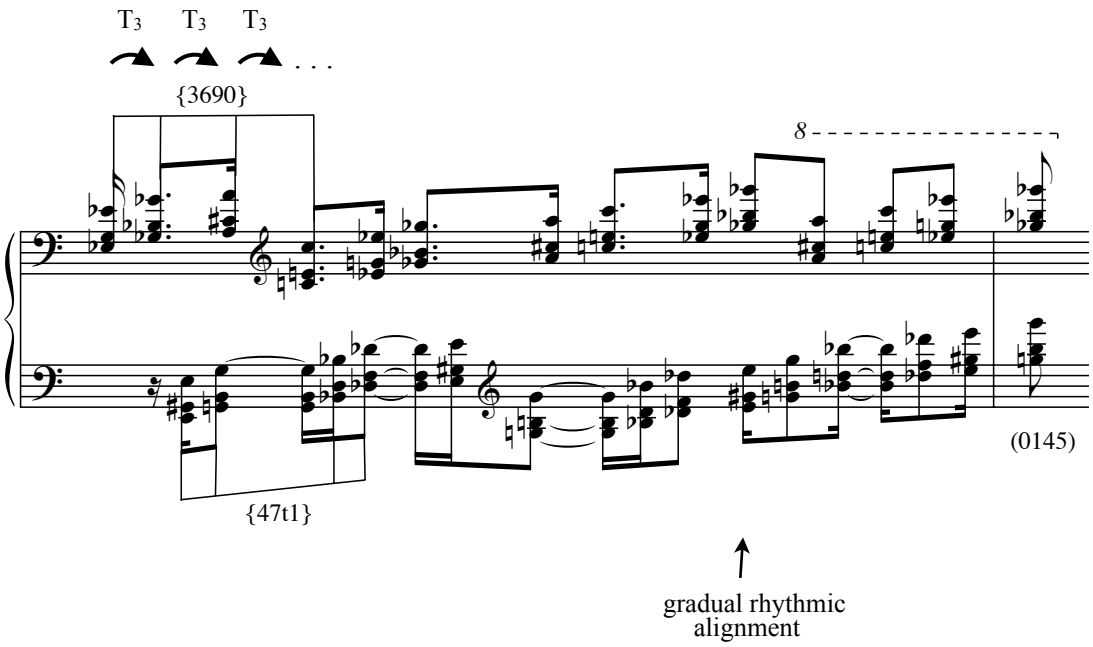
Finally, $OCT_{2,3}$ is also composed-out on yet a deeper structural level that spans both of the soloist's sequential gestures discussed above. The (0126) * T_{-9} sequence (shown in Example 4.7(b)) transpositionally projects {e258}, and the two-handed (016) * T_9 sequences (shown in Example 4.8(a)) registrally project {3096}; when combined, the soloist's sequences in mm. 4a and 4b complete the $OCT_{2,3}$ collection by systematically composing-out two transpositions of one of its fundamental components—set class (0369). The large-scale octatonic design of the soloist's material is furthermore flanked by the orchestra's two statements of [56e0] in m. 3 and m. 5—that is, the transposition of (0167) unique only to $OCT_{2,3}$.

Variations of the sequence types shown thus far recur countless times throughout the first movement of the Piano Concerto. Sometimes the octatonic collection is even more pronounced on the surface of the music. Example 4.9(a) shows the soloist's second ascending sequence from the second half of m.8. Each verticality consists of a major third with the lowest note doubled at the octave. The dyads ascend continually by T_3, with the left hand imitating the right at T_{-11} below. The characteristic dotted rhythm of the motive also emphasizes an overarching T_6 motion: Example 4.9(b) illustrates how successive dyads in each hand combine to form two instances of set class (0347)—the dual "major/minor" triad—which appear a tritone apart in each hand. The pattern (0347) * T_6, which may also be expressed more literally as, (i4 * T_3) * T_6, completes an octatonic collection in each hand and it does so without any of the pitch-class duplication found

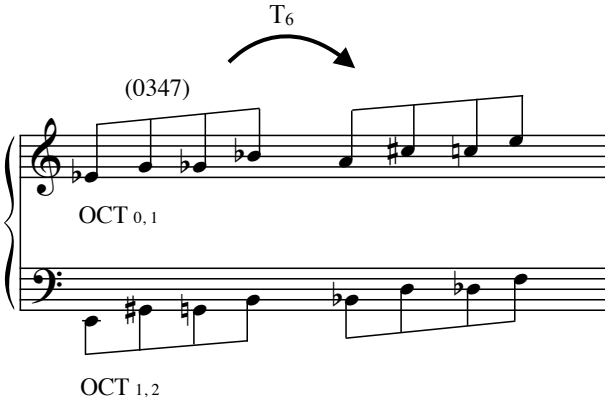
in the previous sequences of m. 4: the right hand composes-out $OCT_{0,1}$, while the left hand imitates with $OCT_{1,2}$.

Example 4.9 Soloist's sequence in m. 8b features (i4 * T_3) * T_6, or (0347) * T_6

(a)



(b)



Regarding Example 4.9(a) above, a few other details are worth mentioning. Due to the octave doubling in each hand, the combined registral boundaries of the entire sequence actually compose-out a single octatonic collection. The beamed notes in the example illustrate that{3690}

is transpositionally projected by the soloist's right hand, while {47t1} is projected imitatively by the soloist's the left hand. Together these two interval cycles form $OCT_{0,1}$. Thus, while the surface of the music completes the aggregate through the superimposition of two different octatonic collections, the deeper middleground composes-out only $OCT_{0,1}$.

By the time the sequence pattern is repeated twice in Example 4.9(a), the dotted-eighth-note rhythm eventually diminishes and the two hands gradually align themselves to reveal the emergence of yet another harmonic motive, (0145), derived from previous material. If the entire sequence were to be aligned without the staggered element of imitation, each harmonic verticality would form a (0145) tetrachord. Case in point, (0145) is the sonority that marks the rhythmic alignment of both hands and the end of the sequence on the downbeat of m. 9. Although the rest of the supposed (0145) tetrachords are not literally aligned harmonically, they nonetheless derive from Ginastera's reconfiguration of the twelve-tone row presented by the orchestra in the measures immediately preceding this sequence (see the reduction of mm. 5–7 in Example 4.3 above). The accentuated "verticalities" in the soloist's sequence —which are those tetrachords formed by rhythmically identical dyads in the left and right hands—are invariant with the second and third tetrachords of the reconfigured row presented by the orchestra: compare the sixteenth-note dyads {E, G♯} + {E♭, G} and its T_6 transposition, {B♭, D} + {A, C♯}, in Example 4.9(a) with the same pitch classes representing (0145) tetrachords in Example 4.3.

In sum, octatonic collections and their subsets, especially (0369) and (0167), constitute a large part of the motivic pitch material used in the Piano Concerto. The eight-measure *Largo* introduction is a prime example of how Ginastera reconciles the twelve-tone universe with the octatonic. In contrast to the orchestra's commitment to presenting the twelve-tone row, the

soloist's material breaks away from the strict confines of the row and instead emphasizes only certain motives that derive from it. Most characteristically, these motives participate in sequential patterns that articulate octatonic subsets, which then interact with one another to complete various octatonic collections on different structural levels.

Derivations of the 8-Note Collection

The previous examples illustrated ways in which the octatonic collection (i.e., set-class 8-28) is composed-out through motivic sequences presented by the soloist in the concerto's introduction. The individual motivic gestures that comprise these sequences, which include set classes (0126), (016), (0167), and (0145), were also shown to derive from the twelve-tone row itself. The following discussion will now focus on the other "octatonic" collection—that is, the 8-note collection (set-class 8-9 (01236789)). Like the OCT collection, the 8-note collection is often composed-out in the Piano Concerto as a result of surface-level motivic sequencing. Indeed, both "octatonic" collections share many of the same subsets. But unlike the OCT collection, the 8-note collection constitutes a discrete segment of the twelve-tone row; therefore, from a compositional perspective, it has the unique capacity to be reinvented and recast—in the form of *derived* rows—in a manner that motivates the variation process.

The 8-note collection is formed by order numbers *0–7* (or *4–e* of any retrograde form). The pitch-class content of any 8-note collection hinges upon the unique transposition of set class (0167) that completes the aggregate and lies outside the 8-note collection. Ginastera's immediate reconfiguration of the row in the second phrase of the introduction underscores the fact that the order of the twelve pitches is very malleable. Order-number positions, on the other hand, are not immutable; on the contrary, they sometimes determine the derivation process. Sometimes the

original (0126) discrete subsets of the 8-note collection morph into discrete (0145) subsets, as in the second phrase of the introduction (mm. 5–7), and sometimes they morph into two instances of the ubiquitous (0167) collection. The following discussion will focus more abstractly on the 8-note collection as an entity unto itself, apart from the twelve-tone row, and note the various ways in which the 8-note collection may be reconfigured into inversionally-related tetrachordal subsets.

The twelve-note aggregate is reproduced five times in Examples 4.10(a)–(e) below. The 8-note collection within each aggregate collection is shown below the solid line and, as a reference for the reader, its transposition corresponds to the original 8-note collection of the primary row, [1234789t]. Thus, the [56e0] tetrachord that lies outside the original 8-note collection is indicated by parentheses within each collection. The five different configurations represent the five possible ways the 8-note collection may be generated from inversionally-related tetrachords.[21] Abstractly speaking, these configurations summarize five different ways the primary row might be *derived* into different row classes. Although the exact nature of the derivation process is not made explicit here, the relationship to the primary row would hypothetically involve maintaining the same general "8 + 4" *mosaic* profile, wherein the 8-note collection is a mutable segment of the row and the complementary [56e0] tetrachord is held invariant.[22]

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[21] Like the OCT collection, the 8-note collection has a high degree of inversional symmetry. Although tetrachordal subsets in Example 4.10 are expressed in terms of their inversional relations, one should not assume that their inversional potential is always realized musically. Examples 4.2 and 4.3, discussed above, illustrate how the inversional potential between harmonic instances of two (0126) tetrachords and two (0145) tetrachords in the *Largo* introduction is never fully realized in pitch space.

[22] The *derivation* process, as it pertains to the primary row of the concerto, is discussed in more detail in later examples.

Examples 4.10 (a) through (e) respectively illustrate the 8-note collection abstractly generated by the following two-member tetrachordal set classes: (0123), (0167), (0126), (0145), and (0257). In short, all of the tetrachords represented in Example 4.10, with the exception of (0257) in example (e), are central to Ginastera's twelve-tone language.[23] Example (a) involves chromatic *clusters*, which are capable of mapping onto their counterparts and thus generating the 8-note collection under inversion or T_6—that latter of which is a recurring interval of transposition in most of Ginastera's twelve-tone works, including the Piano Concerto.[24] Example (b) shows the 8-note collection divided into two (0167) tetrachords.[25] Examples (c) and (d), which involve (0126) and (0145) tetrachords, abstractly correspond to the two row configurations presented in the concerto's *Largo* introduction (mm. 1–2, 6–7). Example (d) involves (0257), which is another structurally significant motive in Ginastera's music, albeit more so in his early "nationalistic" works; like (0145) and (0123), (0257) is capable of generating the 8-note collection under T_6.[26]

---

[23] See the discussion of Example 2.4 in chapter 2 for a summary of common tetrachordal motives in Ginastera's twelve-tone language and the apparent replacement of (0257) with (0167) as the most common tetrachord in his later works.

[24] *Cluster* segments become increasingly prominent motives in Ginastera's twelve-tone language and form discrete segments in several of his twelve-tone row classes. See the following examples in chapter 2: Example 2.17(c) from the *Cantata para América mágica*, Op. 27 (1960); Example 2.18(a) from *Iubilum: Symphonic Celebration*, Op. 51 (1979–80); and also note 85 (p. 75) concerning row classes in *Don Rodrigo*, Op. 31 (1963–64).

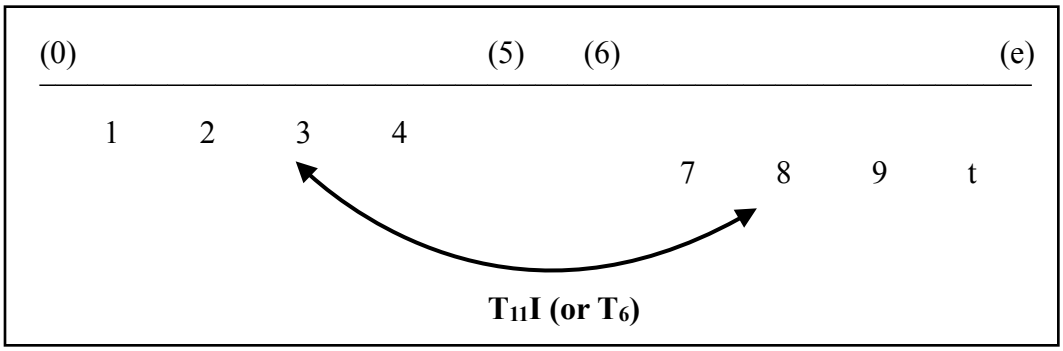
[25] Together with the "missing" [56e0] collection, the three subsets in example (b) correspond to the three transpositions of (0167) Ginastera tends to prefer in several of his compositions. For a discussion of his use of (0167) in the context of multiple row forms in *Don Rodrigo,* see chapter 2, Example 2.20 .

Significantly, the 8-note collection can also be generated transpositionally by two (0167) tetrachords: tritone-related transpositional operations T_2 and T_8 will create one 8-note collection—e.g., [1278] * $T_{2/8}$ = 8-note missing [56e0]—while T_4 and T_{10} will create a different 8-note collection—e.g., [1278] * $T_{4/10}$ = 8-note missing [349t]. These four intervals of transposition are rarely used in the Piano Concerto, as Ginastera tends to favor cycles of thirds like T_3, T_6, and T_9; however, one extraordinary exception occurs in Variation IV, where T_2 and T_4 substitute for the established $T_{3/9}$ norm as one type of variation strategy.

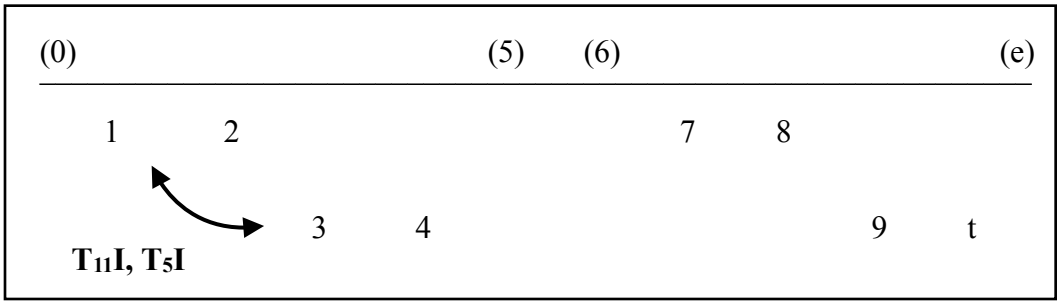
[26] The derivation of the 8-note collection into two (0257) tetrachords does occur at one particularly prominent moment in the Piano Concerto; see the discussion of Example 4.50(a) in part II of this chapter.

Example 4.10 Inversionally-related tetrachordal subsets within the 8-note collection

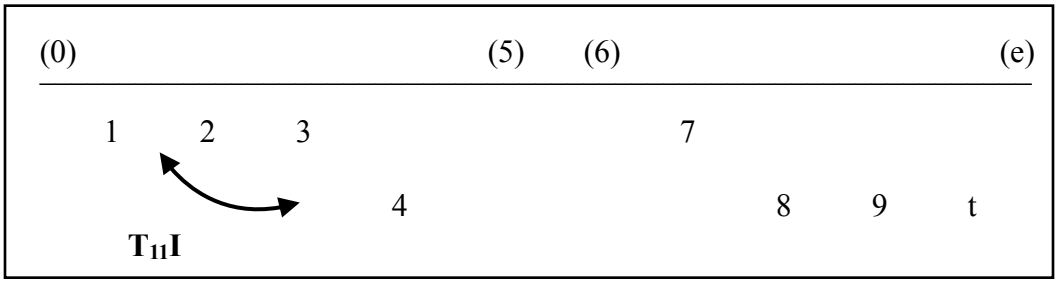
(a) Set class (0123)



(b) Set class (0167)



(c) Set class (0126)



(d) Set class (0145)

(0)					(5)	(6)				(e)
1	2								9	t
		3	4				7	8		

T_5I (or T_6)

(e) Set class (0257)

(0)					(5)	(6)				(e)
1		3						8		t
	2		4				7		9	

T_5I (or T_6)

Example 4.11 The 8-note collection consisting of (0369) and (0167), or [147t] + [2389]

(0)					(5)	(6)				(e)
1			4				7			t
	2	3						8	9	

Another configuration of the 8-note collection that appears in the Piano Concerto is shown in Example 4.11 above. Unlike the previous configurations in Example 4.10, this new configuration is not capable of generating the 8-note collection via a single set class. Instead, the 8-note collection consists of one instance each of (0369) and (0167).[27] The significance of this

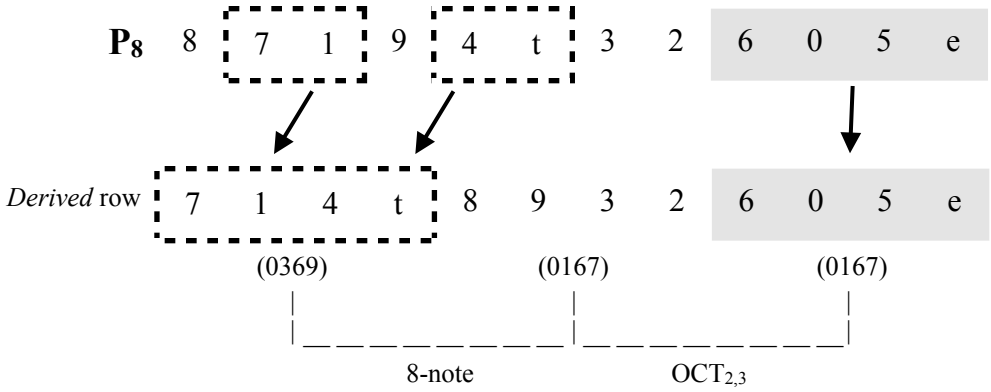
[27] Incidentally, this configuration also shares similarities with one of Florinda's rows in *Don Rodrigo*. In the opera's row, two OCT-completing (0167) tetrachords flank a central (0369) tetrachord; see chapter 2, Example 2.20(e).

particular configuration lies in its musical *potential* to complete the 8-note collection on the music's foreground, while at same time also completing on the foreground (or possibly composing-out on some middleground level) the other "octatonic" collection, the OCT. For example, $OCT_{2,3}$ is generated when the row's "missing" (0167) tetrachord—that is, pitch-class set [56e0] lying at order-number partition {*89te*}—is combined with the "other" (0167) tetrachord of the 8-note collection shown in Example 4.11—pitch-class set [2389]. As the sequences discussed in Examples 4.7–9 above illustrate, OCT collections in the Piano Concerto tend to gradually emerge over longer spans of music. Configuring the 8-note collection in a manner akin to Example 4.11 thus establishes a compositional framework that, when musically realized, has the capacity to participate in OCT composing-out processes.

Example 4.12 illustrates, within the context of the concerto's primary row, one hypothetical reconfiguration that achieves the 8-note collection shown in Example 4.11 and, by extension, also achieves the $OCT_{2,3}$ collection as described above. The primary row is shown at the top of the example and the tritones of each (0126) tetrachord are indicated by dotted lines. These tritones are extracted and combined to form a discrete (0369) tetrachord at the beginning of the hypothetical *derived* row. Simply shifting these tritones "leftward" within the row does not change the *mosaic* profile of the primary row's 8-note collection nor its final [56e0] trichord; it does, however, introduce the $OCT_{2,3}$ collection as a discrete segment of the row where it did not exist before. Significantly, the tetrachordal content of this particular *derived* row remains invariant under $T_{\pm 3}$ sequences, which are ubiquitous in the Piano Concerto; therefore, depending on the musical context in which the *derived* row is presented—harmonic versus melodic, surface-level appearances versus fragmented and composed-out realizations below the surface—

the original "source" of the *derived* row may welcome several interpretations. The following sections in this chapter, especially as they concern *surrogate* relations and row *families*, will provide an analytical framework for dealing with such ambiguities, most of which stem from Ginastera's inclination to prioritize pitch-class *content* over *order*.

Example 4.12 The primary row's 8-note collection reconfigured to show its OCT potential



We now turn our attention more fully to the *process* of row derivation and how Ginastera goes about manipulating the row to meet his compositional needs. Example 4.13 examines the first and foremost *derived* row in the Piano Concerto, which appears in the second phrase of the *Cadenza* (mm. 5–7). The primary twelve-tone row in Example 4.13(a) is parsed into two order-number partitions—labeled *x-seg* and *y-seg*—that each represent set class (0145), followed by the row-defining (0167) collection, appropriately labeled *z-seg*.[28] The order-number partitions of the *x*- and *y-segs*—{*0145*} and {*2367*}—form pitch-class/order-number isomorphisms with the (0145) set classes they represent in Example 4.13; however, despite their outward appearance,

[28] For the time being, the labels *x* and *y* indicate chronological order: that is, the members of the *x-seg* come first in the sense that they derive from the left-most occurring members of the row, while members of the *y-seg* come second as they derive from members occurring after members of the *x-seg*. The segments of retrograde row forms are configured: *z*, *y*, *x*. Inversional and retrograde-inversional row forms reflect an exchange of *x*- and *y-segs* and are respectively configured: *y*, *x*, *z* and *z*, *x*, *y*. In the discussion of row *surrogates* later in this chapter we will reinterpret the *x* and *y* labels, as they are limited in their ability to indicate pitch-class invariance while at the same time indicating chronological order.

these isomorphisms are attainable only through an exchange of order-numbers *5* and *6* (see the asterisks next to these pitch classes) and are thus shown for illustrative purposes only.[29] Pitch-class/order-number isomorphisms are not, strictly speaking, built into the structure of the Piano Concerto's primary row; they arise here because of Ginastera's predilection for interval-class redundancies within the 8-note collection.[30]

Individually, the *x-seg* and *y-seg* highlight two interval classes shared between the row's original (0126) discrete tetrachords and the newly-derived row featuring (0145) tetrachords. The *x-seg* is derived by combining ic1s drawn from each (0126) tetrachord: {87} + {43}. The *y-seg*, on the other hand, combines the "leftover" ic4s: {19} + {t2}. The twelve-tone row that begins the second phrase is systematically derived from these very segments. Example 4.13(b) compares the order-number distribution of the harmonic tetrachords in mm. 1–3 and 5–7. The second set of tetrachords is labeled according to the order numbers of P_8 so as to clarify how the derived segments from Example 4.13(a) are organized. After the initial invariant *z-seg* (order-numbers {*89te*}) the second and third tetrachords appear as derivatives of the "horizontal" segments shown in the first progression.

The tetrachordal organization of the second phrase—*z-seg* followed by *x-seg* then *y-seg*—signifies a retrograde-inversional row form: retrograde because the *z-seg* appears first, and

[29] In context, order-numbers 5 and 6 frequently appear as inner voices when the row is distributed harmonically; thus, imagining their exchange disrupts very little in the way of the actual music and reveals quite a lot about the derivation process. The reader should keep in mind that the 8-note collection is a malleable component of the twelve-tone row, and deriving from it affords Ginastera the opportunity to create variety in terms of local tetrachordal collections and yet maintain consistency by keeping the larger pitch-class content the same.

[30] At this early point in the development of his twelve-tone language, Ginastera was most likely still uncovering the compositional potentialities of pitch-class/order-number isomorphisms. In the later Violin Concerto, discussed in chapter 5, Ginastera devises a primary row that has multiple pitch-class/order-number isomorphisms, two of which greatly influence the sequence of row forms used throughout the movement.

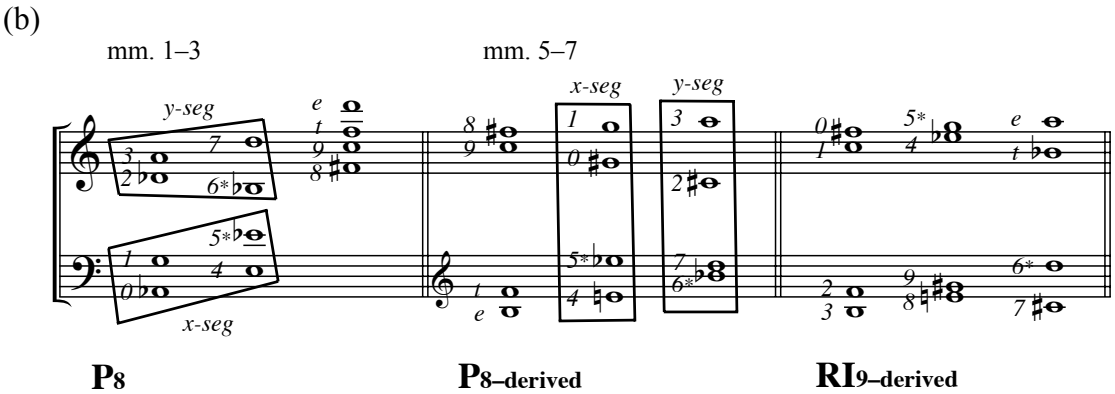
inversional because members of the *x-seg* appear before the *y-seg*.[31] The segments derived from RI_9 are shown in Example 4.13(c), and their musical realization, in terms of order-number configuration, can be found in the final tetrachordal progression of Example 4.13(b).

Example 4.13 Row derivation based on isomorphic (0145) partitions of the 8-note collection

(a)

	0	1	2	3	4	5	6	7	8	9	t	e
P_8	8	7			4	3*						
			x-seg						6	0	5	e
			1	9			t*	2		*z-seg*		
					y-seg							

(b)



(c)

	0	1	2	3	4	5	6	7	8	9	t	e
RI_9					3	7*			8	4		
	6	0	5	e			*x-seg*					
		z-seg					2*	1			t	9
								y-seg				

[31] The soloist's second (0126) * T_{-9} sequence, which immediately follows the chords of the second phrase, supports this interpretation as its interval pattern also appears in retrograde inversion. The first sequence of descending (0126) tetrachords follows the interval pattern <-6, -5, +1> (see Example 4.7 above), while the second sequence follows the pattern <+1, -5, -6> (see the beginning of m. 8 in Example 4.1 above). The RI transformation of the (0126) motive has been noted by several authors but was first explicitly described by Furman; see Furman, "An Analysis of Alberto Ginastera's Piano Concerto No. 1 (1961)," 8–9.

The compositional import of the primary row's derived (0145) subsets is reinforced by Ginastera's frequent motivic use of this tetrachord throughout the *Cadenza* and in the variations that follow. In the music immediately following the *Largo* introduction of the *Cadenza*, Ginastera employs (0145) in a new motivic capacity that, on a local level, underscores the intimate connection between tetrachordal collections (0126) and (0145). On the structural middleground, however, the new motive is used to compose-out additional instances of (0369) and (0167) like those presented by the soloist in the introduction. Example 4.14(a), shown below, is a reduction of the new motive, which is first introduced by the brass section (mm. 16–18) and eventually doubled by the woodwind section (mm. 25–29). The motive is particularly pronounced in part due to its driving syncopated rhythm, the recurrence of which makes it something of a *leitrhythm* (shown in Example 4.14(b)).[32] The entire motive makes one final, unmistakable reappearance in the *Coda* where it is presented ***fff*** *marcatissimo* by the soloist (mm. 151–154).

The pitch-class content of each (0126) tetrachord is indicated above the staff in Example 4.14(a). The repeated T_6 operation ensures that the sequence begins and ends with the same sonority: {05e1}. The pitch-class content of this boundary tetrachord is identical to the first tetrachord presented by the soloist in the (0126) * T_{-9} sequence of m. 4 (see Example 4.7(a) above); by extension, the central T_6-related tetrachord in Example 4.14(b), {6e57}, corresponds to the third iteration of (0126) in the soloist's original sequence.[33] Like individual links in a

[32] In their article about Schoenberg's cadenzas, Alegant and Mead also use the term *leitrhythm* to describe a recurring motivic gesture of a similar status in Schoenberg's Piano Concerto, Op. 42; see Alegant and Mead, "Having the Last Word: Schoenberg and the Ultimate Cadenza," 124. Other parallels between Ginastera's cadenza/ concerto strategies and those of Schoenberg are discussed in chapter 2 (pp. 79–81).

[33] This is because two T_{-9} gestures, like those in the sequence above, are the mod-12 equivalent of a single tritone transposition: $T_{-9} + T_{-9} = T_6$.

chain, {05e1} and {6e57} respectively derive from the first tetrachords of P_0 and P_6.[34] More importantly, each tetrachord has three pitch classes in common with the structurally significant [56e0] *z-seg* of the primary row.

Interwoven between (0126) sonorities in Example 4.14(a) are T_6-related (0145) sonorities that derive from I_2. Example 4.15 illustrates the (*0145*) partitioning scheme that derives (0145) pitch-class sets from the 8-note collection of I_2. The pitch classes of the *y*- and *x-segs* in Example 4.15 are also included below the staff in Example 4.14(a). At first glance, it appears that the (0145) sonorities are simply a part of another one of Ginastera's motivic sequences, which tend to unfold by minor thirds or multiples thereof (i.e., T_3, T_6, and T_9); however, while these motives and the interval projections with which they are associated are a distinct characteristic of Ginastera's compositional language, they are also carefully built into the structure of twelve-tone row itself. Thus, the gradual emergence of the 8-note collection—and by extension, the twelve-tone row—is actually part of a deeper-level compositional strategy involving the sequential deployment of serially-derived partitions.

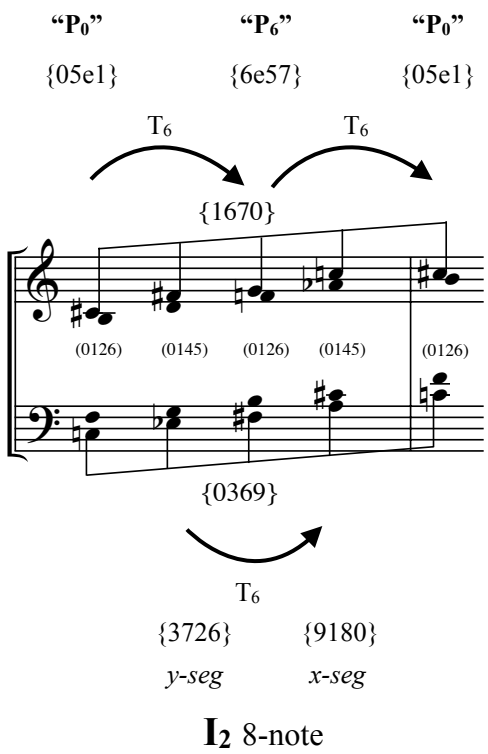
Furthermore, by simultaneously applying a T_6-sequence to (0126) and (0145), Ginastera is able to compose-out, among the outermost registral voices, large-scale projections of (0369) and (0167). The stems and beams in Example 4.14(a) show how the lowest register emphasizes the unfolding of {0369}, while the highest register emphasizes the unfolding of {1670}. In the previous discussion of emerging OCT collections, (0167) and (0369) proved to be fundamental to the structural middleground of the *Largo* introduction. Now, as the *Cadenza* continues, we can begin to appreciate how the orchestra's rhythmically-charged motive, which unites (0126) and

[34] Together these tetrachords complete seven members of the 8-note collection that excludes the *z-seg* [2389].

(0145) on the surface, acts like a small variation in and of itself as it completes the 8-note collection and maintains pitch-class invariances with prior OCT-completing sequences.

Example 4.14 Orchestra alternates (0126) / (0145) derived tetrachords (mm. 16–18; 25–29)

(a)



(b)

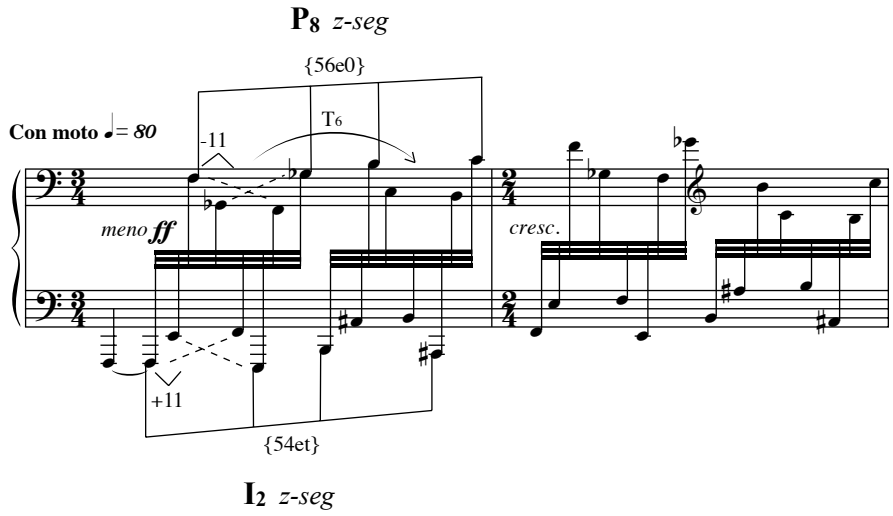
Example 4.15 (0145) tetrachords derived from the 8-note collection of I_2

	0	1	2	3	4	5	6	7	8	9	t	e
I_2	2	3			6	7*						
			y-seg						4	t	5	e
			9	1			0*	8		*z-seg*		
				x-seg								

The 8-note collection of I_2 by itself is actually a viable substitute for the complete twelve-member row form, as the following discussion of row *surrogates* will explain; therefore, it is significant that Ginastera does eventually provide the four missing pitch classes of the I_2—{4t5e}—at a prominent moment within the *Cadenza* (see Example 4.16 below). This "missing" tetrachord appears in the lowest registral voice when the soloist re-enters the texture in m. 25–29 and the orchestra, now increasing in size, restates the *leitrhythm* motive shown in Example 4.14 above. The convergence of instrumental forces and aggregate-completing pitch-class collections marks the beginning of the *Con moto* section and represents the final dramatic push to the close of the *Cadenza*.

The soloist's material in Example 4.16 consists of inversionally related i11 gestures, which alternate throughout the passage by first registrally inverting (indicated by dotted lines in the example) and then ascending by T_6. The soloist's right and left hands each project a different *z-seg*—that is, set class (0167)—and the pitch-class content of m. 24 is repeated one octave higher in m. 25. The rhythmically accentuated pitch classes of the soloist's left hand constitute the missing *z-seg* of I_2; their arrival thus marks a large-scale completion of I_2 that began much earlier in the movement, through the repeated emphasis on the 8-note collection of I_2 throughout the *Cadenza* (see Example 4.14 above).The pitch classes projected by the soloist's right hand in Example 4.16 constitute the original *z-seg,* belonging to the primary row, P_8 (and also RI_9-derived), featured in the *Largo* introduction. Underscoring the connection between I_2 and P_8, Ginastera prominently emphasizes the two invariant pitch classes of their respective *z-segs*, F and B: these pitch classes are accentuated as the first members of each 32nd-note grouping.

Example 4.16 Soloist's material provides the missing *z-seg* of I_2 (mm. 24–25)



The examples in this section highlight some of the unique characteristics of Ginastera's twelve-tone language within the Piano Concerto. From a compositional perspective, we have begun to see just how flexible the primary row and its elements are. Derived rows based on partitioning schemes of the 8-note collection are, in a sense, particularly primed for the art of variation. By the same token, however, derived rows can cause a number of analytical ambiguities: several row forms may share certain invariant segments and/or partitions, rendering them virtually indistinguishable from one another. Herein lies the need to generalize rows into *families* given their unique abilities to act as *surrogates* for one another.

Row Surrogates

Surrogate relations in the Piano Concerto play a crucial role in helping us interpret how Ginastera's twelve-tone language works and why it works so well in the context of a variation form. The very definition of a *surrogate* implies some sort of variation from "the norm," so to speak. As was discussed in the previous chapters, Ginastera sometimes employs secondary row forms in a traditional sense; however, these situations are relatively rare. It is far more common to find twelve-tone presentations that are not strictly related to the primary row but are remarkably similar, if not systematically derived from it.[35]

The Piano Concerto features three types of *surrogate* relations, all of which, at the most basic level, depend upon the pitch-class content of a row's fundamental *z-seg*—that is, its discrete (0167) tetrachord. The first of these *surrogate* types is broadly defined: it consists of a rather large *family* of rows whose members all share the same "8 + 4" (or, more simply, "8-note") configuration of the row.[36] The second and third *surrogate* types create sub-*families* and super-*families* whose respective members share a common *z-seg* but involve two different derivations of the 8-note collection. *Families* are always predicated upon unique instances of pitch-class invariance; thus, the discussion will also explore the potential for certain *family* members to share *mosaic* profiles.[37]

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[35] "True" secondary rows—that is, rows that are contextually supported by appearing alongside P_x-, I_x-, R_x- and RI_x-transformations of themselves—are most commonly found in Ginastera's operas, where they are assigned to different characters and/or events in a *leitmotif* sense; see the discussion of Example 2.20 in chapter 2. The analytical advantages of invoking *derived* rows, as opposed to "secondary" rows, in discussed in chapter 3 (pp. 103ff).

[36] The 8-note collection of the row refers to order-number segment *0–7* of P_x and I_x row forms (and *4–e* of R_x and RI_x row forms). The pitch-classes of any row's 8-note collection constitutes collection-class 8-9 (01236789): this collection is the complement of 4-9 (0167) and thus represents the contiguous segment of any row that does *not* include that row's characteristic *z-seg*—order-number segment {*89te*} of P_x and I_x row forms (and {*0123*} of R_x and RI_x forms).

[37] See chapter 3 for a formal definition of *mosaic*.

The purpose of discussing rows in terms of their *family* relations is to create equivalence classes in which any one row may stand in for, or perhaps reinforce, the structural properties of another row or multiple rows.[38] Several musical factors invite an analysis that is informed by the concept of *surrogates*. For one, Ginastera frequently employs the twelve-tone row harmonically throughout the Piano Concerto, thereby complicating the strict distribution of order numbers. He also tends to repeat certain pitch classes, such as those of the *z-seg*, which tends to give the aural impression that only a single row is governing a particular passage, when in reality the passage draws from a much larger *family* of related row forms. Lastly, even though Ginastera sometimes digresses into passages that seem outwardly non-serial, certain motivic elements that are deeply integral—if not synonymous—with the twelve-tone row are always latent within the musical fabric and active in an organizational capacity on the structural middleground.

Z-seg Row Families

The *z-seg* is paramount to defining and determining *surrogate* relations in the Piano Concerto. The symmetrical properties of (0167) allow for it to map onto itself under four different operations; this makes the *z-seg* a convenient marker for grouping rows into *families*. Example 4.17(a) shows the matrix for the Piano Concerto's primary row, and the shaded areas highlight every *z-seg*. Four row forms (along with their four retrograde counterparts) are singled out in the example; this group of eight row forms represents a single *z-seg family*. Each member of this particular family has the same unordered *z-seg*, [56e0], and even though Ginastera

[38] Row *families* are somewhat analogous to twelve-tone "areas" in Schoenberg's music. See chapter 2, *Ginastera and the Second Viennese School*, for a discussion of general similarities between Schoenberg's and Ginastera's approach to twelve-tone composition.

sometimes elaborately manipulates their complementary 8-note collections—thereby forming derived rows—their membership within the same *z-seg family* always remains a unifying feature.

Members of any given *z-seg family* are related by one of the following operations: T_6 (or RT_6) or inversion (or retrograde inversion) at $I_{(x+1)}$, or its T_6 relative, $I_{(x-5)}$. A complete *z-seg family* thus always consists of eight members—specifically, two T_6-related pairs of each type of row form. Example 4.17(b) clarifies these relations using prime and inversion forms only. The down arrows, which point immediately below the primary row, P_8, and its T_6-related partner, P_2, indicate inversional row forms that are related by $I_{(x+1)}$, respectively I_9 and I_3. The diagonal arrows point to family members that are related by $I_{(x-5)}$. The "horizontal" T_6 operations keep the *family* contained to the same four members, thus the dotted lines indicate where the square folds back over on itself.

Given the conventional system for labeling rows, a complete *z-seg family* (including all eight members) spells out a transposition of the very set class that defines the family, (0167): P_8, P_2, I_9, and I_3 mark the boundary pitch-classes {8293}. In order to avoid confusion, *z-seg families* are not named after their traditional index labels, but after the pitch classes that constitute their *z-segs*.[39] Thus, the rows highlighted in Example 4.17(a) constitute a complete [56e0] *z-seg family*. Because there exist only six unique *z-segs*, the 48 possible row forms are narrowed down to only six unique *row families* of the general *z-seg* type.

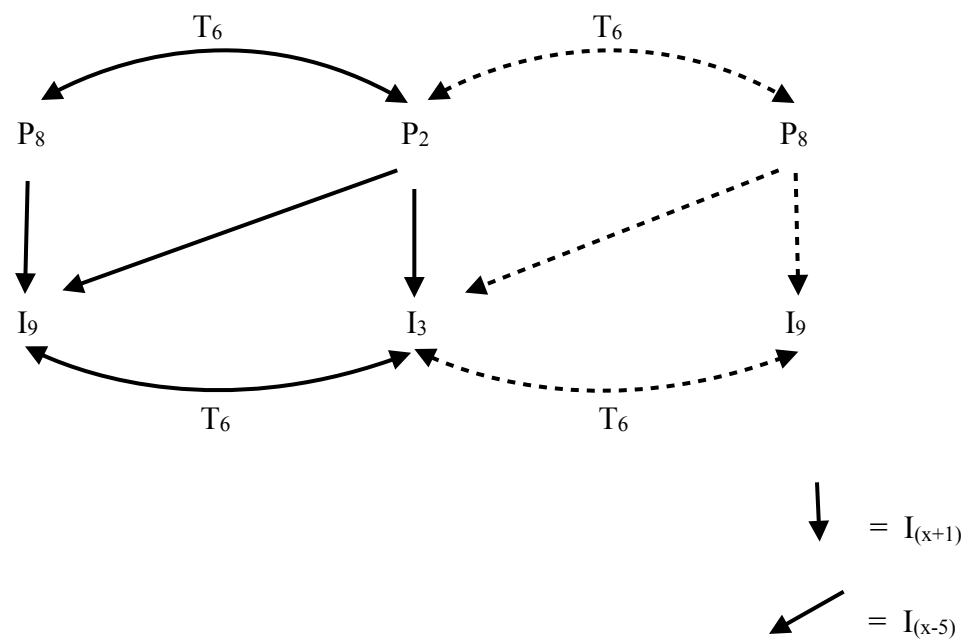
[39] N.B. The conventional index labels of members of a particular *z-seg family* are always $T\pm_3$ removed from the pitch-class members of their invariant *z-seg*. For example, a family that shares the *z-seg* [1278] is made up of rows labeled after [45te]—that is, P_4, I_5, P_{10}, I_{11} and their retrogrades.

Example 4.17 The [56e0] *z-seg family* with all boundary *z-segs* shaded gray

(a)

				I_9			I_3						
P_8	8	7	1	9	4	t	3	2	6	0	5	e	R_8
	9	8	2	t	5	e	4	3	7	1	6	0	
	3	2	8	4	e	5	t	9	1	7	0	6	
	7	6	0	8	3	9	2	1	5	e	4	t	
	0	e	5	1	8	2	7	6	t	4	9	3	
	6	5	e	7	2	8	1	0	4	t	3	9	
	1	0	6	2	9	3	8	7	e	5	t	4	
P_2	2	1	7	3	t	4	9	8	0	6	e	5	R_2
	t	9	3	e	6	0	5	4	8	2	7	1	
	4	3	9	5	0	6	e	t	2	8	1	7	
	e	t	4	0	7	1	6	5	9	3	8	2	
	5	4	t	6	1	7	0	e	3	9	2	8	
				RI_9			RI_3						

(b)



In addition to sharing an invariant (0167) tetrachord and thus an invariant 8-note collection, inversionally-related *surrogates* within any *z-seg family* are exceptional in that they exhibit invariant hexachordal *mosaic* profiles. Examples 4.18(a) and (b) compare P_8 with both I_9 and its T_6 counterpart, I_3. I_9 is hexachordally combinatorial with P_8 and the trichordal *mosaics* of their first hexachords are also invariant, only they swap places. Their second hexachords preserve, without shifting places, a single dyad—order-number segment {*67*}—and the family's eponymous *z-seg*. P_8 and I_3 in Example 4.18(b) exhibit a similarly strong *surrogate* relation that is distinguished by invariance between their respective tetrachordal *mosaics*. Here, the first two tetrachords of P_8 swap places in I_3.

Example 4.18 *Mosaic* profiles of the primary row and $I_{(x-1)}/I_{(x-5)}$-related *surrogates*

(a)

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
P_8	8	7	1	9	4	t	3	2	6	0	5	e
				X			I			I		
I_9	9	t	4	8	1	7	2	3	e	5	0	6

(b)

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
P_8	8	7	1	9	4	t	3	2	6	0	5	e
				X						I		
I_3	3	4	t	2	7	1	8	9	5	e	6	0

Sub-*families and* Super-*families of Z-seg Surrogates*

Surrogate relations can be thought of hierarchically in terms of the number of rows that exhibit the same *surrogate* properties—that is, the relative size of the row *family* they give rise to.[40] Most *surrogate* relations can be compartmentalized into sub-*families* that contain relatively few row members (usually ≤ 4 rows) and exhibit more exclusive pitch-class invariances. Members within a sub-*family* represent "higher-order" *surrogates* because they imply a certain amount of compositional selectivity and control. Conversely, a *family* with a relatively large number of row forms (usually ≥ 8 rows) constitutes a super-*family*. Super-*families* take into account multiple *surrogate* relations, which generally do not discriminate according to the order of segments. (They thus tend to include R_x and RI_x row forms in addition to P_x and I_x forms.) Super-*families* are useful in drawing deeper-level structural connections that may otherwise go unnoticed given the ambiguous order-number presentation of certain passages.

The discussion above noted seven other rows within the [56e0] *z-seg family* that act as *surrogates* for the primary row, P_8, based on their shared "8 + 4" *mosaic* profile. Four members of this *z-seg family* are retrogrades, while the other three—in terms of general content only—are order-related to P_8 such that the pitch classes of their common *z-seg* constitute the last tetrachord of each row. Different sub-*families* of the *z-seg family* are also possible if we place constraints on the *surrogate* relation. For example, we can group rows based on their shared ability to maintain pitch-class invariance under the process of *derivation*. The following discussion will examine two possible partitioning schemes of the 8-note collection, one into (0145) tetrachords and the other into (0167) tetrachords.

[40] The hierarchical implications of *surrogate* relations is explained in chapter 3 (p. 110f).

Example 4.19(a) is a regrouping of the eight-member *z-seg row family*. This time the rows are grouped under the assumption that each 8-note collection is configured into two (0145) tetrachords, *x* and *y*, which are analogous to the derived *x*- and *y-segs* described in conjunction with Example 4.13(a) above. In relation to P_x, the *x-seg* and the *y-seg* represent, respectively, order-number partitions {*0145*} and {*2367*}. The eight members of the *z-seg family* divide into two groups of four: the four members in each group represent different and distinct row forms—prime, inversion, retrograde, and retrograde inversion. Naturally, the *z-seg* appears on either side of the 8-note collection depending upon whether or not the row is a retrograde form. The 8-note collections of the first four rows in Example 4.19(a) reflect derived rows whose pitch-class contents are arranged such that the *x-seg* appears before the *y-seg*. Conversely, the bottom half of the example shows four different rows whose 8-note collections are arranged in the opposite manner such that the *y-seg* appears before the *x-seg*.[41]

The primary row and the rest of its [56e0] *z-seg family* are shown in Example 4.19(b). The *family* is divided into four-member sub-*families* whose rows are T_6 related. As before, the shaded areas indicate the invariant *z-segs*. The *x-segs* (in contrast to the *y-segs*) are indicated by boxes. Ginastera frequently isolates the *z-seg* musically from the rest of the row via a different instrumentation, registral placement, and/or rhythmic emphasis; therefore, in order to group the eight members of a *z-seg family* into four-member sub-*families*, it is often only necessary to consider the relative order of the *x* and *y* within the 8-note collection. Although the two sub-*families* in Example 4.19(b) are T_6 related, their <*x*, *y*> configurations are reversed: note that, in

[41] This example addresses the labeling issue mentioned in note 27 above. In order to better categorize the exclusiveness of a given *surrogate* relation, we now need to be able to compare both the relative order of tetrachords and their potential for pitch-class invariance. Thus, the tetrachord labels *x* and *y* from here on are presumed to indicate specific pitch-class contents and should be interpreted in comparison to the row with which they form a *surrogate* relation. For example, $P_{(x+6)}$ is a *surrogate* for P_x: in this case, we would say that the <*x*, *y*, *z*> tetrachordal content of P_x appears swapped as <*y*, *x*, *z*> in the *surrogate* row $P_{(x+6)}$.

comparison to the first sub-*family*, the general contents of the *x-segs* (indicated by boxes) in the second sub-*family* appear after the *y-segs*.

Example 4.19 8-member *family* of (0145)-derived rows with invariant tetrachordal *mosaics*

(a)

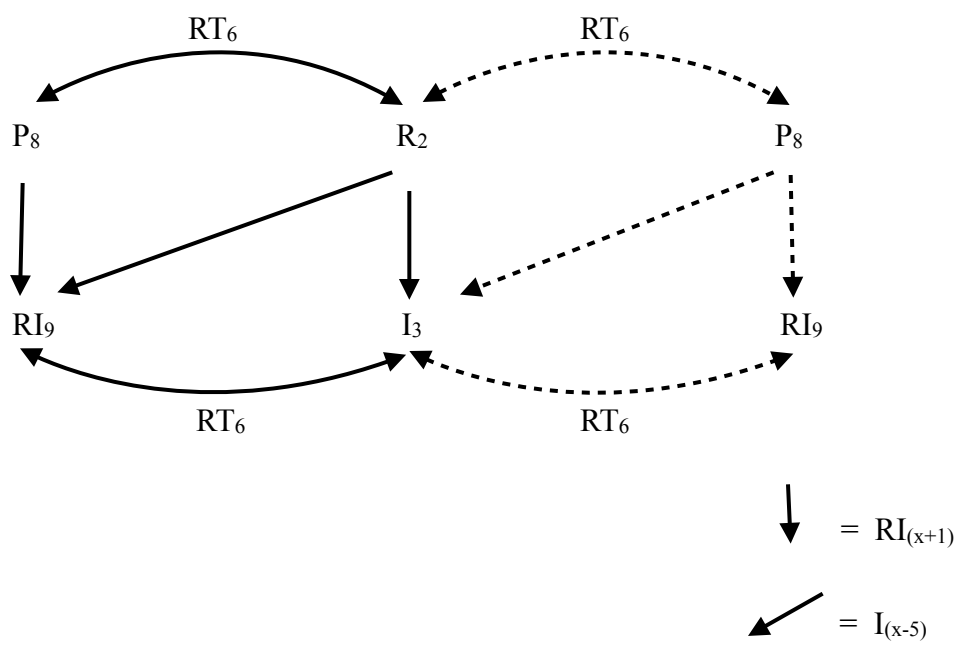
	Tetrachord 1	*Tetrachord 2*	*Tetrachord 3*
P_x	x	y	z
$I_{(x-5)}$	x	y	z
$R_{(x+6)}$	z	x	y
$RI_{(x+1)}$	z	x	y
$P_{(x+6)}$	y	x	z
$I_{(x+1)}$	y	x	z
R_x	z	y	x
$RI_{(x-5)}$	z	y	x

(b)

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
P_8	8	7	1	9	4	3*	t*	2	6	0	5	e
I_3	3	4	t	2	7	8*	1*	9	5	e	6	0
R_2	5	e	6	0	8	4*	9*	t	3	7	1	2
RI_9	6	0	5	e	3	7*	2*	1	8	4	t	9

P_2	2	1	7	3	t	9*	4*	8	0	6	e	5
I_9	9	t	4	8	1	2*	7*	3	e	5	0	6
R_8	e	5	0	6	2	t*	3*	4	9	1	7	8
RI_3	0	6	e	5	9	1*	8*	7	2	t	4	3

Example 4.20 (0145)-derived sub-*family* consisting of four rows, each a different type



The diagram in Example 4.20 shown above organizes the four members of the *z-seg* sub-*family* (from the top of Example 4.19(b)) into RT_6 pairs. Down arrows indicate rows related by $RI_{(x+1)}$ and diagonal arrows indicate rows related by $I_{(x-5)}$. There are only 12 unique (0145)-derived sub-*families,* which is double the number of *z-seg families* but still only a fraction of the 48 individual row forms. The members of the sub-*family* are *surrogates* for one another in the sense that they are rife with the compositional potential to substitute for (and allude to) one another. Significantly, the mappings among their respective derived collections ensure that each member is structurally the same in terms of general *x*/*y*/*z* tetrachordal content, yet still slightly varied in terms of the specific order of pitch classes contained within these tetrachords. Case in point, the orchestra's second twelve-tone presentation in the *Largo* introduction (mm. 5–7), shown in Example 4.13(b) above, is derived from RI_9, and now, given the relations in Example 4.20, we can see that RI_9 is a member of the same *z-seg* sub-*family* as P_8 and is thus a *surrogate* for the primary row.[42]

T_6 plays a key role in determining most *surrogate* relations. The tritone is a powerful interval in Ginastera's twelve-tone music in general: it is projected both on the local level, where it frequently participates in motivic sequences,[43] and over longer spans of music, where it often marks the return of the primary motive or theme and thus serves to define formal boundaries.[44] In the Piano Concerto, T_6-related rows display a great deal of segmental invariance. For one, T_6

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[42] R_2 is the only other row form that can mimic the exact same <*z*, *x*, *y*> configuration as RI_9 (see Example 4.19(b)). The soloist's sequence that follows in m. 8 features (0126) * T_{-9} in retrograde inversion; thus, RI_9-derived (rather than R_2-derived) seems a more contextually meaningful label.

[32] See Example 4.14(a) above, in which T_6-related (0126) motives, derived from "P_0" and "P_6", are featured in the orchestra's highly syncopated *leitrhythm*.

[44] See the discussion of large-scale row organization in the Violin Concerto, especially Examples 5.37(a) and 5.39(a).

row pairs share a common *z-seg* and, by extension, a common 8-note collection. It was suggested earlier that the 8-note collection may be partitioned into two instances of (0167)—in contrast to two instances of (0126) or (0145).[45] Example 4.21 highlights the invariant (0167) collections between T_6-related rows, P_0 and P_6. In addition to their invariant *z-segs* (shaded gray in the example), T_6-related rows share an invariant (0167) tetrachord at order-number segment {*3456*}. The order-number dyad {*12*}—pitch-class dyad {e5} in the example—also remains invariant between T_6-related rows and is part of a third invariant (0167) tetrachord, which lies at the non-discrete order-number partition {*0127*}.[46]

Example 4.21 Invariant (0167) segments among T_6-related rows

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
P_0	0	e	5	1	8	2	7	6	t	4	9	3
P_6	6	5	e	7	2	8	1	0	4	t	3	9

There are three reasons for grouping rows based on their embedded (0167) tetrachordal content. The first reason simply underscores the point made above: Ginastera tends to favor T_6 relations compositionally. Secondly, there are a substantial number of instances within the Piano Concerto in which the 8-note collection is reconfigured and partitioned not into (0145)

[45] See Example 4.10(b).

[46] Motives derived from P_0 and P_6 recur throughout the first movement of the concerto, as part II of this chapter will explain. It is, therefore, quite interesting that (0167)-derived profiles of these two rows correspond to the three transpositions of (0167) that Ginastera tends to favor in many of his twelve-tone works. Significantly, the (0167) tetrachords embedded within the structure of P_0 and P_6 are situated in the order in which Ginastera tends to prioritize them contextually within the Piano Concerto: [56e0], [1278], [349t].

tetrachords but into one or more (0167) tetrachords.[47] Thirdly, within any row, the three instances of (0167) that lie at the specific order-number partitions shown in Example 4.21 each belong to different transpositions of the octatonic scale, and, as was previously discussed, the OCT collection plays an integral role in organizing structural events that lie beyond the surface of the music. Therefore, it often proves analytically advantageous to investigate two questions: (1) Which rows have invariant (0167)-derived profiles? and (2) At which order-number partitions do the specific pitch-class contents of these (0167) tetrachords emerge?

To answer these questions, we begin with the three partitions of (0167) within the primary row, which are identified by beams in Example 4.22. Naturally, the *z-seg*, order-number partition {*89te*}, constitutes the row's most characteristic (0167) tetrachord. Of the row's remaining 8-note collection, the discrete (0126) tetrachords contain three common tones with the first two (0167) partitions via their common subset, (016). Thus, in terms of order-number partitions, the difference between (0126) and (0167) can be expressed as: {*012*} + {*7*} and {*3*} + {*456*}. The first three members of each discrete tetrachord, {*012*} and {*456*}, constitutes the (016) subset that (0126) and (0167) share. The additional singletons in each partition, order numbers {*7*} and {*3*}, provides the set-altering pitch-class that turns (0126) into (0167).[48] The first instance of (0167), which lies at order-number partition {*0127*}, will be referred to as the "framing" tetrachord because its contents derive from those pitches that frame either side of the

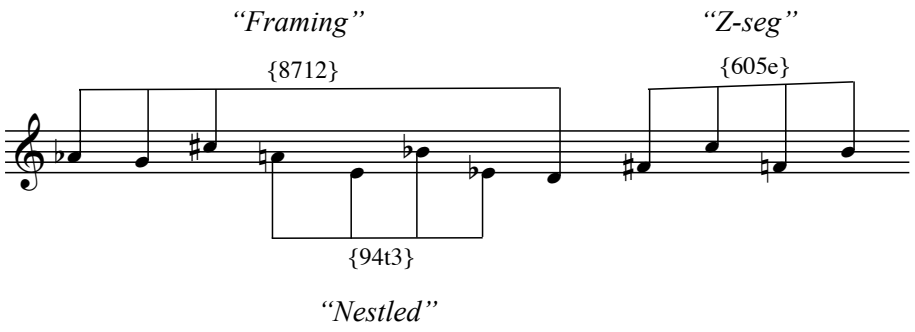
[47] This technique is not unique to the Piano Concerto: it can be seen in virtually all of Ginastera's twelve-tone compositions, a number of which are discussed in chapter 2. See, for instance, Examples 2.1 and 2.19 from the Piano Quintet; Example 2.6 from the fourth movement of the Piano Concerto; and Example 2.13 from the String Quartet No. 2.

[48] The intervallic similarities between (0126) and (0167) are illustrated in Example 4.4(a) above. Contextually speaking, a single order-number exchange can turn (0126) into (0167): order-number *3*, the highest member of the concerto's opening sonority (m. 1), and order-number *7*, the highest member of second sonority (m. 2), if exchanged, turn both tetrachords into (0167).

8-note collection. The second and contiguous instance of (0167), order-number segment {*3456*}, will be referred to as the "nestled" tetrachord because it is literally nestled between the other (0167) partitions of the row and crosses discrete tetrachordal divisions within the 8-note collection.

Note that the terms "framing" and "nestled" still remain appropriate even when a row appears in retrograde form: these partitions still emerge from the row's 8-note collection, but their specific order-number partitions change from {*0127*} to {*49te*} and from {*3456*} to {*5678*}. Within any retrograde row form the "nestled" collection appears conceptually prior to the "framing" collection even though one member of the "framing" partition is literally situated before the "nestled" partition. With respect to the musical realizations of these partitions, especially in R_x and RI_x rows forms the following observations should be kept in mind: (1) Ginastera regularly re-orders the row so that the single "out-of-place" pitch class of the "framing" partition actually occurs alongside the other members of the collection; and (2) even when Ginastera does not re-order the row, the "nestled" (0167) collection, along with the contiguous (016) trichord that abuts it—order numbers {*9te*} of R_x / RI_x row forms—provides plenty of pitch-class invariance and gives the aural impression of a *surrogate* relation.

Example 4.22 Three partitions marking (0167) within the primary row



Rows with invariant pitch-class contents among their (0167)-derived profiles can act as *surrogates* for one another and form relatively large row *families*. Example 4.23 is divided into three groups of eight row forms: P_x and I_x row forms should be read from left to right, and their respective R_x and RI_x forms should be read from right to left. Throughout the example the content of each row's three (0167) tetrachords is given in relation to the initial P_x row form. The pitch-class content of the *z-seg* is designated simply as *z*. Contrastingly, the pitch-class content derived from the first (0167) tetrachord of P_x—that is, the "framing" {*0127*} partition—is designated as z^1, while the "nestled" partition is designated as z^2 because it appears second within P_x.

The first group of eight rows constitutes a complete *z-seg family*, like that shown in Example 4.17 above. The pitch classes of the *z* tetrachord thus all appear within the far-right column of Example 4.23. The z^1 and z^2 tetrachords maintain their order placement between P_x and its T_6 partner, $P_{(x+6)}$ (and their retrogrades), but, among the I_x and RI_x row forms of the family, these tetrachords swap places. The same combination of relations can be found in the other two groups forming the middle and bottom portions of Example 4.23. The middle group consists of row forms in which the pitches of the original *z-seg* map onto the "framing" partition, shown in the far-left column. In contrast, the bottom group consists of row forms in which the pitches of the original *z-seg* map onto the "nestled" partition, shown in the middle column.

Looking down the far-right column, where the literal *z-seg* partition of each row form lies, we can see that the second and third groups of rows are a mixture of two different *z-seg families*—one with the pitch-class content of z^1 and the other with that of z^2. What matters most here, with regards to the middle group in particular, is that the content of the *z-seg* is now

situated in the "framing" position, which means these rows are exceptional similar to the retrograde forms listed in the first group (and vice versa).[49] Specifically, the tetrachordal content of $I_{(x\pm3)}$ of the middle group is identical to that of R_x and $R_{(x+6)}$ of the first group, and $P_{(x+4)/(x-2)}$ in the middle group is identical to $RI_{(x+1)/(x-5)}$ in the first group.

Example 4.23 Row *surrogates* with invariant pitch-class contents among (0167) tetrachords

	"Framing" {0127}	*"Nestled" {3456}*	*"Z-seg" {89te}*	
→				←
P_x	z^1	z^2	z	R_x
$P_{(x+6)}$	z^1	z^2	z	$R_{(x+6)}$
		×		
$I_{(x+1)}$	z^2	z^1	z	$RI_{(x+1)}$
$I_{(x-5)}$	z^2	z^1	z	$RI_{(x-5)}$
$I_{(x+3)}$	z	z^2	z^1	$RI_{(x+3)}$
$I_{(x-3)}$	z	z^2	z^1	$RI_{(x-3)}$
			×	
$P_{(x+4)}$	z	z^1	z^2	$R_{(x+4)}$
$P_{(x-2)}$	z	z^1	z^2	$R_{(x-2)}$
$I_{(x-1)}$	z^1	z	z^2	$RI_{(x-1)}$
$I_{(x+5)}$	z^1	z	z^2	$RI_{(x+5)}$
$P_{(x-4)}$	z^2	z	z^1	$R_{(x-4)}$
$P_{(x+2)}$	z^2	z	z^1	$R_{(x+2)}$

The combination of the first and middle groups listed in the example above creates a (0167)-derived super-*family* consisting of 16 members. Example 4.24(a) below shows the super-*family* in matrix form. At least three pitch classes of the original *z-seg*, [56e0], form a discrete

[49] Even if the row were not explicitly reconfigured into discrete (0167) tetrachords, three members of the *z-seg* would still appear along the "framing" partition, thus making these row forms still very aurally similar.

segment among one of the boundaries of every row in the *family*. Example 4.24(b) restricts the same *family* to only eight members: of these members, both the pitch classes of the original *z-seg*, [56e0], and the original z^1, [1278], appear as "boundary" tetrachords—that is, either as "*z-seg*" or "framing" order-number partitions (shown in gray). This more exclusive *surrogate* relation thus unites members from two different *z-seg families*—[56e0] and [1278]—based on their identical configurations of (0167) tetrachordal content.

Example 4.24 (0167)-derived row *families*

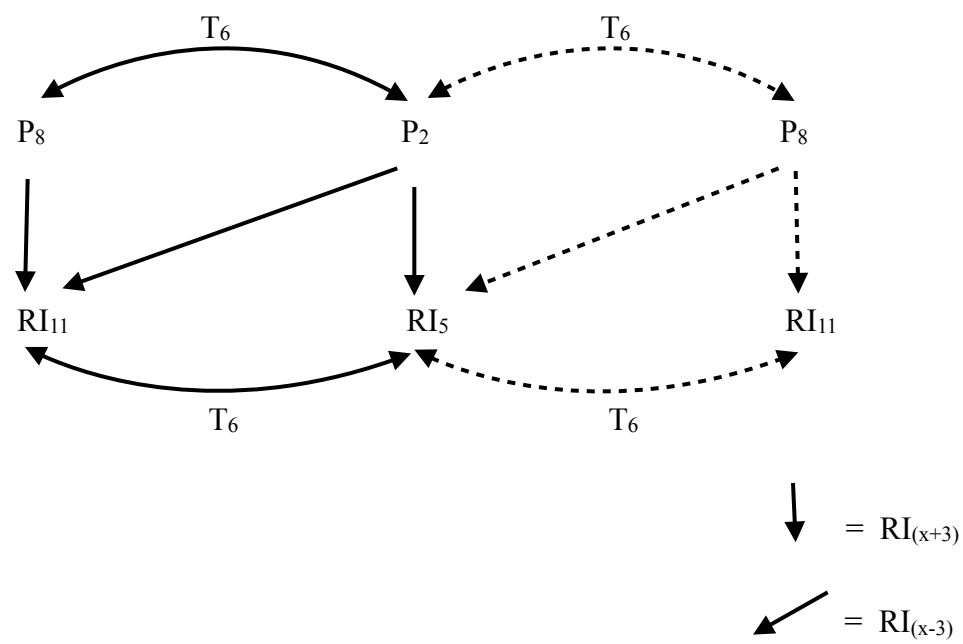
(a)

				I_9			I_3				I_5	I_{11}	
P_8	8	7	1	9	4	t	3	2	6	0	5	e	R_8
	9	8	2	t	5	e	4	3	7	1	6	0	
	3	2	8	4	e	5	t	9	1	7	0	6	
	7	6	0	8	3	9	2	1	5	e	4	t	
P_0	0	e	5	1	8	2	7	6	t	4	9	3	R_0
P_6	6	5	e	7	2	8	1	0	4	t	3	9	R_6
	1	0	6	2	9	3	8	7	e	5	t	4	
P_2	2	1	7	3	t	4	9	8	0	6	e	5	R_2
	t	9	3	e	6	0	5	4	8	2	7	1	
	4	3	9	5	0	6	e	t	2	8	1	7	
	e	t	4	0	7	1	6	5	9	3	8	2	
	5	4	t	6	1	7	0	e	3	9	2	8	
				RI_9			RI_3				RI_5	RI_{11}	

(b)

											I_5	I_{11}	
P_8	8	7	1	9	4	t	3	2	6	0	5	e	R_8
	9	8	2	t	5	e	4	3	7	1	6	0	
	3	2	8	4	e	5	t	9	1	7	0	6	
	7	6	0	8	3	9	2	1	5	e	4	t	
	0	e	5	1	8	2	7	6	t	4	9	3	
	6	5	e	7	2	8	1	0	4	t	3	9	
	1	0	6	2	9	3	8	7	e	5	t	4	
P_2	2	1	7	3	t	4	9	8	0	6	e	5	R_2
	t	9	3	e	6	0	5	4	8	2	7	1	
	4	3	9	5	0	6	e	t	2	8	1	7	
	e	t	4	0	7	1	6	5	9	3	8	2	
	5	4	t	6	1	7	0	e	3	9	2	8	
											RI_5	RI_{11}	

Example 4.25 (0167)-derived sub-*family* consisting of T_6- and $T_{\pm 3}$-related row forms



Like the (0145)-derived sub-*family* discussed earlier (see Example 4.20), a (0167)-derived sub-*family* takes into account not only the contents of the "framing," "nestled," and "*z-seg*" tetrachords, but also their relative order placement. Example 4.25 above shows a (0167) sub-*family* that includes the primary row, P_8. Rows to the right or left of one another are related by T_6 and are thus members of the same *z-seg family*. The downward and diagonal arrows indicate retrograde inversion—specifically, $R_{(x\pm3)}$.

In sum, the uniform yet malleable nature of the twelve-tone row used in the Piano Concerto allows for the possibility of multiple *surrogate* relations Despite being related by traditional T_n, I_n, RT_n, and RI_n transformations, certain row forms are virtually indistinguishable from one another in terms of the general pitch-class contents among their derived partitioning schemes. When the 8-note collection is partitioned into (0145) tetrachords, rows can be grouped into 8-member *families* of *surrogates* with shared "8 + 4" *mosaic* profiles (shown in Example 4.19) and 4-member sub-*families* that take into account the relative order of derived (0145) tetrachords (shown in Example 4.20). Members of a 4-member (0145)-derived sub-*family* are unique in that they consist of four different types of row forms—P_x, $R_{(x\pm6)}$, $I_{(x-5)}$, and $RI_{(x+1)}$. On the other hand, when the 8-note collection is partitioned into (0167) tetrachords, rows can be organized in the following manners: (1) into a 24-member group with shared pitch-class contents among all three partitions of (0167) (shown in Example 4.23); (2) into a 16-member super-*family* of rows that share either the same *z-seg* or "framing" content (shown in Example 4.24(a)); (3) into an 8-member *family* of rows that share both the same *z-seg* and "framing" content (shown in Example 4.24(b)); and (4) into a 4-member sub-*family* that takes into account the relative order of derived (0167) tetrachords (shown in Example 4.25). Members of a 4-member (0167)-derived

sub-*family* are unique in that they unite T_6 pairs of RI-related rows—more specifically, RI-related rows that are not members of the same *z-seg family*.

Other Non-Z-seg-Related Surrogates

A rather unique set of pitch-class mappings takes place when a T_6 relation is combined with inversion. Ginastera exploits the *surrogate* relation formed by P_x / $I_{(x+6)}$ row pairs in the opening *Cadenza* of the Piano Concerto. The top of Example 4.26 shows the primary row and its T_6 partner, P_2; the bottom of the example shows the inversional counterparts of these rows, I_8 and I_2. Embedded within the structure of Ginastera's row class there is yet another occurrence of (0167) besides the aforementioned "framing," "nestled," and "*z-seg*" partitions. This fourth instance of (0167) forms an isomorphism with order-number partition {*45te*}—the boundary dyads of each hexachord.[50] The pitch-class dyads {4t} and {60} at order-numbers partitions {*45*} and {*89*} map onto each other under inversion: thus, the tritones {4t} + {60} in P_8 appear as {06} + {t4} in I_8. When inversion is combined with T_6 transposition—the dyads swap places but the individual pitch classes remain ordered: thus, {4t} + {60} in P_8 appear as {60} + {4t} in I_2.

Furthermore, P_x / $I_{(x+6)}$ row pairs, while holding invariant the tritone dyads of order-number partitions {*45*} and {*89*}, also map the pitch-class/order-number isomorphic {*45te*} partition of P_x onto the *z-seg*, order-number partition {*89te*}, of $I_{(x+6)}$ (see the boxes in Example 4.26). This particular mapping—which involves the primary row and I_2 in Example 4.26—underscores the significance of the soloist's entry in the *Con moto* section of the *Cadenza*, discussed earlier in this chapter (see Example 4.16). The soloist enters this passage with two *z-*

[50] The same partition within any R_x or RI_x row form constitutes order-number partition {*0167*}. Interestingly, (0167) / (*0167*) pitch-class/order-number isomorphisms are essential to the twelve-tone language of Ginastera's Violin Concerto, discussed in chapter 5.

segs—[56e0] and [45te]—which correspond, respectively, to the *z-segs* of P_8 and I_2. Moreover, the soloist's *z-segs* complete a deeper-level presentation of the aggregate that was already underway in the orchestra's *leitrhythm* motive, which consists of (0145) tetrachords serially derived from the 8-note collection of I_2 (see Example 4.14 above).

Example 4.26 T_6-related pairs and their inversional counterparts

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
P_8	8	7	1	9	4	t	3	2	6	0	5	e
P_2	2	1	7	3	t	4	9	8	0	6	e	5
I_8	8	9	3	7	0	6	1	2	t	4	e	5
I_2	2	3	9	1	6	0	7	8	4	t	5	e

Example 4.27 Dyad *mosaics* of P_x / $I_{(x+6)}$ row pairs

P_x

a *b* *d* *e*

c *f*

$I_{(x+6)}$

d *e*

b *a*

c *f*

P_x / $I_{(x+6)}$ row pairs illuminate one final *surrogate* relation involving the rows' dyadic *mosaic* profile. After the content of order-number partition *{45te}* of P_x maps onto *{89te}* of $I_{(x+6)}$ (as shown in Example 4. 26), the remaining discrete tetrachordal segments of P_x—order-number

partitions {*0123*} and {*6789*}—divide up systematically to form the first two tetrachords of $I_{(x+6)}$. Each discrete dyad of P_x is assigned an alphabetical letter in Example 4.27. The dyads *c* and *f* of P_x represent the aforementioned pitch-class/order-number isomorphic partition {*45te*}, which maps onto the last tetrachord of $I_{(x+6)}$. The dyad segments *d* and *e*, which begin the second hexachord of P_x, map onto a new position where they frame the first hexachord of $I_{(x+6)}$. Finally, the first dyad *a* of P_x becomes the first dyad of the second hexachord of $I_{(x+6)}$, while dyad *b* remains in a fixed order-number position between both rows.

PART II: ANALYSIS

Part II of this chapter will investigate the more esoteric intricacies of Ginastera's serial approach in the Piano Concerto by focusing on the *process* by which serial and non-serial elements—both of which involve melodic-motivic sequences and multiple "octatonic" collections—are projected on multiple levels of the music's structure and relate to one another in meaningful ways. These processes are integral to Ginastera's variation strategies. The concept of row *surrogates* will be invoked to explain how the twelve-tone row presented at the beginning of the Piano Concerto is extended, elaborated, and even reinterpreted in ways that facilitate the variation process and ensure Ginastera's signature sound.

As is the case with many of Ginastera's compositions, the opening few measures of a piece tend to act as a "nexus" point from which nearly all subsequent pitch, intervallic, and rhythmic material is derived.[1] The theme + variations formal model is thus uniquely suited to facilitate this particular attribute of Ginastera's compositional style. Variation strategies in the Piano Concerto include the following broad yet interrelated topics: (1) row distribution based on *surrogate* relations such as those defined by *z-seg row families*; (2) melodic-motivic sequences involving serially-derived tetrachords (0126) and/or (0145); and (3) "octatonic" completion involving either the so-called 8-note subset of the row (discussed in part I of this chapter) or one of the unordered OCT collections.[2] This chapter consists of three parts, which explore the aforementioned topics individually.

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[1] See chapter 3 for a discussion of the introductory role of the *cadenza* in Ginastera's works.

[2] In the context of the Piano Concerto, the 8-note collection refers to a contiguous segment of the row—order-numbers *0–7* of any P_x or I_x row form (or *4–e* of any R_x or RI_x row form)—that excludes a single (0167) tetrachord at the end of the row, referred to as the *z-seg*. The pitch classes of the 8-note collection constitute set class 8-9 (01236789) and the various transpositions of this collection are labeled according to the complementary, or "missing," *z-seg* (e.g, the 8-note "missing" [2389] refers to pitch-class set [4567te01]).

The first part of the chapter, which concerns the organization of rows and their *surrogates*, explores how only a select number of row forms are used throughout the first movement and each shares structural characteristics with those featured in the movement's opening *Cadenza*. Oftentimes the characteristics of the *surrogate* relations in the Piano Concerto are outwardly defined by an invariant *z-seg*, and, by extension, an invariant 8-note collection. At other times, the *surrogate* relation is more complex and may depend upon a row's unique ability to map certain pitch classes onto another structurally significant order-number partition, such as the "framing" {*0127*} partition.[3]

The second part of this chapter focuses on melodic-motivic sequences, which recur throughout the Piano Concerto. The most distinctive sequences in the first movement of the concerto are those that mimic the soloist's very first sequence in m. 4a of the *Cadenza* (discussed in part I of this chapter). This original (0126) * T_{-9} sequence exhibits the following marked characteristics: (1) transpositional motion through a complete $T_{3/9}$ cycle, and (2) unique serial derivation consistent with order-number partition {*1203*}—that is, the first tetrachord of the row with its first three pitch classes in an unusual order-number configuration. The primary motivic material featured in several of the movement's variations involve some adaptation of this sequence, and, in all its recurrences, the aforementioned characteristics are preserved, albeit in a slightly varied form.

The third and final part of this chapter considers the deeper-level ramifications of Ginastera's compositional processes, especially those that engage his predilection for octatonic

[3] See the discussion of (0167)-derived *surrogates* in Examples 4.22–25 in part I of this chapter.

subsets and $T_{3/9}$ transpositional cycles involving ic1, ic3, and ic4.[4] In several passages in the Piano Concerto, the structural middleground is organized into 8-note and/or OCT collections. Over longer spans of music, Ginastera tends to "shift" these middleground collections by $T_{\pm 1/11}$ in order to complete the aggregate. The three strategies discussed in this chapter—composing with *surrogate* row forms, serially-derived sequences, and "octatonic" collections—overlap and complement each other in ways that contribute to the music's underlying variation form and overall sense of cohesion.

General Characteristics of the Variation Form

Example 4.28 shows the general organization and proportions of the Piano Concerto's first movement.[5] Temporally speaking, the *Cadenza* forms the longest portion of the movement and is subdivided into four sections delineated by tempo markings. Following the *Largo* introduction, the *Cadenza* gradually gathers momentum throughout the *Più mosso* and *Con moto* sections and closes with the relatively placid *Larghetto* section. The first two variations that follow the *Cadenza* are slow and introductory in function. Only the soloist plays the first variation. The orchestra re-enters the texture in Variation II with a harmonic presentation of the row in tetrachords, recalling the introductory section of the *Cadenza*.

Variations III through X are grouped into four sections based on corresponding tempos and breaks in the texture. Together, the four sections are like a microcosm of the prototypical four-movement formal plan of a traditional symphony or sonata. The first section comprises

[4] Ginastera's general compositional tendencies are discussed in light of his developing twelve-tone language in chapter 2.

[5] Hanson gives a similar interpretation in his dissertation; see Hanson, "Macroform in Selected Twentieth-century Piano Concertos," 115. Furman's interpretation is also similar, but his bipartite grouping focuses on all ten variations as a whole as they contrast to the *Cadenza*; see Furman, "An Analysis of Alberto Ginastera's Piano Concerto No. 1 (1961)," 6–21.

Variations III–V and, like a traditional first movement, all three variations have relatively fast tempos. The second section acts like a central slow movement and comprises Variations VI and VII—which bear the unusual expressive markings, *Misterioso* and *Irrealmente.* The third section, comprised of only Variation VIII, captures the character of a typical third-movement dance with its *Pastorale*-inspired $\frac{6}{8}$ meter and woodwind + french horn orchestration. The fourth section heralds the movement's conclusion with the two fastest variations, Variations IX and X. The last variation continues without pause into the *Coda*, where two of the sections from the *Cadenza*—*Largo* and *Con moto*—recur in abbreviated form and in a slightly different order.

[see Example 4.28 on the following page]

Example 4.28 Large-scale formal organization of the Piano Concerto, Op. 28 (1961), I

***Cadenza* (mm. 1–46)**

Largo (mm. 1–8) | *Più mosso* (mm. 9–23) | *Con moto* (mm. 24-30) | *Larghetto* (mm. 31–46)

"Introductory"

Variation I – *Molto Lento* (mm. 47–53) | **Variation II** – *Quasi l'istesso tempo* (mm. 54–9)

"Fast"

Variation III – *Allegretto* (mm. 60–7) | **Variation IV** – *L'istesso tempo* (mm. 68–79) | **Variation V** – *Pìu mosso* (mm. 80–7)

"Slow"

Variation VI – *Misterioso* (mm. 88–100) | **Variation VII** – *Irrealmente* (mm. 101–07)

"Dance"

Variation VIII – *Pastorale* (mm. 108–17)

"Faster"

Variation IX – *Allegro* (mm. 118–40) | **Variation X** – *L'istesso tempo* (mm. 141–50)

***Coda* (mm. 151–66)**

Con moto (mm. 151–4) | *Largo* (mm. 155–61) | *Vivace* (mm. 162–66)

Example 4.29 provides an analytical reduction of the *Largo* introduction of the *Cadenza*.[6] The opening nine measures of the concerto provide much of the motivic material that Ginastera draws from throughout the first movement and continually develops with each new variation. The reduction includes several of the structural pitch materials and compositional characteristics discussed in part I of this chapter, including the following: (1) derived rows; (2) serially-derived (0126) * T_{-9} sequences; and (3) composed-out OCT and 8-note collections. One other characteristic included in the reduction involves large-scale "semitonal shifts" by $T_{\pm 1/11}$.

The introduction of the *Cadenza* consists of two phrases: mm. 1–4 and mm. 5–8. The orchestra's two harmonic presentations of the aggregate consist of the primary row, P_8, and the (0145)-derived configuration of RI_9.[7] In mm. 4a and 8a the soloist plays two RI-related descending sequences based on the row's first discrete tetrachord, set class (0126). Considering only the accented first pitch-class of each tetrachord in both sequential gestures, the reduction in Example 4.29 shows that the soloist composes-out {e258} in m. 4a and {9036} in m. 8a.[8] Together, the interval cycles projected by both sequences form a large-scale completion of $OCT_{2,3}$ (indicated at the top of Example 4.29). $OCT_{2,3}$ is a significant collection in the Piano Concerto because its integral *z-seg* subset, [56e0], constitutes a discrete segment of the primary row.[9]

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[6] The score for this passage is provided as Example 4.1 in part I of this chapter.

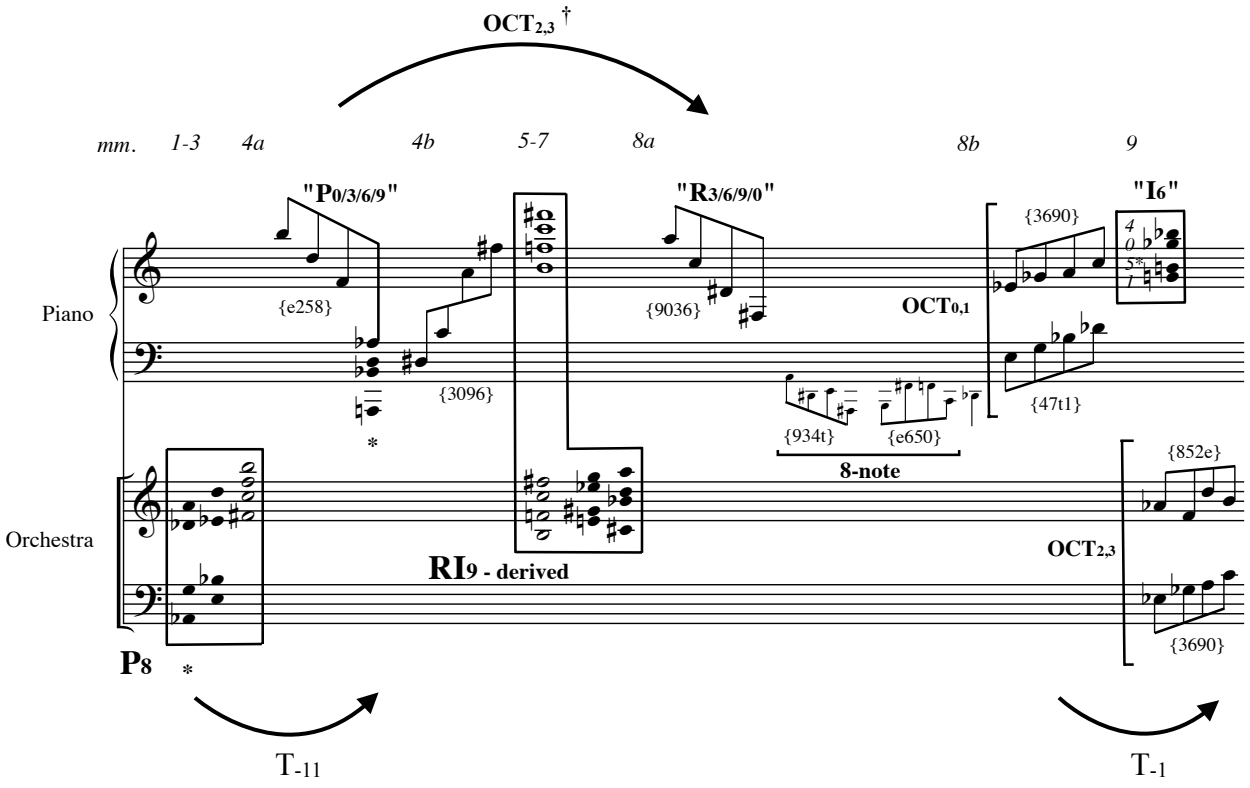
[7] A (0145)-derived configuration of the row involves partitioning the 8-note collection into two inversionally-related (0145) subsets, the *x-seg* and *y-seg*; see Example 4.13 in part I of this chapter.

[8] As part of a larger sequence moving continuously by T_{-9}, corresponding order-number members of each (0126) tetrachord within the sequence naturally compose-out collection-class (0369); see the discussion of Examples 4.6–7 in part I of this chapter. The identification of such deeper-lever set-class projections invariably reveals an underlying OCT organization within the Piano Concerto.

[9] The octatonic potential of the primary is illustrated in Example 4.12 in part I of this chapter.

A different octatonic collection, $OCT_{0,1}$, is emphasized by the soloist's ascending sequence in m. 8b: here, a series of (0347) sonorities registrally accentuate the unfolding of {3690} in the soloist's right hand and {47t1} in the soloist's left hand.[10] This motivic pattern is subsequently taken over by the orchestra at the beginning of the *Più mosso* section in m. 9, where it completes a middleground projection of $OCT_{2,3}$. A large-scale "semitonal shift" by T_{-1} thus emphasizes the formal juncture at which the soloist (projecting $OCT_{0,1}$) passes off the motive to the orchestra (projecting $OCT_{2,3}$).

Example 4.29 Reduction of the *Cadenza*, *Largo* (mm. 1–8) and beginning of *Più mosso* (m. 9)



† RT_3 "rotation" of the partial-row sequence, "$P_{0/3/6/9}$"

[10] This passage is discussed in more detail in part I of this chapter; see Example 4.9

"Semitonal shifts" in the Piano Concerto underscore Ginastera's tendency to repurpose the interval classes associated with local-level motives as large-scale intervals of transposition.[11] Interval class 1 is integral to nearly every motive in the concerto—especially, (0126), (0167), and (0145). When ic1 is projected as an interval of transposition in the Piano Concerto, it often marks the span of a complete formal unit or the juncture of two contrasting formal units. Furthermore, "semitonal shifts" tend to result in aggregate completion on more abstract levels by joining together middleground projections of the OCT or 8-note collections.

Two "semitonal shifts" occur in *Cadenza* (see the T_{-11} and T_{-1} arrows at the bottom of Example 4.29 above). The asterisks (*) in mm. 1 and 4a of the reduction mark the opening sonority of the movement, [7891]—a part of P_8—and the harmonic conclusion of the soloist's first descending sequence, [89t2]—derived from P_9. The soloist's rather dramatic moment of repose at the end of the first (0126) * T_{-9} sequence accentuates the movement's first "semitonal shift," spanning the first phrase: the orchestra's first tetrachord in m. 1 initiates a registral ascent that passes off the high B to the soloist, who in turn descends to a sonority that is T_{-11} lower than the beginning of the phrase. The second of "semitonal shift" was described above. The T_{-1} shift between the soloist's projection of $OCT_{0,1}$ at the end of the *Largo* section (m. 8b) and the orchestra's projection of $OCT_{2,3}$ at the beginning of the *Più mosso* section (m. 9) results in a middleground completion of the aggregate that unites two subsections of the *Cadenza*.

[11] "Semitonal shifts" will be labeled using ordered pitch-class intervals (±1–11). T_1 and T_{-1} thus indicate motion by a half step up or down, regardless of octave displacement in pitch space.T_{11} and T_{-11}, on the other hand, indicate that the semitone motion is expressed by its inversion, the major seventh. T_{11} motion is not common in the Piano Concerto, however, T_{-11} motion is: the latter is frequently the result of a change in instrumentation in which the second instrument, often by necessity, must enter in a different register.

Rows and Their Surrogate Relations

Surrogate relations determine the organization of row forms throughout the Piano Concerto, though only a small number of rows are stated explicitly, that is, completely and with minimal order-number obfuscation. Fragments of the row—whether they involve discrete tetrachords like (0126) or the *z-seg*, or the isomorphically-derived (0145) subset, or even the larger 8-note segment of the row—far outnumber the instances of complete row forms in the first movement. The movement's explicit row forms are listed in Example 4.30. In relation to the primary row, the only rows on the list are $P_{(x-4)}$, $I_{(x+1)}$, $I_{(x+3)}$ (and their occasional retrogrades) and $P_{(x\pm6)}$ and $RI_{(x\pm6)}$. More specifically, the only rows featured in concerto's first movement, besides the primary row, P_8, are those that belong to index-number *families* 4, 9, 11, or 2. Six of the ten variations contain readily identifiable and complete row forms, with the exception of the *Pastorale* Variation VIII, which uses only the first hexachords (H^1) of R_4 and P_8. Generally speaking, Ginastera tends to employ complete row forms in slow variations more so than in fast variations. Even in the "fast" Variation V, RI_{11} and RI_2 are presented by only the orchestra, whose rhythmic profile is comparatively slower than that of the soloist.

It is widely acknowledged among scholars that Ginastera frequently reverses the order of hexachords in his twelve-tone music;[12] therefore, if we accept the fact that the same may be true for tetrachords, trichords, or even isomorphic order-number partitions in this music, the concept of the *surrogate* relation becomes a powerful analytical tool for determining and interpreting Ginastera's row choices. Certain passages in the Piano Concerto invite multiple interpretations of the underlying row form. When choosing the most appropriate row label, on should keep in mind

[12] Some of the scholars who have noted this tendency include, Wallace (1964), Richards (1986), Tabor (1994), Fobes (1998) and (2006), and Schwartz-Kates (2010).

that certain interpretations better capture the unifying potential of *surrogate* relations. In this study, whenever a row-form label must be chosen among such ambiguities, it is carefully selected in order to illuminate the movement's most basic principle—its *variation* form.[13]

Example 4.30 Explicit row presentations in the Piano Concerto, first movement

	Ordered	*Minimally Un-/Re-ordered*
Cadenza	$\mathbf{P_8}$	$\mathbf{RI_9}$-derived
Variation I	$\mathbf{R_8}$, $\mathbf{P_8}$	
Variation II	$\mathbf{P_4}$, $\mathbf{R_4}$	
Variation V		$\mathbf{RI_{11}}$, $\mathbf{RI_2}$
Variation VI	$\mathbf{I_{11}}$, $\mathbf{RI_{11}}$	
Variation VII		$\mathbf{I_9}$, $\mathbf{P_2}$
Variation VIII		$\mathbf{R_4}$ (H^1), $\mathbf{P_8}$ (H^1)
Coda	$\mathbf{P_8}$	

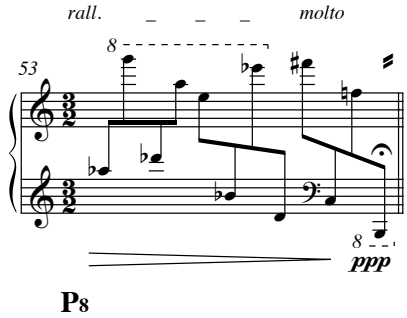
In keeping with its "introductory" formal function, Variation I features a return of P_8 from the movement's opening. R_8 occupies the first phrase of the variation, while a *melodic* presentation of P_8—the first and only of its kind—closes the variation. The two excerpts in Example 4.31 show (a) the conclusion of Variation I featuring P_8 and (b) the beginning of Variation II featuring P_4. The strings in Variation II very clearly echo the opening three measures

[13] See the *Preferences Rules for Analysis* in chapter 3 (pp. 117–18).

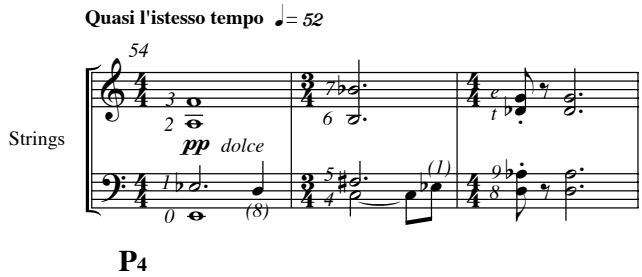
of the *Cadenza*: the row is distributed harmonically from top to bottom and the chords ascend in the same alternating metric pattern, $\frac{4}{4}$, $\frac{3}{4}$, $\frac{4}{4}$.

Example 4.31 P_8 ends Variation I and P_4 begins Variation II

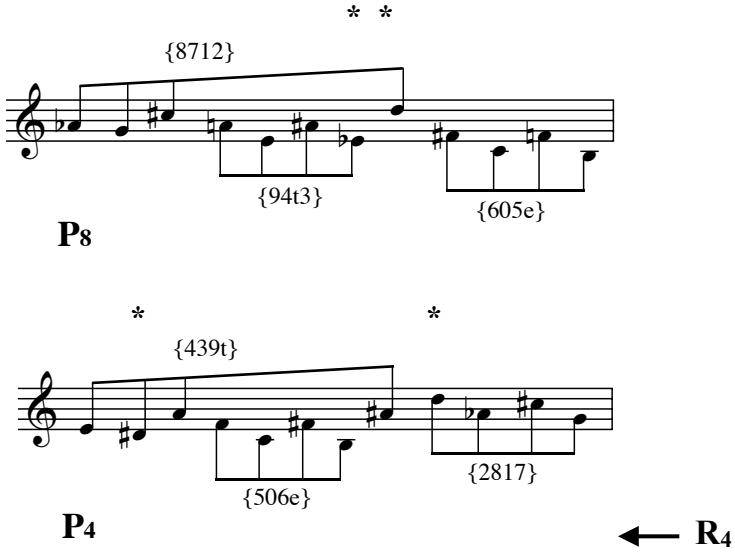
(a)



(b)



Example 4.32 (0167) profile of the primary row compared with that of P_4 from Variation II



Example 4.32 shown above illustrates the (0167) profiles of P_8 and P_4 for comparison. The pitches of the original *z-seg* of P_8, [56e0], map onto the "nestled" order-number segment of P_4 and the pitches that previously formed the "framing" partition of P_8, [1278], map onto the *z-*

seg of P_4.[14] Considering the pitch content of these (0167) collections, P_4 is a *surrogate* for P_8.[15] More specifically, P_4 represents a kind of "rotation" of P_8, in the sense that the "nestled" partition of P_8 is now forced "leftward" to the "framing" position within P_4, and the "framing" partition of P_8 rotates around to the last-place *z-seg* position within P_4. When the soloist later enters with R_4 in the second phrase of Variation II (not shown), the *z-seg* that begins the row momentarily harkens back to what sounds like the beginning of P_8—see the invariant trichord {G, C♯, A♭} at the beginning of P_8 and the beginning of R_4 indicated by the arrow in Example 4.32—but ultimately turns out to be a variation-inspiring *surrogate* row form.

A curious rhythmic subtlety in Variation II further strengthens its connection to the *Cadenza*. This subtlety involves the "extra" notes—order numbers *8* and *1*—that appear in mm. 54 and 55 of Example 4.31(b).The first "extra" pitch, D, descends in the viola from the previous E♭ (order number *1*), and the second "extra" pitch, E♭, appears in the cello and descends to the D (order number *8*) in the final chord. These two pitches originated as a dyad, order numbers *6* and *7*, in P_8 (see the asterisks in Example 4.32). Their unusual, out-of-order recurrence within P_4 of Variation II underscores the structural complexities built into the *surrogate* relation.[16]

---

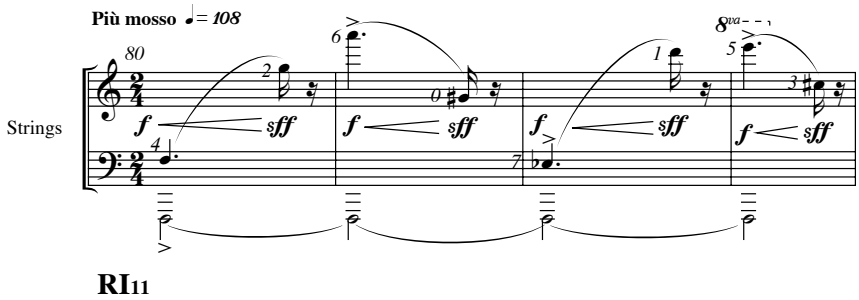
[14] The "nestled" partition of any non-retrograde row form involves order-number segment {*3456*}, located within the 8-note collection, while the "framing" partition consists of the first three consecutive members of the row plus the last member of the 8-note collection, {*012*} + {*7*}. See the discussion of Example 4.22 in part I of this chapter .

[15] P_x / $P_{(x-4)}$ are members of the same super-*family* of (0167)-derived rows; see the discussion of Example 4.23 in part I of this chapter.

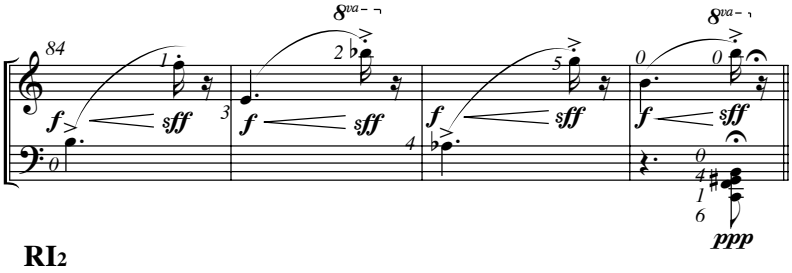
[16] There is yet another rhythmic curiosity in the presentation of P_4 in Variation II. The rhythmic "anticipation" of the final tetrachord in Example 4.31(b)—that is, the eighth-note marked staccato followed by a dotted-half note in m. 56—is subsequently used as motivic device associated with the *z-seg*: three variations later, in Variation VI, this rhythm marks the next instance of a complete and ordered row form, I_{11}/RI_{11}.

Example 4.33 Orchestra's presentation of RI_{11} and RI_2 in Variation V

(a)



(b)



The next variation to employ *surrogate* row forms, Variation V, is shown in Example 4.33 above. The first four-measure phrase of Variation V, shown in Example 4.33(a), consists of the first two tetrachords of RI_{11}: the even-numbered order numbers occupy the first half of the phrase, while the odd-numbered members occupy the second half.[17] More specifically, the first phrase is rhythmically organized so that the dotted-quarter notes on each downbeat comprise the second discrete tetrachord of the row, order-number partition {*4567*}, while the ***sff*** sixteenth notes comprise the first tetrachord, order numbers {*0123*}. The second phrase, shown in Example 4.33(b), consists of the first seven members (order numbers *0–6*) of RI_2. The

[17] The rather haphazard order-number configuration of RI_{11} in this passage leaves the potential for conflicting analytical interpretations. For instance, if P_4 was interpreted instead, the order numbers in Example 4.33(a) would read: *<3, e, 2, 9, 1, 8, 0, t>*, which reflects the members of the first and last tetrachords uniformly interwoven in descending order, *{3210} + {e98t}*. The present interpretation of RI_{11} in Example 4.33 has been carefully chosen for the following three reasons: (1) RI_{11} privileges the configuration of adjacent tetrachords within the row (and P_4 does not); (2) the pedal-tone F, held throughout the passage, corresponds to the first pitch of RI_{11}'s fundamental 8-note collection; and (3) the following variation, Variation VI, begins with the final tetrachord of RI_{11}, which is conspicuously absent in Variation V.

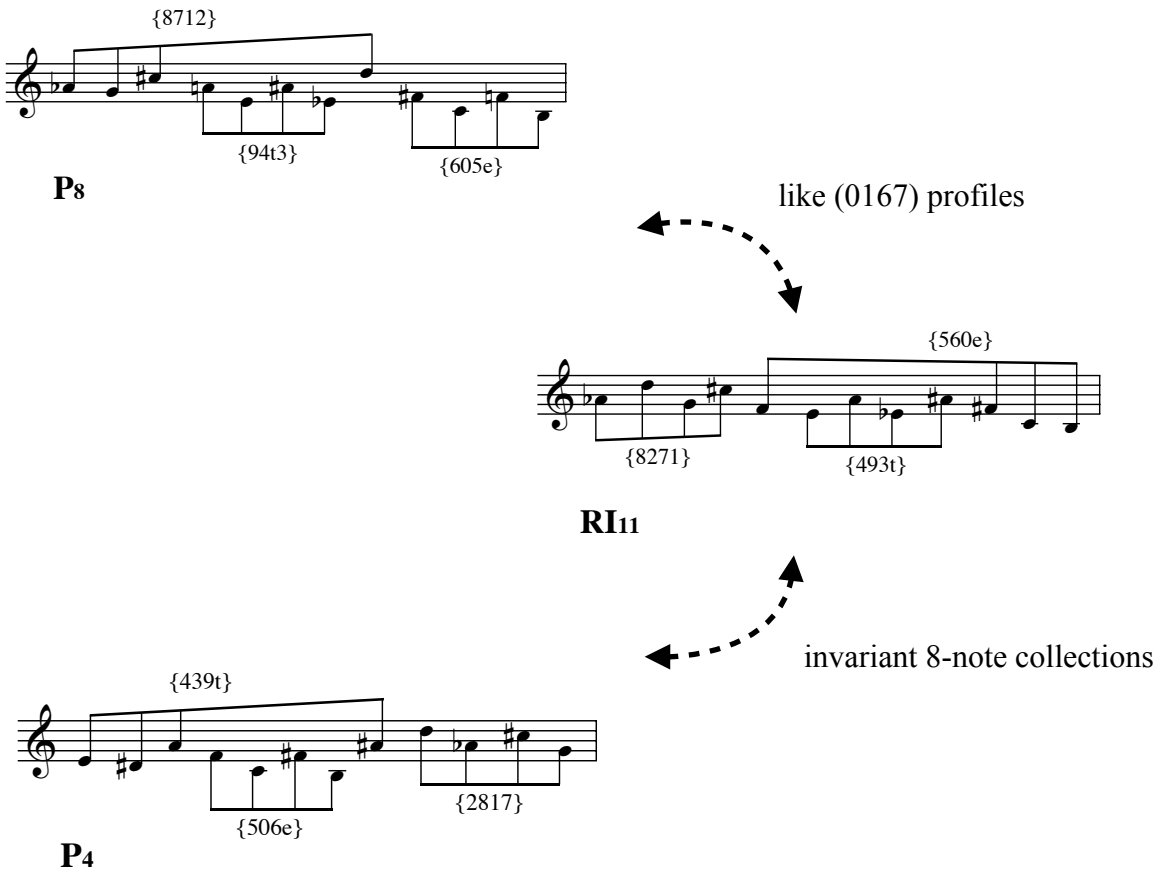
presentation of the row in this phrase is far more straightforward, with only order numbers *2* and *3* reversed.

While RI_{11} and RI_2 are not *surrogates* for one another, both of them, as separate entities, are *surrogates* for the primary row, P_8. Moreover, RI_{11} is a particularly unique row form in that it can act as a *surrogate* for both the primary row and P_4—the only other row form featured in the variations thus far. As Example 4.34(a) shows, RI_{11} has the same general (0167) profile as P_8: [1278] and [56e0] form the boundary tetrachords of each row and map onto one another, while [349t] remains invariant in the "nestled" position of both rows.[18] RI_{11} also shares the same 8-note collection with P_4. Furthermore, as Example 4.34(b) shows, P_4 and RI_{11} have identical tetrachordal *mosaics*: they belong to the same *z-seg family* (the *z-seg* of which is indicated by the dotted-lines), and the discrete tetrachords of their 8-note collections map onto one another, just as their "framing" and "nestled" (0167) partitions do in example (a).

[18] P_x / $RI_{(x\pm3)}$ are members of the same 16-member *family* of (0167)-derived rows; see the discussion of Example 4.23 in part I of this chapter.

Example 4.34 *Surrogate* relations created by RI_{11} in Variation V

(a)



(b)

	0	1	2	3	4	5	6	7	8	9	t	e
P_4	4	3	9	5	0	6	e	t	2	8	1	7
RI_{11}	8	2	7	1	5	4	9	3	t	6	0	e

When RI_2 enters with the second phrase of Variation V (Example 4.33(b)), the T_3 relation between RI_{11} and RI_2 is obscured by the unusual series of order numbers Ginastera used in presenting RI_{11} in the previous phrase (Example 4.33(a)). Although T_3 relations (and T_{-9} alike) appear throughout the Piano Concerto, a different interval, the tritone, plays a role in delineating

the phrase boundaries of Variation V. The F held as a pedal in the first phrase and the B, repeated four times at the beginning and end of the second phrase, accentuates a tritone—specifically one of the tritones of [56e0] that is featured so prominently throughout the concerto.[19]

A literal T_6 relation does, however, connect RI_2 in Variation V to the primary row, P_8. As was discussed in part I of this chapter, a row and its T_6 relative exhibit a certain amount of invariance, but if that T_6 relative appears in its inverted form, a unique kind of invariance emerges.[20] RI_2 is the retrograde of P_8's inverted T_6 relative, I_2. Consequently, the *z-seg* of RI_2 derives from isomorphic order-number partition {*45te*} of P_8, which is shown in Example 4.35 below. P_8 and RI_2 have the exact same dyad *mosaics* as well; the remaining discrete tetrachords of P_8 systematically map onto the dyads and (*0145*) order-number partitions—{*4589*} and {*67te*} —of RI_2.

Example 4.35 *Z-seg* derivation and dyad *mosaics* between RI_2 and the primary row

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
P_8	8	7	1	9			3	2	6	0		
					4	t					5	e

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
					8	7			1	9		
RI_2	e	5	4	t								
	z-seg						0	6			3	2

[19] This "T_6-sounding" relation between the beginnings of the two phrases participates in another variation strategy itself—a kind of "variation on a variation." The previous variation, Variation IV, also consists of two four-measure phrases that are unequivocally related by T_6; thus, Ginastera employs the same formal design in Variation V, but varies the transpositional relation between the phrases by "doubling" the literal T_3 relation to sound more like T_6.

[20] See the discussion of Examples 4.26–27 in part I of this chapter.

The first in the set of "slow" variations, Variation VI – *Misterioso* very clearly marks the beginning of a new formal section. With respect to general thematic texture, Variation VI draws upon the opening of the *Cadenza* (and also Variation II) in that it features a slow, steady progression of tetrachords derived from a single row form. In terms of the chronological unfolding of events, Variation VI is connected to Variation V because it begins with the final tetrachord of RI_{11}, which Ginastera notably omitted from the previous variation. Example 4.36(a) provides a reduction of the harmonic sonorities as they occur throughout Variation VI. After a short transitional passage (indicated by the dotted slur in mm. 88–90 of the reduction) the variation's two-part phrase design unfolds in a kind of arch form.[21] The central *z-seg* occupies three measures at the climatic center of the variation and forms an elision with the second phrase, which features the same tetrachords in reverse order.

The full *surrogate* potentiality between I_{11}/RI_{11} and P_4, which was previously obscured in Variation V by Ginastera's use of complex order-number configurations, is now made musically explicit in Variation VI. Example 4.36(b) clarifies the invariant tetrachordal *mosaics* of I_{11} and P_4. The dotted lines in the example indicate how the tetrachords of each row's 8-note collection map onto one another. From an analytical perspective, either interpretation is plausible. The tetrachords of P_4, although more generally out of order—the first and second tetrachords are switched—reflect a more normative distribution of order numbers, from the "bottom-up."[22] On the other hand, an I_{11} interpretation of the passage not only reflects the tetrachords in their

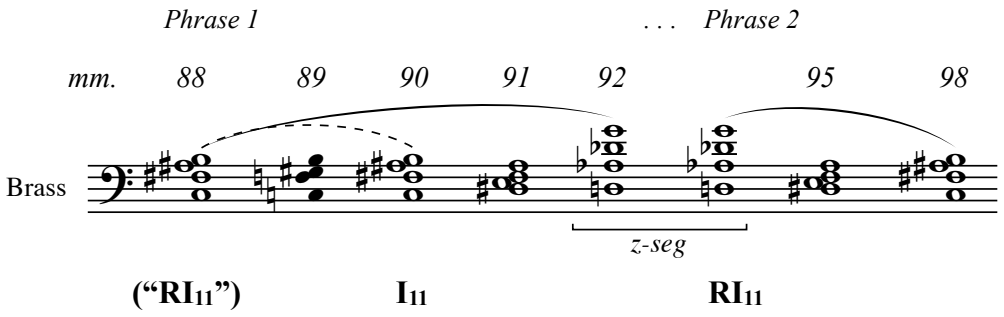
[21] The repetition of the same sonority in mm. 88 and 90 of the first phrase serves two different purposes: (1) the first sonority completes RI_{11}, the presentation of which began in Variation V and (2) the second sonority begins the arch formal design encompassing I_{11} followed by RI_{11}.

[22] Furthermore, the rhythm surrounding the central *z-seg* in Variation V (not shown in the example) harkens back to the "anticipation" rhythm used in conjunction with the *z-seg* of P_4 in Variation II; see Example 4.31(b) and the commentary in note 16 above.

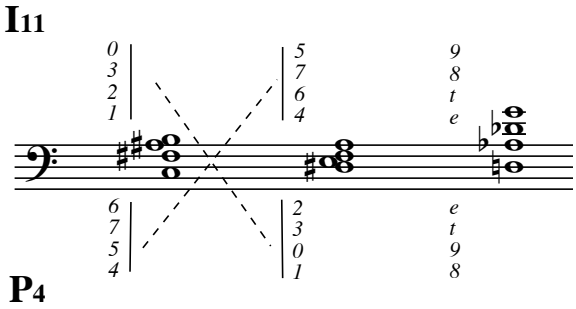
normal general order but also emphasizes a deeper-level structural connection with the previous variation, which ended with an incomplete presentation of RI_{11}. Ambiguity like this is precisely what the concept surrounding *surrogate* relations seeks to embrace. After all, how we label a row does not matter nearly as much as how we understand its structural significance within the greater musical context—that is, within underlying variation narrative.

Example 4.36 Arch formal design of Variation VI involving I_{11} and its retrograde

(a)



(b)



Variation VII, evocatively labeled *Irrealmente*, features the movement's last explicit presentation of entirely new *surrogate* row forms (i.e., rows other than P_8, P_4, RI_{11}, RI_2, and their retrogrades).[23] The unique timbre of the celeste coupled with muted violins provide an ethereal backdrop to the soloist's delicate *dolce e chiaro* grace-note figures. Musical examples for this variation will be provided in the following discussion of serially-derived sequences. Suffice it to say for now that Variation VII begins with the soloist's presentation of I_9 and concludes with the orchestra's presentation of P_2. I_9 and P_2 are members of the same [56e0] *z-seg family* as the primary row. Example 4.37 compares the (0167) profiles of these *surrogate* rows with the primary row, P_8. I_9, related to the primary row by $I_{(x+1)}$, exhibits an exchange of pitch classes among the "framing" and "nestled" (0167) partitions. On the other hand, P_2, which is T_6-related to P_8, resembles the primary row even more immediately: all three of the (0167) partitions of P_2 are invariant with those of P_8 and they maintain their relative order-number positions. When presented harmonically in Variation VII, P_2 is virtually indistinguishable from its T_6 partner P_8. Thus, by ending the variation with P_2, Ginastera closes the entire "slow" section of the movement with a return to the original "tonal" level shared with the primary row.

[23] See the list of row presentations in Example 4.30 above.

Example 4.37 Variation VII features I_9 and P_2 of the primary row's *z-seg family*

	0	1	2	3	4	5	6	7	8	9	t	e
P_8	8	7	1					2				
			"framing"						6	0	5	e
				9	4	t	3			*z-seg*		
				"nestled"								

	0	1	2	3	4	5	6	7	8	9	t	e
I_9	9	t	4					3				
			"framing"						e	5	0	6
				8	7	1	2			*z-seg*		
				"nestled"								

	0	1	2	3	4	5	6	7	8	9	t	e
P_2	2	1	7					8				
			"framing"						0	6	e	5
				3	t	4	9			*z-seg*		
				"nestled"								

In sum, complete and explicitly presented row forms are rare occurrences in the Piano Concerto. In relation to the primary row, only $P/R_{(x-4)}$, $I/RI_{(x+1)}$, $I/RI_{(x+3)}$, $P_{(x\pm6)}$, and $RI_{(x\pm6)}$ row forms are featured in the first movement; or, more specifically, the only rows present are members of index-number *families* 4, 9, 11, or 2. Of the few row transformations Ginastera does employ, all act as *surrogates* for the primary row and thus allow for unique instances of pitch-class invariance across different variations. This tight-knit web of row relations allows for enough consistency to instill a sense of uniformity across the movement as a whole, and yet just enough subtle deviation to perpetuate the notion of variation.

Serially-Derived Sequences

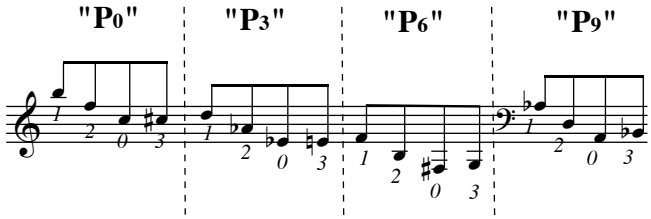
The vast majority of melodic-motivic materials that do not participate in "strict" row presentations in the Piano Concerto instead participate in some sort of sequential patterning. Most of the motives that comprise these sequences can, however, be traced back to—that is, *derived* from—readily identifiable fragments of specific row forms. The rows from which each sequence derives are indicated by quotation marks, reminding the reader that they are not complete row presentations but rather mere fragments of themselves. This labeling system will allow for a quick and easy reference when discussing the more complex issue of row completion, which tends to occur more abstractly and over longer spans of music. We begin now with a reminder of how the first serially-derived sequence in the Piano Concerto unfolds. The discussion will continue with a summary of sequences throughout the movement and then a careful investigation of the variations techniques involved in each sequence's musical realization.

Following the orchestra's harmonic presentation of the row in mm. 1–3 of the *Cadenza*, the soloist's material immediately breaks away from any sense of a strict row presentation and instead motivically develops only the first (0126) subset of the row. The four tetrachords that make up the soloist's complete (0126) * T_{-9} sequence in m. 4a are reproduced in Example 4.38 below.[24] Each tetrachord corresponds to the first tetrachord of a series of rows listed in quotations above. This cyclic collection of row fragments will from here on be referred to as "$P_{0/3/6/9}$": in any row label of this sort, the multiple index numbers reflect the order in which the tetrachordal fragments occur.

[24] For a comparison between the soloist's two (0126) * T_{-9} sequences in mm. 4a and 8a, see the reduction in Example 4.29 above.

The first tetrachord of the "$P_{0/3/6/9}$" sequence is {B, F, C, C♯} and thus shares three pitch classes in common with the *z-seg* of P_8, which was presented by the orchestra immediately prior to the soloist's entrance. Significantly, this tetrachordal motive always unfolds in a specific and rather unusual order-number configuration, {*1203*}, as indicated in the example. By rearranging the first three pitches of the row fragments, Ginastera is able to create retrograde invariance with the last three pitches of the primary row: {C, F, B} ends P_8 and "P_0" is reconfigured so that it begins with {B, F, C}.[25]

Example 4.38 Original (0126) * T_{-9} sequence in m. 4a features order-number segment {*1203*}



The (0126) * T_{-9} sequential motive is subjected to an imaginative and increasingly complex series of transformations throughout the concerto's ten variations. Ginastera's manipulation of the motive literally inspires the music's sense of *variation*: he draws upon the motive's most memorable characteristics—whether they be pitch-specific, rhythm-specific, T_{-9}-specific, etc.—and continually develops them in a manner that both invigorates the musical narrative and tackles full on the compositional challenge of marrying unity with variety.

A list of melodic-motivic sequences involving only serially-derived tetrachords is provided in Example 4.39 below. Significantly, the interval of transposition involved in each

[25] The {*1203*} serial derivation of any "P_x" row form is thus a variation of the *z-seg* in and of itself. More specifically, the {*1203*} motive of "P_x" exhibits strict ordered invariance involving three pitch classes of the *z-seg* of a retrograde row form that lies T_8 away, or more simply, $R_{(x-4)}$. This fact was previously explored in the commentary on Variation II, where P_4/R_4 and P_8/R_8 were involved; see the discussion of Example 4.32 above.

sequence is always a multiple of three—$T_{\pm 3}$, $T_{\pm 6}$, or $T_{\pm 9}$—although the original motion by $T_{\pm 9}$ is the most common. Furthermore, the process by which each motive is derived ensures that every tetrachord is a member of either set class (0126) or (0145)—the latter of which is systematically derived from pitch-class/order-number isomorphic partitions within the 8-note collection.[26] The partial rows from which these tetrachords derive are indicated in the far-right column of Example 4.39. Most of the sequences involve some portion of the original "$P_{0/3/6/9}$" sequence from the *Largo* introduction. Variations VII and IX are unique in that their motives derive from inversional row forms, portions of "$I_{0/3/6/9}$". Notably, Variations III and VIII involve a "$P_{2/5/8/e}$" sequence in addition to a portion of "$P_{0/3/6/9}$". In Variation III, the "$P_{9/6/0/9}$" sequence is "harmonized" at the interval of a minor sixth (T_8), resulting in the superimposition of two motivic cycles with "$P_{5/2/8/5}$" in the uppermost register. In Variation VIII, the two sequences are presented at different points: the "$P_{2/5/8/e}$" cycle is reserved for the variation's climax, where it creates a stark contrast to the "$P_{0/3/6}$" motive stated earlier in the variation.

[26] The derivation of the primary row's 8-note collection into (0145) tetrachords—referred to as the *x-seg* and *y-seg*—is explained in part I of this chapter; see the discussion of Example 4.13.

Example 4.39 Serially-derived sequences involving motion by $T_{\pm 9}$, $T_{\pm 3}$, or T_6

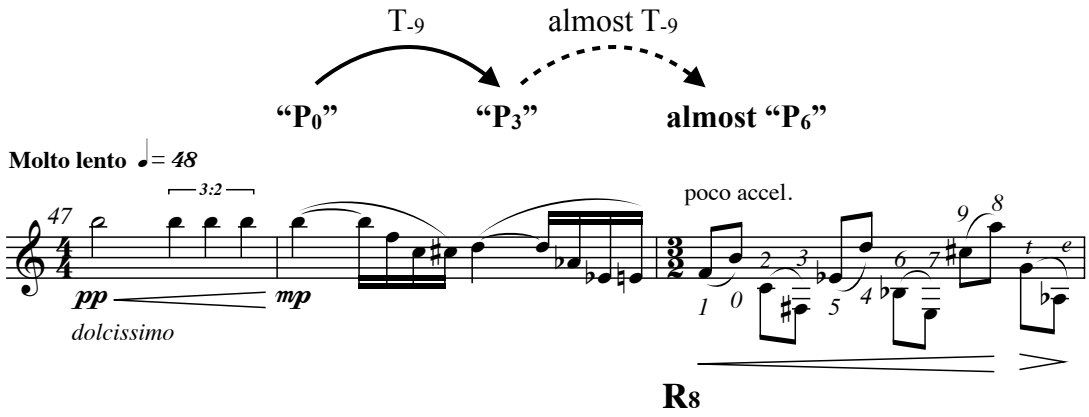
	$T_{\pm 9}$	$T_{\pm 3}$	$T_{\pm 6}$	Rows
Cadenza – Largo	(0126)			$\mathbf{P_{0/3/6/9}}$
Cadenza – Più mosso			(0126), (0145)	$\mathbf{P_{0/6}}$, $\mathbf{I_2}$
Variation I	(0126)			$\mathbf{P_{0/3/(6)}}$
Variation III	(0126)	(0145), (0126)		$\mathbf{P_{9/6/0/9}}$, $\mathbf{P_{5/2/8/5}}$ $\mathbf{P_{8/11}}$, $\mathbf{P_{5/8}}$
Variation IV	(0126)			$\mathbf{P_{0/3/6/9}}$
Variation V	(0145)[27]			$\mathbf{P_{3/0}}$, $\mathbf{P_{7/t}}$
Variation VII	(0126)			$\mathbf{I_{6/(9)}}$
Variation VIII	(0126)	(0126)		$\mathbf{P_{0/3/6}}$, $\mathbf{P_{2/5/8/11}}$
Variation IX	(0126)			$\mathbf{I_{3/0}}$
Coda – Con moto			(0126), (0145)	$\mathbf{P_{0/6}}$, $\mathbf{I_2}$

The beginning of Variation I is shown in Example 4.40 below. The soloist plays this variation unaccompanied by the orchestra. In keeping with the variation's introductory function, the initiating melodic-motivic material, featuring (0126) * T_{-9}, is directly reminiscent of the soloist's first entrance in the *Largo* introduction of the *Cadenza*, and is followed by a presentation of the primary row in retrograde. The declamatory use of repeated notes in a *molto lento* tempo also bears the stamp of Ginastera's slow-movement style and, in this context, draws attention to pitch class B (a tonal center emphasized throughout much of the *Cadenza*) and the recurrence of the (0126) motive.

[27] This particular sequence is part of a larger sequential pattern involving i11s and i3s, which are subjected to transposition by $T_{\pm 4}$ and thereby compose-out and strongly imply (0145) and (0347) sonorities. Nevertheless, the first implied (0145) of each phrase is derived from the ever-present "$P_{0/3/6/9}$" sequence cycle. This sequence will be investigated more thoroughly in the discussion of OCT and 8-note collections below.

After only one T_{-9} move through the sequence, the music breaks off into a presentation of R_8. Significantly, the *z-seg* that begins the non-sequential presentation of R_8 has three pitch classes in common with the first tetrachord of "P_6", which would have followed in the sequence had it continued. A specific {*1203*} order-number presentation of "P_6" would have consisted of pitch classes {F, B, F♯, G}; but instead the actual presentation of R_8 begins with a subtle yet significant exchange of the first two order numbers. The first, highest, and lowest pitches of R_8's altered first tetrachord consist of pitch classes {F, B, F♯}; thus, the beginning of R_8 sounds nearly identical to a {*120*} fragment derived from "P_6". The melodic contour Ginastera assigns to R_8 further underscores its connection to the previous sequence: just as the beginnings of "P_0" and "P_3" span i11s, from B down to C and D down to E♭, so too does the beginning of R_8 span i11 from F down to F♯.

Example 4.40 Soloist's partial (0126) * T_{-9} sequence in Variation I



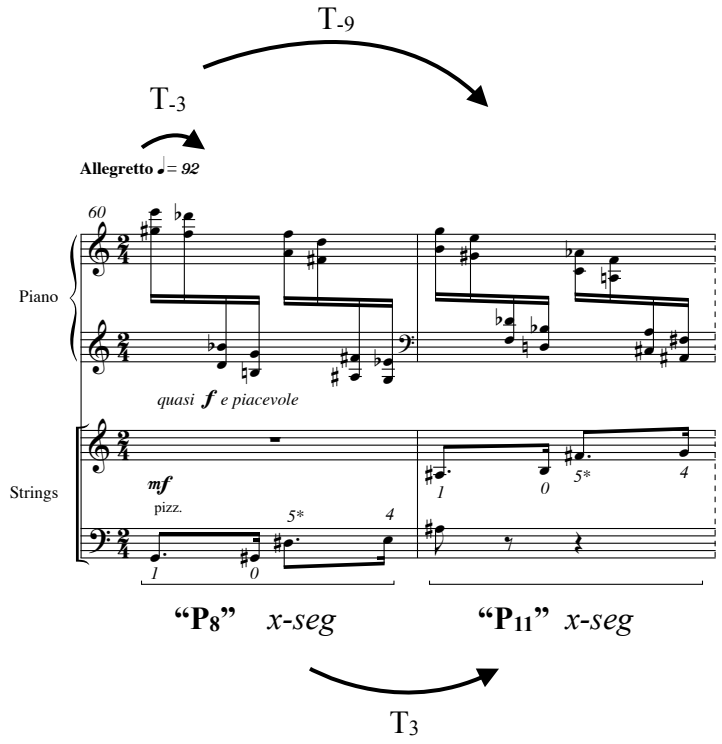
The following discussion of Examples 4.41–45 concerns the movement's consecutive "fast" variations, Variation III, IV and V. All three variations follow the same two-part formal design: each divides neatly into two, very brief, melodically-parallel phrases. Harmonically

speaking, the "fast" variations feature interval patterns involving ic1, ic3, and ic4. Melodically speaking, these interval patterns appear in conjunction with the familiar (0126) motive—again derived from order-number partition {*1203*}—which sequences via a complete or partial pass through the $T_{3/9}$ transpositional cycle. Variation III, discussed immediately below, contains one of the movement's most complex sequential patterns, wherein two different serially-derived tetrachords—(0126) and (0145)—are superimposed, bringing together row fragments from two different transposition cycles, "$P_{03/6/9}$" and "$P_{2/5/8/e}$".

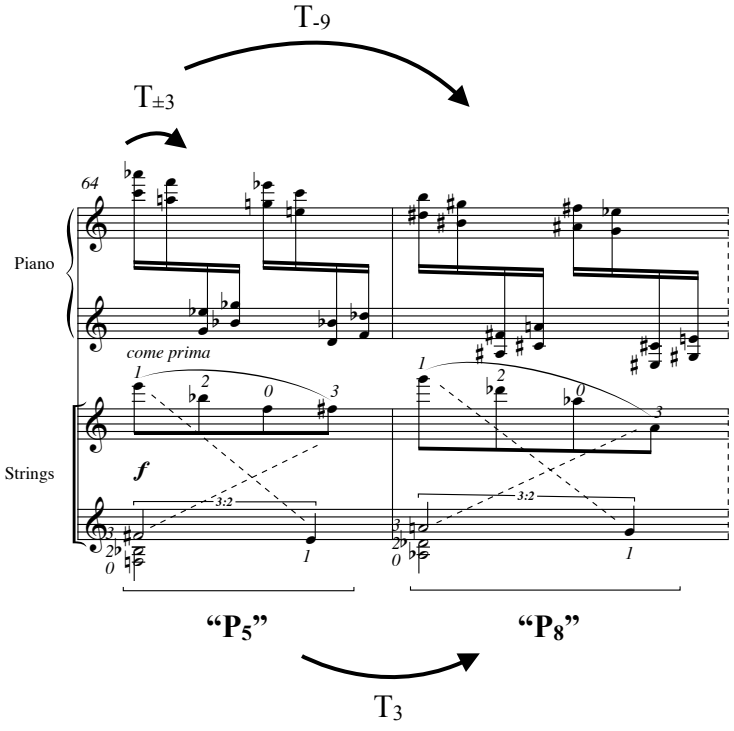
The *Allegretto* Variation III consists of two four-measure phrases, the beginnings of which are shown in Examples 4.41 (a) and (b). Above the strings dotted-eighth-note motive, the soloist cascades through a persistent series of minor sixths (i8). Locally, between adjacent and non-overlapping sixteenth-note pairs, the soloist's harmonic i8 dyads descend by T_{-3}. From the first to the second measure, the entire series of eight sixteenth notes descends by T_{-9}. The compound T_{-3}/T_{-9} descending motion in the soloist's part is countered by ascending T_3 motion in the strings. In the first phrase, the strings develop the (*0145*) *x-seg* motive, derived first from the primary row, P_8, and then from P_{11}. In the second phrase, shown in Example 4.41(b), the soloist's left hand now mimics the right hand in inversion. Meanwhile, the upper strings, woodwinds, and French horn join the texture with the familiar (0126) motive. The {*1203*} order-number segments derived from "P_5" and "P_8" are presented melodically by the first violin and viola. The remaining instruments sustain three of the members of the motive harmonically, order-numbers {*023*}, and the French horn supplies the fourth order number of the tetrachord, *{1}*, at the end of both measures, thereby completing two voice exchanges with the melodic notes above (see the dotted lines connecting order numbers *1* and *3*).

Example 4.41 T_3-related row fragments in the two phrases of Variation III

(a)



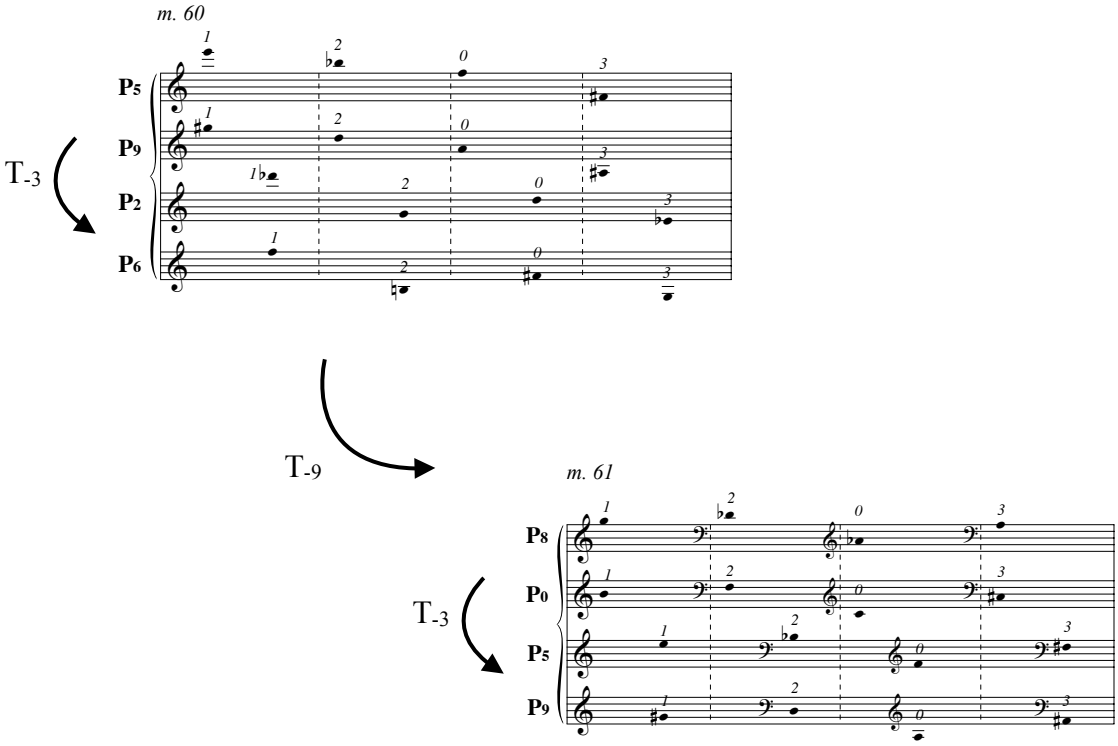
(b)



Interestingly, the orchestra's presentation of serially-derived (0126) tetrachords in Variation III (shown in Example 4.41(b) above) does not represent the motive's first appearance in the variation. The motive is present all throughout the soloist's i8-centric material, but in a highly concealed fashion. Example 4.42 shows a reduction of the soloist's sequential material that begins the variation. The first i8 dyad of each discrete sixteenth-note pair is shown on the top two staves of the reduction, while the second i8 dyad of each pair (i.e., the sixteenth-note "off beats") is shown on the bottom two staves. The separate staff systems represent single measures and are thus connected by a T_{-9} arrow, just as in Example 4.41(a) above.

Each staff system in Example 4.42 consists of a collection of four row fragments identified to the left of each staff. As the order numbers in the example indicate, each i8 dyad participates in a "harmonized" unfolding of the {*1203*} motive. In this sense, the (0126) motives that constitute "$P_{6/9}$" in m. 60 and "$P_{9/0}$" m. 61 are both counterpointed, at T_8 above, by motives that belong to a different cycle—"$P_{2/5}$" and "$P_{5/8}$". Rhythmically speaking, the two "harmonized" versions of the motive are intertwined: the rhythmically accented dyads unfold the motive in tandem with the unaccented dyads, which are T_{-3} related.

Example 4.42 Reduction of piano part in Variation III shows the distribution of (0126) motives

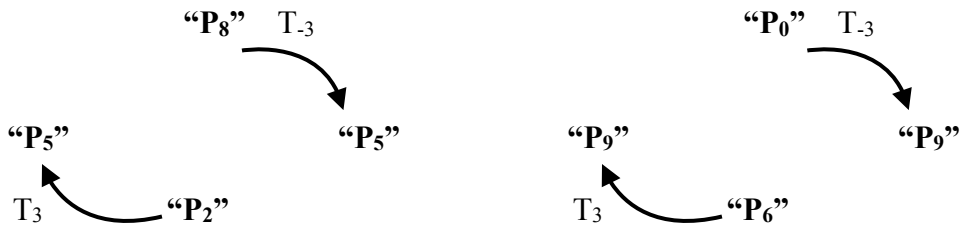


Example 4.43 summarizes the extraordinary amount of $T_{\pm 3}$ relations that uniformly and succinctly bind together all the motivic materials of Variation III. The soloist's motives, shown in Example 4.43(a), imply row fragments that are T_3-related above and below "P_5" on the left side of the example and T_3-related above and below "P_9" on the right side of the example. The motives presented by the strings, shown in Example 4.43(b), center around the primary row fragment, "P_8", in a similar fashion. Abstractly speaking, the music moves T_3 away from the primary row in the first phrase—"P_8" to "P_{11}"—and in the second phrase, when the soloist's material becomes partially inverted, the orchestra takes over the (0126) motive and closes the variation with a T_3 return to "P_8" from "P_5" below.

Example 4.43 Balanced T_3 motion in Variation III

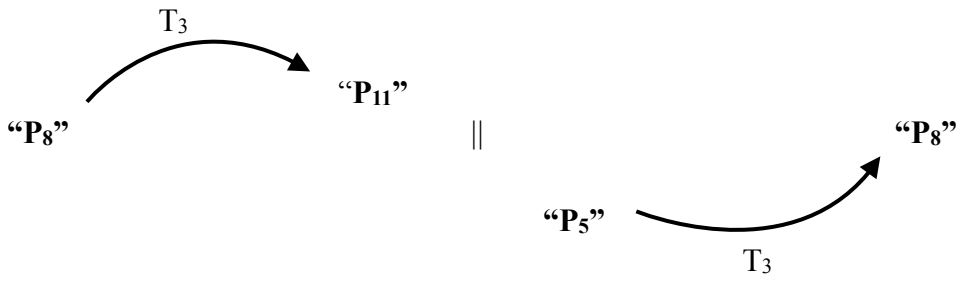
(a)

m. 60–1



(b)

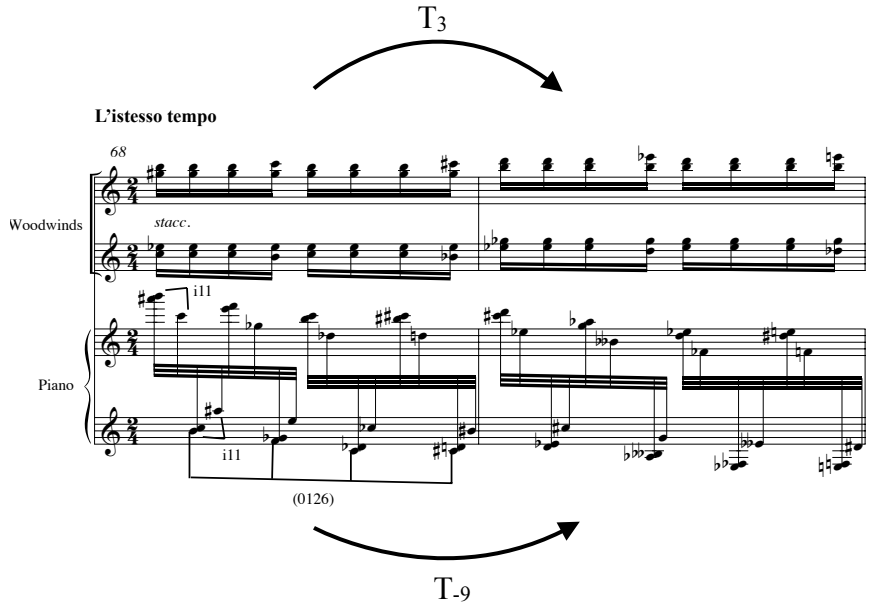
mm. 60–1 *mm. 64-5*



Variation IV, which begins the second of the "fast" variations, follows the previous variation without pause and continues to emphasize the emblematic *{1203}* motive. The first two measures of Variation IV are shown in Example 4.44 to provide a general sense of the music's texture, which again revolves around $T_{3/9}$ sequential patterns. In contrast to the previous variation, the soloist's material in Variation IV more explicitly presents the (0126) motive, while the orchestra's harmonic backdrop is concentrated on ic3. The orchestral accompaniment, which in Variation IV involves only woodwind instruments, features pulsating minor-third dyads that steadily ascend by T_3 at the same time as the soloist's sequence descends by T_{-9}. The soloist's motivic material, as in the previous variation, oscillates between the right and left hands,

accentuating chromatic semitone *clusters* in rapid descent. Each 32nd-note rhythmic grouping begins with a semitone dyad and then outlines a major seventh (i11)—descending in the right hand and ascending in the left. The gestures in both hands are inversionally related so that the highest pitch class of each dyad in the right hand and lowest pitch class of each dyad in the left are the same; the two hands thus compose-out the same structural pitch-class motives along both registral extremes.[28]

Example 4.44 Beginning of Variation IV features the (0126) * T_{-9} sequence in the piano part



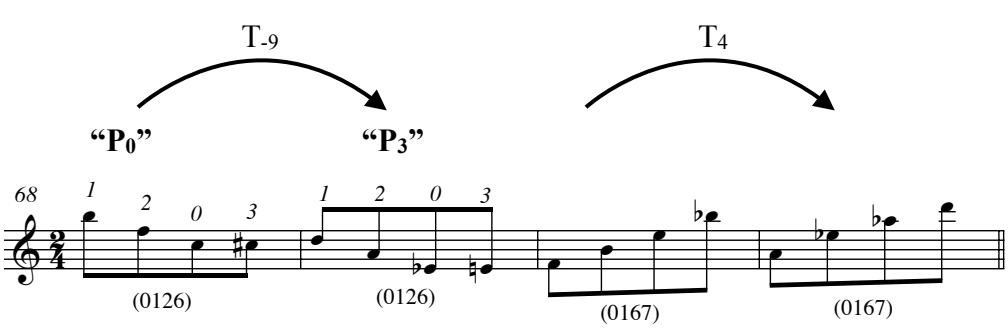
Example 4.45 is a rhythmic reduction—based on the texture shown above—of the soloist's highest (and also lowest) structural pitch classes in Variation IV. The annotations in the example show the sequential treatment of (0126), along with the sequential treatment of a

[28] Similar motivic sequences involving i11 gestures inverted between the soloist's hands occur twice within the *Cadenza*: (1) in m. 4b, the soloist's (016) * T_{-9} sequence compose-out pitch-class set [0369] registrally (see Example 4.8 in part I of this chapter); and (2) at the beginning of the *Cadenza – Con moto* section, the soloist's (012) *cluster* motives compose-out two transpositions of set class (0167), the *z-segs* of P_8 and I_2 (see Example 4.16 in part I of this chapter). Motivic correspondences like these, which directly relate to the variation procedures described in the present discussion, support the "nexus" role of the *Cadenza*.

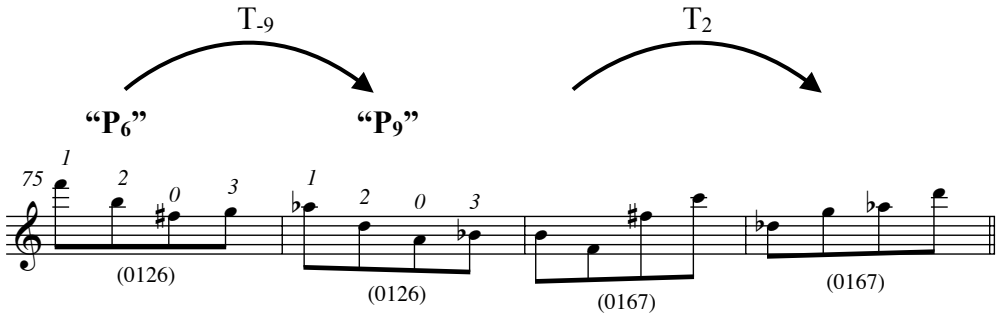
secondary subset, (0167). Like Variation III before and Variation V after, Variation IV follows a two-part periodic phrase design: example (a) represents the first phrase and (b) the second. Ginastera uses the (012) *clusters* on the surface of the music (shown in Example 4.44 above) to embellish the underlying {*1203*} motive, derived from the original row cycle, "$P_{0/3/6/9}$". Large-scale T_6 motion connects "P_0" at the beginning of the first phrase to "P_6" at the beginning of the second and enables the mapping of invariant pitch classes B and F. The complete T_{-9} sequence is interrupted midway through each phrase in exchange for a linear projection of (0167) tetrachords, which serve to change the direction of the melodic line.[29] Thus, by interrupting the (0126) * T_{-9} sequence, Ginastera is able to reinforce the two-part phrase design that is a marked characteristic of all three "fast" variations.

Example 4.45 Soloist's sequences in two phrases of Variation IV

(a)



(b)



[29] The pitch-class contents of these (0167) tetrachords complete specific 8-note collections and are discussed in conjunction with Example 4.56 later in this chapter.

The motivic sequences in the final "fast" variation, Variation V, are part of a much larger network of sequences that participate in larger-scale OCT and 8-note completion strategies. The intricacies of the network involve multiple tetrachord classes, all of which derive from the *Cadenza* but not necessarily from the twelve-tone row. The only tetrachord that is explicitly serially derived, (0145), is best understood in the context of *all* of the surrounding tetrachordal sequences; thus, we will save our discussion of Variation V until the next section on "octatonic" completion.[30]

In the first of the two "slow" variations, Ginastera momentarily abandons the use of motivic sequences and instead focuses on the arch formal design of Variation VI – *Misterioso*, involving I_{11} and its retrograde, RI_{11}.[31] However, in the following variation, Ginastera captures the *Irrealmente* spirit of Variation VII by reintroducing the (0126) motive in a completely new form, where it is presented harmonically and derived from an inversional row form. The variation's subtitle, along the *{1203}* motive's order-number "otherness," is further supported by the celesta's ethereal timbre. Throughout the variation the celesta repeatedly marks time with the two sonorities shown in Example 4.46(a) below.

The boundary pitches of both hands constitute the *{1203}* motive derived from I_6; the row label here is thus more descriptive than prescriptive, as the harmonic organization of the celesta's chord into *{1203}* of I_6 is in keeping with the order-number distribution of the motive already established in the *Cadenza* and prior variations. Significantly, this passage marks the first time in which Ginastera derives the motivic segment from an inversional row form, and he does so using a *surrogate* row that is $I_{(x+6)}$ -related to the more normative "P_0" we have come to

[30] See the discussion of Example 4.59 below.

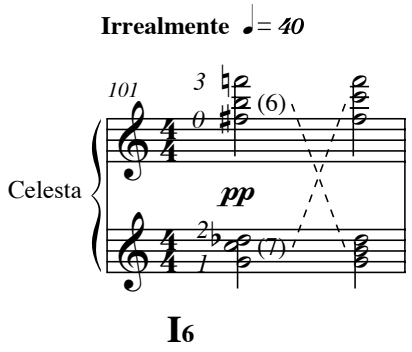
[31] The arch formal design of Variation VI is discussed above in conjunction with Example 4.36.

expect. Example 4.46(b) illustrates the identical dyad *mosaics* shared between I_6 and P_0. The first tetrachord of I_6 that appears in the celesta part is derived from the second of two (*0145*) partitions of P_0.[32]

Two pitches alternate between the right- and left-hand sonorities in Example 4.46(a): the dotted lines trace the exchange of the "inner voices" B and C, order numbers *6* and *7* of I_6. Ginastera commonly groups together the first two pitch classes of each hexachord (i.e., order-number partition {*0167*}); what is especially unique in Variation VII, however, is that—given the nature of the $I_{(x+6)}$ *surrogate* relation—the pitch-class content of {*0167*} is invariant between I_6 and P_0. In fact, the entire content of order-number partition {*012367*}—all but two members of the 8-note collection—is the same between both rows.

Example 4.46 Return of the (0126)/{*1203*} motive in Variation VII

(a)



[32] Notice that this particular (*0145*) partition—order numbers {*2367*} of P_0—constitutes a (0126) tetrachord; it is, therefore, different than the (0145) *x*- and *y-segs* normally derived from the 8-note collection. See the discussion of P_x / $I_{(x+6)}$ row pairs and their invariant dyad *mosaics* in part I of this chapter, Examples 4.26–27.

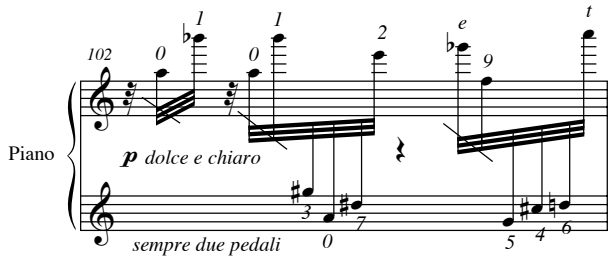
(b)

	0	1	2	3	4	5	6	7	8	9	t	e
I_6	6	7	1	5			e	0	8	2		
					t	4					9	3

	0	1	2	3	4	5	6	7	8	9	t	e
P_0			5	1			7	6				
									t	4	9	3
	0	e			8	2						

Example 4.47 Soloist's entrance in Variation VII provides the normative T_{-9} motion

(a)



I_9

(b)

	0	1	2	3	4	5	6	7	8	9	t	e
I_9	9	t	4	8				3				
			first rhythmic grouping									
					7	1	2		(e)	5	0	6
							second rhythmic grouping					

Because the celesta's chords never change for the duration of Variation VII, the T_{-9} motion normally associated with the (0126) motive becomes a varied, *irreale* version of itself as well. The soloist's entrance in second measure of Variation VII supplies the expected T_{-9}

transpositional shift in an unexpected guise: Ginastera chooses I_9 for the soloist's *dolce e chiaro* grace notes (shown in Example 4.47(a) above), thereby abstractly expressing T_{-9} between the celesta's ongoing projection of {*1203*} derived from I_6 and the soloist's entrance with I_9.

The unusual order-number distribution of I_9 shown in Example 4.47(a) is best understood by distinguishing between the soloist's right and left hands. The row's first three order numbers, {*012*}, and last three order numbers, {*9te*}, are assigned to the right hand. The contiguous order-number segment, {*456*}, appears as the second grouping in the left hand, while the first grouping omits order-number *8* and comprises the discontiguous partition {*037*}. All four of these hand-specific trichords form members of set class (016).[33] When the row's pitches are considered temporally in context, the unusual sequence of order numbers actually helps to maximize the recurrences of ic1.

In terms of Variation VII's deeper-level structure, I_9 plays a role in completing the aggregate, the presentation of which was begun by the celesta's "I_6" motive. The underlined partitions in Example 4.47(b) represent the order-number groups played by the soloist respectively in the first and second halves of m. 102. The "framing" (0167) partition of I_9—consisting of order numbers {*0127*}—is emphasized contextually in the first half of Example 4.47(a) through pitch-class repetition, melodic contour, and the simple fact that order number *3* (in the soloist's left hand) is the only non-member of the "framing" partition to appear in the first phrase. Significantly, the pitch classes of the "framing" partition, [349t], are invariant with the {*45te*} partition of I_6, and by extension, the *z-seg* of P_0. The soloist's entrance thus completes the aggregate in a manner that is both in keeping with the $I_{(x+6)}$ *surrogate* relation implied by the

[33] (016) is the primary motive involved in the soloist's sequence in m. 4b; see the discussion of Example 4.8 in part I of this chapter.

celesta's sonorities and indicative of a variation procedure involving the original "$P_{0/3/6/9}$" motive.

The final variations to feature the (0126) * T_{-9} motive are Variations VIII and IX. In addition to projecting their own individual strategies for completing the motivic sequence, Variations VIII and IX are also linked together in a shared strategy that gradually composes-out the primary row through an emphasis on prominently placed tetrachords within both variations. Two excerpts from Variation VIII – *Pastorale* are shown below. Example 4.48(a) is a reduction of the variation's opening phrase. A solo oboe, clarinet, and horn enter the texture imitatively and each project a portion of the original "$P_{0/3/6/9}$" sequence indicated above the staff. In m. 110 the woodwinds arrive at a harmonic sonority that breaks with the sequence and provides only A♭ and D of "P_9". At this moment a solo cello takes over the melody with a projection of the first hexachord of R_4.[34]

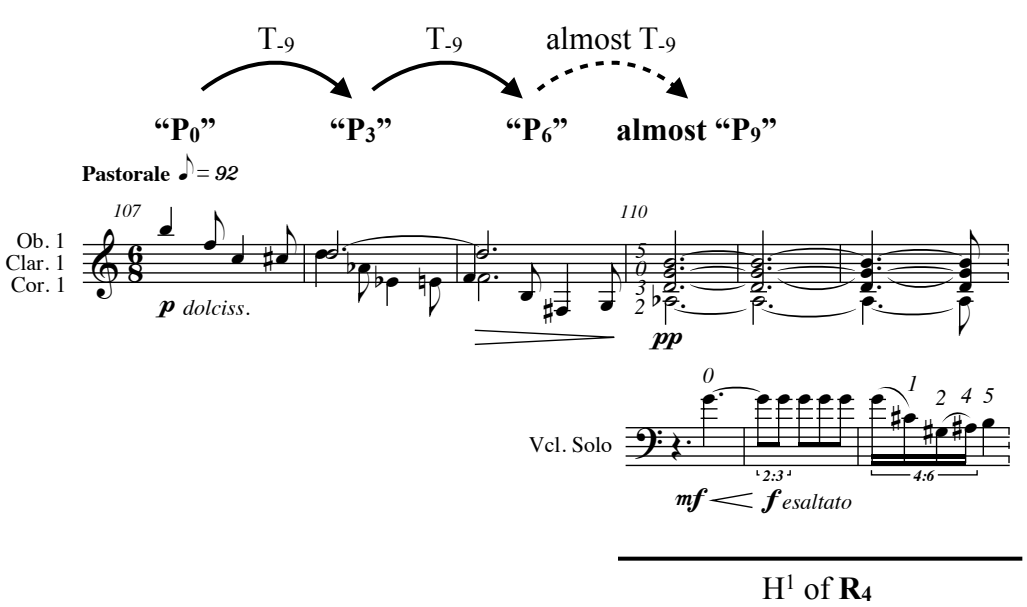
The climax of the variation, shown in Example 4.48(b), arrives three measures later when the pianist enters the texture with the first tetrachord of the primary row and is joined by more instrumental forces, doubling the (0126) motive. "$P_{0/3}$" fragments are repeated by the flutes, clarinets, and violins. In contrast, the solo cello—along with the rest of the cellos, double basses, and bassoons, shown on the bottom staff—begins a presentation of the first hexachord of the primary row. The climactic return of the primary row is further emphasized by the pianist's projection of the P_8-derived {*1203*} motive on the downbeat of m. 114. As the variation builds to a dramatic close, the soloist continues in m. 115 with a rhythmically complex presentation of the

[34] The order numbers beginning in m. 110 of Example 4.48(a) thus correspond to R_4.

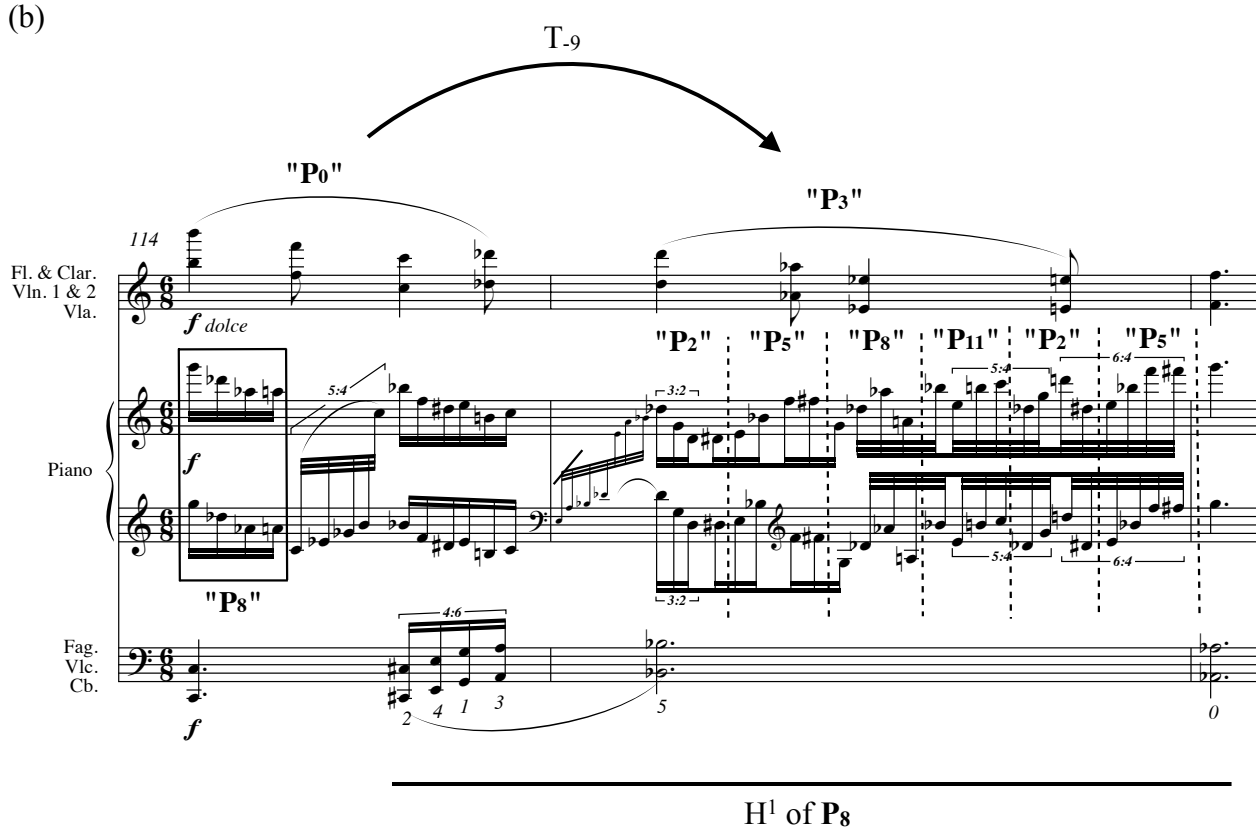
(0126) * T_3 sequence—that is, an ascending variation of the sequence derived from the complete "$P_{2/5/8/11}$" motivic cycle.

Example 4.48 Multiple (0126) sequences interact with R_4 and P_8 in Variation VIII

(a)



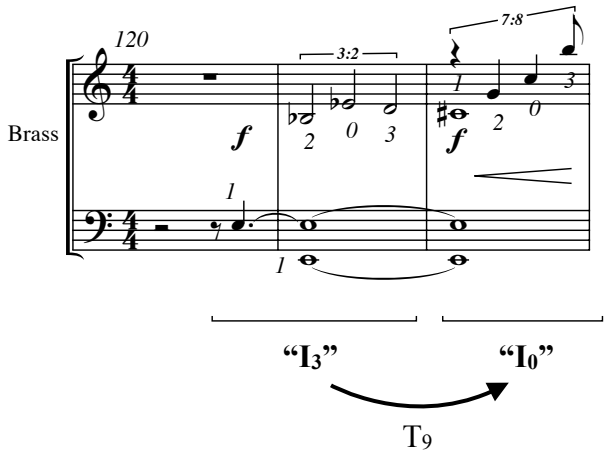
(b)



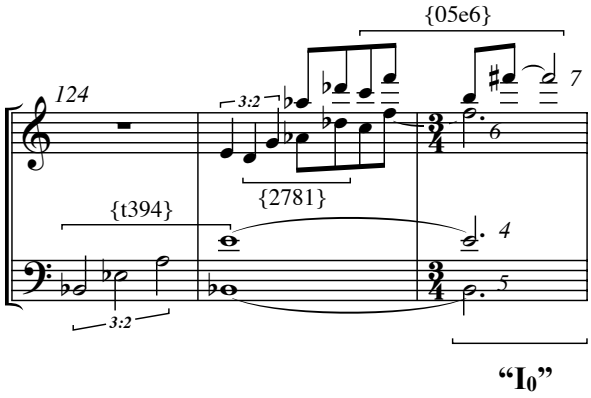
In the following variation, Variation IX, the serially-derived sequence involves {*1203*} partitions of inversional row forms, "$I_{3/0}$". The reduction in Example 4.49(a) illustrates two ***f*** iterations of the (0126) motive presented by the trombones and trumpets. Immediately thereafter, the same instruments begin a presentation of the aggregate involving (0167) tetrachords, shown in Example 4.49(b). The brass section is eventually joined by the woodwind section upon the climatic return of the primary row's *z-seg*, pitch-class collection [56e0], which spans mm. 125–67. Significantly, Ginastera assigns certain pitch classes of each (0167) tetrachord to be held over as pedal tones; together, the four pedal tones, {B♭, E, F, F♯}, culminate in the final harmonic tetrachord of m. 126. The order numbers in Example 4.49(b) indicate the derivation of this final sonority from the second discrete tetrachord, order numbers{*4567*}, of I_0. The 8-note collection of I_0 is therefore completed by the motivic fragments that begin in mm. 122 (shown in Example 4.49(a)) and conclude with the sonority in m. 126.

Example 4.49 (0126) and (0167) motives derived from "$I_{3/0}$" in Variation IX

(a)



(b)



Ginastera's use of I_3 and I_0 in Variation IX has broader *surrogate* implications as well. The first tetrachords of I_3 and I_0 are unique in that they are invariant with the second tetrachords of P_8 and P_5, respectively.[35] Furthermore, the collective pitch-class contents of the {*1203*} motive derived from I_3, the second discrete tetrachord of I_0, {*4567*}, and the {*1203*} motive derived from P_8 in the previous variation, complete the composing-out of the primary row over the course of thirteen measures and two variations: the first tetrachord of P_8 coincides with the soloist's climax in Variation VIII (shown in Example 4.48(b) above); the second tetrachord of P_8 is satisfied by the equivalent pitch classes derived from the "I_3" motive that begins Variation IX (shown in Example 4.49(a)); and the final tetrachord of P_8, the [56e0] *z-seg*, coincides with the full orchestra's entrance toward the end of Variation IX (shown in Example 4.49(b)).

In sum, serially-derived sequences constitute a large part of the Piano Concerto's motivic material. Sequences are first featured in the *Largo* introduction of the *Cadenza* and subsequently recur in various guises in seven of the ten variations. Two hallmarks of Ginastera's procedure for sequencing include: (1) configuring the (0126) tetrachord contextually as order-number segment

[35] P_x / $I_{(x-5)}$ row pairs are members of the same *z-seg family* and are rife with *surrogate* potentialities: they share invariant tetrachordal mosaics, ordered (0145)-derived profiles, and unordered (0167)-derived profiles. Refer to the discussions of Example 4.18(b), Example 4.19, and Example 4.23 in part I of this chapter.

{*1203*}, and (2) transposing the motives, either literally or abstractly, by intervals of ic3—that is, T_3, T_6, or T_9. With each later variation, the serial derivation of a sequence's constituent motives tends to get more complex and harder to recognize, a fact that is largely attributable to the complexity of the underlying *surrogate* relations. This complexity and increasing abstractness, however, is part of what provides the impetus for variation and incites interest in the underlying compositional narrative.

Composing-Out the "Octatonic" and Completing the Aggregate

Elements of "octatonicism" are integral to Ginastera's serial language in the Piano Concerto. Subsets of the familiar OCT collection—including both those melodically and harmonically realized—are indeed such a part of the fabric of this music that their interaction with and relation to the underlying serial procedures seem to be a natural outgrowth of Ginastera more general compositional strategies, most of which involve motivic sequences like those discussed above. The 8-note collection, in contrast to the OCT collection, is used to reinforce the music's "tonal" orientation because (1) it represents a contiguous segment of the row and (2) Ginastera sometimes uses it in place of a complete twelve-tone collection. The "tonal" structure of each 8-note collection is most readily identified in contrast to the pitch classes that it does *not* contain, that is, the members of a row's particular *z-seg*—order-number segment {*89te*} of P_x and I_x row forms, and {*0123*} of R_x and RI_x row forms. These complementary, or "missing," *z-segs* almost always eventually appear in some other register or at some other formal juncture, thus completing the aggregate over longer spans of music. The ensuing discussion will focus on three exceptionally prominent projections of the 8-note collection in the Piano Concerto. The remainder of the chapter will explore in detail (1) how the 8-note and OCT collections are

composed-out via the music's foreground variation strategies and (2) how these collections, when subjected to "semitonal shifts" by $T_{\pm 1/11}$, typically complete the aggregate on the music's structural middleground.

The two most unambiguous instances of the 8-note collection both occur at cadential points in the Piano Concerto. Example 4.50(a) shows the final sonority that ends Variation VII – *Irrealmente*, the last of the "slow" variations. In the measures leading up to this sonority, eight violas traverse a harmonic progression that gradually expands to the 8-note collection of P_2, indicated by a box in the example.[36] In terms of *surrogate* relations, P_2 and the primary row, P_8, are members of the same *z-seg family* and thus have the same 8-note collection; however, the order-number distribution of the cadential sonority in Variation VII is more in keeping with P_2, especially given the tetrachordal configuration and the positioning of the outer-most registral voices.[37] The intervals listed to the right of the sonority in Example 4.50(a) indicate that, although the sonority is not symmetrical in pitch space—as the non-symmetrical distribution of intervals above and below the dotted line show—it is however uniquely derived into (0257) tetrachords.[38] The dually stacked i2 / i5 configuration at the top of each tetrachord emphasizes the similarity of their generally different constructions.

From an order-number perspective, the distribution of P_2 in Example 4.50(a) reveals one particularly marked characteristic of Ginastera's twelve-tone style: the boundary dyads of the

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[36] The absent *z-seg* of P_2 in Variation VII is actually satisfied by the pitch classes {C, F♯, B, F♮} that are continually repeated within the celesta part. See the discussion of I_9 and I_6 and their *surrogates* in Examples 4.46–47 above.

[37] To be sure, the following series is the hypothetical order-number distribution of P_8, reading from the "bottom-up" in Example 4.50(a): <*2*, *0*, *5*, *6*, *4*, *1*, *3*, *7*>.

[38] The possibility for this type of 8-note derivation was first discussed in conjunction with Example 4.10(e) in part I of this chapter. To the author's knowledge, this is the only example of (0257)-derivation in the first movement of the Piano Concerto. See chapter 2 for a discussion of Ginastera's pre-1960 usage of (0257) versus his post-1960 usage of (0167).

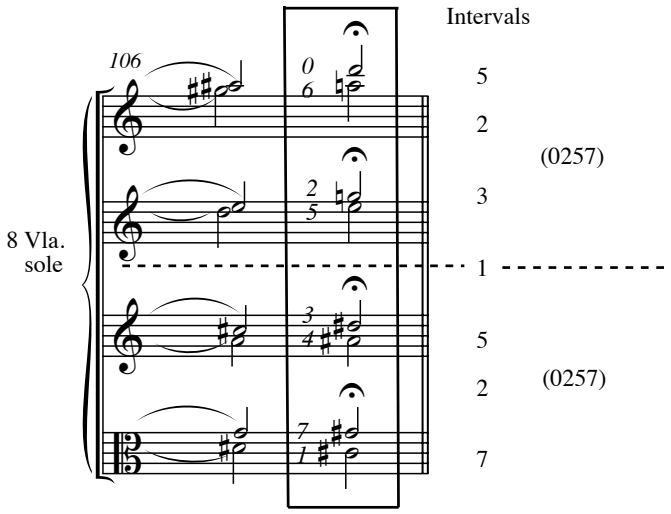
sonority constitute one of Ginastera's preferred order-number partitions, {*0167*}, which in the Piano Concerto constitutes the boundary dyads of the row's 8-note collection. The first "tritone" partition of the row, {*06*}, is assigned to the uppermost dyad of the sonority, and the second "tritone" partition, {*17*}, is assigned to the lowermost dyad. The contiguous {*2345*} partition of the 8-note collection is thus distributed among the inner two dyads of the sonority, and its order-number configuration emphasizes the dual i2 "boundaries" that separate the "outer" tetrachord, {*0167*}, from the "inner" tetrachord, {*2345*}.

The second and most decisive cadence involving the 8-note collection is shown in Example 4.50(b). This cadence marks the end of the movement and constitutes the 8-note collection of the primary row. The soloist's right and left hands are each assigned a different (0123) *cluster* tetrachord plus an overlapping ic3: [789t] + [1] is assigned to the left hand and [t] + [1234] to the right hand. Members of the orchestra simultaneously project the same collection in a different configuration, consisting of a (037) triad plus an overlapping i1: [7t2] + [3] in the upper register and [8] + [914] in the lower. Both the soloist's and the orchestra's collections are symmetrically projected in pitch space around F/F♯4 and F/F♯3, respectively, thus making their combined collections symmetrical around B3/C4.[39] Together, these axes abstractly complete the row's missing *z-seg*, [56e0]. In one final dramatic gesture, the missing *z-seg* is provided as the soloist literally pounds out all twelve pitch classes upon the last measure of the movement: the soloist's hands are assigned black keys in the right and white keys in the left—a configuration that is quite uncommon in Ginastera's music.

[39] The dual axes of B/C and F/F# first occurred in the *Largo* introduction of the *Cadenza*, where they formed the internal, "vertical" axes of symmetry within the orchestra's inversionally-related (0145) tetrachords (mm. 6–7); see the discussion of Example 4.3 in part I of this chapter. The final cadence of the movement thus emphasizes the same 8-note collection and axes of symmetry as the opening of the concerto.

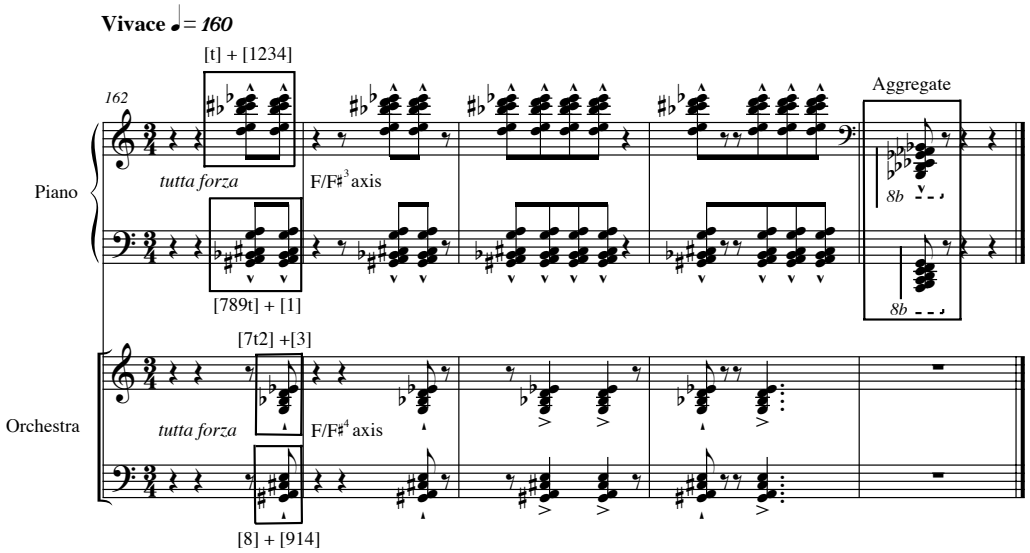
Example 4.50 8-note collections end Variation VII – *Irrealmente* and the *Coda – Vivace*

(a)



P2 8-note

(b)

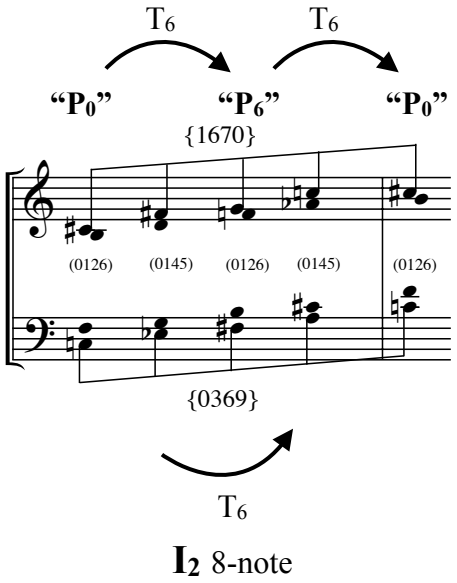


P8 8-note

In contrast to the cadential gestures discussed above, Ginastera also invokes the 8-note collection in conjunction with the pervasive "$P_{0/3/6/9}$" sequence, or fragments thereof. Example

4.51 reproduces the *leitrhythm* motive from the *Cadenza*, discussed in part I of this chapter.[40] The same motive recurs with even more vigor as it heralds the beginning of the *Coda*. The orchestra's ascending harmonies alternate between (0126) tetrachords derived from "P_0" and "P_6" and (0145) tetrachords derived from I_2's 8-note collection. Together the two interlocking T_6 sequences highlight T_3 motion, which outlines {0369} in the lowermost registral line, and i1/i5 melodic intervals, which outline {1670} in the uppermost registral line. All but pitch-classes B♭ and E are missing from the *leitrhythm* motive in order to complete the twelve-tone aggregate; these pitches belong to the *z-seg* of I_2, [45te], which is provided by the soloist in the following measure.[41]

Example 4.51 8-note and "$P_{0/3/6/9}$" fragments make up the *leitrhythm* of the *Cadenza* and *Coda*



[40] See Example 4.14 in part I of this chapter.

[41] The soloist begins the *Cadenza – Con moto* section with a presentation of two inversionally-related tetrachords, the *z-seg* of the primary row, P_8, and that of its T_6-related inversional partner, I_2: see the discussion of Example 4.16 in part I of this chapter.

The remainder of this chapter focuses on the processes by which Ginastera composes-out the "octatonic"—that is, the OCT and 8-note collections—throughout the first movement of the concerto. Much like serially-derived sequences, such as the (0126) * T_{-9} sequence discussed above, the "octatonic" composing-out process typically begins with cyclic transpositions of a particular interval; in this case, the interval is realized musically as a harmonic pitch interval (e.g., i3 * T_4 indicates a minor third transposed by a major third). Unlike the prototypical (0126) * T_{-9} sequence, however, these "octatonic"-completing cycles do not bear any evident serial derivation in terms of order-number partitions. Instead, the process is more "generative" or organic, so to speak: pitch-intervallic surface motives, via transpositional combination, turn into tetrachords, which are further transposed to complete "octatonic" collections (and sometimes the twelve-tone aggregate) on the music's structural middleground.

The following discussion, as it concerns the "octatonic" composing-out process, will highlight three characteristics of pitch structures and organizational strategies in the Piano Concerto: (1) the tetrachordal "building blocks" that compose-out the OCT collection involve (0347) and (0134), while those that compose-out the 8-note collection involve (0145) and (0167); (2) the 8-note collection, in particular, tends to interact with serially-derived motives that are part of "$P_{0/3/6/9}$" sequences (discussed above); and (3) "semitonal shifts" effected by $T_{\pm 1/11}$ motion generally create middleground completions of the aggregate.

Example 4.52 provides a list of the most salient intervallic motives used throughout the movement. The harmonic intervals, along with the interval at which each is transposed, are expressed in parentheses and the resulting products indicate locally composed-out tetrachords. Significantly, all of the intervals—including both the pitch intervals and their respective T_n

intervals of transposition—involve only interval classes 1, 3, and 4. Part of the variation process is prompted by different combinations of these intervals and their inversions. The most common tetrachord to result from these interval combinations is set class (0347); when this tetrachord combines with certain transpositions of itself, the resulting OCT collection is also indicated in Example 4.52.[42] All three of the "fast" variations in the middle of the movement—Variations III, IV, and V—feature pitch-interval sequences based on (0347). In contrast, a different octatonic subset, (0134), forms the basis of the soloist's material in Variations IX and X.

Example 4.52 Pitch-intervallic materials featured motivically

	Soloist	Orchestra
Cadenza – Largo	i4 * T_3 = (0347) / $OCT_{0,1}$	
Cadenza – Più mosso		i4 * $T_{\pm 3}$ = (0347) / $OCT_{2,3}$
Variation III	i8 * $T_{\pm 3}$ = (0347)	
Variation IV		i3 * T_8 = (0347) / $OCT_{2,3}$
Variation V	i11 * $T_{\pm 4}$ = (0145) i3 * $T_{\pm 4}$ = (0347) i11/i3 * T_3 = $OCT_{2,3}$	
Variation IX	i11 * T_3 = (0134)	
Variation X	i11 * T_3 = (0134)	i11 * T_3 = $OCT_{0,1}$
Coda – Con moto		i4 * $T_{\pm 3}$ = (0347) / $OCT_{2,3}$

[42] Ginastera's more general use of interval patterns resulting in set class (0347) is explored in chapter 2; see Example 2.4 and the discussion of common tetrachordal motives in Ginastera's early and twelve-tone works. See also the specific motivic roles set class (0347) (i.e., i4 * T_3 or i3 * T_4) plays in the Piano Sonata No. 1, Op. 22 (1952), shown in Example 2.7(a), and the String Quartet No. 1, Op. 20 (1948, rev. 1958), shown in Example 2.12.

Significantly, the orchestra's participation in pitch-intervallic motives, indicated in the far right column of Example 4.52, always results in the OCT collection—most often $OCT_{2,3}$. Within the *Cadenza* the orchestra's $OCT_{2,3}$ collection combines with the soloist's contrasting $OCT_{0,1}$ collection to complete the aggregate via a T_{-1} shift. Example 4.53 shown below illustrates this passage is detail.[43] The soloist's sequence, reproduced in Example 4.53(a), occurs at the end the *Largo* introductory section of the *Cadenza* (m. 8b) and leads directly into the first downbeat of the *Più mosso* section (m. 9). Major thirds in each hand ascend in a regular rhythmic pattern by T_3, and each rhythmic pair (i.e., sixteenth note + dotted- (or tied-) eighth note) forms a member of set class (0347), unfolding like an amalgamated "major/minor" triad. The E♭"major/minor" tetrachord implied by the right hand is imitated at T_{-11} by the E "major/minor" tetrachord implied by the left hand, and both hand's (0347) tetrachords are continually transposed by T_6 throughout the passage. Thus, the highest and lowest registral voices in each hand compose-out two different ic3 cycles that, when combined together, complete $OCT_{0,1}$: {3690} is accentuated by the soloist's right hand and {47t1}—a "semitonal shift" away—is accentuated by the left hand.

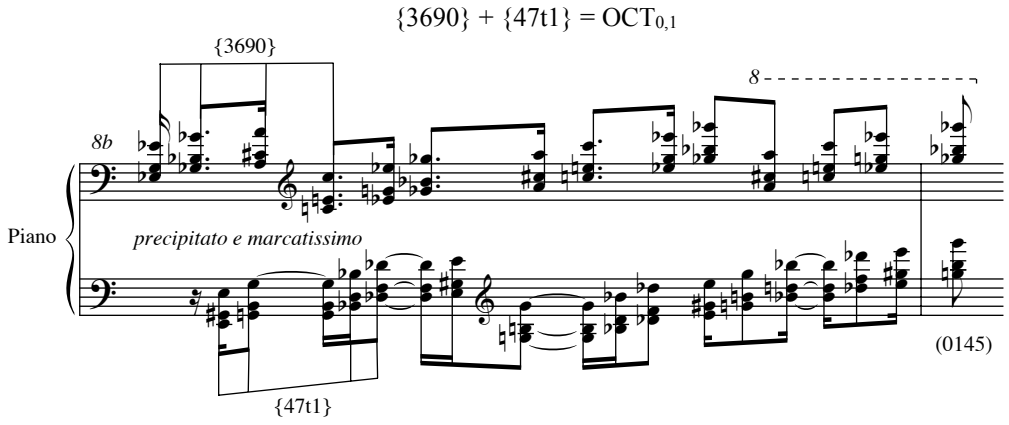
Upon reaching a (0145) tetrachord on the downbeat of m. 9, the soloist's i4 * T_3 motive is taken over by the orchestra, a reduction of which is shown in Example 4.53(b). Two instrumental groups divide up the motive so that it is imitated inversionally in the upper register as i4 * T_{-3}. Together, the two instrumental groups compose-out, via their lowest registral lines, a different octatonic collection that is abstractly T_{-1}-related to the soloist's material: {3690} in the lowest register and {852e} in the highest register together complete $OCT_{2,3}$. Consequently, the soloist's

[43] The same passage is included in the reduction of the entire *Cadenza* shown in Example 4.29 above.

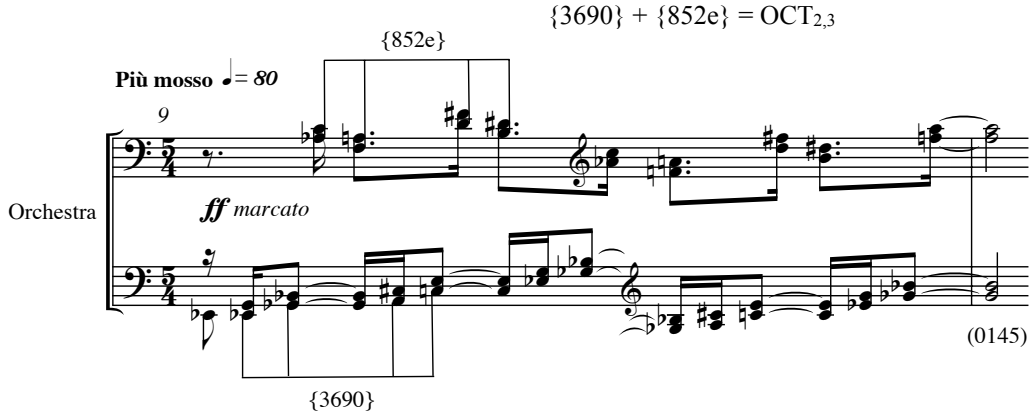
and orchestra's different OCT sequences complete the aggregate over the course of a formal juncture, straddling two sections of the *Cadenza.*

Example 4.53 Soloist's $OCT_{0,1}$ and orchestra's $OCT_{2,3}$ span two sections of the *Cadenza*

(a)



(b)



The large-scale T_{-1} shift between the beginning of Examples 4.53(a) and (b) is also echoed by the (0145) tetrachords that end each sequence. These culminating (0145) tetrachords play a role in completing the aggregate with *derived* rows in the *Cadenza – Più mosso* section. The composing-out strategy in this passage relies on several factors, including the assignment of specific derived tetrachords—(0167) *z-segs* and (0145) *y segs*—to distinct instrumental groups

and the application of successive T_{-1} shifts. As the following discussion explains, the pitch-class content of locally-emphasized (0145) and (0167) collections relate to one another in their common derivations from retrograde row forms only.

The soloist's and orchestra's (0145) tetrachords are shown on the two staff systems of Example 4.54(a). Upon the T_{-1} shift between these two sonorities, the brass and violins continue to reiterate the second (0145) collection for six more measures. In m. 13 the soloist reaches the climax of a new phrase made up of two rhythmic figures. The first figure consists of the descending primary *z-seg*, {e650}, followed by its ascending inversional partner, {e45t}. The soloist's second figure is a recurring i4 * T_1 tremolo gesture, the pitch classes of which continue to prolong the same (0145) collection, {6t59}, begun by the orchestra. Meanwhile, the low strings, bassoons, bass clarinet, and contrabassoon begin a new melodic line that consists entirely of overlapping (0167) collections.[44] Example 4.54(b) identifies each (0167) tetrachord and suggests its possible *z-seg* origins. The linear-intervallic profile of each tetrachord is different; however, each subsequent collection descends abstractly by T_{-1}.

Example 4.54(c) shows T_{-1}-related retrograde row forms, R_5 and R_4, and the (0145)-derived profiles of their respective 8-note collections .[45] The low strings' and woodwinds' projection of {3298} in Example 4.54(b), along with the soloist's simultaneous arrival on {7e6t} at the beginning of Example 4.54(a), correspond to the *z-* and *y-segs* of R_5. The "semitonal shift" to the *z-* and *y-segs* of R_4 occurs in the next few measures and is also simultaneously achieved: the low strings and woodwinds begin an abstract T_{-1} realization of the next *z-seg*, {8217}, in m.

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[44] The beginning of the first (0167) collection coincides with the soloist's arrival in m. 9 on the (0145) tetrachord shown above.

[45] Example 4.13 in part I of this chapter illustrates how set class (0145) derives from two pitch-class/order-number isomorphic partitions—the *x-seg* and *y-seg*—of the row's 8-note collection.

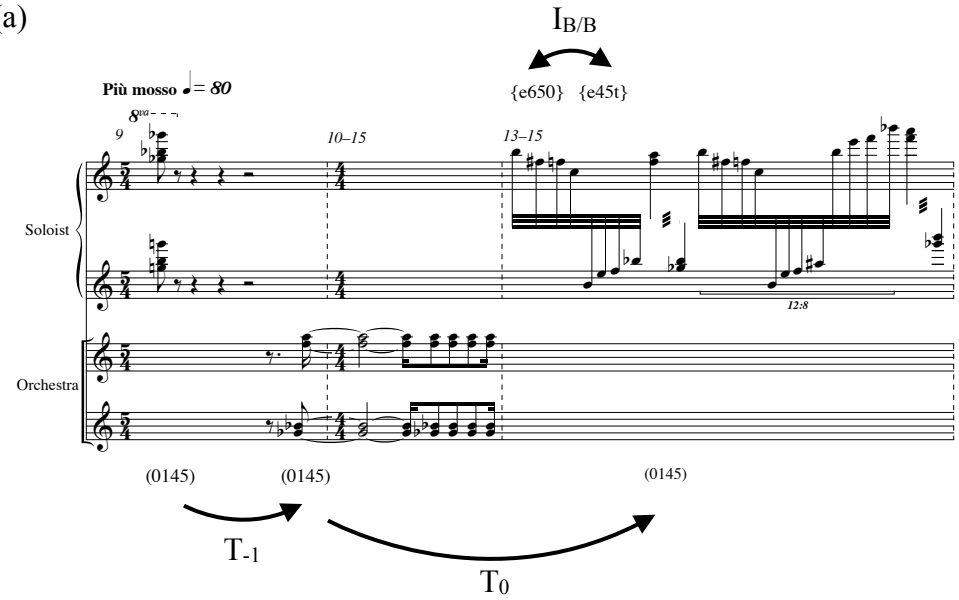
11 of Example 4.54(b), while the upper instrumental voices project a more literal shift (by T_{-13} in pitch space) from the soloist's tetrachord to the arrival of {6t59} in mm. 10–15 of Example 4.54(a).

The ensuing completion of the aggregate within this passage may be a natural consequence of Ginastera's compositional approach—namely, his saturation of the musical foreground with T_{-1}-related tetrachord classes—but it is not one that goes without special musical treatment and an implied sense of hierarchy. A T_{-1} shift between either two (0145) tetrachords or two (0167) tetrachords will always allow for a pair of invariant pitch classes—forming ic4 in the case of (0145) and ic6 in the case of (0167). Ginastera tends to take advantage of this invariance by prolonging and emphatically repeating the "post-T_{-1}-shift" chord as a kind of structural pillar, while the "pre-T_{-1}-shift" chord, on the other hand, plays a subordinate role akin to an upper-neighbor or embellishing chord. This is certainly the case with the *z*- and *y-segs* of R_5 and R_4 shown in Example 4.54. Ginastera gives the *y-seg* of R_4 the most musical emphasis in Example 4.54(a)—it is repeated for 16 measures—and he also assigns only R_4 (and not R_5) an explicit structural role throughout the movement, most notably as the local governing row, along with P_4, in Variation II.[46]

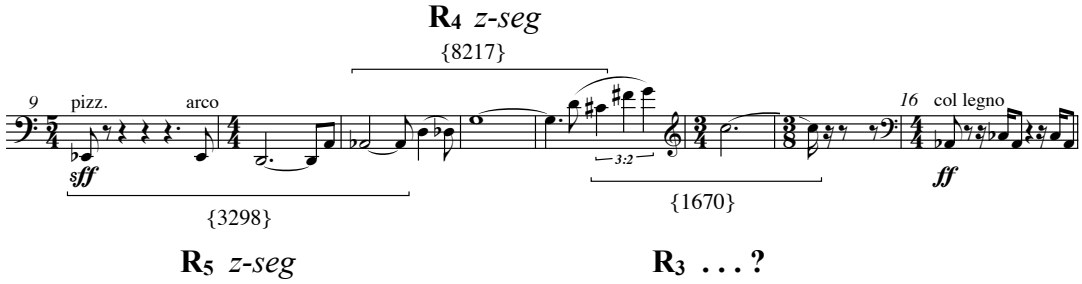
[46] See the discussion of Examples 4.31–32 above.

Example 4.54 Structural sonorities involving (0145) and (0167) tetrachords

(a)



(b)



(c)

	0	1	2	3	4	5	6	7	8	9	t	e
R5					e	7*			6	t		
	8	2	9	3			*y-seg*					
		z-seg					0*	1			4	5
									x-seg			

	0	1	2	3	4	5	6	7	8	9	t	e
R4					t	6*			5	9		
	7	1	8	2			*y-seg*					
		z-seg					e*	0			3	4
									x-seg			

One final "semitonal shift" in the *Cadenza – Più mosso* section enables Ginastera to complete the aggregate using only partial presentations of R_5, R_4, and R_3. The final melodic presentation of (0167), formed by the pitch classes{1670} in Example 4.54(b) above, does indeed correspond to the *z-seg* of R_3; however, there is no other tetrachord—(0145) nor (0126)—from the row's 8-note collection to warrant such a label (hence the question mark following the R_3 label). Instead, the entire (0167)-constructed melody in Example 4.54(b), along with the accompanying forces shown in Example 4.54(a), engages in a middleground completion of the aggregate: Example 4.55, shown below, interprets the *z-seg* of R_4 as the structural pillar about which the *z-segs* of R_5 and R_3 "toggle" in neighbor-chord fashion.[47] The *z-seg* of R_4, [1278], appears inside the solid lines. On either side of the central collection, two pitch classes are held in common as the *z-segs* "toggle" leftwards to R_3 or rightwards to R_5. Together all three *z-segs* form a new 8-note collection—one in which only [45te] is missing from the aggregate.[48] Significantly, [45te] is precisely the collection the soloist repeats so emphatically, thereby completing the aggregate, in mm. 13–15 of Example 4.54(a).

Example 4.55 Three different *z-segs* form the 8-note collection of the [45te] *z-seg family*

R_3	**R_4**	**R_5**
6 7	8 9	
0 1	2 3	

8-note missing [45te]

[47] This interpretation is musically supported in two ways: (1) the *y-seg* of R_4 is not attained until the climax in m. 10 of Example 4.54(a), and (2) the melodic pitches D3, A♭2, and G3 in mm. 10–13 of Example 4.54(b) stand out given their metric placements and durations and the fact that all are members of the *z-seg* of R_4

[48] Within the Piano Concerto, the most common representative of the [45te] *z-seg row family* is I_2; see the discussion of the *leitrhythm* motive in Example 4.51.

The completion of the aggregate via manipulation of the 8-note collection is also one of the compositional strategies Ginastera uses in Variation IV. The previous discussion of serially-derived sequences noted that Variation IV contains two T_6-related phrases: the soloist presents the (0126) * T_{-9} motive derived from "$P_{0/3}$" in the first phrase and "$P_{6/9}$" in the second phrase.[49] The last two measures of each phrase, in contrast, conclude with two linear presentations of (0167), which are illustrated in Example 4.56(a). Each phrase completes two different 8-note collections, which together complete the aggregate. The constituent tritones of each (0167) tetrachord appear in brackets and in the order in which they are presented by the soloist. The 8-note collections of both phrases are meaningful because they correspond to *z-seg-family* members from which fragments of the previous "$P_{0/3/6/9}$" sequence in each phrase is derived: the 8-note collection of $P_{3/9}$ is composed-out in the first phrase and the 8-note collection of $P_{0/6}$ is composed-out in the second. The abstract $T_{\pm 3}$ relation that unites the 8-note collections thus echoes the interval of transposition associated with the emblematic (0126) * T_{-9} sequence that precedes each collection.

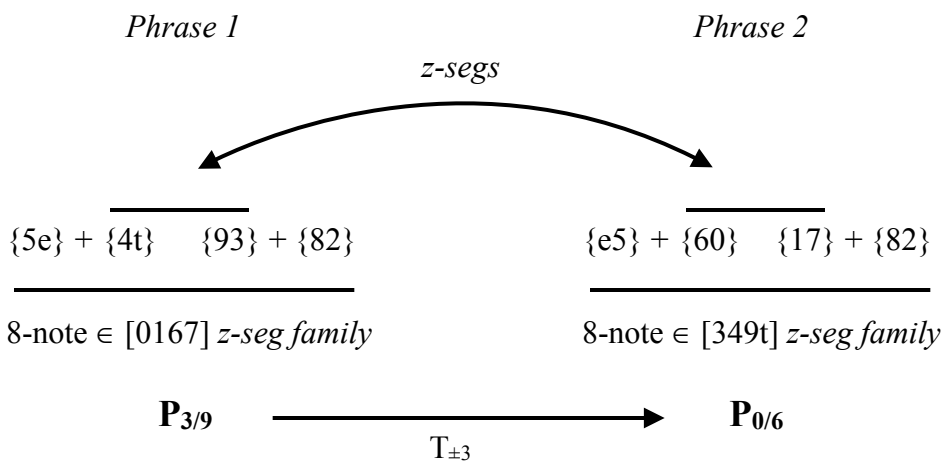
Ginastera emphasizes another structural connection between the two 8-note collections in Example 4.56(a) given the manner in which he distributes the tritones of the passage. The boundary dyads, [5e] and [28], of both 8-note collections are held invariant between the phrases, while the "missing" *z-seg* that defines each 8-note collection is provided by the central two tritones in either phrase. Example 4.56(b) shows a graphic representation of how the aggregate is completed when the two phrases are considered together. The variation begins with the 8-note collection (consistent with $P_{0/3}$) shown in the middle of the figure and the two (0167) collections

[49] A musical illustration of this passage is shown in Example 4.45 above.

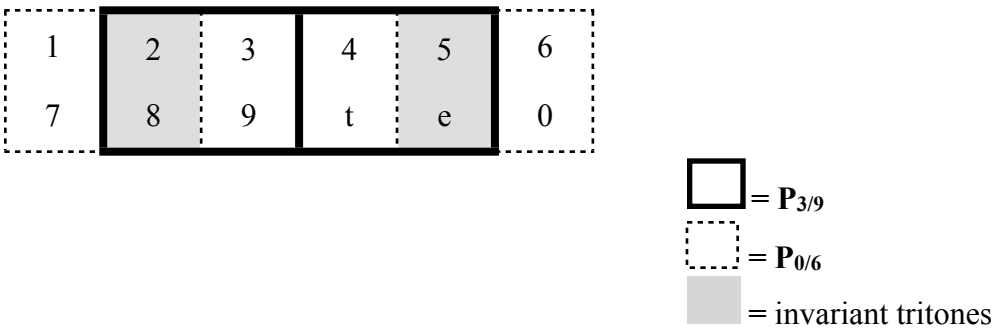
of are indicated by solid lines. The invariant dyads between the two phrases are shown in gray and mark the point at which the second 8-note collection (consistent with $P_{0/6}$) expands outward to the two (0167) collections indicated by dotted lines.

Example 4.56 Soloist's 8-note collections complete the aggregate in Variation IV

(a)



(b)

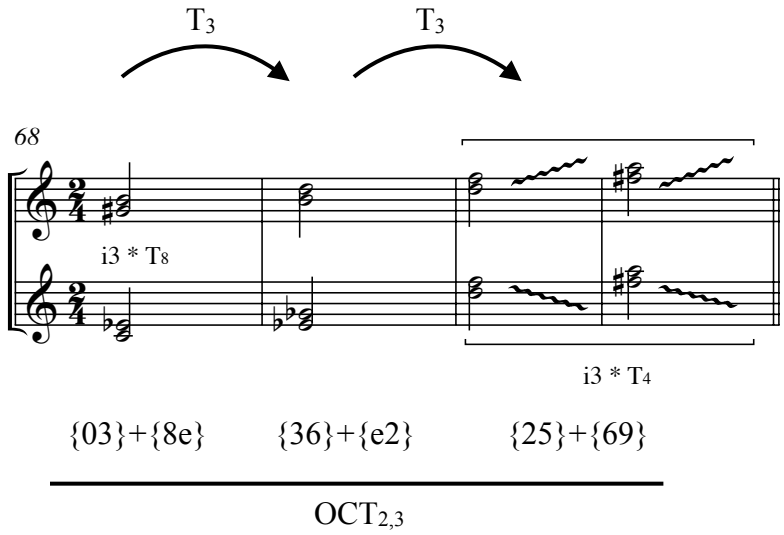


Composing-out strategies are not limited to the soloist's material in Variation IV. The woodwinds' accompanimental pitch material in this variation composes-out the $OCT_{2,3}$ collection in both phrases. A reduction of the recursive ic3 relations in both phrases is provided in Examples 4.57(a) and (b) below. At the beginning of each phrase, a minor third (i3) in the lowest register appears harmonized by the same interval at T_8, resulting in a (0347) sonority; this

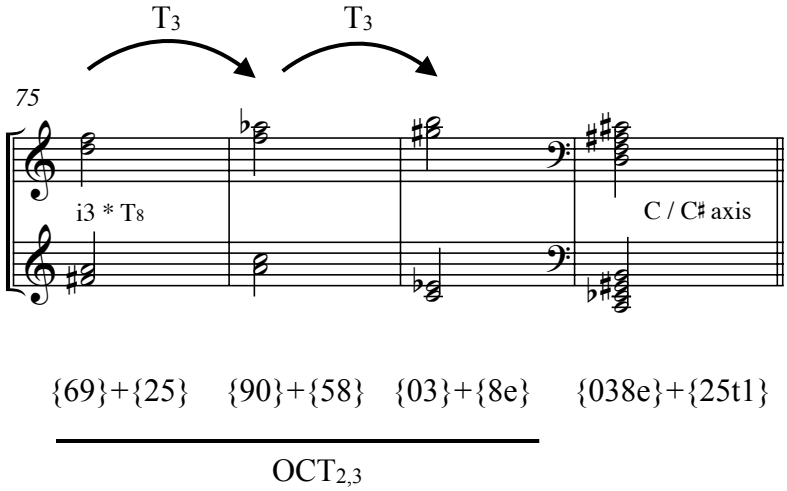
tetrachord then ascends by T_3 in the following measure. The second T_3 transposition in the first phrase (shown in example (a)) takes two measures to complete because the last instance of (0347) unfolds as two T_4-related i3s. A large-scale voice exchange of sorts takes place between the phrases when the second phrase (shown in example (b)) begins with the same pitch classes that ended the first phrase, [2569], and the second phrase returns, via consecutive T_3 motion, to the same sonority that began the variation, [8e03].

Example 4.57 Woodwinds' accompanimental tetrachords in Variation IV

(a)

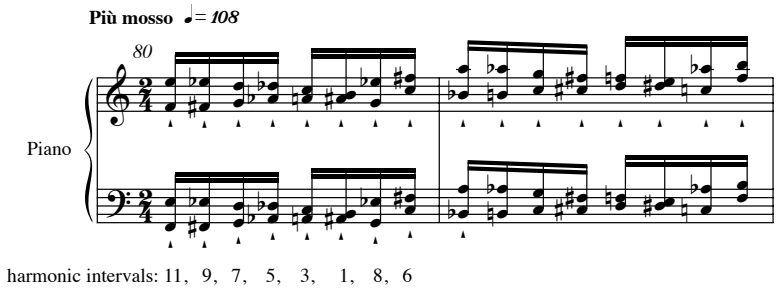


(b)



As the middle variation in a set of three "fast" variations, Variation IV relates to Variations III and V in a kind of microcosm of the variation form itself. The (0347) motive is first introduced by the soloist's pitch-interval sequence in Variation III (see Example 4.41), where it is composed-out by i8 * $T_{\pm 3}$ dyad pairs alternating between the soloist's hands. When the motive recurs in Variation IV, shown in the previous example, the interval sequence appears in the orchestra's part and is inverted to i3 * T_8 harmonic tetrachords. The variation microcosm continues with Variation V, which contains some of the most varied and intricate series of interval patterns in the entire movement. The music's tempo, which has been gradually building since the first variation, reaches a climactic level of intensity in Variation V that continues until the arrival of the slow and *Misterioso* Variation VI. Although Variation V begins with a rather simple interval pattern, the variation as a whole is decidedly recapitulatory: the soloist's material recalls all the pitch and intervallic materials presented in the movement thus far, including (0167), (0145), and (0347) tetrachords and the $OCT_{2,3}$ collection.[50]

Example 4.58 Beginning of Variation V features the soloist's "wedge-like" interval pattern



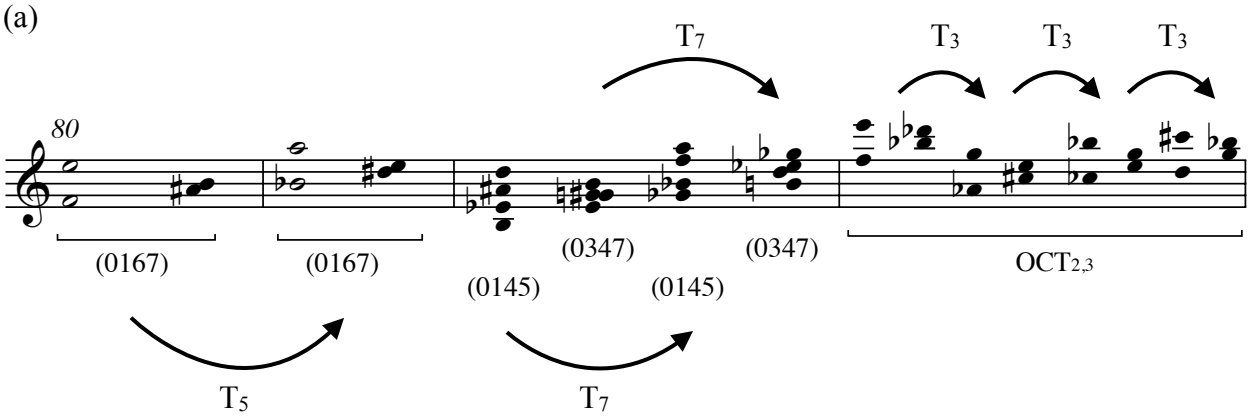
The first two measures of the soloist's part in Variation V are shown in Example 4.58 above. The "wedge-like" interval pattern, which is indicated below the staff, begins with a

[50] (0126), a discrete subset of the row, is also present in the orchestra's presentation of RI_{11} and RI_2; see Example 4.33 above.

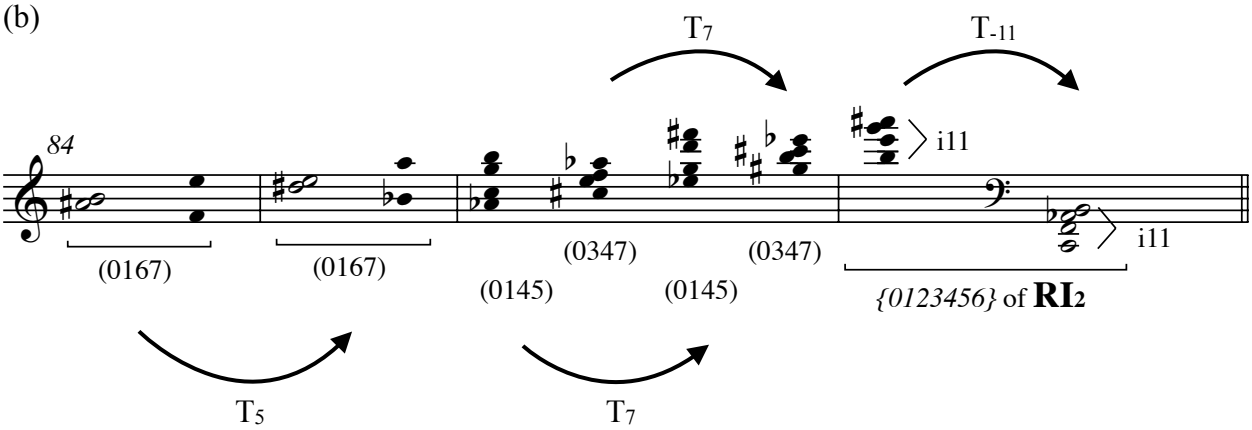
harmonic major seventh (i11) that gradually contracts until reaching the semitone dyad (i1). A single minor sixth (i8) and tritone (i6)—well-established motivic intervals throughout the concerto—finish the pattern and lead to its repetition in the following measure. Like the previous two variations, Variation V is neatly organized into two structurally-related phrases. Example 4.59 provides a reduction of the soloist's material in both phrases.

Example 4.59 Reduction of soloist's material in Variation V – *Più mosso*

(a)



(b)



The intervallic "wedge" that begins the first phrase (shown in Example 4.59(a)) composes-out two T_5-related (0167) tetrachords via its boundary dyads. In the second phrase (shown in example (b)) the entire "wedge" is inverted so that the boundary intervals instead

expand from i1 to i11, but the resulting (0167) tetrachords remain invariant with respect to the first phrase.[51] The second half of both phrases continues with a steady pulse of sixteenth-note dyads—just like in Example 4.58 above—and in the third measure of each phrase (shown in Example 4.59) two interlocking interval patterns compose-out T_7-related instances of (0145) and (0347). The first interval pattern forms along metrically-accented sixteenth-note dyads and composes-out (0145) tetrachords. The second interval pattern forms along the unaccented (or "off-beat") sixteenth-note dyads and composes-out (0347) tetrachords.[52]

Significantly, all three pairs of tetrachord classes—(0167), (0145), and (0347)—in Examples 4.59(a) and (b) are related by either T_5 or T_7.[53] Interval-class 5 is important in this context for two reasons: (1) it is an interval class shared by the structure of all three tetrachordal motives and (2) when systematically applied to each tetrachord as an interval of transposition, it allows Ginastera to complete the aggregate within the first three measures of each phrase (mm. 80–2 in example (a) and mm. 84–6 in example (b)). In the last measure of each phrase, however, Ginastera does *not* employ a pattern that completes the aggregate. Instead, the first phrase ends with additional alternating i11 and i3 dyads in a familiar T_3 sequence that completes the octatonic collection, $OCT_{2,3}$. The last measure of the second phrase also features i11 and i3

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[51] It is also worth noting that the T_5 transposition of (0167) *within* each phrase allows for a kind of "structural voice exchange" involving two common tones, E and A♯/B♭. In the first phrase, E begins the upper voice's descent and A♯ ends the lower voice's ascent. Upon the T_5 transposition into the following measure, the same pitch classes map onto new positions within the "wedge" structure where B♭ (A♯) now begins the lower voice's ascent and E ends the upper voice's descent. The same sort of "structural voice exchange"—involving the same pitch classes, only registrally and temporally inverted—appears in the first two measures of the second phrase.

[52] The interval patterns themselves are slightly varied between the two phrases. In transpositional-combination terms, the two (0145) tetrachords in the first phrase are created by i11 * T_{-4} motion, while those in the second phrase are created by i11 * T_4 motion. Likewise, two (0347) tetrachords in the first phrase are created by i3 * T_{-4}, while those in the second phrase are created by i3 * T_4.

[53] The more contextually-normative transposition by $T_{3/9}$, which is associated with the movement's many serially-derived sequences, is also present in Variation V: each (0145) and (0347) tetrachord in m. 82 of the first phrase is T_9-related to its counterpart in m. 86 of the second phrase.

dyads, but they now appear "collapsed" into a single harmonic tetrachord. At the end of Variation V, which also marks the end of the three "fast" variations, the soloist makes one final, registrally extreme gesture: in m. 87 of Example 4.59(b), the "collapsed" i11/i3 tetrachords emphasize a "semitonal shift" by T_{-11} (or T_{-47} in pitch space) from the highest sonority in the variation to the lowest. The T_{-11} shift in this case completes the first seven members of RI_2—the same row form presented melodically by the strings throughout the same phrase.[54]

Finally, the last two variations of the movement, Variations IX and X, feature a remarkable synthesis of events in which interval patterns compose-out (0134) tetrachords, {*1203*} order-number partitions, and *z-seg* "tonalities." In addition, the middleground structures of these two variations are linked together by "semitonal shift" motion. The discussion of the following three examples will first explore the manner in which surface-level events are presented in Variations IX and X and then illustrate the deeper-level consequences of how these events are organized both within formal sections and across formal boundaries.

The motivic and structural similarities between the final two variations begin with a cadenza-like passage in the middle of Variation IX.[55] Like a conventional cadenza, this passage appears near the end of the movement, in close proximity to the coda; it is unaccompanied, featuring only the soloist; and its pitch-intervallic material derives from prominent motives that recur throughout the movement. Example 4.60 is an excerpt from the first five measures of this cadenza-like passage. The general intervallic profile of the passage corresponds to the motivic material the soloist presents throughout the following variation, Variation X. The harmonic

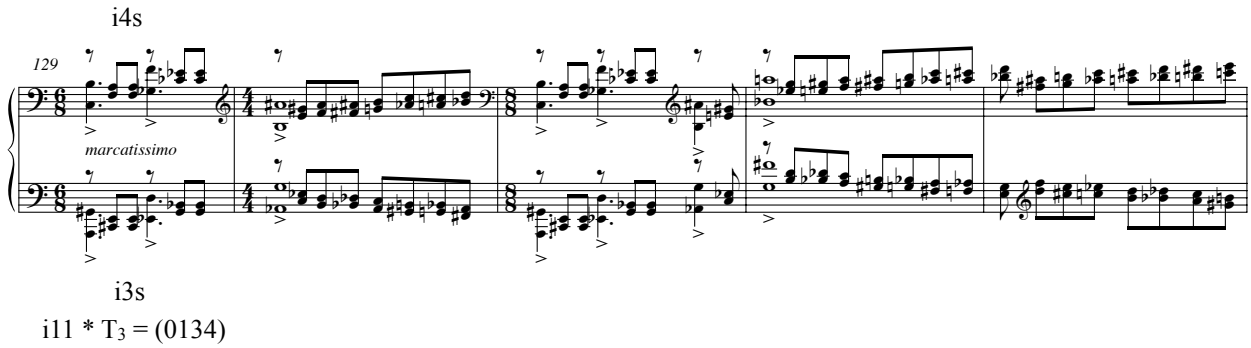
---

[54] See Example 4.33(b) above.

[55] The first half of Variation IX is primarily devoted to the orchestra's presentation of the (0126) * T_9 motive derived from "$I_{0/3}$"; see the discussion of Example 4.49 above.

material is dominated by (0134) tetrachords: i11s in the soloist's left hand are always combined with T_3-related i11s in the right hand. All (0134) harmonic tetrachords are rhythmically and metrically accentuated, and all are separated by unaccented recurrences of i3 in the left hand superimposed by i4s in the right.[56]

Example 4.60 Beginning of the soloist's cadenza-like passage in Variation IX



Example 4.61(a) is a reduction of the cadenza excerpt, showing only the accentuated (0134) tetrachords plus one final tetrachord not included in Example 4.60 above.[57] This passage continues without pause into the beginning of Variation X, a reduction of which is shown in Example 4.61(b). The fundamental motivic strategy Ginastera uses in Variations IX and X concerns the "harmonization" of the serially-derived (0126) motive. The distinctive order-number presentation associated with this tetrachord, {*1203*}, is indicated above the staff. Given the consistent harmonic configuration of the soloist's hands—i11 * T_3—the (0126)/{*1203*} motive unfolds melodically in all four registral lines, thereby realizing a four-part harmonization exclusively made up of (0134) tetrachords.

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[56] Interval-classes 3 and 4 appear in contrast to one another throughout the Piano Concerto. The OCT collection is often times a byproduct of ic3/ic4 interactions, as many of the previous examples have shown; see also the general discussion of the octatonic characteristics of Ginastera's compositional language in chapter 2.

[57] This final tetrachord appears after a repetition of the previous four tetrachords.

Reading from the "bottom-up", the {*1203*} motive in Example 4.61(a) is serially derived from "I_8", "I_7", "I_{11}" and "I_{10}". For the final (0134) harmonic tetrachord, Ginastera skips over order number *4* and instead provides only order number *5*—that is, the hexachordal boundary pitch of each partial row form. The significance of these particular partial row forms lies in their relationship to the material presented by the orchestra at the beginning of Variation IX and the relationship they form with the ensuing events in Variation X. With respect to the first of these relationships, Example 4.61(a) shows a box around the first two dyads in both hands. The pitch classes of these two dyad pairs constitute the "missing" *z-segs* of "I_0" and "I_3", [2389] and [56e0]. The implication of "I_0" and "I_3" is significant because these are the rows from which the {*1203*} motive is derived at the beginning of Variation IX.[58] The relationship spans several measures but is nonetheless part of a large-scale composing-out strategy wherein the "missing" *z-segs* are first marked by their absence at the beginning of the variation and later supplied at a structurally prominent moment toward the end of the variation.

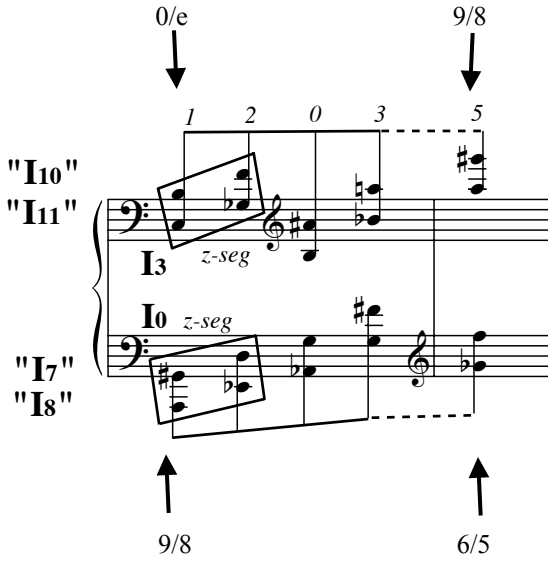
The partial row forms featured in Variation X are equally significant to the music's deeper-level structure and represent a full-circle conclusion to the continual reinvention of the original "$P_{0/3/6/9}$" sequence. The four-part realization of the {*1203*} motive in Variation X, as shown in Example 4.61(b), is derived from the following prime row forms: "P_{11}", "P_{10}", "P_2", and "P_1". The first dyad pairs in both hands (indicated again by boxes) now supply the *z-segs* "missing" from the original "$P_{0/3}$" motivic sequence, [349t] and [0167]. The significance of these pitch-class sets is reinforced by their mappings onto one another at the final two chords of

[58] See Example 4.49(a) above.

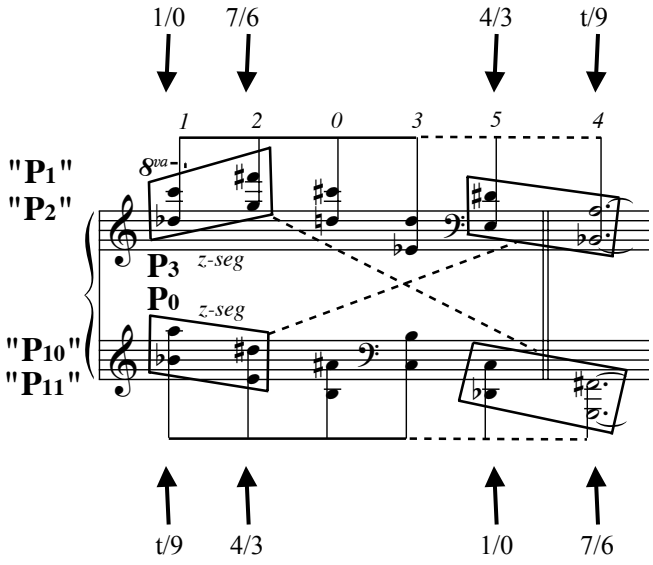
Example 4.61(b); this structural voice-exchange is indicated by dotted lines in the example and the pitch-classes derive from order numbers *5* and *4* of each row.[59]

Example 4.61 Reduction of (0134) tetrachords in Variation IX and Variation X

(a)

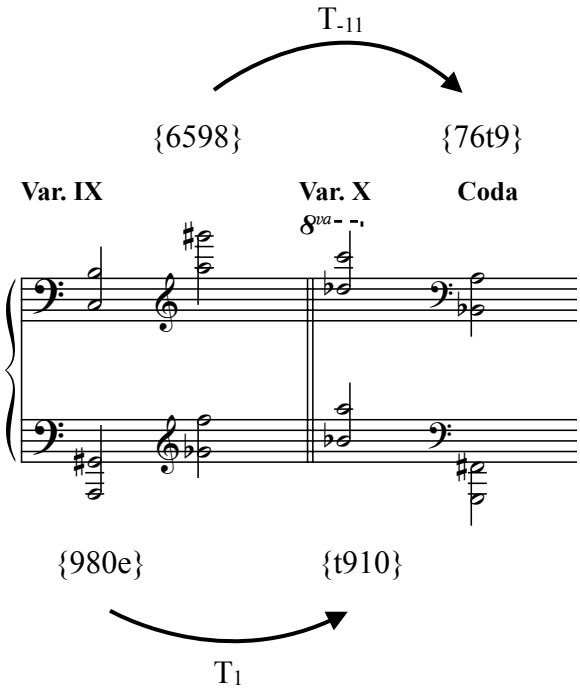


(b)



[59] The tetrachord identified as order number *4* in Example 4.61(b) marks the beginning of the *Coda*, hence the double bar before this tetrachord.

Example 4.62 **"**Semitonal shifts" among boundary tetrachords in Variations IX and X



With regard to the music's structural middleground, the formal boundaries of Variation IX and Variation X—the latter of which elides with the beginning of the *Coda*—together reinforce the organizing principle of the "semitonal shift." The reduction in Example 4.62 above includes only the first and last tetrachords indicated by arrows in Examples 4.61(a) and (b). The transpositional motion between the boundary tetrachords *within* each variation expresses the familiar $T_{3/9}$ motion; however, the motion *between* the variations—that is, from the first tetrachord in Variation IX to the first chord in Variation X—expresses an overarching "semitonal shift" by T_1 (or T_{37} in pitch space) that unites the two variations. The musically emphasized goal-points of each passage—that is, the last chord of Variation IX and the chord that simultaneously ends Variation X and launches the *Coda*—further support the organizing power of the "semitonal shift" as they are related by T_{-11} (or T_{-35} in pitch space). Significantly, the T_{-11} "semitonal shift" is

made possible by Ginastera's reversal of order numbers *4* and *5* in Example 4.61(b); had he made order number *5* the goal of Variation X, and not order number *4*, the structural boundaries would have been related by T_{-5} and thus inconsistent with the middleground structure of Variation IX.

Conclusion

In sum, this chapter discussed three interrelated variation strategies in Ginastera's Piano Concerto. The first strategy pertains to the issue of row *surrogates* and how Ginastera goes about choosing and organizing row forms based on their ability to relate to one another in meaningful ways that contribute to the music's variation structure. In many respects, Ginastera "freely" manipulates his serial language. The twelve-tone row is often realized as mere fragments of itself and in unorthodox order-number configurations—especially in contexts where the sequentially-deployed (0126) motive takes precedence. The row (or fragments of it) also oftentimes appears in harmonic contexts that contribute to the ambiguity of its form, whether P_x, R_x, I_x, or RI_x.[60] Complete presentations of the twelve-tone row in the Piano Concerto are limited to only the introductory variations (Variations I–II) and slow variations (Variations VI and VII), while hexachordal fragments are featured in the *Pastorale* variation (Variation VIII). In addition to the primary row, Ginastera uses only $P/R_{(x-4)}$, $I/RI_{(x+1)}$, $I/RI_{(x+3)}$, $P_{(x\pm6)}$, and $RI_{(x\pm6)}$ row forms, which represent members of index-number *families* 4, 9, 11, and 2. Significantly, all of these rows act

[60] See, for instance, the RI_9-derivation of the primary row in the very opening of the *Cadenza*, shown in Example 4.13 in part I of this chapter; the organization of tetrachords in Variation VI, shown in Example 4.36; the dramatic chordal presentations of the 8-note collection in Variation VII and the *Coda*, shown in Example 4.50; and the "harmonicized" presentations of the (0126) in motive Variations III, IX, and X, shown in Examples 4.41–42 and 4.61.

as *surrogates* for the primary row and thus allow for unique instances of pitch-class invariance throughout the movement.

The second variation strategy Ginastera employs in the Piano Concerto has to do with motivic sequences based on two serially-derived tetrachords, (0126) and (0145). This strategy, which was first established by the soloist's entrance in the opening *Cadenza*, is featured in nearly every variation and most prominently in the consecutive "fast" variations (Variations III–V). Despite their differences with respect to pitch-class content and set-class membership, all of the movement's sequential motives are structurally similar in that they involve motion by multiples of ic3—that is, T_3, T_6, or T_9. The concerto's emblematic (0126) motive, in particular, is always associated with a specific serial derivation—namely, order-number partition {*1203*}.

Motivic sequences also impact the music's middleground structure. When Ginastera subjects either (0126) or (0145) to an entire "pass" through the $T_{3/9}$ transpositional cycle—representing fragments of "$P_{0/3/6/9}$", for example—the sequence results in a completion of the twelve-tone aggregate. The process of variation is thus effected by the row forms from which Ginastera derives these motives and whether or not the transpositional cycle involved is complete or partial. Depending on the rhythmic and/or harmonic profile of the sequence, and whether or not it participates in a complete transpositional cycle, sometimes the middleground structure reveals a composing-out of the 8-note or OCT collections. In such cases, Ginastera frequently employs the "semitonal shift" (i.e., large-scale motion by $T_{\pm 1/11}$) to complete the remainder of the aggregate.

Lastly, the third variation strategy discussed in this chapter directly pertains to issues of composing-out "octatonic" collections and completing the twelve-tone aggregate. Sometimes

Ginastera achieves these larger collections by sequencing non-serial motives, such as the OCT subsets (0347) and (0134). At other times, these larger pitch-class collections unfold much more slowly on deeper levels of the music structure and participate in the organization of the movement's formal design. $OCT_{2,3}$ is an especially important collection in the Piano Concerto because it contains the ubiquitous *z-seg* of the primary row, [56e0]. This particular octatonic collection is featured prominently in the *Cadenza* and *Coda* sections, and also forms the accompanimental backdrop of Variation IV. In two especially prominent passages in the *Cadenza* and *Coda*, Ginastera situates $OCT_{2,3}$ immediately following $OCT_{0,1}$, thereby emphasizing the aggregate-completing power of the "semitonal shift" and its usefulness in delineating formal boundaries.

The 8-note collection, like the OCT collection, frequently results from sequential passages involving serially-derived (0167) or (0145) motives. The 8-note collection first reveals its structural significance and its malleability in the *Largo* introduction of the *Cadenza*, where the orchestra presents two structurally similar, yet tetrachordally different, configurations of the twelve-tone row. As a source for melodic-motivic material, the 8-note collection forms the basis of the *leitrhythm* in the *Con moto* sections of the *Cadenza* and the *Coda*. It also plays a role in a deeper-level composing-out process in Variation IV, where it emerges as an aggregate-completing complement to the primary motive, (0126), derived from the original "$P_{0/3/6/9}$" sequence. Finally, as essential as the twelve-tone row itself, the 8-note collection is featured prominently as a cadential sonority at the close of Variation VII and the *Coda*, where the movement ends with the primary row, marked especially by its absent *z-seg*.

CHAPTER 5:

VIOLIN CONCERTO, OP. 30 (1963), I

PART I: PRELIMINARY OBSERVATIONS

Like the previous chapter, the present analysis of the Violin Concerto is divided into two parts. Part I of this chapter focuses on the more abstract characteristics of the concerto's twelve-tone language and Part II explores how such characteristics emerge and develop over the course of the concerto's first movement. The initial portion of the chapter largely centers around the compositional potential of the primary row and underscores its ability to be manipulated in novel ways within the theme + variations form. The discussion is divided into four topics, beginning with a brief overview of the concerto's *Cadenza*, which as in the Piano Concerto, introduces all the significant structural materials that Ginastera continually draws from and varies throughout the movement. These structural materials gather significance as they recur in different guises throughout four sections, or phases, of the *Cadenza*.

The second topic concerns the general properties of the concerto's twelve-tone row. Unlike the row in the Piano Concerto, the row in the Violin Concerto is *generated*: its discrete hexachords and trichords are expressly order-related.[1] The row is thus particularly capable of forming segmental invariance—including complete hexachordal invariance—with other row forms. This part of the chapter also explores the row's *generated* structure in contrast to a similar row that is retrograde-symmetrical (i.e., a row with a palindromic series of ordered pitch-class intervals). Ginastera's penchant for projecting symmetrical structures in both pitch and pitch-

[1] See chapter 3 for a definition of *generated* row classes.

class space is well known.[2] Thus, it is worth investigating the compositional advantages and disadvantages of the row ordering he did choose in comparison to the more explicitly symmetrical ordering he did not.

The third topic concerns one essential byproduct of the row's *generated* structure, its multiple pitch-class/order-number isomorphisms. Pitch-class invariance and the motivic associations it facilitates in the Violin Concerto is not limited to contiguous segments of the row; indeed, invariance often occurs among the row's isomorphic partitions, whose order-number members are distinctly discontiguous. These isomorphisms involve symmetrical collections that are common in Ginastera's compositional language, such as (0369) and (0167), and are possible, paradoxically, because the row is *not* retrograde-symmetrical. By isolating these partitions, we can see the potential for the row's remaining segments to organize into new configurations—some of which create new tetrachordal classes and complete larger collections like the octatonic.

The fourth and final topic of this chapter concerns *surrogate* relations and their potential for creating *families* of rows that are similar in structure. These relations are largely dependent upon the pitch-class contents of a row's hexachords but are also influenced by the contents of specific isomorphic partitions. Most *surrogate* relations create rather large row *families*, which can be divided into sub-*families* based on the relative explicitness of the structural similarities among *family* members. As it concerns the properties of index-number *families*, this study invokes a new type of *surrogate* relation that is based on chromatic, or *cluster*, segments of the row. Lastly, the discussion will conclude with a consideration of *surrogate* relations formed by row *derivation*—specifically, *derivation* involving isomorphic partitions.

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[2]The role of symmetry in Ginastera's music is discussed in chapter 2. Among others, see Wallace (1964), Campbell (1991), Tabor (1994), and Barnett (2007).

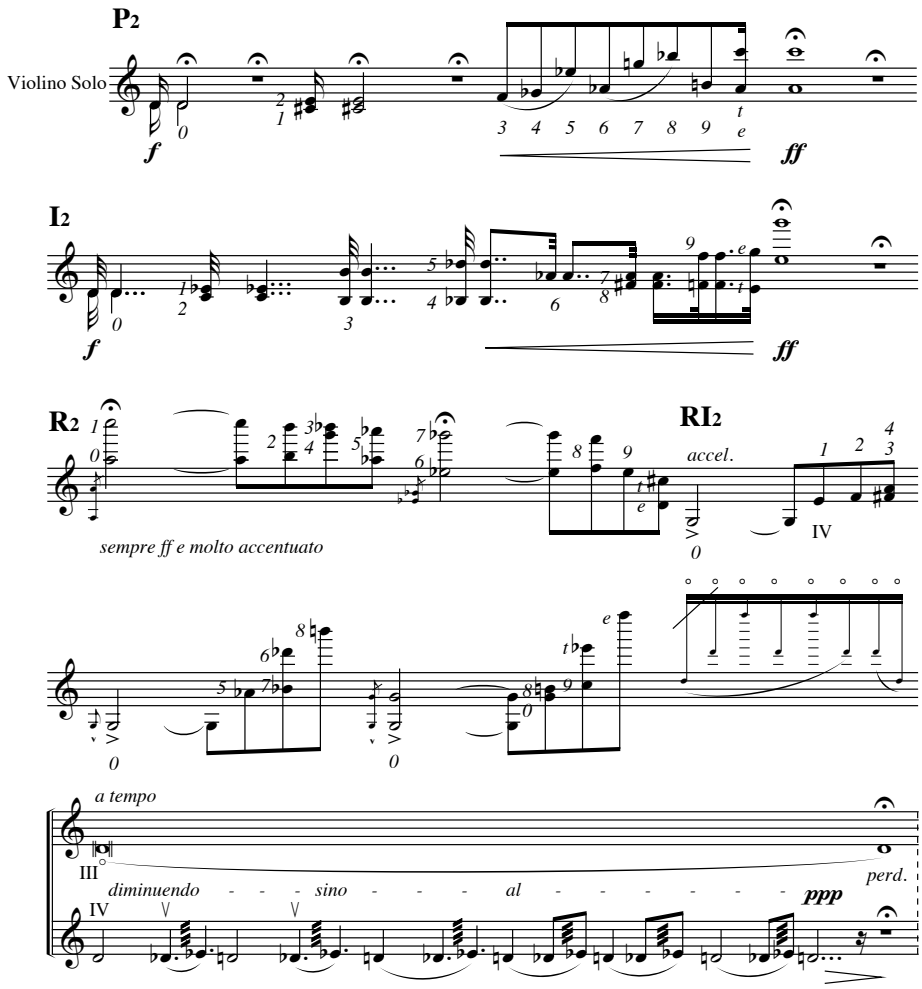
Formal Characteristics of the Cadenza

The opening *Cadenza* of the Violin Concerto features only the unaccompanied soloist. Much like the opening of the Piano Concerto, the *Cadenza* of the Violin Concerto functions in a manner akin to the traditional "theme" of the overarching theme + variations form. The whole of the *Cadenza* is unmeasured and consists of four phases, which are delineated by changes in texture, rhythm, tempo, and row organization. The row forms presented in the first and third phases involve index-number *families*, while the second phase features a rapid succession of several row forms. The fourth phase is almost entirely composed of ornamental, or improvisatory, gestures (e.g., tremolos, trills, grace notes, etc.). One unifying characteristic of all four phases involves the recurring emphasis on E, A, D, and G—that is, the pitch classes representing the open strings of the violin—which are visible as pedal points in the examples discussed below.[3]

The first phase of the *Cadenza*, reproduced in Example 5.1, is introductory and improvisatory in nature, consisting of several fermatas and abrupt pauses. The primary row, P_2, is followed by the remaining three members of the same index-number *family*. Some salient and noteworthy compositional features within the first phase include the following: (1) a preponderance of ic3 harmonic dyads throughout the passage; (2) trichordal segmentation of P_2; (3) durational emphasis on order-numbers {*01*} and {*67*} within R_2; (4) a pedal tone on G throughout the presentation of RI_2; and (5) the use of natural harmonics to emphasize D following the completion of RI_2.

[3] The recurrence of the "open strings" motive is traced more explicitly in part II of this chapter; see the discussion of Examples 5.31–34, especially.

Example 5.1 First phase of the *Cadenza* (p. 1/1–5)[4] featuring P_2, I_2, R_2, and RI_2

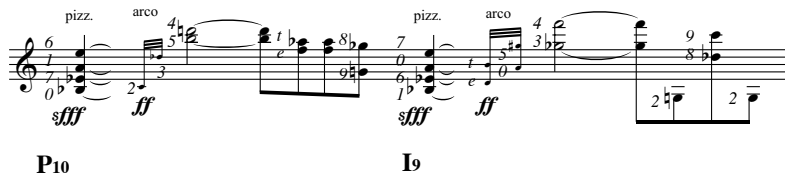

P2
Violino Solo
f
ff
I2
f
ff
R2
sempre ff e molto accentuato
RI2
accel.
IV
a tempo
III
diminuendo - - - sino - - - al - - -

dynamic markings and agogic accents serves to delineate the presentation of each row and emphasize certain harmonic ic3s and ic1s therein.

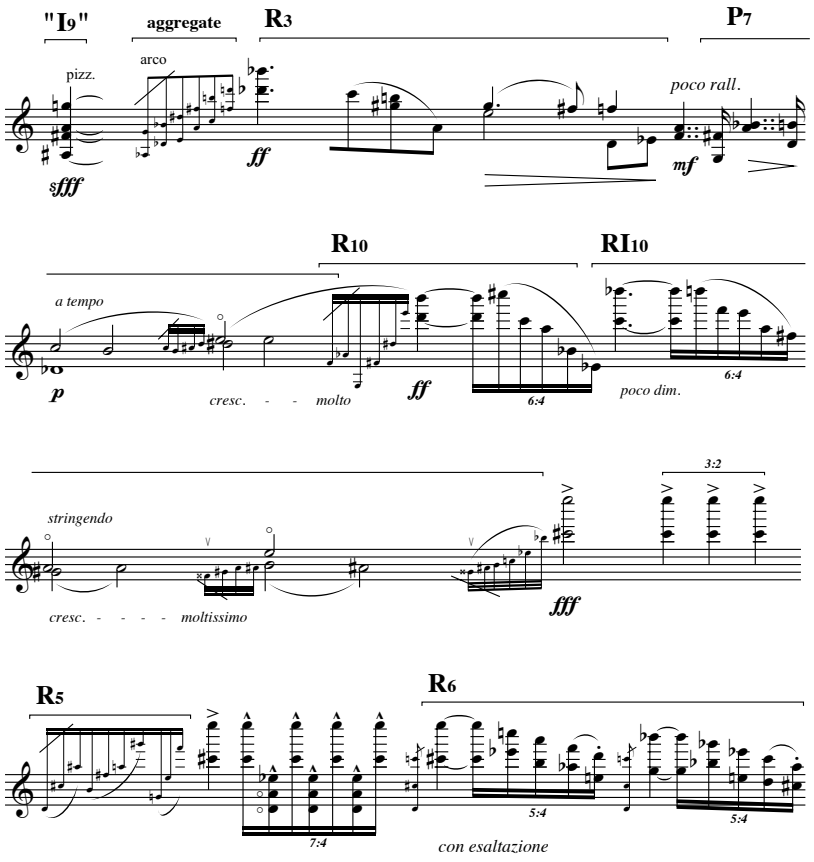
Example 5.2(b) shows the remaining rows of the second phase, which follow one another in rapid succession. Two row presentations in particular, R_{10} and R_5, involve quick grace-note gestures. Ginastera again uses harmonics in this phase of the *Cadenza*, highlighting pitch classes E and A within the presentations of P_7 and RI_{10}. The climax of the phase arrives at the ***fff*** dynamic following RI_{10} and preceding R_5. This ic3 dyad, formed by {C♯, E}, recurs incessantly following R_5 and ultimately launches the presentation of R_6, which leads to the close of the second phase. The same {C♯, E} dyad was also featured prominently in the first phase of the *Cadenza* (see Example 5.1), where it formed the very first harmonic gesture of the concerto.

Example 5.2 Second phase of the *Cadenza* (p. 2/1–4) featuring rapid row succession

(a)



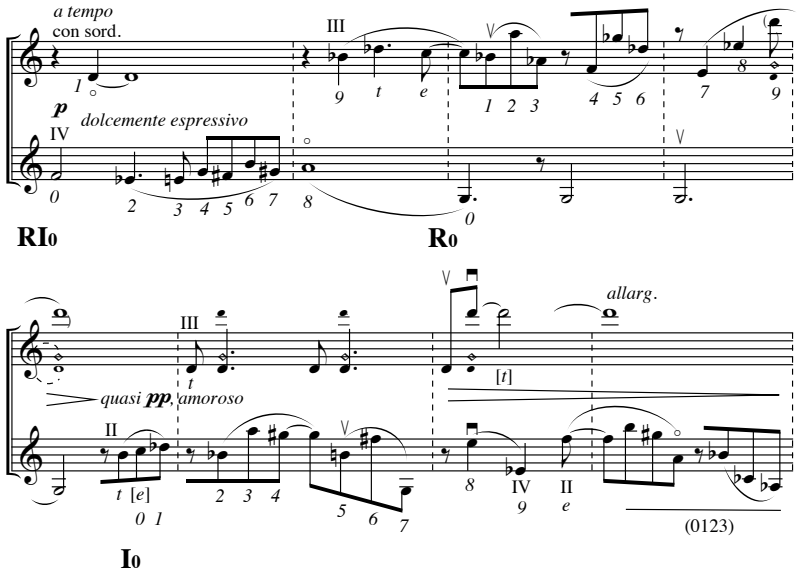
(b)



The third phase of the *Cadenza* is the slowest of the four phases. Like the first phase, the third phase consists of an index-number *family*, although this time Ginastera uses only three of the four members and presents them in the opposite order so that RI_0 begins the *family*, followed by R_0 and I_0. Example 5.3 shows the beginning of the third phase. Two phrases are demarcated by softer dynamics with the indication *dolcemente espressivo* in the first four measures and *quasi* ***pp****, amoroso* in the final four measures. The final two order numbers of R_0 form an elision with the beginning of the second phrase, where the first pitch of I_0 overlaps with the final pitch of R_0. The phrase closes with a pedal on the artificial harmonic sounding D6 and reiterations of (013) subsets that together complete a single chromatic tetrachord. The remainder of the *Cadenza*'s

third phase (not shown) digresses into a series of tremolo and trill figures that reiterate the primary row, P_2, three times. These ornamental gestures continue to emphasize pitch classes G and D, which are prominently featured as upper- and lower-register pedals throughout the third phase and are visible in Example 5.3.

Example 5.3 Third phase of the *Cadenza* (p. 2/7–8) featuring a new index-number *family*



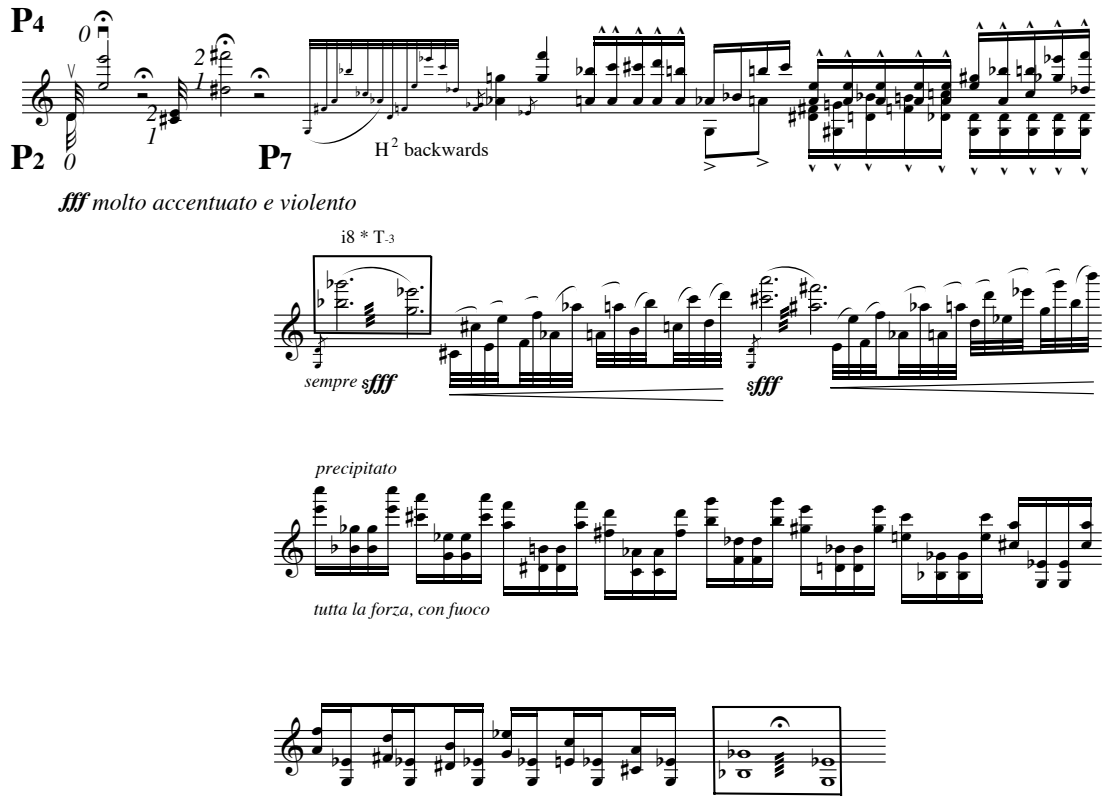
The beginning of the fourth phase of the *Cadenza*, shown in Example 5.4 and marked ***fff*** *molto accentuato e violento*, dramatically heralds the return of the primary motive from P_2: that is, pitch class D followed by the dyad {C♯, E}. This motive is counterpointed in an upper register by a transposition of itself, which appears to be derived from the first three members of P_4. Neither P_2 nor P_4 is completed, however, as the soloist immediately continues with P_7 presented in grace notes. Here, the second hexachord (H^2) appears in retrograde order so that the contour segments of each hexachord emphasize G and D as the lowest pitches. Immediately thereafter, the dyad {G, D} recurs as a pulsating harmonic pedal point and is joined by emphasis on {A, E}; together these dyads underscore the open strings of the violin.

The remainder of the final phase features a series of related interval patterns that all involve oscillating minor sixth (i8) harmonic dyads. The boxed tremolo on the second system of Example 5.4 is the first of two i8 * T_{-3} gestures, both of which are followed by eight-note ascending scalar figures. The soloist gathers momentum in the third system marked *tutta la force, con fuoco*. At this point the i8 pattern changes from static tremolos to rapidly descending sixteenth notes, which ultimately arrive, two octaves lower, on the same tremolo dyad that began the passage.[5] After the final tremolo, the soloist begins a transitional passage of arpeggiations leading to the orchestra's entrance in *Studio I*. This short passage consists of four aggregate presentations, which are shown in Example 5.5. The discrete trichords within each aggregate are exclusively members of one of the four "tonal" set classes—(037), (036), or (048).[6]

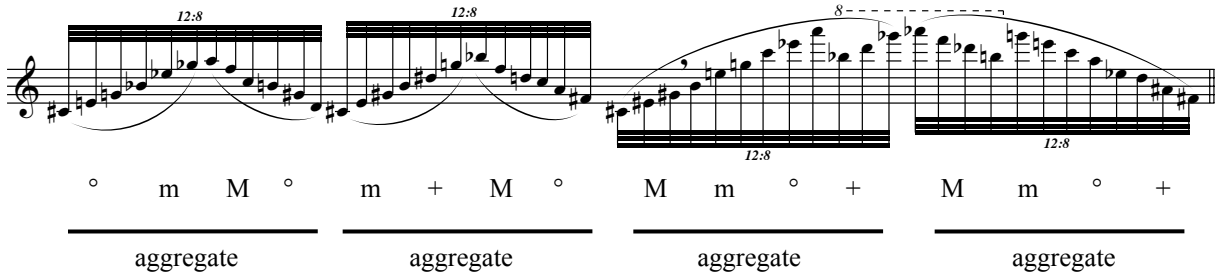
[5] This passage is also discussed in chapter 2; see Example 2.9(b).

[6] This passage is also discussed in chapter 2; see Example 2.8(b).

Example 5.4 Fourth phase of the *Cadenza* (p. 3/3–7) recalls P_2 and features i8 * T_{-3} patterns



Example 5.5 Soloist's transition to *Studio I* features four aggregate presentations



General Properties of the Twelve-Tone Row

The following discussion begins with the row's basic characteristics, including its ordered interval content and its trichordal, tetrachordal, and hexachordal content. The discussion also explains how the row is *generated* (both hexachordally and trichordally) so that two ordered

interval cycles emerge from the row's background structure. This unique feature of the row's configuration warrants a comparison to other similarly devised symmetrical row classes—the profiles of which Ginastera most certainly considered when he decided upon the Violin Concerto's primary row.[7] Lastly, the discussion explores the row's hexachordal combinatorial properties and the effect they have on limiting the number of unique row forms.

The primary twelve-tone row of the Violin Concerto is shown in Example 5.6(a), and its adjacency interval series (AIS) is indicated below. Besides the central i5, the AIS consists entirely of interval classes 3 and 9, and the pattern created by the distribution of these intervals specifically emphasizes *ordered* mappings between hexachords and discrete trichords. This kind of left-to-right construction of the row constitutes a *generated* row class.[8] The set classes resulting from the row's *generated* structure are shown in Example 5.6(b). The row's chromatic (012345) hexachords exhibit the same ordered pitch-class interval series, <11, 3, 1, 1, 9>: the first *cluster* hexachord maps onto the second, in order, at T_6. In contrast, the interval pairs <11, 3> and <1, 9> of adjacent trichords are order-related by inversion. The first pitch-class, D, of the first trichord finds its inversional partner, F, in the same first-place position in the second trichord; likewise, C♯ maps onto G♭, E maps onto E♭, and so on. Discrete trichords within each hexachord are related by T_7I and the central trichords of the row are related by T_1I.

[7] It is reasonable to presume Ginastera considered a symmetrically ordered row because he does, on occasion, literally reorder the primary row so that its interval series is symmetrical.

[8] A formal definition of *generated* (and also *partially-generated*) row classes, following Fobes (2006), is provided in chapter 3. N.B. What some scholars call a "derived" row—that is, a row made up of a single discrete set class—should not be confused with what this study calls a *generated* row: the latter term implies explicit order relations among pitch-class members within each set class while the former does not. More importantly, this study prefers the term *generated* so as to avoid confusion with subsidiary rows whose structures can be traced back to—that is, *derived* from—the primary row. See the definition of *derived* row classes in chapter 3.

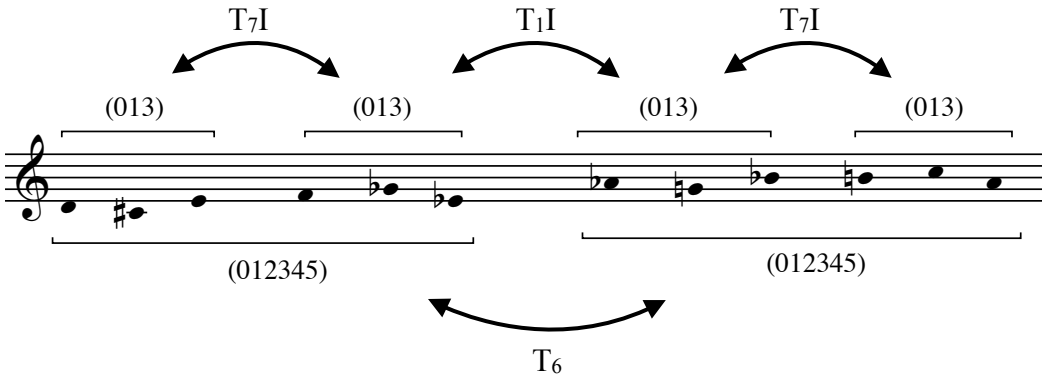
The row's strict trichordal generation gives rise to another one of its most characteristic structural features: the row is *generated* from two interval cycles, both of which result in pitch-class/order-number isomorphisms.[9] The first interval cycle moves by ic3 and unfolds via the first member of each (013) trichord, {D, F, A♭, B}. The second interval cycle moves by ic2 and emerges from every other note beginning with the first member of the row, forming a complete whole-tone collection that ascends along order-number partition {*02468t*} in all prime row forms and descends along the same order-number partition in all inversional row forms.

Example 5.6 Primary row of the Violin Concerto

(a)

P_2	2	1	4	5	6	3	8	7	t	e	0	9
AIS	<11	3	1	1	9	(5)	11	3	1	1	9>	

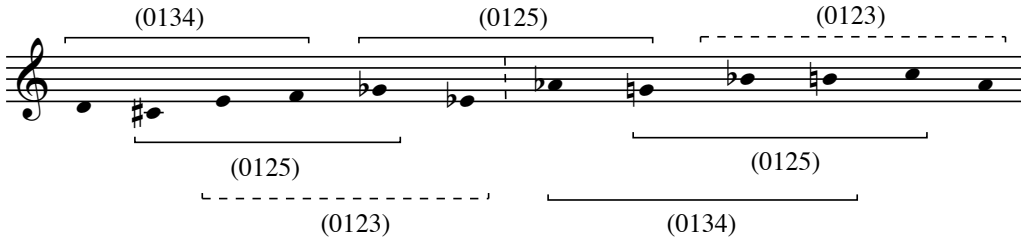
(b)



[9] Pitch-class/order-number isomorphisms are the subject of following section. The row actually contains one additional interval cycle: the first member of each discrete tetrachord (i.e., order-number partition {*048*}) unfolds an ic4 cycle, {D, G♭, B♭}. This cycle, however, does not actually define the row's tetrachordal structure in any meaningful way because, as the following example will show, the row is not generated tetrachordally.

Example 5.7 illustrates tetrachordal segments of the series that prove to be of musical significance throughout the concerto. The row's three discrete tetrachords (indicated above the staff) each constitute a different set-class type and therefore are not part of the row's *generated* structure. However, because the row is hexachordally *generated*, all of the overlapping tetrachordal segments within the first hexachord can be found repeated at T_6 in the second hexachord. Both hexachords begin with (0134) and end with an overlapping *cluster* segment, that is, a (0123) tetrachord (bracketed with dotted lines). At the center of each hexachord is a (0125) tetrachord, which overlaps by a single pitch class with the central discrete (0125) tetrachord of the row.

Example 5.7 Tetrachordal segments of the primary row



So that we may fully appreciate the ordering of the row Ginastera devised, let us take a moment to consider a symmetrical ordering he did *not* choose.[10] The T_6 relation between the row's two chromatic hexachords could have unfolded in retrograde (by RT_6), thereby forming a symmetrical row class—that is, one in which the interval classes of the AIS form a palindrome.[11] From a pre-compositional perspective, the symmetrical potential of the row Ginastera did choose is only latent in the row's *generated* structure; but this does not mean that Ginastera cannot, or

[10] Interestingly, the row class Ginastera uses in the third movement of his Piano Quintet, Op. 29—composed the same year as the Violin Concerto—is actually RI symmetrical (see Example 2.19). The motivic language in both works relies heavily upon (0167)-derived partitions, which are discussed in detail below.

[11] Notice that this would not have changed the *generated* nature of the row; the trichords and hexachords would simply be generated by different operations—hexachords by RT_n and trichords by RT_nI.

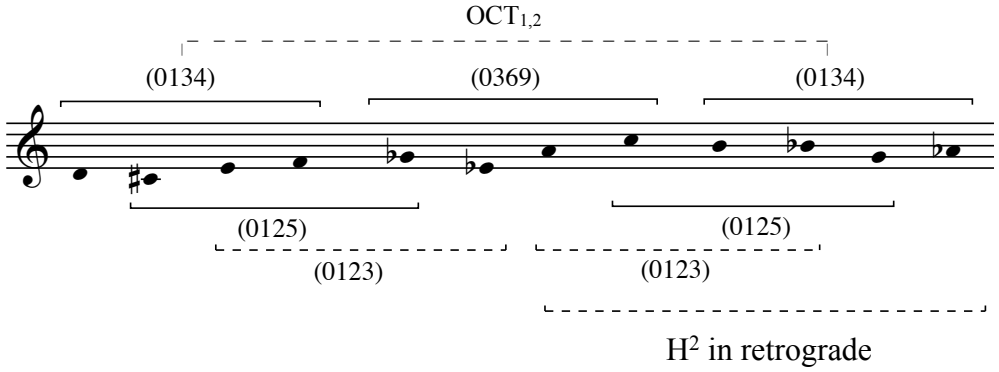
does not, manipulate the surface of the music so that the row's inherent symmetrical properties can emerge more explicitly. In order to make the row's symmetrical properties more explicit, the most efficient manipulation—and the one Ginastera uses most often in the context of the concerto's first movement—is shown in Example 5.8(a). In comparison to the primary ordering shown above, the second hexachord (H^2) in Example 5.8(a) unfolds in retrograde so that the intervals of the first hexachord appear as their complements, in retrograde order, in the second hexachord.[12]

Example 5.8 P_2 reconfigured with H^2 in retrograde to show the row's symmetrical potential

(a)

P_2	2	1	4	5	6	3	9	0	e	t	7	8
AIS	<11	3	1	1	9	(6)	3	11	11	9	1>	

(b)



[12] Other slight alterations are possible in order to show the row's symmetrical potential. For example, the *generated* structure of the row's trichords is such that symmetry will emerge if the boundary pitches of either the first and third tetrachords, or the second and fourth tetrachords, swap positions amongst themselves. The following is a hypothetical alteration of P_2 in which the boundary order-number positions of the second and fourth trichords exchange places (see the exclamation points): P_2 <2, 1, 4, 3!, 6, 5!, 8, 7, t, 9!, 0, e!>. The resulting row class uniformly alternates i11 and i3, and can be thought of as two interlocking whole-tone scales.

On a side note, this other hypothetical row would look very similar to Webern's row in the first movement of his String Quartet, Op. 28, which also happens to be a variation form. Webern's row is retrograde symmetrical, thus limiting the row to only 24 distinct orderings. The AIS of Webern's row— <11, 3, 11, (4), 1, 9, 1, (4), 11, 3, 11> —includes ic4 between discrete tetrachords and the middle tetrachord is inversionally related to the boundary tetrachords. The row's first tetrachord is furthermore based on the BACH motive (at P_{10} <B♭, A, C, B>), and Ginastera himself embedded the BACH motive into the rows of his Guitar Sonata, Op. 47 (1976) and Sonata for Cello and Piano, Op. 49 (1979).

When H^2 appears in retrograde the trichordal and hexachordal subsets of the row are not affected; however, the row's tetrachordal configuration, shown in Example 5.8(b) above, is significantly altered. The most substantial change concerns the row's central discrete tetrachord, (0369). This tetrachord is, of course, pervasive in Ginastera's music and appears in several of his twelve-tone rows.[13] Why then would Ginastera not have (1) ordered the row as in Example 5.8 so that the symmetry of the series is explicit and (2) favored an ordering in which one of his preferred set classes, (0369), appears readily available as a discrete segment within the row?

This question is of course impossible to answer without knowledge of the composer's intent. We can, however, compare the advantages and limitations of both orderings. There are three factors to consider: (1) the substitution of the (0125) discrete tetrachord with (0369); (2) the positioning of (0134) tetrachords within both hexachords; and (3) the effect (re)ordering has on the row's underlying interval cycles. With respect to the first issue, (0125) has more motivic potential within the row's original ordering than (0369) has in the palindromic row ordering. This is because the row, in either ordering, contains (0125) tetrachords at the center of each hexachord; however, if (0369) replaces (0125), then the central ten pitches of the row can no longer be compositionally exploited as a series of three overlapping (0125) segments (see Example 5.7).

Regarding the second issue, when H^2 appears in retrograde the row's boundary tetrachords are members of the same set class, (0134), which together complete an octatonic collection. As we saw in the Piano Concerto discussed in chapter 4, Ginastera often uses the octatonic collection in his twelve-tone works; sometimes it is implied by the structure of the row

[13] See the following examples in chapter 2: Example 2.10(a) from the Piano Sonata No. 1, Op. 22/III; Example 2.17(b) from *Cantata para América mágica*, Op. 27/IV; and Example 2.20(e) from the row associated with Florinda's "revenge and forgiveness" in *Don Rodrigo*, Op. 31.

itself and sometimes it is generated by motivic sequences that are serially derived.[14] Given his previous compositional tendencies, it is very interesting that in the context of the Violin Concerto, Ginastera need only present H^2 in retrograde and one of his preferred referential collections—the octatonic—will emerge from the prominent boundary tetrachords of the row.

The third major difference between the original row and the reordered row in Example 5.8 involves the emergence of interval cycles. It was previously noted that the non-palindromic row Ginastera actually chose unfolds via two interval cycles, ic3 and ic2. The ic3 cycle, which composes-out a (0369) tetrachord along order-number partition {*0369*} in the primary row, emerges from the less prominent {*038e*} order-number partition in Example 5.8(b). Likewise the ic2 cycle, which completes the whole tone collection in ascending order along order-number partition {*02468t*} in the primary row, is completely obscured when H^2 appears in retrograde. The issue of obscuring versus emphasizing interval cycles might not seem all that critical at the moment; however, as the discussion of pitch-class/order-number isomorphisms below will clarify, these interval cycles are the primary determinants of *surrogate* relations in the Violin Concerto, and they seem to be something that Ginastera was fully aware of when he designed the row, because he musically exploits these and other partitions motivically throughout the first movement.

The structural similarities between the primary row and its hypothetical palindromic configuration depend on one rather simple but highly crucial characteristic: the row's chromatic hexachords are all-combinatorial. This simple fact opens a world of compositional potential in which rows can combine and/or substitute for one another based on their invariant hexachordal

[14] See especially the discussion of Example 4.11 in part I of chapter 4 and the section on *Composing-Out the "Octatonic" and Completing the Aggregate* in part II of the same chapter.

content. Example 5.9 summarizes the various mappings of H^1 and H^2 of P_x.[15] Each hexachord will map onto *itself* under the first three relations and onto its *complement* under the last four relations. Given that the first three relations share the same configuration of hexachordal contents with the prime form, Ginastera is able to narrow down the number of unique row forms—based on unordered pitch-class contents—to only six.[16]

Example 5.9 Mappings of all-combinatorial (012345) hexachords, H^1 and H^2, of P_x

Relation to P_x	H^1 / H^2 Configuration
$I_{(x+3)}$	H^1, H^2
$R_{(x+6)}$	H^1, H^2
$RI_{(x-3)}$	H^1, H^2
$P_{(x+6)}$	H^2, H^1
$I_{(x-3)}$	H^2, H^1
R_x	H^2, H^1
$RI_{(x+3)}$	H^2, H^1

Because Ginastera sometimes chooses to present H^2 in retrograde order, as in Example 5.8 shown above, there are occasions when it is difficult, analytically speaking, to distinguish between a prime (or inversional) row form and a similarly constructed retrograde (or retrograde inversional) row form that is T_6 related.[17] Example 5.10 illustrates that, in contexts where pitch-

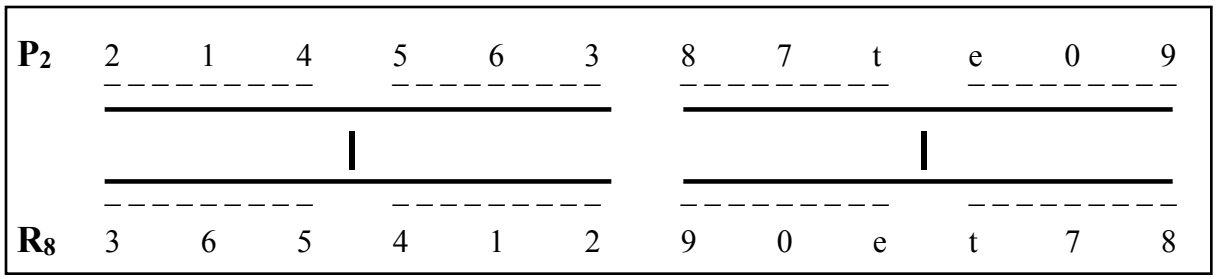
[15] For the purposes of convenience, the +/- integer values applied to *x* are always expressed as interval classes (i.e., as values ≤6): thus, for example, *x*-3 is equal to *x*+9.

[16] The formula is expressed as 48/2n, where n is the total number of levels of hexachordal combinatoriality attainable by the given hexachord, set class 6-1 (012345).

[17] Indeed, most of the discrepancies between the present study's analyses and those offered by Wallace (1964) and Fobes (1998) are indicative of the row's potential for hexachordal invariance. Part II of this chapter points out some of these discrepancies and argues for a more nuanced interpretation of row forms that takes into account *surrogate* relations.

class *content* takes precedence over *order*, two RT_6-related rows are indistinguishable because their hexachordal *mosaics* are identical. Furthermore, any rows that have invariant hexachordal *mosaics* also have invariant trichordal *mosaics.* In Example 5.10 the trichords contained within each hexachord map onto one another in retrograde order. Ginastera usually takes advantage of hexachordal ambiguity and/or overlap in the Violin Concerto in two musical contexts: within harmonic textures and along formal boundaries. Examples of both are shown below.[18]

Example 5.10 Hexachordal and trichordal *mosaic* profiles of P_x / $R_{(x+6)}$ rows



Example 5.11(a) illustrates the harmonic structures that give rise to serial ambiguity in the concerto's third variation, *Studio III*. In the harmonic accompaniment, two woodwind groups (flutes and clarinets) present the discrete trichords of the twelve-tone row.[19] Normally in this kind of harmonic texture Ginastera will maintain the order of the row with respect to register and/or timbre; however, one must still make the analytical decision to privilege the registral distribution of pitches either from the "bottom-up" or from the "top-down." The numerical pairs

[18] In Ginastera's other serial works dating from the 1960s, and especially in the opera *Don Rodrigo* (1963–64), it is fairly common to find two partial row forms combined in succession to complete the aggregate. For a discussion of serial ordering in *Don Rodrigo*, see Richards, "Pitch Structure in the Opera *Don Rodrigo* of Alberto Ginastera," 30ff.

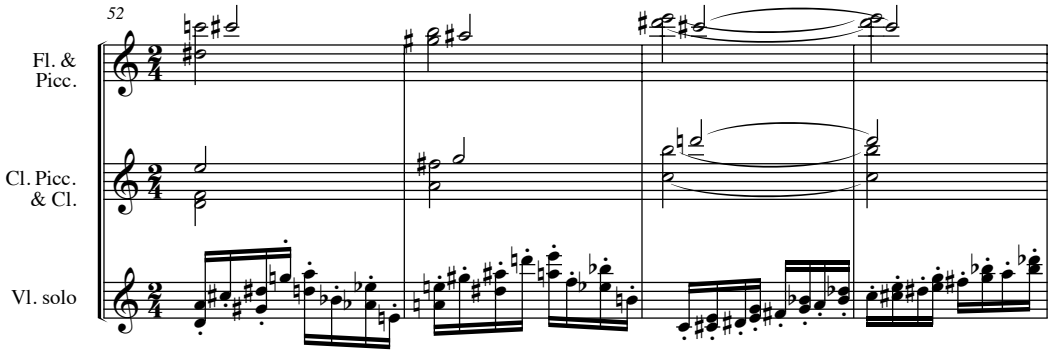
[19] Although related to the primary row, the soloist's material in this passage is decidedly non-serial.

shown in Example 5.11(b) are arranged in three columns, corresponding to the three sonorities in example (a), and each numerical pair represents an order-number couple.[20]

By all accounts, both the "top-down" and "bottom-up" interpretations are valid, but each underscore slightly different features of the music. For instance, considering the surrounding context of this excerpt (although it is not shown here), R_7—and not P_1—is the interpretation with the most *musical* reinforcement: D, the starting pitch class of the row is repeatedly emphasized by the soloist, and, within the broader context of the entire movement, members of index-number *family* 7 have played a pervasive role.[21] Herein lies the usefulness of grouping rows based on their *surrogate* relations. While multiple interpretations of a passage might be possible, the present study will seek to choose the interpretation that best takes into account the larger musical context and the underlying variation strategies.

Example 5.11 Beginning of third variation, *Studio III* (mm. 52–55)

(a)



[20] Following Babbitt (1955), the number on the left (shown here in italics) indicates the order number within the series and the number on the right indicates the corresponding pitch class.

[21] See the instances of P_7 shown in Examples 5.2(b) and 5.4 above. Also, throughout the *Cadenza* Ginastera emphasizes pitch class D as an open string on the violin and as the initiating pitch of the primary row, P_2.

(b)

"Top-down" interpretation				
P_1	(*0*, 1)	(*9*, t)	**R_6**	(*0*, 1)
	(*1*, 0)	(*t*, e)		(*1*, 4)
	(*2*, 3)	(*e*, 8)		(*2*, 3)
	(*3*, 4)	(*6*, 7)		(*3*, 2)
	(*4*, 5)	(*7*, 6)		(*4*, e)
	(*5*, 2)	(*8*, 9)		(*5*, 0)
"Bottom-up" interpretation				
R_7	(*5*, 1)	(*8*, t)	**P_0**	(*5*, 1)
	(*4*, 0)	(*7*, e)		(*4*, 4)
	(*3*, 3)	(*6*, 8)		(*3*, 3)
	(*2*, 4)	(*e*, 7)		(*2*, 2)
	(*1*, 5)	(*t*, 6)		(*1*, e)
	(*0*, 2)	(*9*, 9)		(*0*, 0)

Ginastera also uses hexachordal invariance as a compositional strategy to unite phrase-level formal junctures. As rows bear *surrogate* relations, they tend to combine and/or replace one another at critical moments within the music's formal design. Example 5.12(a) is a reduction of a transitional passage in the first variation, *Studio I* (mm. 6–10ff.). The orchestral texture in this passage gathers momentum in anticipation of the soloist's return in the following section. R_0 begins in the low strings and is sustained via a triplet motive in the brass section.[22] A new triplet motive is then passed off among different instruments, building to a climax with I_3 stated by the brass and woodwind instruments.[23]

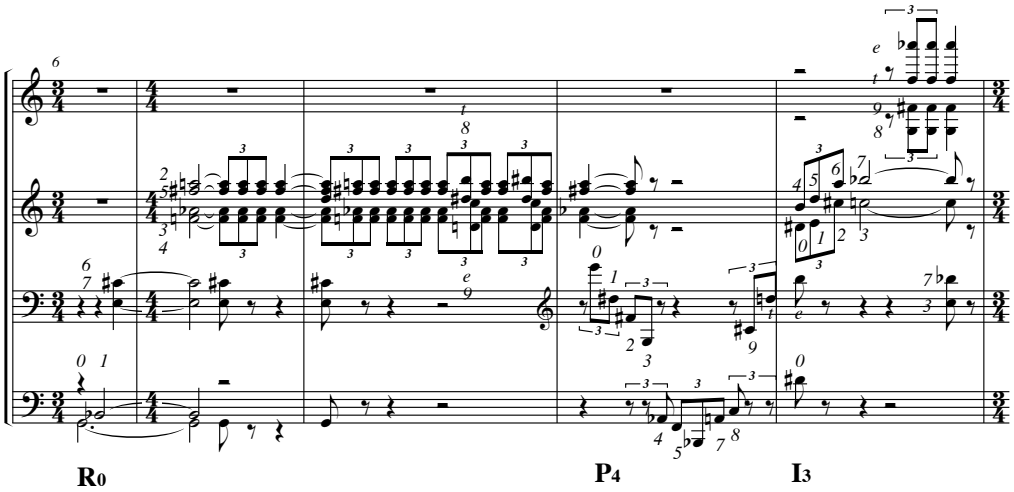
[22] N.B. The temporal presentation of R_0 in Example 5.12(a) is slightly out of order: specifically, the first sonority from the "bottom-up" involves the pitches {7t41}, which correspond to order-number partition {*0167*}. The significance of order-number partition (*0167*) has been alluded to on a number of occasions already in this study and will be discussed in more detail below. The (*0167*) partition of any R_x or RI_x row form constitutes a member of the set class (0369)—a structurally significant motive that recurs prominently throughout the Violin Concerto.

[23] I_3 and its triplet motive continue to dominate the music following this excerpt (mm. 10–14, not shown).

Example 5.12(b) shows the boundary row forms from this passage in pitch-integer terms. Significantly, Ginastera chose R_0 and I_3 to span the phrase because I_3 has the same hexachordal content (in reverse order) as R_0. As mentioned above, any two rows with the same hexachordal *mosaics*, like R_0 and I_3, also have identical trichordal *mosaics*. This fact is not meant to trivialize any of the relations pointed out thus far: on the contrary, it is the ongoing intention of this study to underline the vast musical potential afforded by the row's *generated* ordering.

Example 5.12 Reduction of the first variation, *Studio I* (mm. 6–10)

(a)



(b)

R_0	7	t	9	8	5	6	1	4	3	2	e	0
						X						
I_3	3	4	1	0	e	2	9	t	7	6	5	8

Order-Number Partitions and Their Isomorphisms

Pitch-class/order-number isomorphisms greatly influence the organization of row forms throughout the Violin Concerto, and, by extension, they underly certain variation strategies. The very existence of these isomorphisms is due to the row's *generated* structure. The previous discussion pointed out that the row is not ordered so that its hexachordal symmetry is explicit, but is instead *generated* hexachordally by T_6 and trichordally—within each hexachord—by T_7I. Paradoxically, while isomorphisms in Ginastera's music involve symmetrical set classes, their existence is largely contingent upon the row *not* being symmetrical. The row's *generated* scheme results in the prominent and uniform emergence of two interval cycles, also pointed out above: an ic3 cycle unfolds along order-number partition {*0369*} and an ic2 cycle unfolds along order-number {*02468t*}.[24] In addition to creating these two uniform partitions, the row's *generated* structure also creates pitch-class/order-number isomorphisms involving the ubiquitous "z-cell"—set class (0167). The two most musically significant (0167)/(*0167*) isomorphisms in the Violin Concerto are formed by (1) the initial dyads of each hexachord, order-number partition {*0167*}, and (2) the boundary dyads of each hexachord, order-number partition {*056e*}.

Pitch-class/order-number isomorphisms contribute to the formation of *surrogate* relations in the Violin Concerto; furthermore, they play an active role in the music's motivic structure, where they are often conspicuously emphasized. Despite their non-adjacent formation within the series, pitch-class/order-number isomorphisms tend to emerge from the musical texture with

[24] It was also pointed out above that these interval cycles no longer emerge uniformly when the row is ordered symmetrically, that is, with H^2 in retrograde (see Example 5.8).

great clarity.[25] Thus, the structure of the row itself embodies the possibilities for variation and its pitch-class/order-number isomorphisms act as catalysts in the expression of variation. The intention of the present discussion is to identify the origin of individual pitch-class/order-number isomorphisms and the impact each has on the remaining portion of the series. Later, part II of this chapter will explore how Ginastera utilizes pitch-class/order-number isomorphisms in his variation strategies.

Example 5.13(a) shows the primary row and the isomorphisms that occur at order-number partitions {*0369*} and {*0167*}. These two isomorphisms remain whether the row appears in prime form or inversion, and this is precisely the attribute Ginastera tends to take advantage of compositionally.[26] Example 5.13(b) summarizes all of the pitch-class/order-number isomorphisms available in P_x and I_x row forms.[27] Notice that if Ginastera had ordered the row with explicit retrograde symmetry, as in Example 5.8 discussed above, all but one of these isomorphisms—that involving order-number partition {*056e*}—would no longer exist.[28] This underscores the fact that, within the row ordering Ginastera chose, there is a delicate and very

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[25] The surface-level articulation of these isomorphisms is often made possible by a combination of strategically manipulated dynamics, rhythmic values, registral assignments, and timbral differentiations. Many of the compositional techniques Ginastera uses in the Violin Concerto have parallelisms in the works of Schoenberg; see, for example, the discussion of twelve-tone partitions in Stephen Peles, "Interpretations of Sets in Multiple Dimensions: Notes on the Second Movement of Arnold Schoenberg's String Quartet #3," *Perspectives of New Music* 22, no. 2 (1984): 303–52; Ethan Haimo and Paul Johnson, "Isomorphic Partitioning in Schoenberg's Fourth String Quartet," *Journal of Music Theory* 28, no. 1 (1984): 47–72; Andrew Mead, "Some Implications of the Pitch Class/Order Number Isomorphism Inherent in the Twelve-Tone System: Part One," *Perspectives of New Music* 26, no. 2 (1988): 96–163.

[26] See, for instance, Example 5.2(a), which shows a pitch-class invariant {*0167*} partition recur between consecutive rows P_{10} and I_9.

[27] This list, however, does not include the isomorphic *cluster* segments of the row, which lie at order-number partitions {*2345*} and {*89te*} in P_x / I_x row forms and at {*1234*} and {*789t*} in R_x / RI_x row forms. These (0123) tetrachords are addressed in the following section on row *surrogates*.

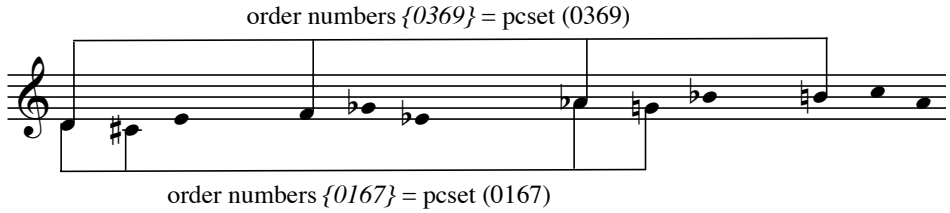
[28] The reader will recall that the row in Example 5.8 was manipulated by ordering H^2 in retrograde. Naturally, given that the boundary pitches of H^2 did not change but merely swapped places, the isomorphism at {*056e*} still remains.

unique balance between symmetrical *potential*—latent in the row's ordering—and symmetrical *explicitness*—observable in the row's isomorphic partitions.

Example 5.13(c) summarizes what happens to the same order-number partitions in R_x and RI_x row forms. The symmetrically disposed {*056e*} isomorphism remains, as do the two whole tone collections. The initial pitch of each tetrachord, order-number partition {*048*}, now only reflects half of a whole tone collection—ic2 segment (024). Both order-number partitions {*0369*} and {*0167*}, on the other hand, exchange the pitch-class set with which they were associated in Example 5.13(c). Thus, the discrete trichords of any R_x or RI_x row form articulate set class (0167) at order-number partition {*0369*}, and set class (0369) at order-number partition {*0167*}.[29]

Example 5.13 Pitch-class/order-number isomorphisms of the primary row

(a)



[29] N.B. The "exchange" between order-number partitions {*0369*} and {*0167*} indicated in Example 5.13(c) does not involve a mapping of pitch-class sets per se; this study thus uses the term "exchange" more generically to refer to a (*0167*) order-number partition whose set-class is (0369), and vice versa.

(b)

P_x / I_x Row Forms		
order-number partition	*pc-set class*	*relation*
{*0369*}	(0369)	isomorphic
{*0167*}	(0167)	isomorphic
{*056e*}	(0167)	isomorphic
{*02468t*}	(02468t)	isomorphic
{*13579e*}	(02468t)	isomorphic
{*048*}	(048)	isomorphic

(c)

R_x / RI_x Row Forms		
order-number partition	*pc-set class*	*relation*
{*0369*}	(0167)	exchange
{*0167*}	(0369)	exchange
{*056e*}	(0167)	isomorphic
{*02468t*}	(02468t)	isomorphic
{*13579e*}	(02468t)	isomorphic
{*048*}	(024)	ic2-cycle segment

The following discussion deals exclusively with set classes (0369) and (0167) and their order-number isomorphisms. By thinking of isomorphisms involving order-number partitions {*0369*}, {*0167*}, and {*056e*} as extractions—that is, as partitions musically set apart from the rest of the row—one can visualize two interrelated compositional potentialities. First of all, these isomorphic order-number extractions reveal the emergence of new tetrachordal set classes, which have the potential to serve as sources of new motivic materials. Some of the emerging set classes —such as (0134), (0123), and (0125)—constitute (or are related to) discrete segments of the row. Still other set classes—such as (0235), (0145), (0369) and (0167)—are formed by non-discrete

segments of the row and thus represent entirely new sonic possibilities outside the row's strict ordering. Second of all, isomorphic order-number extractions pave the way for the aforementioned new tetrachords to combine and form "octatonic" collections—that is, the OCT and 8-note collections—which can be used in contrast to the twelve-tone aggregate.[30]

The various extraction scenarios discussed below are each imagined from an order-number perspective; that is, all of them assume an extraction of either a member of partition class (*0369*) or (*0167*). The resulting tetrachordal set classes of each extraction are indicated to the far left of each example. Any time an isomorphic (*0369*) partition is extracted, the OCT collection emerges, and, conversely, any time an isomorphic (*0167*) partition is extracted, the 8-note collection emerges.

Example 5.14 illustrates extractions of order-number partition {*0369*} and/or other members of its same class, that is, {*147t*} and {*258e*}. In the first illustration, example (a), the entire row is partitioned into (*0369*) tetrachords. Interestingly, the pitch-class set associated with the first order-number partition, {*0369*}, forms an isomorphism, as mentioned above, but the other two partitions correspond to occurrences of (0167). The next two extractions, examples (b) and (c), result in new tetrachordal set classes in either hexachord. Given the T_6 hexachordal generation of the row, these tetrachords are also T_6 related to one another. Both of the new tetrachordal set classes—(0235) in example (b) and (0145) in example (c)—are common in Ginastera's musical language; moreover, when combined with their T_6 counterparts, these tetrachords complete the OCT and 8-note collections, respectively. $OCT_{0,1}$ emerges in example

[30] OCT refers to the familiar octatonic collection, set class 8-28 (0134679t), the abstract complement of (0369), and the 8-note collection refers to set class 8-9 (01236789), the abstract complement of (0167). The 8-note collection is integral to the twelve-tone language of the Piano Concerto (discussed in chapter 4); notably, it constitutes the first two-thirds of the primary row, order numbers *0–7*.

(b) when [258e] at order-number partition *{0369}* is extracted. Alternately, the 8-note collection emerges in example (c) when the last and non-isomorphic *(0369)* partition of the row, {*258e*}, is extracted.[31]

Example 5.14 Set class formations involving the extraction of (*0369*) order-number partitions

(a)

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
(0369)	2			5			8			e		
(0167)		1			6			7			0	
(0167)			4			3			t			9

(b) $OCT_{0,1}$ emerges

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
(0369)	2			5			8			e		
(0235)		1	4		6	3						
(0235)								7	t		0	9

(c) 8-note collection missing [349t] emerges

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
(0167)			4			3			t			9
(0145)	2	1		5	6							
(0145)							8	7		e	0	

The extractions of (*0369*) listed above are relatively easy to imagine because they engage the trichordal structure of the row; that is, they involve an extraction of the first, second, or third members of each discrete trichord—order-number partitions {*0369*}, {*147t*}, or {*258e*}. Extractions of (*0167*) are a bit more complex because they can involve overlapping partitions. For instance, isomorphic partitions {*0167*} and {*056e*} overlap at order-numbers *0* and *6*. For

[31] The extraction in Example 5.14(c) also corresponds to the *first* (*0369*) order-number partition in any R_x or RI_x row form. As was shown in Example 5.13(c), retrograde row forms feature an "exchange" of the normally isomorphic partitions {*0369*} and {*0167*}.

purposes of clarity, the extractions in the following example will thus only consider *non-overlapping* instances of (*0167*) partitions.

Example 5.15(a) imagines the row partitioned entirely by (*0167*) order-number extractions. Like the original {*0167*} partition, the second non-overlapping (*0167*) partition, {*2389*}, is also isomorphic. Significantly, this "secondary" partition consists of the same order-number members regardless of whether the row appears in inversion or retrograde, or a combination thereof; thus, {*2389*} is always an isomorphic partition.[32] The third non-overlapping (*0167*) partition, {*45te*}, is perhaps best imagined as the *first* such partition in any R_x or RI_x row form; as such, it constitutes an "exchange" of set class (0167) for (0369).[33]

Examples 5.15(b) and (c) represent extractions of the first and last non-overlapping (*0167*) partitions, respectively. In example (b) the remaining tetrachordal segments are chromatic *clusters* (i.e., set class (0123)) and the second of these *clusters* constitutes the third discrete tetrachord of the row. Together the two *cluster* segments complete the 8-note collection missing [1278]—the isomorphic {*0167*} order-number partition. Alternately, the remaining (0134) tetrachordal segments in example (c)—the first of which constitutes the first discrete tetrachord of the row—are octatonic subsets and thus combine at T_6 to complete $OCT_{1,2}$.

[32] Unlike {*0167*} and {*056e*}, however, Ginastera does not tend to musically emphasize {*2389*} as an isolated partition in the Violin Concerto.

[33] An emphasis on {*0167*} in a R_x row form can be seen in Example 5.1 at the beginning of this chapter: on the third system of the example, two fermatas within the soloist's presentation of R_2 draw attention to order-number dyads {*01*} and {*67*}, while the remaining members of the row group into (0134) tetrachords. The compositional grouping of partitions is thus consistent with the retrograde of Example 5.15(c).

Example 5.15 Set class formations involving the extraction of (*0167*) order-number partitions

(a)

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
(0167)	2	1					8	7				
(0167)			4	5					t	e		
(0369)					6	3					0	9

(b) 8-note collection missing [1278] emerges

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
(0167)	2	1					8	7				
(0123)			4	5	6	3						
(0123)									t	e	0	9

(c) $OCT_{1,2}$ emerges

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
(0369)					6	3					0	9
(0134)	2	1	4	5								
(0134)							8	7	t	e		

So far, the (*0369*) and (*0167*) extractions discussed above have not engaged the second discrete tetrachord of the row, a member of set class (0125). This specific segment of the row has hitherto been "unavailable" given that two of its members, order numbers *6* and *7*, overlap with the previously mentioned extractions. The reader will recall, however, that two other instances of set class (0125) exist at the center of either hexachord (see Example 5.7 above). In order to highlight these segments, the order-number extraction must involve the isomorphic (*0167*) partition formed by the boundaries of each hexachord, that is, {*05*} + {*6e*}. Example 5.16(a) shows a new 8-note collection—that which is missing [2389] at {*056e*}—formed by two (0125) tetrachords emerging from discrete segments within each hexachord. The same 8-note collection is shown in Example 5.16(b) but is now formed by different, non-segmental tetrachords: here,

the remaining discrete dyads in each hexachord combine into two non-overlapping (*0167*) partitions, {*1278*} and {*349t*}. Significantly, only the second of these partitions, {*349t*}, is isomorphic, while the first, {*1278*}, constitutes set class (0369).

Example 5.16 8-note collections involving the extraction of isomorphic partition {*056e*}

(a)

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
(0167)	2					3	8					9
(0125)		1	4	5	6							
(0125)								7	t	e	0	

(b)

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
(0167)	2					3	8					9
(0369)		1	4					7	t			
(0167)				5	6					e	0	

The final two extractions, shown in Example 5.17, involve scenarios by which Ginastera might completely reconfigure the row—thereby forming a *derived* row—that is composed entirely of either (0369) or (0167) tetrachords.[34] Example 5.17(a) begins with an extraction of isomorphic order-number partition {*0369*}; the remaining two (0369) collections emerge from (*0167*) partitions, {*1278*} and {*45te*}. Example 5.17(b) begins with an extraction of isomorphic order-number partition {*056e*}; the remaining two (0167) collections emerge from non-retrogradable partitions, {*147t*} and {*2389*}.[35]

[34] Several of Ginastera's works feature consecutive "arpeggiations" of (0369) and/or (0167) which complete the aggregate. Oftentimes these seemingly "non-serial" passages actually constitute *derived* rows, whose discrete tetrachordal content can be systematically traced back to partitions within the primary row; see, for instance, the discussion of Examples 3.6 and 3.7 in chapter 3.

[35] These partitions are non-retrogradable in the sense that their general content remains unchanged within R_x and RI_x row forms: order-number partition {*147t*} always constitutes the middle members of each discrete trichord and *{2389}* always constitutes the "second" non-overlapping (*0167*) order-number partition.

Example 5.17 Set class formations involving the combined extraction of (*0369*) and (*0167*)

(a)

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
(0369)	2			5			8			e		
(0369)		1	4					7	t			
(0369)					6	3					0	9

(b)

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
(0167)	2					3	8					9
(0167)		1			6			7			0	
(0167)			4	5					t	e		

Row Surrogates

Now that some of the structural properties of the Violin Concerto's row have been introduced, the following discussion will investigate ways in which these properties determine *surrogate* relations among row forms. As in the Piano Concerto, *surrogate* relations in the Violin Concerto greatly influence Ginastera's variation strategies. One can thus better understand the music's organization by considering the various row *families* created by *surrogate* relations. Chapter 3 showed that *surrogate* relations can manifest in one or more of the following ways: (1) by corresponding *mosaic* profiles; (2) by corresponding unordered pitch-class content among specific order-number partitions; and/or (3) by corresponding unordered pitch-class content among certain *derived* order-number partitions. The first and second of these relations are utilized most frequently in the context of the Violin Concerto, and part II of this chapter will focus on the compositional employment of *surrogates*. For now, the present discussion will focus on defining *families* of *surrogates* that are available given the primary row Ginastera chose.

Surrogate relations may at times seem promiscuous, or too inclusive, especially when they lead to the creation of large row *families*. However, it is often the case that the relative promiscuity of a *surrogate* relation is actually what makes it so compositionally versatile. As in the Piano Concerto, some row forms in the Violin Concerto belong to multiple *families* of *surrogates*. There is no limit to the number of *surrogate* relations one row can form. The relative "strength" of any given *surrogate* relation—that is, how closely two or more rows resemble one another—is often clarified by how many other *surrogate* relations it participates in.

There are five general types of *surrogate* relations in the Violin Concerto and they are dependent upon the following: (1) invariant hexachordal and trichordal *mosaics*; (2) mappings of {*0167*}, {*056e*}, and/or {*0369*} order-number partitions; (3) invariant *cluster* segments; (4) mappings of (*0369*)- and (*0167*)-*derived* profiles; and (5) invariant isomorphic whole tone partitions. The first of these was already discussed above. The row's all-combinatorial (012345) hexachords are T_6-related and can thus map onto themselves or each other within a *family* of eight *surrogate* row forms.[36] Example 5.18 shows a sub-*family* of hexachordally combinatorial *surrogates*, which includes the primary row, P_2, and only those rows in which H^1 and H^2 map onto themselves. Adjacent row forms in the diagram are RT_6-related and their $I_{(x+3)}$ counterparts lie below. The diagonal arrows indicate $RI_{(x-3)}$ relations.[37]

All rows with invariant hexachordal *mosaics*, by default, have invariant trichordal *mosaics* as well.[38] Considering only trichordal *mosaics*, $RI_{(x-3)}$-related row pairs are the most alike because their trichords appear in the same general order, with the individual pitch-class

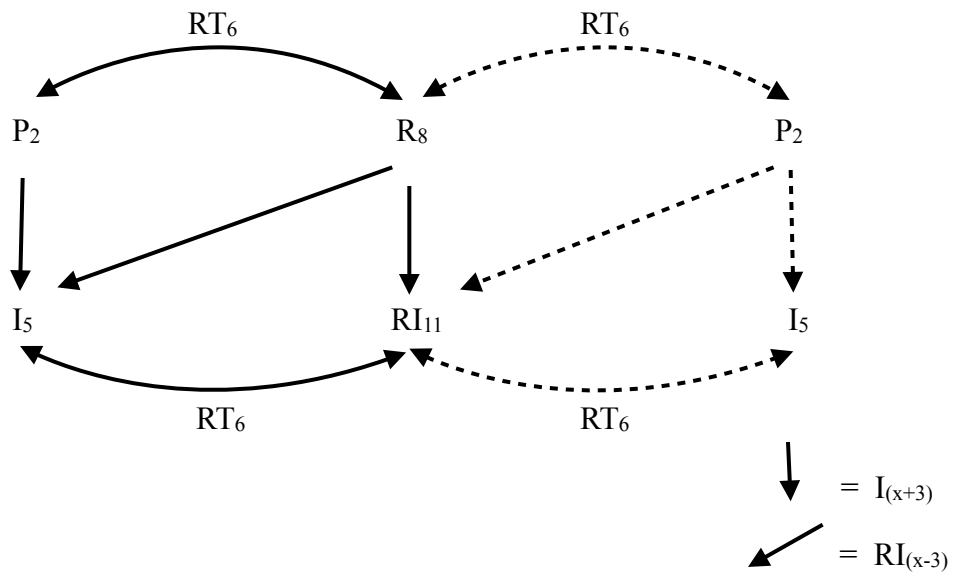
[36] See Example 5.9 above.

[37] The arrows marked by dotted lines indicate where the figure folds over on itself, thus restricting the sub-*family* to only four members.

[38] See the discussion of Example 5.10 above.

contents of each trichord in retrograde order. Conversely, between $I_{(x+3)}$-related row pairs, the order of pitch-classes within individual trichords remains consistent, but the general order of trichords is swapped within hexachords. Between RT_6-related row pairs, the general order of trichords is swapped within either hexachord and the pitch classes therein appear in retrograde order.

Example 5.18 Sub-*family* of four different row types with invariant hexachordal *mosaics*



Toggle-Based Families and Their Invariant Partitions

The second type of *surrogate* relation in the Violin Concerto is dependent upon the pitch-class contents of order-number partitions {*0167*}, {*056e*}, and {*0369*}. Example 5.19 is a Mobius strip of pitch classes organized vertically by tritones and horizontally by semitones. The italicized numbers above or below each pitch class indicate the corresponding order numbers within P_2. At the very center of the strip is the isomorphic order-number dyad {*06*}: the first pitch of the row, D (integer 2), appears below the first pitch of the second hexachord, A♭ (integer

8). This dyad is part of the row's {*0369*} partition, which is highlighted in gray. The other significant partitions of the row, {*0167*} and {*056e*}—indicated by solid- and dotted-line boxes in the example—also share the same {*06*} hexachordal boundary dyad. The overlap between these partitions forms a *toggle* motion that shifts to the left and right of {*06*}.

Example 5.19 Order-number partitions {*0167*} and {*056e*} *toggle* about {*06*}

P_2

3	*4*	*7*	*6*	*e*	*8*	*9*
5	6	7	8	9	t	e
e	0	1	2	3	4	5
9	*t*	*1*	*0*	*5*	*2*	*3*

= {*0369*} = {*0167*} = {*056e*}

Toggle motion makes it possible to quickly identify {*0167*} and {*056e*} mappings and, in turn, identify *toggle families*, whose members maintain the general pitch-class contents of one or both of these partitions. For the time being, let us consider only P_x and I_x row forms because their {*0167*} and {*056e*} partitions are pitch-class/order-number isomorphic and thus do not involve the "exchange" of (0167) for (0369) that is associated with R_x and RI_x row forms. Example 5.20 is a super-*family* of twelve rows: the six rows at the top of the example represent a *toggle family* involving only P_x row forms (including the primary row, P_2), and the six rows at the bottom of the example represent a *toggle family* involving only the I_x row forms of those above. Both P_2 and I_2 are located toward the center of their respective *toggle families* and are shown alongside their T_6-related counterparts, P_8 and I_8. Three things should be noticed with regard to these centrally located T_6-related row pairs: (1) they share the same (unordered) pitch-class dyad at order-number partition {*06*}; (2) they maintain the same (unordered) pitch-class contents at

order-number partition {*0167*}; and (3) they maintain the same (unordered) pitch-class contents at order-number partition {*056e*}.

Example 5.20 Mappings of *{0167}* and *{056e}* in a *toggle* super-*family* involving P_2

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
P_3	3	2	5	6	7	4	9	8	e	0	1	t
P_9	9	8	e	0	1	t	3	2	5	6	7	4
P_2	2	1	4	5	6	3	8	7	t	e	0	9
P_8	8	7	t	e	0	9	2	1	4	5	6	3
P_1	1	0	3	4	5	2	7	6	9	t	e	8
P_7	7	6	9	t	e	8	1	0	3	4	5	2
I_3	3	4	1	0	e	2	9	t	7	6	5	8
I_9	9	t	7	6	5	8	3	4	1	0	e	2
I_2	2	3	0	e	t	1	8	9	6	5	4	7
I_8	8	9	6	5	4	7	2	3	0	e	t	1
I_1	1	2	e	t	9	0	7	8	5	4	3	6
I_7	7	8	5	4	3	6	1	2	e	t	9	0

☐ = [1278], originally at {*0167*} of the primary row

▒ = [2389], originally at {*056e*} of the primary row

If we compare $P_{2/8}$ from the top half of Example 5.20 to $I_{2/8}$ on the bottom, we will notice that the pitch classes associated with the {*06*} dyad do not change; however, the pitch-class contents of {*0167*}, indicated by solid-line boxes, and those of {*056e*}, indicated in gray, map onto one another.[39] But what happens to the contents of these partitions within the other rows of

[39] Notice that $P_{2/8}$ and $I_{2/8}$ also exhibit invariant pitch-class contents among isomorphic order-number partition {*0369*}. In order to avoid overcomplicating Example 5.20, {*0369*} invariances are not indicated.

each six-member *toggle family*? Both halves of Example 5.20 contain T_6-related row pairs above and below $P_{2/8}$ and $I_{2/8}$: this represents *toggle* motion upward by $T_{(x+1)}$ and downward by $T_{(x-1)}$. Whenever we *toggle* upward via the transposition of $P_{x/(x+6)}$ row pairs—for example, from $P_{2/8}$ to $P_{3/9}$—the unordered pitch-class contents of {*056e*} map onto {*0167*}. Conversely, whenever we *toggle* downward among $P_{x/(x+6)}$ row pairs—for example, from $P_{2/8}$ to $P_{1/7}$—the unordered contents of {*0167*} map onto {*056e*}. Significantly, *toggle* motion among $I_{x/(x+6)}$ row pairs involves the same mappings but in reverse: *toggle* motion upward by $T_{(x+1)}$ maps {*0167*} onto {*056e*} and *toggle* motion downward by $T_{(x-1)}$ maps {*056e*} onto {*0167*}.

It is possible, however, for *surrogate* relations to extend outside the six-member *toggle family* and unite members of the larger 12-member super-*family*. We already saw that simple inversion from $P_{2/8}$ to $I_{2/8}$ maintains the same pitch-class contents of both tetrachords but swaps the order-number partitions at which these contents occur. What if we wish to keep one partition entirely invariant, that is, without mapping its contents onto the other isomorphic partition? If we invert and *toggle* upward the unordered pitch-class contents of {*056e*} remain invariant, and if we invert and *toggle* downward the unordered pitch-class contents of {*0167*} remain invariant. (Compare the gray-shaded partitions between $P_{2/8}$ and $I_{3/9}$ and the boxed-in partitions between $P_{2/8}$ and $I_{1/7}$.[40])

By virtue of their isomorphic {*0167*} and {*056e*} order-number partitions, rows related by either *toggle* motion or inversion followed by *toggle* motion have the potential to act as *surrogates* for one another. As with any *family*, some members resemble each other more closely,

[40] P_x / $I_{(x-1)}$ row pairs are particularly common in the Violin Concerto and are discussed in more detail in part II of this chapter. Example 5.2(a) above shows a typical musical context in which these partitions emerge; in this passage from the second phase of the *Cadenza*, the invariant {*0167*} tetrachord between P_{10} and I_9 is isolated rhythmically and harmonically and is given extra dynamic emphasis.

especially when you take into account the general order of pitch classes within specific partitions. *Toggle families* represent only one type of *surrogate* relation in Violin Concerto, and some rows that are *toggle*-related are also involved in other *surrogate* relations discussed below.

Example 5.21 summarizes the mappings involving order-number partitions {*0167*} and {*056e*} from the *toggle* super-*family* discussed above. The summary also includes R_x and RI_x row forms, which exclusively involve mappings onto {*056e*} and the "exchange" partition, {*0369*}. Example 5.21(a) lists all the partitions onto which the unordered pitch-class contents of {*0167*} of P_x will map. The mappings indicated on the right side of the example are organized by row form type.[41] The first mapping indicates the T_6 partner of P_x, which maintains the contents of {*0167*}. The second pair of rows, $P_{(x-1)}$ and its T_6 partner $P_{(x+5)}$, represent downward *toggle* motion. The bottom half of Example 5.21(a) shows R_x and RI_x row forms and are also grouped into T_6-related row pairs. {*0167*} of P_x maps onto two possible order-number partitions within retrograde row forms: it remains isomorphic when it maps onto {*056e*} of $R_{(x-1)/(x+5)}$ and $RI_{x/(x+6)}$, and, conversely, it loses its isomorphic status when it maps onto {*0369*} of $R_{(x-2)/(x+4)}$ and $RI_{(x+1)/(x-5)}$.

Example 5.21(b) lists, in a similar manner as before, the mappings of {*056e*} of P_x. Upward *toggle* motion is indicated by the T_6-related row pairs at the top of the example, $P_{(x+1)/(x-5)}$ and $I_{(x+1)/(x-5)}$. The bottom half of the example shows two operations that keep the contents of {*056e*} invariant: simple retrograde, $R_{x/(x+6)}$, and upward *toggle* motion followed by

[41] As before, the +/- integer values applied to *x* are always expressed as interval classes (i.e., as values ≤6): thus, for example, *x*-5 is equal to *x*+7.

retrograde-inversion, $RI_{(x+1)/(x-5)}$. Lastly, the unordered contents of {*056e*} of P_x also map onto {*0369*} of $R_{(x-1)/(x+5)}$ and $RI_{(x-2)/(x+4)}$.[42]

Example 5.21 Summary of *surrogates* formed by mappings of {*0167*} and {*056e*} of P_x

(a)

P_x Forms				P_x, I_x, R_x, and RI_x Forms		
{0167}	∈	P_x	→	*{0167}*	∈	$P_{(x+6)}$
				{056e}	∈	$P_{(x-1)}$
				{056e}	∈	$P_{(x+5)}$
			→	*{0167}*	∈	$I_{(x-1)}$
				{0167}	∈	$I_{(x+5)}$
				{056e}	∈	I_x
				{056e}	∈	$I_{(x+6)}$
			→	*{056e}*	∈	$R_{(x-1)}$
				{056e}	∈	$R_{(x+5)}$
				{0369}	∈	$R_{(x-2)}$
				{0369}	∈	$R_{(x+4)}$
			→	*{056e}*	∈	RI_x
				{056e}	∈	$RI_{(x+6)}$
				{0369}	∈	$RI_{(x+1)}$
				{0369}	∈	$RI_{(x-5)}$

[42] When compared to the mappings onto {*0369*} in Example 5.21(a), the parenthetical subscript values in Example 5.21(b) are inverted and swapped: + (plus) becomes - (minus) and the numerical values applied to R_x row forms now appear applied to RI_x row forms, and vice versa.

(b)

P_x Forms				P_x, I_x, R_x, and RI_x Forms		
{056e}	∈	P_x	→	*{056e}*	∈	$P_{(x+6)}$
				{0167}	∈	$P_{(x+1)}$
				{0167}	∈	$P_{(x-5)}$
			→	*{056e}*	∈	$I_{(x+1)}$
				{056e}	∈	$I_{(x-5)}$
				{0167}	∈	I_x
				{0167}	∈	$I_{(x+6)}$
			→	*{056e}*	∈	R_x
				{056e}	∈	$R_{(x+6)}$
				{0369}	∈	$R_{(x-1)}$
				{0369}	∈	$R_{(x+5)}$
			→	*{056e}*	∈	$RI_{(x+1)}$
				{056e}	∈	$RI_{(x-5)}$
				{0369}	∈	$RI_{(x+2)}$
				{0369}	∈	$RI_{(x-4)}$

In addition to the mappings involving {*0167*} and {*56e0*} of P_x, *toggle*-based *families* also inform us of the mappings involving isomorphic order-number partition {*0369*}. Example 5.22 shows a 16-member *family* of rows that can act as *surrogates* for P_x. Now instead of involving only T_6-related row pairs, the *toggle* motion involves four-member groups whose rows are related by the four transpositional levels at which set class (0369) remains invariant—that is, T_x, $T_{(x+3)}$, $T_{(x+6)}$, and $T_{(x-3)}$. Due to the cyclic nature of set class (0369), it is easy to identify the P_x and I_x row forms that hold invariant the contents of order-number partition {*0369*}: all P_x and I_x row forms that begin on *any* pitch class of the same transposition of (0369)—that is, [0369],

[258e], or [147t]—form a *surrogate* relation. Thus, on the left side of Example 5.22, {*0369*} is shown to be a part of the primary row, P_2, and its three remaining ic3-cyclic-transpositions, P_5, P_8, and P_{11}—or, more simply, $P_{2/5/8/e}$. All four rows indicated by the label hold invariant the unordered pitch-class contents of {*0369*}. The same group of pitch classes remain invariant under inversion; thus, $I_{2/5/8/e}$ row forms (indicated at the top right of the example) also participate in the *surrogate* relation.

$P_{2/5/8/e}$ and $I_{2/5/8/e}$ together represent an eight-member sub-*family* of row forms that maintain the same pitch classes and the isomorphic property of {*0369*}. R_x and RI_x row forms can also act as *surrogates* for $P_{2/5/8/e}$ and $I_{2/5/8/e}$, but their relations are formed by mapping {*0369*} onto the non-isomorphic {*0167*} partition. For instance, the unordered pitch-class contents of {*0369*} of $P_{2/5/8/e}$ maps onto {*0167*} of $R_{1/4/7/t}$ via downward *toggle* motion and onto {*0167*} of $RI_{0/3/6/9}$ via upward *toggle* motion.[43]

Example 5.22 Summary of *surrogates* formed by mappings of {*0369*} of $P_{2/5/8/e}$

P_x Forms				I_x, R_x, and RI_x Forms		
{*0369*}	∈	$P_{2/5/8/e}$	→	{*0369*}	∈	$I_{2/5/8/e}$
			→	{*0167*}	∈	$R_{1/4/7/t}$
			→	{*0167*}	∈	$RI_{0/3/6/9}$

[43] Notice that the $T_{\pm 1}$ *toggle* motion affects the entire (0369) collection; thus, there exists only three unique transpositions of any four-member group of rows.

Cluster-Based Families

The third type of *surrogate* relation in the Violin Concerto is dependent upon chromatic fragments—or *clusters*—within the row, all of which are formed by discrete order-number segments. The following discussion will explore two types of *families* based on invariant *clusters*. The first *family* is determined by four-note *cluster* segments (i.e., (0123) tetrachords) and the second is determined by three-note *cluster* segments (i.e., (012) trichords). Coincidently, and conveniently, three-note *cluster families* are consistent with the more readily identifiable index-number *family*.

The third discrete tetrachord of the primary row constitutes set class (0123).[44] The row's hexachordally *generated* structure ensures that this same set class emerges from the last four members of the first hexachord. These two segmental partitions will hereafter be referred to as the row's four-note *clusters*; they lie at order-number segments {*2345*} and {*89te*} within P_x and I_x row forms and at {*0123*} and {*6789*} within R_x and RI_x row forms. The pitch-class contents of these *clusters* within any row form are always related by T_6 and thus complete the 8-note collection.[45]

It is easy to visualize *cluster* segments by thinking of them in contrast to the single isomorphic (*0167*) order-number partition with which they do *not* intersect. These non-overlapping isomorphic partitions are highlighted in gray in Example 5.23(a) and are formed by order numbers {*0167*} in P_x and I_x row forms and {*45te*} in R_x and RI_x row forms. The example represents a complete eight-member *family* of *cluster*-based *surrogates*; as such, all members exhibit the same unordered pitch-class contents among their respective chromatic segments

[44] See Example 5.7 above.

[45] See Example 5.15(b) above.

(indicated by solid- and dotted-line boxes) and among their isomorphic (*0167*) partitions. Additionally, all eight row forms in examples (a) and (b) have invariant dyadic *mosaic*s.

The eight-member *cluster family* can be further divided into two four-member sub-*families* that are related to one another by T_6. Within a sub-*family* the invariant *clusters* appear consistently in the same hexachord of four unique row forms. The first four rows in Example 5.23(a) show the *cluster* segments [3456] and [9te0] within H^1 and H^2, respectively, and the bottom four rows show the opposite. Example 5.23(b) illustrates the operations that form a *cluster*-based sub-*family*. Adjacent rows are related by RT_6, while $I_{(x+5)}$ maps the top two rows onto the rows directly below and $RI_{(x-1)}$ maps the top rows onto the rows located diagonally below. Significantly, $I_{(x+5)}$ relations are consistent with downward *toggle* motion followed by inversion, which was previously described with respect to order-number partition {*0167*}.[46] The *toggle*-based *family*, however, normally includes the T_6 partner of $I_{(x+5)}$, that is, $I_{(x-1)}$; but in Example 5.23(b), only $I_{(x-5)}$ of the T_6-related *toggle* pair is capable of maintaining the general order of *clusters* in addition to holding invariant the isomorphic {*0167*} order-number partition. In this sense, the larger *toggle family* is narrowed to a four-member sub-*family* in which inversionally-related pairs of rows—P_x and $I_{(x+5)}$ and their RT_6-related counterparts—exhibit invariant {*0167*} partitions and order-related *cluster* partitions.

Example 5.24 below summarizes the sub-*families* involving *cluster* segments. In Example 5.24(a) the mappings of the {*2345*} *cluster* of P_x all stay within H^1 of $I_{(x+5)}$, $R_{(x+6)}$, and $RI_{(x-1)}$ row forms. Example 5.24(b), on the other hand, represents a different sub-*family* in which

[46] See Example 5.21(a).

the first *cluster* of P_x maps onto *cluster* segments within H^2 of $P_{(x+6)}$, $I_{(x-1)}$, R_x, and $RI_{(x+5)}$ row forms.

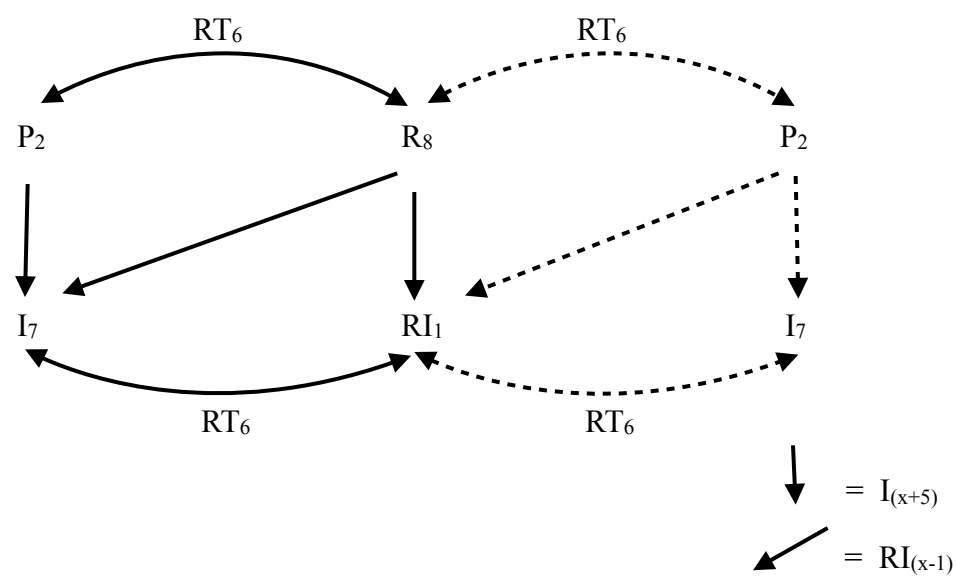
Example 5.23 Four-member sub-*families* of order-related *cluster* segments

(a)

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
P_2	2	1	4	5	6	3	8	7	t	e	0	9
I_7	7	8	5	4	3	6	1	2	e	t	9	0
R_8	3	6	5	4	1	2	9	0	e	t	7	8
RI_1	6	3	4	5	8	7	0	9	t	e	2	1
P_8	8	7	t	e	0	9	2	1	4	5	6	3
I_1	1	2	e	t	9	0	7	8	5	4	3	6
R_2	9	0	e	t	7	8	3	6	5	4	1	2
RI_7	0	9	t	e	2	1	6	3	4	5	8	7

= [3456] = [9te0] = [1278]

(b)



Example 5.24 Summary of *surrogates* formed by mappings of four-note *cluster* segments

(a)

P_x Forms				I_x, R_x, and RI_x Forms		
{*2345*}	∈	P_x	→	{*2345*}	∈	$I_{(x+5)}$
			→	{*0123*}	∈	$R_{(x+6)}$
				{*0123*}	∈	$RI_{(x-1)}$

(b)

P_x Forms				I_x, R_x, and RI_x Forms		
{*2345*}	∈	P_x	→	{*89te*}	∈	$P_{(x+6)}$
				{*89te*}	∈	$I_{(x-1)}$
			→	{*6789*}	∈	R_x
				{*6789*}	∈	$RI_{(x+5)}$

Sometimes *surrogate* relations are formed by three-note *clusters* segments. These smaller *clusters* are actually (012) subsets of the (0125) tetrachords located at the center of each hexachord.[47] Three-note *clusters* constitute order-number partitions {*234*} and {*89t*} of P_x and I_x row forms and {*123*} and {*789*} of R_x and RI_x row forms. Interestingly, these three-note segments remain invariant among the members of a complete index-number *family*.

Example 5.25(a) shows the primary row's index-number *family*. The invariant [456] *cluster*, which originates from H^1 of P_2, is shaded gray throughout, and the invariant [te0] *cluster*, which originates from H^2 of P_2, is boxed throughout.[48] As with the four-note *clusters* discussed above, it is helpful to distinguish which *surrogates* maintain the relative order of

[47] The row's multiple (0125) tetrachords are shown Example 5.7.

[48] Members of an index-number *family* also reflect unique mappings among their respective {*0167*} and/or {*056e*}order-number partitions; see Example 5.21(a) and (b) above.

cluster segments. Example 5.25(b) thus shows P_2 alongside RI_2, the only other member of the index-number *family* in which chromatic segment [456] appears in H^1 and [te0] in H^2.[49] Remarkably, the individual pitch-classes themselves also remain ordered between rows.

Example 5.25 Index-number *family* involving P_2 and the mappings of its *cluster* partitions

(a)

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
P_2	2	1	4	5	6	3	8	7	t	e	0	9
I_2	2	3	0	e	t	1	8	9	6	5	4	7
R_2	9	0	e	t	7	8	3	6	5	4	1	2
RI_2	7	4	5	6	9	8	1	t	e	0	3	2

(b)

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
P_2	2	1	4	5	6	3	8	7	t	e	0	9
			/						/			
RI_2	7	4	5	6	9	8	1	t	e	0	3	2

Other Row Relations

The last two *surrogate* relations of the Violin Concerto involve *derived*-row profiles and invariant isomorphic whole tone partitions. Examples 5.26 and 5.27 illustrate the formation of *surrogates* based on order-number *derivation*. Any twelve-tone collection can be partitioned evenly into either non-overlapping (*0369*) or (*0167*) order-number partitions.[50] Because

[49] I_2 and R_2 are similarly paired given the position of their *clusters*.

[50] See the discussion of *derived* rows in chapter 3.

Ginastera's row contains an extraordinary amount of pitch-class/order-number isomorphisms and "exchanges" involving these very set classes, we can group rows based on the similarities of their *derived* profiles. Sometimes we can even trace the derivation process back to a single source row, such as the primary row.

Example 5.26(a) shows the primary row divided entirely into (*0369*) partitions: the contents of {*0369*} are shown in gray, those of {*147t*} are boxed, and those of the last partition, {*258e*}, are unmarked.[51] Example 5.26(b) shows two four-member collections of R_x and RI_x row forms. The contents of each row's non-overlapping (*0167*) partitions are consistent with the (*0369*) contents of P_2. The first four rows are order-related to P_2 such that the first {*0369*} maps onto the first {*0167*}, the second onto the second, and so on.[52] The bottom four rows, on the other hand, maintain the order position of only the first partition (shown in gray), while the other two partitions are swapped.

The same *derived*-profile mappings can also be expressed in reverse, that is, with the non-overlapping (*0167*) partitions of P_x mapping onto the three (*0369*) partitions of R_x and RI_x forms. The (*0167*) partitions of P_2 are highlighted in Example 5.27(a) and the recurrences of their pitch-class contents can be traced to two T_6-related retrograde and retrograde-inversion row pairs in example (b). Unlike the previous example, this group involves only four row forms and one in particular, RI_9, appears in both examples.[53]

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[51] The pitch-class sets associated with these three partitions are members of set classes (0369), (0167), and (0167), respectively. See Example 5.14(a).

[52] The pitch-classes themselves are not ordered, but the general contents of each partition reflects the following order: gray partition first, boxed partition second, unmarked partition last.

[53] RI_9 is perhaps best thought of as the single retrograde-inversional row that begins on pitch class D, the same pitch class that begins the primary row. Like RI_2 (shown in Example 5.25(b)), RI_9 bears special affinities to the primary row—affinities that I_x and R_x row forms do not. Furthermore, while RI_2 and P_2 merely share the same *unordered* contents among their isomorphic {*056e*} order-number partitions, RI_9 has the exact same *ordered* contents as P_2 at {*056e*}.

Example 5.26 (*0369*) partitions of P_2 map onto (*0167*) partitions of R_x/RI_x row forms

(a)

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
P_2	2	1	4	5	6	3	8	7	t	e	0	9

(b)

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
R_4	e	2	1	0	9	t	5	8	7	6	3	4
RI_9	2	e	0	1	4	3	8	5	6	7	t	9
R_{10}	5	8	7	6	3	4	e	2	1	0	9	t
RI_3	8	5	6	7	t	9	2	e	0	1	4	3
R_7	2	5	4	3	0	1	8	e	t	9	6	7
RI_0	5	2	3	4	7	6	e	8	9	t	1	0
R_1	8	e	t	9	6	7	2	5	4	3	0	1
RI_6	e	8	9	t	1	0	5	2	3	4	7	6

Example 5.27 (*0167*) partitions of P_2 map onto (*0369*) partitions of R_x/RI_x row forms

(a)

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
P_2	2	1	4	5	6	3	8	7	t	e	0	9

(b)

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
R_6	1	4	3	2	e	0	7	t	9	8	5	6
R_0	7	t	9	8	5	6	1	4	3	2	e	0
RI_9	2	e	0	1	4	3	8	5	6	7	t	9
RI_3	8	5	6	7	t	9	2	e	0	1	4	3

The final *surrogate* relation of the Violin Concerto involves rows that have invariant isomorphic whole tone partitions.[54] Whole-tone *surrogates* are particularly vulnerable to analytical promiscuity, as they involve only one of two configurations: either WT_0 appears along order-number partition {*02468t*} and WT_1 appears along {*13579e*}, or vice versa. Thus, the *surrogate* relation is the strongest (and usually the most musically convincing) when it privileges the even-numbered partition of the row, {*02468t*}, because this partition literally unfolds via an ic2 cycle—ascending in P_x row forms and descending in I_x row forms. Within R_x and RI_x row forms the ic2 cycle unfolds along the second, odd-numbered partition of the row, {*13579e*}; thus, in retrograde row forms the first (and typically emphasized) partition obscures the *surrogate* relation by virtue of its non-cyclical order.

Apart from a musical context it is difficult to discuss the relative "strength" and/or "weakness" of *surrogate* relations based on whole tone partitions; therefore, this part of the chapter will conclude with a simple reference for locating these whole tone collections. Example 5.28 summarizes where whole tone collections WT_0 and WT_1 lie within P_x / I_x rows and R_x / RI_x rows. For any P_x / I_x row form, if the row's first pitch class is an even-number integer, WT_0 will emerge cyclically from order-number partition {*02468t*}, and if the row's first pitch class is an odd-number integer, WT_1 will emerge cyclically from the same partition (see Example 5.28(a)). For any R_x / RI_x row form, if the row's first pitch class is an even-number integer, WT_0 will emerge cyclically from the *second* whole tone order-number partition, {*13579e*}, and if the row's first pitch class is an odd-number integer, WT_1 will emerge cyclically from the same partition (see Example 5.28(b)).

[54] These partitions were first discussed in conjunction with Example 5.13(b) and (c).

Example 5.28 Summary of rows and their isomorphic whole tone partitions

(a)

P_x / I_x Row Forms			
WT_0	→	*{02468t}*	when *x* is an *even* number
		{13579e}	when *x* is an *odd* number
WT_1	→	*{02468t}*	when *x* is an *odd* number
		{13579e}	when *x* is an *even* number

(b)

R_x / RI_x Row Forms			
WT_0	→	*{13579e}*	when *x* is an *even* number
		{02468t}	when *x* is an *odd* number
WT_1	→	*{13579e}*	when *x* is an *odd* number
		{02468t}	when *x* is an *even* number

PART II: ANALYSIS

Part II of this chapter provides a detailed analytical investigation of the Violin Concerto. The discussion is organized into three large sections, which contain their own subsections of topics related to the larger investigation. The first section focuses on general characteristics of the variation form, including the four phases of the opening *Cadenza* and the movement's six variations, or *studi*. The second section focuses on large-scale row organization and includes the following subsections: (1) invariant partitions and row completion, (2) corresponding networks of row relations, and (3) mappings of isomorphic partitions. The third and final portion of the chapter focuses on variation techniques of *studio* pairs, that is, the unique details of each variation that contribute to the larger theme + variation narrative.

Ginastera refers to the six "variations" of the Violin Concerto as *studi*. Like a typical variation, each *studio* relates to the theme—that is, the *Cadenza*—in some way; however, the basis of each *studio* involves complex, often veiled relationships and is not simply a recasting of the same basic motive. As the name implies, each *studio* is devoted to the "study" of a certain technical feat; more importantly, each technique is related to a specific compositional feature of the concerto's twelve-tone language. The variation strategies used in the Violin Concerto are thus decidedly different from those used in the Piano Concerto: whereas the ten variations in the Piano Concerto all vary the same melodic-motivic materials of the *Cadenza* in a traditional theme + variations sense, the six *studi* of the Violin Concerto each vary a specific characteristic of the twelve-tone row itself. In this respect, the row and all of its most fundamental components —including its intervallic contents, subset contents, isomorphic pitch-class partitions, and the

like—are clearly introduced in the *Cadenza* and then individually isolated and elevated to a structurally prominent position in subsequent *studi*.

As in the Piano Concerto, *surrogate* relations are the principal means by which Ginastera instigates a sense of variation in the Violin Concerto; *surrogate* relations largely determine the organization of row forms on multiple structural levels. Even still, it cannot be overstated that Ginastera's twelve-tone compositional approach in the Violin Concerto is different from his approach in the Piano Concerto. For one, the Piano Concerto begins with a harmonic presentation of the row, which immediately calls into question the row's order and invites a consideration of the row's general *content* over its strict serial *order*. The Violin Concerto, in contrast, leaves no such ambiguity as it begins with linear presentations of a complete index-number *family*, P_2, I_2, R_2, and RI_2. Nonetheless, both concertos involve the same familiar pitch-class collections, especially (0167) and (0369), and, as in the Piano Concerto, the interval patterns Ginastera introduces in the Violin Concerto often compose-out larger collections like the octatonic and 8-note.

A large number of the *surrogate* relations in the Violin Concerto are attributed to the row's unique concentration of pitch-class/order-number isomorphisms and are determined by the order-number mappings they enable among multiple row forms. According to Mead, "the richer the variety of relationships [contained within the row class], the more complex the possible strategies [of large-scale organization]."[1] The Violin Concerto's primary row and all its pitch-class/order-number isomorphisms, which were discussed in part I of this chapter, open up new compositional opportunities for Ginastera to explore. For instance, strategies involving pitch-

[1] Mead, "Large-Scale Strategy in Arnold Schoenberg's Twelve-Tone Music," 131.

class invariances are determined by more innovative, complex means in the Violin Concerto than in the Piano Concerto. Certain isomorphic partitions are musically isolated, or activated, within the Violin Concerto and these partitions interact with other active or inactive partitions of surrounding row forms. In short, *surrogate* relations of all sorts deepen and enrich the variation process.

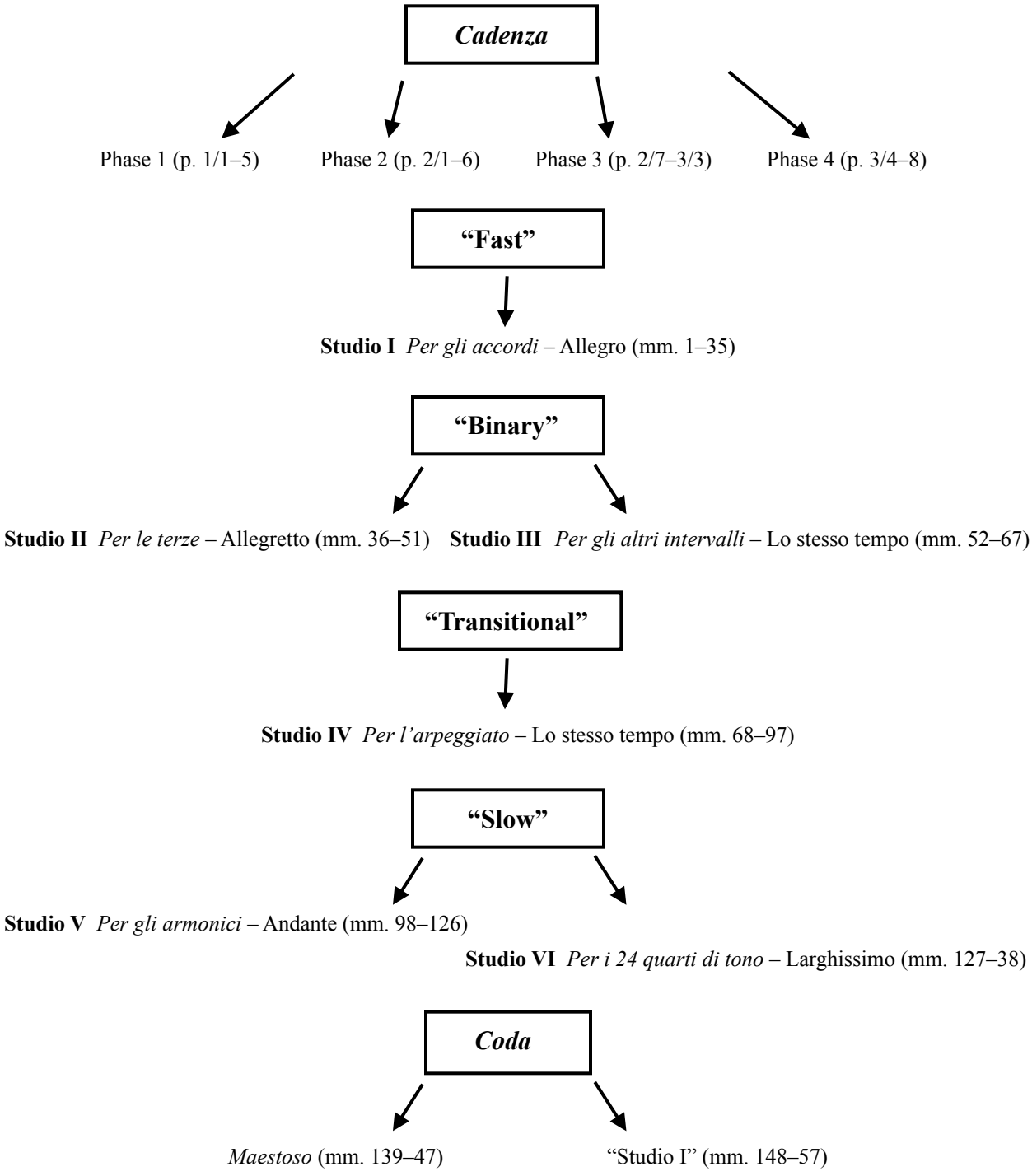
General Characteristics of the Variation Form

The organization of the concerto's *Cadenza*, six *Studi*, and *Coda* is shown in Example 5.29. To a certain extent, the musical material that is subjected to variation is implied by the individual subtitles of each *Studio*. For example, *Studio I – Per gli accordi* and *Studio IV – Per l'arpeggiato* both involve studies of chordal sonorities; these sonorities are executed by the soloist as triple and quadruple stops in *Studio I* and as arpeggios in *Studio IV*. *Studio II – Per le terze* and *Studio III – Per gli altri intervalli* feature, respectively, a study of thirds (realized as double stops) and all "other" intervals (i.e., pitch-class intervals 1–11) in a series of sequential patterns. Lastly, the pitch materials featured in both *Studio V – Per gli armonici* and *Studio VI – Per i 24 quarti di tono* involve chromatic *clusters*, and the soloist demonstrates the violin's capacity to execute artificial harmonics and quarter tones.

As in the Piano Concerto, the individual variations of the Violin Concerto group together based on similar tempi and shared musical characteristics. After the *Allegro* first *studio*, the second and third *studi* follow one another without pause and exhibit the same generic binary formal plan. The improvisatory-sounding arpeggios of *Studio IV* lend a certain transitional quality to this variation, as it prepares for the final "slow" variations—*Studi V* and *VI*. The *Coda*

consists of two phases, the first of which is a *Maestoso* recomposition of the first phase of the *Cadenza* and the second of which recalls material from *Studio I*.

Example 5.29 Large-scale formal organization of the Violin Concerto, Op. 30 (1963), I



The row forms used throughout the first movement are summarized in Example 5.30. With the exception of the *Cadenza* and the ethereal *Studi V* and *VI* variations, the soloist's pitch material is largely non-serial. Indeed, much of the soloist's material is based on recurring interval patterns, highlighting the instrumentalist's virtuosity in a manner much like that typically displayed in the nineteenth-century concerto tradition. The orchestra's material, on the other hand, always participates in the presentation of row forms. In terms of index numbers, the vast majority of row presentations belong to index-number *family* 2: of the 57 distinct row presentations, 12 belong to this particular index-number *family*, which includes the primary row, P_2. Other common index numbers include 7 (represented by nine unique presentations), and 0, 3, and 9 (each represented by seven unique presentations.)[2]

Example 5.30 Explicit row presentations in the Violin Concerto, first movement

		Soloist	*Orchestra*
Cadenza	*phase 1*	$\mathbf{P_2}$, $\mathbf{I_2}$, $\mathbf{R_2}$, $\mathbf{RI_2}$	
	phase 2	$\mathbf{P_{10}}$, $\mathbf{I_9}$, $\mathbf{R_3}$, $\mathbf{P_7}$, $\mathbf{R_{10}}$, $\mathbf{RI_{10}}$, $\mathbf{R_5}$, $\mathbf{R_6}$	
	phase 3	$\mathbf{RI_0}$, $\mathbf{R_0}$, $\mathbf{I_0}$, $\mathbf{P_2}$, $\mathbf{P_2}$	
	phase 4	$\mathbf{P_7}$	
Studio I		$\mathbf{P_2}$ (or $\mathbf{RI_9}$)	$\mathbf{I_7}$, $\mathbf{P_7}$, $\mathbf{R_0}$, $\mathbf{P_4}$, $\mathbf{I_3}$, $\mathbf{P_9}$, $\mathbf{I_9}$, $\mathbf{R_9}$
Studio II			$\mathbf{R_9}$, $\mathbf{I_7}$, $\mathbf{P_9}$, $\mathbf{RI_7}$, $\mathbf{R_3}$, "$\mathbf{RI_2}$"
Studio III			$\mathbf{R_7}$, "$\mathbf{P_0}$", $\mathbf{R_5}$, "$\mathbf{P_3}$", $\mathbf{P_9}$, $\mathbf{RI_3}$
Studio IV			$\mathbf{I_2}$
Studio V		$\mathbf{I_1}^*$, $\mathbf{R_3}^*$, $\mathbf{P_6}^*$, $\mathbf{I_{10}}^*$, $\mathbf{P_6}^*$, "$\mathbf{R_3}$"*	$\mathbf{RI_{11}}$, $\mathbf{R_5}$, $\mathbf{I_{11}}$, "$\mathbf{R_8}$"
Studio VI		$\mathbf{R_1}$	
Coda		$\mathbf{R_2}^*$	$\mathbf{P_2}$, $\mathbf{I_2}$, $\mathbf{P_7}$, $\mathbf{I_7}$, "$\mathbf{R_0}$"

* Row presentation distributed between soloist and orchestra members

[2] Given that Ginastera uses the pitch classes of the violin's "open strings"—{G, D, A, E}—motivically throughout the concerto, it is not surprising that index-numbers 2 (D), 7 (G), and 9 (A) constitute some of the movement's most common row forms.

Four Phases of the Cadenza

The contents of the four phases of the *Cadenza* were briefly introduced in part I of this chapter.[3] The present discussion will investigate more thoroughly the structural design of each phase and note which motivic events provide inspiration for the ensuing *studi* variations. Despite their varied materials, each phase of the *Cadenza* perpetuates a blatant dichotomy between the tritone and the perfect fifth. The tritone, often expressed as a transpositional relation (T_6), is the interval that *generates* the second hexachord of the row, and the perfect fifth, often expressed by the transpositional relation T_7, and sometimes its inversion, T_5, is perhaps most recognizably associated with motivic gestures involving the violin's open strings.[4] The first and third phases of the *Cadenza* center around the presentation of index-number *families*, which in turn help to highlight specific order-number partitions such as {*0369*}, {*0167*}, and invariant *cluster* partitions. The second phase of the *Cadenza* features several row forms, all of which participate in shifting the musical emphasis to order-number partition {*0167*}. Finally, the fourth phase is largely based on the explicit presentation of interval patterns. These patterns were prefigured, less explicitly, in the first three phases of the *Cadenza* but are finally put on display in the fourth phase, where they appear in a variety of guises and compose-out familiar symmetrical collections classes like (0369), (0347), the OCT, and the 8-note collection.

Example 5.31(a) shows a reduction of index-number *family* 2, which comprises the first phase of the *Cadenza*.[5] Emphasized order-number partitions are indicated in italics below the

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[3] See Examples 5.1–4.

[4] A similar "open string" motive is also featured in the cadenza of Schoenberg's Violin Concerto; see Alegant and Mead, "Having the Last Word: Schoenberg and the Ultimate Cadenza," 114ff and especially their Example 9 (120).

[5] A complete score of this passage is provided as Example 5.1 in part I of this chapter.

staff. P_2 and I_2 preserve isomorphic order-number partition {*0369*}, which represents pitch-class set [258e]. Alternately, R_2 emphasizes {*0167*}, which constitutes a new transposition of the same set class, [0369]. Together these middleground unfoldings of (0369) complete $OCT_{2,3}$.[6] The soloist's presentation of RI_2 does not emphasize any specific order-number partition; however, G appears as a pedal tone throughout the row's presentation and thus completes an abstract unfolding of the violin's open strings—<D, A, E, G>—that spans the entire phase.[7]

The motivic foreground of the *Cadenza*'s first phase also includes prominent harmonic minor third (i3) dyads. Example 5.31(b) illustrates the overarching transpositional relations connecting i3s within P_2 and I_2.[8] Even though the hexachordally *generated* structure of both rows emphasizes T_6 between order numbers *0* and *6* (shown as whole notes), long-range T_{-1} and T_7 relations form between order-number dyads {*12*} and {*te*}, respectively. These dyads emerge from the music's texture via agogic accents and thus begin what will become a longstanding dichotomy throughout the concerto between the tritone and the perfect fifth.

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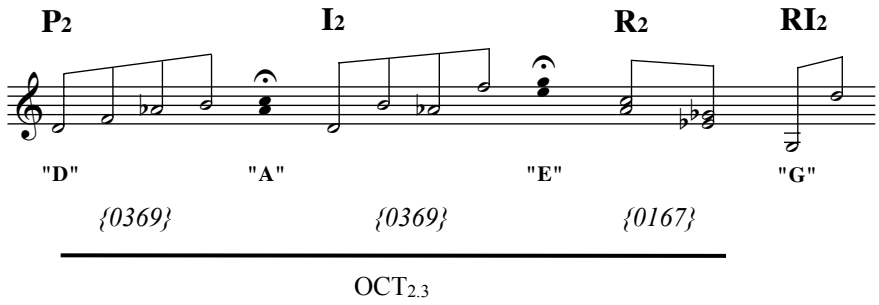
[6] Interestingly, the soloist's entry in the *Cadenza* of the Piano Concerto composes-out the same $OCT_{2,3}$ collection; see Example 4.29 in part II of chapter 4.

[7] These pitch classes are emphasized by register, duration, and placement within each gesture in Example 5.31(a). D is emphasized as the lowest and first pitch class of P_2 (and also I_2) and recurs as the highest pitch of RI_2. A and E form the lower pitch classes of two harmonic dyads (emphasized by fermatas) that follow the presentations of P_2 and I_2. G appears as the lowest, longest, and oft-repeated pitch class in the presentation of RI_2

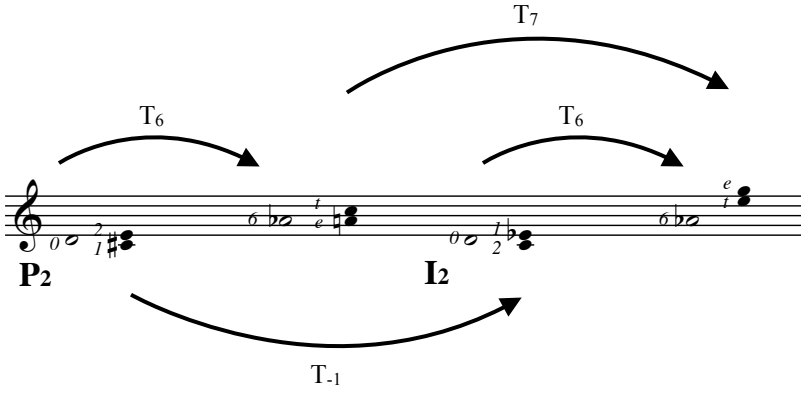
[8] Three of the four i3 dyads (all but order numbers {*12*} of I_2) are emphasized contextually by a fermata.

Example 5.31 Reduction of phase 1 of the *Cadenza* featuring index-number *family* 2

(a)



(b)



The second phase of the *Cadenza* features the presentation of several row forms in rapid succession. The relative speed at which these rows are presented virtually ensures that only a few order-number partitions emerge from the musical fabric with any clarity. These partitions, along with the set classes they constitute, are beamed in Example 5.32(a) shown below.[9] The first two inversionally-related row forms, P_{10} and I_9, draw attention to their pitch-class invariant isomorphic order-number partition, {*0167*}.[10] As in the first phase of the *Cadenza*, Ginastera immediately follows the presentation of the P_x and I_x row pair with an R_x row form: here, R_3

[9] All of the partitions included in this reduction receive some sort of musical emphasis (e.g., accentuation via dynamic marking, rhythmic duration, registral placement, or a combination of these); see the score provided as Example 5.2 in part I of this chapter.

[10] N.B. The order-number distribution of this tetrachord varies between the two rows so that the pitches recur in the same register.

continues to emphasize the same {*0167*} partition, which now corresponds to set class (0369) instead of (0167). Shortly thereafter, the introduction of R_6 (shown on the second line of the example) emphasizes the same {*0167*} partition, and its T_3 relationship to R_3 holds invariant the same pitch classes of (0369).[11]

The introduction of P_7 midway through the second phase of the *Cadenza* initiates two motivic events. First, the row's emergence from the lowest register of the passage begins another large-scale unfolding of the "open strings" motive by harkening back to the same G3 that was emphasized in the presentation of RI_2 in Example 5.31(a). Second, the unusual order-number unfolding of P_7 highlights the structural significance of another isomorphic order-number partition, {*056e*}: Ginastera alters the succession of order numbers within this partition to {*0e65*}, which underscores the contrast between T_7—expressed individually by the dyads {G, D} (order numbers {*0e*}) and {D♭, A♭} (order numbers {*65*})—and T_6—the relation that combines these two dyads into the complete {*056e*} partition.

In the row forms that follow in phase 2 of the *Cadenza*, Ginastera singles out order-number dyads {*67*} of R_{10} and {*12*} of RI_{10}. Together these dyads complete a four-note chromatic *cluster* (i.e., set class (0123)). The remainder of the second phase, shown on the second system of Example 5.32(b), is characterized by a breakdown of strict row presentations in favor of interval patterns. The first succession of intervals consists of the harmonic dyads i9, i10, i8, i11, i7—that is, all intervals larger than a tritone. The resultant pitch classes form the 8-note

[11] N.B. The registral distribution of the first order-number dyad, {*01*}, varies between R_3 and R_6, but this actually helps to emphasize their invariant pitch-class set, [147t]: by placing order number *1* (D♭) at the bottom of the first dyad in R_3, Ginastera draws attention to its recurrence as order number *0* (C♯) at the bottom of the first dyad in R_6.

collection missing [45te].[12] The phase then ends with composed-out instances of familiar symmetrical collections, (0156) and (0347), both of which are identified in the example in "transpositional combination" terms, i11 * T_7 and i8 * T_{-3}.[13]

Interestingly, the same $T_{\pm 3}$ and T_7 operations from the aforementioned interval patterns also govern the larger organization of row forms in the second phase. Example 5.32(b) shows the two prime row forms of the phase, P_{10} and P_7, connected by T_{-3} and the first and last retrograde row forms of the phase, R_3 and R_6, connected by an overarching T_3 relation. T_7 is projected between the first two retrograde row forms, R_3 and R_{10}. Additionally, the same interval class is mimicked by the RT_5 relationship between P_{10} and R_3, the first prime and retrograde row forms of the second phase.

The most prominent partitions of the five rows included in Example 5.32(b) are shown in Example 5.32(c). Significantly, all of the tetrachordal partitions except for that of P_7 are accentuated by extreme dynamic markings. The isomorphic (*0167*) partitions of P_{10} and P_7 complete the 8-note collection missing [56e0].[14] The ***ff*** order-number partitions {*01*} of R_3 and {*67*} of R_{10} form i9 dyads that are related by T_{-1} and thus compose-out (0134). When the previous four partitions are finally joined by the climatic {*0167*} partition of R_6 toward the end of the phase—which composes-out (0369) via i3 * T_{-6}—the aggregate is nearly completed, shy of only F and F♯. Significantly, these missing pitch classes do eventually appear, and they are carefully positioned so that they span the formal boundary between the second and third phase of

[12] The reader will recall that 8-note collections (i.e., set class 8-9 (01236789)) are labeled according to the pitch classes they do *not* contain—that is, their "missing" complement, set class 4-9 (0167).

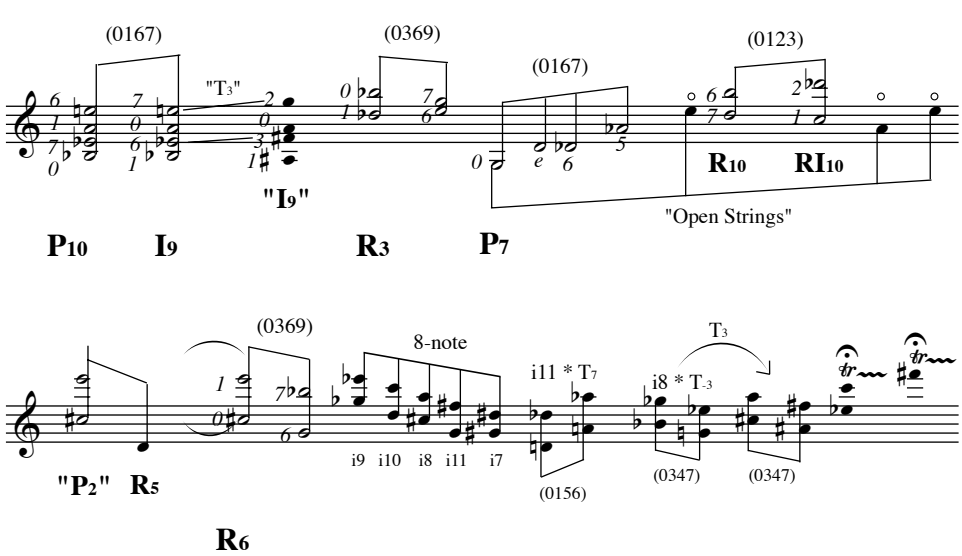
[13] Transpositional combination is defined in chapter 2; see especially note 7.

[14] N.B. The emphasized pitch classes of P_7 correspond to order-number partition {*056e*}. Had Ginastera instead emphasized the {*0167*} partition, as he did with P_{10} before, the combined partitions of both rows would have composed-out $OCT_{0,1}$ instead of the 8-note collection.

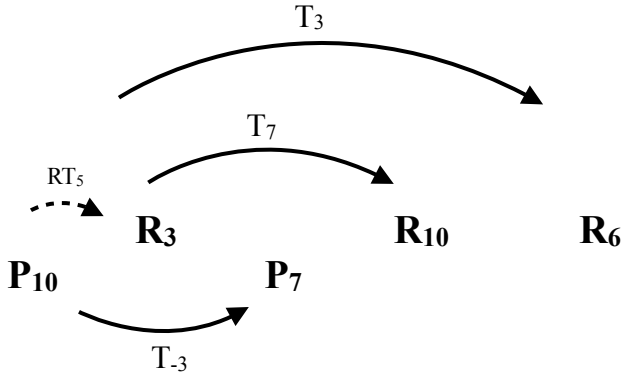
the *Cadenza*: the F♯ is trilled and emphasized by a fermata at the end of Example 5.32(a) and F♮ forms the elongated downbeat of the third phase, shown in Example 5.33(a) below.

Example 5.32 Emphasized partitions in phase 2 of the *Cadenza* (p. 2/1–6)

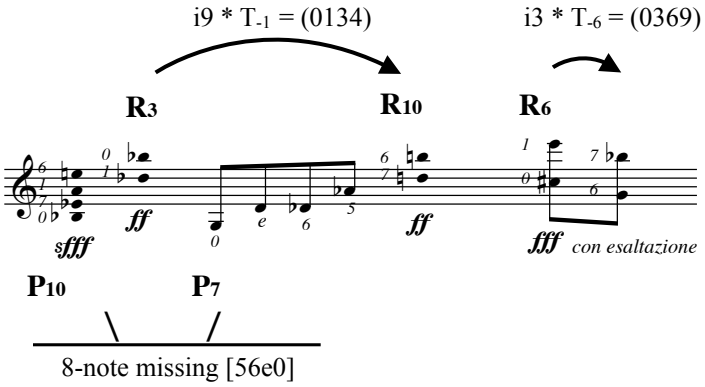
(a)



(b)



(c)

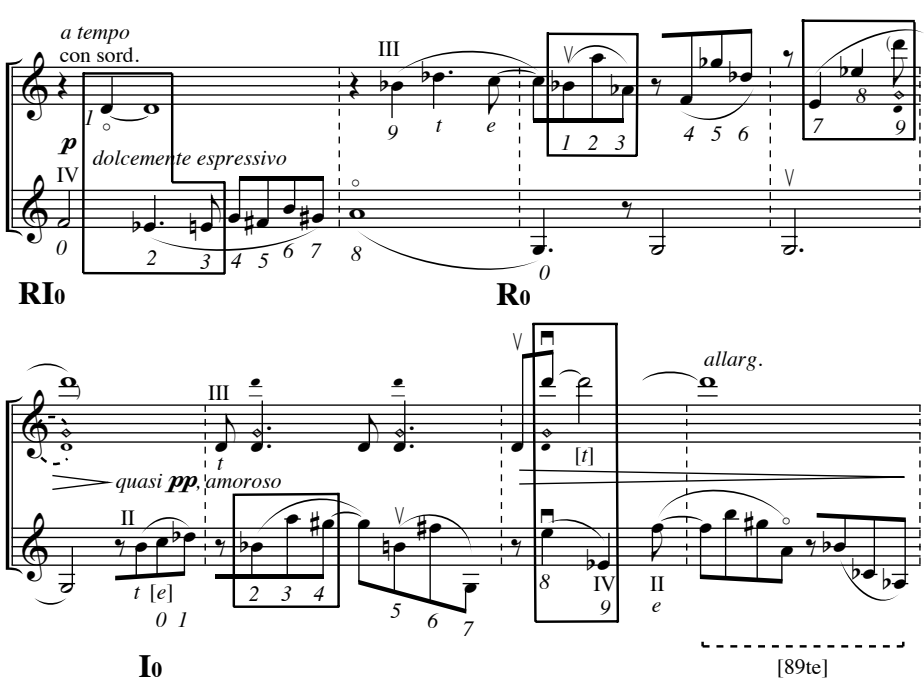


The third phase of the *Cadenza* begins with three members of index-number *family* 0 and is divided into two four-measure phrases: the first phrase spans the presentations of RI_0 and R_0 and the second phrase spans the presentation of I_0. The four boxes in Example 5.33(a) highlight three-note *cluster* segments within each row and the invariances within the index-number *family* are summarized in example (b).[15] *Cluster* segments [234] and [89t] are emphasized in the context of example (a) by their shared musical characteristics. The recurrences of *cluster* [234]—that is, order numbers {*123*} of RI_0, {*789*} of R_0, and {*89t*} of I_0—specifically appear at the boundaries of the two phrases and pitch class D always sounds as a harmonic tone. The two instances of *cluster* [89t]—that is, order numbers {*123*} of R_0 and {*234*} of I_0—both appear as eighth-note gestures entering on the offbeat of the previous downbeat and involve the same registral placement. Finally, the second phrase ends with a reiteration of the four-note *cluster* shared by I_0 and RI_0, [89te].

[15] *Cluster*-based *surrogates* are formally defined in part I of this chapter: see the discussion of Example 5.25. Significantly, Ginastera does not introduce the prime form of index-number *family* 0 within the third phase of the *Cadenza*, but instead begins the phase with RI_0, the *cluster*-based *surrogate* that is most similar in construction to P_0. The invariant three-note *clusters* of P_x / RI_x row pairs maintain the same general hexachordal position and the exact same ordering of pitch classes within each *cluster* (see Example 5.25(b)).

Example 5.33 Phase 3 of the *Cadenza* and three-note *clusters* of index-number *family* 0

(a)



(b)

	0	1	2	3	4	5	6	7	8	9	t	e
RI0	5	2	3	4	7	6	e	8	9	t	1	0
R0	7	t	9	8	5	6	1	4	3	2	e	0
			\						\			
I0	0	1	t	9	8	e	6	7	4	3	2	5

Aside from a single presentation of P_7 in grace notes, the fourth and final phase of the *Cadenza* is devoid of row forms.[16] The soloist's pitch material at the end of the *Cadenza* consists entirely of sequential interval patterns. Example 5.34(a) shows the first of these interval patterns and example (b) provides an annotated reduction. Two ***sfff*** tremolo motives expressing i8 * T_{-3}

[16] The ephemeral presentation of P_7 at the opening of the final phase is shown in Example 5.4 in part I of this chapter.

compose-out (0347) tetrachords that are related by T_3.[17] Both tremolos are followed by ascending scalar gestures that complete the aggregate without any pitch-class duplication. The soloist then begins a rapid descent featuring more i8 patterns. As the second system of Example 5.34(b) shows, i8 * T_{-6} is first transposed by T_{-3} at the level of the quarter note, then by T_{-7} at the level of the half note, and finally by T_{-5} at the level of the whole note. Together these compound transpositional relations complete the aggregate twice, just as the previous tremolo figuration did. Contrapuntally speaking, the (i8 * T_{-6}) * T_{-3} pattern composes-out (0369) tetrachords along both registral lines of the i8 dyads. Significantly, a large-scale "voice exchange" takes place from the beginning of the passage to the end: [0369] first appears in the uppermost register and is harmonized by [147t], and the same two collections exchange registral positions by the gesture's end.[18]

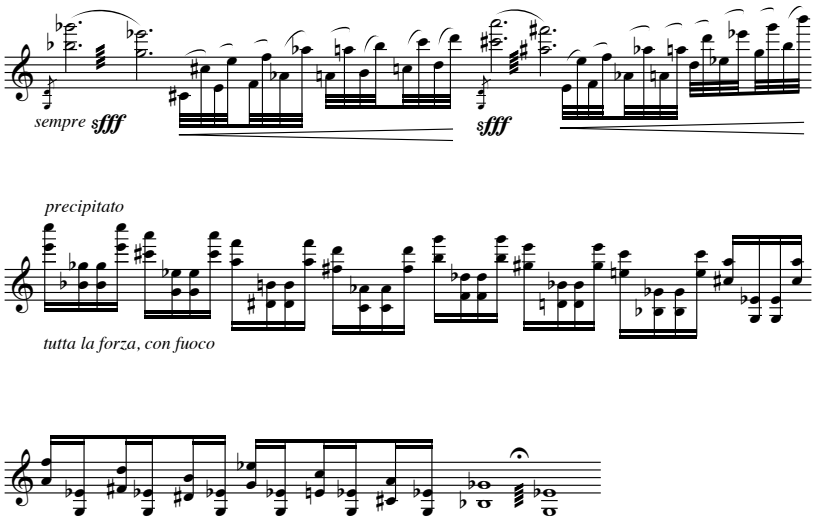
The remaining i8 gestures of the passage, shown on the third system of Examples 5.34(a) and (b), reiterate the simultaneous unfoldings of [0369] + [147t] from the previous system and eventually lead back to the pitch classes of the original i8 * T_{-3} tremolo (now two octaves lower) that began the fourth phase. Example 5.34(c) summarizes the trajectory of the entire passage. The most prominent points of articulation—that is, the first two ***sfff*** tremolos, the climatic {E6, C7} dyad that begins the *tutta la forza, con fuoco* descent, and the fermata tremolo that ends the passage—ultimately complete $OCT_{0,1}$ on the music's structural middleground.

[17] The interval of transposition here, T_3, creates invariance between the first dyad of the first tetrachord and the second dyad of the second tetrachord; thus, the gesture is akin to a "double neighbor" figure in tonal music.

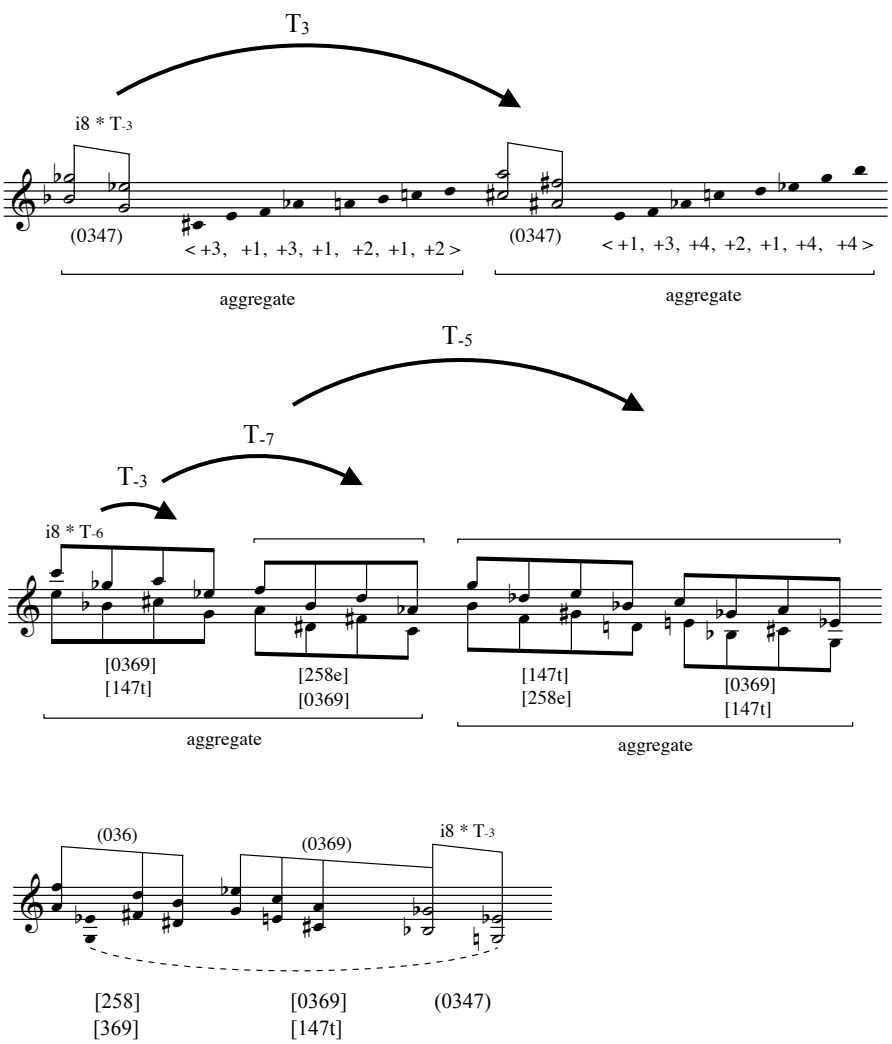
[18] The local-level octatonic implications of this passage are discussed in more detail in chapter 2; see Example 2.9(b).

Example 5.34 Phase 4 of the *Cadenza* (p. 3/5–7) and i8 * T_x interval patterns

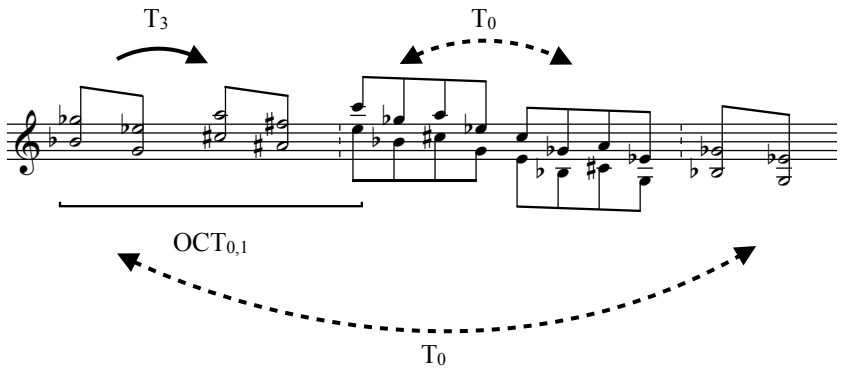
(a)



(b)



(c)



Large-Scale Row Organization

The following discussion explores three strategies behind Ginastera's organization of row forms in the Violin Concerto. All of these strategies rely on *surrogate* row relations, which were defined in detail in part I of this chapter. *Surrogate* relations are determined by the number and type of pitch class invariances they afford. Notably, *surrogate* relations are employed at significant moments within the music's formal structure, thereby drawing attention to their capacity to convey a sense of variation from the "norm," so to speak. In context, the "norm" is that which was established, or at the very least implied, by the four phases of the *Cadenza* discussed above.

The first organizational strategy discussed in this section involves pitch-class invariance and row completion, or overlap. Simply put, Ginastera strategically uses invariant segments of any given size (e.g., dyadic, trichordal, tetrachordal, or hexachordal), which are shared between two row forms, in order to effect a seamless elision at formal junctures. Sometimes these

invariant segments are literally repeated and at other times the second row completes the missing portion of the previous row.[19]

The second organizational strategy examines recurring T_n, I_n, RT_n, and/or RI_n relationships between rows. The specific rows involved in a network—whether it be a local-level network of consecutive row forms or an abstract-level network of rows from different *studi*—are not typically the same, but their complex of relationships often is. The most prominent of these relationships include rows related by T_6 or $RT_{\pm 5}$ and *surrogates* created by $I_{(x-1)}$ relations or the T_6 equivalent, $I_{(x+5)}$. Corresponding networks of row relations are, above all, essential to the movement's variation structure because their recurrences within and across various *studi* illuminate how ever-present the "theme" is, no matter how elaborate the "variation" may seem.

Lastly, the third large-scale organizational strategy concerns the mappings of pitch-class/ order-number isomorphic partitions—specifically, {*0369*}, {*0167*}, and {*056e*}. In nearly all of the concerto's variations, one or more of these order-number partitions is emphasized musically and often in an unmistakable manner (e.g., via repetition, dynamic emphasis, registral placement, etc.). Ginastera is especially careful to introduce *surrogate* rows that exploit the mapping capabilities of these partitions at structurally significant positions, such as the beginning or end of a variation, or between *studio* pairs whose variations processes are the same.

[19] This type of organizational strategy is favored by other twelve-tone composers, notably Webern. Both Ginastera and Webern tend to approach twelve-tone composition via the manipulation of small motivic "cells"; thus, the *generated* (or "derived") structures of their respective twelve-tone row classes tend to adapt particularly well to compositional strategies involving pitch-class invariance and order-number overlap.

Invariant Partitions and Row Completion

The first instance in which invariant partitions directly influence the succession of row forms occurs in the second phase of the *Cadenza*. Example 5.35 shows four rows from the beginning of this phase. P_{10} and I_9 maintain the same {*0167*} order-number partition, which is underlined in bold; furthermore, the nature of their P_x / $I_{(x-1)}$ relationship means that these two rows also exhibit invariant dyadic *mosaic* profiles.[20] The same dyadic *mosaic* recurs at the bottom of the example when P_{10} is presented in retrograde (R_{10}).

The third row in Example 5.35, P_7, contains one highly consequential pitch-class/order-number exchange (indicated by ! points): pitch class 2 at order number *5* appears exchanged with its tritone partner, pitch class 8, at order number *e*. Because of this minor alteration to P_7, Ginastera is able to achieve the following three previously unavailable consistencies: (1) dyadic invariance among all four rows; (2) tetrachordal invariance with the previous row, I_9 (see the mappings indicated in the example); and (3) pitch-class overlap with the following row, R_{10}. With respect to the last point, a single iteration of the dyad [58] is used to both complete P_7 and begin R_{10}.[21] Furthermore, the subtle but impactful order-number alteration within P_7 enables hexachordal invariance among an "interior" segment of the row: order-number segment {*234567*} of P_7 (underlined in the example) is invariant with the second hexachord of R_{10}, {*6789te*}.

---

[20] See the discussion of Example 5.23 in part I of this chapter. Row pairs involving P_x and $I_{(x-1)}$—or the latter's T_6 partner, $I_{(x+5)}$—are members of an eight-member *family* of *cluster*-based *surrogates*. All members of this *family* have invariant dyadic *mosaics*. With regards to the $I_{(x-1)}$ relation in Example 5.35, P_{10} and I_9 preserve the pitch-class contents of the {*01*} and {*67*} dyads, but exchange the pitch-class contents of their *cluster* segments, {*2345*} and {*89te*}.

[21] Pitch-class overlap is indicated with asterisks (*).

Example 5.35 Invariant segments in phase 2 of the *Cadenza*

	0	1	2	3	4	5	6	7	8	9	t	e
P_{10}	t	9	0	1	2	e	4	3	6	7	8	5
I_9	9	t	7	6	5	8	3	4	0	1	e	2
P_7	7	6	9	t	e	2!	1	0	3	4	5*	8!*
R_{10}	5*	8*	7	6	3	4	e	2	1	0	9	t

While the previous example was contained within one formal section (i.e., the second phase of the *Cadenza*), oftentimes invariant segments are used to articulate the point at which two formal sections meet. Example 5.36 shows two rows, R_0 and I_3, which mark the beginning and end of the brief transition section of *Studio I*.[22] All rows with invariant hexachordal *mosaics* also have invariant trichordal *mosaics*, which are indicated by dotted lines in the example. The invariant segments within R_0 and I_3 thus demarcate the transition by repeating the same pitch-class motives at both boundary points.

[22] This passage is also discussed in part I of this chapter; see Example 5.12.

Example 5.36 Hexachordal and trichordal invariance in *Studio I*, transition (mm. 6–10)

R_0	7	t	9	8	5	6	1	4	3	2	e	0
						X						
I_3	3	4	1	0	e	2	9	t	7	6	5	8

Studi II and *III* exhibit invariances in strong correlation to their respective binary forms. Ginastera uses T_6 row relations to articulate the recapitulations in both binary forms, which, in addition to hexachordal and trichordal invariance, also allows for dyadic invariance. The rounded binary formal plan of *Studio II* is illustrated in Example 5.37(a) below. Pitch-class invariance and row completion are integral to the organization of row forms in this variation and help to articulate the binary form. The recapitulation within the second reprise is articulated by a return of the main motivic material and, significantly, by an overarching T_6 transposition of R_9 in the first reprise for R_3 in the second. This T_6 transposition maps the first hexachord onto the second and vice versa. Thus, to a certain extent the recapitulation returns to the original "tonal" level of the primary thematic material, as in a traditional binary form, and yet, upon the return Ginastera's substitutes the original row with a hexachordally invariant row form so as to subtly vary the recapitulation, implying a sort of "variation within a variation."

Ginastera also capitalizes on pitch-class invariance within the respective reprise sections. The boundary row forms of the first reprise, R_9 and P_9, are retrogrades of one another. The presentation of the latter row is shown in quotation marks in the example because its last tetrachord is missing; thus, the repeat of the first reprise finishes P_9 by beginning again with R_9. The complete presentation of P_9 straddles the two reprises, the second of which starts with the

final tetrachord of P_9 and concludes with another incomplete row form, RI_2. Example 5.37(b) reproduces the last two measures of the variation in which the first four dyads of "RI_2" gradually accumulate to form the final sonority.[23]

Significantly, the dyadic *mosaic* profile of RI_2 is invariant with that of the previous row, R_3, and its T_6 counterpart, R_9, which began the variation. Example 5.37(c) summarizes instances of hexachordal, dyadic, and tetrachordal invariance among the structurally prominent row forms positioned within the binary form. The first two rows, which represent the beginning of *Studio II* and its T_6 recapitulation, exhibit hexachordal and dyadic invariance. Four of the same dyads are then reiterated by the partial presentation of RI_2 at the final cadence. Significantly, RI_2 and R_9 begin with the same tetrachordal *cluster* segment, [4567].[24] The repeat of the second reprise—which begins with the final tetrachord of P_9 (shown at the bottom of Example 5.37(c))—thus also reiterates the same invariant *cluster* segment (indicated by a dotted line in Example 5.37(a)).

---

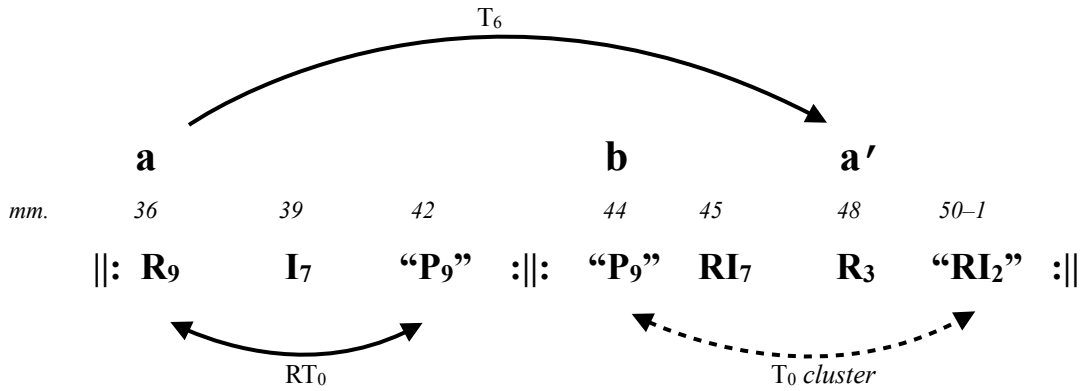
[23] N.B. The boundary dyads of this sonority emphasize order-number partition {*0167*}, which in any retrograde row form is an instance of set class (0369).

[24] R_9 and RI_2 are members of the same four-member sub-*family* of *cluster*-based *surrogates*. That is, they hold invariant the unordered contents of isomorphic order-number partition {*45te*} and *cluster* segments {*0123*} and {*6789*}. See the discussion of Example 5.23 in part I of this chapter.

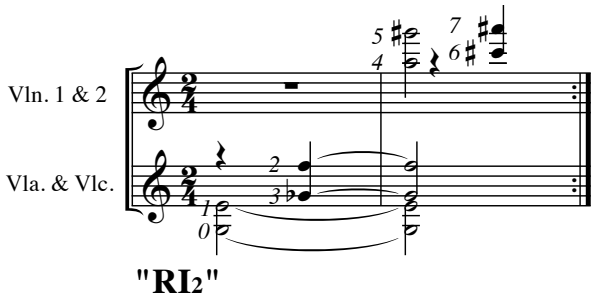
In a certain sense, the appearance of RI_2 fulfills the traditional, harmonic notion of a recapitulation, and therefore "corrects" R_3, which coincides with the melodic-motivic point of return but is T_6 related to the original row, marking a "false recap."

Example 5.37 Binary form and invariant segments in *Studio II – Per le terze*

(a)



(b)



(c)

	0	1	2	3	4	5	6	7	8	9	t	e
R9	4	7	6	5	2	3	t	1	0	e	8	9
							X					
R3	t	1	0	e	8	9	4	7	6	5	2	3
"RI2"	7	4	5	6	9	8	1	t	(e)	(0)	(3)	(2)
"P9"	(9)	(8)	(e)	(0)	(1)	(t)	(3)	(2)	5	6	7	4

The invariant segments used in *Studio II* are not limited to those shown in the previous example. One of the most remarkable variation techniques of the entire movement is effected not by discrete invariant segments but rather by interlocking hexachordal partitions—that is, the row's isomorphic whole tone partitions, {*02468t*} and {*13579e*}.[25] These isomorphic partitions are musically emphasized in *Studio II* by a dotted-note rhythmic figure (shown in Example 5.38(a)) which persists throughout the orchestral part. Ginastera achieves a sense of variation by juxtaposing "thirds" against "seconds": the soloist's non-serial motivic material is clearly focused on the interval of a third—as the variation's subtitle, *Per le terze*, suggests—and the orchestra's serial material, in contrast, is rhythmically partitioned to project the WT collection.

Example 5.38(b) illustrates the *surrogate* relations among the three row forms of the first reprise.[26] Each line represents the beginning of a new row, and the repeat signs are included to show where P_9 straddles both reprises. The pitch classes of each row are divided by a horizontal line; those above the line represent the first whole tone partition of each row (i.e., {*02468te*}), which is emphasized via the dotted-eighth-note rhythmic motive. Significantly, the rhythmically *de-emphasized* whole-tone partition of R_9, which is shown below the horizontal line, maps onto the *emphasized* partition of the following row, I_7, and the pitch classes maintain the same order (see the arrows in Example 5.38(b)). P_9, as the last row of the reprise, is not merely a retrograde of R_9, but specifically a *surrogate* row form that emphasizes the same WT_1 collection as I_7. The

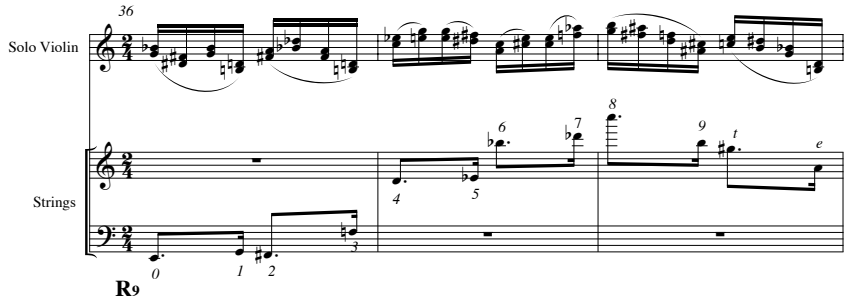
[25] See the summary of the row's isomorphic partitions in Example 5.13 in part I of this chapter.

[26] Whole tone *surrogates* are summarized in Example 5.28 in part I of this chapter.

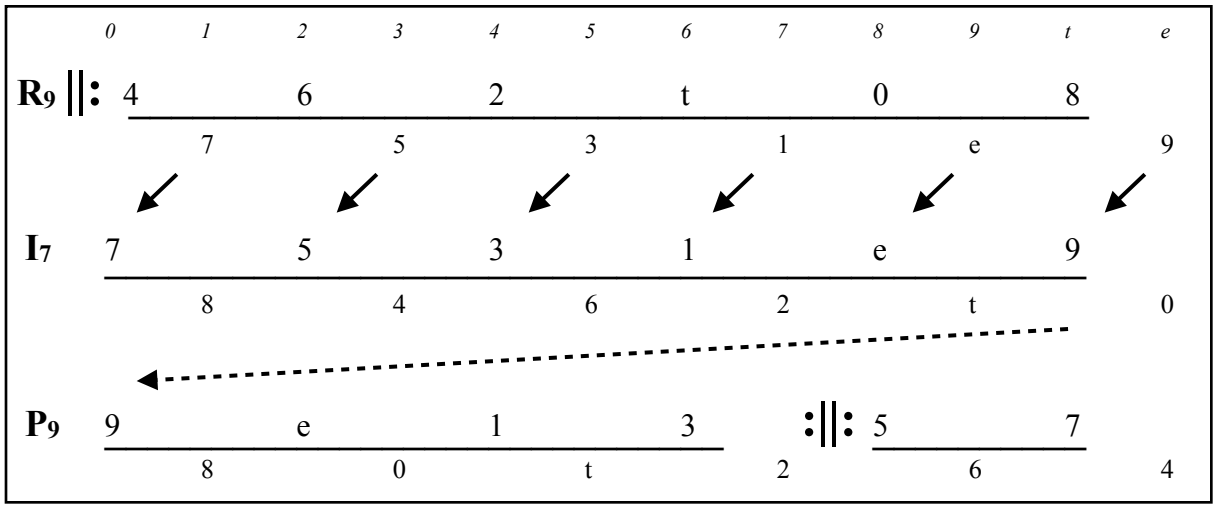
dotted arrow in the example points out that the emphasized whole-tone partition of P_9 is a retrograde of I_7's emphasized partition.[27]

Example 5.38 Isomorphic WT partitions and *surrogate* rows in *Studio II*

(a)



(b)



Like the previous variation, *Studio III* also follows a rounded binary formal plan and incorporates a large-scale T_6 motion that coincides with the recapitulation. Example 5.39(a) is a diagram of the binary form of *Studio III*. The T_6 motion bridges the contrasting middle section (i.e., the beginning of the second reprise) and the return of the primary motivic material.

[27] N.B. The music's middleground structure thus reveals aggregate completion via isomorphic WT partitions: R_9 emphasizes WT_0 and I_7 (along with its *surrogate*, P_9) emphasizes WT_1, thereby completing the aggregate on a more abstract level, over the course of the first reprise.

Ginastera takes advantage of the hexachordal invariance between these two rows by employing only the first hexachord of P_3 (indicated by " " marks), so that the beginning of P_9—and the recapitulation—overlaps with and provides the missing T_6-related hexachord of P_3.

Example 5.39 Binary form and hexachordal invariance in *Studio III – Per gli altri intervalli*

(a)

	a			**b**	**a′**		
mm.	*52*	*54*	*58*	*60*	*64*	*65.5–67*	
‖:	**R_7**	**"P_0"**	**R_5**	:‖: **"P_3"**	**P_9**	**RI_3**	:‖

T_6

(b)

	0	*1*	*2*	*3*	*4*	*5*		*6*	*7*	*8*	*9*	*t*	*e*
"P_3"	3	2	5	6	7	4		(9)	(8)	(e)	(0)	(1)	(t)
							X						
P_9	9	8	e	0	1	t		3	2	5	6	7	4

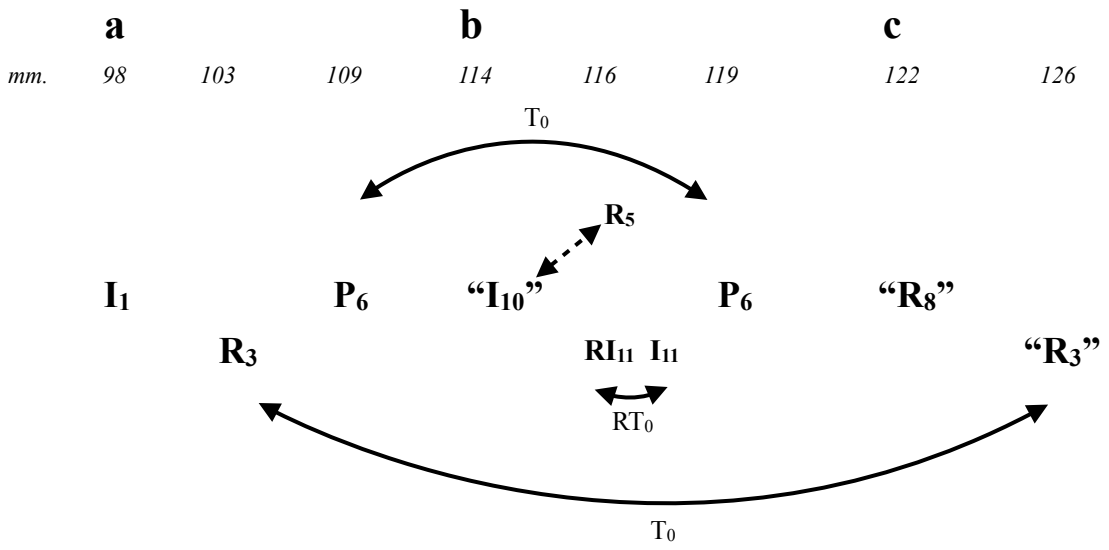
As in the binary variations discussed above, row organization in the concerto's two "slow" variations, *Studi V* and *VI*, is partially determined by hexachordal invariance. Additionally, both *Studi V* and *VI* feature *cluster*-based row *surrogates*—that is, rows that share the same contiguous, chromatic row segments. *Studio V* begins with I_1 and follows a ternary formal plan, shown in Example 5.40(a). Certain recurring row forms help to articulate the main sections of the variation. P_6 closes both the **a** and **b** sections, and R_3 appears in the middle of the **a** section and returns to close the **c** section, albeit with only the first hexachord. Within the central **b** section, Ginastera employs the following two pairs of row *surrogates* that emphasize

segmental invariance: the first pair, RI_{11} and I_{11} are, of course, retrogrades of one another and thus exhibit hexachordal invariance, and the second pair, I_{10} and R_5, exhibit invariant four-note *clusters*.

Example 5.40(b) compares the *cluster* segments of I_{10} and R_5.[28] The incomplete presentation of I_{10} omits the final four members of the row, *cluster* [0123] (shown in parentheses). To account for these missing pitch classes, Ginastera immediately follows I_{10} with a *surrogate* row form, R_5, which has the same *cluster* segments, in the opposite hexachordal position. Moreover, by following an inversional row form with a retrograde row form, Ginastera is able to overlap the *cluster* segments in the most efficient way possible, linking the last discrete tetrachord of the first row with the first discrete tetrachord of the second row.[29]

Example 5.40 Row organization and invariant *clusters* in *Studio V – Per gli armonici*

(a)



[28] I_{10} and R_5 are *surrogates* within the same eight-member *cluster*-based *family*. Their retrograde-inversional relationship maps the respective *cluster* segments of each row onto one another, thus swapping the hexachords in which the *clusters* occur. See the discussion of Example 5.23 in part I of this chapter.

[29] In contrast, following an inversional row form with a prime row form would first have to "bypass" the first {*01*} dyad of the prime row in order to arrive at the invariant *cluster* partition at order-number segment {*2345*}.

(b)

	0	*1*	*2*	*3*	*4*	*5*		*6*	*7*	*8*	*9*	*t*	*e*
I_{10}	t	e	8	7	6	9		4	5	(2)	(1)	(0) 2	(3)
							X						
R_5	0	3	2	1	t	e		6	9	8	7	4	5

Another interesting feature of the ternary form in *Studio V* involves the way in which Ginastera closes the variation. Note that instead of returning to motivic material from the opening **a** section, Ginastera closes the variation unconventionally with new material, labeled **c** in the example above. The T_6 recapitulation that had been such a prominent feature in the binary forms of *Studi II* and *III* (see Examples 5.37(a) and 5.39(a) above) is thus replaced in *Studio V* by a very brief (five measures long) cadential section that emphasizes T_7 instead of T_6. Example 5.41(a) is a reduction of the **c** section. The T_7-related rows in this section, R_8 and R_3, are both represented only by their first hexachords, which are stated harmonically by the orchestral accompaniment. The soloist's material, in keeping with the variation's *Per gli armonici* subtitle, begins with an arpeggiation of sevenths (i10 and i11) and concludes with three double stops, i11, i2, and i11.

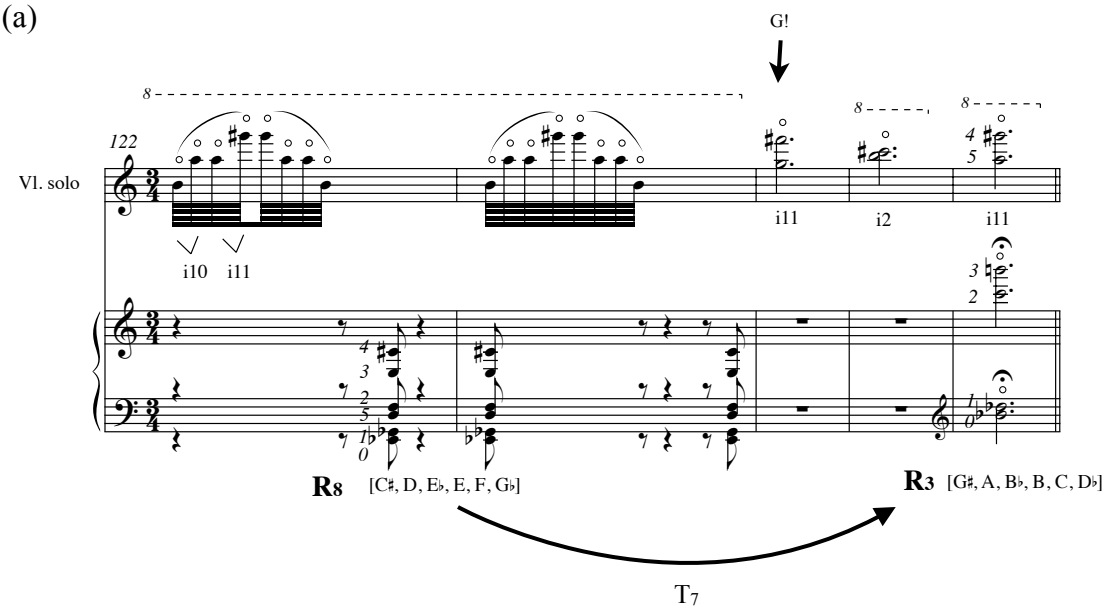
The T_7 relationship between hexachords, as opposed to the hitherto normative T_6 relationship, leaves the aggregate incomplete by one pitch class, G: this pitch class is ultimately provided by the soloist in m. 124 between the orchestra's harmonically presented *cluster* hexachords.[30] T_7 is an interval of transposition consistently at odds with T_6 throughout the Violin Concerto. Ginastera creates a certain amount of tension between the row's T_6-related *cluster*

[30] The remaining pitch classes in the soloist's part are serially derived from both of the accompanimental rows.

hexachords, which are built into the *generated* structure of the row, and the soloist's "open string" motive first presented in the *Cadenza*, which favors transpositional relations by a perfect fifth or fourth, $T_{\pm 5/7}$. The specific tonal level of the hexachordal *clusters* with which Ginastera chose to end *Studio V* is also significant. As an RT_6 transposition of P_2, R_8 is employed as a *surrogate* row form that is hexachordally invariant with the primary row (see Example 5.41(b)). Furthermore, looking ahead to Example 5.42 below, the same hexachord that is H^1 of R_8 (and P_2) in *Studio V*, [123456], appears as the first sonority in following *cluster*-driven variation, *Studio VI – Per i 24 quarti di tono*.

Example 5.41 Hexachordal *clusters* and aggregate completion at the end of *Studio V*

(a)

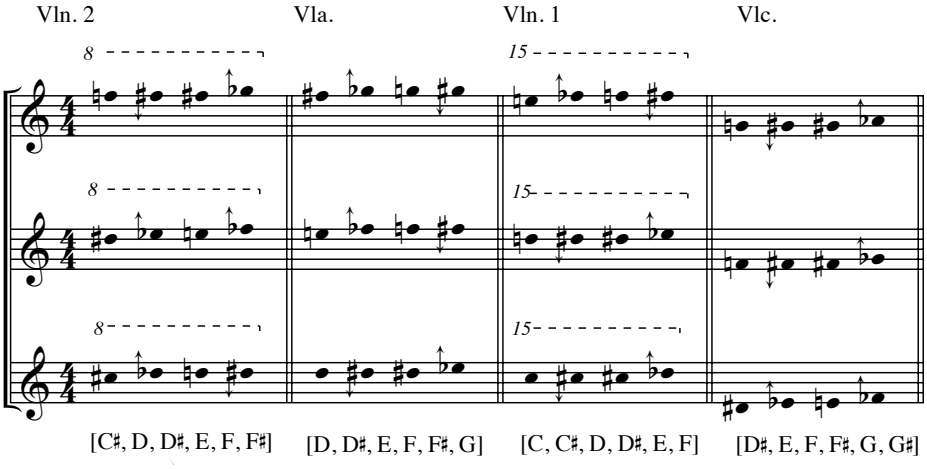


(b)

	0	1	2	3	4	5	6	7	8	9	t	e
R8	3	6	5	4	1	2	9	0	e	t	7	8
P2	2	1	4	5	6	3	8	7	t	e	0	9

The final variation, *Studio VI*, is marked by its generally static, non-developmental phrase structure and intensely chromatic pitch material.[31] The orchestral accompaniment of *Studio VI* (shown in Example 5.42 below) is a sonorous wash of harmonic hexachordal *clusters*, dense with quarter tones, which are assigned to four different "choirs" of strings. The four *clusters* pulsate individually throughout the variation at incredibly complex and unpredictable rhythmic intervals.[32] The content of each *cluster* sonority is shown at the bottom of Example 5.42. The first *cluster* is invariant with the first hexachord of the primary row, P_2, and is thus also invariant with the first hexachord of R_8, which appears at the end of *Studio V* (shown in Example 5.41(a) above). The pitch-class invariance at this formal juncture, between the final two variations of the movement, is a culminating moment in that it suspends the previous variations' rapidly changing row forms and returns to the "tonal" level of the primary row, in preparation for the *Coda*.

Example 5.42 Orchestra's hexachordal *clusters* in *Studio VI – Per i 24 quarti di tono*



[31] In contrast to the other five variations, *Studio VI* has no clear formal plan; in many respects it is reminiscent of Stockhausen's moment form. Its rhythms are irregular and unpredictable and even the soloist's row presentation is extremely angular and improvisatory-sounding.

[32] In stark contrast with the orchestra's accompanimental *clusters*, the soloist's study of quarter tones is effected by the presentation of only one row form, R_1. The *surrogate* status of this row and its relevance to the movement's deeper-level organizational strategies are discussed in more detail below.

Corresponding Networks of Row Relations

The following discussion explores more abstract perspectives of row organization across the entire movement. Certain T_n, I_n, and RT_n relations that appear within a single variation also recur to connect rows from different variations. The networks of row relations shown in Examples 5.43–45 below include, but are not limited to, overarching T_6 and $RT_{\pm 5}$ motion and the use of $I_{(x-1)}$ or $I_{(x+5)}$ *surrogate* row forms. As part I of this chapter discussed, $I_{(x-1)}$-related *surrogates* have invariant dyad *mosaics* and exchange the hexachordal assignment of *cluster* partitions. Alternately, $I_{(x+5)}$-related *surrogates* have invariant dyad *mosaics* and furthermore maintain the positioning of *cluster* partitions.[33]

Examples 5.43(a)–(c) summarize the instances throughout the movement when Ginastera employs $I_{(x-1)}$ and/or $I_{(x+5)}$ *surrogates*. The $I_{(x-1)}$ *surrogate* relation originated at the beginning of the second phase of the *Cadenza*.[34] Example 5.43(a) compares this phase of the *Cadenza* with three rows from the orchestral accompaniment of *Studio I*. Both passages include a second P_x row form that is T_{-3} related to the P_x row involved in the $I_{(x-1)}$ *surrogate* relation. As a variation of the *Cadenza*, *Studio I* varies the order in which the T_{-3} and $I_{(x-1)}$ relationships occur and begins with P_7, which had previously been the last of the three rows in the *Cadenza*. Furthermore, Ginastera specifically employs P_x / $I_{(x-1)}$ *surrogates* in *Studio I* that are T_6 related to those in the *Cadenza*, thereby engaging an even deeper-level *surrogate* relation that varies the hexachordal content between "theme" (*Cadenza*) and "variation" (*Studio I*).[35]

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[33] See the discussion of *cluster*-based *surrogates* in part I of this chapter, especially Example 5.23.

[34] See Example 5.32 above.

[35] The reader will recall that the pitch-class contents of H^1 and H^2 map onto each other at T_6.

Example 5.43(b) illustrates the relationships between the primary row and three inversional row forms from the beginnings of *Studio I – Per gli accordi*, *Studio IV – Per l'arpeggiato*, and *Studio V – Per gli armonici*. Significantly, the row form with which Ginastera begins *Studio I* is an $I_{(x+5)}$ *surrogate* for the primary row. Only two other variations, *Studi IV* and *V*, begin with inversional row forms. *Studio IV*—which is *l'arpeggiato* of *gli accordi* in *Studio I*—begins with I_2, the inversion of the primary row. Immediately thereafter, *Studio V* begins with I_1, marking the "other" $I_{(x-1)}$ *surrogate* of the primary row—that is, the T_6 *surrogate* partner of I_7 featured in *Studio I*. The overarching T_6 motion between *Studio I* and *Studio V* involves large-scale motion first by T_{-5} and then by T_{-1}. These abstract transpositional relationships are embedded within the structure of the row itself and thus serve to reinforce motives that recur throughout the movement—such as the "open strings" motive that emphasizes ic5 gestures, the isomorphic {*0167*} and {*0369*} order-number partitions that emphasize ic6, and *cluster* motives that emphasize "semitonal" inflection by ic1.[36]

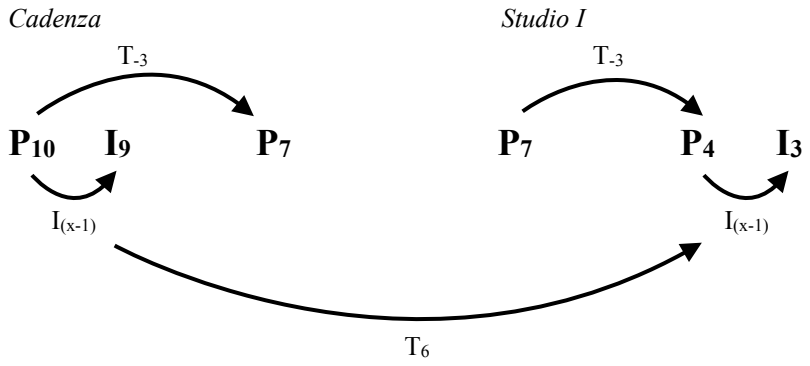
The last two variations, *Studio V* and *VI* (represented in Example 5.43(c)), are linked together in multiple ways. As was previously pointed out, these two variations share the same "slow" tempo and their intersecting formal boundary emphasizes the same hexachordal *cluster*, which is invariant with the primary row. The first row of *Studio V*, I_1, and the only row of the *Studio VI*, R_1 (which is presented melodically by the soloist), are members of the same index-number *family*. More importantly, I_1 and R_1 rows act as *surrogates* for two prominently positioned rows within the *Cadenza*: (1) P_2, the first row of index-number *family* 2 featured in

[36] In addition their numerous recurrences as part of music's tetrachordal motivic structure, each of these three interval classes is also given elevated structural status as an interval of transposition at the very beginning of the concerto: see Example 5.31(b) above, where musically emphasized order-number dyads highlight deeper-level T_6, T_7, and T_{-1} gestures between P_2 and I_2.

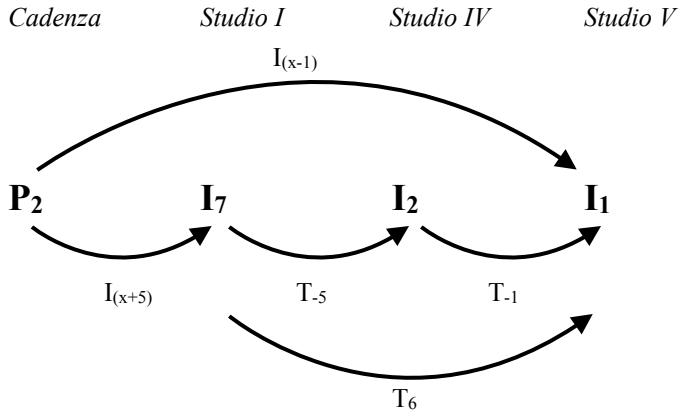
first phase of the *Cadenza* and (2) RI_0, the first row of index-number *family* 0 featured in the third phase of the *Cadenza*. P_2, the primary row, is related by $I_{(x-1)}$ to the row that begins *Studio V*. The same $I_{(x-1)}$ relationship is formed retroactively between R_1 in *Studio VI* and RI_0, which initiated index-number *family* 0 in the third phase of the *Cadenza*.

Example 5.43 $I_{(x-1)}$ and $I_{(x+5)}$ *surrogate* row forms

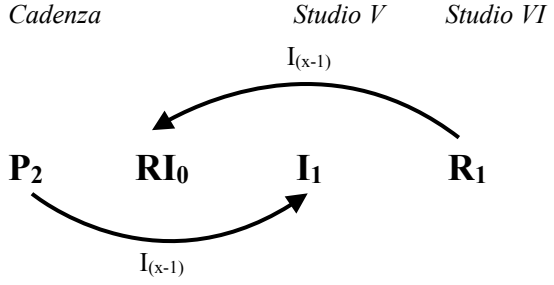
(a)



(b)



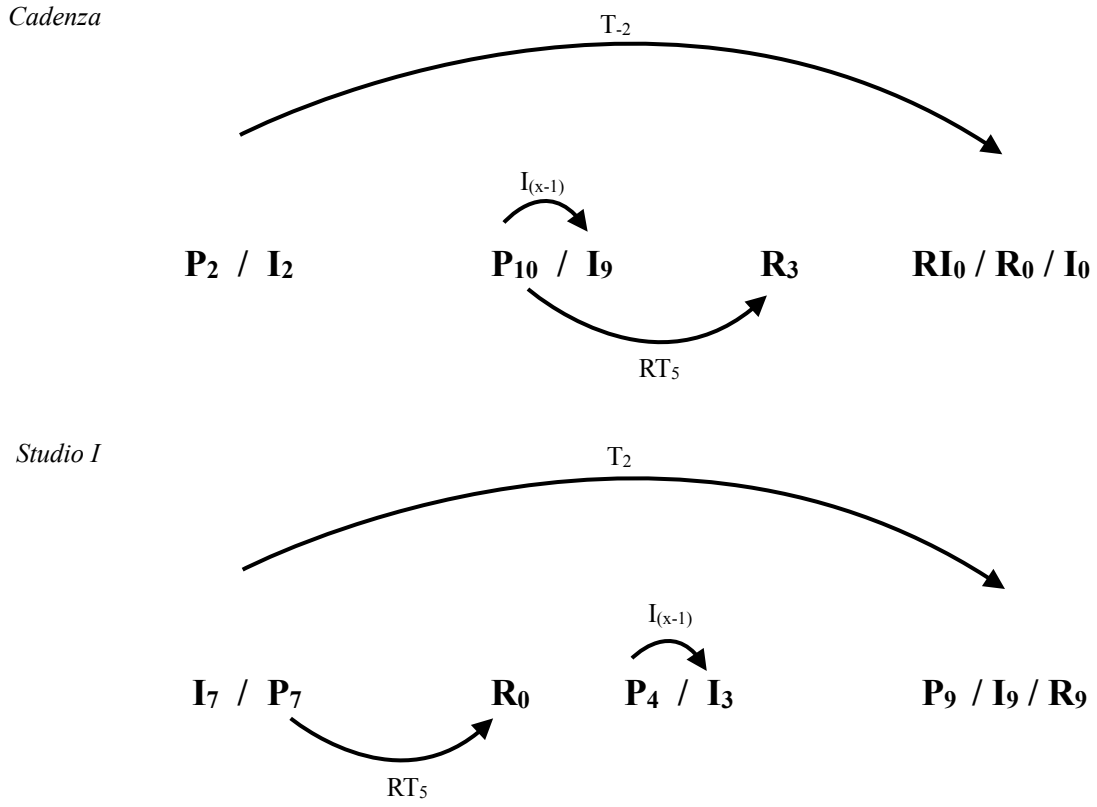
(c)



The variation with the most row-organizational correspondences to the *Cadenza* is *Studio I*. Example 5.44 compares the network of relationships spanning prominent rows in the first three phases of the *Cadenza* with those spanning all of the rows in *Studio I*. In keeping with the variation form, the most fundamental characteristics of the network remain the same from the *Cadenza* to *Studio I*, but the realization of these characteristics changes slightly. Both networks begin and end with an index-number *family* and these *families* emphasize a large-scale T_{-2} relationship in the *Cadenza* and a large-scale T_2 relationship in the first variation.[37] Additionally, both networks also include an adjacent R_x row form that is RT_5-related to a prior P_x row form: in the *Cadenza* this R_x row form appears after the P_x / $I_{(x-1)}$ *surrogate* row pair and in *Studio I* its position is varied to appear before the *surrogate* pair.

[37] Interestingly, because the relationship between index-number *families* changes from T_2 to T_{-2} within either section, the entire set of four index-number families ends up expressing two large-scale T_7 relations between both sections—which contrasts with the more common-place T_6 relation connecting other formal sections in the concerto. These transpositional relations occur when the 0 *family* that ends the *Cadenza* spans T_7 to the 7 *family* that begins *Studio I* and the primary 2 *family* that begins the concerto spans T_7 to the 9 *family* that ends *Studio I*.

Example 5.44 Comparison of row relations in the *Cadenza* and *Studio I*



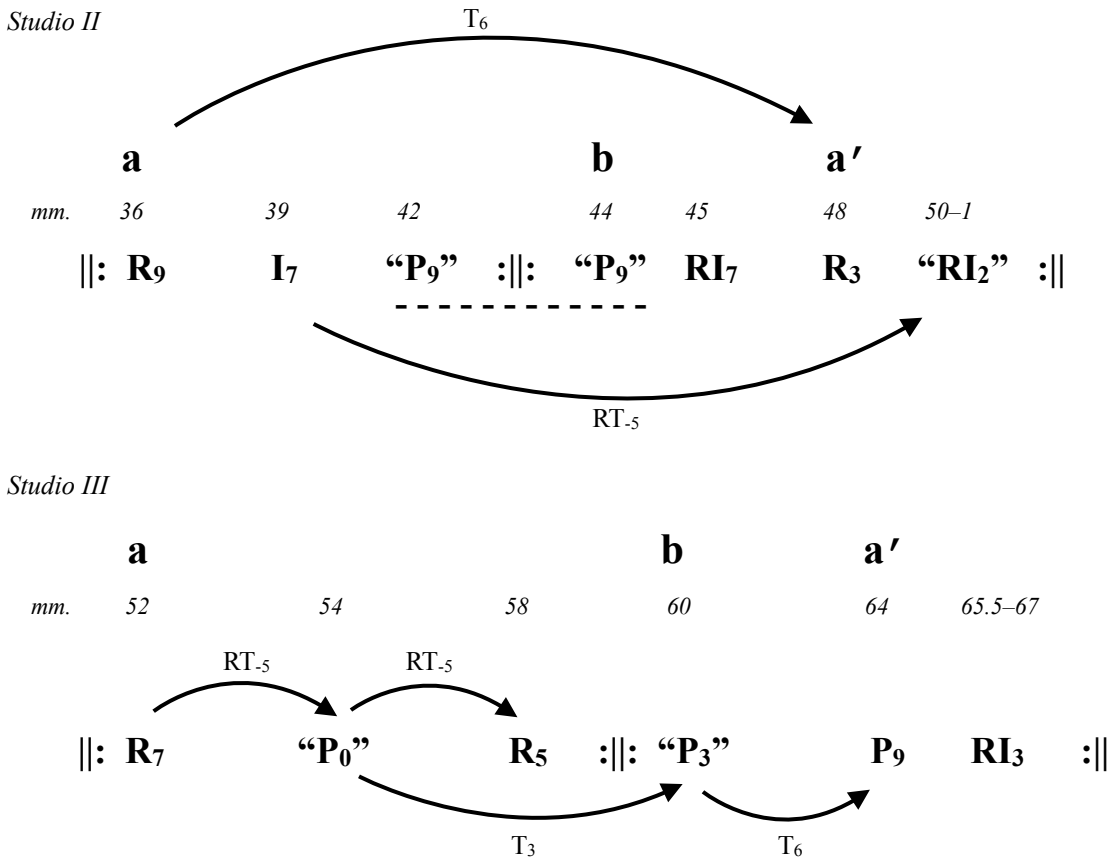
$RT_{\pm 5}$ relations also play a significant role in the "binary-form" variations, *Studi II* and *III*. Example 5.45(a) illustrates the rounded-binary formal plans of both variations, which involve T_6 motion at the point of recapitulation.[38] In *Studio II*, the first reprise includes two complete row forms, R_9 and I_7, and the first eight members of P_9 (the remainder of which straddles both reprises). Of the two complete rows, the first, R_9, maps onto the first row of the recapitulation, R_3, at T_6 and the second, I_7, maps onto the second (incomplete) row of the recapitulation, RI_2, at RT_{-5}. In *Studio III*, the recapitulation process is different, yet still organized in a manner that articulates subtle variation and not radical change. Instead of spanning both reprises, the T_6 and RT_{-5} relations in *Studio III* are contained within either reprises and among adjacent row forms:

[38] See the discussion of Examples 5.37(a) and 5.39(a) above.

the first three row forms of the first reprise form successive RT_{-5} relations and the recapitulation marks T_6 motion from the contrasting **b** section. Interestingly, the only incomplete rows in *Studio III* are prime row forms and they are related by T_3, which is reminiscent of the T_{-3} row relations featured in the *Cadenza* and *Studio I* (shown in Example 5.43(a) above).[39]

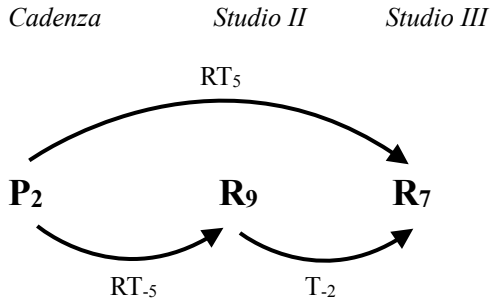
Example 5.45 $RT_{\pm 5}$ relations in the binary forms of *Studio II* and *III*

(a)



[39] One can also think of the P_3 and P_9 in the second reprise of *Studio III* as $T_{\pm 3}$ transformations of P_0 presented in the first reprise: the **b** section's P_3 is T_3 related to P_0 and the recapitulation's P_9 is T_{-3} related to P_0. The three P_x row forms in *Studio III* are thus members of a three-member *family* of *surrogates* that share the invariant isomorphic partition {*0369*}; more specifically, $P_{0/3/6/9}$ all maintain pitch-class set [0369] at order-number partition {*0369*}. See the discussion of Example 5.22 in part I of this chapter.

(b)



Finally, Example 5.45(b) above shows the abstract trajectory of the primary row as it relates to the R_x row forms that begin *Studi II* and *III*. RT_{-5} relates P_2 to R_9 at the beginning of *Studio II* and RT_5 relates P_2 to R_7 at the beginning of *Studio III*. R_9 and R_7 are thus T_{-2} related to one another, which reiterates, on a much deeper level and more abstract scale, the same transpositional relationship between index-number *families* featured in both the *Cadenza* and *Studio I* (see Example 5.44 above).

Mappings of Isomorphic Partitions

Pitch-class/order-number isomorphisms are integral to the twelve-tone language of Ginastera's Violin Concerto. Among their many impactful roles is the ability of isomorphic partitions to create *surrogate* relations among multiple row forms. Within a given musical context, each row form has at least one active and one inactive order-number partition. Active partitions are those that display some sort of musical emphasis (e.g., registral, dynamic, durational, timbral, etc.).[40] In contrast, inactive partitions are de-emphasized musically; however, these partitions are oftentimes equally as significant as their active counterparts because they tend to map onto the active partitions of subsequent row forms. Over the course of their

[40] Active partitions in the first and second phases of the *Cadenza*, for instance, are shown in Examples 5.31–32.

mappings—and despite whether these isomorphic partitions maintain their order-number position or exchange position with another isomorphic partition—the specific pitch classes that occupy a given partition tend to influence both the local-level succession of row forms and the more abstract, global-level organization of row forms.

Example 5.46 summarizes the *surrogate* row forms of the primary row, P_2, as they appear throughout the first movement. Specifically, the *surrogates* included in the example are those that hold invariant the pitch-class contents of the concerto's three most prominent isomorphic order-number partitions, {*0369*}, {*0167*}, and {*056e*}.[41] At least one *surrogate* is present in four of the six *Studi* and, significantly, all row types are represented. The pitch-class sets indicated in bold are those that appear musically activated in that particular section. Pitch-class set [258e], which is the most musically emphasized partition in the *Cadenza*, is only activated again at the end of *Studio III*, where it maps onto {*0167*} of RI_3.[42] The pitch-class contents of the inactive partitions in the *Cadenza*, [1278] and [2389], are both activated by the soloist's entrance with RI_9 in *Studio I* and at this moment [258e] moves to the now inactive {*0167*} partition.[43] [2389] is activated once more at the beginning of *Studio III*, where it appears as {*0369*} of R_7. [1278] is

[41] These partitions form pitch-class/order-number isomorphisms within all P_x and I_x row forms, but the reader should take note that only order-number partition {*056e*} forms an isomorphism in R_x and RI_x row forms. The other two order-number partitions "exchange" contents within retrograde row forms so that set class (0167) occurs at {*0369*} and (0369) occurs and {*0167*}. See the discussion of Example 5.13(c) in part I of this chapter.

[42] Surprisingly, the most frequently activated (0369) collection in the six variations is not that which derives from the primary row, [258e], but rather [147t], which is first emphasized at the climax in the second phase of the *Cadenza* as order-number partition {*0167*} of R_6 (see Example 5.32) and then recurs as {*0167*} of "RI_2" at the final cadence of *Studio II* (see Example 5.37(b)).

[43] [1278] and [2389] are each activated two more times in addition to those shown in Example 5.46. These other instances, however, involve row forms whose three isomorphic partitions are not all invariant with those of P_2. [1278] is activated by {*056e*} of P_7 in the *Cadenza* and again by {*0167*} of I_7, which is presented by the orchestra at the beginning of *Studio I*. [2389] is activated by {*056e*} of I_9 at the end of *Studio I* and is then activated in *Studio V* by the unusual partition, {*45te*} of R_3—which is essentially equivalent to {*0167*} of P_3.

activated twice more as {*056e*} of I_2, the only row in *Studio IV*, and {*056e*} of R_1, the only row in *Studio VI*.

Example 5.46 *Surrogates* for P_2 involving mappings of {*0369*}, {*0167*}, and {*056e*}

	Cadenza		*Studio I*	*Studio III*		*Studio IV*	*Studio VI*
	P_2	**I_2**	**RI_9***	**R_7**	**RI_3**	**I_2**	**R_1**
{*0369*}	**258e**	**2e85**	**2187**	**2389**	8721	2e85	8721
{*0167*}	2187	2389	2e85	258e	**852e**	2389	8e25
{*056e*}	2389	2187	**2389**	2187	8923	**2187**	**8721**

* Harmonic presentation may also be interpreted as P_2

Example 5.47 shown below includes the first (and in some cases only) row forms of five of the six variations. T_6 arrows indicate the correspondences between I_7 and I_1 in *Studi I* and *V* and R_7 and R_1 in *Studi III* and *VI*.[44] With regards to the latter relationship, {*0369*} of R_7 and {*056e*} of R_1 are significant in that they respectively activate the two previously inactive partitions of the primary row, [2389] and [1278]. [1278] is unique as it consistently represents an isomorphic order-number partition, mapping only between {*0167*} and {*056e*} of the various row forms. Contrastingly, [2389] is only activated by an "exchange" mapping onto the {*0369*} partition of R_7 in *Studio III*, thus projecting a large-scale RT_5 relation with the primary row, P_2.

[44] N.B. *Studio I* begins with the orchestra's presentation of I_7 (not shown in the previous example) and *Studio V* is included to show the de-activation of [1278] from its previously active status in *Studio I*.

Example 5.47 Inactive partitions of P_2 made active by *surrogates* at the beginnings of *Studi*

	Cadenza	*Studio I*	*Studio III*	*Studio IV*	*Studio V*	*Studio VI*
	P_2	**I_7**	**R_7**	**I_2**	**I_1**	**R_1**
{0369}	**258e**		**2389**			
{0167}	2187	**7812**	$\xrightarrow{T_6}$		1278	
{056e}	2389			**2187**		**8712**

RT_5 T_6

Lastly, Example 5.48 summarizes the activation of order-number partition {*0167*} within $P_x/I_{(x-1)}$ *surrogate* row pairs, which are featured in the *Cadenza* and the first two variations. As the previous section concluded, $I_{(x-1)}$ is a structurally significant *surrogate* relation in the Violin Concerto; it first appears in the second phase of the *Cadenza* and recurs at different levels of abstraction throughout the movement.[45] In Example 5.48 the first $P_x/I_{(x-1)}$ row pair in the *Cadenza*, P_{10} and I_9, activates [349t] at order-number partition {*0167*}; meanwhile, the isomorphic {*0369*} partition of P_{10}, [147t], lies musically inactive in this passage.[46] Interestingly, the two other occasions involving the immediate succession of $P_x/I_{(x-1)}$ row pairs—which occur in *Studi I* and *II*—activate both [349t] and [147t] from the original P_{10} row and thus ensure pitch-class invariance among prominent motivic partitions between the the *Cadenza* and the first two variations. P_4 and I_3 in *Studio I* are the T_6 counterparts to P_{10} and I_9 in the *Cadenza*; as such, they maintain the exact same profiles of isomorphic partitions, including the active [349t] partition. The last two rows of *Studio II*, R_3 and "RI_2", are RT_5-related to the original pair in the *Cadenza*;

[45] See Example 5.43 for a summary of $I_{(x-1)/(x+5)}$ *surrogate* row forms.

[46] [147t] is shortly thereafter activated by an "exchange" mapping to *{0167}* of R_6, which forms the climax of the *Cadenza*'s second phase; see the discussion of Example 5.32 and the additional commentary in note 42 above.

thus, the end of *Studio II* "exchanges" and activates [147t] as order-number partition {*0167*}, where previously it appeared as the inactive {*0369*} partition of P_{10}.

Example 5.48 Phase 2 of the *Cadenza* compared with *Studio I* (phrase 2) and *Studio II* (recap)

	Cadenza		*Studio I*		*Studio II*	
	P_{10}	**I_9**	**P_4**	**I_3**	**R_3**	**"RI_2"**
{0369}	t147	9630	47t1	3096	te45	7610
{0167}	**t943**	**9t34**	**439t**	**349t**	**t147**	**741t**
{056e}	te45	9832	45te	3298	t943	7812

T_6

RT_5

Variation Techniques of Studio Pairs

The final portion of this chapter investigates the variation techniques Ginastera employs in the six *Studi*—that is, the specific techniques that drive each "study." The discussion proceeds in three parts based on the shared techniques of variation pairs. (1) *Studi I* and *IV* are paired together because they respectively involve chords and arpeggios and furthermore because they involve the same active isomorphic partitions. (2) *Studi II* and *III* are paired together because, in addition to being the only binary-form variations, both involve interval patterns that systematically coalesce to compose-out the octatonic collection and/or complete the aggregate. (3) Lastly, *Studi V* and *VI* are paired together because both rely upon the projection of *cluster* partitions to create their respective variation narratives.

Studi I and IV: Chords and Arpeggios

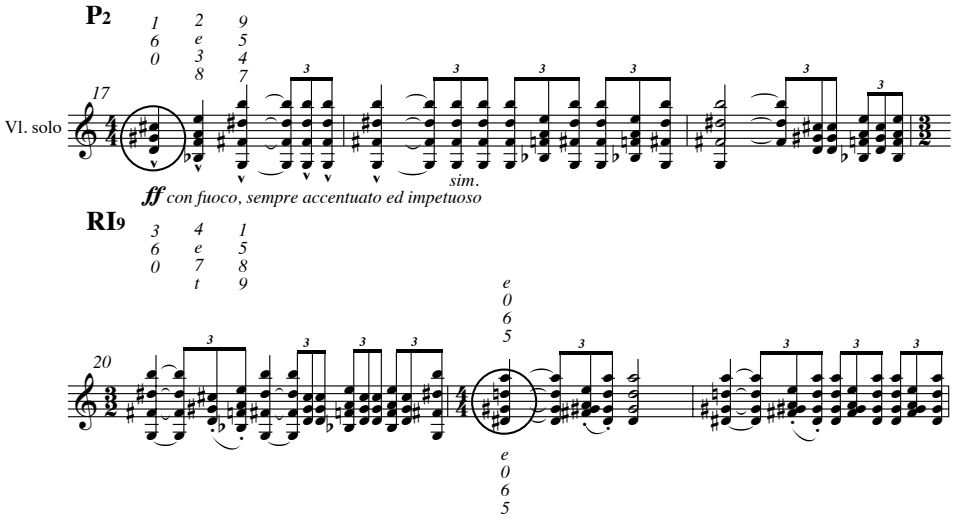
The "chords" in *Studio I – Per gli accordi* and the "arpeggios" in *Studio IV – Per l'arpeggiato* together participate in a single variation strategy; specifically, the soloist's pitch materials in both variations activate the same isomorphic partitions but vary the pitch-class contents therein. Following the *Cadenza*, the soloist drops out of the texture momentarily and Example 5.49(a) shows the soloist's re-entry, marked ***ff*** *con fuoco, sempre accentuato ed impetuoso*, midway through *Studio I*. The order-number presentation is ambiguous, thus the example shows an interpretation of P_2 above and RI_9 below.[47] Considering only the three prominent isomorphic order-number partitions—{*0369*}, {*0167*}, and {*056e*}—RI_9 is a *surrogate* for the primary row, P_2. This *surrogate* relationship is summarized in Example 5.49(b).[48] The soloist's first sonority in Example 5.49(a), a (016) trichord, is reiterated several times in mm. 19–20 and is a subset consistent with both {*0167*} of P_2 and {*0369*} of RI_9. The soloist's final repeated chord is circled in m. 21 and emphasizes the one invariant order-number partition between both rows, {*056e*}.

[47] Fobes (1998) does not address this passage in his analysis; he focuses only on the orchestral beginning of the variation, which is more clearly ordered. Much of Fobes's analytical commentary suggests that the soloist's material in *Studio I* is entirely non-serial. It is the position of this study, however, that given the preponderance of contextually emphasized pitch-class/order-number isomorphic partitions throughout the concerto, the soloist's material in *Studio I* is at the very least serially derived despite the ambiguity of its order numbers.

[48] N.B. RI_9 has a unique relationship to the primary row: not only are the isomorphic partitions of RI_9 invariant with those of P_2, but, despite the "exchange" of contents between {*0369*} and {*0167*} in either row, the pitch classes within these partitions also appear in the same order—<2, 1, 8, 7> and <2, 3, 8, 9>.

Example 5.49 Soloist's entry in *Studio I – Per gli accordi* (mm. 17–20)

(a)



(b)

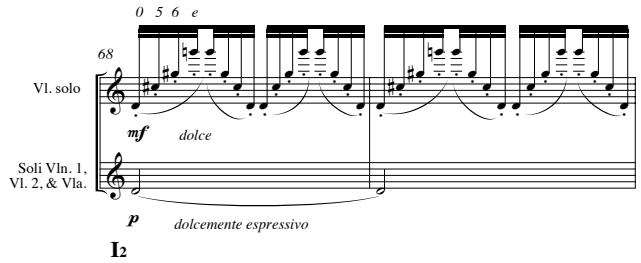
	0	1	2	3	4	5	6	7	8	9	t	e
P2	2	1	4	5	6	3	8	7	t	e	0	9
RI9	2	e	0	1	4	3	8	5	6	7	t	9

In *Studio IV*, Ginastera uses a different *surrogate* row form, I_2, in order to emphasize the same pitch-class partitions as in *Studio I*. The result is a "variation on a variation." The chords of the first variation become arpeggios in the fourth variation, but the pitch-class contents remain the same. The soloist's first arpeggio, [1278], is shown in Example 5.50(a). Although it is not shown below, the soloist returns to this arpeggio in mm. 88 and repeats it *molto volte* (according to Ginastera's instructions) for the remainder of the variation. Given the orchestra's presentation of I_2 over the course of the variation, the soloist's arpeggiation of [1278] activates order-number partition {*056e*}—the same order-number partition emphasized in the final chord of *Studio I* (see Example 5.49(a)).

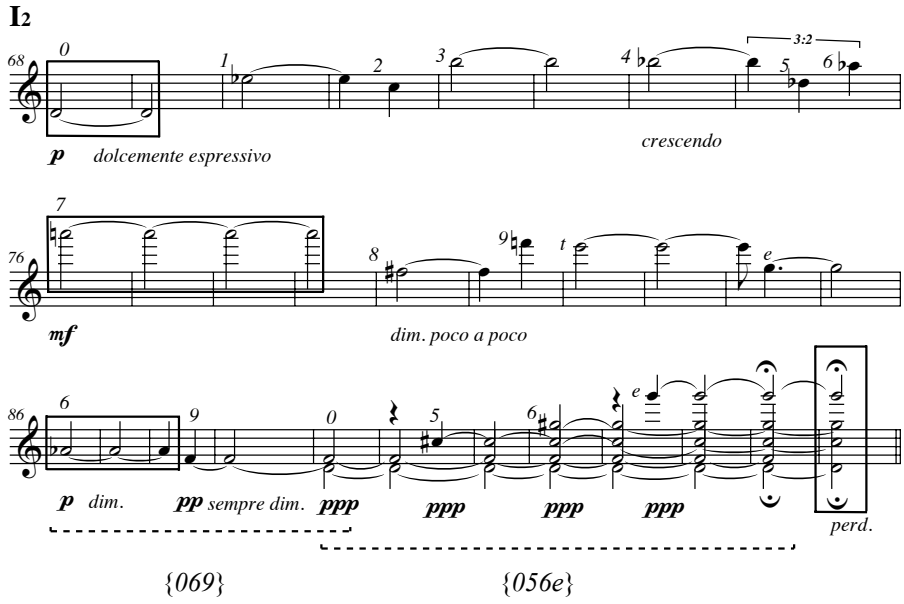
Example 5.50(b) shows the orchestra's unison presentation of I_2, which unfolds in three phases. The first phase ascends from the first and lowest pitch, order number *0*, and climaxes at the onset of the second phase, which descends from the highest and longest pitch, order number *7*. After all twelve members of the row have appeared, the third phase centers around two gestures, descending minor thirds—formed by the isomorphic order-number partition {*069*}, a subset of {*0369*}—and an ascending presentation of [1278]—formed by the isomorphic order-number partition {*056e*}. Thus, as the soloist's first arpeggio immediately activates {*056e*} at the beginning of *Studio IV*, the orchestra's specific melodic contour and registral projection of certain order numbers gradually activate {*0167*}, {0369}, and {*056e*} over the course of the entire variation.

Example 5.50 *Studio IV – Per l'arpeggiato* featuring soloist's arpeggios and I_2 in the orchestra

(a)



(b)



Example 5.51 summarizes the variation techniques shared by *Studi I* and *IV*. The example shows the active (highlighted in bold) and inactive partitions in both *Studi* and also includes those partitions found at the beginning of the sections preceding each variation—that is, the *Cadenza* and *Studio III*. Significantly, the *surrogate* relationships are not limited to RI_9 and I_2 in *Studi I* and *IV*; they also include prominent row forms before either variation, P_2 and R_7, and highlight identical strategies for activating partitions. Between the *Cadenza* and *Studio I*, the active {*0369*} partition of P_2 maps onto the inactive {*0167*} partition of RI_9, while simultaneously the inactive {*0167*} partition of P_2 is activated when it maps onto {*0369*} of RI_9. Meanwhile, the {*056e*} partition between both rows is held invariant and only activated in *Studio I*. The same partition mapping scheme takes place between *Studi III* and *IV*. In keeping with the nature of variation form, Ginastera subtly alters the second appearance of the mappings in two ways: (1) *Studi I* and *IV* activate the same pitch-class sets, but these sets emerge from different

order-number partitions; and (2) I_2 in *Studio IV* (unlike RI_9 in *Studio I*) activates all three partitions, which in the context of an I_x row form are all isomorphic.

Example 5.51 Variation techniques common to both *Studi I* and *IV*

	Cadenza		*Studio I*	*Studio III*		*Studio IV*
	P_2		**RI_9**	**R_7**		**I_2**
{0369}	**258e**		**2187**	**2389**		**2e85**
		X			X	
{0167}	2187		2e85	258e		**2389**
{056e}	2389	----▶	**2389**	2187	----▶	**2187**

Studi II and III: Interval Patterns

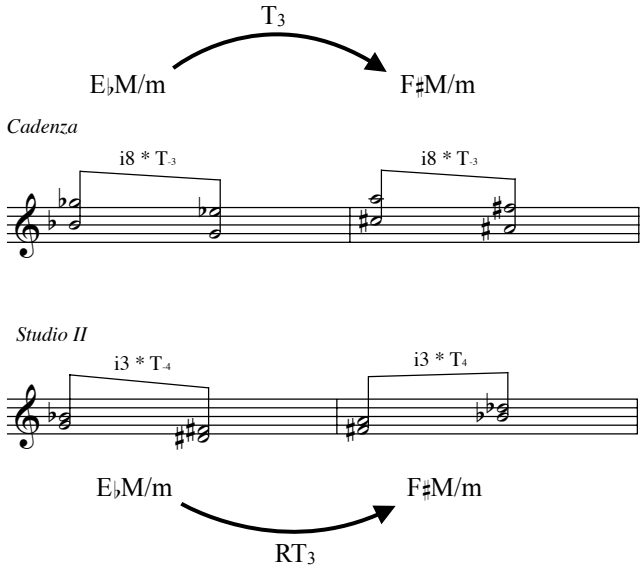
The beginning of this chapter noted that *Studio II – Per le terze* and *Studio III – Per gli altri intervalli* are conceptually paired together because they share a common tempo and both follow a clear rounded-binary formal plan.[49] Their mutually exclusive subtitles—"thirds" and "other intervals"—also suggest that the pitch materials in these variation may be connected in some way. Indeed, both variations feature interval patterns and variations of these patterns as their primary compositional strategy. Interval patterns were first featured motivically at the end of the second phase of the *Cadenza* and throughout the fourth phase.[50] In both phases, Ginastera uses these interval patterns to locally emphasize certain tetrachordal classes—such as (0347), (0369), and (0167)—and also compose-out larger collections over longer spans—such as the octatonic, the 8-note, and the aggregate.

[49] See the large-scale formal organization of the entire movement in Example 5.29.

[50] See Examples 5.32(a) and 5.34.

Example 5.52 shows a comparison between the primary interval pattern in the last phase of the *Cadenza* and the first interval pattern at the beginning of *Studio II*. In the *Cadenza*, tremolo figures of minor sixths (i8) oscillate by T_{-3}, forming (0347) tetrachords which are labeled according to the "major-minor" triads they imply: E♭ "major-minor" is transposed by T_3 to F♯ "major-minor" and thus partially completes $OCT_{0,1}$, save for pitch classes C and E. The entire process is varied in *Studio II*, shown at the bottom of Example 5.52, but the broader outcome is the same: the new interval pattern is reversed so that minor thirds (i3) oscillate by T_{-4} and the same "major-minor" (0347) tetrachords now unfold via RT_3.

Example 5.52 *Studio II – Per le terze* formations of (0347) and $OCT_{0,1}$

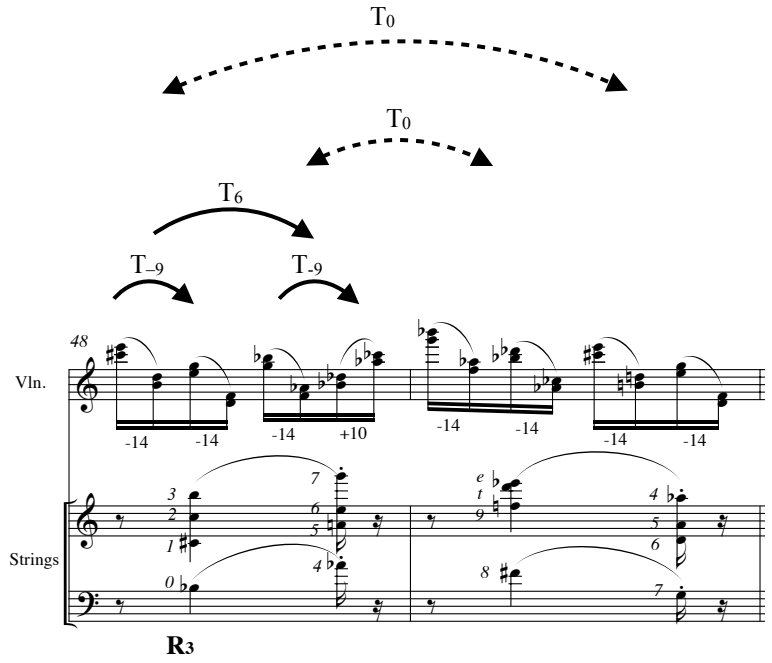


In the recapitulation of *Studio II*, the interval pattern is varied once more. Here, adjacent minor thirds moving in the pattern i3 * T_{-2} form a different octatonic subset, (0235) instead of (0347). Example 5.53(a) shows how each (0235) tetrachord is subjected to its own transposition within the larger pattern. T_{-9} motion between eighth-note values (i.e., between (0235)

tetrachords) and T_6 motion between quarter-notes values enable Ginastera to now complete $OCT_{1,2}$.[51] Simultaneously, R_3 is presented by the orchestra and Example 5.53(b) illustrates which partitions of the row are activated by the soloist's interval pattern. The first dyad in every slurred sixteenth-note pair of the soloist's part activate order-number partition {*0167*}, that is, pitch-class set [147t] of R_3. The entire interval pattern, including the sixteenth-note offbeats, subsequently activates order-number partition {*0134679t*}, which forms an isomorphism with the pitch-classes of the octatonic collection in any R_x row form.[52]

Example 5.53 Varied interval patterns in the recapitulation of *Studio II* (mm. 48–49)

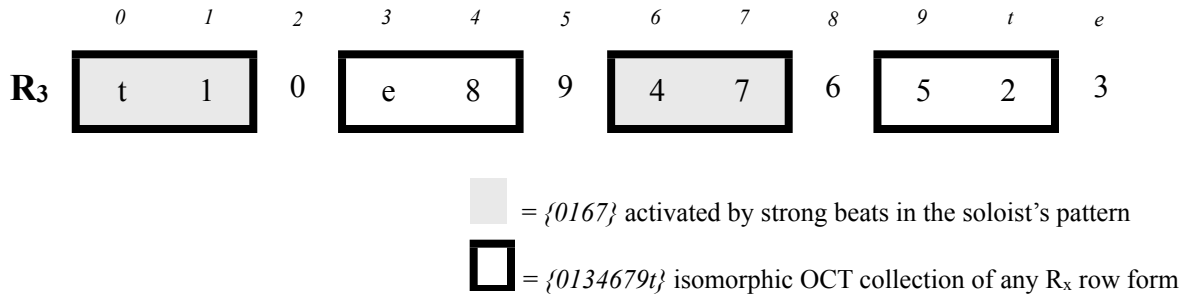
(a) ♪ = i3 * T_{-2} = (0235), ♩ = 6-Z23 (023568), 𝅗𝅥 = $OCT_{1,2}$



[51] The octatonic collection is stated once in each measure, as the pattern in m. 48 repeats itself in m. 49 with the hexachords (i.e., quarter-note values) swapped; see the T_0 dotted-arrows at the top of the example.

[52] The emergence of the OCT collection given the extraction of the row's only (0369)-isomorphic order-number partition—that is, order numbers {*0369*} of P_x and I_x row forms and {*258e*} of R_x and RI_x row forms—is explained in the discussion of Examples 5.14(b) and 5.17(a) in part I of this chapter.

(b)



As Ginastera's subtitle suggests, *Studio III – Per gli altri intervalli* features all of the "other" intervals in contrast to the "third" interval featured in *Studio II – Per le terze*. Significantly, the "third" is never entirely eliminated from the compositional design of *Studio III*, but instead emerges from different levels of the music's structure and at varying degrees of abstraction. Example 5.54 shows six different interval patterns, the first four of which appear in immediate succession in the first reprise of *Studio III* and the last two of which appear in the recapitulation. The top of each example summarizes the collections composed-out by each interval pattern and, when applicable, indicates the rhythmic level at which the collection unfolds. In Example 5.54(a) the soloist's pattern emphasizes the interval of a perfect fifth (i7) on every strong sixteenth note.[53] Together with the unaccented singleton, each eight-note rhythmic value composes-out a (015) trichord.[54] Within each measure the pattern transposes every (015) by T_6 and between the two measures the pattern is transposed by T_7, thereby completing the 8-note collection in each measure and nearly completing the aggregate (except for pitch classes C and F♯/G♭) across the entire pattern.

[53] Not surprisingly, the first i7 in each measure—{D, A} and {A, E}—accentuates part of the recurring "open strings" motive; see the emphasis on these three pitch classes in particular in the soloist's opening presentation of P_2 and I_2, shown in Example 5.31.

[54] The "thirds" in this pattern appear as major thirds (i4) that ascend in the uppermost register of the first half of both measures and descend in the lowermost register of the second half of both measures.

Examples 5.54(b), (c), and (d) each compose-out one or more octatonic collections and together complete the aggregate. Example (b) shows the first of two measures that compose-out $OCT_{0,1}$. The primary interval in this pattern is the minor third (i3): it is outlined melodically via the singletons in the pattern and harmonically via the dyads. The eighth-note rhythmic values emphasize (014) trichords and the successive T_3 transpositions of this trichord complete the octatonic. Example (c) is also two measures long but composes-out two different octatonic collections, one in each measure. Each quarter-note value features i8 * T_{-3} oscillation, which, like the original pattern in the *Cadenza* (shown in Example 5.52), composes-out (0347) tetrachords. The tetrachords within either measure are related by T_{-6}, completing $OCT_{0,1}$ in m. 56 and $OCT_{1,2}$ in m. 57.[55] The final pattern of the first reprise, shown in example (d), is slightly more complex but nonetheless composes-out $OCT_{2,3}$ in each measure. The pattern relies on two intervals, ic1 and i7. In the first measure the ic1 dyads are realized as i11s and move by T_3, and in the second measure the same pitch classes are registrally inverted and spelled as i13s. Throughout the pattern, the i7 dyads act as pedals about which the ic1 dyads rapidly ascend in register.[56]

The interval patterns shown in Examples 5.54(e) and (f) appear in the recapitulation of *Studio III*. Both involve i11, which moves by T_{-6} in example (e) and by T_{-3} in example (f). In example (e) the i11 * T_{-6} motion composes-out set-class (0167), the pitch-class contents of which are consistent with the isomorphic order-number partition {*056e*} of P_9—the row simultaneously presented by the orchestra upon the recapitulation.[57] Finally, in the last measure of the variation,

---

[55] The overarching T_{-2} motion in this pattern creates a large-scale voice-exchange of sorts in which the pitch classes of the lower registral voice in m. 56, [147t], become those of the higher registral voice in m. 57.

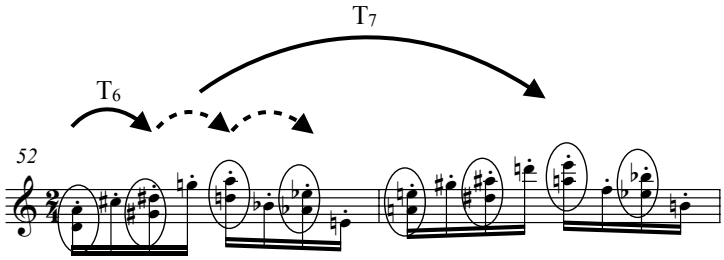
[56] As in Example 5.54(a), these i7 dyads—{D, A} and {G, D}—also emphasize the "open strings" motive and together both patterns account for all four pitch classes.

[57] See Example 5.39.

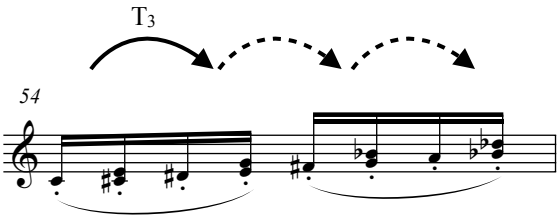
shown in example (f), an i11 * T_{-3} pattern composes-out $OCT_{1,2}$. When considered together, the patterns in examples (e) and (f) complete the aggregate except for one pitch-class, F♯/G♭.

Example 5.54 Soloist's multiple interval patterns in *Studio III – Per gli altri intervalli*

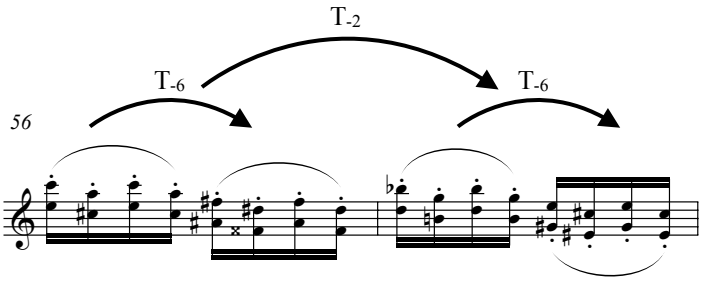
(a) ♪ = (015), 𝅗𝅥 = 8-note, 𝅗𝅥 + 𝅗𝅥 = aggregate minus 0/6



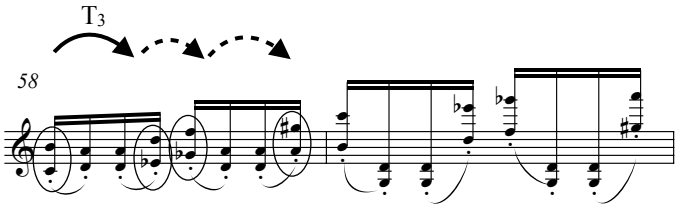
(b) ♪ = (014), 𝅗𝅥 = $OCT_{0,1}$



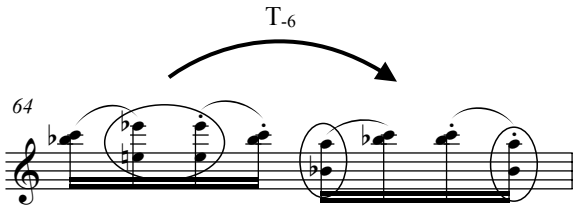
(c) ♩ = i8 * T_{-3} = (0347), 𝅗𝅥 = OCT, 𝅗𝅥 + 𝅗𝅥 = aggregate



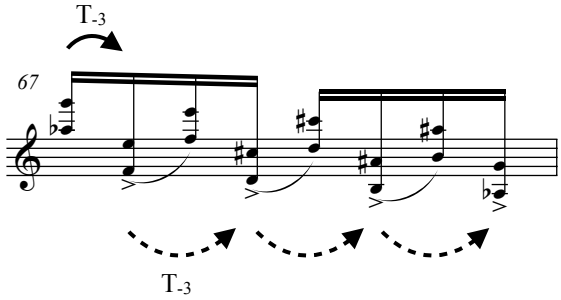
(d) ic1 * T_3, 𝅗𝅥 = $OCT_{2,3}$



(e) i11 * T_{-6} = (0167) / {*056e*} of P_9



(f) i11 * T_{-3}, 𝅗𝅥 = $OCT_{1,2}$



Studi V and VI: Cluster Partitions

The variation strategies featured in the final two "slow variations," *Studi V* and *VI*, are similar in that both involve chromatic *clusters*. In *Studio V – Per gli armonici* these *clusters* originate from four-note partitions of the various row forms and create invariances across the variation's ternary form. Alternately, the primary *clusters* used in *Studio VI – Per i 24 quarti di tono* appear as hexachordal segments, which are harmonically presented and include quarter tones. The significance of the *clusters* presented in *Studio VI* is thus not determined by the specific rows from which they derive but rather by the broader *surrogate* relations they imply. These *surrogate* relations exist locally between rows in *Studi V* and *VI* and more globally among rows throughout the movement.

Example 5.55 shows the *surrogate* relation between I_1, the first row of *Studio V*, and R_1, the first and only row presented by the soloist in *Studio VI*. I_1 forms the familiar P_x / $I_{(x-1)}$

surrogate relation with the primary row, P_2, and thus preserves isomorphic order-number partition {*0167*} (shown in gray).[58] The pitch classes representing {*0167*} of I_1 ultimately map onto {*056e*} of R_1 at the start of Variation *VI* and the three-note *cluster* segments of I_1 shift leftwards in R_1.[59]

Example 5.55 Invariant three-note *clusters* between the first row forms of *Studi V* and *VI*

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
I_1	1	2	e	t	9	0	7	8	5	4	3	6
R_1	8	e	t	9	6	7	2	5	4	3	0	1

One of the most striking characteristics of *Studio V* is its instrumentation, which includes the celesta and glockenspiel. Ginastera uses the unique timbres of these instruments in order to highlight certain *cluster* partitions. Significantly, the invariances created by these *clusters* is the primary determinant of row organization in *Studio V*. Example 5.56(a) illustrates the ternary form of the variation and example (b) compares the positions of the invariant four-note *clusters* in the first row (I_1), the row that begins the **c** section (R_8), and the primary row (P_2). The structurally prominent appearances of I_1 and R_8 draw attention to the *surrogate* relations they both form with the primary row (shown at the top of the example): from the beginning of the variation (I_1) to the end (R_8), the *clusters* swap hexachordal positions so that they ultimately appear in their original positions within the primary row—[3456] in H^1 and [9te0] in H^2.[60]

[58] Interestingly, the same pitch-class set, [1278], is featured prominently as the soloist's first and last arpeggio in the previous variation, *Studio IV*; see the discussion of Example 5.50(a) above.

[59] I_1 and R_1 are members of the same index-number *family*; this specific type of *surrogate* relation is discussed in conjunction with Example 5.25 in part I of this chapter.

[60] For a summary of four-note *cluster* mappings and the *surrogates* they create, see Example 5.24 in part I of this chapter.

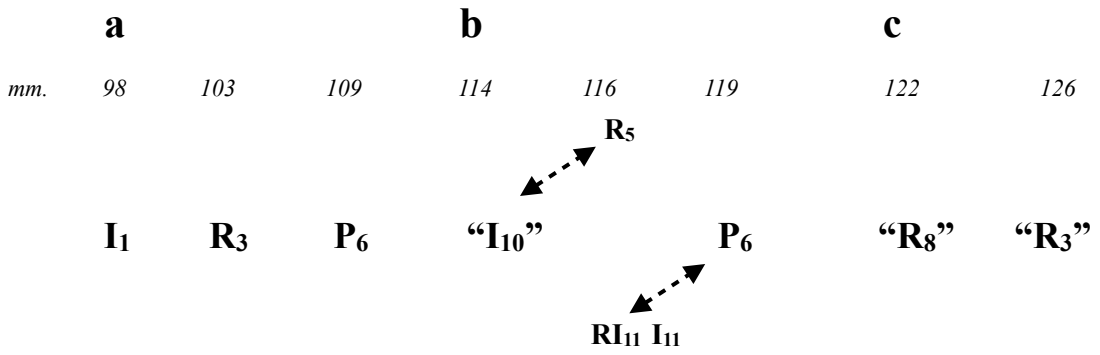
Example 5.56(c) shows *clusters* within the **a** and **c** sections that are particularly pronounced given their shared instrumentation. The *clusters* that ascend melodically are presented by the celesta and glockenspiel and those that appear harmonically are presented by the upper woodwinds. The corresponding row forms and order-number partitions are indicated below the staff. The transpositional relationships shown in the example do not express the relationships of row forms but rather the mapping of individual *clusters* within these rows. Significantly, these transpositional levels—T_3, T_1, and T_6—represent recurring, characteristic interval classes of the row itself and the concerto as a whole.

At the top of Example 5.56(c), T_3 is abstractly outlined between the two harmonic *clusters*: {*0123*} from the first hexachord of R_3 occurs toward the beginning of the variation and {*89te*} of P_6 closes the **a** section. At the center of the example are two melodic presentations of {*6789*} from the second hexachord of R_3. By repeating this central *cluster* twice, Ginastera distinctly emphasizes two transpositional relationships: (1) T_1 spans from the {*89te*} *cluster* of I_1 at the beginning of the variation to the first central *cluster* (mm. 106–7); and (2) T_6 spans from the second central *cluster* (m. 109–10) to the {*0123*} *cluster* of "R_3" at the end of the variation. Thus, the framing *clusters* that mark the beginning and end of *Studio V*, which happen to be rhythmically identical grace-note figures, highlight an overarching T_7 relationship—an interval which has been in constant competition with T_6 throughout the concerto.[61]

[61] Among its several realizations, T_6 most notably *generates* the hexachords of the twelve-tone row and it coincides with the arrival of the recapitulation in both binary variations, *Studi II* and *III*. T_7, in contrast, is featured throughout the movement as the characteristic interval of the violin's "open strings" motive and is frequently varied to appear as $RT_{\pm 5}$; see the section on corresponding networks of row relations above.

Example 5.56 *Cluster* partitions featured in all three sections of *Studio V – Per gli armonici*

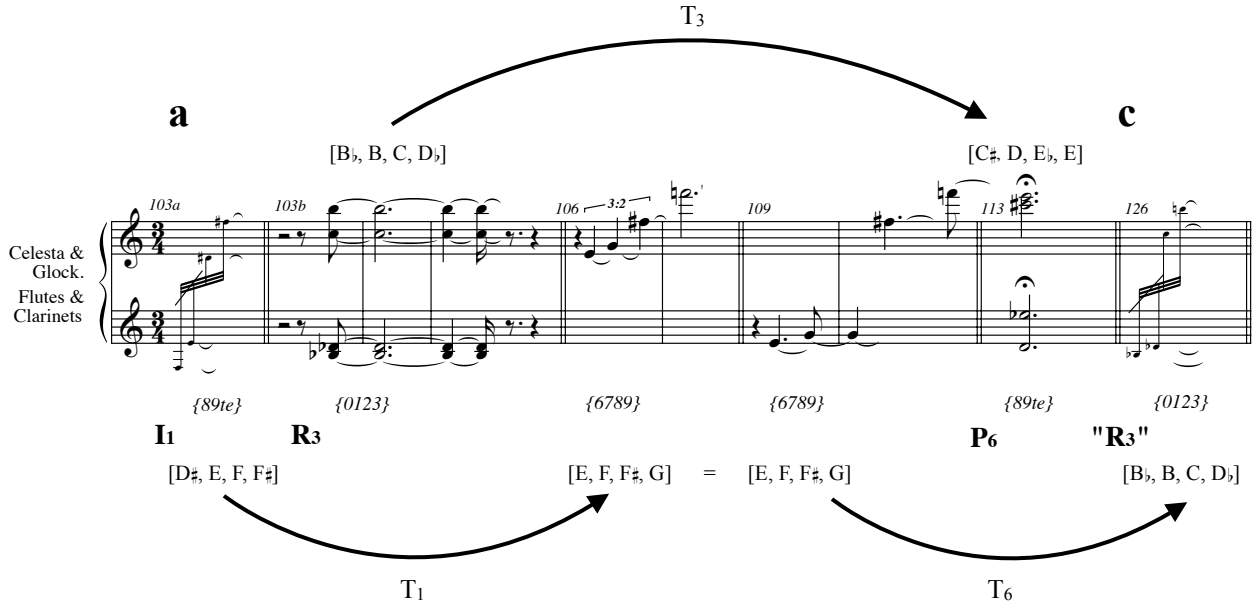
(a)



(b)

	0	1	2	3	4	5	6	7	8	9	t	e
P2	2	1	4	5	6	3	8	7	t	e	0	9
I1	1	2	e	t	9	0	7	8	5	4	3	6
R8	3	6	5	4	1	2	9	0	e	t	7	8

(c)



The *clusters* present in the **b** section of *Studio V* form *surrogate* relations among the four distinct row forms. The dotted arrows in Example 5.56(a) above indicate how these four rows are paired together as *surrogates*.[62] Example 5.57 below shows the rows in integer form for comparison. The first row of the **b** section, I_{10}, is incomplete, missing its final four-note *cluster* (shown in gray); Ginastera supplies this missing *cluster* by immediately introducing R_5, which begins with the missing *cluster* of I_{10}. At the bottom of the example, the last two rows of the **b** section, I_{11} and P_6, form a P_x / $I_{(x+5)}$ *surrogate* relation; as such, they preserve isomorphic order-number partition {*0167*} and exhibit invariant *clusters* in exactly the same hexachordal positions.[63] Notably, the four rows in Example 5.57 share three common tones—[789] and [123]—among their four-note *clusters*, allowing for a marked sense of uniformity throughout the contrasting **b** section.

Example 5.57 *Surrogate* row pairs involving invariant *clusters* in the **b** section of *Studio V*

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*t*	*e*
I_{10}	t	e	8	7	6	9	4	5	(2)	(1)	(0)	(3)
R_5	0	3	2	1	t	e	6	9	8	7	4	5
I_{11}	e	0	9	8	7	t	5	6	3	2	1	4
P_6	6	5	8	9	t	7	0	e	2	3	4	1

[62] For the purpose of illustrating these *surrogate* relations, RI_{11} and I_{11} are interpreted as a single row form.

[63] P_x / $I_{(x+5)}$ is the T_6 variation of the more commonplace P_x / $I_{(x-1)}$ *surrogate* relation; see its multiple recurrences in Examples 5.43–44.

In the final variation, *Studio VI – Per i 24 quarti di tono*, Ginastera varies the four-note *cluster* to its densest expression by using microtones. Example 5.58(a) shows a reduction of the accompanimental *cluster* segments assigned to each of the four stringed instruments. The *clusters* are presented harmonically and in the order shown below. Each instrument is divided into three parts (indicated by the three staves) and, in turn, these parts are divided into four soloists who are assigned only one note. Together the four soloists present two pitch classes plus the upper quarter-tone adjustments of these pitch classes. The chromatic hexachords formed by each harmonic column of *clusters* are summarized at the bottom of example (a).

As the soloist presents only one row form, R_1, over the course of *Studio VI*, the orchestra's *clusters* pulsate rhythmically in the background and increase in intensity as the variation progresses. The staggered entrances of each additional *cluster* project a systemically diminishing series of intervals: the second *cluster* is related to the first by T_{-11}, the third to the second by T_{10}, and the fourth to the third by T_{-9}. Interval classes 1, 2, and 3, are, without question, the very building blocks of the concerto's compositional language. The variation strategy of the final *studio* thus represents a culminating synthesis of hexachordal *clusters*—which define the contents of the row—and the specific interval classes contained within these *clusters*—which are equivalent to the adjacent intervals that generate the row.

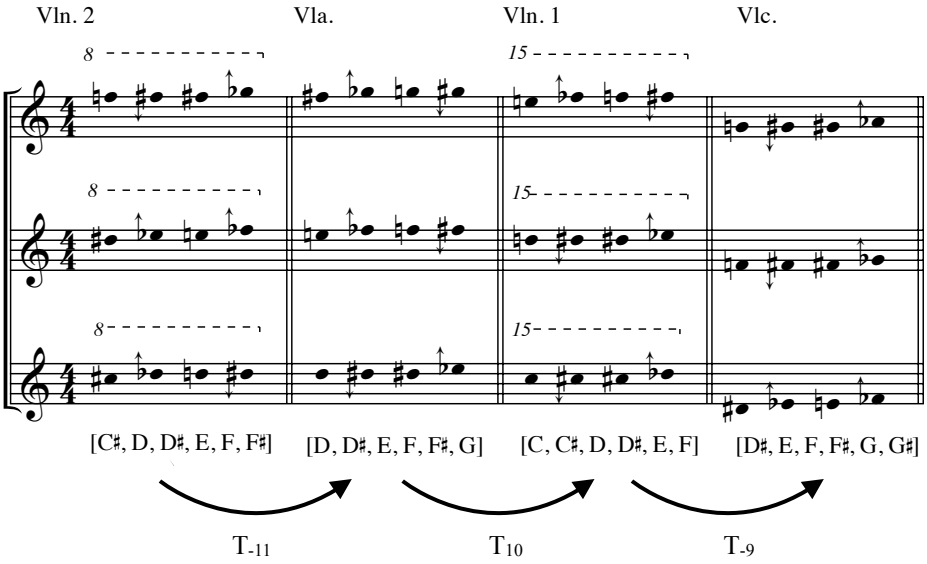
Example 5.58(b) shows a more abstract interpretation of the four *clusters*. Significantly, Ginastera organizes the *clusters* so that a "semitonal shift" ($T_{\pm 1/11}$) is the only relationship emphasized with respect to register.[64] The first "semitonal shift" occurs between the second violins and violas whereby the second *cluster* enters T_{-11} lower. Then the first violins' *cluster*,

[64] The "semitonal shift" is a common transpositional device in Ginastera's Piano Concerto; it typical highlights formal boundaries or otherwise structurally significant junctures in the music. See the discussion of Examples 4.53–54 and 4.62 in part II of chapter 4.

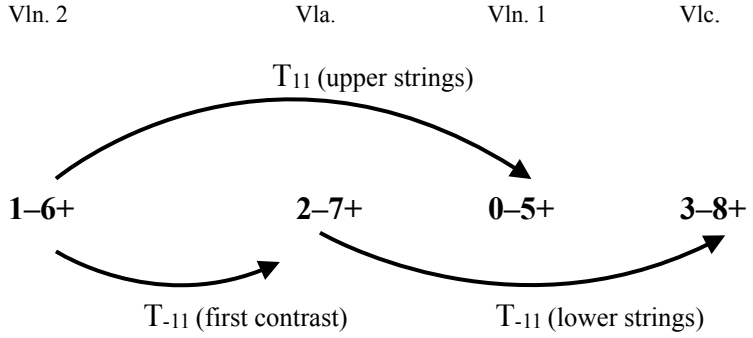
which sounds two octaves higher than written, forms a T_{11} contrast to the second violins' *cluster*, which sounds one octave higher than written. Finally, the lower strings invert the "semitonal shift" so that the cellos' *cluster* enters T_{-11} lower than the violas' *cluster*.

Example 5.58 *Clusters* and "semitonal shifts" in *Studio VI – Per i 24 quarti di tono*

(a)



(b)



Conclusion

The first movement of the Violin Concerto is perhaps one of Ginastera's most complex serial works. As opposed to his compositional approach in the Piano Concerto, which is certainly complex in its own ways, Ginastera's variation strategies in the Violin Concerto are unique in that they embrace the confines of the row rather than break away from them. From a pre-compositional perspective, Ginastera is careful to build into the row class the very set classes that have proven to be increasingly familiar in the works leading up to the Violin Concerto—set classes like (0369), (0167), and *clusters* of varying sizes.[65] The *generated* structure of the row draws attention to the preponderance of ic6, ic3, and ic1. But beyond a seemingly simple saturation of these interval classes, Ginastera's row enables an extraordinary amount of pitch-class/order-number isomorphisms involving (0369) and (0167). These isomorphisms, especially when considered in the context of their musical activation and deactivation, are a driving force behind the organization of row forms throughout the concerto, and, above all, they serve to highlight variation strategies that are effected by *surrogate* relations.

Segmental invariance, mappings of isomorphic partitions, and the accumulation of *cluster* partitions all play a role in the movement's compositional design. They are oftentimes present at the same time, which contributes to the music's complexity, and may even operate on different structural levels simultaneously. The first part of the analysis in this chapter showed how Ginastera uses row completion, or overlap, to connect the formal boundaries within and between variations. This strategy typically involves large-scale T_6 motion, especially in the binary-form variations, *Studi II* and *III*. On a more global scale, T_6 motion is typically used in conjunction

[65] See Chapter 2 for a general overview of Ginastera's compositional language in and around the 1960s.

with $RT_{\pm 5}$ motion and $I_{(x-1)/(x+5)}$ *surrogates* to unify large spans of music. The second part of the analysis thus compared corresponding networks of row relations, revealing that Ginastera favors a consistent complex of relations, which emerges at varying degrees of abstraction.

Finally, the last portion of this chapter explored the six *studi* in pairs determined by their distinct variation strategies. The motivic contents of each *studio* derive from the four phases of the *Cadenza*, but they are more than just variations on the *Cadenza*—they are also variations on each other. The pairs of variations—*Studi I* / *IV*, *Studi II* / *III*, and *Studi V* /*VI*—feature similar melodic-motivic materials and typically rely upon *surrogate* row relations to underscore a sense of variation. The "chords" of *Studio I* are varied by the "arpeggios" in *Studio IV*; both involve invariant isomorphic partitions and a similar scheme of mapping and activating these partitions. The "thirds" in *Studio II* are varied by the "other intervals" in *Studio III*, and these intervals participate in sequential patterns that complete the octatonic and oftentimes the aggregate. Finally, the "harmonics" and "quarter tones" in *Studi V* and *VI* both feature *cluster* segments; these *clusters* derive from *surrogate* row forms of the primary row and serve to increase the music's intensity as the movement comes to a close.

Final Remarks

This study investigated Ginastera's twelve-tone compositional approach, especially in the context of two of his earliest serial works, the Piano Concerto No. 1, Op. 28 (1961) and the Violin Concerto, Op. 30 (1963). More broadly, this study emphasized similarities between the composer's non-serial, pre-1960s works and his later, explicitly twelve-tone works, especially in regard to motivic process. As was shown in numerous analytical examples in this study, sequential motivic processes, often appearing in combination with symmetrical interval patterns, are one of the most marked characteristics of Ginastera's music. Interestingly, these patterns tend to compose-out two distinct collections on the music's structural middleground. These collections—the octatonic and 8-note—are audible structural forces in several of Ginastera's early works, and their recurrence in the context of the two twelve-tone concertos underscores the personal nature of his twelve-tone language.

In discussing the development of Ginastera's twelve-tone language, chapter 2 noted the composer's deep respect for Bartók's music and, in particular, his captivation with the elder composer's "construction of the melody from cells and repetition of parts of those cells."[66] Ginastera's "cellular" conception of music translated naturally to the twelve-tone idiom, where three- and four-note recurring motives that had always pervaded the musical foreground of his early, non-serial works were built into the *generated* and *partially-generated* row classes of his serial works; thus, when compositionally deployed, these row classes ensured his signature sound—the same sound audiences had come to love in popular works like the String Quartet No. 1, Op. 20 (1948), the Piano Sonata No. 1, Op. 22 (1952), and the String Quartet No. 2, Op. 26

[66] See the second quote on p. 85, from Ginastera, "Homage to Béla Bartók," 4.

(1958, rev. 1968). By choosing to construct *generated* row classes, not only were sequential patterns made readily available given the basic structure of these rows, but the uniformity of interval patterns inherent within these structures gave rise to another source of motivic material from which Ginastera could draw—namely, pitch-class/order-number isomorphisms.

Pitch-class/order-number isomorphisms in much of Ginastera's twelve-tone music, and in the concertos in particular, largely involve set classes (0167) and (0369). These set classes are consistent with prominently emphasized motives in a number of Ginastera's works, including the aforementioned String Quartets Nos. 1 and 2 and Piano Sonata No. 1, as well as the twelve-tone opera, *Don Rodrigo*, Op. 31 (1963–64). (0167) and (0369) form the building blocks of the ubiquitous octatonic and 8-note collections in Ginastera's music and, furthermore, represent their abstract complements, which makes them particularly useful in deeper-level strategies of aggregate completion. In the Violin Concerto especially, pitch-class/order-number isomorphisms involving (0167) and (0369) provide the impetus for variation as the pitch contents of certain partitions are continually activated and deactivated musically from one row form to the next.

Besides the mappings of pitch-class/order-number isomorphisms, other deeper-level organizational strategies discussed in this study center around Ginastera's use of novel variation techniques. Chapter 3 demonstrated that row *surrogacy*, row *derivation*, and row *families* are compelling ways to describe these variation strategies, and by broadening the context, it suggests that the techniques are not limited to variations forms, but are applicable to his *cadenza*-based forms more generally—forms that appear in twelve-tone works like the String Quartet No. 2, Op. 26 (1958, rev. 1968), the Piano Quintet, Op. 29 (1963), and the Concerto for Strings, Op. 33 (1965, rev. 1967). Thus, the analyses of the concertos in chapters 4 and 5 provide a model for

analytically and aurally interpreting Ginastera's music that may be fruitfully applied to several of his other works, including the remaining movements of both concertos.

Finally, many of the observations made in this study have connections in the works of composers besides Ginastera. If we apply the same listening strategies and theoretical tools with which we approach the music of other notable twentieth-century composers—for example, composers as different as Bartók and Berg, Stravinsky and Dallapiccola, or Copland and Schoenberg—we will ultimately appreciate the innovativeness of Ginastera's musical language all the more. And although Ginastera's style bears certain affinities with those of all the composers mentioned above, the resplendent spirit of this music is singular. Ginastera's *clusters*, *clouds*, and *constellations* resonate in a universe all their own.

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