

COMPOSING WITH CIRCLES, SPIRALS, AND LINES OF FIFTHS:

HARMONY AND VOICE LEADING IN THE WORKS OF NICOLAI ROSLAVETS

by

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Abstract**COMPOSING WITH CIRCLES, SPIRALS, AND LINES OF FIFTHS:
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Advisor: Professor Joseph N. Straus

This dissertation proposes a new theoretical framework for the analysis of works of an important early twentieth-century Soviet composer Nicolai Roslavets. Roslavets was one of the few composers from his generation to develop his own unique compositional style. Although he welcomed the Russian revolution of 1917 and later held important political, professional, and social positions in Soviet society, in the 1930s he fell a victim to Stalinist cultural campaigns to eliminate all radical activity from Soviet art. Consequently, Roslavets lost his high positions in Soviet society and his name was erased from history books. It was not until the early 1980s that efforts were made both in Russia and the West to revive his name and analyze his music.

Roslavets developed his own theory of pitch organization called the “New System of Tone Organization,” in which he identified the synthetic chord as the driving element of each of his compositions. A synthetic chord is described as having three features: (1) it is a group of notes, usually arranged as a scale-like succession of pitches with a fixed progression of tones and semitones; (2) it is used both vertically and horizontally; and (3)

it is used to define the total harmonic plan of the composition. Many theorists including Yury Kholopov, George Perle, and Anna Ferenc recognized that each of Roslavets's pieces is characterized by a contextual synthetic chord that travels through different transpositional levels; however, no theory explains the underlying symmetrical pattern through which the synthetic chord travels, causing its unique spellings.

The current dissertation addresses Roslavets's unorthodox orthography, which features such peculiarities as triple sharps, and explains the structural importance of perfect fifths. Plotting the synthetic chords on different spaces of fifths—the circle, spiral, and line—reveals the underlying synthetic chord-path that can be characterized by my three types of symmetries: crisp symmetry, near-symmetry, and nested-crisp symmetry. I use pieces from 1913 through 1926—*Nocturne-Quintet* (1914), *Sonata No. 1 for Viola and Piano* (1926), *Trois Compositions* (1914), *Trois Etudes* (1914), and *Cinq Préludes* (1919-1922)—to show that Roslavets uses the deeper structure of fifths relations to create a novel musical language with distinct orthography and symmetrical chord-paths making him one of the most intriguing and innovative composers of his generation.

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Musical excerpts from the *Nocturne-Quintet*, Sonata No. 1 for Viola and Piano, *Trois Compositions*, *Trois Etudes*, and *Cinq Preludes* are reprinted by permission of Schott Music Corporation.

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Excerpts from the *Nocturne-Quintet*, Sonata No. 1 for Viola and Piano, *Trois Compositions*, *Trois Etudes*, and *Cinq Préludes*.

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LIST OF ABBREVIATIONS

d	Dyad
ic	Interval class
p	Pitch
pc	Pitch class
Q_n	Quint distance
$ Q_n $	Absolute value of quint distance
TC	Rick Cohn's "transpositional combination"

LIST OF ACRONYMS

ACM	Association of Contemporary Composers (Soviet Russia, founded in 1923)
NARKOMPROS	People's Commissariat of Public Education (Soviet Russia, founded in 1918)
PROLETKULT	Proletarian Cultural-Educational Organization (Soviet Russia, founded in 1920)
RAPM	Russian Association of Proletarian Musicians (formed in 1924)
VSERABIS	All-Russian Professional Union of Art Workers

TRANSLITERATION TABLE

Cyrillic	Roman	Cyrillic	Roman
Аа	a	Хх	kh
Бб	b	Цц	ts
Вв	v	Чч	ch
Гг	g	Шш	sh
Дд	d	Щщ	shch
Ее	e	Ъъ	(not trans.)
Ёё	e	Ыы	y
Жж	zh	Ьь	(not trans.)
Зз	z	Ээ	e
Ии	i	Юю	yu
Йй	i	Яя	ya
Кк	k		
Лл	l		
Мм	m		
Нн	n		
Оо	o		
Пп	p		
Рр	r		
Сс	s		
Тт	t		
Уу	u		
Фф	f		

N.B.: I have chosen to use commonly accepted spellings of names. For example,

“Scriabin,” not “Skryabin” or “Nicolai,” not “Nikolay.” I also use surname suffix “-sky”

not “skii” or “skiy.”

CHAPTER 1

Introduction: Nicolai Roslavets and His Unique Compositional Approach

Nicolai Roslavets (1881–1944) was one of the most unique Russian composers of his generation. Igor Stravinsky called him, “a most interesting twentieth-century Russian composer.”¹ Roslavets was one of the few composers from his generation to develop his own unique compositional style, and his early works (from the 1910s) were closest in style to those by Scriabin (after Op. 58).² Further, Roslavets’s contemporaries included internationally recognized figures such as Scriabin, Prokofiev, and Stravinsky. Roslavets, however, became a victim of Stalinist cultural campaigns that aimed to eliminate all radical activity from Soviet art. Starting in 1930, he was written out of history books and concert programs.³ It is only recently that efforts have been made in Russia and the West to restore his reputation and analyze his music.

My dissertation addresses important issues in Roslavets’s music that have been previously unexplored by theorists. It especially focuses on Roslavets’s compositional spaces involving circles, spirals, and lines of fifths, and on his idiosyncratic orthography, which often features such peculiarities as triples sharps. **Example 1.1** shows an excerpt

¹ Igor Stravinsky, from a 1990 pamphlet on the Roslavets Festival in Bryansk.

² Peter Deane Roberts, *Modernism in Russian Piano Music: Scriabin, Prokofiev, and Their Russian Contemporaries*. (Bloomington and Indianapolis: Indiana University Press, 1993), pp. 23-26.

³ Charles Monroe McKnight III, “Nicolai Roslavets: Music and Revolution” (Ph.D. dissertation, Cornell University, 1994), pp. 1-38; and Anna Ferenc, “Investigating Russian Musical Modernism: Nicolai Roslavets and His New System of Tone Organization” (Ph.D. dissertation, University of Michigan, 1993), pp. 6-18.

from the *Nocturne-Quintet* (1913) that features such a peculiarity—an F triple-sharp (Fx#).⁴ My theoretical framework of the three fifths' spaces will help understand Roslavets's underlying compositional technique that not only shows tonal influence (i.e., the circle of fifths) but it also reveals a unique compositional practice featuring different types of symmetries underlined by Roslavets's chord-paths.

Example 1.1: An excerpt from *Trois Etudes* no. 2 “Pianissimo” (1914) with an Fx#

*) drei Halbtöne höher / three semitones higher

Roslavets TROIS ETUDES

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⁴ This passage will be discussed in detail in chapter 3.

In the present chapter, **section 1.1** will provide a historical and biographical background situating Roslavets in one of the most difficult times in the history of Russia—the beginning and formation of the Soviet regime and the fate of the arts during that period. In **section 1.2** I will survey the existing literature on his music both in Russia and the West. Finally, **section 1.3** will provide an overview of the dissertation.

1.1: Historical Background

Nicolai Andreevich Roslavets was born in Dushatino, Ukraine, on January 5, 1881. He was the son of peasants and was initially self-taught in music.⁵ At the age of seven or eight, he took violin lessons from his uncle, but his formal musical training did not begin until the late 1890s, when he took theory lessons from a well-known Russian pianist, composer, and teacher, Arkadii Maksimovich Abaza in Kursk.⁶ At the age of twenty-one Roslavets entered the Moscow Conservatory, from which he graduated with a silver medal in 1912, with two specializations in violin (with I. V. Grzhimali) and composition. He studied counterpoint, fugue, and form with A. A. Ilinski (1859-1920), and free composition and orchestration with S. N. Vasilenko (1872-1956).⁷

⁵ Nicolai Roslavets, “Nicolai A. Roslavets o sebe i svoem tvorchestve” [“Nicolai A. Roslavets on Himself and His Works”], *Sovremennaya Muzyka* 1/5 (1924): 132-138.

⁶ Larry Sitsky, *Music of the Repressed Russian Avant-Garde, 1900-1929* (Westport, Connecticut: Greenwood Press, 1994), pp. 38-39.

⁷ Roslavets 1924, pp. 132-133. During his studies at the Moscow Conservatory Roslavets wrote over one hundred fugues (!); later in 1927 at his Moscow lectures he criticized Stravinsky’s music for being discontinuous and like blocks of sound, for Stravinsky studied at the Leningrad Conservatory where, according to Roslavets, Stravinsky had not been taught proper part-writing. See the Appendix A for a translation of the 1927 lecture.

Similar to many Russian artists and musicians of his generation, including Vasili Kandinsky, Marc Chagall, Serge Diaghilev, Igor Stravinsky, and Sergey Prokofiev, Roslavets was eager to free himself from his formal training in attempts to find a new artistic path.⁸ Roslavets welcomed the Russian revolution of 1917. From 1913 to 1931 he held important artistic and political positions that were at the heart of the revolution.⁹ Shortly after the revolution in 1917 the Proletarian Culture (PROLETKULT) was founded, attracting the interest of many artists, including Roslavets.¹⁰ There were two main views of the Music Division of PROLETKULT: (1) the musical language of the composers must be simplified so that it is accessible to the general masses; and (2) the musical complexity must be held high so that it could give the avant-garde composers an opportunity to explore new techniques.¹¹ Roslavets was active in the Lecture-Repertoire-

⁸ Ibid. In this article Roslavets expresses his utmost joy for having finally graduated from the Conservatory. This reaction is rather natural, for as a Conservatory student he had been numerously criticized for his 'leftism' for breaking academic traditions in search of new musical forms (e.g., many of his compositions tended to be atonal and not in a key); see Charles Monroe McKnight III 1994, pp. 1-38. In this dissertation, McKnight notes Roslavets's empathy with the poetic avant-garde, for between 1913 and 1915 he sets several songs to the poems by Valery Biusov (1873-1924), Alexander Blok (1880-1921), Paul Verlaine (1844-1896), Igor Severianin (1887-1942), Vasilisk Gnedov (1890-1978), Vasily Kamensky (1884-1961), and Elena Guro (1877-1913).

⁹ McKnight 1994, pp. 1-38. Roslavets seemed to have remained in Moscow through 1916, and in 1917 he moved to Elets (a town south of Moscow) where he began his work on the Communist Party. Upon his return to Moscow in 1918, Roslavets was elected chairman of the governing board of the Moscow Professional Composers Union. A year after (1919) he held a position as Chairman of the Moscow division of the All-Russian Professional Union of Art Workers (VSERABIS) and also served on the Moscow Soviet (i.e., the Congress).

¹⁰ Ibid., p. 17.

¹¹ These two views were so divergent that eventually in 1923 this division was split into two separate organizations: the Russian Association of Proletarian Musicians (RAPM) and the Association for Contemporary Music (ACM).

Publishing section of the Musical Division of the Moscow PROLETKULT. In 1921 Roslavets became professor of composition and rector of the Kharkov Musical Institute and the head of the artistic division of the Ukrainian Republic's NARKOMPROS.¹² After returning to Moscow in 1923 (where he remained until 1931) Roslavets became an important public figure. He was an active member of the Association of Contemporary Musicians (ACM) and, in 1924, published a feature article about himself and his music in the second issue of the organization's journal, *Sovremennaia Muzyka* [*Contemporary Music*]. In this article Roslavets expresses his desire to have theorists analyze his music, after which its value would be fully understood.¹³ Of course, this never took place during Roslavets's lifetime.

Shortly after the publication of the article Roslavets resigned from his appointment as head of the Political Section of MUZSEKTOR.¹⁴ In a letter addressed to the chairman of the Central Committee of All-Russian Professional Union of Art Workers (VSERABIS), the organization nominally in charge of personnel at MUZSEKTOR, Roslavets expressed his deep unhappiness with the organization and its activities that increasingly favor music that is accessible to the masses. He wrote:

I was not able to carry out the third task, the creation of a musical agitating repertory, because the head of the Agitational Section was one of the aforementioned "proletarian musicians" who had already been in this position for three years, piously defending against all artistic music on the grounds that it is "incomprehensible to the masses," "no one needs it," etc. To struggle on this front was positively impossible for me since I received no support from

¹² Ibid., p. 19.

¹³ Roslavets 1924.

¹⁴ Roslavets, letter to Juvenal Mitrofanovich Slavinsky, 28 December 1924, published in *Muzykálnaya Gazeta* 3/6, 1990, p. 4.

anyone anywhere, and my least pressure usually provoked such frightful opposition that I simply lost heart before this unbreachable wall of incomprehensible spite and monstrous ignorance... So here everything remained as before.

Just as in the past, musical propaganda of the type well known to you is being baked up just like bliny [pancakes].¹⁵

Further, Roslavets goes on to state the dangers of government interference in the arts:

And so, as you can see, all that cultural business that I put right which such persistent labor is at an end. It turns out that all it takes is a “resolution” of the Party collective completely to spoil this machine that was beginning to work brilliantly, and to fragment, this time with greater force, that which had earlier been gathered together again. It is painful, a pity, and an outrage to observe such destruction... The idea of the complete impossibility of working on the cultural front is automatically intensifying not only among the intelligentsia standing on the platform of Soviet power, but also amongst the best part of the intelligentsia, the fellow travelers in the full meaning and significance of the word. It is no wonder that among the “experimenters” of the musical intelligentsia described above a pessimistic mood has established itself.

Skepticism and disillusionment with the sincerity of Soviet power’s calls to cultural work are growing. The idea of “flight” abroad “for the time being” is ripening little by little among highly educated musical workers... Among those who recently have “flown” is the noted pianist P.I. Kovalev; intending to follow this example is one of the best disciples of Russian music and writing is L.L. Sabaneev; others are beginning to amass a sufficient quantity of “gold pieces” for the same purpose...

Above all, I point out the most striking fact: a whole series of the best Russian composers now publish their works abroad (in Vienna “Universal Edition” publishes the works of Miaskovsky, Alexandrov, S. Geinber, Polovinski, et al.).

No comment necessary, it seems to me...¹⁶

This letter marked Roslavets’s break from the Communist Party. From 1931 to 1933 he lived in Tashkent, Uzbekistan.¹⁷ During this time Roslavets served as a music

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ McKnight 1994 calls this relocation an “exile,” with which I agree. Many composers in the 1930s were encouraged, and sometimes forced, to study folk music of the outlying

director for the Uzbek Central Radio and conductor of the Uzbek Musical Theater (ballet and opera).¹⁸ Roslavets returned to Moscow in 1933 until his death in 1944 at the age of sixty-three. He taught at the Moscow Musical Polytechnic and in a school for military band directors.¹⁹ This was probably a rather difficult professional position for him since he held higher and more significant political positions prior to 1930. In 1939, Roslavets suffered a stroke leaving him with an arm and a leg impaired. The stroke also cost him the ability to speak. Ferenc notes, “Ironically, it was this affliction that saved him from a planned repression.”²⁰ In May 1940, Roslavets was finally admitted to the Union of Soviet Composers and the organization provided him with medical and financial assistance. Shortly after, Roslavets suffered from kidney cancer, and died of a second stroke on 23 August 1944.²¹

districts. For Roslavets this must have been a very difficult relocation, for the major part of his creative work of the 1910s and 1920s did not explore folk music. In fact, much of the music written during this period was atonal and Roslavets was in search of developing his New System of Tone Organization. See the Appendix A for a full translation of his 1927 lecture, in which Roslavets describes his New System.

¹⁸ Marina Lobanova, “Tvorchestva i Sudba” [“Creative Work and Fate”] (*Sovetskaya Muzyka* 5, 1989), p. 97.

¹⁹ McKnight 1994, p. 37.

²⁰ Ferenc 1993, p. 17.

²¹ Ibid.

Roslavets is buried in Moscow at the Vagankovsky Cemetery.²² Many of his manuscripts have been lost and much of his biographical material had disappeared. Efforts to revive his music began in the early 1980s.

1.2: Roslavets's Synthetic Chord and Theoretical Literature on His Music

In his theoretical writings concerning his own music, Roslavets uses the term *sintetakkord*, or synthetic chord, to describe an important aspect of his atonal language.²³ A *sintetakkord* has three features: (1) it is a group of notes, usually arranged as a scale-like succession of pitches with a fixed progression of tones and semitones; (2) it is used both vertically and horizontally; and (3) it is used to define the total harmonic plan of the composition.²⁴ Roslavets is particularly attracted to T_5 and T_7 transformations that can be used to explain tonal intervals of a perfect fourth and a perfect fifth. Using these two transformations, Roslavets is able to create symmetrical chord-paths that I classify by different types of symmetries. This helps us understand the structural importance of orthography in his works. These symmetries will be further discussed in **chapter 3**. I will now briefly survey the existing theoretical writings on Roslavets's music.

²² Yuri Kholopov, "Nicolai Roslavets: Volnuyushaya stranitsa russkoi muzyki" ["Nicolai Roslavets: An Exciting Page in Russian Music,"] in forward to *Nicolai Roslavets: Compositions for Piano* (Hamburg: Musikverlag Hans Sikors, 1989), p. 8.

²³ Roslavets 1924 and 1927.

²⁴ Roslavets 1927. Aside from Roslavets's specification that a synthetic chord must be between 6 and 8 notes, it is identical to our western concept of a set class. Kholopov 1981 calls a synthetic chord a "lad" or "mode" and his description and understanding of it is synonymous with that of a set class. See Appendix B for a full list of set classes used in the piano works discussed in my dissertation (chapters 3 and 4).

One of the most important Russian theorists of the twentieth century, Yuri Kholopov, was the first to re-examine Roslavets's music and write about his "new tonality."²⁵ In a monumental article Kholopov describes Roslavets as the most important composer during the development of Soviet contemporary music in the 1920s, when new theoretical ideas were emerging.²⁶ Kholopov identifies "Ty ne ushla" ["You did not leave"] the second of three songs based on the poetry of Alexander Blok (1913), as Roslavets's first piece based on his unique compositional practice. Kholopov identifies the hexachord [Eb, Fb, G, Ab, Bb, Cb] as the "mode" on which the song is based.²⁷ Kholopov goes on to further describe this mode as a predecessor of a serial row. He writes that Roslavets creates a new idiosyncratic serial system with two characteristics: (1) the so-called row or mode only contains six notes (as opposed to twelve); and (2) doublings of notes are permitted.²⁸ Kholopov compares Roslavets's compositional technique to the composers of the Second Viennese School (specifically to Schoenberg and Webern); however, he stresses Roslavets's unique dodecaphonic approach that is independent of Western influence. Roslavets is not concerned with aggregates and order of his pcs, and the complement of Kholopov's identified hexachord from "Ty ne ushla" is

²⁵ Yuri Kholopov, "Problema novoi tonalnosti" ["The Problem of New Tonality"] in *Voprosy metodologii sovetskogo muzykoznaniiia: Sbornik nauchnykh trudov* [*Questions of Soviet musicological methodology: A collection of scholarly works*] (Moscow: Moscow State Conservatory, 1981), pp. 100-126.

²⁶ *Ibid.*, p. 108.

²⁷ As we will see in section 1.3, here by "mode" Kholopov refers to Roslavets's synthetic chord.

²⁸ Kholopov 1981, p. 109.

not used to complete the chromatic aggregate. This so-called “independence” from the western composers Kholopov attributes to Roslavets’s tonal thinking.²⁹

Further, one of the most important points that Kholopov makes deals with not only the dodecaphonic influence of Arnold Schoenberg but also the synthetic practices of Alexander Scriabin. Kholopov outlines the chronology of dodecaphonic pieces and concludes that Roslavets’s compositional method is much closer to that of Scriabin (who died in 1915—a year after Roslavets discovered the synthetic chord) than of Schoenberg, whose new compositional practices become known in Russia only after 1924.³⁰ Whether or not Scriabin had a direct influence on Roslavets remains an issue for debate, for Roslavets insisted that he had arrived at the idea of a synthetic chord prior to Scriabin. However, it is no coincidence that several pieces by Roslavets are reminiscent of Scriabin’s harmonies (i.e., the so-called “mystic chord”) and textures.³¹

²⁹ Ibid., p. 110.

³⁰ Ibid., 110-113. As we will see in chapters 2 through 4, Roslavets is not concerned with twelve-tone serialism, for order of notes does not have significance in his music. As Roslavets himself comments in his 1924 article, he is concerned with a whole field of sound created by vertical and horizontal projections of synthetic chords that may or may not contain all twelve notes of the chromatic scale. In “Half-Time for Nicolai Roslavets (1881-1944): A Non-Love Story with a Post-Romantic Composer” in *Russian and Soviet Music: Essays for Boris Schwarz* (Michigan: UMI Research Press, 1984), pp. 211-220, Detlef Gojowy correctly distinguishes and separates Roslavets’s compositional practice from those by Schoenberg and Webern stating that the chromatic aggregate may occasionally result from Roslavets’s manipulation of synthetic chords approaching a twelve-tone practice; however, it occurs “not out of necessity.”

³¹ Roslavets 1924, p. 135. See Peter Deane Roberts, *Modernism in Russian Piano Music: Scriabin, Prokofiev, and Their Russian Contemporaries* (Bloomington: Indiana University Press, 1993) pp. 24-26, where Roberts comments on Scriabin’s influence on Roslavets. As we will see in chapters 2 and 3, Roslavets favors a harmonic synthetic path of perfect fifths that often travels along a circle or spiral; however, the musical surface of several pieces outline the tritone and the harmonies are reminiscent of Scriabin’s *akkord*

After Kholopov restored interest in Roslavets, about a decade later in the West George Perle, Anna Ferenc, and Larry Sitsky presented further examination of Roslavets's music.³² Perle briefly comments on Roslavets's compositional practice of introducing an independent set (i.e., synthetic chord) for each piece from *Trois Compositions* (1914). Perle notes that Roslavets's sets are projected both vertically and horizontally, and that each piece is characterized by different transpositions of the set.³³ Similar to Sitsky 1994, Perle also observes that Roslavets freely adds notes to his original set.³⁴ However, neither Perle nor Sitsky comments on the significance of Roslavets's transposition levels, which often result in symmetrical chord-paths. As we will see in **chapter 2** (especially **examples 2.3** and **2.5**), Roslavets has a cerebral compositional approach: the so-called “added” dissonant notes contribute both to the performance and analytical aspects, where one cannot be separated from the other. Roslavets uses rhythmic and dynamic elements to highlight these aspects. I have also made an analytical choice on Roslavets's omitted notes: if a pc is absent from a given synthetic chord I assume that it is spelled without any accidentals (e.g., G-natural and not a G# or Gb). This analytical choice will be particularly apparent in **example 2.7**.

Promitey, often translated into the “mystic chord.” Such pieces by Roslavets include *Deux Poèmes* no. 2 (1920), *Deux Compositions* (1915), and *Prélude* (1915).

³² George Perle 1962, pp. 43-44; Anna Ferenc 1993; and Sitsky 1994, pp. 38-59.

³³ Perle 1962, p. 43.

³⁴ *Ibid.*, p. 44; see Sitsky 1994, pp. 42-43.

Like Kholopov, Ferenc comments on Roslavets's tonal thinking in which several different types of chords can be extracted from a synthetic chord.³⁵ Ferenc also notes that even though traditional tonal harmonies can be extracted from a synthetic chord, there is no functional tonality connecting these sonorities to one another.³⁶ More importantly, in order to create smooth voice leading among the synthetic chords Roslavets often adds notes of melodic figuration that include passing tones, neighbor tones, suspensions, and so on, which he stresses in his lecture.³⁷ Like Perle and Kholopov, Ferenc acknowledges Roslavets's interesting orthography.³⁸ Ferenc comments on the internal structure of Roslavets's synthetic chords. However, she does not explain the significance of the synthetic chords on a higher structural level. As we will discover, Roslavets uses the tonal concept of the circle of fifths to defy the boundaries of tonality and, ultimately, to create his own unique system of tone organization. As discussed above, Roslavets's synthetic chords do not establish any key or function in any traditional, harmonic manner, as I will show in this dissertation they travel through fifths' paths, which I call *quints*, often resulting in different types of symmetries.

³⁵ Ferenc 1994, pp. 20-30. Here, Ferenc illustrates hexachord [C, Db, E, G, Ab, Bb] and at least six harmonic sonorities that can be extracted from it: (1) a major triad on pc C; (2) a minor triad on pc Db (i.e., [Db, E, Ab]); (3) a diminished triad on pc E; (4) an augmented triad on pc E; (5) a dominant-seventh chord on pc C; and (6) a fully-diminished chord on pc E. Also, Roslavets comments on this aspect of his synthetic chords in his 1927 lecture.

³⁶ Ferenc 1994, pp. 22-23; Roslavets 1924, p. 134 states:
 "The principle of classical tonality is totally absent."

³⁷ Ferenc 1994, p. 24; Roslavets 1927.

³⁸ *Ibid.*, p. 156.

1.3: Purpose of the Dissertation and Its Outline

The purpose of the dissertation is to examine Roslavets's compositional technique. The circle of fifths serves as a starting synthetic path, developing it into an infinite spiral (or line) of fifths on which synthetic chords travel. I classify the results by three types of symmetries: crisp, near-symmetry, and nested-crisp. In **chapter 2** I will use Roslavets's two works, the *Nocturne-Quintet* (1914) and Sonata No. 1 for Viola and Piano (1926), to show Roslavets's early experimentations with circular and spiral compositional spaces of fifths. In **chapter 3** I will further explain Roslavets's unique compositional approach in his mature piano works—*Trois Compositions* (1914), *Trois Etudes* (1914), and *Cinq Préludes* (1919-1922)—in which I explain Roslavets's idiosyncratic spellings on a line of fifths and show the three types of symmetries. In **chapter 4** I will show the significance of fifths on the musical surface on the select pieces from the previous chapter. Finally, in **chapter 5** I provide brief concluding remarks and suggestions for further research on Roslavets's works.

My dissertation will show that organization based on synthetic chords accounts for many aspects of the music, from the smallest details of the spelling to the highest levels of structure. Much like Scriabin, who was beginning to develop his own, unique atonal style after Op. 58, around the same time Roslavets developed his own compositional system pushing the boundaries of tonality into a larger quint-space with symmetrical chord-paths. Roslavets's innovation set him apart from his contemporaries and made him one of the most interesting and intriguing Soviet composers of the early twentieth century.

CHAPTER 2

Circular and Spiral Spaces: Roslavets's Earliest Experimentations

This chapter explores Roslavets's earliest experimentation with his new system, in which he uses various diatonic collections to travel along the circle or spiral of fifths. The two pieces that will be discussed use synthetic chords that are based on the diatonic collection [sc (7-35)]. I identify the members of each collection by the number of their accidentals: for convenience, all the diatonic collections with sharp signs will be identified by the "plus" sign (e.g., a five-sharp collection will be labeled as "+5"), and all the diatonic collections with flat signs will be identified by the "minus" sign (e.g., a 5-flat collection will be labeled as "-5").

The chapter is divided into four sections: **2.1** describes Roslavets's compositional system along the circle and/or a spiral of fifths in which the synthetic chord is a diatonic collection [sc 7-35] (described above), **2.2** and **2.3** show Roslavets's earliest attempts composing within this system in the *Nocturne-Quintet* (1913) and Sonata No. 1 for Viola and Piano (1926), and **2.4** discusses the motivic significance of the fifths on the musical surface.¹ The pieces discussed in this chapter predate Roslavets's mature conception of a synthetic chord.² As we shall see later in **chapter 3**, Roslavets's compositional approach reaches its maturity in his miniature piano pieces in which his synthetic chords travel on an infinite *line* of fifths through symmetrical chord-paths.³

¹ Henceforth, Sonata No. 1 will be referred to as "the Sonata."

² Roslavets 1927.

³ Throughout this chapter the term *structural movement* will always refer to the movement of the collections along the circle/spiral of fifths.

2.1 Circles and Spirals of Fifths

The two pieces under study here—the *Nocturne-Quintet* and the *Sonata*—explore two spaces. While the *Nocturne-Quintet* reveals Roslavets’s traditional tonal thinking along the circle of fifths where enharmonic equivalence is used to pivot between flat and sharp collections, the *Sonata* breaks the boundaries of the circle and expands the two-dimensional space of a circle into a spiral resulting in a three-dimensional space. To illustrate these spaces, we will now turn to some abstract examples.

Figure 2.1 shows the circle of fifths with the no-sharp/flat collection at the top (i.e., identified by zero “0”); to the right we have the sharp collections in ascending order beginning from the 1-sharp collection (i.e., +1) through the 7-sharp collection (i.e., +7) and to the left we have the flat collections in ascending order beginning from the 1-flat collection (i.e., -1) through the 7-flat collection (i.e., -7). Collections with five through seven accidentals are enharmonically equivalent (e.g., -5 collection equals +7 collection, +6 collection equals -6 collection, etc.). In addition, any of the collections may be enharmonically reinterpreted (e.g., -4 collection equals +8 collection). None of the nodes on the circle is designated with traditional keys (e.g., C major, G major, F major, etc.), for Roslavets uses these diatonic collections without any functional relationship to tonality. Further, references to major or minor triads through both vertical and horizontal means are altogether avoided.

Figure 2.1: The circle of fifths

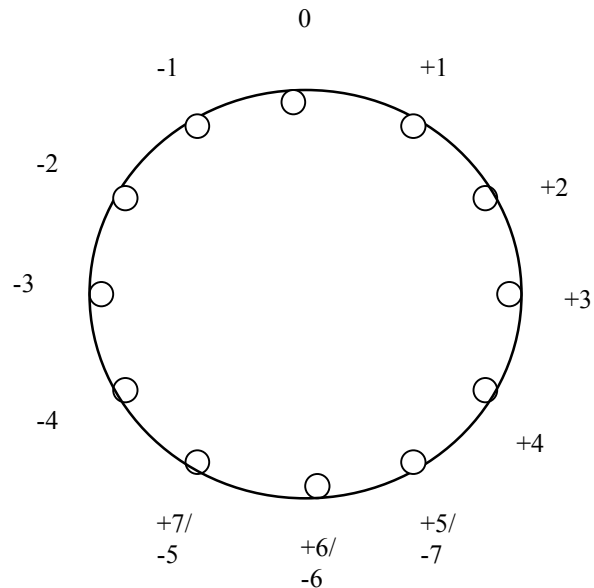


Figure 2.2 shows a progression of three collections from a +1 to 0 collection to -1 collection. The distance between the contiguous collections will be measured with Q_n or quints, where Q indicates a perfect fifth and the “ n ” subscript indicates the numbers of fifths the collection has traveled; positive and negative signs are used to indicate the direction of the progression where negative indicates a counter-clockwise move (towards the negative side) and positive indicates a clockwise move (towards the positive side) on the circle.⁴ Further, the motion is calculated on two levels: subsidiary and total-distance movements. In **figure 2.2** these movements are calculated as follows: (1) two subsidiary motions (i.e., Q_{-1} , indicated by two leftward arrows); and (2) total distance (i.e., $|Q_2|$ indicated by a “ t ” and one large double-node, dashed arrow), where an absolute value of Q_n is used to mark the total distance traveled. Further, all the arrows show the leftward

⁴ Please note that in chapter 3 these motions will be defined as under-quint (towards the negative side) and over-quint (towards the positive side) motions on a *line* of fifths.

direction of the path and the node attached to the beginning of the arrow indicates the beginning of the path (i.e., +1 collection). Thus, in **figure 2.2** the total distance traveled is $|Q_2|$ with two subsidiary motions of Q_{-1} .⁵

Figure 2.2: One-sharp, 0-sharp/flat, and -1 collections on the circle of fifths

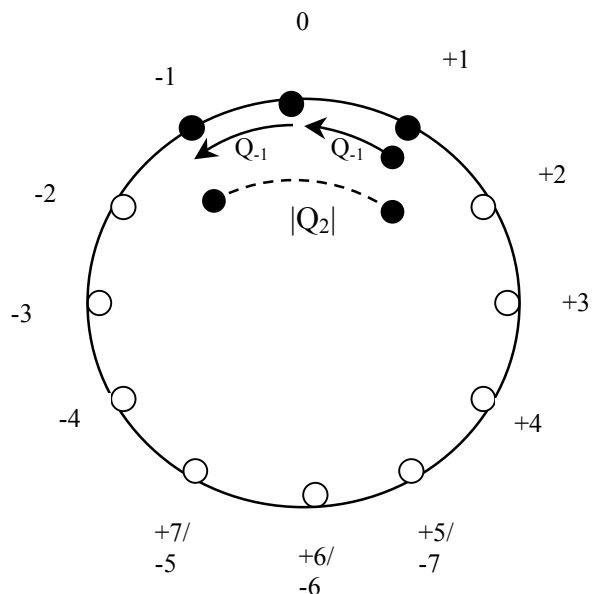
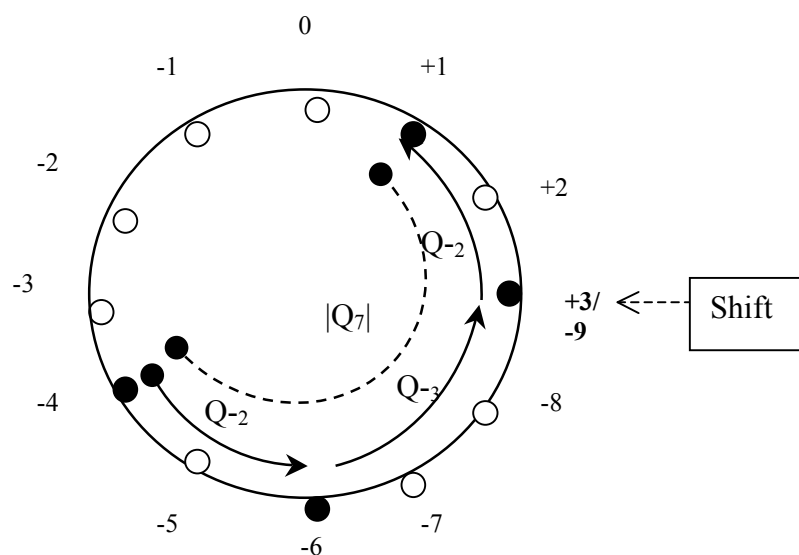


Figure 2.3 shows an enharmonic shift, which I call a *shift*, where the progression features two collections that are enharmonically equivalent (i.e., -9 and +3). The total distance of the path in **figure 2.3** is $|Q_7|$; it begins at the -4 collection, travels by Q_{-2} to the -6 collection, then by Q_{-3} to the -9 collection. At the -9, the collection becomes enharmonically reinterpreted as a +3 collection, after which, through Q_{-2} , the path continues onto the +1 collection. Of course, without a musical context it is difficult to accept the enharmonic shift as an important event. However, as we will see below this

⁵ Because we are assuming enharmonic equivalence within the circle, $Q_{12} = Q_0$; e.g., -9 collection *equals* +3 collection and their distance is Q_0 .

enharmonic reinterpretation or respelling is evident in Roslavets's *Nocturne-Quintet*. Further, it not only reveals Roslavets's circular compositional space, it also facilitates the return of the +1 collection. In the *Nocturne-Quintet* (mm. 76-79), the shift from the -9 collection to the +3 collection marks the climactic point of the piece, and by reinterpreting the -9 collection as a +3 collection it becomes rather simple to move by Q_{-2} up to a +2 collection.⁶ Roslavets's circle of fifths is characterized by an interesting distance property: the farther the collection gets from its starting node/collection, the closer it gets to it through an enharmonic pivot shift. We will see below how this compositional technique is used in the *Nocturne-Quintet*.

Figure 2.3: A progression with a shift at the -9/+3 collection



⁶ The concept of an enharmonic respelling for structurally important sections is evident in a large body of repertoire from the common practice era: Brahms' Symphony no. 3, Chopin's "Raindrop" Prelude, Schubert's *Moments Musicaux* in Ab, among others. All of these pieces use an enharmonic shift to mark a new section of the piece.

Figure 2.4 shows a spiral of fifths with the sharp collections at the top and the flat collections at the bottom. Here enharmonic reinterpretation or pivot shift is impossible to achieve, for the space is no longer in two-dimensions, but rather it is in three-dimensions.

Figure 2.4: A spiral of fifths

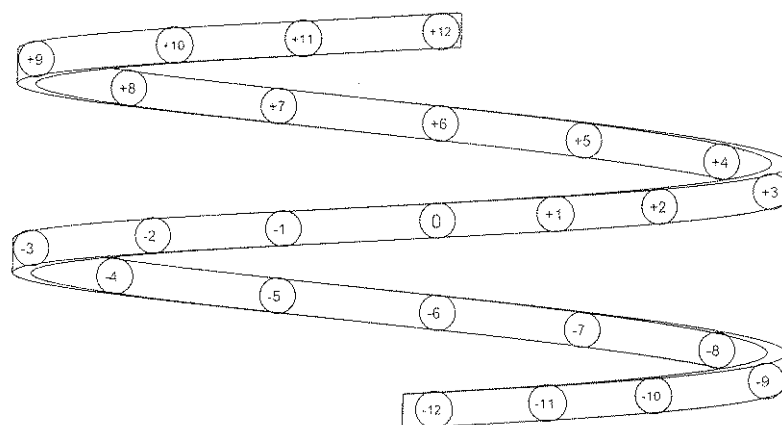
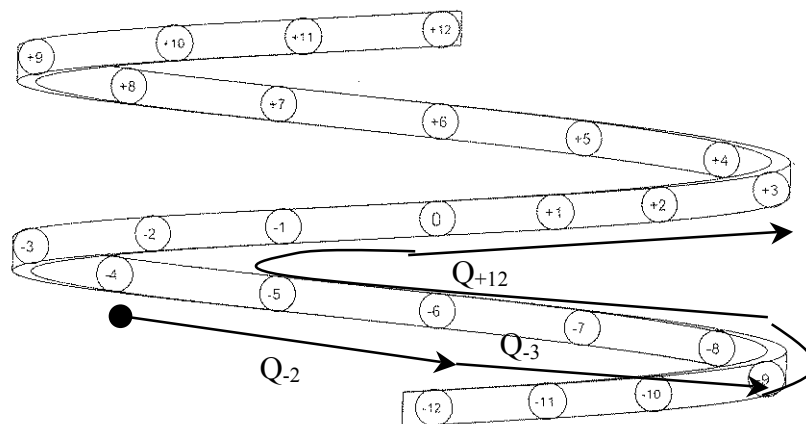


Figure 2.5 shows the progression of collections -4, -6, -9 and +3 from **figure 2.3** on a spiral. The progression stops at the -9 collection for the distance between it and +3 collection is no longer Q_0 , it is Q_{+12} . Please note that in spiral space we are no longer in mod 12 world; therefore, Q_0 no longer equals Q_{12} . The -9 collection can no longer create a continuous path to a sharp collection by enharmonic equivalence, for the spiral has an infinite length and enharmonic equivalence cannot provide a continuum. As we will see in the next two sections Roslavets uses the same progression in both the *Nocturne-Quintet* and the Sonata to show these interesting spatial properties. **Chapter 3** will continue the idea of a spiral into an infinite line that will enable Roslavets to create intriguing symmetrical relationships among his synthetic chords.

Figure 2.5: The -4, -6, -9, and +3 collections on a spiral of fifths



2.2 The Circular Space in the *Nocturne-Quintet*

In an unpublished typescript of a lecture given in January of 1927, Roslavets

wrote:

My “NEW SYSTEM OF TONE ORGANIZATION,” which I call “synthetic,” is the result of a decade’s work and investigative effort. Its complete continuity from the classical system restores the lost bond with the entire musical achievement of the past.

The “New System,” in essence, is the result of the further evolution of the classical system, an evolution which has now been carried to its inevitable historical stage, a synthetic of the creative effort of the past with that of the present.⁷

This quote stresses the importance of the so-called “continuity” between the classical system with that of Roslavets’s development of his new compositional system. This bond lies in the circle of fifths, for Roslavets uses the circle of fifths as a diatonic element to underline the traveling path of his collections, where sharp and flat side of the circle

⁷ Nicolai Roslavets, “Novaya sistema organizatsii zvuka i novye metody prepodavaniya teorii kompozitsii: Tezisi doklada” [The New System of Tone Organization and New Methods of Teaching the Theory of Composition: Theses of Lectures,] RGALI, file 2569. I am grateful to Dr. Charles McKnight for providing me with a copy of this document. See Appendix A for a full translation of the lecture. The capitalizations are Roslavets’s.

are used to trigger different sections of the piece. The extreme spellings of the collections—the -9 collection in m. 76 of the *Nocturne-Quintet*, for example—usually underline the climactic sections of the piece.

Example 2.1 shows an annotated score of mm. 1-8 from the *Nocturne-Quintet* and **table 2.1** summarizes the collections from the score with measure numbers (column 1), the collections in those measures (column 2), and the Q_n subsidiary distance between the contiguous collections (column 3).⁸ These measures are based on four collections: +1 collection, 0 collection, -1 collection, and -2 collection. In **figure 2.6** these collections are shown on the circle of fifths, where the path begins at the upper right side of the circle at the +1 collection and continues moving to the left until it reaches the -2 collection. Thus, this opening section features three subsidiary moves of Q_{-1} and a total distance of $|Q_3|$. As we will see below, a similar path is used in the Sonata.

Table 2.1: Collections from mm. 1-8, the *Nocturne-Quintet*

Mm.	Collections	Q_n subsidiary distance
1-4	+1	 Q_{-1} Q_{-1} Q_{-1}
5	0	
6	-1	
7-8	-2	

⁸ All the tables in this chapter will have the same column labeling.

Example 2.1: Annotated score of mm. 1-8 from the *Nocturne-Quintet*

Andante sostenuto

Oboe

Viola I

Viola II

Violoncello

Andante sostenuto
(tres large)

Arpa
(do| re| mi| fa| sol| la| si|)

p

fa| si|

pp

pp

mf

3

dob mi|b reb sol|b

+1

0

-1

7

-2

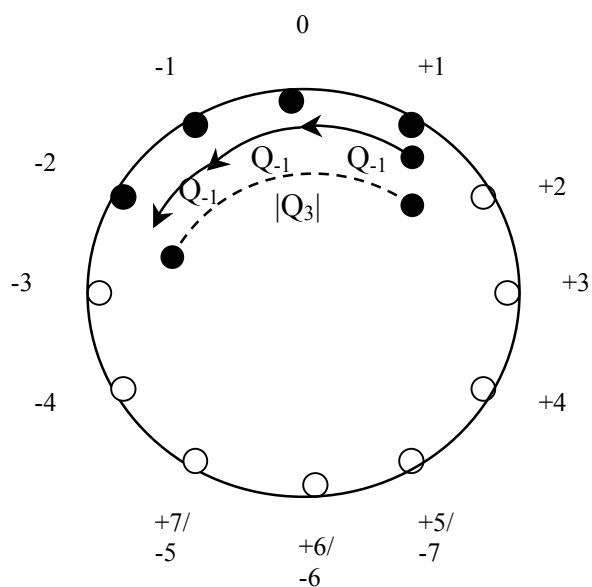
Roslavets NOCTURNE QUINTET

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Figure 2.6: Collections from mm. 1-8 on the circle of fifths, the *Nocturne-Quintet*



Example 2.2 shows an annotated score of mm. 1-10 from the Sonata that is based on -2 collection, -1 collection, 0 collection, and +1 collection; **table 2.2** lists these collections in the order in which they appear in the score. **Figure 2.7** projects these collections on the circle of fifths. As we compare this path with that of the *Nocturne-Quintet* we notice that both pieces use the same collections to establish the openings of each piece: while the *Nocturne-Quintet* begins on the sharp side (i.e., +1 collection) and moves to the flat side (i.e., -2 collection) by three subsidiary movements of Q_{-1} a total distance of $|Q_3|$, the Sonata does the opposite—it begins on the flat side of the circle (i.e., -2 collection) and moves to the sharp side (i.e., +1 collection) by three subsidiary movements of Q_{+1} and the same total distance (i.e., $|Q_3|$). [Please note that the brief movement to the -3 collections in mm. 4-5 acts as a neighboring motion to the -2 collection, which takes a much important role in the section for its temporal length: it

spans over five measures (mm. 1-3 and 6-7).] It is important to note that neither piece simultaneously mixes sharps and flats—i.e., all the notes in each annotated score belong to the labeled collection without any dissonant notes. However, the Sonata's opening measures are far more interesting, for in mm. 8-9 Roslavets leaves us with a puzzle: the absence of pc E makes it rather difficult to determine whether or not these measures feature the -2 collection (with an Eb) or the -1 collection (with E-natural). Because this piece was written around the time of the *Nocturne-Quintet* and shares many similarities, we will assume that the missing E is actually an E-natural, suggesting the -1 collection.⁹ Thus, Roslavets creates a unique system in which he uses tonal elements of fifths' circle coupled with contiguous diatonic collections that operate along the circle without any references to functional tonality.¹⁰

Example 2.2: Annotated score of mm. 1-10 of Sonata No. 1 for Viola and Piano

(Continued on the following page)

⁹ The -1 collection from mm. 8-9 is shown in both table 2.2 and figure 2.7.

¹⁰ Please note that the collections do not establish any keys or tonal centers; they deliberately avoid the horizontal or vertical projections of the traditional major and minor triads.

Musical score system 1, consisting of three staves. The top staff is a single treble clef line with a 3-measure rest at the beginning, followed by a melodic line with slurs and accents. A box labeled "-3" with an arrow points to the third measure. The middle and bottom staves are a grand staff (treble and bass clefs) with a piano accompaniment of sixteenth-note chords. A "6" is written below the first measure of the piano part.

Musical score system 2, consisting of three staves. The top staff continues the melodic line from the previous system. A box labeled "-2" with an arrow points to the second measure. The middle and bottom staves continue the piano accompaniment. A "6" is written below the first measure of the piano part.

Musical score system 3, consisting of three staves. The top staff has a long melodic line with a slur and a fermata. A box labeled "-1" with an arrow points to the first measure. The middle staff has a melodic line with a slur and a fermata, marked with the dynamic *dolce*. The bottom staff has a piano accompaniment with a slur and a fermata, marked with the dynamic *mf*. A "3" is written below the third measure of the piano part.

(Continued on the following page)

Roslavets SONATA NO. 1 FOR VIOLA AND PIANO

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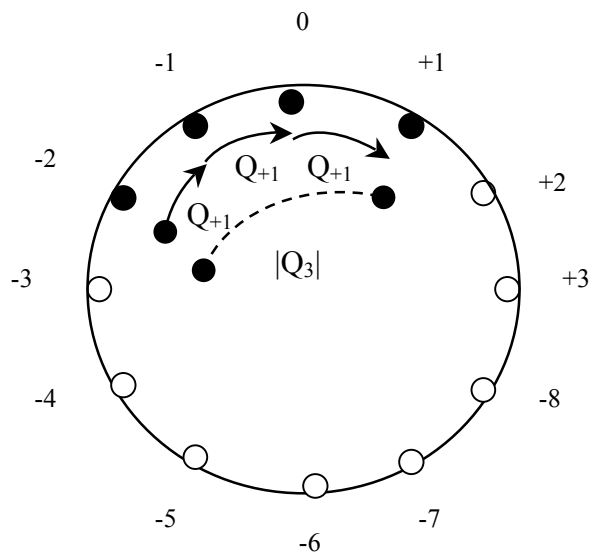
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Table 2.2: Collections from mm. 1-10, Sonata No. 1 for Viola and Piano

Mm.	Collections	Q_n subsidiary distance
1-3	-2	
4-5	-3	
6-7	-2	
8-9	-1	
10.1	0	
10.2-10.3	+1	

Figure 2.7: Measures 1-10 on the circle of fifths, Sonata No. 1



Example 2.3 shows an annotated score of the second half of the first section (mm. 7-24) from the *Nocturne-Quintet*; **table 2.3** lists these collections. There are two interesting features in this section: the circular compositional thinking and the use of dissonant pcs. First, Roslavets's circular thinking is highlighted by the movement from -7 collection to +4 collection (i.e., mm. 12-16 to mm. 17-24) which occurs in a circular, two-dimensional space. Instead of moving onto the -8 collection in m. 17 (i.e., enharmonic for +4 collection) Roslavets moves to the sharp side of the circle (i.e., +4 collection). **Figure 2.8** shows this path on the circle of fifths, where the path is characterized by two subsidiary movements of Q_{-1} and a total distance of $|Q_2|$. Further, this dramatic shift is shown in mm. 16-17 of the score, where the Db_2 in the cello enharmonically switches to a $C\#_2$.¹¹ Second, there are several dissonant pcs that do not

¹¹ This is a very important feature distinguishing Roslavets's experimental work, such as the *Nocturne-Quintet*, with a work that clearly establishes a synthetic chord, which abolishes the concept of a diatonic collection and always accounts for all the spellings

belong to the given collection. These pcs are circled in **example 2.3** and, as I already noted in **chapter 1**, Roslavets freely uses dissonant pcs within any given collection or synthetic chord in order to add continuity to the music, a technique used to add to his cerebral compositional approach.¹² Please note the dramatic use of the dissonant C-natural in mm. 10-14, where it is not only used as a traditional accented passing tone (cello part, mm. 10, 12-14) but it is used as an arpeggiation (second viola part, mm. 10, 12-14). The arrival of the *consonant* C-flat (harp and cello parts, mm. 15-16) finally restores the correct note with not only the dynamics (i.e., the crescendo at mm. 13-15) but also its rhythm (especially as a sustained note in the harp part, mm. 15-16).

Example 2.3: Annotated score of mm. 7-24, the *Nocturne-Quintet*

(Continued on the following page)

[especially the triple sharps (!)]. We will see this in analysis of “Pianissimo” (1913) in the next chapter (chapter 3), where orthography becomes an important compositional dimension along which Roslavets’s synthetic chords travel.

¹² This has also been noted by Sitsky 1994.

-7

12

re!

mp

p

mp

+4

16

p espress.

dim.

do# la# sol# mi#

p

(Continued on the following page)

The image displays a musical score for the 'Roslavets NOCTURNE QUINTET'. It consists of two systems of staves. The first system, starting at measure 20, includes five staves: four for individual instruments (Violin I, Violin II, Viola, and Cello/Double Bass) and one grand staff for the piano. The piano part features a complex rhythmic pattern with triplets and slurs. The second system, starting at measure 24, includes four staves: Violin I, Violin II, Viola, and Cello/Double Bass. The piano part in this system is marked 'sol' and features a simple melodic line. A box labeled '+4' points to the fourth measure of the second system. The page number '30' is located in the top right corner.

Roslavets NOCTURNE QUINTET

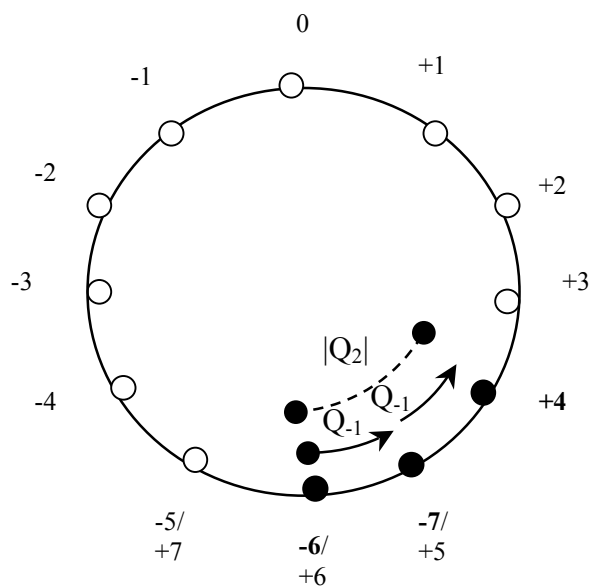
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Table 2.3: Collections from mm. 9-24, the *Nocturne-Quintet*

Mm.	Collections	Q_n subsidiary distance
9	-6	
10	-7	
11	-6	
12-16	-7	
17-24	+4	

Figure 2.8: Measures 9-24 on the circle of fifths, the *Nocturne-Quintet*

The second section of the *Nocturne-Quintet*, mm. 25-46, explores the sharp side of the circle. **Example 2.4** shows an annotated score of this section and **table 2.4** lists the collections. It is evident from both the table and the score that the +2 collection has a

dominant presence, for it not only begins and ends the section (mm. 25-30 and 42-46) but it alternates with the remaining collections in the section: 35-39.2 and 40.2-40.3. This section is rather important to the overall structure of the piece. This is a deliberate compositional choice, for in his 1927 lecture Roslavets stresses the importance of the “tonic-dominant” relationship among his synthetic chords; he writes:

The simplest transpositions of it a 5th higher and lower produce a formula similar to classical tonality: tonic—dominant—subdominant.¹³

As we examine the opening collection—+1—with the one at the beginning of the second section—+2—the fifth relation becomes rather apparent here. Similar to many tonal pieces written during the common practice era the second key area is usually the dominant. Further, in the *Nocturne-Quintet* we are not establishing any keys, however, the fifths’ relationship among the collections creates a strong bond connecting the collections through the circle of fifths. Thus, the +2 collection in the second section of the piece acts like a “dominant” to the opening collection of +1 and it is not a mere coincidence. This section further explores the sharp side of the circle.

¹³ Roslavets 1927. The synthetic-chord path through perfect fifths becomes an important compositional technique in his miniature piano works discussed later in chapter 3.

Example 2.4: Annotated score of mm. 25-46, the *Nocturne-Quintet*

The image displays an annotated musical score for measures 25-46 of the *Nocturne-Quintet*. The score is organized into two systems, each enclosed in a large rounded rectangle. The first system covers measures 24 through 28, and the second system covers measures 29 through 33. The notation includes five staves: Violin I, Violin II, Viola, Cello/Double Bass, and Piano. Various performance instructions and dynamics are annotated throughout the score.

System 1 (Measures 24-28):

- Measure 24: Violin I has a box labeled "24" above it. A box labeled "+2" is positioned above the staff, with an arrow pointing to the beginning of the system.
- Measure 25: Piano part includes the instruction "sola" and dynamic "pp".
- Measure 26: Cello/Double Bass part includes the instruction "arco" and dynamic "p".
- Measure 27: Violin II part includes dynamic "mp".
- Measure 28: Violin I part includes dynamic "pp".

System 2 (Measures 29-33):

- Measure 29: Violin I part includes dynamic "p".
- Measure 29: Violin II part includes the instruction "sola" and dynamic "espress. p".
- Measure 30: A box labeled "2" is placed above the first measure of the piano part.
- Measure 31: A box labeled "+6" is placed above the staff, with an arrow pointing to the beginning of the system.
- Measure 32: Piano part includes dynamic "p".
- Measure 33: Piano part includes dynamic "p".

(Continued on the following page)

32

+3

p *pp*

p espress.

sol

+2

35

3

p espress.

p

3

3

(Continued on the following page)

The image displays a musical score for piano and voice, spanning measures 38 to 41. The score is written in 2/4 time and features a key signature of one flat (B-flat). The piano part is arranged in five staves: Treble, Middle C, Bass, and Grand Staff. The voice part is in the bottom staff. Measure 38 is marked with a box containing the number '38'. Above the first measure, a box with '+2' has an arrow pointing to the second measure. Above the second measure, a box with '-1' has an arrow pointing to the first measure. Above the third measure, a box with '+2' has an arrow pointing to the second measure. The piano part includes dynamics such as *p* (piano) and *mf* (mezzo-forte). The voice part includes lyrics: 'sib fa#', 'sib fa#', and 'sib fa#'. The score is divided into measures by vertical bar lines, and some measures are grouped together with brackets. The bottom of the page contains the text '(Continued on the following page)'.

(Continued on the following page)

+2

44

rit. a tempo

pp

rit. a tempo

pp

do| re| mi| fa| la|

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Table 2.4: Collections from mm. 25-46, the *Nocturne-Quintet*

Mm.	Collections	Q _n subsidiary distance
25-30	+2	
31	+6	
32-34	+3	
35-39.2	+2	
39.3-40.1	-1	
40.2-40.3	+2	
41	-1	
42-46	+2	

The next two figures focus on the two subsections from the second section (mm. 25-46) of the *Nocturne-Quintet*. **Figure 2.9** shows the collections from the first half of the section (mm. 25-39) on the circle of fifths, where, as mentioned above, the path begins and ends with the +2 collection with three subsidiary movements of Q₊₄, Q₋₃, and Q₋₁, and a total distance of |Q₄|. ¹⁴ **Figure 2.10** shows the remainder of the section (mm. 35-46), where the path is characterized by a move to the flat side of the circle: Q₋₃, and Q₊₃ (which begins and ends at +2, or the “dominant” of the piece). The section as a whole is illustrated in **Figure 2.11** where a symmetrical convergence point is revealed in collections +2 and +3. This is one of the most interesting passages, for unlike the previous sections (mm. 1-24), the path along the circle in **figure 2.11** is no longer

¹⁴ For the sake of space, total distance is shown *outside* the circle of fifths.

characterized by contiguous movement to the negative or the positive side, but rather, two collections (i.e., +2 and +3) are not only serving as a symmetrical midpoint, they are the only collections that are used for more than one measure (i.e., +2 lasts for eleven measures and +3 lasts for three measures).¹⁵ It is interesting as we compare the circle in **example 2.4** with that of the opening mm. 1-24 in **examples 2.1** and **2.3**. As we refer back to **examples 2.1** and **2.3**, we are reminded that the opening was exploring the flat side (left) of the circle where it traveled from +1 collection through 0, -1, -2, -6, -7, and finally +4 (or enharmonic -8) collections. In the second section (mm. 25-46) the path begins at the “dominant” or +2 collection and travels directly to the +6 collection. This path is rather striking, for Roslavets creates a dichotomy between the aforementioned flat collections with the sharp collections. This is reflected in the +6 collection in m. 31 and the subsequent collection that follows before returning to the +2 collection—+3 collection (mm. 32-34)—for it also lives on the sharp side. It is clear that the immediate movement from the +2 collection (mm. 25-30) to the +6 collection (m. 31) relates to the -6 collection from the opening section in mm. 9 and 11.

¹⁵ The significance of length of synthetic chords will be further discussed in chapter 4.

Figure 2.9: Measures 25-39 on the circle of fifths, the *Nocturne-Quintet*

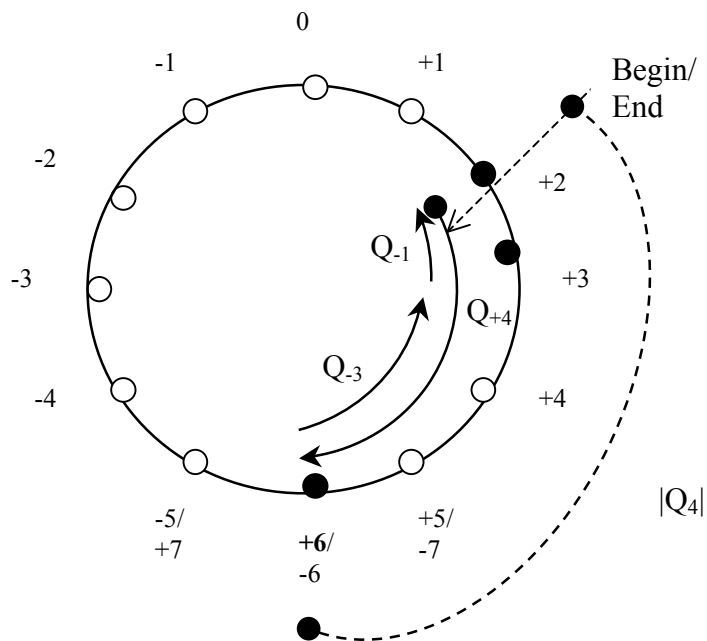


Figure 2.10: Measures 39-46 on the circle of fifths, the *Nocturne-Quintet*

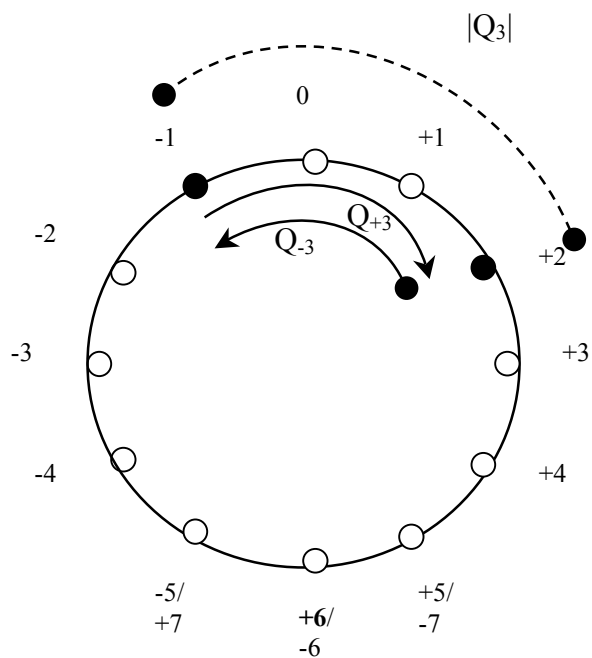
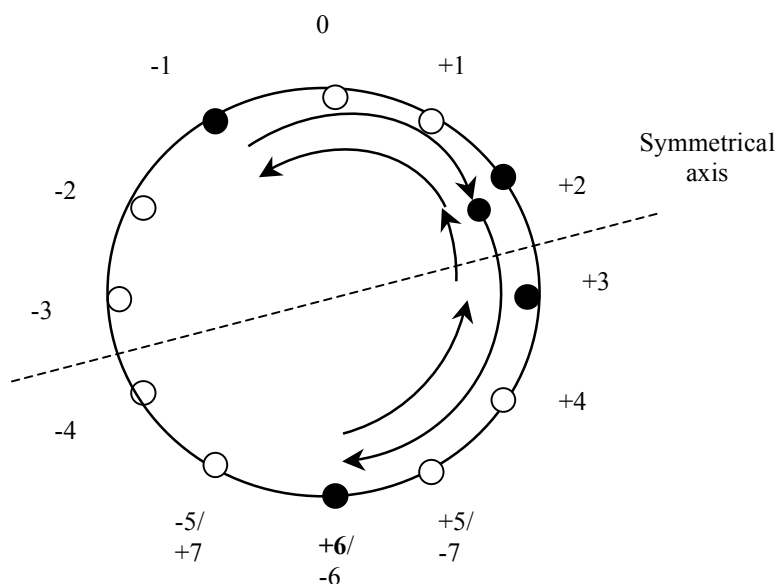


Figure 2.11: Measures 25-46 on the circle of fifths, the *Nocturne-Quintet*



The concept of circular thinking and its pivotal role in understanding Roslavets's experimentations with circles and musical dimension in general reach their peak at the climax of the *Nocturne-Quintet*. **Example 2.5** shows an annotated score of mm. 66-93, the climactic section of the piece, and **table 2.5** lists the collections. One of the striking features of this section that is clearly shown in **table 2.5** is the collection in mm. 76-79. At a first glance it appears as if m. 76 and m. 77 are projecting different collections; however, they are enharmonically equivalent. As we examine m. 76 on the annotated score in **example 2.5** it becomes clear that the -9 collection occurs at the climactic point of the piece, where the dynamics (i.e., *forte*) coupled with the dramatic ascending arpeggio in the harp (mm. 76-77.1) underline the climax of the section [especially since the measures leading to it (mm. 66-76) are characterized by soft (*piano*) dynamics that eventually lead to a *crescendo* into m. 76, and the measures following the climax (mm.

77-92) are characterized by *decrescendo* (mm. 77-79) that eventually reach *pianissimo* at m. 86]. Another striking feature is the pivotal moment at m. 77, where the -9 collection (that is still heard in the arpeggio of the harp) coincides with the +3 collection in the upper four instruments. This is the most unique instant in the whole piece, for Roslavets creates an interesting pivotal point, where the -9 collection becomes an enharmonic pivot to the +3 collection; this is what we call a *shift*. **Figure 2.12** shows mm. 66-76 on the circle of fifths, where the path begins at the -3 collection and through -4, -5, and -6 collections reaches the -9 collection. If the path had stopped here (at the -9 collection) we could have imagined a compositional path in three-dimensions: a spiral that led the collections further down towards the flatter side (see **figure 2.13**).¹⁶ Finally, **figure 2.14** shows the entire section (mm. 66-92) on a circle of fifths with the -9 collection pivoting to the +3 collection. Once again, performance and analysis are compositionally treated as a single entity: the climax is not only highlighted by a dramatic crescendo but it also underlines the enharmonic shift from -9 to the +3 collection adding to Roslavets's cerebral compositional approach, where analysis and performance are indivisible.

¹⁶ We will see Roslavets's further exploration of the circle of fifths into a spiral in the Sonata.

Example 2.5: Annotated score of mm. 66-93, the *Nocturne-Quintet*

The image displays two systems of a musical score for the *Nocturne-Quintet*, measures 66-93. The score is annotated with various markings and symbols.

System 1 (Measures 66-75):

- Measure 66:** Starts with a piano part marked *poco* and a violin part marked *p*. A circled note in the violin part is annotated with a box containing the number 65.
- Measures 67-75:** The violin part continues with triplets and is marked *Tempo I*. A circled note in measure 72 is annotated with a box containing -3.
- Piano Part:** Features sustained chords in the left hand and moving lines in the right hand. The right hand part is marked *p* and *espress.* (espressivo).

System 2 (Measures 76-85):

- Measure 76:** Starts with a piano part marked *poco* and a violin part marked *p*. A circled note in the violin part is annotated with a box containing the number 68.
- Measures 77-85:** The violin part continues with triplets and is marked *Tempo I*. A circled note in measure 82 is annotated with a box containing -4.
- Piano Part:** Features sustained chords in the left hand and moving lines in the right hand. The right hand part is marked *p* and *mf* (mezzo-forte).

The score includes various musical notations such as triplets, slurs, and dynamic markings. The annotations highlight specific notes and measures of interest.

(Continued on the following page)

71

-5 -6 -4

74

p *mf* *cresc.* *dob* *fab*

(Continued on the following page)

76

-9

+3

+2

f

f

f

f

dim.

dim.

dim.

dim.

8

do re si sol mi fa

p glissando

79

+1

p

p

p

p

(Continued on the following page)

81

+1

6 cresc. poco a poco

6

6

fa 4

84

0

mf

mf

mf

mf

dim.

dim.

7

p

(Continued on the following page)

86

0

-3

Musical score for measures 86-88. The score is divided into two systems. The first system (measures 86-88) features a piano part with a complex melodic line and a string quartet part with rhythmic patterns. The piano part includes markings for *p*, *pp*, *cresc.*, *sib*, *mf*, and *dim.*. The string quartet part includes markings for *p*, *mf*, and *dim.*. A box labeled '0' is positioned above measure 86, and a box labeled '-3' is positioned above measure 88. Circled notes are present in measures 86, 87, and 88.

89

Musical score for measures 89-91. The score is divided into two systems. The first system (measures 89-91) features a piano part with a complex melodic line and a string quartet part with rhythmic patterns. The piano part includes markings for *p*, *pp*, *mf*, and *dim.*. The string quartet part includes markings for *p*, *mf*, and *dim.*. A box labeled '89' is positioned above measure 89. Circled notes are present in measures 89, 90, and 91.

(Continued on the following page)

-3

92

arco

p

mp

pp

sol b

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Table 2.5: Collections from mm. 66-93, the *Nocturne-Quintet*

Mm.	Collections	Q _n subsidiary distance
66-69	-3	
70	-4	
71	-5	
72	-4	
73	-5	
74-75	-6	
76	-9	
77	+3	
78-79	+2	
80-83	+1	
84-87	0	
88-92	-3	

Figure 2.12: Measures 66-76 on a circle of fifths, the *Nocturne-Quintet*

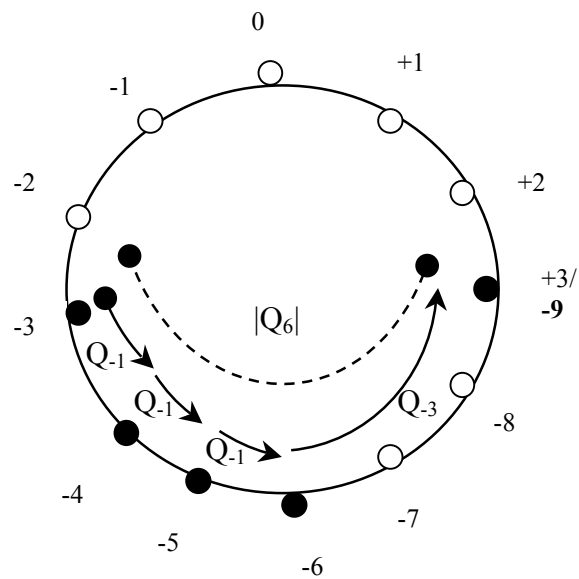


Figure 2.13: Measures 66-76 on a spiral, the *Nocturne-Quintet*

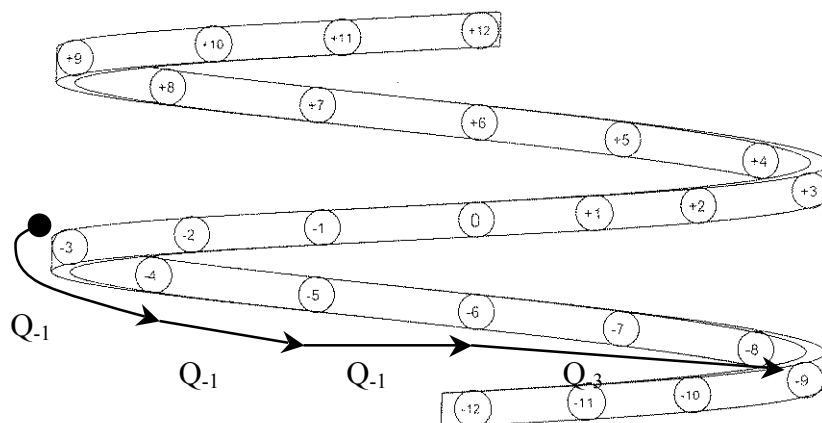
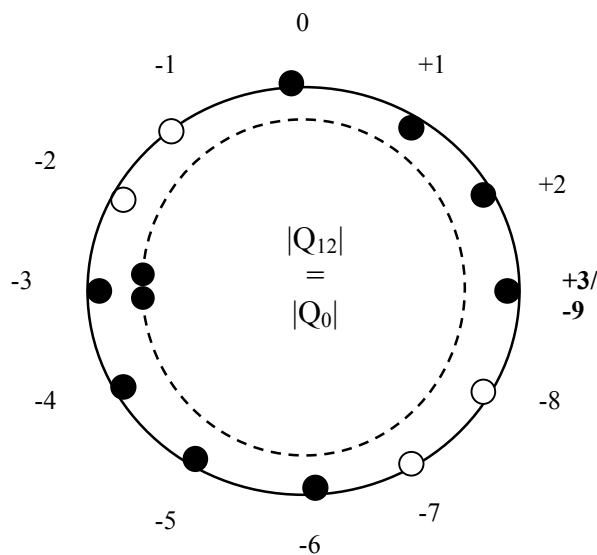


Figure 2.14: Measures 66-92 on a circle of fifths, the *Nocturne-Quintet*



Example 2.6 shows an annotated score of mm. 94-115 (end) of the *Nocturne-Quintet*. **Table 2.6** lists the collections projected in this section. It is important to note that mm. 94-101 function as a re-transitional section back to the opening chorale theme (mm. 102-110), now heard two fifths higher (i.e., +3 collection) than initially in m. 1 (i.e., +1 collection). Similar to Roslavets's many compositions, the *Nocturne-Quintet* begins and ends with the same collection/synthetic chord: +1 collection (mm. 1-4 and mm. 111-115). Further, the three collections that conclude the piece are allude to the climactic section (mm. 66-92): the -6 collection acts as a re-transition to the last section (mm. 102-115) and the +3 collection, which begins the final section, is the enharmonic equivalent of the -9 collection. **Figure 2.15** shows mm. 94-115 on the circle of fifths. By using a flat-collection and two sharp-collections, Roslavets underlines his compositional space: by using enharmonic equivalence along the circle of fifths he is able

to create pivotal shift where he easily moves in and out of flat and sharp collections within the two-dimensional space.

Example 2.6: Annotated score of mm. 94-115 (end), the *Nocturne-Quintet*

The image shows a musical score for the Nocturne-Quintet, specifically measures 94-115. The score is divided into two systems. The first system (mm. 94-103) features a violin part with a trill (pizz.) and a piano part with a trill (arco). The second system (mm. 104-115) features a violin part with a trill (arco) and a piano part with a trill (arco). The score is annotated with various performance instructions and dynamics.

Annotations include:

- Boxed number 92 at the start of the first system.
- Boxed number 7 at the start of the second system.
- Boxed number -6 with an arrow pointing to a measure in the second system.
- Dynamic markings: *p*, *mp*, *pp*.
- Performance instructions: *arco*, *pizz.*, *sol b*, *re b*, *dob*.
- Trill markings: *3*.

(Continued on the following page)

-6

95

Musical score for measures 95 and 96. The score is written for four staves: Treble, Bass, Tenor, and Bass. The key signature has two flats (B-flat and E-flat). Measure 95 features a melodic line in the Treble staff with a slur and a fermata, and a bass line in the Bass staff with a slur and a fermata. Measure 96 continues the melodic line in the Treble staff with a slur and a fermata, and the bass line in the Bass staff with a slur and a fermata. The piano part is written in grand staff (Treble and Bass) with a slur and a fermata. Dynamics include *p* and *p cresc.*

97

Musical score for measures 97 and 98. The score is written for four staves: Treble, Bass, Tenor, and Bass. The key signature has two flats (B-flat and E-flat). Measure 97 features a melodic line in the Treble staff with a slur and a fermata, and a bass line in the Bass staff with a slur and a fermata. Measure 98 continues the melodic line in the Treble staff with a slur and a fermata, and the bass line in the Bass staff with a slur and a fermata. The piano part is written in grand staff (Treble and Bass) with a slur and a fermata. Dynamics include *p* and *p cresc.*

(Continued on the following page)

99

rit.

dim.

dim.

dim.

dim.

dim.

rit.

dim.

morendo

do# fa#
re# sol#
si# mi#
la#

-6

102

Lento

(con sordino)

p espress.

dim.

dim.

dim.

dim.

dim.

[p]

+3

(Continued on the following page)

108

112

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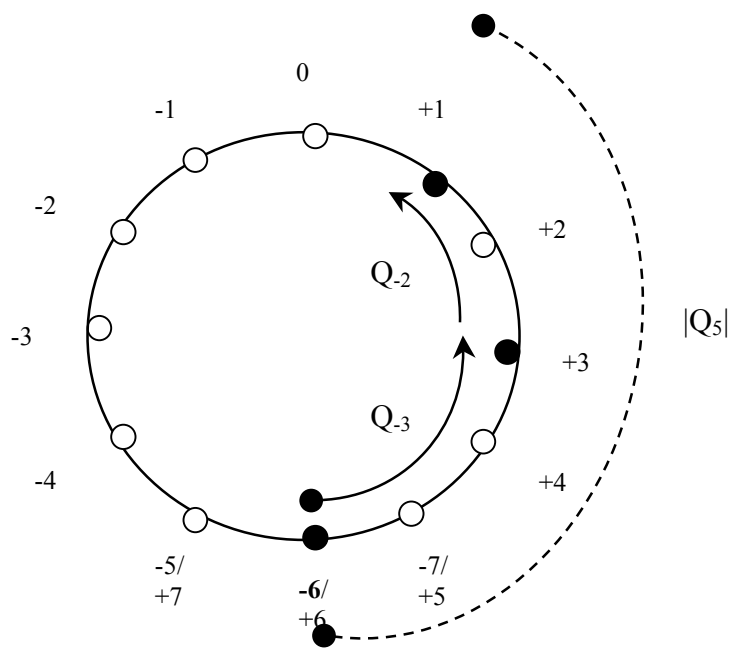
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Table 2.6: Collections from mm. 94-115 (end), the *Nocturne-Quintet*

Mm.	Collections	Q_n subsidiary distance
94-101	-6	
102-110	+3	
111-115	+1	

Figure 2.15: Measures 94-115 (end) on a circle of fifths, the *Nocturne-Quintet*



2.3: A Spiral Space in the Sonata No. 1 for Viola and Piano (1926)

Sonata No. 1 for Viola and Piano has a complicated history. It was sketched in the 1910s but was never fully completed. In a forward to the 1990 Schott edition of Sonata No. 1 for Viola and Piano, Marina Lobanova writes:

The background of the *Sonatas for Viola and Piano* by Nikolai Roslavets (1881-1944) is quite complicated. The sketches with the title *First Sonata for Viola and Piano* were not carried to completion by the composer, and are too inconclusive to support an authentic reconstruction.

In 1926 Roslavets composed a *Sonata for Viola and Piano*, which he dedicated to W. W. Borisovsky. In his own catalogue of works only this sonata is mentioned and not the earlier one, which seems to indicate that he was not particularly interested in its completion. Since Roslavets later composed the *Second Sonata for Viola and Piano* one can confidently call the 1926 work his “First Sonata.”

In the present chapter we will see that the compositional technique in the Sonata reveals a similar approach from the *Nocturne-Quintet* that seems to suggest that the Sonata was probably based on an earlier sketch that Lobanova mentions above. The compositional technique is much akin to the technique used in the *Nocturne-Quintet* than the pieces composed after it.

The current study shows that the Sonata is an experimental continuation of Roslavets’s compositional space from two-dimensions to three-dimensions. As we will see below, similar to the *Nocturne-Quintet*, the Sonata is also based on non-functional, diatonic, seven-note collections. Its opening ten measures discussed above (refer back to **examples 2.2**) parallel the same compositional approach as the opening of the *Nocturne-Quintet*—collections contiguously moving along the circle of fifths (in the Sonata’s case: from -2 collection to +1 collection). As we will see below, unlike the *Nocturne-Quintet*, the movement of collections in the Sonata reveals an interesting spatial aspect in which the circle has turned into a spiral. This becomes especially apparent in the strict spellings of the collections, where a -9 collection, for instance, will not be re-interpreted as a +3 collection, but rather, it continues into a -10 collection.¹⁷

¹⁷ This dimensional shift from two- to three-dimension will directly lead to Roslavets’s mature works analyzed in chapter 3, in which a *line* of fifths, which can still be imagined

Example 2.7 shows an annotated score of mm. 16-20 from the Sonata, and **table 2.7** lists the collections used in this section. The section explores the flat side of the circle, for it contiguously travels from the -2 collection to the -7 collection by four subsidiary moves of Q_{-1} . **Figure 2.16** shows this path on the circle of fifths. This section is rather intriguing for it establishes Roslavets's "tonic-dominant-subdominant" relationship with the opening measures: while mm. 1-7 establish the "tonic" collection of -2 and mm. 8-9 establish the "dominant" collection of -1 (refer back to **example 2.2**), m. 16 contributes to the "subdominant" collection of -3 (see **figure 2.17**). Further, Roslavets's exploration on the "flat" collection can be illustrated on a spiral. **Figure 2.18** shows mm. 16-20 on a spiral.

as a spiral, not only widens the compositional space but it also enables the collections/synthetic chords to interact in interesting symmetrical relationships among one another.

Example 2.7: Annotated score of mm. 16-20, the Sonata¹⁸

The image shows a musical score for measures 16-20 of a Sonata. The score is divided into two systems. The first system (measures 16-17) is enclosed in a rounded rectangle and contains a box labeled '-3' with an arrow pointing to measure 16. The second system (measures 17-20) is also enclosed in a rounded rectangle and contains two boxes labeled '-4' and '-5' with arrows pointing to measures 17 and 18 respectively. The score includes piano (pp), piano-piano (p), and piano-forte (più forte) markings, as well as performance instructions like 'tr' (trills) and 'espress.' (expressive). The notation features various rhythmic patterns, including triplets and sixteenth-note runs, and fingering numbers (3, 5, 6) are indicated throughout.

(Continued on the following page)

¹⁸ Because the -4 collection is omitting its seventh pc—G—and collection -5 is omitting its seventh pc—C—we are assuming that they are both natural: G-natural and C-natural.

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Table 2.7: Collections from mm. 16-20, the Sonata

Mm.	Collections	Q_n subsidiary distance
16	-3	
17	-4	
18	-5	
19	-6	
20	-7	

Figure 2.16: Measures 16-20 on the circle of fifths, the Sonata

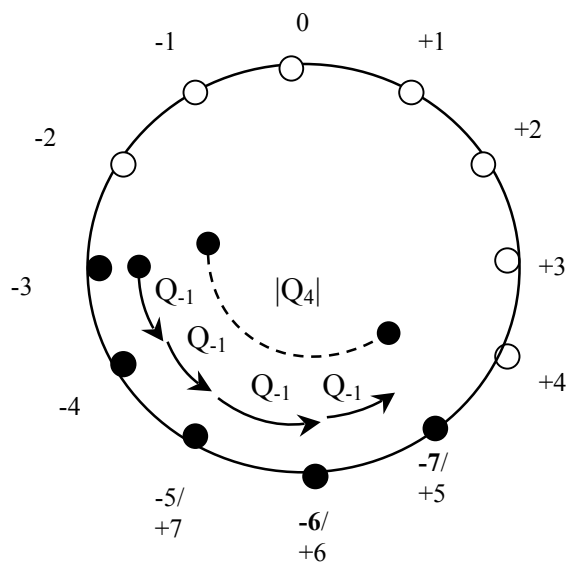


Figure 2.17: “Tonic-Dominant-Subdominant” relationship in the Sonata

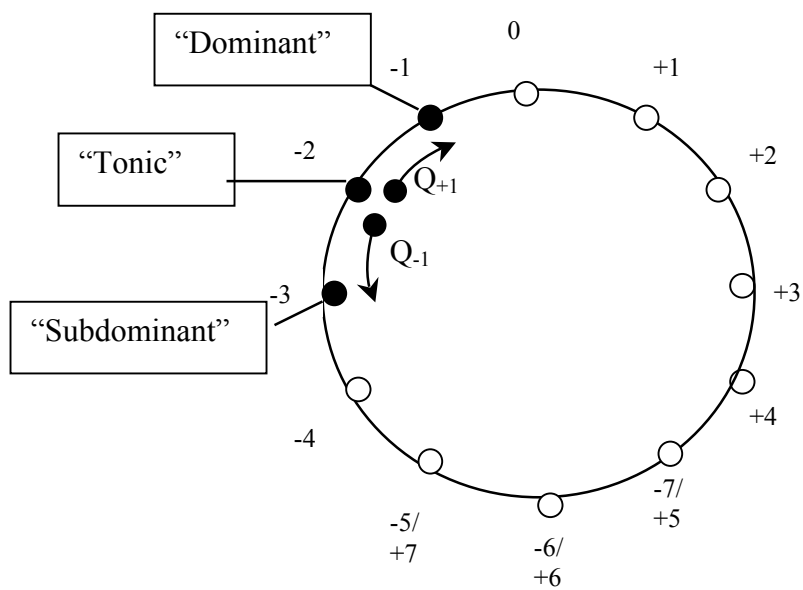
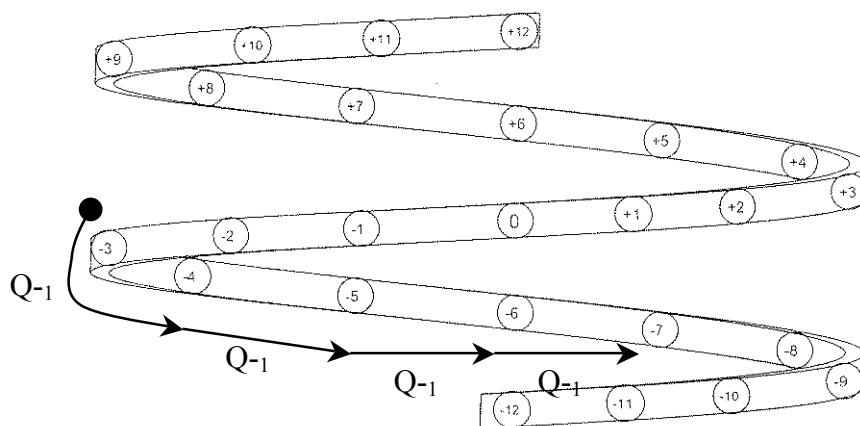


Figure 2.18: Measures 16-20 on a spiral of fifths, the Sonata



The compositional space of a spiral continues through the next section of the piece. **Example 2.8** shows an annotated score of mm. 21-34 and **table 2.8** lists the collections used in this section. This section is the most interesting section of the piece, for it can be contrasted with the compositional space in the *Nocturne-Quintet*. **Figure 2.19** shows the collections from mm. 21-34 on a *circle* of fifths. Please note that similar to the previous sections discussed above (i.e., mm. 1-10 and 16-20) the piece continues to explore the flat collections. Similar to mm. 66-93 from the *Nocturne-Quintet* (refer back to **examples 2.5**, especially the circle of fifths in **figure 2.12**), the collections in mm. 21-34 from Sonata No. 1 progress to the -9 collection at m. 32. However, unlike the section from the *Nocturne-Quintet*, m. 32 from Sonata No. 1 does *not* participate in pivot shift, but rather it functions as a neighboring collection to the -8 collection to which the progression returns. This compositional change from the *Nocturne-Quintet*, where we get so flat (i.e., -9) that they come out of the sharp side of the circle (i.e., +3), the path of the collections in Sonata No. 1 do not. Here, the collections progress to the flat side and stay

there, as if to push or lengthen the limiting circle of 12 collections into infinity. **Figure 2.20** shows the collections projected in **figure 2.19** on a spiral illustrating the dimensional break from the circular space.

Example 2.8: Annotated score of mm. 21-34, the Sonata

(Continued on the following page)

29

-6

-8

-9

33

-8

p

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Table 2.8: Collections in mm. 21-34, the Sonata

Mm.	Collections	Q_n subsidiary distance
21-22	-1	
23	-3	
24	-1	
25-29	-5	
30	-6	
31	-8	
32	-9	
33-34	-8	

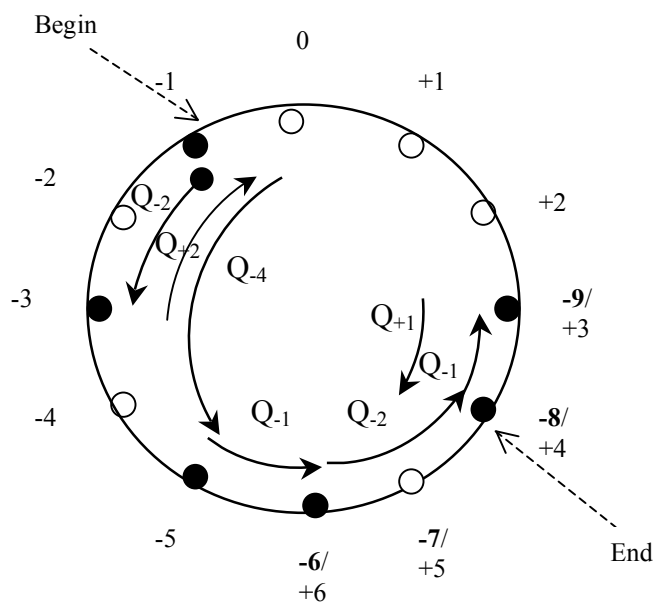
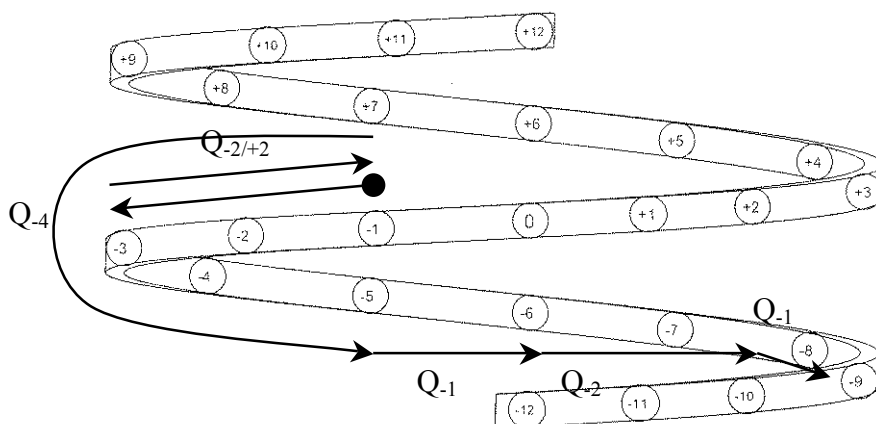
Figure 2.19: Collections from mm. 21-34 on the circle of fifths, the Sonata

Figure 2.20: Collections from mm. 21-34 on a spiral, the Sonata¹⁹



Example 2.9 shows an annotated score of mm. 79-86 from the climax from the Sonata, and **table 2.9** lists the collections from this section. Once again, the flat side of the spiral is being explored (i.e., $-6 \rightarrow -7 \rightarrow -8$) and **figure 2.23** illustrates them on a spiral. It is important to note here the similarities, as well as differences, with the climactic section from the *Nocturne-Quintet*. Referring back to the annotated score of the *Nocturne-Quintet* in **example 2.5** the -9 collection is reached at m. 76 with a dramatic *forte* immediately followed by the enharmonic pivotal shift to the +3 collection at m. 77. Sonata No. 1 follows the same compositional principle to underline its most important collection. In the annotated score of **example 2.9** the goal of the passage is the -8 collection; it is reached at m. 83 with a triple *forte* and a dramatic finish with an ascending scale in m. 86 in the piano part. This section is further highlighted with its

¹⁹ For convenience, the first two Q_n distances, Q_{-2} and Q_{+2} , have been represented with a slash (i.e., $Q_{-2/+2}$) on the spiral.

bright, high register.²⁰ In short, the extreme dynamics coupled with the register underline the climax of the -8 collection that strongly parallels the compositional procedure in the climax of the *Nocturne-Quintet*: by pivotal shift from a -9 collection to a +3 collection the *Nocturne-Quintet* enhances its circular compositional space, by absence of a shift in its entirety from the Sonata Roslavets's compositional procedure comments on a spiral space as it expands its spatial limitations.

Example 2.9: Annotated score of mm. 79-86, the Sonata

(Continued on the following page)

²⁰ Please note the high register of the viola part in m. 83: it has temporarily shifted to the treble clef.

-7

81 13

Musical score for measures 81 and 82. Measure 81 features a piano introduction with a *ff* dynamic. The right hand has a melodic line with a trill and a triplet. The left hand has a complex accompaniment with sixteenth-note patterns and triplets. Measure 82 continues with similar textures, including triplets and sixteenth-note runs.

83

Musical score for measure 83. The right hand has a melodic line with a trill and a triplet. The left hand has a complex accompaniment with sixteenth-note patterns and triplets. The dynamic is *fff*.

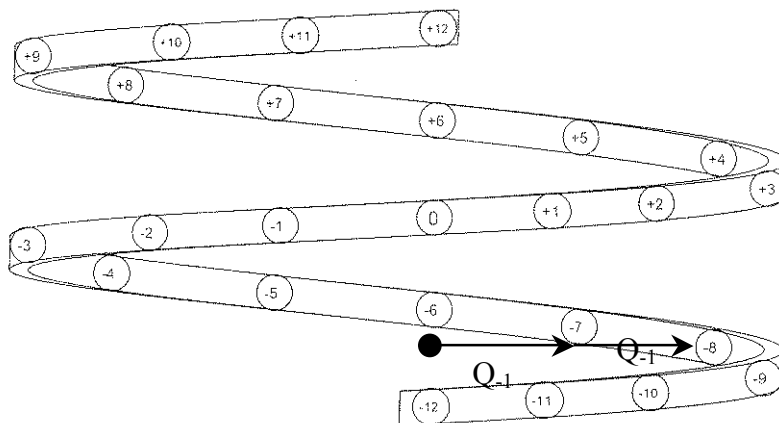
85

Musical score for measure 85. The right hand has a melodic line with a trill and a triplet. The left hand has a complex accompaniment with sixteenth-note patterns and triplets. The dynamic is *fff*. The instruction *con tutta forza* is present.

-8

Table 2.9: Collections from mm. 79-86, the Sonata

Mm.	Collections	Q_n subsidiary distance
79-80	-6	
81-82	-7	
83-86	-8	

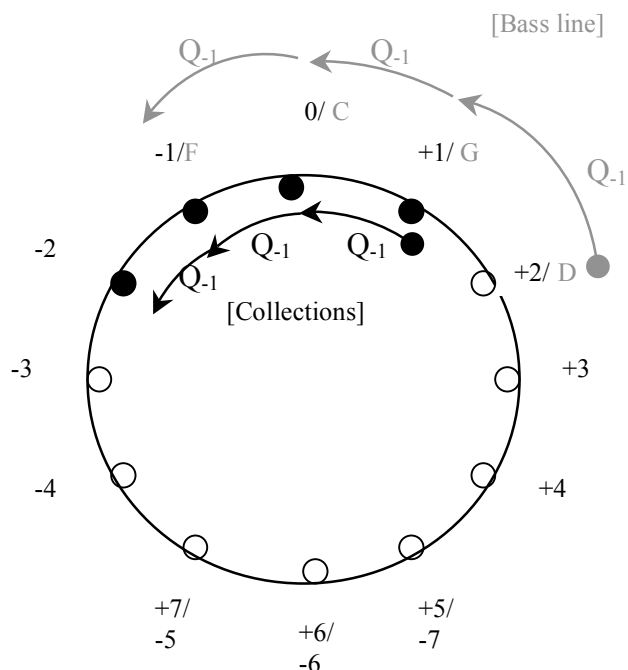
Figure 2.21: Collections from mm. 79-86 on a spiral, the Sonata

2.4: Motivic Projections of Quints on the Musical Surface

The underlying Q_n relationships discussed in the *Nocturne-Quintet* and the Sonata are also evident on the musical surface motivically and registrally. Roslavets projects quints as open perfect fifths (e.g., opening of the Sonata), as well as whole steps or ic2 that can be represented by two quints (Q_2) on the circle/spiral of fifths. To further achieve musical unity, Roslavets uses extreme registral boundaries to project these quints. In the *Nocturne-Quintet* and the Sonata the bass (or the lowest voice) and the soprano (or the highest voice) often underline the Q_n structural distance that the

collections travel on either the circle or a spiral of fifths. For example, if we refer back to **example 2.1** and take the first bass notes from the beginning of each collection of the harp part—D₂, G₂, C₃, and F₃—we note that it is at Q₋₁ relation with the structural Q_n movement among the collections (see **figure 2.22**). **Figure 2.22** projects the movements of the collections from **figure 2.6**, as well as the bass line from the same section (mm. 1-8). For the bass line, by re-interpreting the designated collections with the pitch-classes of the traditional circle of fifths—i.e., +2 equals pc D, +1 equals pc G, 0 equals pc C, -1 equals pc F—we are able to show both the structural movements of the collections as well as the motivic bass-line movements along the circle of fifths. Further, **figure 2.22** shows a Q₋₁ relationship between the structural Q_n and the motivic Q_n movement that further underline the importance of the quint on both motivic and structural levels. The motivic path, which begins on pc D is also significant, for it not only creates a “dominant” relation with the initial collection (i.e., +1) but it also anticipates the “dominant” harmonic area of the second section of the *Nocturne-Quintet* (mm. 25-30).

Figure 2.22: Collections (in black) and the underlying bass line (in gray, outside the circle) from mm. 1-8 on the circle of fifths in Q_{-1} homophonic relation, the *Nocturne-Quintet*



A similar relationship of a quint returns at the end of the *Nocturne-Quintet*.

Example 2.10 shows the harp part, where the lowest notes of each collection are circled— Db_2 , E_2 , and D_2 . **Figure 2.23** shows this bass-line movement with that of the structural movement of the collections on the circle of fifths. The path shown in **figure 2.23** is similar to that of the opening eight measures. The quint relationship between the movement of the collections with that of the bass line remains at $|Q_1|$: at every Q_n distance that the structural Q_n travels— Q_{-3} and Q_{-2} —the bass line imitates it, always at Q_{-1} distance. In short, similar to all of Roslavets's pieces, the *Nocturne-Quintet* concludes with its opening collections (i.e., +1) and similar to the opening of the piece, the bass line

102

8

+3

E

108

8

pp

p

dolc solt

D

112

8

rit.

a morendo

+1

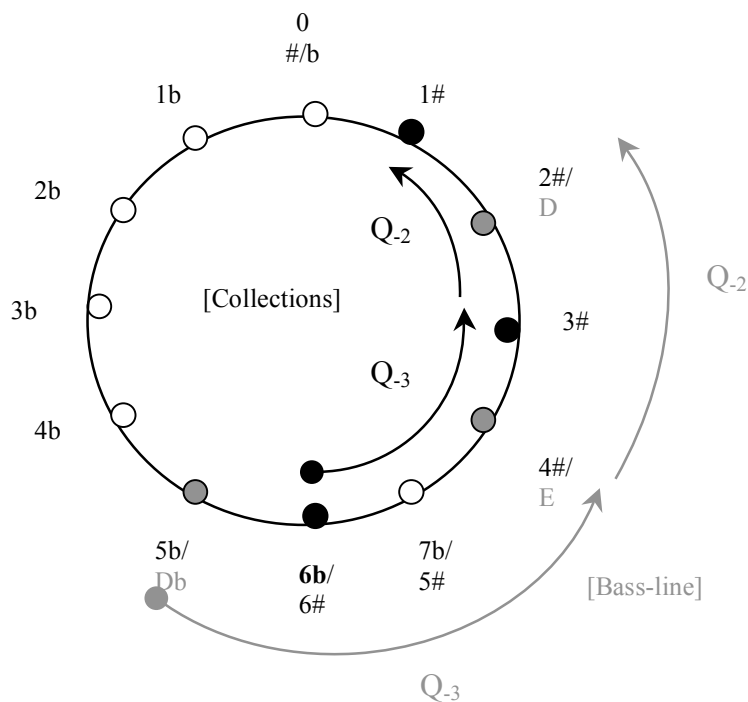
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Figure 2.23: The bass-line movement and the path of the collections in mm. 94-115, *Nocturne-Quintet*



The climax of the *Nocturne-Quintet* is also interesting on both structural and motivic levels. **Example 2.11** shows an annotated score of the harp part, mm. 66-76, which highlights the highest and the lowest pitches.²¹ Before discussing the significance of these dyads, we will first turn our attention to the underlying bass line: F₄, Bb₄, Eb₄, Ab₄, and Cb₂. **Figure 2.24** shows both the collections in this section (reproduced from **figure 2.13**), as well as the bass line on a spiral of fifths.²² As we compare **figure 2.24** with **figure 2.23**, the relationship between the structure Q_n among the collections and the

²¹ In this section, the range of the harp part provides with the highest and the lowest pitches, which are significant for motivic projections on the circle of fifths.

²² Here, we prefer a spiral path, for the collections reach -9.

bass line has widened: instead of Q_{-1} relation, it is now a Q_{-2} relation [i.e., the bass line begins on F (or at -1) and the path of the collections begins at -3]. This homophonic with a difference of two quints is reflected on musical surface through the dyads highlighted in **example 2.11**. In pitch-space these distinct dyads are [G-F], [F-Bb], [F-Eb], [Eb-Ab], and [Cb-Fb], which either outline ic 2 (e.g., [G-F] and [F-Eb]) or ic 5 (a quint) (e.g., [F-Bb], [Eb-Ab], and [Cb-Fb]). On the spiral or circle of fifths/quints these intervals are represented by Q_{-1} or Q_{+1} (or a distance of a single quint), or Q_{-2} or Q_{+2} (or a distance of two quints). Thus, as we return to **figure 2.24**, the Q_{-2} relation between the structural Q_n (among the collections) and the motivic Q_n (among the bass line and dyads) is underlined on the musical surface by the ic2 dyads that can be represented by two quints on the spiral of fifths.

Example 2.11: Annotated score of the harp part, mm. 66-76, the *Nocturne-Quintet*

The image shows two systems of musical notation for a harp part. The first system begins with a box containing the interval [G-F] with an arrow pointing to a dyad in the bass line. The second system begins with a box containing the number 68 and another box containing the interval [F-Bb] with an arrow pointing to a dyad in the bass line. The score includes various musical markings such as 'Tempo I', 'p', 'do ♯', 're ♯', and 'sol ♭'. Arrows and circles are used to highlight specific dyads in the bass line.

(Continued on the following page)

71 [F-Eb] [F-Bb] [F-Eb]

74 [Eb-Ab] [Cb-Fb]

76

do# sol#
re# mi#
si# fa#

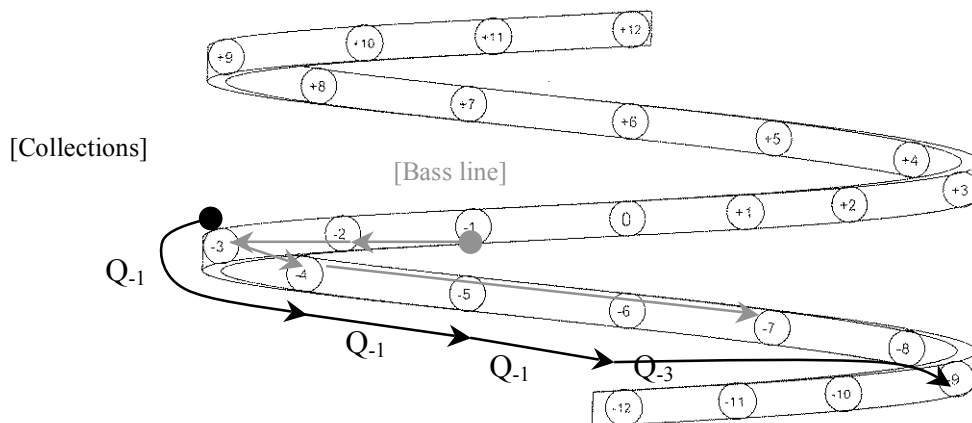
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Figure 2.24: Measures 66-76 on a spiral with the structural movements of the collections (in black), as well as the movement of the bass line (in gray), the *Nocturne-Quintet*²³



A similar Q_{-2} relation between the structural Q_n (among the collections) and the motivic Q_n (among the bass line and dyads) occurs in the opening of the Sonata.

Example 2.12 provides an annotated score of mm. 1-10, where the bass line is highlighted. This excerpt is rich with motivic elements on the musical surface, for the bass line not only begins at C_2 (Q_{+2} ahead of the -2 collection), but the accompaniment is filled with open fifths (or quints) in the right hand of the piano (e.g., G_3 - D_4 dyad in mm. 1-3 and mm. 6-7; G_3 - C_4 dyad in mm. 4-5, etc.). Also, please note the quint in the opening dyad of the viola part (i.e., G_5 and D_5 in m. 2), which further underlines the motivic importance of the quint (or, in this case, an inverted quint). **Figure 2.25** shows mm. 1-10 on the circle of fifths where the collections, as well as the underlying bass line, are shown. Further, the passage is not only unified by the movement along the circle of fifths but it is further strengthened on the motivic level by the open quints in the

²³ Because of the lack of space, the bass line (in gray) pitch classes could not be indicated; instead of -1, -2, -3, -4, and -7 on the spiral, they should be F, Bb, Eb, Ab, and Cb, respectively.

accompaniment and the viola melody, which moves by $ic5$ (mm. 2-3), underlines the important of Q_2 —a distance that separates the movement of the collections with the bass line. In **figure 2.25** both the collections and the bass line are always at Q_2 relationship with each other except for the last move in the bass—when it travels from D_2 (m. 10.1) to E_2 (m. 10.6)—widening the distance with the last collection (i.e., +1) to Q_3 . This movement is not an anomaly, but rather, it also contributes to the registral element on the musical surface. Throughout this section (mm. 1-10) the highest and the lowest notes in any given collection either comprise $ic5$ (or $ic7$) or $ic2$. As we turn back at **example 2.12** we notice that with every change in collections, the highest and the lowest notes of the accompaniment either comprise a quint (i.e., $ic5$) or a whole step (i.e., $ic2$), which will translate into Q_1 or Q_2 on the circle of fifths. These pitch-classes are: C_2 and D_5 in mm. 1-3, F_2 and C_5 in mm. 4-5, C_2 and D_5 in mm. 6-7, G_2 and A_6 in mm. 8-9, D_2 and E_5 in m. 10.1, and E_2 and $F\#_5$ in m. 10.6.

Example 2.12: Annotated score of mm. 1-10, the Sonata

The image shows a musical score for the first ten measures of a Sonata. The score is for Viola and Piano. The tempo is 'Allegretto moderato'. The Viola part is in the upper staff, and the Piano part is in the lower staff. The Piano part features a complex accompaniment with triplets and slurs. A circled 'C' is placed below the first measure of the Piano part. The score includes dynamic markings like 'p' and 'simile'.

(Continued on the following page)

3
6
3
3
6

This system contains measures 3 through 6. The top staff features a melodic line with slurs and accents, including a triplet of eighth notes in measure 4. The bottom staff provides a piano accompaniment with a steady eighth-note pattern in the left hand and chords in the right hand.

F

6
6
6

This system contains measures 6 through 9. The top staff continues the melodic line with slurs and accents. The bottom staff continues the piano accompaniment with slurs and accents.

C

8
dolce
mf
3

This system contains measures 8 through 11. The top staff begins with a long slur and includes the instruction *dolce*. The bottom staff includes the instruction *mf* and features a triplet of eighth notes in measure 10. The system concludes with a double bar line.

G

(Continued on the following page)

10

simile

D E

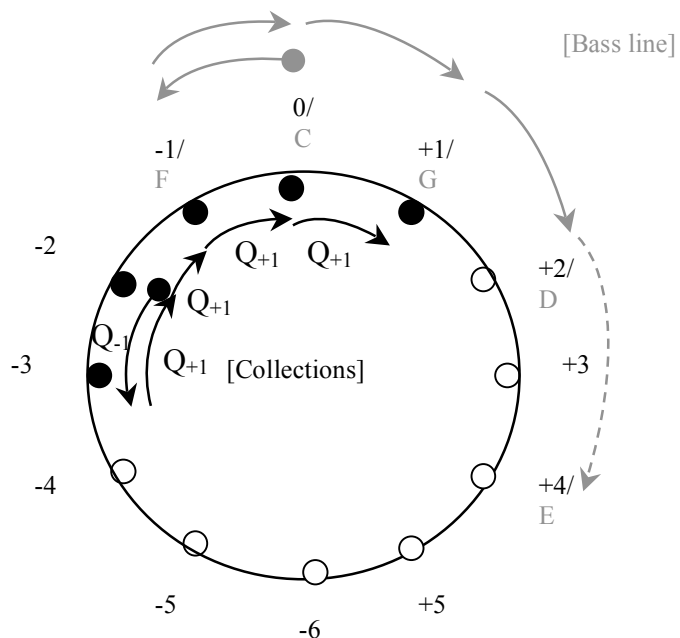
Roslavets SONATA NO. 1 FOR VIOLA AND PIANO

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Figure 2.25: The collections and bass line of mm. 1-10 on the circle of fifths, the Sonata



CHAPTER 3

Triple Sharps, Symmetries, and the Line of Fifths: Roslavets's Orthography

The following chapter provides a transformational apparatus to explain Roslavets's unique orthography in his mature works that often feature such peculiarities as triple sharps.¹ Throughout the chapter I will refer to transformational voices or sets, where I identify transposition as a source of atonal voice leading.² The present study distinguishes voices from the actual registral lines, where the musical register does not impact on the path of a transformational voice (e.g., $C\#_5$ can transform to D_2). Further, because of Roslavets's idiosyncratic spellings, my theoretical framework does *not* assume enharmonic equivalence; however, all the transformations occur in pitch-class space. While traditional set theory might collapse, say, a $C\#$, Db , and Bx into a single numerical pitch class, my theoretical apparatus is sensitive to the variety of spellings Roslavets gives to pitches. The chapter is divided into four sections: **3.1** will explain the theoretical framework and the three types of symmetries—crisp, near-symmetry, and nested-crisp symmetry; and **3.2** through **3.4** will apply this theoretical framework to Roslavets's solo piano pieces from 1914-1926.

¹ As we will see later in the chapter, mature works are characterized by strict Q_n transpositions of the synthetic chord that often results in different types of symmetries (described later in the chapter). Such works include *Trois Etudes* nos. 2 and 3; *Cinq Préludes* nos. 1 and 5; and *Trois Compositions*.

² For a more extensive study on transformational voice leading see Straus 2003, Gollin 1998, Lewin 1998, Straus 1997, and O'Donnell 1997.

3.1: Line of Fifths and Q_n Transforms

In **chapter 2** we discussed Roslavets's multi-dimensional thinking in the *Nocturne-Quintet* and the Sonata, where the two-dimensional circle of fifths in the *Nocturne-Quintet* had turned into a three-dimensional spiral space that allowed Roslavets to explore further either the flat or the sharp diatonic collections.³ In the present chapter (for practical purposes) we will use a line of fifths to replace the three-dimensional spiral.

Figure 3.1 shows a double-angled line of fifths with projections of members of $sc(0135)$.⁴ Each point on the line shows a set class distanced by an interval of a perfect fifth. Further, each point on the line is a member of $sc(0135)$ and set [C, D, E, F] is marked at point 0. The 0 designation is completely arbitrary in **figures 3.1** through **3.11**. We will see later in the chapter that the set class marked at point 0 is contextual to Roslavets's each work, for the pieces discussed in this chapter all begin and end with the same set class.⁵ In short, the set marked at point 0 is a kind of "tonic" for each composition. Further, all the projections of $sc(0135)$ are *exact* transpositions of each other, where there is no enharmonic equivalence; the sets farther to the right side of the line become more sharp, and the sets farther to the left become more flat so that each end of the line extends to infinity.

³ Referring back to chapter 2 in contrast with the *Nocturne-Quintet*, enharmonic shift was not possible in the Sonata that changed the two-dimensional space of a circle into a three-dimensional spiral.

⁴ For a further reading on a line of fifths see Regener 1972 and Temperley 2000.

⁵ From the pieces discussed in this chapter only *Trois Compositions* no. 1 does not end with $Q_0(X)$; see example 3.22.

Figure 3.1: Members of $sc(0135)$ on a line of fifths; $Q_0(X) = [C, D, E, F]$

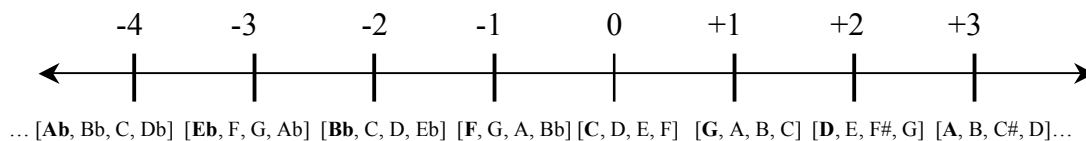


Figure 3.2 shows a Q_{-1} transformation from set $Q_0(X)$ to set $Q_{-1}(X)$, where $Q_0(X)$ equals $[C, D, E, F]$, and Q represents a quint or a perfect fifth and subscript “n” denotes the number of quints it travels on the line of fifths. Each pitch class of set $Q_0(X)$ must travel -1 quints to get to set $Q_{-1}(X)$, where C from set $Q_0(X)$ will map onto F from set $Q_{-1}(X)$, D will map onto G, E will map onto A, and F will map onto Bb. Thus, all the slurred under-arrows, which I call under-quints, because they transform the initial set [i.e., set $Q_0(X)$] toward the flatter side of the line, are Q_{-1} transforms. By using $sc(0135)$ we can map a series of Q_{-1} transforms on a line of fifths.

Figure 3.2: Q_{-1} transformation from $Q_0(X)$ to $Q_{-1}(X)$ from figure 3.1; each under-arrow equals Q_{-1} or a negative perfect fifth

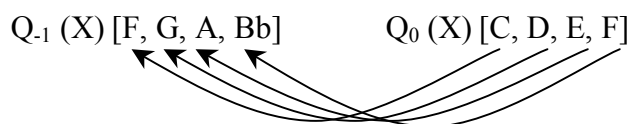
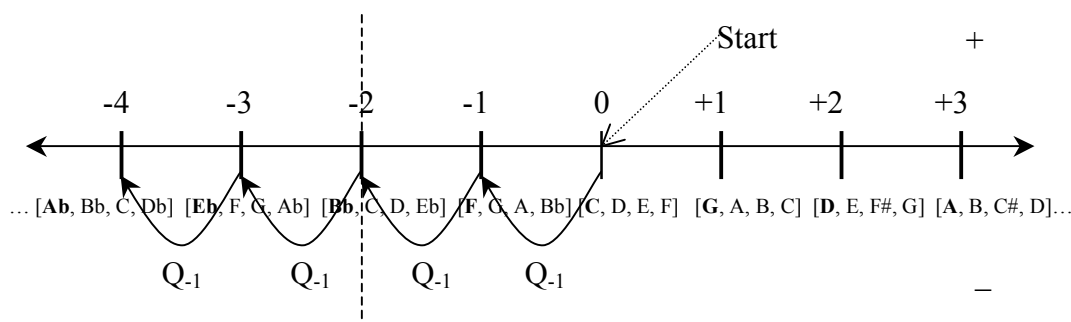


Figure 3.3 shows a transformational path of $sc(0135)$ on a line of fifths. The path begins at set $Q_0(X)$ and through four Q_{-1} transformations reaches set $Q_{-4}(X)$. As this path reaches completion a symmetrical path emerges around Q_{-2} . Thus, we can classify this symmetry (i.e., inversive symmetry) as *crisp* with a midpoint at Q_{-2} .

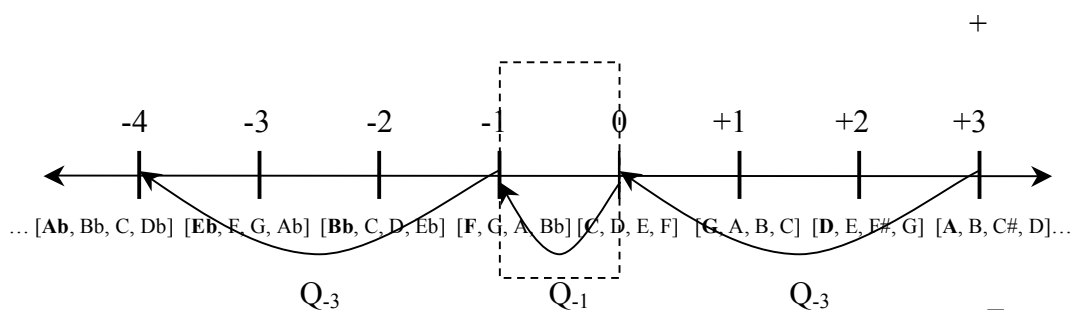
Figure 3.3: Crisp symmetry with midpoint at Q_{-2} ; $Q_0(X) = [C, D, E, F]$



A symmetrical path can be also balanced around two points on the line of fifths.

Figure 3.4 shows another symmetrical path traveled by $sc(0135)$ towards the flatter side on the line of fifths. The path begins at set $Q_{+3}(X) [A, B, C\#, D]$ and by alternating Q_{-3} and Q_{-1} under-quints it reaches completion at set $Q_{-4}(X) [Ab, Bb, C, Db]$. The rectangle at Q_{-1} and Q_0 indicates the midpoint of symmetry, which is indicated by $Q_{-1/0}$.

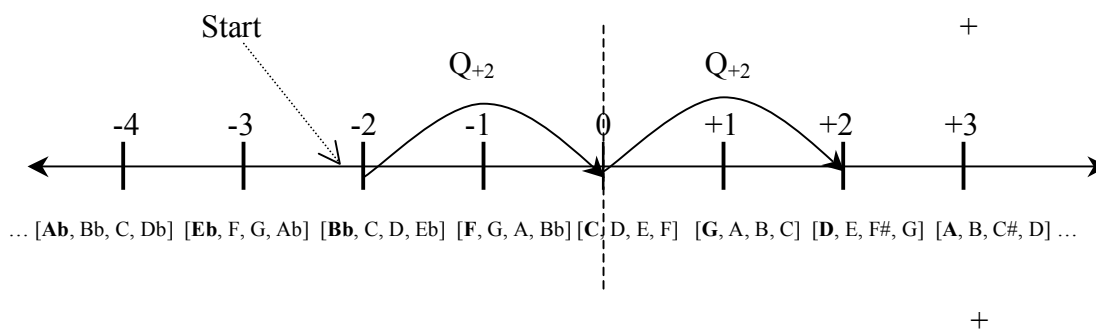
Figure 3.4: Crisp symmetry with midpoint at $Q_{-1/0}$; $Q_0(X) = [C, D, E, F]$



We can also have a given set class travel towards the sharper side (i.e., to the farther right side on the line of fifths) by *over-quint* (i.e., over-slur) transforms. **Figure 3.5** shows another symmetrically transformational path of $sc(0135)$. In this case it involves two Q_{+2} transforms: the path begins at set $Q_{-2}(X) [Bb, C, D, Eb]$ and by two

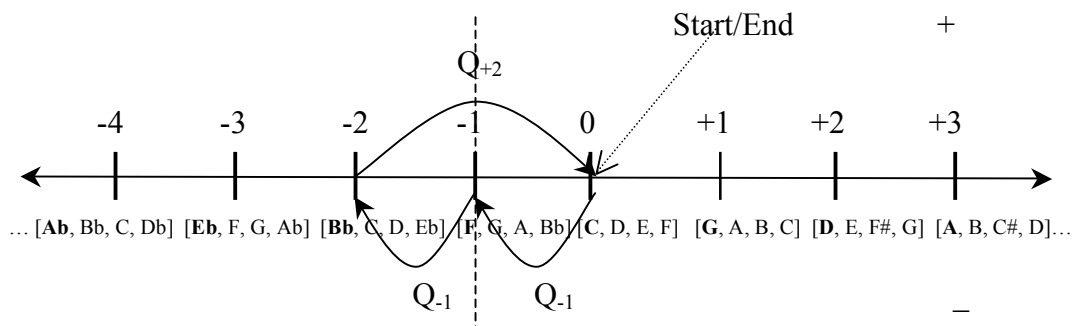
consecutive Q_{+2} transforms (indicated by two over-quints) it travels to set $Q_0(X)$ [C, D, E, F] and set $Q_{+2}(X)$ [D, E, F#, G], respectively. As the path completes at set $Q_{+2}(X)$, a symmetrical path emerges with a midpoint at Q_0 , showing another example of crisp symmetry.

Figure 3.5: Crisp symmetry with midpoint at Q_0 ; $Q_0(X) = [C, D, E, F]$



So far, we have examined crisp symmetries that involve single transformational paths—the given set has either exclusively moved by under-quints (**figures 3.3 and 3.4**) or over-quints (**figure 3.5**). **Figure 3.6** shows another transformational path of sc(0135) members; however, unlike the previous examples, it involves both under- and over-quint transforms. The path begins (and ends) with set $Q_0(X)$ [C, D, E, F] and by two consecutive under-quints Q_{-1} it transforms to the flatter side on the line of fifths to set $Q_{-1}(X)$ [F, G, A, Bb] and set $Q_{-2}(X)$ [Bb, C, D, Eb]. Finally, by Q_{+2} over-quint, the path completes at set $Q_0(X)$ [C, D, E, F]. The completed path results in crisp symmetry with a midpoint at Q_{-1} .

Figure 3.6: Crisp symmetry with midpoint at Q_{-1} ; $Q_0(X) = [C, D, E, F]$



In the following **figures 3.7-3.11**, we will briefly revisit crisp symmetry and introduce two other symmetries: near-symmetry and nested-crisp symmetry. For the sake of diversity, we will use $sc(01345689)$ (a more likely set that Roslavets may use in his works) as a model.

Figure 3.7 shows members of $sc(01345689)$ on a line of fifths, where $Q_0(X)$ indicates $[F\#, G, A, A\#, B, C, D, D\#]$. The line has the same orientation as in **figure 3.1**, where each consecutive point measures a quint distance. **Figure 3.8** shows a transformational quint-path traveled on that line, which begins and ends at point 0. The path is systematic, for it features constant alternation between under- and over-quints— Q_{-2} and Q_{+3} —until it is completed by returning to its starting point. This path is classified by crisp symmetry with a midpoint at Q_0 . **Figure 3.9** poses an interesting problem: it takes the first two Q_n transforms from **figure 3.8** and treats them as a self-contained path of sets consisting of set $Q_0(X)$ $[F\#, G, A, A\#, B, C, D, D\#]$, set $Q_{-2}(X)$ $[E, F, G, G\#, A, Bb, C, C\#]$, and set $Q_{+1}(X)$ $[C\#, D, E, E\#, F\#, G, A, A\#]$. As we examine this path we notice that it is almost symmetrical—if only the last transform (i.e., Q_{+3}) were a Q_{+2} then the path would have been crisp (see **figure 3.10**). Referring back at **figure 3.9** we can

conclude that the path is almost crisp and it is off from its symmetrical point (i.e., Q_0) by one quint. Thus, we can classify this type of symmetry as *near-symmetry*, where a transformational path on a line of fifths is off by a single quint from crisp symmetry. We can measure this by an offset number: in **figure 3.9** the symmetry is around Q_{-1} with an offset (1).⁶

Figure 3.7: Members of $sc(01345689)$ on a line of fifths; $Q_0(X) = [F\#, G, A, A\#, B, C, D, D\#]$

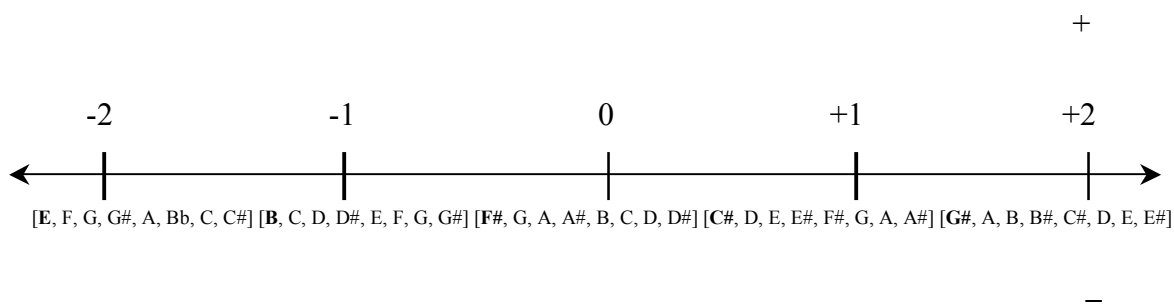
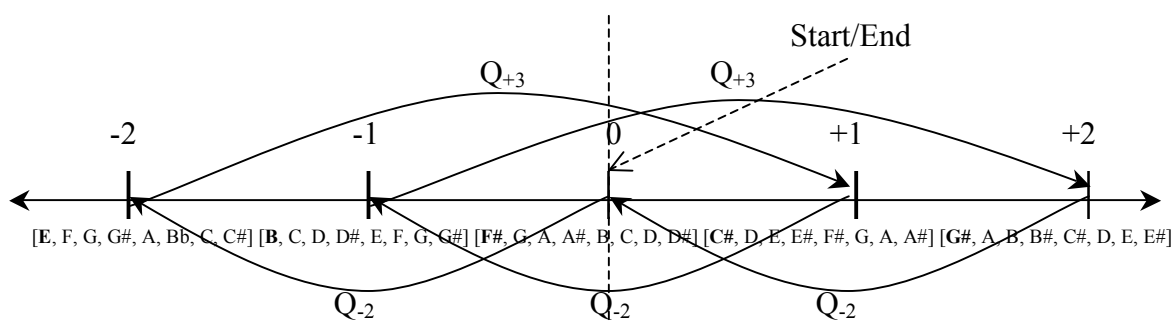


Figure 3.8: Crisp symmetry with midpoint at Q_0 ; $Q_0(X) = [F\#, G, A, A\#, B, C, D, D\#]$



⁶ An offset is measured by the number of Q_n it is off from a point on a line of fifths. For the original definition of the term, see Lewin 1998; also, see Straus 2003, 315-320.

Figure 3.9: Near-symmetry with midpoint at Q_{-1} , offset (1);
 $Q_0(X) = [F\#, G, A, A\#, B, C, D, D\#]$

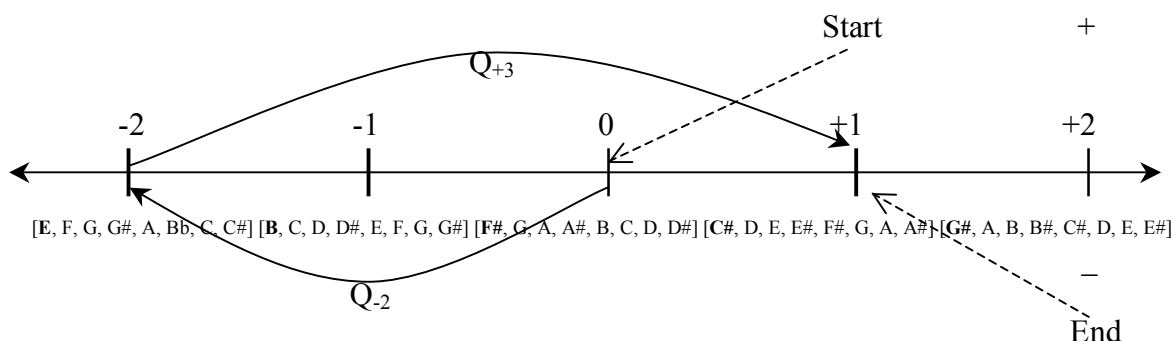
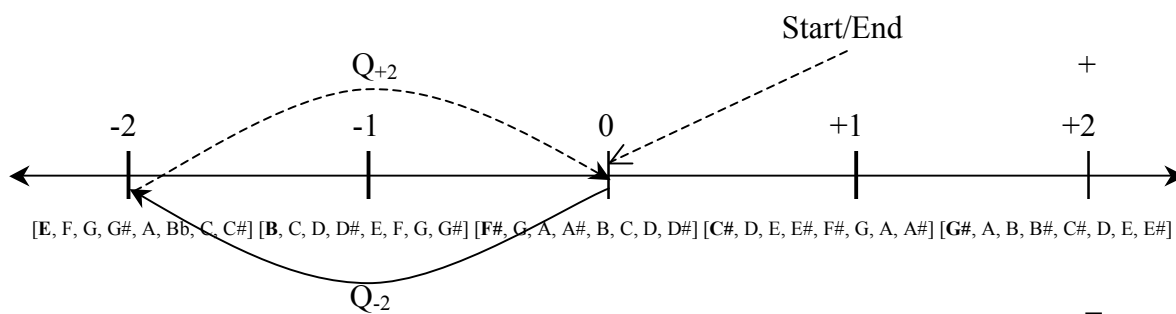


Figure 3.10: A crisp re-interpretation of figure 3.9 with midpoint at Q_{-1} , offset (0)

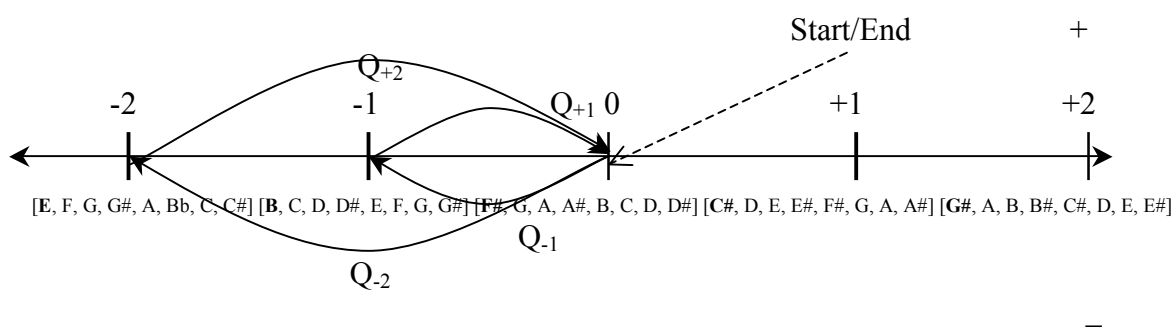


Finally, **figure 3.11** shows the last type of symmetry—*nested-crisp* symmetry. A nested-crisp symmetry is a type of symmetry that features two crisply symmetrical paths with one nested inside the other. In **figure 3.11** we have a path that begins and ends at point 0: by Q_{-2} under-quint set $Q_0(X)$ $[F\#, G, A, A\#, B, C, D, D\#]$ transforms to set $Q_{-2}(X)$ $[E, F, G, G\#, A, Bb, C, C\#]$, then by Q_{+2} over-quint it transforms back to set $Q_0(X)$ $[F\#, G, A, A\#, B, C, D, D\#]$, then by Q_{-1} under-quint it transforms to set $Q_{-1}(X)$ $[B, C, D, D\#, E, F, G, G\#]$, and finally, by Q_{+1} over-quint it returns to $Q_0(X)$ $[F\#, G, A, A\#, B, C, D, D\#]$. As the path completes we notice that the outer transforms— Q_{-2} and Q_{+2} —are

balanced at Q_{-1} , and the inner transforms— Q_{-1} and Q_{+1} —are balanced around one another at $Q_{-1/0}$. Because of two midpoints of symmetry we classify this transformational path as nested-crisp symmetry. Using this theoretical apparatus, we will now examine harmonic transformational paths in the music of Nicolai Roslavets.

Figure 3.11: Nested-crisp symmetry with two midpoints at Q_{-1} and $Q_{-1/0}$;

$$Q_0(X) = [F\#, G, A, A\#, B, C, D, D\#]$$



3.2: Crisp Symmetry

Roslavets's piano pieces discussed below operate along the line of fifths, and our theoretical apparatus described above helps us understand his unique compositional system. While previous studies on Roslavets's works provide useful accounts of his music, none explains one of the most puzzling aspects of his works: his idiosyncratic orthography.⁷ I will show, however, that Roslavets's orthography, which often features such peculiarities as triple sharps, operates on a deeper structure of fifth relations, and this will help us understand his unique compositional system.

⁷ See Perle 1962, Kholopov 1981, Ferenc 1993, and Sitsky 1994.

As noted in chapter 1, in theoretical writings concerning his own music, Roslavets uses the term *sintetakkord* (or synthetic chord) to describe an important aspect of his atonal language.⁸ To remind us, a *sintetakkord* has three features: (1) it is a group of notes, usually arranged as a scale-like succession of pitches with a fixed series of tones and semitones; (2) it is used both vertically and horizontally; and (3) it is used to define the total harmonic plan of the composition. We will see below that Roslavets is particularly attracted to T_5 and T_7 . Using these two transformations, Roslavets is able to create symmetrical chord-paths that I classified above by different types of crisp symmetries. This will help us understand the structural importance of orthography in his works.

Example 3.1 shows an annotated score of the first phrase (mm. 1-3) from *Cinq Préludes* no. 5 (1922). The piece is based on $sc(013578)$ and X represents set or synthetic chord $Q_0 [G\#, A, (B), C\#, D\#, E]$.⁹ (Throughout the chapter I will use the term “set” and “synthetic chord” synonymously.) **Table 3.1** identifies the measures (column 1), synthetic chords (column 2), and Q_n distance among these synthetic chords (column 3) from the passage.¹⁰ **Figure 3.12** shows the transformational path of members of $sc(013578)$ on a line of fifths beginning at $Q_0(X) [G\#, A, (B), C\#, D\#, E]$ as it transposes by Q_{-1} transforms to set $Q_{-1}(X) [C\#, D, E, F\#, (G\#), A]$, then to set $Q_{-2}(X) [F\#, G, A, B,$

⁸ Roslavets 1924.

⁹ The parenthetical pc B is not present in the opening set of the piece. As noted by Perle 1962 and Sitsky 1994, Roslavets tends to omit certain pitches from his synthetic chords; however, the recurrent use of the synthetic chord in its entirety throughout a single piece confirms the actual identity of it.

¹⁰ All the tables in this chapter will have the same column labeling.

C#, D], set Q₋₃ (X) [B, C, D, E, F#, G], and set Q₋₄ (X) [E, F, G, A, B, C].¹¹ As the path completes at Q₋₄ (X) a symmetrical path emerges classifying crisp symmetry with a midpoint at Q₋₂.

Example 3.1: Annotated score of *Cinq Préludes* no. 5, (mm. 1-3); based on members of sc(013578)

Set Q₂ (X) [F#, G, A, B, C#, D]

Set Q₄ (X) [E, F, G, A, B, C]

Set Q₁ (X) [C#, D, E, F#, G#, A]

Set Q₃ (X) [B, C, D, E, F#, G]

Set Q₀ (X) [G#, A, (B), C#, D#, E]

Lento: rubato

p
m. d.

n. d.

ten.

Roslavets CINQ PRELUDES

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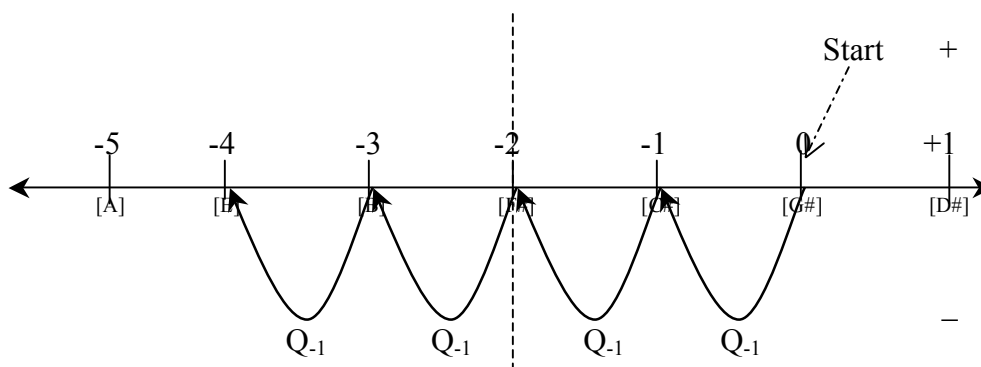
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¹¹ For the lack of space, henceforth the sets (underneath the line of fifths) are abbreviated to their first pitch classes indicated in brackets. Also, the first pitch class of each synthetic chord in the box highlights a quint relationship among them.

Table 3.1: List of synthetic chords from example 3.1¹²

Mm.	Set $Q_n(X)$	Q_n (distance)
0.7	$Q_0(X)$ [G#, A, (B), C#, D#, E]	
1.1	$Q_{-1}(X)$ [C#, D, E, F#, G#, A]	Q_{-1}
1.4	$Q_{-2}(X)$ [F#, G, A, B, C#, D]	Q_{-1}
1.7	$Q_{-3}(X)$ [B, C, D, E, F#, G]	Q_{-1}
2.1	$Q_{-4}(X)$ [E, F, G, A, B, C]	Q_{-1}

Figure 3.12: Crisp symmetry on a line of fifths with midpoint at Q_{-2} from *Cinq Préludes* no. 5, mm. 1-3 (from example 3.1)

Example 3.2 shows an annotated score of the concluding section (mm. 10-14) from *Trois Compositions* no. 2 (1914). The piece is based on members of sc(0134689) and X represents set Q_0 [E, F, G, A, Bb, C, C#]. The section uses two synthetic chords— $Q_0(X)$ [E, F, G, A, Bb, C, C#] and $Q_{-1}(X)$ [A, Bb, C, D, Eb, F, F#]—alternating with one another. **Table 3.2** identifies the measures, synthetic chords, and Q_n distance among

¹² Measure 0.7 indicates the upbeat to m. 1.

these synthetic chords from the passage. **Figure 3.13** shows these synthetic chords on a line of fifths. Because the sets alternate with one another by Q_{-1} and Q_{+1} transforms, the path is symmetrical around sets Q_{-1} and Q_0 .¹³

Example 3.2: Annotated score of *Trois Compositions* no. 2, mm. 10-14 (end); based on members of sc(0134689)

Set Q_0 (X) [E, F, G, A, Bb, C, C#]

Set Q_{-1} (X) [A, Bb, C, D, Eb, F, F#]

Tempo I (Abbandonamente)

12

Lento

ppp

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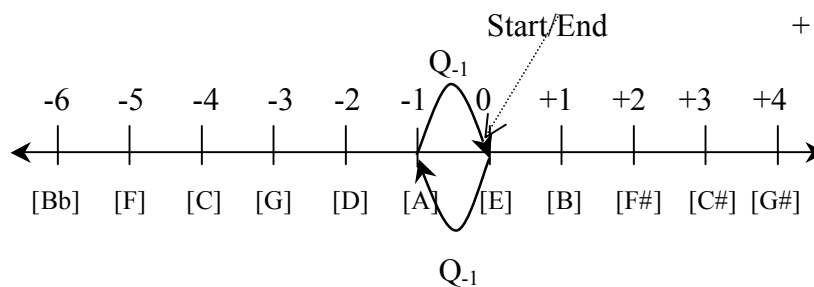
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¹³ Here, the alternation between sets Q_0 (X) and Q_{-1} (X) imitates a “plagal” motion between the “tonic” [i.e., Q_0 (X)] and the subdominant [i.e., Q_{-1} (X)].

Table 3.2: List of synthetic chords from example 3.2

Mm.	Set Q_n (X)	Q_n (distance)
10.1	Q_0 (X) [E, F, G, A, Bb, C, C#]	Q_{-1} Q_{+1} Q_{-1} Q_{+1}
10.2	Q_{-1} (X) [A, Bb, C, D, Eb, F, F#]	
11.1	Q_0 (X) [E, F, G, A, Bb, C, C#]	
11.2	Q_{-1} (X) [A, Bb, C, D, Eb, F, F#]	
12	Q_0 (X) [E, F, G, A, Bb, C, C#]	

Figure 3.13: Crisp symmetry on a line of fifths with midpoint at $Q_{-1/0}$ from *Trois Compositions* no. 2, mm. 10-14 (from example 3.2)

Example 3.3 shows an annotated score of the B section (mm. 6-9) from *Trois Compositions* no. 1 (1914). This excerpt is the most unique example of an accessive use of dissonant pcs (see all the circled pcs). The piece is based on members of $sc(0134689)$ and X represents set Q_0 [D, Eb, F, Gb, Ab, Bb, Cb], which is absent from this section. This musical excerpt can be divided into two subsections—mm. 6-7.1 and mm. 7.1-9. **Table 3.3** identifies the measures, synthetic chords, and Q_n distance among these synthetic chords from the passage. **Figure 3.14** shows $sc(0134689)$ on a line of fifths (mm. 6-7.1) beginning at set Q_{+5} (X) [C#, D, E, F, G, A, Bb] as it transforms by Q_{-2} to set

$Q_{+3}(X)$ [B, C, D, Eb, F, G, (Ab)] and through set $Q_{+4}(X)$ [F#, G, A, Bb, C, D, Eb] it returns to set $Q_{+5}(X)$ [C#, D, E, F, G, A, Bb] by two Q_{+1} transforms. Once again, we have an example of crisp symmetry: a symmetrical path emerges with a midpoint at Q_{+4} .

Example 3.4 shows the remainder of the section (mm. 7-9), where the same symmetrical pattern emerges; however, the passage is transposed by Q_{+1} (towards the sharper side) with Q_{+5} as its symmetrical midpoint. **Figure 3.15** plots the entire B section (mm. 6-9) on a line of fifths, where a grand crisp symmetry emerges with a symmetrical midpoint at $Q_{+4/+5}$ combining the symmetrical midpoints from both subsections (i.e., **examples 3.3** and **3.4**).

Example 3.3: Annotated score of *Trois Compositions* no. 1, mm. 6-9; based on members of $sc(0134689)$ ¹⁴

(Continued on the following page)

¹⁴ The circled notes are not chord tones in the given synthetic chord. Of course, this occurrence is not unusual to Roslavets's compositional style for theorists, including Perle 1962, Ferenc 1993, and Sitsky 1994 have written about Roslavets's practice of addition of pitch classes to a synthetic chord.

Set Q_{+5} (X) [C#, D, E, F, G, A, Bb]

Set Q_{+4} (X) [F#, G, A, Bb, C, D, Eb]

7

p *trun* *cresc.* *f* *trun* *trun* *trun* *trun*

Set Q_{+6} (X) [G#, A, (B), C, D, (E), F]

Set Q_{+5} (X) [C#, D, (E), F, G, (A), Bb]

dim. *trun* *trun* *trun*

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Table 3.3: List of synthetic chords from example 3.3

Mm.	Set Q_n (X)	Q_n (distance)
6.1	Q_{+5} (X) [C#, D, E, F, G, A, Bb]	
6.4	Q_{+3} (X) [B, C, D, Eb, F, G, (Ab)]	Q ₋₂
6.6	Q_{+4} (X) [F#, G, A, Bb, C, D, Eb]	Q ₊₁
7.1	Q_{+5} (X) [C#, D, E, F, G, A, Bb]	Q ₊₁
7.6	Q_{+6} (X) [G#, A, (B), C, D, (E), F]	Q ₊₁
8.1	Q_{+4} (X) [F#, G, A, Bb, C, D, Eb]	Q ₋₂
8.3	Q_{+5} (X) [C#, D, E, F, G, A, Bb]	Q ₊₁

Figure 3.14: Crisp symmetry on a line of fifths with midpoint at Q_{+4} from *Trois Compositions* no. 1, mm. 6-7.1 (from example 3.3)

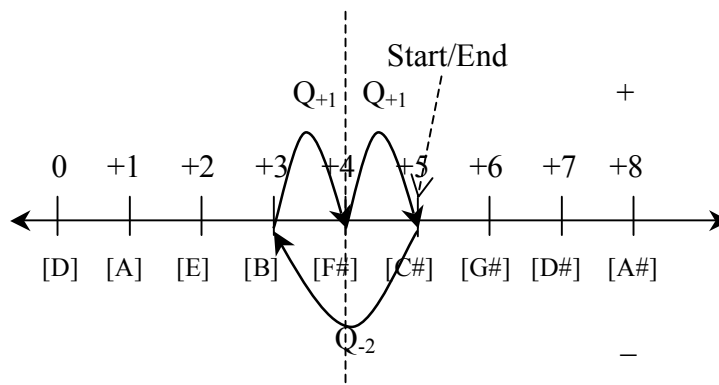


Figure 3.15: Crisp symmetry on a line of fifths with midpoint at Q_{+5} , mm. 7-9

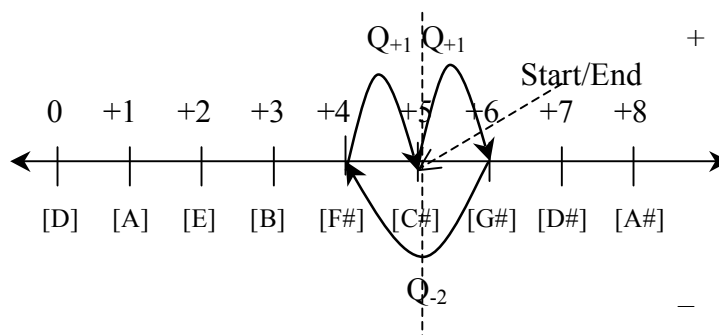
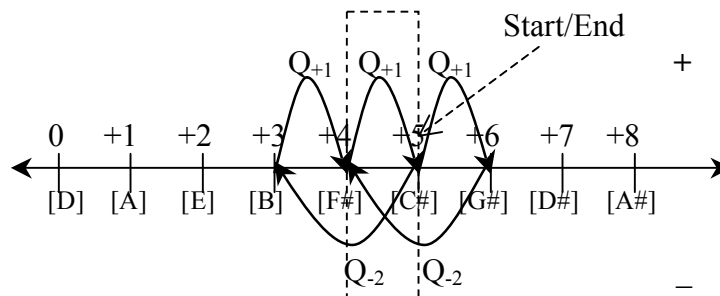


Figure 3.16: Crisp symmetry on a line of fifths with midpoint at $Q_{+4/+5}$, mm. 6-9 (figures 3.14 and 3.15 combined)



Example 3.4 shows another example of crisp symmetry where two points on a line of fifths serve as a symmetrical midpoint. **Example 3.4** shows an annotated score of the first phrase (mm. 1-2) from *Trois Compositions* no. 2. The piece is based on members of $sc(0134689)$ and $Q_0(X)$ equals $[E, F, G, A, Bb, C, C\#]$. **Table 3.4** identifies the measures, synthetic chords, and Q_n distance among these synthetic chords from the passage. **Figure 3.17** shows the sets on a line of fifths, where the path of the synthetic chords begins at $Q_0(X)$ and travels towards the flat side. The alternation of Q_{-1} and Q_{-3} transforms results in crisp symmetry with $Q_{-3/2}$ as its symmetrical midpoint.

Example 3.4: Annotated score of *Trois Compositions* no. 2, mm. 1-2; based on members of $sc(0124689)$

Roslavets TROIS COMPOSITIONS

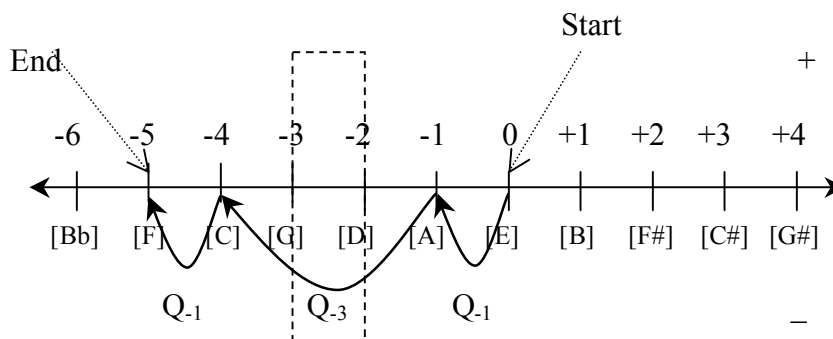
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Table 3.4: List of synthetic chords from example 3.4

Mm.	Set $Q_n(X)$	Q_n (distance)
1.1	$Q_0(X)$ [E, F, G, A, Bb, C, C#]	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">} Q₋₁</div> <div style="margin-bottom: 10px;">} Q₋₃</div> <div style="margin-bottom: 10px;">} Q₋₁</div> </div>
1.2	$Q_{-1}(X)$ [A, Bb, C, D, Eb, F, F#]	
2.1	$Q_{-4}(X)$ [C, Db, Eb, F, Gb, Ab, A]	
2.2	$Q_{-5}(X)$ [F, Gb, Ab, Bb, Cb, Db, D]	

Figure 3.17: Crisp symmetry on a line of fifths with midpoint at $Q_{-3/2}$ from *Trois Compositions* no. 2, mm. 1-2

The next two musical examples are taken from the first section of *Trois Etudes*, no. 2 “Pianissimo” (1914). **Example 3.5** shows an annotated score of the first subsection, mm. 1-14. The passage is based on members of $sc(0134578)$ and $Q_0(X)$ equals [A#, B, C#, D, Eb, E#, F#]. **Table 3.5** identifies the measures, synthetic chords, and Q_n distance among these synthetic chords from the passage. **Figure 3.18** shows the synthetic chords of mm. 1-14 on a line of fifths. Please note that the passage begins and ends with $Q_0(X)$. The path begins with sets $Q_0(X)$ [A#, B, C#, D, Eb, E#, F#], and

through Q_{-3} transforms it reaches set $Q_{-3}(X)$ [C#, D, E, F, Gb, G#, A] and set $Q_{-6}(X)$ [E, F, G, Ab, Bbb, B, C]. While these opening transforms are characterized by two underquints, the rest of the passage is completed by alternation between over- and underquint transforms. As we continue to plot the rest of transformations (through m. 14) we discover that a symmetrical pattern emerges: beginning from set $Q_{-6}(X)$ [E, F, G, Ab, Bbb, B, C] the path alternates between Q_{+4} over-quint and Q_{-3} under-quint transformations as it travels to set $Q_{-2}(X)$ [G#, A, B, C, Db, D#, E], set $Q_{-5}(X)$ [B, C, D, Eb, Fb, F#, G], set $Q_{-1}(X)$ [D#, E, F#, G, Ab, A#, B], set $Q_{-4}(X)$ [F#, G, A, Bb, Cb, C#, D], and returns to set $Q_0(X)$ [A#, B, C#, D, Eb, E#, F#]. The completed pattern is symmetrical around Q_{-3} .

Example 3.5: Annotated score of mm. 1-14 (section 1.1) from “Pianissimo”

Con dolce maniera

$Q_0(X)$ [A#, B, C#, D, Eb, E#, F#]

pp

$Q_{-3}(X)$ [C#, D, E, F, Gb, G#, A]

(Continued on the following page)

Q₂ (X) [G#, A, B, C, Db, D#, E]

Q₆ (X) [E, F, G, Ab, Bbb, B, C] Q₅ (X) [B, C, D, Eb, Fb, F#, G]

6

11

Q₁ (X) [D#, E, F#, G, Ab, A#, B]

Q₄ (X) [F#, G, A, Bb, Cb, C#, D] Q₀ (X) [A#, B, C#, D, Eb, E#, F#]

13

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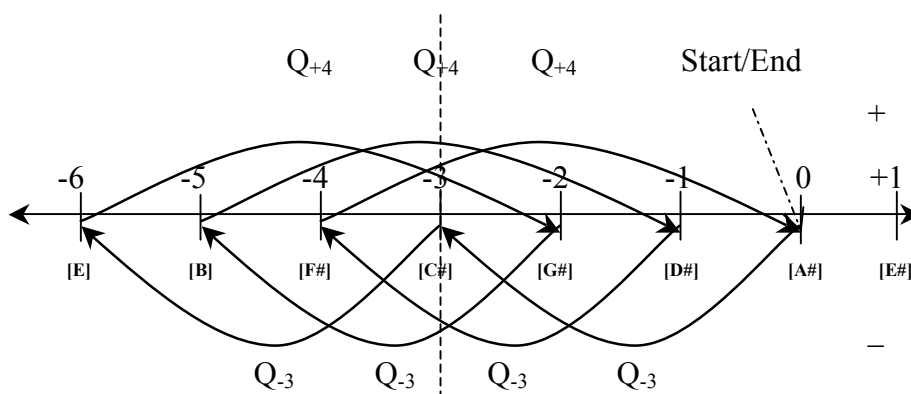
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Table 3.5: List of synthetic chords from example 3.5

Mm.	Set $Q_n(X)$	Q_n (distance)
1-4	$Q_0(X)$ [A#, B, C#, D, Eb, E#, F#]	
5	$Q_{-3}(X)$ [C#, D, E, F, Gb, G#, A]	
6	$Q_{-6}(X)$ [E, F, G, Ab, Bbb, B, C]	
7	$Q_{-2}(X)$ [G#, A, B, C, Db, D#, E]	
8-11	$Q_{-5}(X)$ [B, C, D, Eb, Fb, F#, G]	
12	$Q_{-1}(X)$ [D#, E, F#, G, Ab, A#, B]	
13	$Q_{-4}(X)$ [F#, G, A, Bb, Cb, C#, D]	
14	$Q_0(X)$ [A#, B, C#, D, Eb, E#, F#]	

Figure 3.18: Crisp symmetry on a line of fifths with midpoint at Q_{-3} from “Pianissimo,” mm. 1-14 (from example 3.5)

The second half of the opening section from “Pianissimo” (mm. 15-26) shows another example of crisp symmetry, and it is one of the most intriguing passages under consideration here, for it involves a triple sharp (seen in set Q_{+9}). Because the transpositions of every note within the synthetic chord are based solely on *quints* (to the

exclusion of augmented or diminished intervals), the E# of Q₀ must transpose nine overquints to Fx#. **Example 3.6** shows an annotated score of mm. 15-26, which is based on sc(0134578) as were the opening measures, as well as the rest of the piece. This passage is based on five transpositions of the synthetic chord—set Q₊₄ [Cx, D#, E#, F#, G, Gx, A#], set Q₊₁ [E#, F#, G#, A, Bb, B#, C#], set Q₊₅ [Gx, A#, B#, C#, D, Dx, E#], set Q₊₉ [Bx, Cx, Dx, E#, F#, Fx#!, Gx], and set Q₊₆ [Dx, E#, Fx, G#, A, Ax, B#], respectively. **Table 3.6** lists the synthetic chords from this passage. **Figure 3.19** projects these synthetic chords on a line of fifths. At every two transpositions traveled—e.g., from Q₋₃ (X) to Q₊₄ (X)—a symmetrical path emerges balancing the transpositions on the left of +5 with the ones on the right—Q₊₄ (X) to Q₋₃ (X) resulting in crisp symmetry. Further, **figure 3.19** is symmetrical around Q₊₅, where the transpositions on either side mirror one another. From the resultant transformations emerges a path that not only outlines symmetry but also accounts for the unique spellings of chords. Similar to all the examples of crisp symmetry discussed above, Roslavets's extreme orthography results from this underlying structure in fifths: moving to the right on the line produces sharp-dominated spellings, while moving to the left produces flat-dominated spellings.

Example 3.6: Annotated score of mm. 15-26 (section 1.2) from “Pianissimo;” based on members of sc(0134578)¹⁵

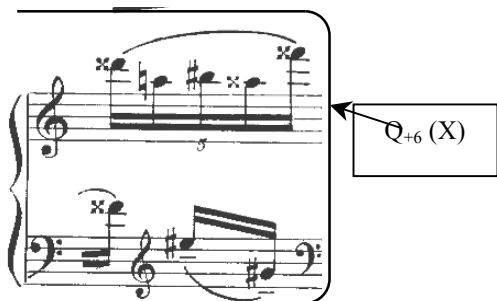
The image displays a musical score for piano, consisting of five systems of two staves each (treble and bass clef). The score is annotated with several elements:

- Measure 15:** A box labeled $Q_{+4}(X)$ with an arrow pointing to a chord in the bass staff.
- Measure 18:** A box labeled $Q_{+1}(X)$ with an arrow pointing to a chord in the bass staff.
- Measure 20:** A box labeled $Q_{+5}(X)$ with an arrow pointing to a chord in the bass staff.
- Measure 22:** A box labeled $Q_{+9}(X)$ with an arrow pointing to a chord in the bass staff.
- Measure 18:** A box containing the number 18.
- Measure 23:** A box containing the number 23.

The notation includes various chord symbols, slurs, and arpeggiated figures. The score is enclosed in a large rounded rectangular frame.

(Continued on the following page)

¹⁵ Because of lack of space the synthetic chords have been abbreviated to $Q_n(X)$; see table 3.6 for the complete list.

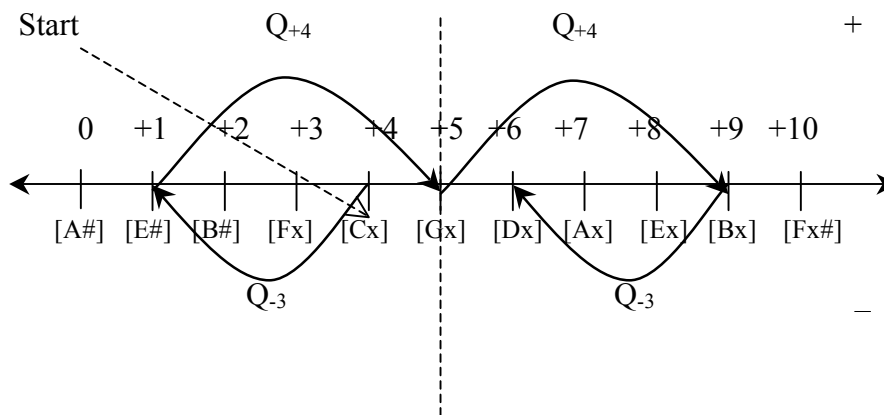


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Table 3.6: List of synthetic chords from example 3.6

Mm.	Set $Q_n (X)$	Q_n (distance)
15-18	$Q_{+4} (X)$ [Cx, D#, E#, F#, G, Gx, A#]	
19	$Q_{+1} (X)$ [E#, F#, G#, A, Bb, B#, C#]	
20	$Q_{+5} (X)$ [Gx, A#, B#, C#, D, Dx, E#]	
21-24	$Q_{+9} (X)$ [Bx, Cx, Dx, E#, F#, Fx# (!), Gx]	
25	$Q_{+6} (X)$ [Dx, E#, Fx, G#, A, Ax, B#]	

Figure 3.19: Crisp symmetry with midpoint at Q_{+5} from “Pianissimo,” mm. 15-26 (from example 3.6)



3.3: Near-Symmetry

Many other sections from the works already discussed employ synthetic chords that travel through asymmetrical paths. In the next section we will discuss near-symmetry in Roslavets's works, and the examples discussed below show *asymmetry* that will be measured by an offset (or the number of quints it is off from crisp symmetry).

Examples 3.7 through **3.15** show passages with minimal degree of offset—one quint; **examples 3.16** through **3.18** show passages with offsets of two quints; finally, **examples 3.19** through **3.20** show passages with three offsets.

Example 3.7 shows an annotated score from the second half of the B section (mm. 45-52) from “Pianissimo.” The passage is based on five transpositions of members of $sc(0134578)$, with set $Q_0(X)$ equals $[A\#, B, C\#, D, Eb, E\#, F\#]$. **Table 3.7** lists the synthetic chords from this passage. **Figure 3.20** shows these sets on a line of fifths. The transformational path begins at $Q_0(X)$ and by Q_{-3} under-quints it transforms to $Q_{-3}(X)$ $[C\#, D, E, F, Gb, G\#, A]$, then by Q_{+11} over-quints it transforms to $Q_{+8}(X)$ $[Ex, Fx, Gx, A\#, B, Bx, Cx]$, and by Q_{-3} under-quints it arrives at $Q_{+5}(X)$ $[Gx, A\#, B\#, C\#, D, Dx, E\#]$. If the path had stopped here, it would have been classified as crisp symmetry with a symmetrical midpoint at $Q_{+2/+3}$; however, since the path continues from $Q_{+5}(X)$ to its final destination $Q_{+4}(X)$ $[Cx, D\#, E\#, F\#, G, Gx, A\#]$, the symmetrical path becomes slightly imbalanced by the last under-quint transform Q_{-1} . Therefore, this passage is classified by near-symmetry: it is symmetrical around $Q_{+2/+3}$ (indicated by the rectangular block) with offset (1).

Example 3.7: Annotated score of mm. 45-52 from “Pianissimo”

$Q_0 (X) [A\#, B, C\#, D, E_b, E\#, F\#]$

$Q_3 (X) [C\#, D, E, F, G_b, G\#, A]$

$Q_{+8} (X) [E_x, F_x, G_x, A\#, B, B_x, C_x]$

$Q_{+4} (X) [C_x, D\#, E\#, F\#, G, G_x, A\#]$

$Q_{+5} (X) [G_x, A\#, B\#, C\#, D, D_x, E\#]$

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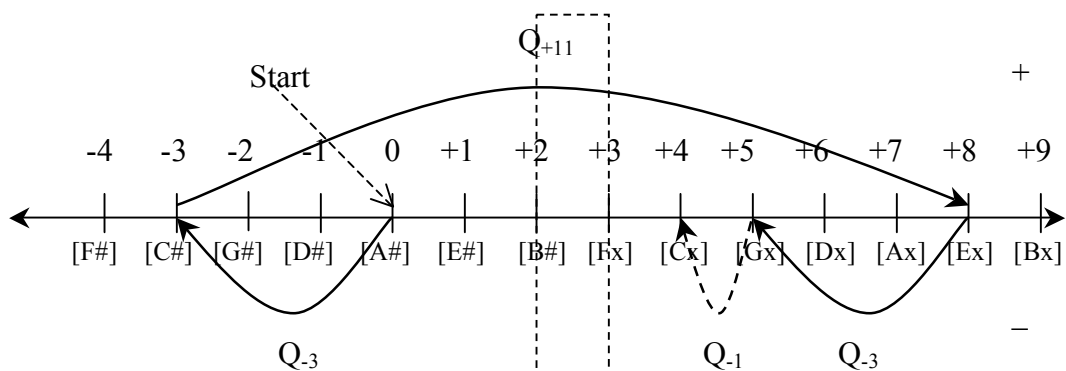
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Table 3.7: List of synthetic chords from example 3.7

Mm.	Set Q_n (X)	Q_n (distance)
45	Q_0 (X) [A#, B, C#, D, Eb, E#, F#]	
46	Q_{-3} (X) [C#, D, E, F, Gb, G#, A]	Q_{-3}
47-50	Q_{+8} (X) [Ex, Fx, Gx, A#, B, Bx, Cx]	Q_{+11}
51	Q_{+5} (X) [Gx, A#, B#, C#, D, Dx, E#]	Q_{-3}
52	Q_{+4} (X) [Cx, D#, E#, F#, G, Gx, A#]	Q_{-1}

Figure 3.20: Near-symmetry on a line of fifths with midpoint at $Q_{+2/+3}$, offset (1) from “Pianissimo,” mm. 45-52

Examples 3.8 and **3.9** examine the last section from “Pianissimo.” **Example 3.8** shows an annotated score from the first half of the concluding section of “Pianissimo,” mm. 79-83. There are five transpositions of the synthetic chord: set Q_0 (X) [A#, B, C#, D, Eb, E#, F#], set Q_{+9} (X) [Bx, Cx, Dx, E#, F#, Fx#, Gx], set Q_{-4} (X) [F#, Fx, Gx, (A#), B, Bx, Cx], set Q_{+5} (X) [Gx, A#, B#, C#, D, Dx, E#], and set Q_{-1} (X) [D#, E#, F#, G, Gx, A#, Ax], respectively. **Table 3.8** lists the synthetic chords from this passage. **Figure 3.21** shows these sets on a line of fifths. The quint-path begins at 0, then it travels by Q_{+9}

over-quints to set $Q_{+9}(X)$, then by Q_{-13} under-quints to $Q_{-4}(X)$. Finally, the path continues by Q_{+9} over-quints to $Q_{+5}(X)$. If the path had stopped here, then it would have been classified by crisp symmetry around $Q_{+2/+3}$. However, through Q_{-6} under-quints, the transposition continues to $Q_{-1}(X)$ creating an *asymmetrical* path: the path of these transpositions results in an offset of 1. The last Q_{-6} under-quint that transforms $Q_{+5}(X)$ to $Q_{-1}(X)$ travels one quint too far. **Figure 3.22** shows a fully balanced quint-path, where all the transpositions but the last are identical to the original in **figure 3.21**: the last under-quint travels from $Q_{+5}(X)$ to $Q_0(X)$ completely balancing the whole path around $Q_{+2/+3}$ with offset (0).

Example 3.8: Annotated score of “Pianissimo,” mm. 79-83

The image shows a musical score for three measures, annotated with set theory boxes. The score is written in treble and bass clefs. The first measure is annotated with a box containing 'Set $Q_0(X)$ [A#, B, C#, D, Eb, E#, F#]'. The second measure is annotated with a box containing 'Set $Q_{+9}(X)$ [Bx, Cx, Dx, E#, F#, Fx#, Gx]'. The third measure is annotated with a box containing 'Set $Q_{-4}(X)$ [F#, Fx, Gx, (A#), B, Bx, Cx]'. Arrows point from each box to the corresponding measure in the score. The score includes various musical notations such as notes, rests, and slurs.

(Continued on the following page)

Set Q_{+5} (X) [Gx, A#, B#, C#, D, Dx, E#]

Set Q_{-1} (X) [D#, E#, F#, G, Gx, A#, Ax]

The image shows a piano score with two systems of music. The first system is enclosed in a rounded rectangle and has an arrow pointing to a box labeled 'Set Q+5 (X) [Gx, A#, B#, C#, D, Dx, E#]'. The second system is also enclosed in a rounded rectangle and has an arrow pointing to a box labeled 'Set Q-1 (X) [D#, E#, F#, G, Gx, A#, Ax]'. The music consists of treble and bass staves with various notes, rests, and dynamic markings.

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Table 3.8: List of synthetic chords from example 3.8

Mm.	Set Q_n (X)	Q_n (distance)
79	Set Q_0 (X) [A#, B, C#, D, Eb, E#, F#]	
80	Set Q_{+9} (X) [Bx, Cx, Dx, E#, F#, Fx#, Gx]	Q_{+9}
81	Set Q_{-4} (X) [F#, Fx, Gx, (A#), B, Bx, Cx]	Q_{-13}
82	Set Q_{+5} (X) [Gx, A#, B#, C#, D, Dx, E#]	Q_{+9}
83	Set Q_{-1} (X) [D#, E#, F#, G, Gx, A#, Ax]	Q_{-6}

Figure 3.21: Near-symmetry on a line of fifths with midpoint at $Q_{+2/+3}$, offset (1) from “Pianissimo,” mm. 79-83 (from example 3.8)

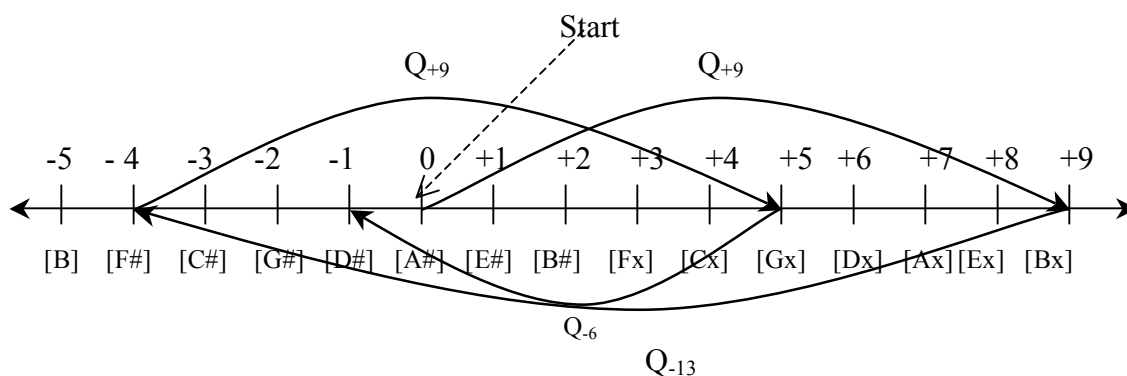
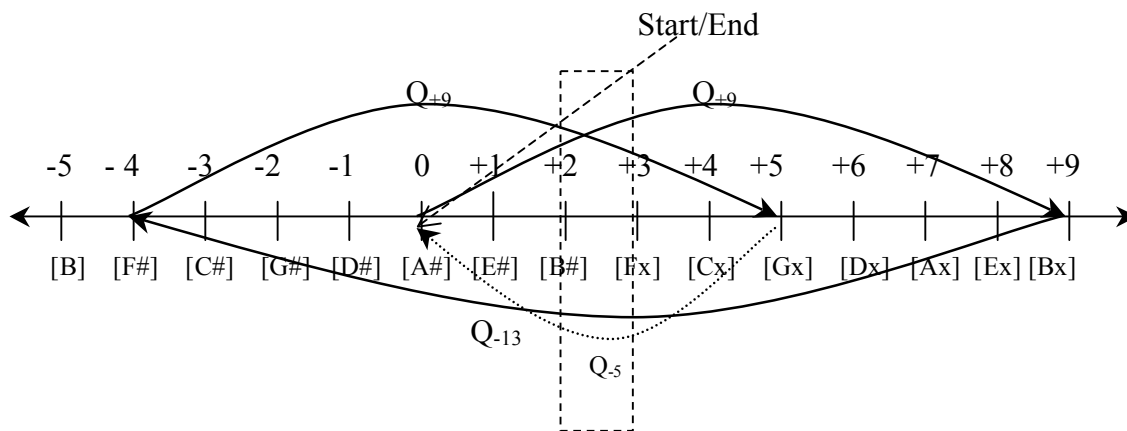


Figure 3.22: A crisp reinterpretation of figure 3.21



Example 3.9 shows an annotated score of the continuation “Pianissimo” (mm. 83-93) leading to its conclusion. **Table 3.9** lists the synthetic chords of the passage.

Figure 3.23 shows the passage on a line of fifths. The passage features three transpositions of the synthetic chord: set Q_{-1} (X) [D#, E#, F#, G, Gx, A#, Ax], set Q_{+3} (X) [Fx, G#, A#, B, C, Cx, D#], and set Q_0 (X) [A#, B, C#, D, Eb, E#, F#], respectively.

Similar to the examples of near-symmetry above, this passage is also characterized by an offset of 1: the Q_{+4} over-quint transformation from Q_{-1} (X) to Q_{+3} (X) is not completely

balanced by the Q_{-3} under-quint transformation from $Q_{+3}(X)$ to $Q_0(X)$; it is shy by one more under-quint. **Figure 3.24** shows a crisp reinterpretation of this passage, where the Q_{-3} under-quint is replaced by an Q_{-4} under-quint: it fully complements over-quint Q_{+4} from Q_{-1} to Q_{+3} , and it is crisply symmetrical around Q_{+1} . Further, this reinterpretation is not stylistically appropriate, for all of Roslavets's compositions begin and end with the same synthetic chord [always marked by $Q_0(X)$].¹⁶ Therefore, near-symmetry is necessary in order to end this piece with $Q_0(X)$ [A#, B, C#, D, Eb, E#, F#].

Example 3.9: Annotated score of “Pianissimo,” mm. 83-93

Set $Q_{-1}(X)$ [D#, E#, F#, G, Gx, A#, Ax]

(Continued on the following page)

¹⁶ Sitsky 1994 writes: “Roslavets heard the opening *sintetakkord* as a kind of tonic, and often the last ‘field’ of the piece is the same as the first.”

Set $Q_{+3}(X)$ [Fx, G#, A#, B, C, Cx, D#]

Set $Q_0(X)$ [A#, B, C#, D, Eb, E#, F#]

84

87

90

m. g.

The image shows a musical score for three staves, numbered 84, 87, and 90. Above the staves are two boxes: the left one is labeled 'Set Q+3(X) [Fx, G#, A#, B, C, Cx, D#]' and the right one is labeled 'Set Q0(X) [A#, B, C#, D, Eb, E#, F#]'. Arrows point from these boxes to specific parts of the music. The score consists of three systems. The first system (84) has a treble clef on the top staff and a bass clef on the bottom staff. The second system (87) has a treble clef on the top staff and a bass clef on the bottom staff. The third system (90) has a treble clef on the top staff and a bass clef on the bottom staff. The music features complex rhythmic patterns, including sixteenth and thirty-second notes, and various accidentals. There are also annotations like '5' and '8' above some notes, and 'm. g.' in the third system. The score is enclosed in a large rounded rectangle.

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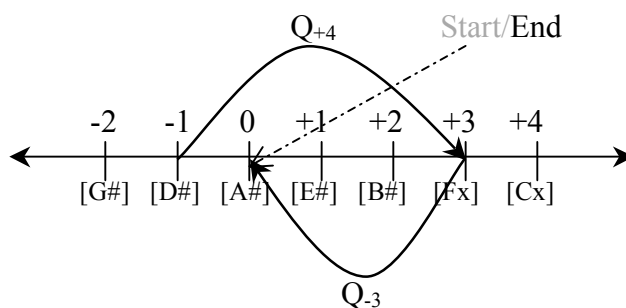
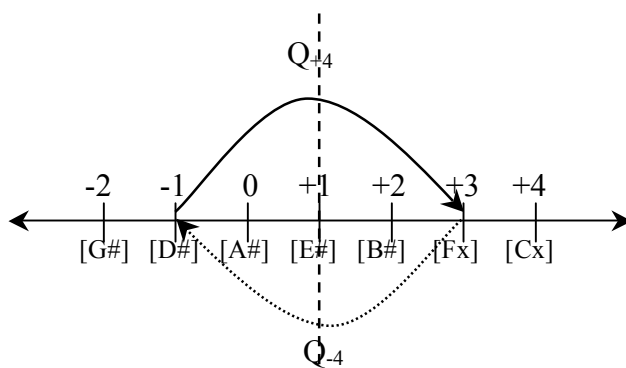
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Table 3.9: List of synthetic chords from example 3.9

Mm.	Set Q_n (X)	Q_n (distance)
83	Set Q_{-1} (X) [D#, E#, F#, G, Gx, A#, Ax]	<div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 10px;">}</div> <div style="margin-right: 10px;">←</div> <div style="margin-right: 10px;">←</div> </div> Q_{+4} Q_{-3}
84	Set Q_{+3} (X) [Fx, G#, A#, B, C, Cx, D#]	
85-93	Set Q_0 (X) [A#, B, C#, D, Eb, E#, F#]	

Figure 3.23: Near-symmetry on a line of fifths with midpoint at Q_{+1} , offset (1) from “Pianissimo,” mm. 83-93 (from example 3.9)**Figure 3.24:** A crisp reinterpretation of figure 3.23 with midpoint at Q_{+1} 

Finally, **example 3.10** illustrates an annotated score of mm. 79-93 (end) from “Pianissimo,” combining the passages from **examples 3.8** and **3.9**. **Table 3.10** lists the

synthetic chords from this passage. **Figure 3.25** shows this section on a line of fifths with two offsets—one for the longer quintts (please refer back to **figure 3.22**) with symmetrical midpoint at $Q_{+2/+3}$ (marked in bold) and the shorter quintts (please refer back to **figure 3.23**) with symmetrical midpoint at Q_{+1} (marked in grey). The path traveled by these synthetic chords is characterized by a constant alternation of over- and under-quintts' motion: from set $Q_0(X)$ to $Q_{+9}(X)$ is an over-quint transformation; from set $Q_{+9}(X)$ to set $Q_{-4}(X)$ is an under-quint transformation; from set $Q_{-4}(X)$ to set $Q_{+5}(X)$ is an over-quint transformation; from set $Q_{+5}(X)$ to set $Q_{-1}(X)$ is an under-quint transformation, and so forth. Further, these quint transformations not only alternate, but they also increasingly become smaller in their Q_n transpositions resulting from their offsets. Hence, these offsets help the path return to set $Q_0(X)$.

Example 3.10: Annotated score of “Pianissimo,” mm. 79-93 (end)

The image shows a musical score for piano, measures 79-93. The score is annotated with three boxes identifying synthetic chords and their constituent notes:

- $Q_0(X)$ [A#, B, C#, D, Eb, E#, F#]
- $Q_{+9}(X)$ [Bx, Cx, Dx, E#, F#, Fx#, Gx]
- $Q_{-4}(X)$ [F#, Fx, Gx, (A#), B, Bx, Cx]

Arrows point from these boxes to the corresponding chords in the score. The score features complex rhythmic patterns, including quintts (marked with a '5' and a slur) and various accidentals. The notation is in treble and bass clefs.

(Continued on the following page)

Set $Q_{+5}(X)$ [Gx, A#, B#, C#, D, Dx, E#]

Set $Q_{-1}(X)$ [D#, E#, F#, G, Gx, A#, Ax]

Set $Q_{+3}(X)$ [Fx, G#, A#, B, C, Cx, D#]

Set $Q_0(X)$ [A#, B, C#, D, Eb, E#, F#]

84

87

90

m. g.

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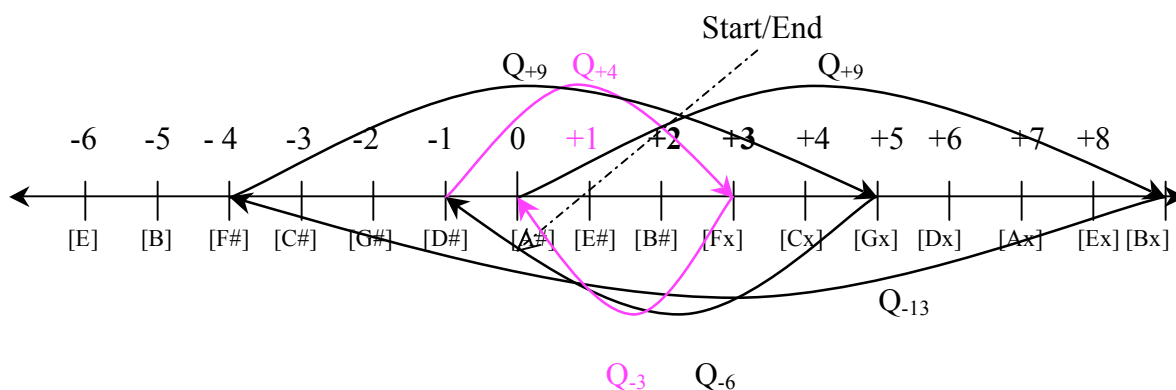
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Table 3.10: List of synthetic chords from example 3.10

Mm.	Set Q_n (X)	Q_n (distance)
79	Set Q_0 (X) [A#, B, C#, D, Eb, E#, F#]	
80	Set Q_{+9} (X) [Bx, Cx, Dx, E#, F#, Fx#, Gx]	
81	Set Q_{-4} (X) [F#, Fx, Gx, (A#), B, Bx, Cx]	
82	Set Q_{+5} (X) [Gx, A#, B#, C#, D, Dx, E#]	
83	Set Q_{-1} (X) [D#, E#, F#, G, Gx, A#, Ax]	
84	Set Q_{+3} (X) [Fx, G#, A#, B, C, Cx, D#]	
85-93	Set Q_0 (X) [A#, B, C#, D, Eb, E#, F#]	

Figure 3.25: Near-symmetry on a line of fifths with two midpoints: $Q_{+2/+3}$, offset (1) and Q_{+1} , offset (1) from “Pianissimo,” mm. 79-93 (end)

Example 3.11 shows another instance of an asymmetrical path. This example illustrates the second phrase from *Trois Compositions* no. 1, mm. 4-5. The piece is based on members of sc(0134689) and the excerpt features four transpositions of it: set Q_{+5} (X) [C#, D, E, F, G, A, Bb], set Q_{+3} (X) [B, C, D, Eb, F, G, Ab], set Q_{+2} (X) [E, F, G, Ab, Bb,

C, Db], and set $Q_{-1}(X)$ [G, Ab, Bb, Cb, Db, Eb, Fb], respectively. **Table 3.11** lists the synthetic chords in this passage. **Figure 3.26** shows these sets on a line of fifths, where the path of the synthetic chord $sc(0134689)$ is characterized by three under-quint transformations— Q_{-2} , Q_{-1} , and Q_{-3} . The passage is characterized by near-symmetry around $Q_{+2/+3}$ with offset (1)—the last Q_{-3} under-quint travels too far (by one quint) to make the passage completely symmetrical around $Q_{+2/+3}$. **Figure 3.27** is a crisp reinterpretation of this passage, where the last under-quint transformation is Q_{-2} balancing the path around $Q_{+2/+3}$ without any offsets.

Example 3.11: Annotated score of *Trois Compositions* no. 1, mm. 4-5¹⁷

The figure shows a musical score with five boxes above it, each containing a synthetic chord set and its members. Arrows point from these boxes to specific measures in the score. The boxes are:

- $Q_{+5}(X)$ [C#, D, E, F, G, A, Bb]
- $Q_{+3}(X)$ [B, C, D, Eb, F, G, Ab]
- $Q_{+2}(X)$ [E, F, G, Ab, Bb, C, Db]
- $Q_{-1}(X)$ [G, Ab, Bb, Cb, Db, Eb, Fb]
- $Q_{-3}(X)$ [B, C, D, Eb, F, G, Ab]

The score shows a piano piece with a treble and bass clef. The first measure is marked *p*. The second measure is marked *cresc. molto*. The third and fourth measures have a '5' under a bracket, indicating a quint. The fifth measure is marked *sf*.

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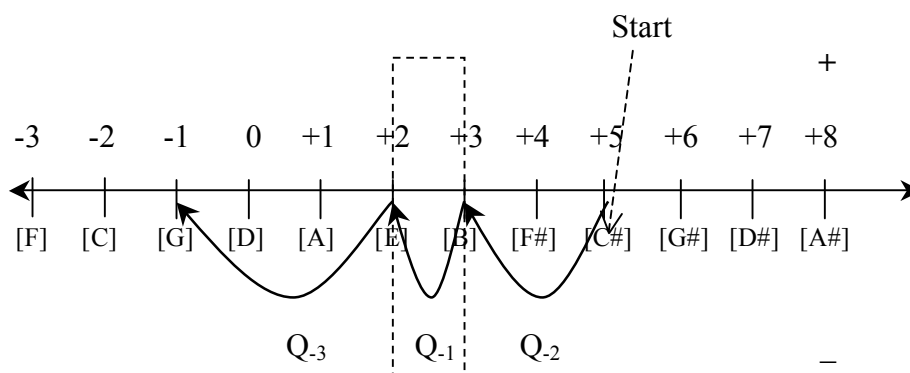
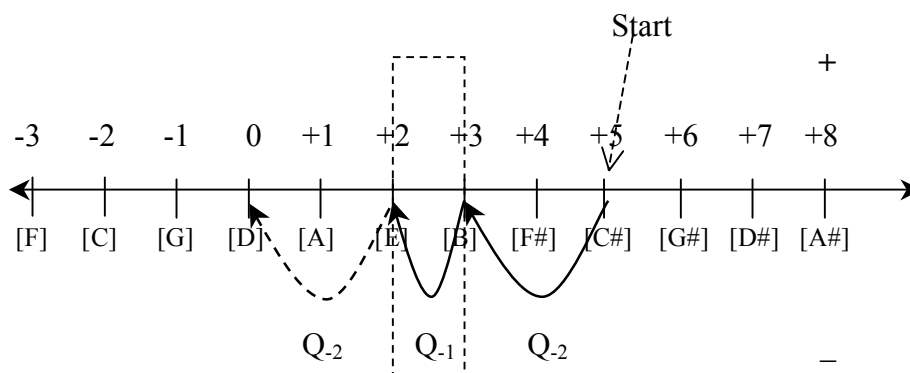
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¹⁷ Pitch-class B in set $Q_{+5}(X)$ is an incomplete neighbor.

Table 3.11: List of synthetic chords from example 3.11

Mm.	Set $Q_n(X)$	Q_n (distance)
4.1	Set $Q_{+5}(X)$ [C#, D, E, F, G, A, Bb]	
4.2	Set $Q_{+3}(X)$ [B, C, D, Eb, F, G, Ab]	
4.3	Set $Q_{+2}(X)$ [E, F, G, Ab, Bb, C, Db]	
5	Set $Q_{-1}(X)$ [G, Ab, Bb, Cb, Db, Eb, Fb]	

Figure 3.26: Near-symmetry on a line of fifths with midpoint $Q_{+2/+3}$, offset (1) from *Trois Compositions* no. 1, mm. 4-5 (from example 3.11)**Figure 3.27:** A crisp reinterpretation of figure 3.26 with midpoint at $Q_{+2/+3}$ 

Example 3.12 shows the opening phrase from the same piece (i.e., *Trois Compositions* no. 1, mm. 1-2). The passage is based on five transpositions: set $Q_0(X)$ [D, Eb, F, Gb, Ab, Bb, Cb], set $Q_{-3}(X)$ [F, Gb, A, Bbb, Cb, Db, Ebb], set $Q_{-2}(X)$ [C, Db, Eb, Fb, Gb, A, Bbb], set $Q_{+7}(X)$ [D#, E, F#, G, A, B, C], and set $Q_{+4}(X)$ [F#, G, A, Bb, C, D, Eb], respectively. **Table 3.12** lists the synthetic chords from this passage. **Figure 3.28** shows these sets on a line of fifths. As we examine the path of set $Q_0(X)$ [D, Eb, F, Gb, Ab, Bb, Cb] we can see that, once again, it is almost symmetrical around Q_{+2} ; however, the Q_{+1} over-quint transformation from set $Q_{-3}(X)$ [F, Gb, A, Bbb, Cb, Db, Ebb] to set $Q_{-2}(X)$ [C, Db, Eb, Fb, Gb, A, Bbb] contributes to an offset (1). **Figure 3.29** is a crisp reinterpretation of the passage, which omits the Q_{+1} over-quint transformation: the passage is now characterized by three transformations— Q_{-3} , Q_{+10} , Q_{-3} —fully balancing the path around Q_{+2} .

Example 3.12: Annotated score of *Trois Compositions* no. 1, mm. 1-2

Q₋₃ (X) [F, Gb, Ab, Bbb, Cb, Db, Ebb]

Q₊₇ (X) [D#, E, F#, G, A, B, C]

Q₀ (X) [D, Eb, F, Gb, Ab, Bb, Cb]

Q₋₂ (X) [C, Db, Eb, Fb, Gb, Ab, Bbb]

Q₊₄ (X) [F#, G, A, Bb, C, D, Eb]

Adagio (nobilissimo)

p

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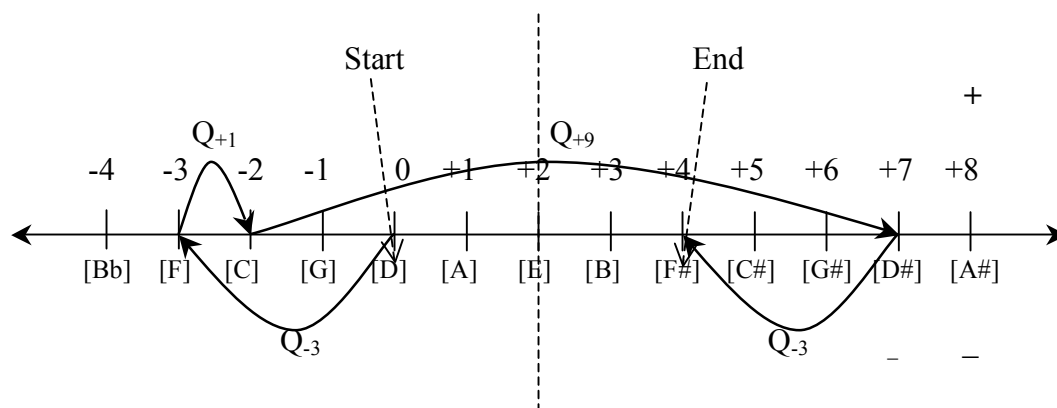
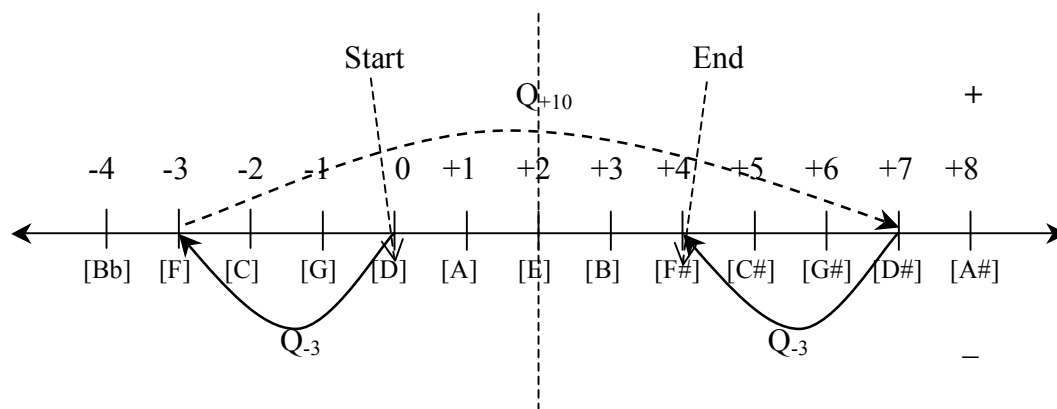
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Table 3.12: List of synthetic chords from example 3.12

Mm.	Set Q_n (X)	Q_n (distance)
1.1	Set Q_0 (X) [D, Eb, F, Gb, Ab, Bb, Cb]	} Q_{-3}
1.2	Set Q_{-3} (X) [F, Gb, Ab, Bbb, Cb, Db, Ebb]	
1.3	Set Q_{-2} (X) [C, Db, Eb, Fb, Gb, Ab, Bbb]	} Q_{+1}
2.1	Set Q_{+7} (X) [D#, E, F#, G, A, B, C]	} Q_{+9}
2.2	Set Q_{+4} (X) [F#, G, A, Bb, C, D, Eb]	} Q_{-3}

Figure 3.28: Near-symmetry on a line of fifths with midpoint at Q_{+2} , offset (1) from *Trois Compositions* no. 1, mm. 1-2**Figure 3.29:** A crisp reinterpretation of figure 3.28 with midpoint at Q_{+2} 

Example 3.13 shows an annotated score of the second half of the A section from *Trois Compositions* no. 3, mm. 4-7. The piece is based on members of $sc(0124578T)$ and set $Q_0(X)$ equals $[D\#, E, F, G, G\#, Bb, B, Db]$. The passage features five transpositions of synthetic chord $sc(0124578T)$: set $Q_{+1}(X)$ $[A\#, (B, C), D, D\#, F, F\#, Ab]$, set $Q_0(X)$ $[D\#, E, F, G, G\#, Bb, B, Db]$, set $Q_{-1}(X)$ $[G\#, A, Bb, C, C\#, Eb, E, Gb]$, set $Q_{+8}(X)$ $[Ax, (C), C\#, D\#, Dx, F\#, Fx, A]$, and set $Q_{+5}(X)$ $[Cx, (D\#, E), F\#, Fx, A, A\#, C]$, respectively. **Table 3.13** lists the synthetic chords from this passage. **Figure 3.30** shows these synthetic chords on a line of fifths. The transformational path is characterized by near-symmetry, for the last Q_{-3} under-quint, which transforms $Q_{+8}(X)$ $[Ax, (C), C\#, D\#, Dx, F\#, Fx, A]$ to $Q_{+5}(X)$ $[Cx, (D\#, E), F\#, Fx, A, A\#, C]$ travels too far to make the path completely crisp around $Q_{+3/+4}$. **Figure 3.31** shows a crisp reinterpretation of **figure 3.30**, where the last under-quint transformation (Q_{-3}) has been divided into two equal under-quints of Q_{-1} . These two transformations balance the opening two transformations of Q_{-1} (i.e., from set $Q_{+1}(X)$ $[A\#, (B, C), D, D\#, F, F\#, Ab]$ to set $Q_0(X)$ $[D\#, E, F, G, G\#, Bb, B, Db]$ and set $Q_{-1}(X)$ $[G\#, A, Bb, C, C\#, Eb, E, Gb]$), and they contribute to crisp symmetry. In short, because the original path (refer back to **figure 3.30**) lacked these two under-quints and it traveled by a single quint too far (to set $Q_{+5}(X)$ $[Cx, (D\#, E), F\#, Fx, A, A\#, C]$), the path is characterized by near-symmetry around $Q_{+3/+4}$ with offset (1).

Example 3.13: Annotated score of *Trois Compositions* no. 3, mm. 4-7

Set Q_0 (X) [D#, E, F, G, G#, Bb, B, Db]

Set Q_{+8} (X) [Ax, B#, C#, D#, Dx, F#, Fx, A]

Set Q_{+1} (X) [A#, B, C, D, D#, F, F#, Ab]

Set Q_{-1} (X) [G#, A, Bb, C, C#, Eb, E, Gb]

Set Q_{+5} (X) [Cx, (D#, E), F#, Fx, A, A#, C]

pp *cresc.*

pp *mf*

p

poco rit. *rubato*

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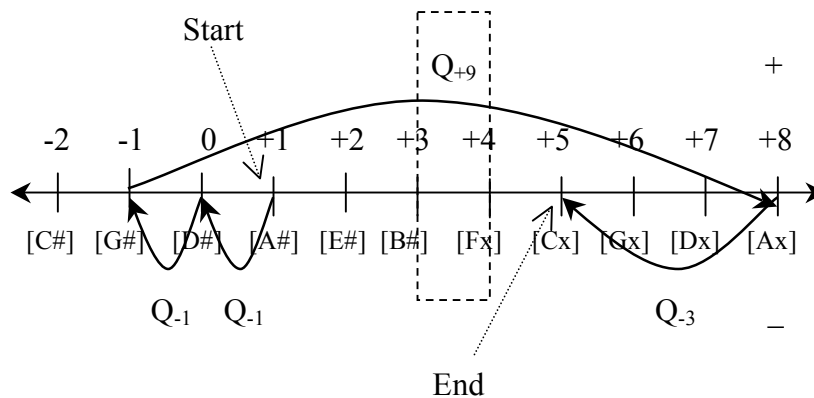
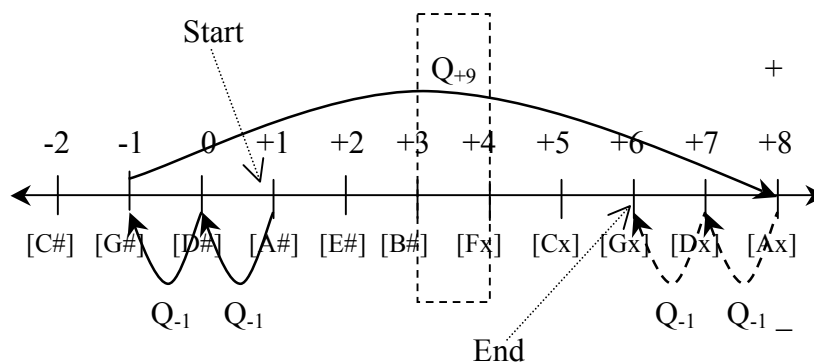
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Table 3.13: List of synthetic chords from example 3.13

Mm.	Set Q_n (X)	Q_n (distance)
4.1	Set Q_{+1} (X) [A#, (B, C), D, D#, F, F#, Ab]	Q ₋₁
4.2	Set Q_0 (X) [D#, E, [F], G, G#, Bb, B, Db]	
4.3	Set Q_{-1} (X) [G#, A, [Bb], C, C#, Eb, E, Gb]	Q ₋₁
5-6.1	Set Q_{+8} (X) [Ax, (C), C#, D#, Dx, F#, Fx, A]	Q ₊₉
6.2-7	Set Q_{+5} (X) [Cx, (D#, E), F#, Fx, A, A#, C]	Q ₋₃

Figure 3.30: Near-symmetry on a line of fifths with midpoint at $Q_{+3/+4}$, offset (1) from *Trois Compositions* no. 3, mm. 4-7 (from example 3.13)**Figure 3.31:** A crisp reinterpretation of figure 3.30 with midpoint at $Q_{+3/+4}$ 

Example 3.14 shows an annotated score of the B section from *Trois Compositions* no. 3, mm. 8-11. The section features three sets: set $Q_{+2}(X)$ [E#, (F#, G), A, A#, C, C#, Eb],¹⁸ set $Q_{+6}(X)$ [Gx, (A#), B, C#, Cx, E, E#, G], and set $Q_{+3}(X)$ [B#, (C#), D, E, E#, G, G#, Bb]. (Set $Q_{+2}(X)$ [E#, (F#, G), A, A#, C, C#, Eb] returns at the end of the passage.) **Table 3.14** lists the synthetic chords in this passage. **Figure 3.32** shows these synthetic chords on a line of fifths. Similar to the previous examples of near-symmetry, the transformations in **figure 3.32** are characterized by near-symmetry, for the passage is off by one quint from being completely symmetrical around Q_{+4} ; the last under-quint transformation— Q_{-1} —must be omitted and the penultimate under-quint transformation Q_{-3} must be extended to a Q_{-4} . **Figure 3.33** makes these adjustments, where the entire passage is characterized by an alternation of sets $Q_{+2}(X)$ [E#, (F#, G), A, A#, C, C#, Eb] and $Q_{+6}(X)$ [Gx, (A#), B, C#, Cx, E, E#, G] with an axis of symmetry around Q_{+4} .

¹⁸ Pitch-classes F# and G are omitted from set $Q_{+2}(X)$. In general, throughout the chapter any pcs in the parentheses indicate omission of those notes.

Example 3.14: Annotated score of *Trois Compositions* no. 1, mm. 8-11

Set $Q_{+6}(X)$ [Gx, (A#), B, C#, Cx, E, E#, G]

Set $Q_{+2}(X)$ [E#, (F#, G), A, A#, C, C#, Eb]

Set $Q_{+3}(X)$ [B#, (C#), D, E, E#, G, G#, Bb]

Meno mosso

p

Set $Q_{+2}(X)$ [E#, (F#, G), A, A#, C, C#, Eb]

pp

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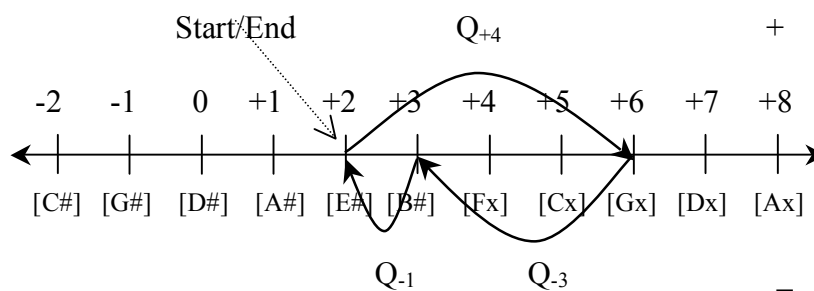
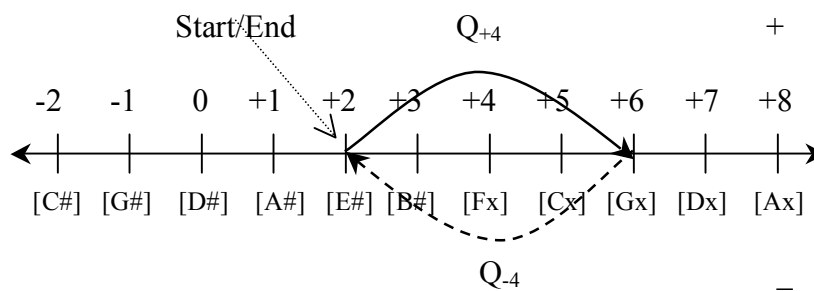
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Table 3.14: List of synthetic chords from example 3.14

Mm.	Set Q_n (X)	Q_n (distance)
8.1	Set Q_{+2} (X) [E#, (F#, G), A, A#, C, C#, Eb]	
8.4	Set Q_{+6} (X) [Gx, (A#), B, C#, Cx, E, E#]	
9	Set Q_{+3} (X) [B#, (C#), D, E, E#, G, G#, Bb]	
10-11	Set Q_{+2} (X) [E#, (F#, G), A, A#, C, C#, Eb]	

Figure 3.32: Near-symmetry on a line of fifths with midpoint at Q_{+4} , offset (1) from *Trois Compositions* no. 1, mm. 8-11 (from example 3.14)**Figure 3.33:** A crisp reinterpretation of figure 3.32 with midpoint at Q_{+4} 

Our last example of near-symmetry with minimal offset (1) is shown from the last section from the same piece. **Example 3.15** shows an annotated score of the last section of *Trois Compositions* no. 3 (mm. 12-15). The passage is based on sets Q_{-1} (X) [G#, A,

(Bb), C, C#, Eb, E, Gb], $Q_{-4}(X)$ [B, (C, Db) Eb, E, Gb, G, Bbb], $Q_{-1}(X)$ [G#, (A, Bb), C, C#, Eb, E, Gb], $Q_0(X)$ [D#, (E, F), G, G#, Bb, B, Db], $Q_{+4}(X)$ [Fx, (G#, A), B, B#, D, D#, F], $Q_{+1}(X)$ [A#, (B, C), D, D#, F, F#, Ab], and $Q_0(X)$ [D#, E, F, G, G#, Bb, B, Db], respectively. **Table 3.15** lists the synthetic chords from this passage. **Figure 3.34** shows these synthetic chords on a line of fifths. The passage is nearly symmetrical around $Q_{-1/0}$ with offset (1), for the over-quint Q_{+4} , which transforms set $Q_0(X)$ to set $Q_{+4}(X)$ travels one quint too far. **Figure 3.35** is a crisp reinterpretation of **figure 3.34**, where over quint Q_{+4} is replaced by Q_{+3} and makes the passage completely symmetrical around $Q_{-1/0}$.

Example 3.15: Annotated score of *Trois Compositions* no. 3, mm. 12-15 (end)

Set $Q_{-4}(X)$ [B, (C, Db) Eb, E, Gb, G, Bbb]

Set $Q_{+4}(X)$ [Fx, (G#, A), B, B#, D, D#, F]

Set $Q_{-1}(X)$ [G#, A, Bb, C, C#, Eb, E, Gb]

poco rit.

Set $Q_0(X)$ [D#, (E, F), G, G#, Bb, B, Db]

(Continued on the following page)

Lentoso

p

dim.

Set $Q_0 (X)$ [D#, (E, F), G, G#, Bb, B, Db]

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Table 3.15: List of synthetic chords from example 3.15

Mm.	Set $Q_n (X)$	Q_n (distance)
12.1	Set $Q_{-1} (X)$ [G#, A, Bb, C, C#, Eb, E, Gb]	Q ₋₃
12.4	Set $Q_{-4} (X)$ [B, (C), Db, Eb, E, Gb, G, Bbb]	
13.1	Set $Q_{-1} (X)$ [G#, (A, Bb), C, C#, Eb, E, Gb]	Q ₊₃
13.3	Set $Q_0 (X)$ [D#, (E, F), G, G#, Bb, B, Db]	Q ₊₁
13.4	Set $Q_{+4} (X)$ [Fx, (G#, A), B, B#, D, D#, F]	Q ₊₄
13.6	Set $Q_{+1} (X)$ [A#, (B, C), D, D#, F, F#, Ab]	Q ₋₃
14-15	Set $Q_0 (X)$ [D#, (E, F), G, G#, Bb, B, Db]	Q ₋₁

Figure 3.34: Near-symmetry on a line of fifths with midpoint at $Q_{-1/0}$, offset (1) from *Trois Compositions* no. 1, mm. 12-15 (end) (from example 3.15)

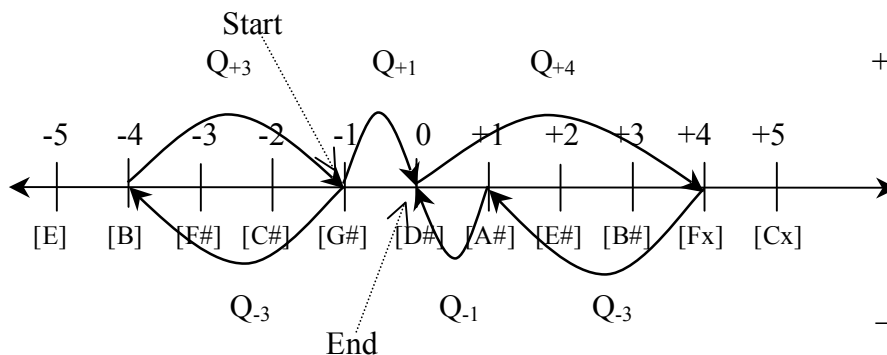
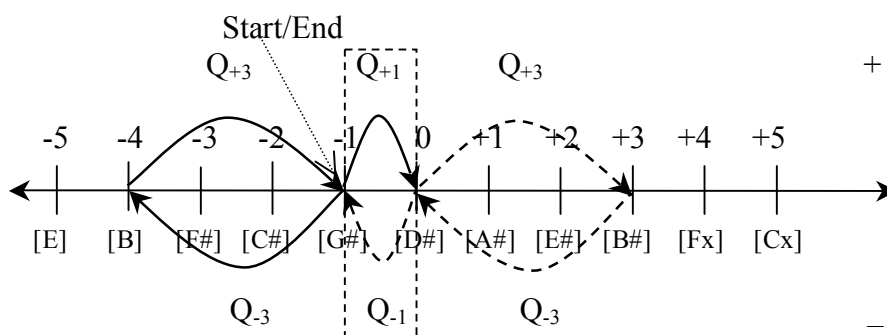


Figure 3.35: A crisp reinterpretation of figure 3.34 with midpoint at $Q_{-1/0}$



So far, we have discussed near-symmetry at its very minimum—it has been exclusively characterized by a single-quint offset. Examples that follow (**examples 3.16** through **3.18**) feature near-symmetries with offsets of two quints; **examples 3.19** and **3.20** illustrate examples of near-symmetry with offset of three quints.

Example 3.16 shows an annotated score of the second phrase from *Trois Compositions* no. 2, mm. 3-5. The piece is based on members of $sc(0134689)$ and, although not present in the given passage, set $Q_0(X) = [E, F, G, A, Bb, C, C\#]$. The

passage is based on four distinct synthetic chords: set $Q_{-2}(X)$ [D, Eb, F, G, Ab, Bb, B], set $Q_{-3}(X)$ [G, Ab, Bb, C, Db, Eb, E], set $Q_{+6}(X)$ [A#, B, C#, D#, E, F#, Fx], and set $Q_{+3}(X)$ [C#, D, E, F#, G, A, A#].¹⁹ **Table 3.16** lists the synthetic chords from this passage.

Figure 3.36 shows these synthetic chords on a line of fifths. The passage is characterized by near-symmetry, for the last under-quint transformation Q_{-3} is off by two fifths from complementing the opening Q_{-1} and Q_{+1} transformations. **Figure 3.37** shows a crisp reinterpretation of the passage, where the original under-quint Q_{-3} transformation is replaced by two new transformations— Q_{-1} and Q_{+1} —which symmetrically balance the entire passage around $Q_{+1/2}$ without any offsets.

Example 3.16: Annotated score of *Trois Compositions* no. 2, mm. 3-5

(Continued on the following page)

¹⁹ Please note that sets $Q_{-2}(X)$ [D, Eb, F, G, Ab, Bb, B] and $Q_{-3}(X)$ [G, Ab, Bb, C, Db, Eb, E] alternate at the beginning of the passage.

Set Q_{+6} (X) [A#, B, C#, D#, E, F#, Fx]

Set Q_{+3} (X) [C#, D, E, F#, G, A, A#]

mf cresc. molto

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Table 3.16: List of synthetic chords from example 3.16

Mm.	Set Q_n (X)	Q_n (distance)
3.1	Set Q_{-2} (X) [D, Eb, F, G, Ab, Bb, B]	Q ₋₁
3.2	Set Q_{-3} (X) [G, Ab, Bb, C, Db, Eb, E]	
4.1	Set Q_{-2} (X) [D, Eb, F, G, Ab, Bb, B]	Q ₊₁
4.2	Set Q_{-3} (X) [G, Ab, Bb, C, Db, Eb, E]	Q ₋₁
5.1	Set Q_{+6} (X) [A#, B, C#, D#, E, F#, Fx]	Q ₊₉
5.2	Set Q_{+3} (X) [C#, D, E, F#, G, A, A#]	Q ₋₃

Figure 3.36: Near-symmetry on a line of fifths with midpoint at $Q_{+1/+2}$, offset (2) from *Trois Compositions* no. 2, mm. 3-5 (from example 3.16)

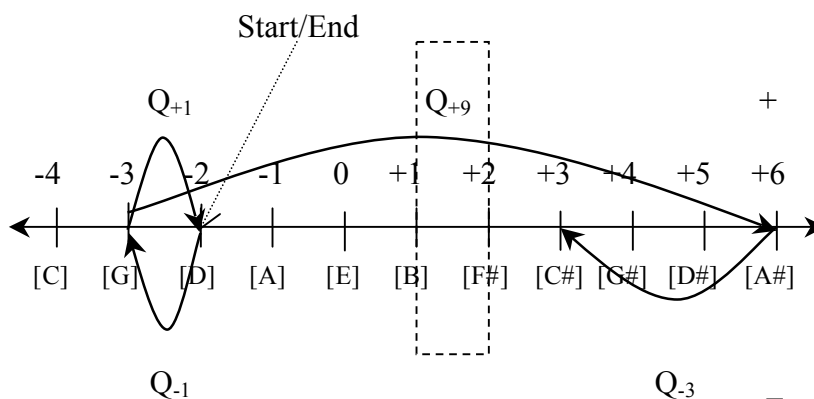
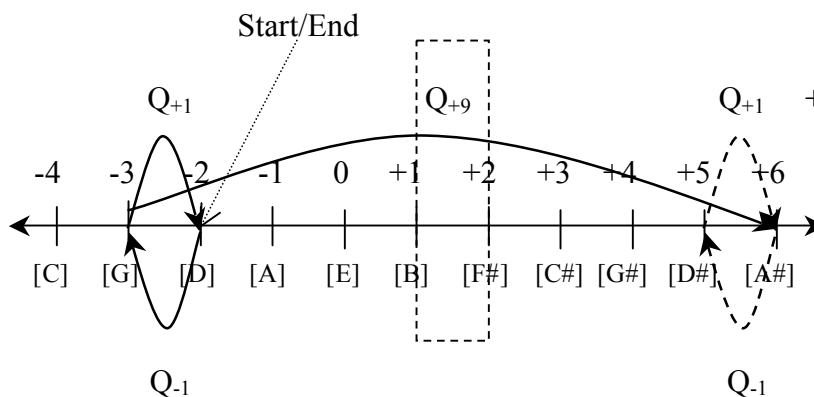


Figure 3.37: A crisp reinterpretation of figure 3.36 with midpoint at $Q_{+1/+2}$



Example 3.17 shows an annotated score of climactic middle section from *Trois Compositions* no. 2, mm. 6-9. The section is based on the following distinct synthetic chords: set Q_{+2} (X) [F#, G, A, B, C, D, D#, (E)], set Q_{-1} (X) [A, Bb, C, D, Eb, F, F#], set Q_{-2} (X) [D, Eb, F, G, Ab, Bb, B, (C)], set Q_{-3} (X) [G, Ab, Bb, C, Db, Eb, E], set Q_{-4} (X) [C, Db, Eb, F, Gb, Ab, A, (Bb)], set Q_{+5} (X) [D#, E, F#, G#, A, B, B#], set Q_{+4} (X) [G#, A, B, C#, D, E, E#], and set Q_{+1} (X) [B, C, D, E, F, G, G#], respectively. **Table 3.17** lists the synthetic chords from this passage. **Figure 3.38** shows these synthetic chords on a

line of fifths, where near-symmetry is rather apparent: the last under-quint transformation Q_{-3} contributes to the *nearness* of the symmetry of the passage. If the passage were crisp, then that transformation would have been replaced by two under-quint transformations Q_{-1} . **Figure 3.39** is a crisp reinterpretation of the passage, which includes the two under-quint transformations Q_{-1} making it symmetrical around $Q_{0/+1}$. Thus, because these transformations are absent from the original passage, the symmetrical midpoint remains at $Q_{0/+1}$ with offset (2).

Example 3.17: Annotated score of *Trois Compositions* no. 2, mm. 6-9 (climax)²⁰

(Continued on the following page)

²⁰ Pitch-class E in Q_{+2} (X) is an ornamental added pc to this synthetic chord. Throughout the chapter pcs in brackets are mere ornamental additions to the given synthetic chord.

Set $Q_{-2}(X)$ [D, Eb, F, G, Ab, Bb, B, [C]]

Set $Q_{+1}(X)$ [B, C, D, E, F, G, G#]

Set $Q_{-3}(X)$ [G, Ab, Bb, C, Db, Eb, E]

Set $Q_{+5}(X)$ [D#, E, F#, G#, A, B, B#]

Set $Q_{-4}(X)$ [C, Db, Eb, F, Gb, Ab, A, [Bb]]

Set $Q_{+4}(X)$ [G#, A, B, C#, D, E, E#]

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Table 3.17: List of synthetic chords from example 3.17

Mm.	Set $Q_n(X)$	Q_n (distance)
6.1	Set $Q_{+2}(X)$ [F#, G, A, B, C, D, D#, [E]]	Q-3
6.2	Set $Q_{-1}(X)$ [A, Bb, C, D, Eb, F, F#]	
7.1	Set $Q_{-2}(X)$ [D, Eb, F, G, Ab, Bb, B, [C]]	Q-1
7.2	Set $Q_{-3}(X)$ [G, Ab, Bb, C, Db, Eb, E]	Q-1
8.1	Set $Q_{-4}(X)$ [C, Db, Eb, F, Gb, Ab, A, [Bb]]	Q-1
8.2	Set $Q_{+5}(X)$ [D#, E, F#, G#, A, B, B#]	Q+9
8.3	Set $Q_{+4}(X)$ [G#, A, B, C#, D, E, E#]	Q-1
9	Set $Q_{+1}(X)$ [B, C, D, E, F, G, G#]	Q-3

Figure 3.38: Near-symmetry with midpoint at $Q_{0/+1}$, offset (2) from *Trois Compositions* no. 2, mm. 6-9 (climax) (from example 3.17)

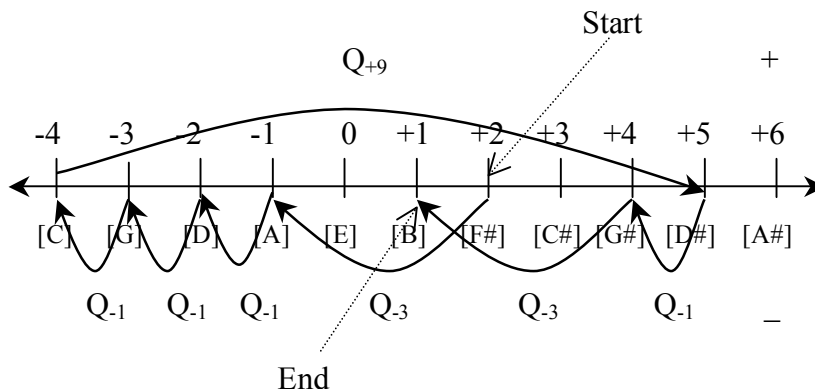
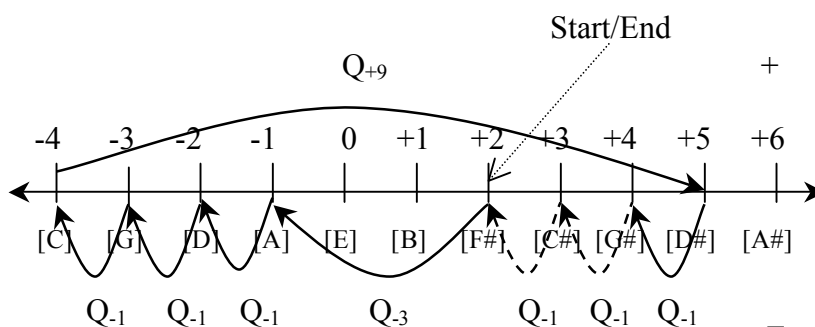


Figure 3.39: A crisp reinterpretation of figure 3.38 with midpoint at $Q_{0/+1}$



Example 3.18 shows an annotated score from the opening phrase of *Trois Compositions* no. 3, mm. 1-2. The passage is based on members of $sc(0124578T)$ and it features eight transpositions of it: set Q_0 (X) [D#, E, (F), G, G#, Bb, B, Db], set Q_{-1} (X) [G#, A, [Bb], C, C#, Eb, E, Gb], set Q_{-4} (X) [B, (C, Db) Eb, E, Gb, G, Bbb], set Q_{-3} (X) [F#, (G, Ab), Bb, B, Db, D, Fb], set Q_{+1} (X) [A#, (B, C), D, D#, F, F#, Ab], and set Q_{-2} (X) [C#, (D, Eb), F, F#, Ab, A, Cb], respectively. **Table 3.18** lists the synthetic chords from this passage. **Figure 3.40** shows these synthetic chords on a line of fifths. The striking feature of the passage are the under- and over-quint transformations Q_{-1} and Q_{+1} ;

the first transforms set $Q_0(X)$ to set $Q_{-1}(X)$, and the second transforms set $Q_{-4}(X)$ to set $Q_{-3}(X)$. **Figure 3.41** shows a crisp reinterpretation of the passage, where Q_{+4} from example 4.33 has been replaced by Q_{+3} .²¹ The resultant path shows symmetry around Q_{-2} without any offset: the over-quint transformations (i.e., Q_{+1} and Q_{+3}) are in RI relationship with the under-quint transformations (i.e., Q_{-3} and Q_{-1}).

Example 3.18: Annotated score of *Trois Compositions* no. 3, mm. 1-2²²

Table 3.18: List of synthetic chords from example 3.18

Mm.	Set $Q_n(X)$	Q_n (distance)
3.1	Set $Q_0(X)$ [D#, E, F, G, G#, Bb, B, Db]	
3.2	Set $Q_{-1}(X)$ [G#, A, Bb, C, C#, Eb, E, Gb]	Q ₋₁
4.1	Set $Q_{-4}(X)$ [B, (C, Db), Eb, E, Gb, G, Bbb]	Q ₋₃
4.2	Set $Q_{-3}(X)$ [F#, (G, Ab), Bb, B, Db, D, Fb]	Q ₊₁
5.1	Set $Q_{+1}(X)$ [A#, (B, C), D, D#, F, F#, Ab]	Q ₊₄
5.2	Set $Q_{-2}(X)$ [C#, (D, Eb), F, F#, Ab, A, Cb]	Q ₋₃

²¹ Because of the reinterpretation in example 3.41, the last under-quint Q_{-3} has been omitted altogether.

²² For the lack of space synthetic chords have been abbreviated to their $Q_n(X)$; see table 3.18 for the full list of synthetic chords in this passage.

Figure 3.40: Near-symmetry with midpoint at $Q_{-2/-1}$, offset (2) from *Trois Compositions* no. 3, mm. 1-2 (from example 3.18)

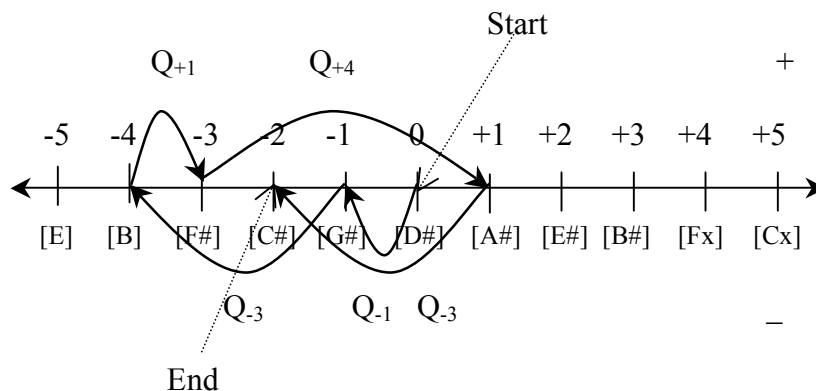
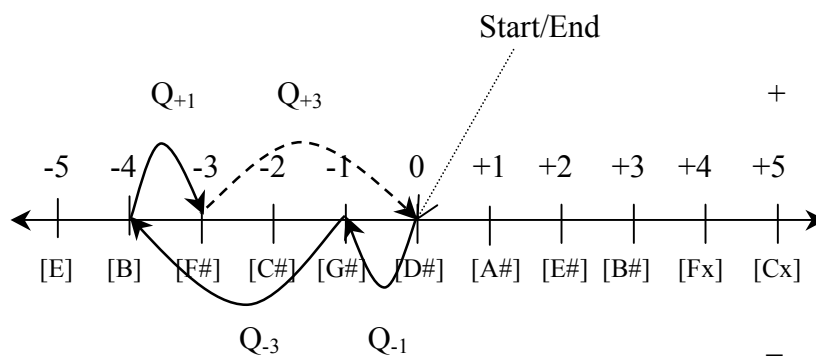


Figure 3.41: A crisp reinterpretation of figure 3.40 with midpoint at $Q_{-2/-1}$



The next musical example features two subsections, each with a different number of offsets. **Example 3.19** shows an annotated score of the development section from “Pianissimo,” mm. 53-70. The passage is based on eight transpositions: set Q_0 (X) [A#, B, C#, D, Eb, E#, F#], set Q_{-3} (X) [C#, D, E, F, Gb, G#, A], set Q_{-6} (X) [E, F, G, Ab, Bbb, B, C], set Q_{-2} (X) [G#, A, B, C, Db, D#, E], set Q_{+9} (X) [Bx, Cx, Dx, E#, F#, Fx#, Gx], set Q_{+6} (X) [Dx, E#, Fx, G#, A, Ax, B#], set Q_{+3} (X) [Fx, G#, A#, B, C, Cx, D#], and set Q_{+4} (X) [Cx, D#, E#, F#, G, Gx, A#].²³ **Table 3.19** lists the synthetic chords from this

²³ Please note that set Q_0 (X) [A#, B, C#, D, Eb, E#, F#] returns at the end of the passage.

passage. **Figures 3.42** and **3.43** show the passage as two subsections—mm. 53-59 and mm. 60-70. **Example 3.42** shows the first four synthetic chords (i.e., set $Q_0(X)$ [A#, B, C#, D, Eb, E#, F#], set $Q_{-3}(X)$ [C#, D, E, F, Gb, G#, A], set $Q_{-6}(X)$ [E, F, G, Ab, Bbb, B, C], and set $Q_{-2}(X)$ [G#, A, B, C, Db, D#, E]) on a line of fifths. If we recall the opening measures of the piece (mm. 1-14), which were characterized by crisp symmetry (refer back to **example 3.5**), the transformations of the two under-quint transformations Q_{-3} and an over-quint transformation Q_{+4} are direct quotations from the opening measures of “Pianissimo.” Since the pattern in mm. 53-59 is not as systematic as in the opening measures of the piece (i.e., it does not result in crisp symmetry), it is characterized by near-symmetry around Q_{-3} with offset (2).²⁴ **Example 3.43** shows the rest of the passage (mm. 60-70) on a line of fifths involving sets $Q_{-2}(X)$ [G#, A, B, C, Db, D#, E], $Q_{+9}(X)$ [Bx, Cx, Dx, E#, F#, Fx#, Gx], $Q_{+6}(X)$ [Dx, E#, Fx, G#, A, Ax, B#], $Q_{+3}(X)$ [Fx, G#, A#, B, C, Cx, D#], $Q_{+4}(X)$ [Cx, D#, E#, F#, G, Gx, A#], and $Q_0(X)$ [A#, B, C#, D, Eb, E#, F#], respectively. This half of the section is also characterized by near-symmetry. Since the passage returns to set $Q_0(X)$ [A#, B, C#, D, Eb, E#, F#] it does not complete the symmetry: if only the last under-quint transformation— Q_{-4} —were replaced by two under-quint transformations Q_{-3} [i.e., at $Q_{+1}(X)$ and $Q_{-2}(X)$] then the passage would have been characterized by crisp symmetry around $Q_{+3/+4}$ (see **figure 3.44**). For these reasons, mm. 60-70 are characterized by near-symmetry around $Q_{+3/+4}$ with offset (3).

²⁴ The gray dotted line denotes a crisp case, where the symmetry would have resulted in zero (0) offset.

Example 3.19: Annotated score of "Pianissimo," mm. 53-70

The image displays a musical score for the piece "Pianissimo" (mm. 53-70), annotated with five specific callouts: $Q_0(X)$, $Q_3(X)$, $Q_6(X)$, $Q_9(X)$, and $Q_2(X)$. The score is presented in four systems, each consisting of a grand staff (treble and bass clefs). The first system includes a time signature change from 3/4 to 4/4. The notation features complex rhythmic patterns, including sixteenth and thirty-second notes, and frequent use of five-fingered chords (marked with a '5'). The callouts are as follows:

- $Q_0(X)$: Points to the first measure of the first system.
- $Q_3(X)$: Points to the fourth measure of the second system.
- $Q_6(X)$: Points to the sixth measure of the third system.
- $Q_9(X)$: Points to the ninth measure of the third system.
- $Q_2(X)$: Points to the second measure of the fourth system.

The score is annotated with various musical symbols, including slurs, ties, and dynamic markings, indicating the specific musical elements being highlighted by the callouts.

(Continued on the following page)

The image displays a musical score for three études by Dmitri Roslavets. The score is organized into three systems, each enclosed in a large bracket. The first system (measures 1-3) is labeled $Q_{+6} (X)$. The second system (measures 4-6) is labeled $Q_{+3} (X)$ and $Q_{+4} (X)$. The third system (measures 7-12) is labeled $Q_0 (X)$. The notation includes treble and bass staves with various musical symbols such as notes, rests, slurs, and fingerings (e.g., '5').

Roslavets TROIS ETUDES

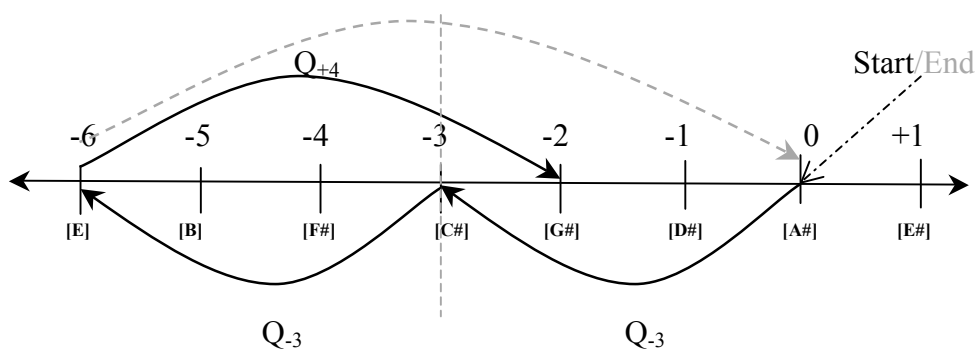
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Table 3.19: List of synthetic chords from example 3.19

Mm.	Set Q_n (X)	Q_n (distance)
53-56	Set Q_0 (X) [A#, B, C#, D, Eb, E#, F#]	Q ₋₃
57	Set Q_{-3} (X) [C#, D, E, F, Gb, G#, A]	
58	Set Q_{-6} (X) [E, F, G, Ab, Bbb, B, C]	Q ₋₃
59	Set Q_{-2} (X) [G#, A, B, C, Db, D#, E]	Q ₊₄
60-63	Set Q_{+9} (X) [Bx, Cx, Dx, E#, F#, Fx#, Gx]	Q ₊₁₁
64	Set Q_{+6} (X) [Dx, E#, Fx, G#, A, Ax, B#]	Q ₋₃
65	Set Q_{+3} (X) [Fx, G#, A#, B, C, Cx, D#]	Q ₋₃
66	Set Q_{+4} (X) [Cx, D#, E#, F#, G, Gx, A#]	Q ₊₁
67-70	Set Q_0 (X) [A#, B, C#, D, Eb, E#, F#]	Q ₋₄

Figure 3.42: Near-symmetry on a line of fifths with midpoint at Q_{-3} , offset (2) from “Pianissimo,” mm. 53-59 (from example 3.19)

Db, Eb, F, Gb] shows a crisp reinterpretation of the passage. Because the original passage does not feature the last added Q_{-3} transformation, it is symmetrical around Q_{+1} with offset (3).

Example 3.20: Annotated score of *Trois Compositions* no. 1, m. 3

Set Q_{+1} (X) [A, Bb, C, Db, Eb, F, Gb]

Set Q_{-2} (X) [C, Db, Eb, Fb, Gb, Ab, Bbb]

Set Q_{+4} (X) [F#, G, A, Bb, C, D, Eb]

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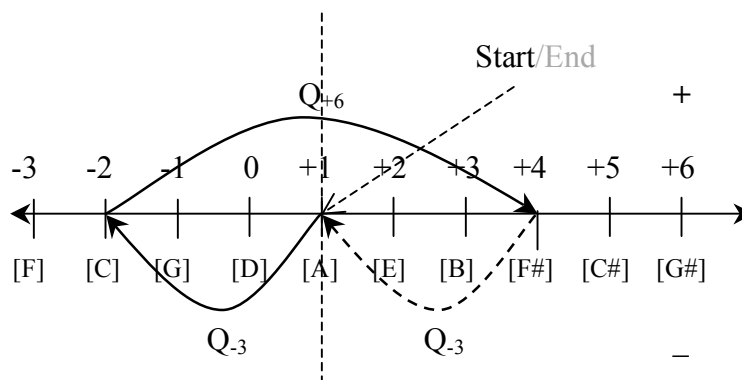
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Table 3.20: List of synthetic chords from example 3.20

Mm.	Set Q_n (X)	Q_n (distance)
3.1	Set Q_{+1} (X) [A, Bb, C, Db, Eb, F, Gb]	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> } } } </div> <div> Q_{-3} Q_{+6} </div> </div>
3.2	Set Q_{-2} (X) [C, Db, Eb, Fb, Gb, Ab, Bbb]	
3.3	Set Q_{+4} (X) [F#, G, A, Bb, C, D, Eb]	

Figure 3.45: Near-symmetry on a line of fifths with midpoint at Q_{+1} , offset (3) from *Trois Compositions* no. 1, m. 3 (from example 3.20)



3.4: Nested-Crisp Symmetry

Our last section will show the most elaborate type of symmetry—nested-crisp symmetry. **Example 3.21** shows an annotated score of the second section (mm. 4-9) from *Cinq Préludes*, no. 5. The piece is based on members of $sc(013578)$, where $Q_0(X)$ equals $[G\#, A, B, C\#, D\#, E]$. This section features three distinct synthetic chords: $Q_{-5}(X)$ $[A, Bb, C, D, E, F]$, $Q_{-6}(X)$ $[D, Eb, F, G, A, Bb]$, and $Q_{-7}(X)$ $[G, Ab, Bb, C, D, Eb]$. **Table 3.21** lists the synthetic chords from this passage. One of the interesting features of this passage is the constant return to set $Q_{-5}(X)$ $[D, E, F, A, Bb, C]$, creating two symmetrical axes. **Figure 3.46** shows these synthetic chords from the first half of the section (mm. 4-5) on a line of fifths. Because these transpositions are only a quint away from each other, they serve as their own symmetrical midpoint at $Q_{-6/5}$. Similarly, in **figure 3.47** the last three synthetic chords are shown— $Q_{-5}(X)$, $Q_{-7}(X)$, $Q_{-5}(X)$ —which are reached by two under-quint transformations (Q_{-2}) and two over-quint transformations (Q_{+2}). These synthetic chords are symmetrical around Q_{-6} . Thus, we can conclude that the whole passage is characterized by two symmetrical midpoints— $Q_{-6/5}$ and Q_{-6} —with

Q-6/-5 nested within Q-6. Finally, **figure 3.48** shows the passage in its entirety (combining **figures 3.46** and **3.47**).

Example 3.21: Annotated score of *Cinq Préludes* no. 5, mm. 4-9²⁶

The image shows a musical score for the first system (measures 4-7) and the second system (measures 8-9). Annotations include boxes labeled Q₄(X), Q₅(X), and Q₆(X) pointing to specific notes or groups of notes. Circled notes indicate additions to synthetic chords. Performance markings include *m.d.*, *mf*, *ten.*, *dim.*, and *pp*. Fingerings and articulation marks are also present.

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²⁶ All the circled pcs are additions to the given synthetic chords.

Table 3.21: List of synthetic chords from example 3.21

Mm.	Set Q_n (X)	Q_n (distance)
4.3	Set Q_{-4} (X) [A, Bb, C, D, E, F]	
5.1	Set Q_{-5} (X) [D, E, F, A, Bb, (C)]	
5.2	Set Q_{-4} (X) [A, Bb, C, D, E, F]	
6-7	Set Q_{-6} (X) [G, A, Bb, D, Eb, F]	
8-9	Set Q_{-4} (X) [A, Bb, C, D, E, F]	

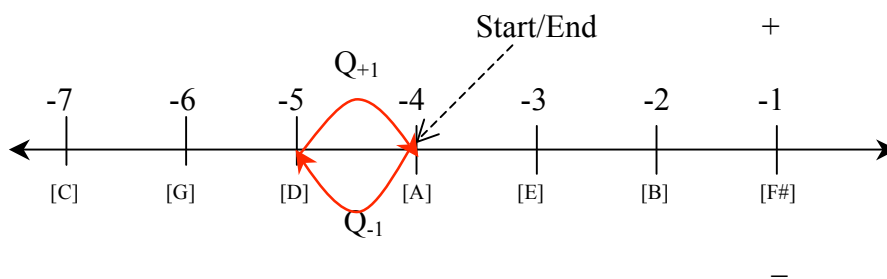
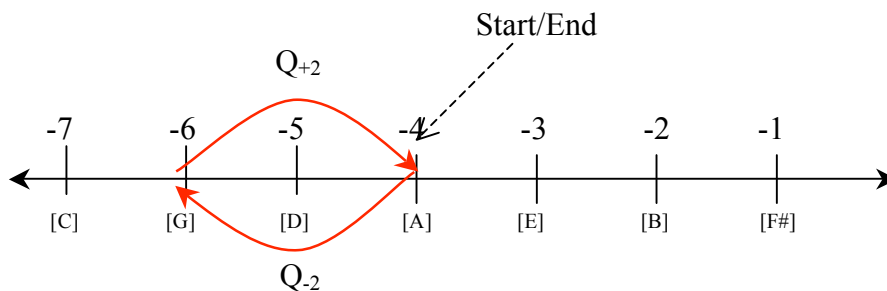
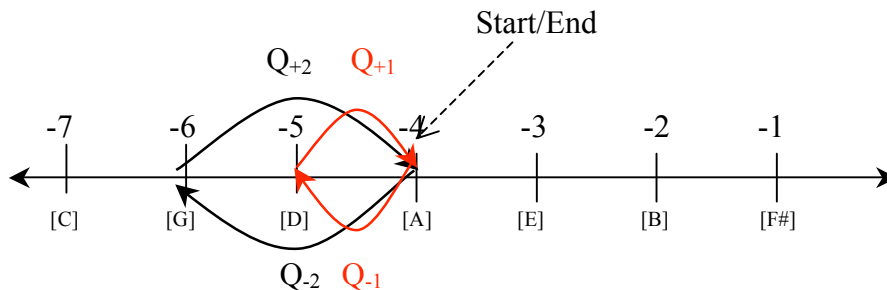
Figure 3.46: Crisp symmetry on a line of fifths with midpoint at $Q_{-5/4}$ from *Cinq Préludes* no. 5, mm. 4-5 (from example 3.21)**Figure 3.47:** Crisp symmetry on a line of fifths with midpoint at Q_{-5} from *Cinq Préludes* no. 5, mm. 5-7

Figure 3.48: Nested-crisp symmetry with two midpoints: $Q_{-5/4}$ and Q_{-5} (figures 3.46 and 3.47 combined)



Example 3.22 shows the concluding section (mm. 10-13) from *Trois*

Compositions no. 1. The piece is based on members of $sc(0134689)$, featuring four transpositions: set $Q_{+9}(X)$ [E#, F#, G#, A, B, C#, D], set $Q_{+6}(X)$ [G#, A, B, C, D, E, F], set $Q_{+3}(X)$ [B, C, D, Eb, F, G, Ab], and set $Q_{+4}(X)$ [F#, G, A, Bb, C, D, Eb]. **Table 3.22** lists the synthetic chords in this passage. **Figure 3.49** shows these synthetic chords on a line of fifths. This transformational path is rather peculiar for it features elements of both nested-crisp symmetry and near-symmetry. Because of the alternation between sets $Q_{+9}(X)$ and $Q_{+6}(X)$, and $Q_{+3}(X)$ and $Q_{+4}(X)$, a symmetrical path emerges with two midpoints: the larger transformations characterized by Q_{+3} and Q_{-3} show a convergence point around Q_{+6} , and the smaller transformations characterized by Q_{+1} and Q_{-1} show a convergence point around $Q_{+3/+4}$. Please note that the larger transformations also show an example of near-symmetry, for the last dotted over-quint transformation Q_{+3} (absent from the section) is needed to make the path completely balance around Q_{+6} . Because the path is dominated by two symmetrical midpoints, we will classify it by nested near-symmetry: transformations exhibiting symmetry around $Q_{+3/+4}$ are nested within the transformations exhibiting symmetry around Q_{+6} .

Example 3.22: Annotated score of *Trois Compositions* no. 1, mm. 10-13 (end)

The image shows an annotated musical score for the final measures of 'Trois Compositions' no. 1. The score is divided into two systems. The first system, measures 10-13, is marked 'Tempo I (toccato)' and 'p'. It features a treble and bass clef. Above the first system, four boxes labeled 'Q+9 (X)', 'Q+6 (X)', 'Q+9 (X)', and 'Q+6 (X)' have arrows pointing down to the first four measures. The second system, measures 14-17, features a treble and bass clef. Below the second system, four boxes labeled 'Q+3 (X)', 'Q+4 (X)', 'Q+3 (X)', and 'Q+4 (X)' have arrows pointing up to the first four measures. The fourth measure of the second system is marked 'dim.'. The score includes various musical notations such as notes, rests, and dynamic markings.

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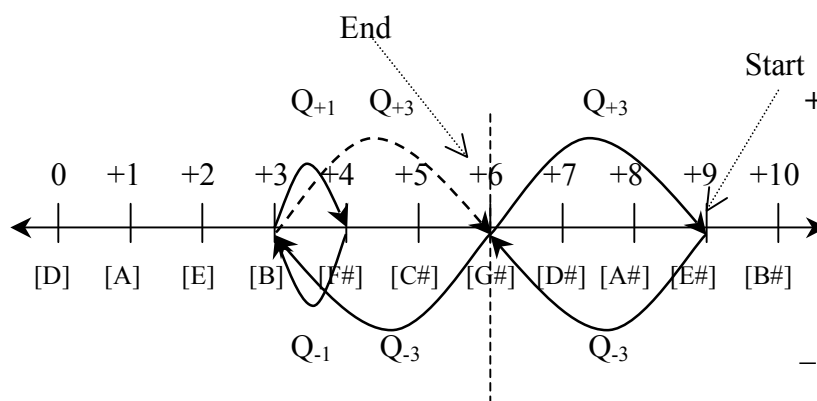
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Table 3.22: List of synthetic chords from example 3.22

Mm.	Set Q_n (X)	Q_n (distance)
10.1	Set Q_{+9} (X) [E#, F#, G#, A, B, C#, D]	Q ₋₃
10.2	Set Q_{+6} (X) [G#, A, B, C, D, E, F]	
11.1	Set Q_{+9} (X) [E#, F#, G#, A, B, C#, D]	Q ₊₃
11.2	Set Q_{+6} (X) [G#, A, B, C, D, E, F]	
12.1	Set Q_{+3} (X) [B, C, D, Eb, F, G, Ab]	Q ₋₃
12.2	Set Q_{+4} (X) [F#, G, A, Bb, C, D, Eb]	
12.3	Set Q_{+3} (X) [B, C, D, Eb, F, G, Ab]	Q ₊₁
13	Set Q_{+4} (X) [F#, G, A, Bb, C, D, Eb]	

Figure 3.49: Nested near-symmetry with two midpoints: $Q_{+3/+4}$, offset (0) and Q_{+6} , offset (3) from *Trois Compositions* no. 1, mm. 10-13 (end) (from example 3.22)

CHAPTER 4

The Synthetic Chord: Its Transpositional Combinational (TC) Property, Motivic Role, and Registral Importance

In **chapter 3** we took a transformational approach to reveal the structural quint path of synthetic chords in *Trois Etudes* nos. 2 (“Pianissimo”) and 3, *Cinq Préludes* nos. 1 and 5, and *Trois Compositions* that can be characterized by three types of symmetry—crisp, near-symmetry, and nested-crisp symmetry. Roslavets’s compositional space coupled with these symmetries also revealed his idiosyncratic orthography, which often featured triple sharps. The present chapter focuses on the inversionally symmetrical synthetic chords that play a significant role on the musical surface.¹ The synthetic chords discussed in this chapter are sc(0134578) from *Trois Etudes* no. 2 “Pianissimo,” and sc(01345689) from *Trois Etudes*, no. 3 and *Cinq Préludes*, no. 1. All of these chords can be described as having a transpositional combination (TC) property.² As we will see below Roslavets’s partitioning of the synthetic chord into dyads (especially in “Pianissimo”) reveals the importance of its TC property motivically, registally, and structurally (as a quint). The chapter is divided into four sections: **4.1** discusses TC as a property and an operation, and **4.2** through **4.4** discuss the significance of the synthetic

¹ Because all the synthetic chords discussed in this chapter are characterized by inversional symmetry they can also be related by $T_n I$.

² Howard Hanson, *Harmonic Materials of Modern Music: Resources of Tempered Scales* (New York: Appleton-Century-Crofts, Inc., 1960), pp. 195-224; for the original definition of the term “transpositional combination” see Richard Cohn, “Transpositional Combination in Twentieth-Century Music” (Ph.D. dissertation, Eastman School of Music, University of Rochester, 1986), pp. 59-83, and “Inversional Symmetry and Transpositional Combination in Bartók,” *Music Theory Spectrum* 10/1 (1988): pp. 19-42.

chord on the musical surface in “Pianissimo,” *Trois Etudes* no. 3, and *Cinq Préludes* no. 1, respectively.

4.1 TC as Property and Operation

Any pitch- or pc-set has the TC property if it can be disunited into two or more transpositionally related subsets.³ Further, TC is also a “binary operation which takes its operands of two set classes, and adds the value of each element in the prime form of the first operand to that of each element in the prime form of the second operand; the result is a large set that bears this property.”⁴ The operation is signified by *, and a typical TC operation would consist of $A * B = C$, where A and B are set-class operands and C is the set-class product. The TC is also commutative, for $A * B = B * A$. Even though TC is a binary operation, in cases of recursion, a third operand may be added.⁵ Here, the associative property also applies: $(A * B) * C = A * (B * C)$, which is taken in conjunction with the commutative property.

Figure 4.1 shows tetrachord [C, D, Eb, F] or sc(0235), where the set is characterized by the TC property: it can be divided into two transpositionally equal segments—[C, D] and [Eb, F] [i.e., two sets of sc(02) or a whole tone] or [C, Eb] and [D, F] [i.e., two sets of sc(03) related by T_3]. This set-class is also comprised of two operands (i.e., whole tones) related at T_3 : $2 * 3 = \text{sc}(0235)$, where “2” denotes a whole tone and “3” denotes transposition at 3 semitones; thus, the product of this operation is

³ Cohn 1988, p. 23.

⁴ Ibid., pp. 27-28.

⁵ Ibid., pp. 29-30.

sc(0235).⁶ **Figure 4.2** takes the same set in **figure 4.1** and relates it to another sc(0235) or tetrachord [F, G, Ab, Bb]. Further, **figure 4.2** shows the associative property for recursive TC-operations: $(2 * 3) * 5$; $(2 * 5) * 3$; and $(3 * 2) * 5$.

Figure 4.1: TC tetrachord sc(0235)

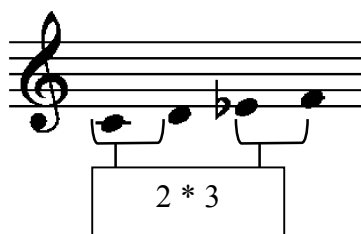
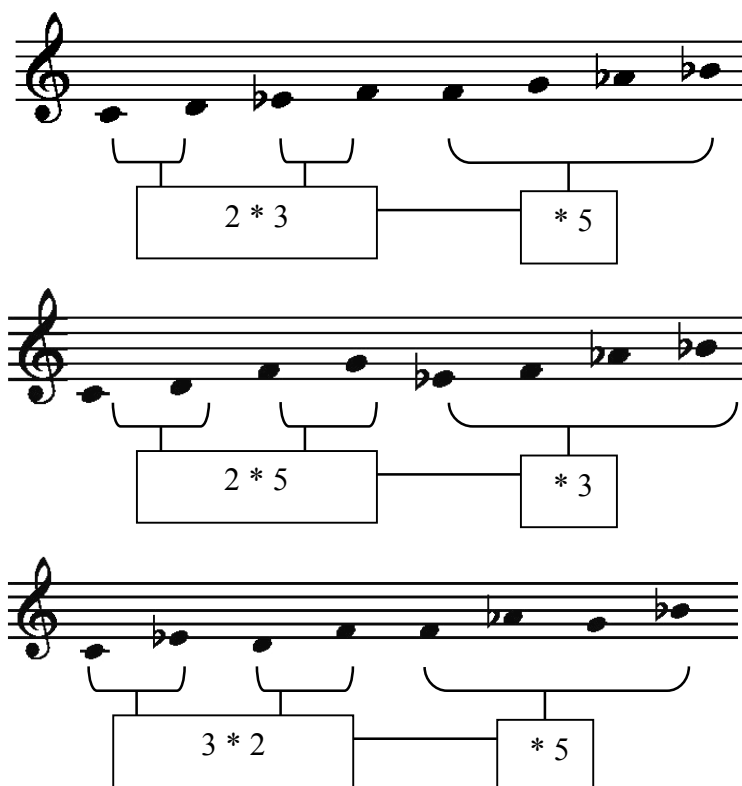


Figure 4.2: Associative property for recursive TC-operations: $(2 * 3) * 5$; $(2 * 5) * 3$; and $(3 * 2) * 5$



⁶ Both Cohn 1986 and 1988 use the TC property and operation to describe the music of Béla Bartók.

Even though the musical examples that we will examine below show horizontal projections of sets with TC property, the sets with this property can be projected both horizontally (as shown in **figures 4.1** and **4.2**) and vertically on the musical surface. We will now examine synthetic chords with the TC property from Roslavets's works.

4.2 “Pianissimo” and Its Ordered Synthetic Dyads on the Musical Surface

“Pianissimo” is based on $sc(01345689)$, a synthetic chord with TC property.

Figure 4.3 shows set $Q_0(X)$ $[A\#, B, C\#, D, E\#, F\#]$ partitioned into four semitone dyads $[A\#, B]$, $[C\#, D]$, $[D, E\#]$, and $[E\#, F\#]$, where each contiguous dyad (i.e., $[A\#, B]$ and $[C\#, D]$, and $[D, E\#]$ and $[E\#, F\#]$) is generated by two operands: $1 * 3$; also, each contiguous tetrachord (i.e., $[A\#, B, C\#, D]$ and $[D, E\#, F\#, G\#]$) is generated by three operands: $(1 * 3) * 4$.

Figure 4.3: The TC property of synthetic chord $Q_0(X)$ $[A\#, B, C\#, D, E\#, F\#]$ from “Pianissimo”

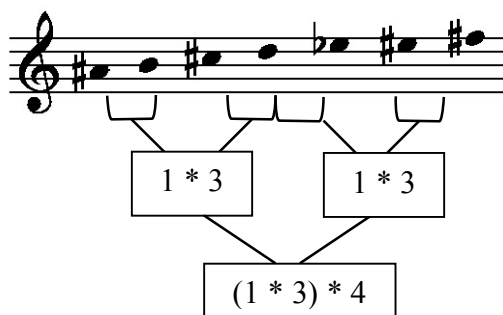


Figure 4.4 shows TC relations among the synthetic chords from “Pianissimo,” mm. 1-14, consisting of three operands: $(1 * 3) * 4$. Further, **figure 4.4** is very significant, for the same operations that link the components of the chord are also used to

connect the chords as wholes.⁷ In **figure 4.4** it becomes clear that the internal construction of the synthetic chord [i.e., $(1 * 3) * 4$] is motivically augmented in the overall relationship among the seven sets in mm. 1-14: all the contiguous sets are generated by operands 1, 3, 4, and 5. For example, in the middle of the left column set $Q_{-5}(X)$ [B, C, D, Eb, Fb, F#, G] is diagonally related upwards by $* 3$ to set $Q_{-2}(X)$ and diagonally related downwards by $* 1$ to $Q_0(X)$; it is related across by $* 4$ to set $Q_{-1}(X)$; and it is also related by $* 5$ to both $Q_{-6}(X)$ (above it) and $Q_{-4}(X)$ below it. Thus, each set on this model can be related by any one or all four operands.⁸

Further, the two-dimensional model in **figure 4.4** can be imagined as a cylinder: the path begins at $Q_0(X)$ (towards the bottom right side) and through $* 3$ it diagonally generates $Q_{-3}(X)$, after which the path moves to the top right [i.e., set $Q_{-3}(X)$], and continues to sets $Q_{-6}(X)$, $Q_{-2}(X)$, $Q_{-5}(X)$, $Q_{-1}(X)$, $Q_{-4}(X)$, and $Q_0(X)$. However, TC operations shown in **figure 4.4** are not readily recognized on the musical surface of “Pianissimo”; instead, as we will see below, Roslavets uses an idiosyncratic approach to reveal the TC property of his synthetic chord: semitone dyads distinguished by register and accents are ordered in a certain pattern that can still be generated by TC operations creating motivic unity on the musical surface.

Figure 4.5 shows set $Q_0(X)$ [A#, B, C#, D, Eb, E#, F#] containing four semitones, which are labeled 1d through 4d (i.e., 1d=A#-B, 2d=C#-D, 3d=D-Eb, and 4d=E#-F#). We can extend the same system of dyad identification to any synthetic chord

⁷ Similarly, figures 4.6 through 4.8 will show other significant passages, where the components of the chord will also be used to connect the chords as wholes.

⁸ Please note that this section (mm. 1-14) is also characterized by crisp symmetry; refer back to chapter 3, examples 3.5 and 3.6.

of the same set class. The same four semitones are held invariant in other transpositions of Q_n , and this pattern of invariance is shown in **table 4.1**. In **table 4.1**, the first column indicates the measure numbers; the second column gives the Q_n that occurs in those measures; the third column spells out the Q_n synthetic chord; and the last column gives dyad members in the way in which it appears in the music.⁹ One of the intriguing features of these dyads is the recurring pattern that is bracketed on the table. (We will return to its significance later in the chapter.) **Example 4.1** shows an annotated score of mm. 1-14, where all the semitone dyads are projected as accented descending major sevenths (all already illustrated in **table 4.1**).

⁹ All the tables in this chapter will have column labeling.

Figure 4.4: TC relations among the synthetic chords of mm. 1-14; $(1 * 3) * 4$

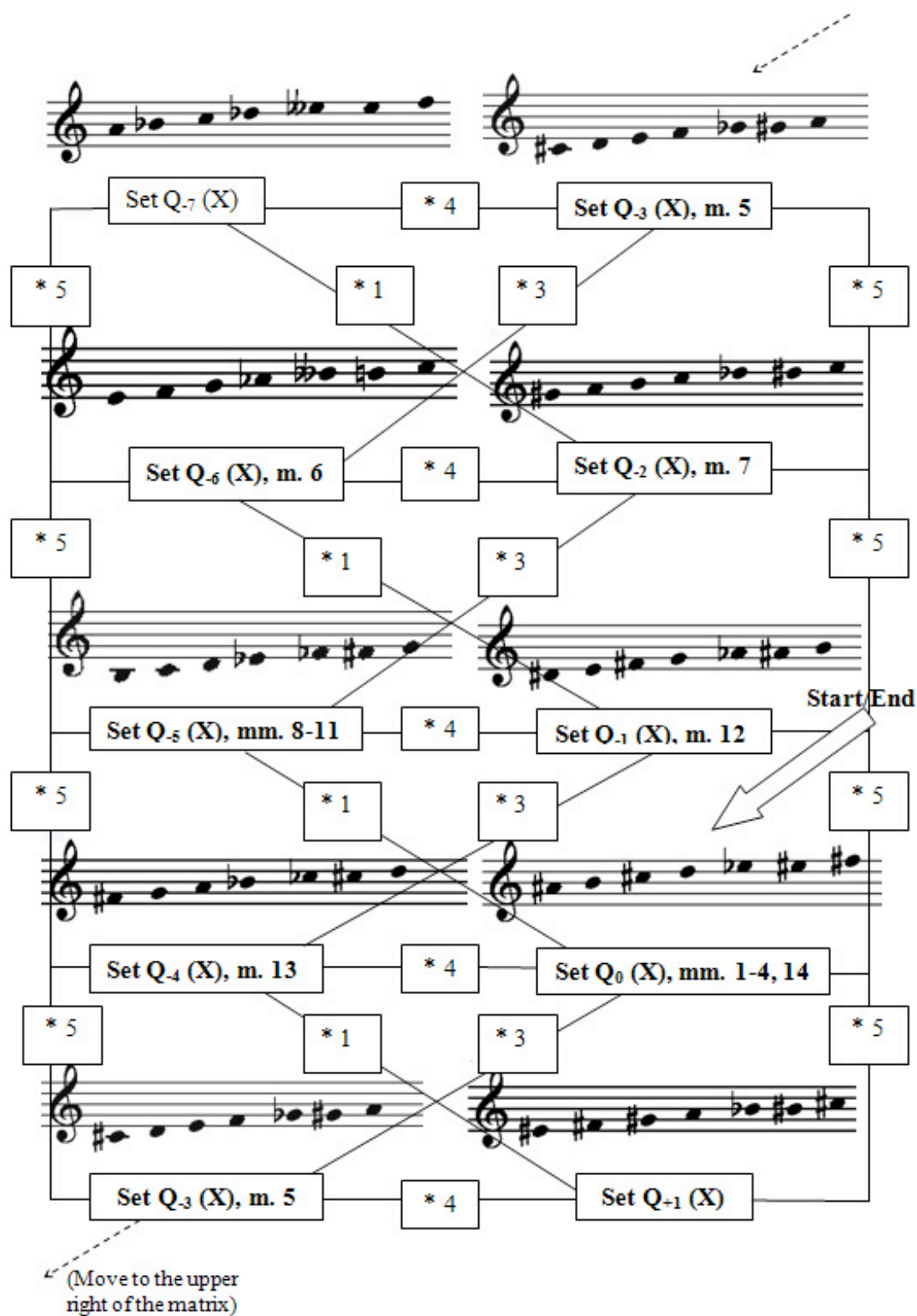


Figure 4.5: The four dyads of synthetic chord Q_0 (X) [A#, B, C#, D, Eb, E#, F#] from “Pianissimo”

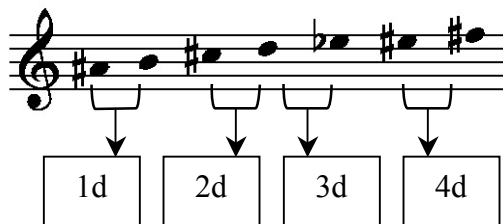


Table 4.1: Dyadic members identified from “Pianissimo,” section 1.1, mm. 1-14

Mm.	Q_n	Synthetic chord	Dyadic member
1	Q_0	[A#, B, C#, D, Eb, E#, F#]	2
2			4
3			3
4			1
5	Q_{-3}	[C#, D, E, F, Gb, G#, A]	1
6	Q_{-6}	[E, F, G, Ab, Bbb, B, C]	3
7	Q_{-2}	[G#, A, B, C, Db, E, E#]	2
8	Q_{-5}	[B, C, D, Eb, Fb, F#, G]	2
9			4
10			3
11			1
12	Q_{-1}	[D#, E, F#, G, Ab, A#, B]	1
13	Q_{-4}	[F#, G, A, Bb, Cb, C#, D]	3
14	Q_0	[A#, B, C#, D, Eb, E#, F#]	2

Example 4.1: Annotated score of “Pianissimo,” section 1.1, mm. 1-14, with dyads identified¹⁰

The image shows a musical score for a piano piece, annotated with dyad labels. The score is in 7/16 time, marked "Con dolce maniera" and "pp". The time signature is 7/16 (3/16 + 4/16). The score is divided into three systems. The first system (mm. 1-4) has labels: $Q_0(X), 2d$; $Q_0(X), 4d$; $Q_0(X), 3d$. The second system (mm. 5-8) has labels: $Q_{-5}(X), 3d$; $Q_0(X), 1d$; $Q_{-2}(X), 2d$; $Q_{-3}(X), 1d$; $Q_{-5}(X), 2d$. The third system (mm. 9-14) has labels: $Q_{-5}(X), 4d$; $Q_{-5}(X), 3d$. The score includes various musical notations such as slurs, ties, and dynamic markings.

(Continued on the following page)

¹⁰ The melodic content of the right hand imitates in reverse order in the left hand so that the opening dyad of each measure in the right hand becomes the last dyads of the measure in the left hand and the last part of the measure (after the dotted bar line) in the right hand is the first part (before the dotted bar line in the left hand); therefore, the dyads are always heard in both hands.

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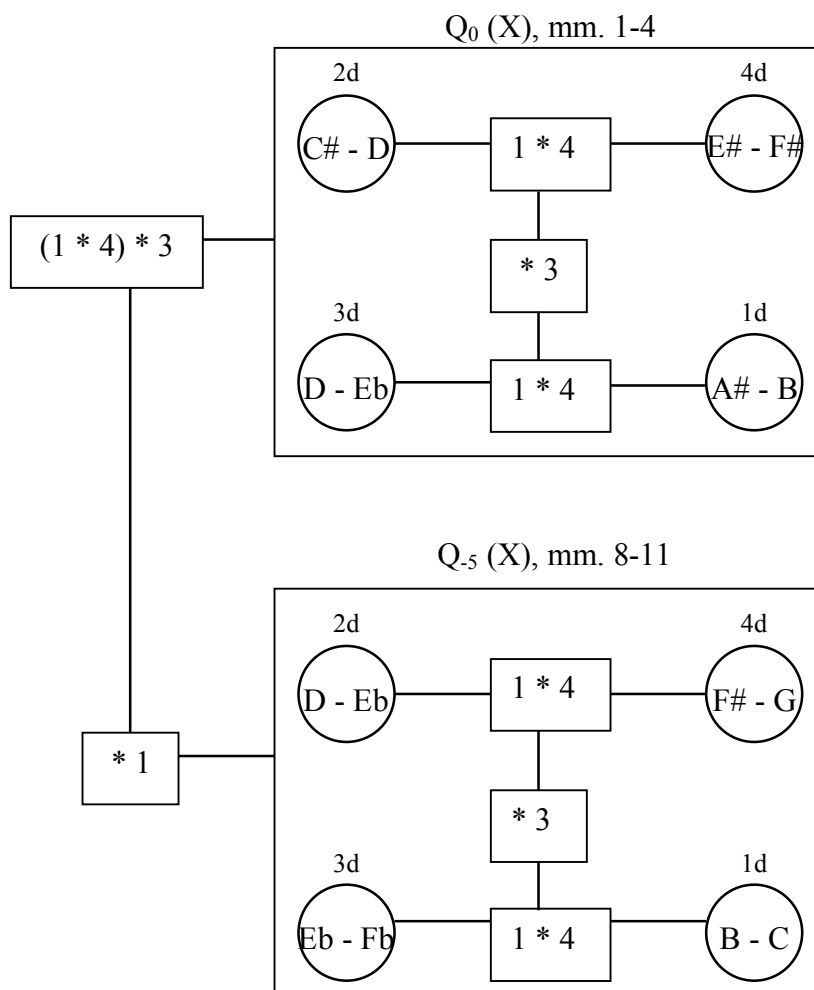
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Further, the dyads in **table 4.1** reveal recurring pattern, where the pattern of the temporally longer synthetic chords [i.e., $Q_0(X)$, mm. 1-4, and $Q_{-5}(X)$, mm. 8-11] correspond to one another (i.e., 2d, 4d, 3d, 1d) and the pattern of the temporally shorter synthetic chords (i.e., Q_{-3} , Q_{-6} , Q_{-2} and Q_{-1} , Q_{-4} , Q_0) correspond to one another (i.e., 1d, 3d, 2d).

Similar to **figure 4.4**, **figure 4.6** shows a significant feature of mm. 1-4 and 8-11: the same operands that connect the components within the chords, and connect the chords as wholes, also operate on the salient dyads extracted from the chords by the musical

figuration. Also, the dyads of the temporally longer sets [i.e., $Q_0(X)$ and $Q_{-5}(X)$] from section 1.1 are related by four TC operands: 1, 4, 3, and 1, where the resultant operand is $[(1 * 4) * 3] * 1$.

Figure 4.6: Dyads from “Pianissimo,” section 1.1, mm. 1-4 and 8-11; $Q_0(X)$ and $Q_{-5}(X)$ related by TC operations $[(1 * 4) * 3] * 1$



The next two sections (all beginnings of new sections, such as 2.1 and 3.1) also share the same operations. **Table 4.2** shows the synthetic chords and their dyadic members from section 2.1, mm. 27-40. Even though the synthetic chords in this section differ from those in mm. 1-14 (section 1.1), they share the same dyadic order. **Example 4.2** shows an annotated score of this passage (section 2.1), and **figure 4.7** shows another highly significant feature of the passage: the same operands that connect the components within the chords, and connect the chords as wholes, also operate on the salient dyads extracted from the chords by the musical figuration. Also, the dyads of the temporally longer synthetic chords [i.e., Q_{+8} (X) and Q_{+5} (X)] are generated by four operands: 1, 4, 3, and 3, where the resultant operand is $[(1 * 4) * 3] * 3$.

Table 4.2: Dyadic members identified from “Pianissimo,” section 1.2, mm. 27-40

Mm.	Q_n	Synthetic chord	Dyadic member
27	Q_{+8}	[Ex, Fx, Gx, A#, B, Bx, Cx]	2
28			4
29			3
30			1
31	Q_{+7}	[Ax, B#, Cx, D#, E, Ex, Fx]	1
32	Q_{+4}	[Cx, D#, E#, F#, G, Gx, A#]	3
33	Q_{+1}	[E#, F#, G#, A, Bb, B#, C#]	2
34	Q_{+5}	[Gx, A#, B#, C#, D, Dx, E#]	2
35			4
36			3
37			1
38	Q_{+4}	[Cx, D#, E#, F#, G, Gx, A#]	1
39	Q_{+1}	[E#, F#, G#, A, Bb, B#, C#]	3
40	Q_{+2}	[B#, C#, D#, E, F, Fx, G#]	2

Example 4.2: Annotated score of “Pianissimo,” section 2.1, mm. 27-40, with dyads identified

Q₋₃(X), 2d

Q₋₃(X), 4d

Q₋₃(X), 3d

Q₋₃(X), 1d

Q₋₇(X), 1d

Q₊₄(X), 2d

Q₊₁(X), 2d

Q₋₅(X), 2d

(Continued on the following page)

Q₊₅(X), 4d

Q₊₅(X), 3d

Q₊₅(X), 1d

Q₊₂(X), 2d

Q₊₄(X), 1d

Q₊₁(X), 3d

40

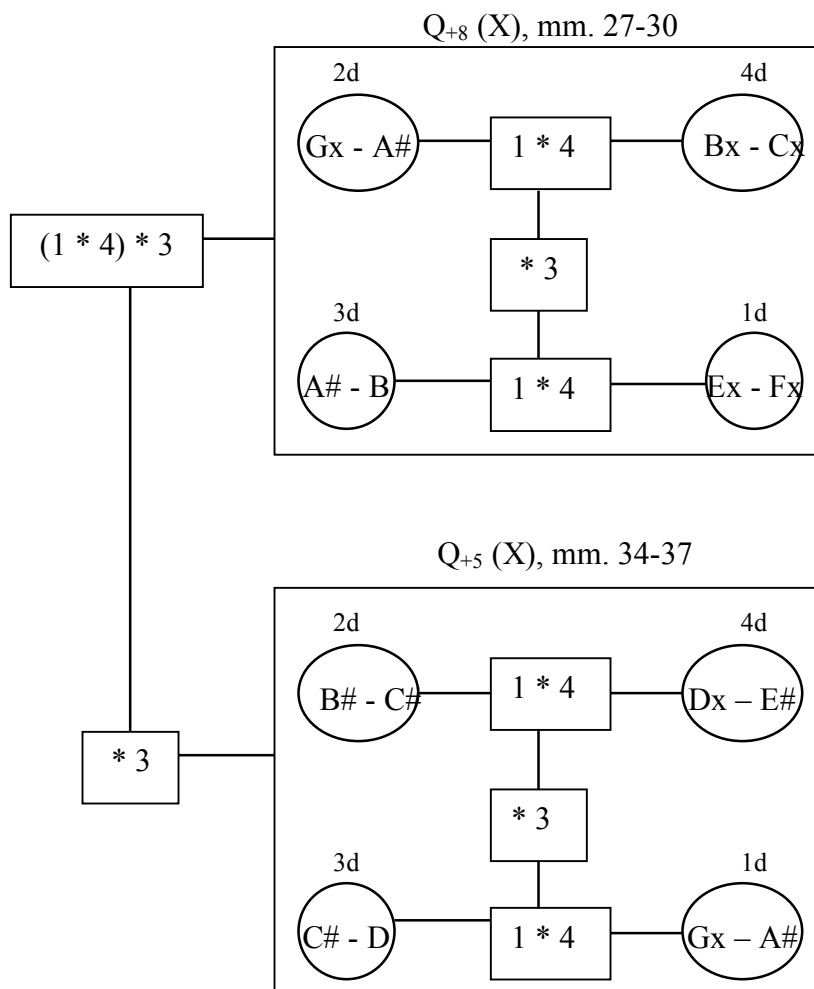
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Figure 4.7: Dyads from “Pianissimo,” section 2.1, mm. 27-30 and 34-37; $Q_{+8}(X)$ and $Q_{+5}(X)$ related by TC operations $[(1 * 4) * 3] * 3$



The last section under consideration here slightly differs from the other two sections discussed above. It is probably the most important of the three, for it features the second appearance of set $Q_{+9}(X)$ in the whole piece, which features an $Fx\#$.¹¹ **Table 4.3**

¹¹ As we refer back to chapter 3, the first appearance of $Q_{+9}(X)$ was in section 1.2, mm. 27-40, where the section was marked by crisp symmetry. It is important to note that now in section 3.1, the re-appearance of $Q_{+9}(X)$ is significant, as well, for it now participates in near-symmetry. These two sections are the only passages that feature $Q_{+9}(X)$, where each is marked with a special type of symmetry.

shows the synthetic chords and their dyadic members from section 3.1, mm. 53-66, and the dyadic order among the temporally longer sets [i.e., $Q_0(X)$ and $Q_{+9}(X)$] is 1d, 3d, 4d, 2d, and the temporally shorter sets [i.e., $Q_{-3}(X)$, $Q_{-6}(X)$, $Q_{-2}(X)$ and $Q_{+6}(X)$, $Q_{+3}(X)$, and $Q_{+4}(X)$] is 1d, 3d, 2d]. **Example 4.3** shows an annotated score of this passage with all the dyads from each synthetic chord identified, and **figure 4.8** shows the same operands that connect the components within the chords, and connect the chords as wholes, also operate on the salient dyads extracted from the chords by the musical figuration. Also, the dyads of the temporally longer synthetic chords [i.e., $Q_0(X)$ and $Q_{+9}(X)$] generated by the same four operands as in section 2.1: 1, 4, 3, and 3, where the resultant operand is $[(1 * 4) * 3] * 3$.

Table 4.3: Dyadic members identified from “Pianissimo,” section 3.1, mm. 53-66

Mm.	Q_n	Synthetic chord	Dyadic member
53	Q_0	[A#, B, C#, D, Eb, E#, F#]	1
54			3
55			4
56			2
57	Q_{-3}	[C#, D, E, F, Gb, G#, A]	1
58	Q_{-6}	[E, F, G, Ab, Bbb, B, C]	3
59	Q_{-2}	[G#, A, B, C, Db, E, E#]	2
60	Q_{+9}	[Bx, Cx, Dx, E#, F#, Fx#, Gx]	1
61			3
62			4
63			2
64	Q_{+6}	[Dx, E#, Fx, G#, A, Ax, B#]	1
65	Q_{+3}	[Fx, G#, A#, B, C, Cx, D#]	3
66	Q_{+4}	[Cx, D#, E#, F#, G, Gx, A#]	2

Example 4.3: Annotated score of “Pianissimo,” section 3.1, mm. 53-66, with dyads identified

The image displays a musical score for a piano piece, specifically the section from measures 53 to 66. The score is presented in three systems, each consisting of a grand staff (treble and bass clefs). The music is in a key with two sharps (D major or F# minor) and a 3/4 time signature. The tempo and dynamics are marked as 'Pianissimo' (pp). The score is annotated with several boxes, each containing a label for a specific dyad (a pair of notes) and its duration. The labels are: $Q_0(X), 1d$, $Q_0(X), 3d$, $Q_0(X), 4d$, $Q_0(X), 2d$, $Q_{-3}(X), 1d$, $Q_{-6}(X), 3d$, and $Q_{-2}(X), 2d$. The number '55' is written in a box on the left side of the second system. The annotations are placed above the notes, with arrows pointing to the specific dyads. The notes are often grouped with slurs and fingerings (e.g., '5') are indicated.

(Continued on the following page)

60

$Q_{+9}(X), 1d$

$Q_{+9}(X), 3d$

$Q_{+9}(X), 4d$

5

5

5

5

65

$Q_{+9}(X), 2d$

$Q_{+9}(X), 1d$

5

5

$Q_{+3}(X), 3d$

$Q_{+4}(X), 2d$

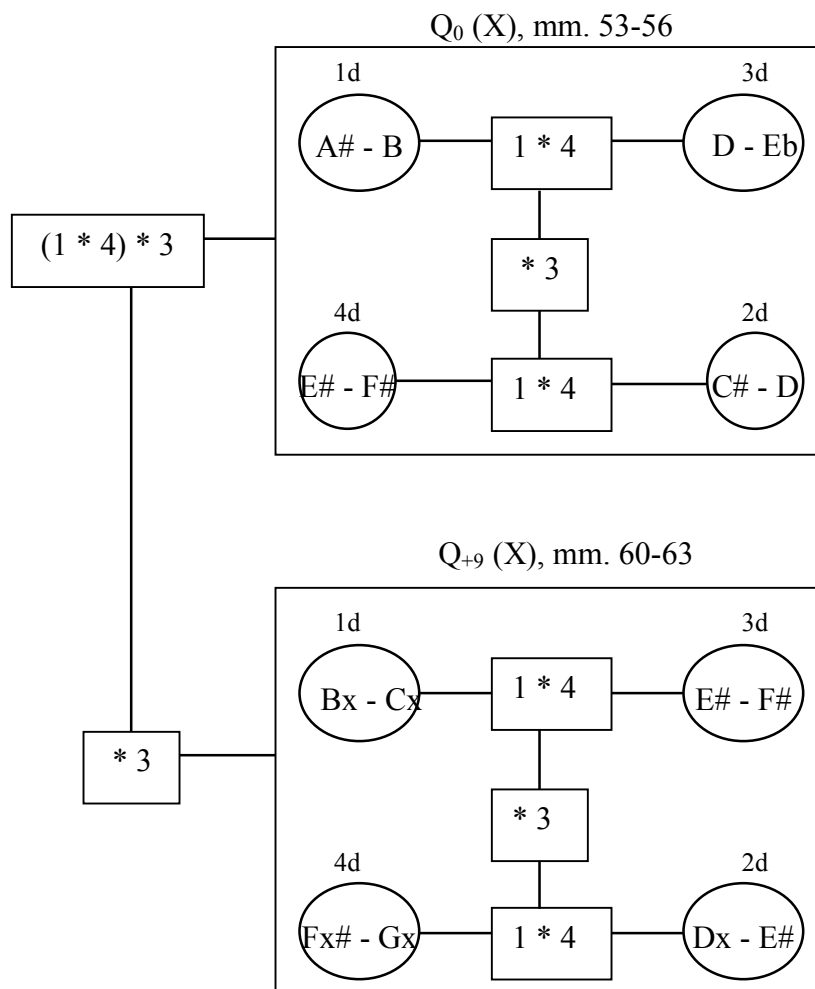
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Figure 4.8: Dyads from “Pianissimo,” section 3.1, mm. 53-56 and 60-63; $Q_0(X)$ and $Q_{+9}(X)$ related by TC operations $[(1 * 4) * 3] * 3$



4.3: *Trois Etudes* no. 3 and the Significance of Common Tones of Its Synthetic Chord

Similar to *Trois Etudes* no. 2 “Pianissimo,” *Trois Etudes* no. 3 is characterized by a single musical texture throughout. It is based on the same TC chord type as “Pianissimo”—sc(01345689). However, unlike in “Pianissimo,” the dyads in *Trois Etudes* no. 3 do not play a significant role on the musical surface. **Figure 4.9** shows set $Q_0(X)$ [Gb, G, A, Bb, Cb, C, D, Eb] as generated by three operands: $(1 * 3) * 5$. One of

the most interesting features of this set is the tetrachordal relationship between the first and the second tetrachord: they are related by a quint. **Figure 4.10** shows sc(01345689) on the line of fifths, where each octachord is interlocked with its contiguous octachord (i.e., the last tetrachord of each set becomes the first tetrachord of the next set) and their relationship is always at $|Q_1|$. However, the orientation of the line is “wrong:” the farther right the sets travel, the more flat they become [e.g., $Q_{-1}(X)$, $Q_{-2}(X)$, $Q_{-3}(X)$, etc.] and, similarly, the farther left the sets travel the more sharp they become [e.g., $Q_{+1}(X)$, $Q_{+2}(X)$, $Q_{+3}(X)$, etc.]. If we turn back to **chapter 3**, none of the pieces featured such orientation on the line.¹² **Example 4.4** shows an annotated score of the opening four measures from *Trois Etudes* no. 3. The excerpt is characterized by five transpositions of sc(01345689): $Q_0(X)$ [Gb, G, A, Bb, Cb, C, D, Eb], $Q_{+1}(X)$ [Db, D, E, F, Gb, G, A, Bb], $Q_{+2}(X)$ [Ab, A, B, C, Db, D, E, F], $Q_{+3}(X)$ [Eb, E, F#, G, Ab, A, B, C], $Q_{+4}(X)$ [Bb, B, C#, D, Eb, E, F#, G], and $Q_{+5}(X)$ [F, F#, G#, A, Bb, B, C#, D]. The arrows at the top of the score indicate the quint relationship between the contiguous sets that is always a Q_{+1} . These arrows are identical to the ones in the bass: the circled bass notes of each set are characterized by the same Q_{+1} motion (e.g., Cb3, Gb2, Db3, Ab2, Eb3, and Bb2). Let us imagine sc(01345689) as two tetrachords a minor third apart by changing the order of the tetrachords, where the second tetrachord becomes the first, and the first becomes the second: instead of $Q_0(X)$ [Gb, G, A, Bb, Cb, C, D, Eb], we get $Q_0(X)$ [Cb, C, D, Eb, Gb, G, A, Bb]. The bass notes from **example 4.4** will serve as the true “roots” of the synthetic chords, and the line of fifths will be oriented correctly (with the sharp sets

¹² As it was described in chapter 3 the line of fifths always has the same orientation: the farther right the sets travel, the more sharp they become, and they farther left the sets travel, the more flat they become.

towards the right and the flat sets towards the left). **Figure 4.11** shows the new, “correct” orientation of $sc(01345689)$ on the line of fifths. **Example 4.5** shows the same passage in mm. 79-82 with “correct” synthetic labels, where $Q_0(X)^*$ begins on Cb [Cb, C, D, Eb, Gb, G, A, Bb], where the asterisk marks the synthetic chords that are *not* in normal form (i.e., two members of $sc(0134)$ a minor third apart).

Figure 4.9: Synthetic chord $sc(01345689)$ from *Trois Etudes* no. 3 with the TC property; $(1 * 3) * 5$

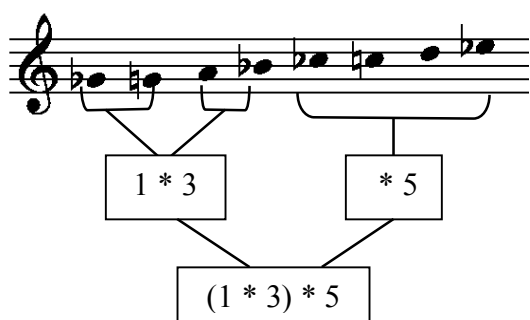
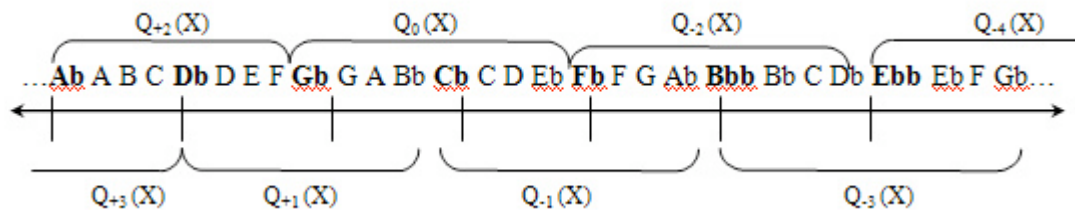


Figure 4.10: A chain of $sc(01345689)$ on a line of fifths with ‘wrong’ orientation; every contiguous set shares three pcs in common and it is related by $|Q_1|$



Example 4.4: Annotated score of mm. 1-4 from *Trois Etudes* no. 3¹³

1 Burlando $\text{♩} = 144$
 pp

$Q_0(X)$ [Gb, G, A, Bb, Cb, C, D, Eb]

$Q_{+1}(X)$ [Db, D, E, F, Gb, G, A Bb]

$Q_{+2}(X)$ [Ab, A, B, C, Db, D, E, F]

Q_{+1}

3 $poco\ cresc.$

$Q_{+3}(X)$ [Eb, E, F#, G, Ab, A, B, C]

$Q_{+4}(X)$ [Bb, B, C#, D, Eb, E, F#, G]

$Q_{+5}(X)$ [F, F#, G#, A, Bb, B, C#, D]

Q_{+1}

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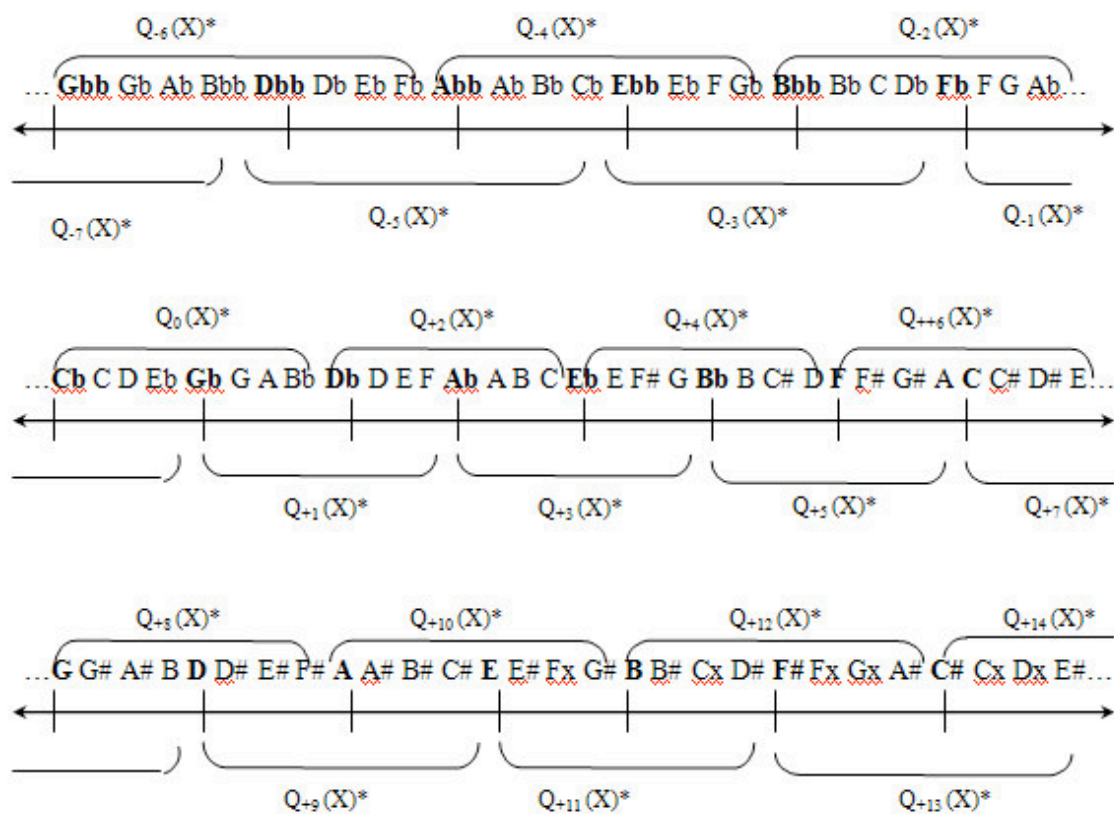
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¹³ The same passage returns in mm. 9-12, 79-82, and 87-90.

Figure 4.11: A line of fifths with correct orientation with 2 sets of sc(0134) at T_3 as contextual transformations of the synthetic chord



Example 4.5: Annotated score of *Trois Etudes* no. 3, mm. 79-82, with correct orientation— $Q_0(X)$ [Cb, C, D, Eb, Gb, G, A, Bb]

The image shows a musical score for measures 79-82 of 'Trois Etudes' no. 3. The score is in 3/8 time, marked 'Tempo I' and 'pp'. It features a quint movement structure with five sets of notes labeled $Q_0(X)$ through $Q_{+5}(X)$. The notes are circled in the original image. The sets are:

- $Q_0(X)$ [Cb, C, D, Eb, Gb, G, A, Bb]
- $Q_{+1}(X)$ [Gb, G, A Bb, Db, D, E, F]
- $Q_{+2}(X)$ [Db, D, E, F, Ab, A, B, C]
- $Q_{+4}(X)$ [Eb, E, F#, G, Bb, B, C#, D]
- $Q_{+3}(X)$ [Ab, A, B, C, Eb, E, F#, G]
- $Q_{+5}(X)$ [Bb, B, C#, D, F, F#, G#, A]

The score is divided into two systems. The first system contains measures 79-80, and the second system contains measures 81-82. The notation includes treble and bass clefs, a key signature of one flat, and various musical symbols such as 'Tempo I', 'pp', and 'poco cresc.'.

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Example 4.6 shows the concluding section of the piece, mm. 134-141. The same quint movement characterizes the present section as it does the beginning of the piece (mm. 1-4) and three other passages (i.e., mm. 9-12, 79-82, and 87-90). The passage in **example 4.6** is rather interesting for it only features two sets: $Q_0(X)$ [Cb, C, D, Eb, Gb, G, A, Bb] and $Q_{+1}(X)$ [Gb, G, A, Bb, Db, D, E, F]. These sets are rather important for

Roslavets: they represent: “tonic” and “dominant” relationship that is not only reflected in the synthetic chords, but also the bass motion.¹⁴

Example 4.6: Annotated score of *Trois Etudes* no. 3, mm. 134-141, showing the quint motion of the bass as a “tonic” and “dominant” alternation

The image displays two systems of musical notation for the bass line of *Trois Etudes* no. 3, measures 134-141. The notation is in 3/8 time and includes dynamic markings such as *pp* and *cresc. poco a poco*. Above the notes, boxes identify synthetic chords and their relationships:

- Measure 134: $Q_0(X)^*$ [Cb, C, D, Eb, Gb, G, A, Bb]
- Measure 135: $Q_{+1}(X)^*$ [Gb, G, A, Bb, Db, D, E, F]
- Measure 136: $Q_0(X)^*$ [Cb, C, D, Eb, Gb, G, A, Bb]
- Measure 137: $Q_{+1}(X)^*$ [Gb, G, A, Bb, Db, D, E, F]
- Measure 138: $Q_0(X)^*$ [Cb, C, D, Eb, Gb, G, A, Bb]
- Measure 139: $Q_{+1}(X)^*$ [Gb, G, A, Bb, Db, D, E, F]
- Measure 140: $Q_0(X)^*$ [Cb, C, D, Eb, Gb, G, A, Bb]
- Measure 141: $Q_{+1}(X)^*$ [Gb, G, A, Bb, Db, D, E, F]

Arrows indicate the alternating relationship between tonic (Q_0) and dominant (Q_{+1}) chords. The bass line shows a quint motion between these chords. The score is annotated with a *Tempo* marking and a *pp* dynamic. The text "(Continued on the following page)" is centered below the second system.

¹⁴ Please refer to Appendix A for Roslavets’s lecture, as well as chapter 2, where the “tonic” and “dominant” relationship in reference to synthetic chords is discussed.

The image shows two staves of musical notation with annotations. The top staff, starting at measure 138, is annotated with three boxes: $Q_0(X)^*$ [Cb, C, D, Eb, Gb, G, A, Bb] above the first measure, $Q_{+1}(X)^*$ [Gb, G, A, Bb, Db, D, E, F] above the second measure, and $Q_0(X)^*$ [Cb, C, D, Eb, Gb, G, A, Bb] above the third measure. The bottom staff, starting at measure 140, is annotated with three boxes: $Q_{-1}(X)^*$ [Gb, G, A, Bb, Db, D, E, F] above the first measure, $Q_0(X)^*$ [Cb, C, D, Eb, Gb, G, A, Bb] above the second measure, and $Q_{+1}(X)^*$ [Gb, G, A, Bb, Db, D, E, F] above the third measure. The annotations are connected to the notes in the score by arrows.

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In other sections of *Trois Etudes* no. 3 Roslavets uses motivic segmentation to project sc(014). **Example 4.7** shows an annotated score of mm. 5-9. The section is based on $Q_{+2}(X)^*$ [Db, D, E, F, Ab, A, B, C], $Q_{-1}(X)^*$ [Fb, F, G, Ab, Cb, C, D, Eb], $Q_{-2}(X)^*$ [Bbb, Bb, C, Db, Fb, F, G, A], $Q_{+7}(X)^*$ [C, C#, D#, E, G, G#, A, B], $Q_{+4}(X)^*$ [Eb, E, F#, G, Bb, B, C#, D], and $Q_{+3}(X)^*$ [Ab, A, B, C, Eb, E, F#, G]. The bass line—F3, Fb3, Db3 and E3, Eb3, C3—outlines two members of sc(014), a subset of sc(0134). The prominence of sc(014) becomes more important in mm. 25-28, where the passage is

characterized by three distinct synthetic chords (i.e., $Q_{+4}(X)^*$ [Eb, E, F#, G, Bb, B, C#, D], $Q_{+7}(X)^*$ [C, C#, D#, E, G, G#, A, B], $Q_{+10}(X)^*$ [A, A#, B#, C#, E, E#, Fx, G#], and $Q_{+13}(X)^*$ [F#, Fx, Gx, A#, C#, Cx, Dx, E#]) that are repeated twice.¹⁵ **Example 4.8** shows an annotated score of the passage (mm. 25-28) with the highlighted bass line.

Example 4.7: Annotated score of *Trois Etudes* no. 3, mm. 5-8, with members of sc(014) in the bass line

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¹⁵ This passage repeats two more times from mm. 29-36; however, the bass notes no longer outline sc(014), but rather move freely without any particular pattern: Fx2, Gx2, F#2, A#2, Fx2, A2, Eb2, E2, C#2, A1, E1, D#1.

Example 4.8: Annotated score of *Trois Etudes* no. 3, mm. 25-28, with members of $sc(014)$ projected in the bass line

Q₊₄(X)* [Eb, E, F#, G, Bb, B, C#, D]

Q₊₇(X)* [C, C#, D#, E, G, G#, A#, B]

Q₊₇(X)* [C, C#, D#, E, G, G#, A#, B]

25

Sc(014)

Q₊₁₃(X)* [F#, F_x, G_x, A#, C#, C_x, D_x, E#]

Q₊₄(X)* [Eb, E, F#, G, Bb, B, C#, D]

Q₊₇(X)* [C, C#, D#, E, G, G#, A#, B]

27

Sc(014)

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4.4: Pitch and Registral Invariance

So far we have discussed the TC property and its operations to show motivic significance on the musical surface. Below we will focus on the importance of registral

invariance among the pcs that helps contribute to smooth voice leading. *Trois Etudes* no. 3 and *Cinq Préludes* no. 1 will be used to illustrate these. In this section I will use interval ic vector to show how invariance works in these pieces and p-space will be used to show those invariances.¹⁶ **Example 4.9** shows an annotated score of mm. 1-4 from *Trois Etudes* no. 3. One of the interesting features of this passage is the pitch and registral invariance between the contiguous sets (e.g., $Q_0(X)^*$ and $Q_{+1}(X)^*$, $Q_{+1}(X)^*$ and $Q_{+2}(X)^*$, etc.). For instance, in m. 1 A4, G4, and D5 in the right hand [i.e., $Q_0(X)^*$] and Bb3 in the left hand remain registally invariant in m. 2 [i.e., $Q_{+1}(X)^*$]. Similarly, in $Q_{+1}(X)^*$ A4, E5, D5 in the right hand are held invariant in $Q_{+2}(X)^*$. [The invariant pc F in the left hand between of $Q_{+1}(X)^*$ and $Q_{+1}(X)^*$ turns from F3 to F4.] These registally invariant pitches are significant, for they are not only common to both sets, but they are also preserved in the same register, contributing to smooth voice leading. **Figure 4.12** shows the progression of the synthetic chords in the passage (i.e., $Q_0(X)^*$ [Cb, C, D, Eb, Gb, G, A, Bb], $Q_{+1}(X)^*$ [Gb, G, A, Bb, Db, D, E, F], $Q_{+2}(X)^*$ [Db, D, E, F, Ab, A, B, C], $Q_{+3}(X)^*$ [Ab, A, B, C, Eb, E, F#, G], $Q_{+4}(X)^*$ [Eb, E, F#, G, Bb, B, C#, D], and $Q_{+5}(X)^*$ [Bb, B, C#, D, F, F#, G#, A]) on a line of fifths with all the pitch-class members present. Thus, in the opening measures of *Trois Etudes* no. 3 Roslavets uses a contiguous progression of the synthetic chord $Q_0(X)^*$ [Cb, C, D, Eb, Gb, G, A, Bb], where not only three pitch classes are held in common between the contiguous sets [with the exception of sets $Q_0(X)^*$ and $Q_{+1}(X)^*$, which share four invariant notes], but the common pitches in the right hand are registally invariant, as well.¹⁷

¹⁶ Invariance shown in these pieces exclusively pertains to p-space.

¹⁷ This passage returns throughout the piece in mm. 9-12, 79-82, and 87-90.

Example 4.9: Annotated score of *Trois Etudes* no. 3, mm. 1-4, registrally invariant pitches

1 Burlando $\text{♩} = 144$

Bb_3, A_4, G_4, D_5 A_4, D_5, E_5

$Q_0(X)^*$ $Q_{+1}(X)^*$ $Q_{+2}(X)^*$

3 *poco cresc.*

$B_4, F\#_5, E_5$ $D_4, C\#_5, B_4, F\#_5$

$Q_{+3}(X)^*$ $Q_{+4}(X)^*$ $Q_{+5}(X)^*$

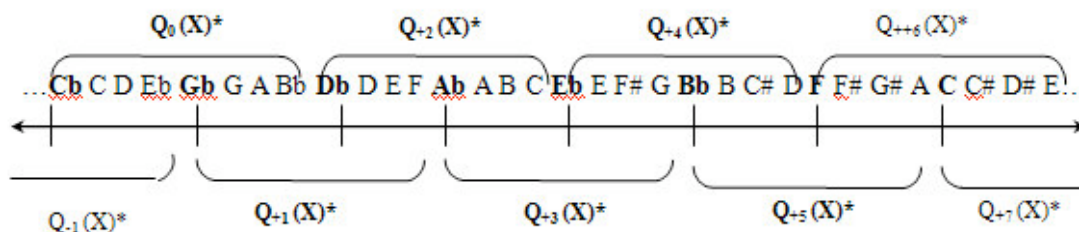
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Figure 4.12: Sets $Q_0(X)^*$, $Q_{+1}(X)^*$, $Q_{+2}(X)^*$, $Q_{+3}(X)^*$, $Q_{+4}(X)^*$, and $Q_{+5}(X)^*$ on a line of fifths (highlighted in bold letters), *Trois Etudes* no. 3



Measures 13-16 feature similar registral invariance. **Example 4.10** shows an annotated score of mm. 13-16 from *Trois Etudes* no. 3 with six sets: $Q_{+9}(X)^*$ [D, D#, E#, F#, A, A#, B#, C#], $Q_{+6}(X)^*$ [F, F#, G#, A, C, C#, D#, E], $Q_{+7}(X)^*$ [C, C#, D#, E, G, G#, A#, B], $Q_{+4}(X)^*$ [Eb, E, F#, G, Bb, B, C#, D], $Q_{+5}(X)^*$ [Bb, B, C#, D, F, F#, G#, A], and $Q_{+2}(X)^*$ [Db, D, E, F, Ab, A, B, C].¹⁸ The following sets not only share the same notes but they also share the same register: sets $Q_{+9}(X)^*$ and $Q_{+6}(X)^*$ share A4 and D#5; $Q_{+6}(X)^*$ and $Q_{+7}(X)^*$ share C#6 and G#5 (pc D#, pc E, and pc C); $Q_{+7}(X)^*$ and $Q_{+4}(X)^*$ share G4 and C#6; $Q_{+4}(X)^*$ and $Q_{+5}(X)^*$ share B5 and F#5 (and pc Bb, pc C and pc D); and $Q_{+5}(X)^*$ and $Q_{+2}(X)^*$ share F4 and B5.¹⁹ Similar to mm. 1-4 Roslavets creates smooth voice leading among these sets: the contiguous sets not only share four common pcs, but they also share two pitches projected in the same register, creating smooth voice leading among them.

¹⁸ The same passage returns in mm. 91-94.

¹⁹ Sets $Q_{+6}(X)^*$ and $Q_{+7}(X)^*$, and $Q_{+4}(X)^*$ and $Q_{+5}(X)^*$ are the only sets that do not completely preserve registral invariance.

Example 4.10: Annotated score of *Trois Etudes* no. 3, mm. 13-16, registrally invariant pitches

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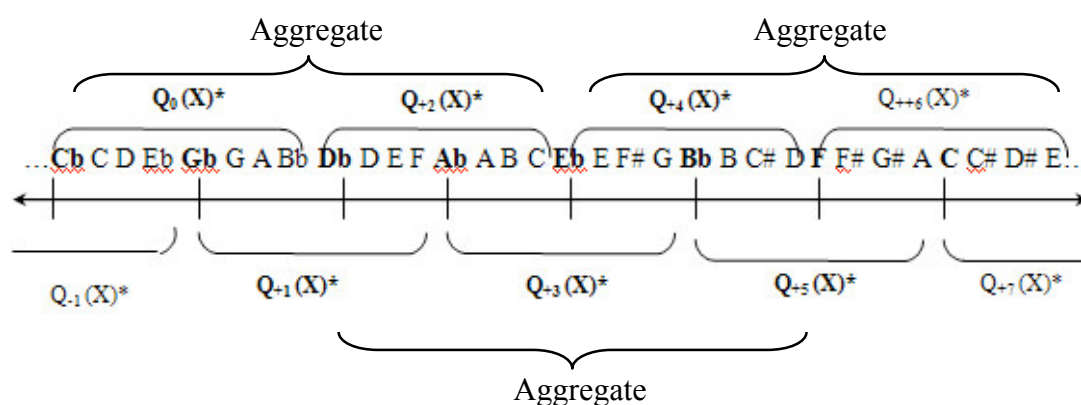
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Another interesting aspect of this passage is the projection of the chromatic aggregate twice: mm. 1-2 and 3-4. The interval vector of $sc(0134589)$ is 546652, and since the passage is characterized by a quint motion, then the first three and the last three contiguous sets will have all twelve chromatic pitches present, for each contiguous set will hold five pcs in common.²⁰ **Figure 4.13** shows sets $Q_0(X)^*$ through $Q_{+6}(X)^*$ on a

²⁰ Roslavets notes in his lecture that his music is characterized by the notes of the twelve chromatic scale he does not use the aggregate consistently. Since his compositional procedure often includes synthetic chords that are at least hexachords and are transformed at different transpositional levels, it becomes rather easy to get all twelve tones of the

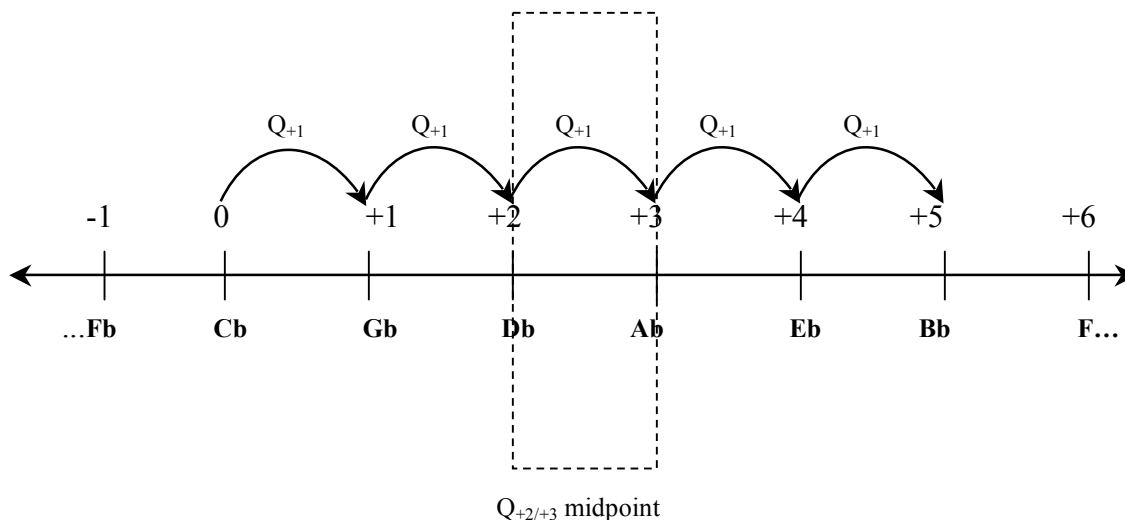
line of fifths. Since every contiguous set shares four pcs in common, then any three contiguous sets will comprise the chromatic aggregate. Further, the passage is characterized by five Q_{+1} motion from $Q_0(X)^*$ [Cb, C, D, Eb, Gb, G, A, Bb] through $Q_{+5}(X)^*$ [Bb, B, C#, D, F, F#, G#, A] with a symmetrical midpoint at $Q_{+2/+3}$. **Figure 4.14** shows the opening quint motion and its midpoint. As explained above, the first and the last three sets project the chromatic aggregate and interestingly, either side of the midpoint (i.e., Q_{+2} and Q_{+3}) reveals the chromatic aggregate: $Q_0(X)^*$, $Q_{+1}(X)^*$, and $Q_{+2}(X)^*$ and $Q_{+3}(X)^*$, $Q_{+4}(X)^*$, and $Q_{+5}(X)^*$.

Figure 4.13: Sets $Q_0(X)^*$, $Q_{+1}(X)^*$, $Q_{+2}(X)^*$, $Q_{+3}(X)^*$, $Q_{+4}(X)^*$, and $Q_{+5}(X)^*$ on a line of fifths with the chromatic aggregates highlighted



chromatic scale in the section. Unlike the opening measures of *Trois Etudes* no. 3, none of the pieces discussed in this chapter and previous chapters have any systematic way of projecting the chromatic aggregate.

Figure 4.14: Sets $Q_0(X)^*$ [Cb, C, D, Eb, Gb, G, A, Bb], $Q_{+1}(X)^*$ [Gb, G, A, Bb, Db, D, E, F], $Q_{+2}(X)^*$ [Db, D, E, F, Ab, A, B, C], $Q_{+3}(X)^*$ [Ab, A, B, C, Eb, E, F#, G], $Q_{+4}(X)^*$ [Eb, E, F#, G, Bb, B, C#, D], and $Q_{+5}(X)^*$ [Bb, B, C#, D, F, F#, G#, A] on a line of fifths with midpoint $Q_{+2/+3}$



Roslavets uses the same synthetic chord [i.e., sc(0134589)] from *Trois Etudes* no. 3 in *Cinq Préludes* no. 1 (1919). **Figure 4.15** shows $Q_0(X)$ [G#, A, B, B#, C#, D, E, E#] and its TC property, which, excluding its orthography, is identical to that of *Trois Etudes* no. 3. Because this set will not be oriented correctly if we use its normal form, similar to the synthetic chord in *Trois Etudes* no. 3, the synthetic chord in *Cinq Préludes* no. 1 can also be thought of as two members of sc(0134) a minor third apart. **Figure 4.16** shows a line of fifths with sc(0134589) as two members of sc(0134) a minor third apart with $Q_0(X)$ beginning on C#. **Example 4.11** shows an annotated score of the first section (mm. 1-8) from *Cinq Préludes* no. 1. Unlike *Trois Etudes* no. 3, the musical surface does not reveal the so-called “roots” of the synthetic chords in its bass and instead of projecting the chromatic aggregate Roslavets is always short of the last pc to complete the aggregate; his phrases only feature the eleven-note subset of the chromatic aggregate.

Example 4.11: Annotated score of mm. 1-8 from *Cinq Préludes* no. 1, section A²¹

Q₀ (X) [C#, D, E, E#, G#, A, B, B#]

Q₋₁ (X) [F#, G, A, A#, C#, D, E, E#]

Q₋₃ (X) [E, F, G, G#, B, C, D, D#]

Q₋₄ (X) [A, B \flat , C, C#, E, F, G, G#]

Andante affettuoso

p

cresc.

mf

poco rit.

dim.

a tempo

p

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²¹ Please note that the two circled F#3s, Fx5, and B4 are all dissonant incomplete neighbors, and they do not belong the synthetic chord.

As we return to **example 4.11** we notice the synthetic chords of section A are projected in two pairs, each related by Q_{-1} : $Q_0(X)^*$ and $Q_{-1}(X)^*$, and $Q_{-3}(X)^*$ and $Q_{-4}(X)^*$. Each pair comprises the eleven-note subset of the chromatic aggregate. In the progression from $Q_0(X)^*$ to $Q_{-1}(X)^*$, pc D# is missing; and in progression from $Q_{-3}(X)^*$ and $Q_{-4}(X)^*$, pc F# is missing. Of course, the entire section comprises the chromatic aggregate, for pc D# is present in $Q_{-3}(X)^*$ and pc F# is present in $Q_{-1}(X)$. However, unlike *Trois Etudes* no. 3, Roslavets is not very systematic in the projection of the chromatic aggregates as he briefly notes about it in his 1927 lecture.²² The inversionally symmetrical set classes (with TC property) allow him to use the synthetic chords contiguously and not only share common pcs (four between each contiguous set), but also have them projected in the same register, giving a sense of continuity and unity in sound in *Trois Etudes* no. 3 and *Cinq Préludes* no. 1.

²² See Appendix A.

CHAPTER 5

Concluding Remarks

Throughout my dissertation I have shown that Roslavets developed a unique compositional technique that made him one of the most interesting Russian composers of the early twentieth century. Roslavets's experiments with different fifths' spaces—the circle and a spiral (or line)—originated a new compositional approach in which the distinct orthography coupled with interesting higher structural levels of the synthetic chords can be characterized by my different types of symmetries.

In **chapter 1** I provided a general overview of my work, in which I gave a brief biographical background on Roslavets, the difficult years of the formation of Soviet Russia, the small theoretical literature on Roslavets's works, and my own research plan and goals for this project. I showed Roslavets's successful early years (in the 1910s) in which he held important political and artistic positions. However, the gradual repression of the arts and elimination of all radical forms of thought in the 1930s left Roslavets deeply disappointed about the country that he loved and lived in. In 1924 Roslavets's open letter to the chair of the Central Committee of All-Russian Professional Union of Art Workers (VSERABIS) expressed his deep disappointments with the Soviet system, especially the repression towards the arts that eventually cost him his high political and social positions in Moscow. The consequent exile to Tashkent from 1931 to 1933 degraded him on many levels, the worst of which was on a musical level. The purpose of this exile was to encourage composers from the big cities, such as Moscow and Leningrad, to study, use, and write music based on folk themes (in Roslavets's case,

Uzbek folk tunes)—something in which Roslavets was never interested in even as a conservatory student.¹ The music written since that period to his death in 1944 cannot be compared to his intriguing compositional technique of the 1910s and the 1920s. This, by no means, disqualifies the music written after the 1930s as being not up to the standards with the earlier ones. The music written from 1930s until Roslavets's death is marked by a new approach in which key signatures are used; however, functional tonality is still absent.²

In **chapter 2** I showed that Roslavets's early experiments with the circle of fifths (where enharmonic equivalence was assumed) helped him defy the limitation of the circle and expand it into a spiral (where there is no enharmonic equivalence). By using the *Nocturne-Quintet* and Sonata No. 1 for Viola and Piano I illustrated Roslavets's underlying tonal thinking, in which the circle of fifths is used to move among sharp and flat collections (i.e., positive and negative collections). The most interesting aspect of the circle was illustrated in the enharmonic shift, especially at the climax of the piece, where the -9 and the +3 collections coincided and provided a smooth transition from the flat to the sharp side of the circle.³ Further, the Sonata showed similar compositional approach; however, unlike the *Nocturne-Quintet* there was not any enharmonic equivalence. The path of the synthetic chords was always well-defined in a single direction (either sharp or flat). Therefore, I showed the synthetic chord-path of these collections on a spiral of

¹ Some of the pieces composed during this period include *Pakhta* (a ballet based on Uzbek themes), *Uzbekistan* (a symphonic poem), and the “Turkmenian” String Quartet.

² This is especially evident in the *Twenty-Four Preludes for Violin and Piano* (1941-1942), which is composed in all twenty-four keys.

³ Refer back to example 2.5, figures 2.12 and 2.14.

fifths.⁴ It is in this piece that Roslavets widened his compositional space from a circle of infinite length of a spiral. Also, the orthography of the collections revealed this new way of thinking. The last section of the chapter dealt with the motivic projections of fifths on the musical surface (e.g., in the bass line or the highest and the lowest registers), in which the bass movements in both pieces maintained a fifth relation with the movement of the collections either along the circle or a spiral of fifths.⁵ This showed a unifying element in both works, where the motivic movements of the fifths on the musical surface were mimicked on a higher structural level of the circle of a spiral of fifths among the collections.

In **chapter 3** I used piano pieces from the 1910s and early 1920s—*Trois Compositions* (1914), *Trois Etudes* (1914), and *Cinq Préludes* (1919-1922)—to show Roslavets’s mature compositional approach, in which a spiral of fifths was illustrated as a line of fifths (for convenience) that not only explained further Roslavets’s unique orthography (e.g., the triple sharps in “Pianissimo”), but it also revealed interesting symmetrical chord-paths. Further, my analytical apparatus showed that by plotting the path of the synthetic chords on a line of fifths revealed symmetries that I classified as crisp, near-symmetry, and/or nested-crisp symmetry. Finally, in **chapter 4** I used *Trois Etudes* nos. 2 and 3, and *Cinq Préludes* no. 1 to show the symmetric construction of the synthetic chord, its TC property and function, and registral significance on the musical surface. Once again, motivic elements on the musical surface further unified the symmetric chord-paths on a larger structural level.

⁴ Refer back to example 2.8, figure 2.20, and example 2.9, figure 2.21.

⁵ Refer back to figure 2.22; example 2.10, figure 2.23; and figure 2.24.

Much further analytical work needs to be done on Roslavets's music. I have two main goals for expansion of this work: (1) an analytical study of Roslavets's remaining larger-scale works; and (2) an analytical comparison of Scriabin's late style to that of Roslavets's select works. Although many of Roslavets's works are lost and fragmented, in the early 1990 Schott Publishing Incorporation published many of Roslavets's surviving works, including Sonatas for Piano No. 2 (1915) and No. 5 (1923); String Quartets No. 1 (1913), 3 (1920), and 5 (1941); Piano Trios No. 2 (1920) and 3 (1921); and Sonata No. 2 for Cello and Piano (1922); and the Twenty-Four Preludes for Piano and Violin (1941-42). All of these pieces, with the exception of String Quartet No. 5 and the Twenty-Four Preludes, are composed using Roslavets's "New System of Tone Organization."⁶ Since my dissertation primarily focused on small-scale works, my future research project intends to provide an analytical framework for the larger-scale works listed above. Also, as mentioned in **chapter 1**, there are several pieces by Roslavets that are reminiscent of Scriabin's late works, in particular their use of the "mystic" chord. Such pieces would include Roslavets's *Deux Poèmes* no. 2 (1920), *Deux Compositions* (1915), *Prélude* (1915), Sonata No. 5 (1923), and Piano Trios no. 2 and 3.⁷

⁶ String Quartet No. 5 and the *Twenty-Four Preludes* are written in a "key;" both feature key signatures but there is no functional tonality.

⁷ In the pieces discussed in my dissertation Roslavets tends to avoid the projection of a tritone in pitch space; however, the pieces listed with Scriabin's influence show clear projections of the tritone, especially in the bass that are reminiscent of Scriabin's miniature piano pieces—opp. 69 no. 2, 71 no. 2, and 63 no. 1, among others.

Roslavets once wrote that the synthetic chord defines the “total harmonic plan of the composition” and it is only now that we are beginning to understand its deeper significance.⁸

⁸ Roslavets 1924 and 1927.

APPENDIX A

“Novaia sistema organizatsii zvuka i novye metody prepodavaniia teorii kompozitsii: Tezisi doklada” [The New System of Tonal Organization and New Methods of Teaching the Theory of Composition: Theses of Lectures.]¹

In the mid-nineteen-twenties, Roslavets taught composition in a Moscow institute organized under the name of the Igor Stravinsky Musico-Vocal Courses. The lecture took place on 17 January 1927 and its main focus was on Roslavets’s New System of tonal organization.

1. The essence of sounds as they appear to us in nature is that of UNORGANIZED² sound material.

The addition of certain relationships between them, in other words, the subordination to a particular audible principle, appears only in sounds material that is ORGANIZED (by human will), with its highest form being that of the musical composition.

2. Musical compositions are constructed by artists with the aid of compositional methods and techniques that originate in the collective attempts of the past, one’s own efforts, and the facts of science.

The sum of methods and techniques of composition constitutes the SYSTEM OF TONAL ORGANIZATION (the so-called “theory of music” or “theory of composition,” which includes the study of harmony, counterpoint, form, etc.).

3. There is NOT a single, “eternal,” absolute,” universal system. History teaches that each race, each people had its own completely independent system on the basis of which they created their musical compositions (Chinese, Indian, Arab, Greek, etc.).
4. Until the end of the last century the so-called CLASSIC system was predominant in Europe. This system developed rapidly during the transition from polyphony to homophony, and found its highest expression in the classics, including the Romantics up to Wagner.

5. The basic core of the classic system is major-minor tonality as it appears in the seven-note diatonic scale, gamut (ancient Greek modes: Ionian and Aeolian).
Tonality (or a mode) has its initial point in a sound formula: the tonal TRIAD (major and minor), deriving its tonal function from its construction upon a particular step of the scale. Thus are created the tonal triad formulas: dominant, subdominant (together with the tonic

¹ RGALI, file 2569. I am grateful to Dr. Charles McKnight III for providing me with a copy of this document.

² In this translation all the capitalized terms are Roslavets’s.

they appear as the “three pillars” of classical harmony), and other “accessory” triads on the remaining steps of the scale.

6. As a result of the aural evolution of the so-called “suspension,” “passing tones,” and “neighbor tones,” triads began to include a fourth note (the seventh) and then a fifth (the ninth).

Thus arose formulas of seventh and ninth chords, those “dissonant” chords that did not have an independent harmonic significance in the classical harmonic system and had to resolve a “consonance,” a triad.

From the chromatic “passing tones” arose ALTERED chords, leading subsequently to the change from diatonicism to chromaticism.

7. The classical system arose on a harmonic basis. All the melody with its accompanying polyphony (counterpoint) of the classics has its own precise HARMONY from which special formulas (or rules) of VOICE LEADING are derived and developed.
8. Liszt, Wagner, Reger, R. Strauss, and especially Scriabin were the first to liquidate classical diatonicism, replacing it with a chromatic system only relatively based on tonality, in essence having already progressed to “atonality” or “omnitonality.”
9. Debussy and his school broke with the classical system, discarding tonal principles of harmony. With Debussy the chord lost its tonal function. It is a color, a timbre, and on this basis there is freedom to create any relationship between any chords: colors and timbres.

Such a conception of harmony naturally led to the liquidation of all the classical formulas of voice leading, and, therefore, polyphony, and to the development of a primitive, homophonic form of writing.

10. Debussy emancipated 4- and 5-tone chords, and other such altered chords, from the concept of dissonance (a concept which is in essence scholastic). Debussy’s followers, especially Scriabin of the second period (*Poem of Ecstasy*), once and for all secured the right of the “dissonant” citizens, converting them, in the end, into “consonances.”

11. But Debussy, the Debussyites, and Scriabin operated with chords of no more than five tones, in fact, with classical “ninth chords.”

The departure from “ninth-chord” harmonic thinking begins with the appearance of works freedom Schoenberg’s second period (Op. 11) and Scriabin’s third period (*Prometheus*). In this stage European music finally cast off the classical system and entered on the path of “free,” purely aural development.

However, the freedom from the classical (and in general, all) appeared in its most extreme form as illogicality and individualistic debauchery.

12. Several masters of our epoch have instinctively felt the necessity of creating some sort of restricting framework, an organizing principle for new music.

The search for a new “system,” if only a partial substitute for the classical, may be seen, for example, in the works of Scriabin after the *Prometheus* period.

The attempt of Stravinsky and the new Western composers of late to construct a theory of “polytonalism” is just this kind of search.

13. The relative “system” of Scriabin. Six-note [chords] from the overtone series (natural scales) and timbral chords of polytones. The mechanical nature of this harmonic formulas result in a scheme of musical structure.
14. “POLYTONALISM,” as a particularly rationalistic tonal concept, actually leads to elementary scale-like melodies and casually removes from the composer’s control the harmonic combinations that crop up as a result of the purely mechanical combination of several multi-scale melodic lines into one whole.
15. My “NEW SYSTEM OF TONAL ORGANIZATION,” which I call “synthetic,” is the result of a decade’s work and investigative effort. Its complete continuity from the classical system restores the lost bond with the entire musical achievement of the past. The “New System,” in essence, in the result of the further evolution of the classical system, an evolution which has now been carried to its inevitable historical stage, a synthetic of the creative effort of the past with that of the present.
16. The “SYNTHETIC CHORD,” the basic six-tone chord of the new system, includes all the chief harmonic formulas of the classical system (major and minor, augmented and diminished triads, dominant chords, ninth chords, diminished seventh chords, various types of “accessory” seventh chords, and “altered” seventh chords created from the main types, etc.).
 This “synthetic chord” is called on to replace the “basic triad” of classicism. The simplest transpositions of it a 5th higher and lower produce a formula similar to classical tonality: tonic—dominant—subdominant. The melodic unfurling of these three “synthetic chords” produces 12-tone “chromatic” scale, a TONAL family with its own orthography, on the various steps of which are similar “triads,” leading to a further harmonic unfolding of the “synthetic chord.”
 Discovery of voice leading formulas of the “new system.” The principle of suspensions, passing tones, and neighbor tones. Formations of the “underlying” harmony, its own form of “dissonances.” Harmonic and melodic figuration. Polyphony. Six-and-more-part counterpoint (without doubling). Simple harmony and counterpoint.
 The uniqueness and significance of the diminished seventh chord and the augmented triad. Formation of the auxiliary chords, including those with more than six tones.
 Transition of “ultrachromaticism.” “Ultrachromatic” scale from the chromatic series of overtones.
 Awareness of the infinite possibilities of development of the “new system.”
17. The “new system” as a new principle of musical pedagogy leads to new methods of teaching the so-called “theory of composition.”
 - a) The method of studying “synthetic” harmony as the basis of musico-structural concepts. Mastery of the elementary relationships of the simplest derivatives from the “synthetic chord:” triads, four-note chords, five-note chords, and “synthetic chords” in the full sense. Harmonic formulas as voice-leading formulas.

Study of the tonal function of “synthetic chords.” “Synthetic chords” as representatives of primary tonality “in itself” (melodic unfolding of chords). Synthetic tonality.

b) Foundation of the principle of harmonic and melodic figuration as the basic principle of melody formation (suspensions, passing tones, and neighbor tones). Polyphony.

Principles of formal construction.

c) Study of vocal and instrumental style; study of corresponding means and working out of corresponding compositional methods. Instrumentation in the broad sense.

Note: in practice there is no division of the “course of study” into these separate parts. Practical work is also carried out in the “synthetic” plane.

APPENDIX B

Piano works discussed in **chapters 3** and **4** with their published years and Forte numbers. Please note the similarities among these set classes that often differ by a single pc.

Piano composition	Year	Set class, Forte-numbers (Synthetic chords)
<i>Trois Compositions</i> no. 1 ¹	1914	Sc(0134689), 7-32
<i>Trois Compositions</i> no. 2	1914	Sc(0134689), 7-32
<i>Trois Compositions</i> no. 3	1914	Sc(0124578T), 8-27
<i>Trois Etudes</i> no. 2 “Pianissimo”	1914	Sc(0134578), 7-Z37
<i>Trois Etudes</i> no. 3	1914	Sc(01345689), 8-17
<i>Cinq Préludes</i> no. 1	1919-1922	Sc(0134589), 7-21
<i>Cinq Préludes</i> no. 5	1919-1922	Sc(013578), 6-Z26

¹ Both *Trois Compositions* no. 1 and no. 2 are based on the same sc; however, they are spelled differently in each composition. Please refer to chapter 3.

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