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Department of Music

The University of British Columbia
1956 Main Mall
Vancouver, Canada
V6T 1Y3

Date July, 1986
Nikolai Andreevich Roslavets (1881-1944) is a unique figure in Russian avant-garde musical developments of this century. His system of tonal organization,

... similar to Scriabin’s reliance on a central chordal complex ... was based on chords of six to eight or more tones, used ... as substitutes for the functional relationships of classical tonality, which he did not reject but rather tried to expand. These "synthetic chords" of specific and invariable intervallic structure could be transposed not only to the seven pitches of the classical diatonic scale, but also to all twelve degrees of the chromatic scale. Through systematic application of such transpositions, Roslavets’s compositions revealed elements similar to dodecaphonic serial thinking as early as 1914-15. ... (Detlef Gojowy, "Half Time for Nikolai Roslavets," in Russian and Soviet Music: Essays for Boris Schwarz, 212.)

Trois Compositions pour piano (1914) exhibit such characteristics. Gojowy’s Neue sowjetische Musik der 20er Jahre, and George Perle’s Serial Composition and Atonality both include limited references to Trois Compositions as well as general commentary about Roslavets’s compositional techniques. However, detailed studies of pitch and pitch-class (PC) organization in music by this little-known composer are lacking. Proceeding from the analyses of Gojowy and Perle, the present thesis examines certain aspects of Roslavets’s "synthetic chord" system (designated in the thesis as the interval-class complex or ICC system) in Trois Compositions, including: (1) PC contents of harmonies in the pieces—contents based on transposition-levels (T-levels) of ICCs associated with the pieces—and variances thereof, some of which are related to the forms of the pieces;
(2) harmonic successions and associated T-levels; (3) rhythmic aspects of these T-levels and their successions, which indicate a basis of hierarchy of T-levels; (4) characteristics of T-level successions as to PC content, and PC invariance and pitch continuity involving adjacent T-levels, particularly T-levels related by interval-class (IC) 3; and (5) patterns of linear and vertical ordering of PCs as to their inclusion in particular T-levels. These are discussed in Chapter Two, following an introduction to Roslavets and his music in Chapter One.

In consideration of Roslavets's position as a post-Romantic composer, other compositional techniques and tendencies evident in Trois Compositions are investigated in the thesis. Chapter Three involves an examination of tonality in the three pieces, while Chapter Four involves a study of octatonicism and serialism, some characteristics of which are to be found in Trois Compositions.
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Excerpts from the score are used with the permission of Music Associates of America, representatives for Boelke-Bomart, Inc., copyright owners of Trois Compositions.
CHAPTER ONE

INTRODUCTION

At the beginning of this century, Russian art was in the vanguard of European development and it continued to be so well into the Soviet period. The Stalinization of Soviet music and the subsequent insistence on a national and popular symphonic style have served to obscure the work and the very existence of an important and original group of Russian composers active in the first quarter of the century, including the remarkable Nikolay Roslavetz [Nikolai Roslavets] (1881-1944), who anticipated aspects of twelve-tone music. . . .¹

Although, from an historical perspective, Roslavets may be described as a "minor experimenter," he is, nonetheless, one of the more significant but little-known figures of avant-garde music in Russia during the first three decades of this century.²

Biographical Information³

Born in the Chernigov region of the Ukraine, January 5, 1881, Roslavets came from a rural background. Saminsky finds it "curious" that Roslavets, a sophisticated musician and thinker, "should be a peasant pur sang, his parents being former serfs and he himself a shepherd boy up to the age of twelve."⁴ Roslavets was initially self-taught in music. He himself indicates that his musical talent appeared around the age of seven or eight, and was manifested under the influence of his uncle, with whom he studied the violin. Later, Roslavets had lessons in Konotop, and eventually was admitted to the music classes of
A. M. Abaza, in Kursk, where he studied the violin, elementary theory, and harmony.

From 1902 to 1912 he was a student at the Moscow Conservatory, studying violin with Jan Hřimalý [Ivan Grzhimali (1844-1915)]; counterpoint, fugue, and form with Alexander A. Il'inskii (1857-1920); and composition and orchestration with Sergei N. Vasilenko (1872-1956). He graduated in 1912 with a silver medal for his cantata *Heaven and Earth*, based on the text by Byron. There are indications of his radical views while he was a student at the Conservatory. However, there seems to be little information available concerning the composer's post-Conservatory life and musical activities up to the early 1920s. What is known about this period, largely through his autobiographical article, is his development of a new system of tonal organization.

In 1922, he was the temporary director of the Khar'kov Conservatory. He then worked on the editorial staff of the Moscow State Music Publishing House, notably as the editor of and contributor to the Marxist and progressive periodical *Muzykal'naia kul'tura* (1924). (Only three issues of the journal were published.) Roslavets was generally quite active in the 1920s as a critic and writer on music, venting "his radical ideas in various essays in the mid-twenties, . . . [which] earned him the enmity of virtually everybody except a small group of extreme modernists." One group with which he came into conflict was the more conventionally oriented Association of Proletarian Musicians [later, Russian Association of Proletarian Musicians, or
RAPM], which "reproached him for his bourgeois ideology."\(^{10}\)

Until 1929, he was a board member of the modernist Association for Contemporary Music, the Soviet association closely linked with ICSM. In 1928-29, ACM was reorganized as the All-Russian Society for Contemporary Music, but it ceased to exist by 1931.\(^{11}\)

In the latter half of the 1920s, the limited response to his works, and pressure from RAPM and Soviet authorities led him to abandon his avant-garde style of composition for a more acceptable tonal style. Roslavets publicly confessed his previous errors (i.e., "his modernist style and his avoidance of the emotional") in 1930 in the *Proletarian Musician* (Proletarskii Muzykant, journal of RAPM).\(^{12}\)

Roslavets "then accepted an invitation to Tashkent [in Uzbekistan, a region of the Soviet Union] where he switched to folk music in Uzbek style and composed the first national Uzbek opera. All music dictionaries published in the West speculate that Roslavetz was banished from Moscow and that he disappeared without trace in the wake of the political purges of the 1930s. Perhaps he moved to Tashkent to escape political reprisals."\(^{13}\)

More recently however, Gojowy has provided little-known information about Roslavets and his activities after the 1920s, dismissing rumours about Roslavets's exile to and death in Siberia that arose as a consequence of his "non-person" status under the cultural policies of Stalin and Zhdanov.\(^{14}\)

Roslavets went to Uzbekistan in 1931, where he became one of the first Russian musicians to contribute to the development of musical culture in Middle Asia. He was director of the Radio Center of the Uzbek Soviet Republic and conductor of the Uzbek Music Theater. He composed music based on [Uzbek] national
melodies and rhythms. His ballet Pakhta ["Cotton peasant"], dedicated to the struggle for independence of the cotton industry in the USSR, and his symphony, "Soviet Uzbekistan," composed for the 15th anniversary of the October Revolution, were performed with great success under his baton. He was awarded an honorary diploma by the government of the Uzbek Republic.

In November 1933, he returned to Moscow as a producer for the All-Union Radio Committee (1933-35) and as director of the All-Russian Concert Association (until 1939); from 1936, he served as head of the section of scientific collaborators in the trade union RABIS. He taught composition in the Musical Polytechnical School, lectured to military band directors, and continued to compose. During these years he wrote important theoretical works, such as "Counterpoint" and "Fugue," which remain unpublished. Although he was seriously ill during the Second World War, he became intensely involved in the general struggle and composed patriotic songs dedicated to the defenders of his country. . . .

Roslavets died in Moscow, August 23, 1944.

Aspects of Roslavets's Compositional Style and Technique

Roslavets's student compositions and earlier chamber works were influenced by French impressionism. But soon after the completion of his studies, his style changed. In the 1910s, Roslavets developed a series of harmonic principles of a new tonality, applicable to his music. He indicates having a vague notion of these principles, even finding them to be evident in his student compositions of 1909-1911. In early 1913, he composed the first works, a violin sonata and some songs, which manifested his own individual compositional techniques, and for the next six years, until 1919, he continued to develop these techniques. Gojowy cites the songs Volkovo kladbishche (text by Burliuk) and Vy nosite liubov' (Bol'shakov), both from the end of 1913, as pieces in which Roslavets "achieved a new har-
monic ordering which was not diatonic and which he referred to as the *synthetic chord* technique.\(^{18}\) These chords, the basis of the harmonic organization in his music, consist of six to eight and more pitches, are transposable to all twelve chromatic levels, and can include tertian chords of conventional tonality. Such "synthetic" chords are used not only for colouristic purposes but, more importantly, to substitute for conventional tonal structures. Although the principle of classical tonality is absent from Roslavets's works up to the time of his autobiographical article (1924), "tonality as a concept of harmonic unity exists unchanged and appears in the form of the aforementioned *synthetic* chords.\ldots\)\(^{19}\) These chords can be expressed vertically or horizontally, and involve some rules of voice-leading.\(^{20}\) In addition, principles of "a new polyphony," and "new rhythmic forms" were developed, so that, by the end of 1919, he came to a fuller awareness of all these principles as elements of a "new system of sound organization." This system, in his opinion, was "destined to ultimately replace that of the obsolete classical system\ldots\) and to lay a firm foundation under the intuitive (in fact, only anarchistic) compositional methods with which the majority of contemporary composers operate\([\ldots]\)\(^{21}\)

In general, Roslavets's music is characterized by a number of different influences and trends. The noted Russian musicologist, Boris Asafiev, discusses one of these:

Somewhat apart, in view of its sharp antagonism to contemporary currents, stood the output of Roslavetz.\ldots\) As is demonstrated by the first violin sonata (1913), and then by a number of other
works, Roslavetz already then set up, in a far-sight-ed and daring manner, the problem of constructivism that we are at present so much concerned with. It was necessary to speak of his works at that time using a terminology that has now become elementary, as: the organizational principle, a strictly constructive system, and a business-like accuracy in mastering the material. Roslavetz was, and has remained quite aloof from modernism.

Though he used a different type of material, Roslavetz fundamentally sought the same as Schoenberg—the precise laws of a severe logic of sounds. Roslavetz realized that true classicism does not lie in safeguarding the methods of the "old men" and not in a stylization of modern music with their methods and by using archaic material, but that the question is of elaborating a strict system of sound-organization, whence will naturally follow classically perfect compositions, through a formation of new material.22

"Constructivism" was a Russian artistic and architectural movement that was first influenced by Cubism and Futurism and is generally considered to have been initiated in 1913 with the "painting reliefs"—abstract geometric constructions—of Vladimir Tatlin. Antoine Pevsner and Naum Gabo joined Tatlin and his followers in Moscow, and upon publication of their jointly written Realist Manifesto in 1920 they became the spokesmen of the movement. It is from the manifesto that the name Constructivism was derived; one of the directives was "to construct" art. Because of their admiration for machines and technology, Functionalism, and modern industrial materials such as plastic, steel, and glass, they were also called artist-engineers. . . . Soviet opposition to the Constructivists' aesthetic radicalism resulted in the group's dispersion.23

Roslavets's development of a new system of pitch and pitch-class organization, and the "anti-emotionalism and formalism"24 that characterized his work, would seem to represent in part a musical manifestation of constructivism.25

Just as significant are references in a number of sources to the composer as a "Russian Schoenberg" and as a "Scriabin-ist." Roslavets denies that his system is influenced by
Scriabin, or by Schoenberg, although he admits "Skryabin (in a musical-formal respect, but in no wise ideologically . . .) is of course far nearer to me than Schoenberg, whose work, I confess, I have got to know only comparatively recently." There are in fact indications of limited contact between Scriabin and Roslavets:

N. A. Roslavets is regarded as a strong follower of Scriabin. . . . Indeed, he [Roslavets] considered Scriabin as his most important teacher. Apart from the fact that Roslavets frequently submitted his works to Scriabin, there was no direct contact between the two. It is known that Scriabin considered Roslavets's atonal works favourably, particularly the first Sonata for Violin and Piano (1913). During this period, Roslavets formulated his ideas in the theoretical work Novaya sistema organizacii zvukov [A New System of Sound Organization]. Roslavets here based his theory on the works of Scriabin; likewise this thesis also contains consideration of the works of A. Schoenberg. Roslavets observed with Scriabin certain sound complexes and described them as "synthetic chords." This theory of "sound complexes" found their practical application in a series of symphonic and chamber music works by Roslavets of the period from 1919 to 1924.  

However, according to Schwarz, Roslavets's Violin Sonata (1913) was the first atonal work by a Russian composer, and his String Quartet No. 3 of 1920 employed a "tone row" technique. In fact, there are a number of similarities between the compositional technique of Roslavets with that of Schoenberg:

[Roslavets] developed the ["synthetic chord"] technique in piano miniatures, so that by 1915 it had become a 12-note system, embracing concepts of 12-note serialism and mirror symmetry. In the Violin Concerto (1925) he added the principle of complementary pitch-class groups which together form 12-note sets. His sensitive, consistent 12-note writing has many similarities with that of Schoenberg, whose work, however, Roslavets did not encounter until 1923. Roslavets's works "found only limited response. Even-
Roslavets's style changed to a more accessible tonal style.

Roslavets's Marxism and his association with communistic theories and practice could not fail to affect his compositions. He considered it his duty to come out as composer of revolutionary music. Beginning with 1918, revolutionary music in Russia was created in bulk and poorly, and in accordance with specifications and requests from the respective organisations. Roslavyets was the first "convincing" composer of music for the proletariat. He set himself the task of eradicating the dilettantism from composition of this kind and their invariably poor style and taste, usually derived from the repertory of the operetta and "light" music. Even for the proletariat Roslavyets endeavoured to write masterly and complex music. But in spite of his theoretic premises that the most complex music is within the grasp of the workingman, if it but "organises tonal matter" well, Roslavyets finally had to make a number of concessions, and his revolutionary compositions, written for workmen's clubs, differ strongly in style from his "serious" compositions. Everything is simpler, more primitive and his usual complex musical language (the modernistic one) gives way to a plainer one. As an intermediate essay, Roslavyets wrote several songs to revolutionary texts by present-day Russian poets and some of bygone years, preserving his style intact. Such are Songs of the Labouring Professions, and The Songs of the Revolution, two volumes which cannot be denied their structural musical merits.

Roslavets's style in the cantata October (1924) was described as "somewhat too sentimental" and "reminiscent of Strauss and Wagner."

Schwarz mentions that, in the 1930s, Roslavets wrote lighter theatre music, as well as compositions based on folk, especially Uzbek, music. In addition, Roslavets wrote agitation-propaganda music, and, as suggested by Gojowy's recent listings of pieces by the composer (see Appendix A), classical tonal compositions in the 1930s and 1940s.

Considering these observations, one might tentatively
identify four periods in Roslavets's compositional career, namely: (1) an early, student period, up to 1912; (2) 1912-1919, a post-Conservatory or development period in which his compositional technique was developing; (3) 1919-1925, a mature period that includes both polyphonic styles (involving linear expressions of tone complexes) and, especially towards 1925, more Romantic styles (e.g., use of Tristan harmonies); and (4) 1925-1944, a period of tonal compositions, including the writing of agitation-propaganda songs and music based on folk songs.

*Trois Compositions pour piano* (1914) represents the composer's development of compositional technique in the second, post-Conservatory phase of his career. Roslavets developed his synthetic chord technique in piano miniatures, such as *Trois Compositions*; in fact, the first two pieces of the set involve a strict application of the technique whereby one "synthetic chord" or pitch-class complex (PCC) determines the harmonic structures of a piece. Moreover, such pieces, especially those composed towards 1915, exhibit certain features of twelve-tone serialism.

Gojowy's *Neue sowjetische Musik der 20er Jahre*, and his numerous articles on Russian musical developments, including those dealing specifically with Roslavets, present the most detailed published studies of the composer's life and works to date; the former includes an analysis of *Trois Compositions*. George Perle's brief analytical discussion of the three pieces in *Serial Composition and Atonality* represents one of the first English-language analyses of Roslavets's music.
Although Gojowy and Perle together identify such aspects of *Trois Compositions* as PCCs associated with the pieces, transposition levels of these PCCs (which form the bases of harmonic units), and general characteristics of Roslavets's style, few details concerning pitch-class (PC) and pitch organization in the pieces are provided. Hence, the primary objective of the present thesis is a comprehensive investigation of PC and pitch organization, beyond what has been treated elsewhere. Chapter Two will deal exclusively with the "synthetic chord" technique, presenting the observations of Gojowy and Perle as a basis for further analytical studies. Harmonic successions, their PC content, and the ordering of PCs within individual "synthetic chords" will also be examined in some detail. Chapter Three will deal with tonality as that concept applies to Roslavets's organization of PCs and pitches, and Chapter Four will treat aspects of octatonic and serial organization that apply to the music.

Notes


2. The description of "minor experimentator" is found in Boris Schwarz, *Music and Musical Life in Soviet Russia: Enlarged
3. Information in this chapter on Roslavets is taken from the following authors (see bibliography for additional information): Nikolai Roslavets, Detlef Gojowy, Lazare Saminsky, and Leonid L. Sabanejeff. Encyclopaedic sources include: New Grove Dictionary of Music and Musicians, 6th ed., s.v. "Roslavets" (hereafter cited as Grove, 6th ed.); Die Musik in Geschichte und Gegenwart, s.v. "Roslawetz" (hereafter cited as MGG); Das Grosse Lexikon der Musik, s.v. "Rosslawetz"; and Baker's Biographical Dictionary of Musicians, 7th ed., s.v. "Roslavetz".

4. Lazare Saminsky, Music of Our Day: Essentials and Prophecies (New York: International Publishers, 1927; New York: Da Capo, 1975), 264. Concerning the date of birth, some sources indicate the Julian calendar date (i.e., December 24, 1880). Curiously, Das Grosse Lexikon der Musik indicates January 4, 1881 (December 23, 1880, Julian calendar) as the date of birth. (Das Grosse Lexikon der Musik, s.v. "Rosslawetz"). Roslavets mentions that he was born in the village of Dushatino, and later lived and worked in Konotop, both communities in the former government district of Chernigov in the Ukraine. (Roslavets, "Nik. A. Roslavets o sebe i svoem tvorchestve," [Nik. A. Roslavets on Himself and His Work], Sovremennaiia muzyka [Contemporary Music], 5 [1924]: 132-133 [trans. in Gojowy, Neue sowjetische Musik der 20er Jahre (Laaber: Laaber-Verlag, 1980), 395; hereafter cited as "Roslavets"-NsM.]) Apparently, Dushatino was renamed Surazh, now part of the Briansk Oblast [region], based on information in Riemann Musiklexikon: Ergänzungsband, 1975 ed., s.v. "Rosslawets", and in Das Grosse Lexikon der Musik, s.v. "Rosslawets".

5. Roslavets, "Roslavets"-NsM, 395.

6. Saminsky echoes Roslavets in indicating that, "while at the conservatory he [Roslavets] was disliked for radicalism . . ." and that once he finished his studies, he "rid himself of the conservatory prescriptions very quickly." (Saminsky, Music of Our Day, 264; see also Roslavets, "Roslavets"-NsM, 396.)


8. Gojowy's indication that a cello sonata was composed in Khar'kov, in March of 1921, suggests that Roslavets was living in or near the town before his directorship. (Gojowy, "Nikolaj Andreevic Roslavec, ein früher Zwölftonkomponist," Die Musikforschung, 22/1 [January-March 1969]: 37.) Interestingly, one source provides information on the founding in 1922 of a school of composers at the Khar’kov Musical Institute (later the conservatory) by S. Bogatiryov, although there is no mention of Roslavets. (Grove, 6th ed., s.v. "Khar’kov").


11. "[The] ACM’s journal *Sovremennaia Muzyka* ceased publication in March 1929, followed in 1930 by the demise of the excellent monthly *Muzykal’noye Obrazovanie* which had represented the independent musical intelligentsia and the conservatory circles. Only the brash voice of *Proletarskii Muzykant* [journal of RAPM] was left, pretending to speak for all the musicians. In the meantime, many important members had abandoned the ACM, among them Miaskovsky, and the organization simply ceased to function even prior to its dissolution in 1931." (Schwarz, *Mus. Soviet Russia*, 58-59.)


14. One such "unconfirmed report" about the death of Roslavets in Siberia is given in *MG*, s.v. "Roslawetz".


Montagu Montagu-Nathan states that Roslavets had been "influenced a little by Rebikof. ..." (Montagu Montagu-Nathan, Contemporary Russian Composers [London: Cecil Palmer and Hayward, 1917; Westport, Connecticut: Greenwood, 1970], 315.) Vladimir Ivanovich Rebikov (1866-1920), Russian composer, developed a style of composition that employed the whole-tone scale and augmented triad, and "claimed priority in this respect over Debussy and other European composers." (Baker's Biographical Dictionary of Musicians, 7th ed., s.v. "Rebikov"). This earned him a reputation as the finest Russian impressionist, and he also became known as the father of Russian modernism." (Grove, 6th ed., s.v. "Rebikov").


18. Grove, 6th ed., s.v. "Roslavets".

19. Roslavets, "Roslavets"-NsM, 396-397. The reference to "pitch" is clarified in Chapter Two with discussion of the term "pitch-class" (PC).

20. Ibid., 397. Saminsky states: "From his harmonic foundation he evolved several years ago a peculiar system of voice leading and a new polyphony which led to his tonal organization." (Saminsky, Music of Our Day, 265.)


23. The New Encyclopaedia Britannica; 15th ed., s.v. "Constructivism". Interestingly, M. Montagu-Nathan indicates Roslavets's interest in artistic aspects associated with the movement: "Roslavets is a versatile composer and evidently a man of cultivated tastes and wide sympathies. ... As to external symptoms it is worthy of mention that Roslavets affects coloured ink, a circumstance which will have some significance for students of latter-day tendencies; more striking than this are the Cubist designs which adorn the covers of some of his pieces." (Montagu Montagu-Nathan, Contemporary Russian Composers, 315.)


25. The "fad of such constructivist music became very popular in the later 1920s, but none was as highly acclaimed as Mosolov's Iron Foundry, called a mighty hymn to machine work by one Soviet critic, a symbol of the enthusiasm of Socialist industrialization." (Schwarz, Mus. Soviet Russia, 85; quotation from Istoria Muzyki Narodov SSSR, [Moscow, 1966], vol. 1, p.


28. Schwarz, Mus. Soviet Russia, 86.


30. Schwarz, Mus. Soviet Russia, 86.

31. Sabaneev, Modern Russian Composers, 206-207.

32. Schwarz, Mus. Soviet Russia, 86; quotation from E. Braudo, Die Musik, 20/7 (April 1928): 53. Although Schwarz indicates 1927 as the date for October, it was actually composed in 1924.

33. Schwarz, Mus. Soviet Russia, 86.


35. Gojowy states: "Around 1920 (Third Quartet, Meditation), he again changes from the polyphony and contrapuntal forms to a milder Tristan harmony with the Violin Concerto (1925)." (Gojowy, Neue sowjetische Musik, 98; my translation.)


CHAPTER TWO

THE INTERVAL-CLASS COMPLEX IN TROIS COMPOSITIONS

Introduction and Terminology

As the analyses by Detlef Gojowy and George Perle are pioneering studies of the work of Roslavets, we turn initially to them for preliminary insights into Trois Compositions, with which they both deal.

The compositional system of most early works by Roslavets is based on the principle of transposable tone complexes in scale form that represent the entire tone collection in a given time-span.

A given tone complex determines which tone need or need not sound, although not in which order, octave, or motive. Within the chromatic scale, there are eleven possible transposition levels for every possible complex.

This system was not invented and utilized exclusively by N. A. Roslavets, but indeed, if one believes his own testimony, was developed independently of Scriabin's similar system. ¹

More recently, Gojowy states:

[Roslavets's system] was based on chords of six to eight or more tones, used ... as substitutes for the functional relationships of classical tonality, which he did not reject but tried to expand. These "synthetic chords" of specific and invariable intervallic structure could be transposed ... to all twelve degrees of the chromatic scale. ... [In] the tone complex, as used by Scriabin and Roslavets, the order of its elements remains free; the complex is defined only by its intervallic structure. ²

More specifically, Gojowy's analysis identifies the "transposable tone complexes" associated with the three pieces, and the transposition levels (T-levels) of each complex from which pitch
collections in the respective pieces are derived.

Perle's study in *Serial Composition and Atonality* includes a listing in musical notation of the "sets" or transposable tone complexes associated with each piece, an analysis of the PC content of a short excerpt of "III" and identification of tone complex T-levels, and a brief description of the salient points of Roslavets's compositional technique, part of which is quoted below:

In his *Trois Compositions* for piano, . . . Roslavets employs an independent set for each movement. . . . As in Scriabin's works, the set functions simultaneously as scale and chord. Transpositions are used much more freely, pivotal connections being employed, in general, merely as a means of immediate association. ³

To begin, some clarification and additional terminology is required to facilitate further analysis. The "transposable tone complex," an important aspect of pitch and pitch-class (PC) organization in Roslavets's music, is designated by the different authors as "synthetic chord" (Roslavets), "Tonkomplex" (Gojowy), and "set" (Perle). ⁴ Specifically, it involves a collection of pitch-classes (PCs) and hence is more accurately termed a "pitch-class complex" (PCC). ⁵ To understand how PCCs are transposed and employed in the music, Ex. 2-1a illustrates m. 1 of "I", with the pitches segmented into collections. These collections can be tentatively designated as harmonies, given the simultaneous occurrences of pitches involved and generally vertical orientation of pitches in most collections. ⁶ In Ex. 2-1b, the pitch-classes (PCs) represented in the collections of Ex. 2-1a are ordered to illustrate similarity of PC collections
through transposition. Each ordered PC is numbered according to the PC interval it forms with the first PC of the collection.

Example 2-1. Pitch collections in "I", m. 1, and corresponding PCC T-levels.

(a) Pitch collections in "I", m. 1:

(b) T-0 T-3 T-10

Segmentation of pitches into collections in order to identify the PCC T-levels, as shown in Ex. 2-1, is partially indicated in Gojowy's analysis of *Trois Compositions* which includes the successions of PCC T-levels (and measure indications). Moreover, both Perle and Gojowy indicate the transposable PCCs associated with each piece. But, segmentation of pitches into collections is a relatively simple matter anyhow, given the generally homophonic texture of the pieces, with many of the collections appearing as simultaneities or recognizable arpeggiations thereof. More importantly however, the time-spans and temporal placements of the pitch collections generally coincide
with the notated meter, in the sense that the initial attack-points of many harmonies correspond to the barline or to conventional time-points of metric subdivision within the bar (e.g., in 4/4 meter, time-spans initiated on the second, third, or fourth "beats").

In Ex. 2-1b, the first harmony in m. 1 of "I" is designated as T-0 because it is the first of the piece, the first T-level of the PCC. More importantly, it is a referential harmony in the sense that, as later analyses will show, this PC collection begins and ends the piece (as do the initial PC collections of "II" and "III", respectively), and, of any T-level of the PCC of "I", it occurs most frequently and has the greatest total time-span.

Also in Ex. 2-1b, the listing of ordered PCs of each collection in m. 1, with PCs numbered according to the PC interval they form with the first PC of each scale, illustrates how the second and third harmonies of m. 1 are transpositionally related to the first, in terms of PC content, with one minor exception (i.e., C in T-0 not being transposed in T-3 and T-10). In addition, the interval vectors of the three harmonies are indicated, to illustrate that T-0 is similar to a limited extent in interval-class (IC) content to T-3 and to T-10, while T-3 and T-10 have the same IC content.

The particular ordering of T-0 PCs, starting with D, is based in part on Perle's presentation of PCCs for each piece (each at T-0), shown in Ex. 2-2 with ordered PCs numbered as in Ex. 2-1b.
Example 2-2. Transposable PCCs of "I", "II", and "III", as illustrated by Perle, with numbering of PCs added.

**PCC of "I", T-0:**

```
\begin{align*}
0 & \quad 1 & \quad 3 & \quad 4 & \quad 6 & \quad 8 & \quad 9 & \quad 10 \\
\end{align*}
```

**PCC of "II", T-0:**

```
\begin{align*}
0 & \quad (1) & \quad 3 & \quad 4 & \quad 6 & \quad 8 & \quad 9 & \quad 11 \\
\end{align*}
```

**PCC of "III", T-0:**

```
\begin{align*}
0 & \quad 1 & \quad 3 & \quad 4 & \quad 6 & \quad 8 & \quad (9) & \quad (10) & \quad (11) \\
\end{align*}
```

The bracketed PCs in each ordered collection represent those PCs or transpositions thereof not appearing with every T-level, an issue which will be further investigated in the following section of this chapter. Given that the PCCs of "I" and "III" are in the prime form, when one excludes from consideration the variant PCs, and given the similarities of the three transposable PCCs, D is the first PC of the ordered PCC at T-0 for "I", and likewise C#/Db is the first for the PCC of "II", and G for the PCC of "III". Based on the PC numbering scheme illustrated in Exx. 2-1 and 2-2, \(^1\) any PC in a given T-level is designated with a number, an "element" number, in order to show its relationships to the other PCs of that T-level. One PC in nearly every T-level occurrence (i.e., collection in the music) will be designated with element number "0", although this does not imply any greater significance to this PC. \(^2\) Given that
certain elements do not appear in the PCCs (at T-O) as shown in Ex. 2-2, these will likely not be represented in the pitch collections of the pieces. Of course, a PC which is a given element in one T-level cannot be the same element in another T-level.

Because the PCC as Roslavets uses it has a "specific and invariable intervallic structure" which can "be transposed . . . to all twelve degrees of the chromatic scale," such a PCC will be referred to in the thesis as an interval-class complex (ICC). Such an ICC consists of an ensemble of ICs spanning the constituent PCs (as shown in Ex. 2-1 with the interval vector). For purposes of classification, component PCs are abstracted as an ascending scale. The IC relationships between PCs of a PCC necessarily remain the same when those PCs are assigned registral and temporal identities in the music.

A given ICC is transposable in the sense that the PCs that constitute it are transposable. In other words, an ICC may be realized by various PCCs. (It is understood that the operation of transposition does not apply to intervals or ICs.) T-levels are designated "T-x", "x" representing the number of semitones of transposition above the T-level of the referential PCC that begins and ends a given piece (T-O). Hence, the T-level is a simple way of indicating a harmony's PC content independent of specific temporal and registral location. With some exceptions, most if not all of a given T-level's PCs appear in any given harmony in Trois Compositions. The temporal and registral ordering of elements can and usually does vary with every harmony.
or T-level. The designation in this thesis of a T-level in a given measure is used to refer to the PC collection of that T-level or harmony. It is often not necessary to be concerned with the temporal and registral configurations of PCs.

This chapter will provide more insight into Roslavets's ICC system, incorporating the analytical observations of Gojowy and Perle as a basis for further detailed examination of compositional technique in the pieces. The first part of this chapter examines the ICCs of the three pieces and how the harmonic units are derived from these ICCs. The second part investigates harmonic successions and T-level occurrences, while the final sections deal with T-levels as to PC content, and vertical and linear element ordering within individual harmonies and in element successions involving adjacent harmonies.
Gojowy indicates that two of these three pieces are each based on a single transposable PCC that we consider to be a single ICC. The observations of Gojowy and Perle generally concur, with some minor exceptions. We can clarify the organization of the PC material in all three pieces by segmenting each piece into PC collections.

ICC of "I"

Perle and Gojowy cite the same PC collection as the basis for the harmonies of "I", except that Perle includes the bracketed variant element "10" (i.e., C in T-0, as represented in Ex. 2-2). The bracketed PCs in Perle's ICCs are those elements not appearing with every T-level occurrence. He indicates that "[v]ariants of the set are more or less consistently employed. These are derived not through the chromatic inflection of set-elements, as in Scriabin's Seventh Sonata, but through the systematic omission of certain components of the basic formation."

The ICC of "I" is presented in Ex. 2-3a, and the segmentation of pitches into ICC T-levels (in scale form, with T-levels indicated) in Ex. 2-3b.
Example 2-3. ICC of "I", with T-level successions.

(a) T-0 PCCs of the ICC of "I":

```
\begin{align*}
\text{ELEMENT: } & 0 \ 1 \ 3 \ 4 \ 6 \ 8 \ 9 \ 10 \ 0 \\
\end{align*}
```

(b) Pitches of "I" segmented into PCCs at various T-levels:

```
\begin{align*}
\text{MEASURE: } [1] & \quad [2] \\
\text{PITCHES:} & \\
\text{SCALAR REPRESENTATION OF PCC:} & \\
\text{T-LEVEL: } & 0 \ 3 \ 10 \ 1 \ 4 \\
\end{align*}
```
Example 2-3b continued.
Some harmonies contain pitches which cannot be understood as part of the PCC Gojowy describes: C5 (m. 1, T-O); B4 (m. 4, T-11); B5 (m. 7, T-11); and Eb4 (m. 7, T-11). Perle's variant element "10" (C) in his version of the T-O PCC accounts for all but the last of these anomalous pitches, Eb4 being element "2" which is not found with any other T-level in "I". The element "10" PCs in question have a subsidiary or elaborative function, although element "2" (Eb) is a significant bass-line pitch. On the other hand, the locations of collections containing variant elements have a certain formal significance: T-O (m. 1) and T-11 (an exact transposition of the T-O harmony, m. 4) initiate the first and second phrases of the piece, respectively; and T-11 (m. 7, different temporal-registral configuration of pitches to the previous T-11) precedes the time-span with the pitch-climax of the piece (G#6).

Another problematic PC collection is that of m. 13. Gojowy identifies it as T-O; in fact, the PC content is nearly identical to T-O, except that G appears instead of Gb. Perle speaks
of the pitch material as being derived from "transpositions of
the set [complex] that are closely related in pitch content to
the original statement of the set." It is possible to identi-
fy the collection as the ICC at T-9 as well as at T-0, since six
of seven PCs belonging to either T-level. One plausible expla-
nation involves its connective function with "II": the PC col-
lection in m. 13 is identical to the PCC of "II" at T-10 (Ex.
2-4).

Example 2-4. PC collection of m. 13 in "I".
ICC of "I" at T-0:

\[
\text{\includegraphics{figure1.png}}
\]

ICC of "I" at T-9:

\[
\text{\includegraphics{figure2.png}}
\]

PC Content of m. 13:

\[
\text{\includegraphics{figure3.png}}
\]

ICC of "II" at T-10:

\[
\text{\includegraphics{figure4.png}}
\]

T-level identification in mm. 6-8 is problematic because of
fewer PCs per collection and because more than one T-level can
be adduced to explain the PC content of each collection.

Gojowy's analysis of T-level succession (Ex. 2-3b) explains
these individual collections as "different, irregular scale-excerpts," excerpts of the ICC at some T-level. Perle does not discuss these measures specifically. Example 2-5 illustrates that each of the complete PC collections of the second halves of mm. 6 and 7, and of m. 8, are derived from an expanded version of the basic ICC, which differs from the above-mentioned expanded ICC realized in mm. 1, 4, and 7. Example 2-5, staff (a), illustrates the PC content of the individual harmonies, while staff (b) shows these PCs combined into larger collections (i.e., T-levels of the expanded ICC), both in scale form. These are compared with similar T-levels of the basic ICC of "I" on staff (c).
Example 2-5. Expanded ICC and T-levels in mm. 6-8.

The expanded PCCs are transpositionally related, with the expanded PCC of m. 7, second half, T-2 of the expanded PCC of m. 6, second half, and the expanded PCC of m. 8 T-7 of the expanded PCC of m. 6. The temporal-registral configuration of pitches in these three time-spans reflects this T-0, T-2, T-7 transpositional relationship of the expanded PCC (Ex. 2-3, mm. 6-8). The expanded T-0 (m. 6) closely resembles the basic ICC of "I" both at T-0 and T-7, the expanded T-2 (m. 7) the basic ICC at T-2 and T-9, and the expanded T-7 (m. 8) the basic ICC at T-7 and T-2,
with only a few PCs differing in each case.

Moreover, there are similarities in PC and element content between the expanded ICC, the basic ICC, the PC collection in m. 13, and the ICC of "II" (Ex. 2-6).

Example 2-6. Expanded ICC at T-0 and its relationship to other PC collections in "I" and "II".

ICC OF "I" AT T-0:

EXPANDED ICC AT T-0:

"I", T-0 (M. 13) / "II", T-10

ICC OF "II" AT T-1:

Unlike the harmonies of mm. 1-5 and 10-13, where all PCs of a given T-level are verticalized or vertically oriented in a single harmonic unit, the expanded PCCs of mm. 6-8 are partially subdivided into subset collections or, more specifically, subset harmonies. The subdivided PCs form more than one harmonic unit, each with its PCs vertically oriented. Individual subset harmonies have PCs that differ with those of other subset harmonies and other PCs that are invariant; hence, the designation "partially subdivided." This represents a step towards the complete linearization or linear presentation of a T-level's PCs, in the
sense that a T-level's PCs can be subdivided into more and more subset collections to the point where the subsets are actually individual PCs. Such linearization characterizes later works by Roslavets, although the initial T-levels of mm. 6 and 7 (T-11) in "I" are linearized, as is T-11 (m. 7) of "III". (The tertian harmonies, implied by the successions of pitches in these linearized T-levels, are examined in Chapter Three.) Such T-level subdivision, as well as differences in chord structure and texture, distinguish mm. 6-8 as a formal unit. Similarly, there are subdivisions of T-levels into subset collections in mm. 6-8 of "II" (T-2, T-10, and T-8), and m. 4 of "III" (T-7, T-0, and T-5). Thus all such T-level subdivision occurs in middle, developmental sections of the pieces. In contrast with "I" and "II", there is a greater tendency towards these harmonic subsets and linearizations in "III", with the texture being less homophonic and more contrapuntal. These distinctive features of "III" are examined later in this chapter.

ICC of "II"

As in "I", one ICC is the basis of all harmonic and melodic structures in "II". Example 2-7a shows the referential PCC which realizes the ICC of "II", and Ex. 2-7b, based on Gojowy's analysis, shows the piece's PCs segmented into T-levels.
Example 2-7. The ICC of "II", and PCs partitioned into harmonies.

(a) ICC of "II":

```
 ELEMENT: 0 1 3 4 6 8 9 11 0
```

(b) "II" segmented into PCCs at various T-levels:

```
PITCHES

SCALAR PRESENTATION OF PCCs
T-LEVEL: 0 5 8 1 10
```
Example 2-7b continued.
Gojowy shows no variant element in his form of the ICC, but Perle includes a variant element "1" (i.e., not part of the referential PCC), bracketed in Ex. 2-7a. Element "1" only occurs in mm. 6-8 in the bass-line in partial arpeggiations of the T-2 (m. 6), T-10 (m. 7), and T-8 (m. 8) harmonies, respectively. The occurrence of T-levels with element "1" in mm. 6-8 of "II", in the middle development section of a recapitulative ternary form, is similar to the use of expanded ICCs in mm. 6-8 of "I", and contributes to the formal role of these measures. Unlike variant element "10" in "I", however, variant element "1" in "II" is not associated with less significant functions in the melodic-harmonic structures. It plays an important role in a conventional tonal interpretation of the harmonic structures, a topic to be treated more fully in Chapter Three.

The ICCs of "I" and "II" are quite similar. Gojowy notes that the PCs of the ICCs of "I" and "II" are inversionally related. In fact, the T-levels of "II" could be redesignated as T-levels of the PCC of "I" itself, with the initial PCC of "II" as T-11 of the PCC of "I". However, the above-mentioned variant elements in the PCCs of "I" and "II" make it difficult to explain PC organization in "I" and "II" in terms of a single ICC.
ICC of "III"

Unlike "I" and "II", which have a limited number of variations of their respective ICCs, "III" apparently has seven variations of its ICC if we follow the segmentation of pitches suggested by Gojowy's presentation of T-level successions. Example 2-8a presents these variations at T-0, each labelled with a lower case letter. To the right of these PC collections is a list of T-levels of these variations, with the indications of measures in which they appear. Those variations with letters "a" to "d" correspond to Gojowy's four ICCs for the piece. Included with these is Perle's "set" with bracketed variant elements "9", "10", and "11". Example 2-8b illustrates the segmentation of pitches into PC collections, similar to the analyses of Exx. 2-3b and 2-7b.
Example 2-8. The ICCs of "III".

(a) Seven variant ICCs, with T-levels and locations: Gojowy's four ICCs (a, b, c, d) and Perle's single ICC with variant elements:

**ELEMENTS:** 0 1 2 3 4 6 8 9 10 11

**GOJOY**

a: T-0, T-5 (N. 1)
T-5 (N. 12)

b: T-1, T-4 (N. 3)
T-7, T-0 (N. 4)

c: T-8, T-3, T-7,
T-10 (N. 2)
T-11 (N. 7)
T-2 (N. 8, 10-11)
T-5, T-0,
T-4, T-7 (N. 13)
T-0 (N. 14-15)

d: T-8 (N. 5-6)
T-6 (N. 8); T-9
(N. 9)

e: T-1 (N. 3)

**PERLE**

g: T-0 (N. 12)
Example 2-8 continued.

(b) "III" segmented into PC collections:

MEASURE: [1] [2]

PITCHES

SCALAR PRESENTATION OF PCCs

T-LEVEL: 0 5 8 3 7
Example 2-8b continued.
The differences between the ICCs cited by Gojowy and Perle reflect the inclusiveness of their respective ICCs. While Gojowy uses four ICCs (with no variant PCs) to account for the most frequently occurring collections or their transpositions, Perle has only one ICC with three variant PCs.

Although Gojowy's ICCs and T-levels account for the PC content of most harmonies in "III", the concept of four different ICCs employed in "III" is problematic. Why should the final piece of this set be deemed so radically different from "I" and "II" in terms of compositional technique that it should embrace four ICCs, especially in light of its smaller dimensions? Moreover, the perception of four distinct harmonies based on these four different ICCs would be unlikely.

Perhaps the strongest indicator for the use of one ICC is the rather unique musical orthography of the ICC of "III" (i.e., the mixture of sharps and flats as accidentals in the scalar presentation of the ICC PCs, and PC intervals formed), and the consistency with which pitches of individual collections in the music conform to intervallic relationships suggested by the ICC PCs (Fig. 2-1).
Example 2-9. Musical orthography of the ICC of "III".

(a) ICC at T-0:

T-0 LEVEL PCs:  G - G# - Bb - B - Db - D# - (E - F - Gb) - G

<table>
<thead>
<tr>
<th>ELEMENT:</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC INTERVALS</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

- CHROMATIC SEMITONE
- AUGMENTED PRIME
- DIATOMIC SEMITONES
- MINOR 2NDS
- DOUBLY AUGMENTED PRIME
- DIMINISHED 3RD
- CHROMATIC SEMITONE
- DIMINISHED 3RD
- CHROMATIC SEMITONE

(b) T-levels in "III":

<table>
<thead>
<tr>
<th>MEASURE:</th>
<th>[1]</th>
<th>[2]</th>
<th>[3]</th>
<th>[4]</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-LEVEL:</td>
<td>0</td>
<td>5</td>
<td>8</td>
<td>3</td>
</tr>
</tbody>
</table>

- DIMINISHED 3RD
- CHROMATIC SEMITONE
- DIMINISHED 3RD
- CHROMATIC SEMITONE
Example 2-9 continued.

Note: Boxed pitches are those elements (e.g., "9", "10", "11") not occurring with every T-level, and bracketed in Perle's "set". Elements missing from a T-level are indicated by a gap in the scale and a bracketed element number above the staff. Pitches that are added to the T-level are included in the scale with brackets. Finally, pitches that are enharmonically named in the music, as to the ICC at T-O, are included in the scale with the name (based on the ICC) above or below as a bracketed solid notehead.

Thus the musical orthography strongly suggests that a single ICC is the source for the PC collections of "III". (Hence, Gojowy's observations to the contrary are discussed in Appendix B.) Some variations shown in Ex. 2-8a cannot be adequately explained as forms of any of the suggested ICCs. For example, the initial collection of m. 3 (T-1) includes elements "11" (G) and "3" (B); Gojowy designates this PCC as "irregular."
These additional elements can be thought of as belonging to the second T-1 harmony in m. 3 (Ex. 2-10).

Example 2-10. PC collections, m. 3.

This second T-1 collection of m. 3 is transposed at T-4 (m. 3), and T-7 and T-0 (m. 4). Perle in fact cites these PC collections as evidence that Roslavets consistently omits specific elements (in this case, elements “3” and “11”) to produce variant T-levels.** Similar to the omitted B (element “3”) of the second T-1 harmony, m. 3, and its occurrence in the preceding (T-1) harmony, element “3” PCs, omitted from T-4 (D, m. 3), T-7 (F, m. 4), and T-0 (Bb, m. 4), are found in preceding harmonies (Ex. 2-11).
Example 2-11. Element "3" in mm. 3-4.

As indicated earlier, the texture of m. 4 is strongly reminiscent of mm. 6-8 in "I" where the three T-levels (T-0, T-2, and T-7), embodying a multiple transposition of a melodic-harmonic figure, are each subdivided into three separate "subset" harmonies.

Finally, Ex. 2-12 demonstrates that the second PC collection of m. 12 (T-0) is a modified inversion of that of T-0.
Example 2-12. T-0 collection, m. 12, as an inversion of ICC at T-0.

![Musical notation](image)

PCs: Db - Eb - Gb - G - Bbb - Bb - B - Db

INTERVAL: 2 3 1 2 1 1 2

 ICC AT T-0

PCs: Db - BB - E - F - G - Gb - Bb - B - Db

INTERVAL: 2 1 1 2 1 2 1 2

Ultimately, the ICC indicated by Perle proves to be most useful as the unbracketed elements occur in at least 80% of the T-levels of "III", and the bracketed elements less often. Element "2" occurs only once and is logically not included in the PCC, although element "11" might as well have been excluded too as it occurs only twice in the entire piece.

Two-thirds of occurrences of these variant elements in "III" are decorative or otherwise structurally less significant pitches (i.e., occurring as inner-voice pitches, and/or having short durations). Hence, there is a relationship, although not altogether consistent, between element occurrence and the function or relative structural importance of the variant element.

With the ICCs established, the groundwork has been laid for the subsequent discussion of harmonic successions and the associated T-levels. 27
Harmonic Successions
and Successions of Transposition-Levels

The study of harmonic successions in *Trois Compositions* involves, to a large extent, the study of successions of T-levels. As has been explained, the PC content of a single harmony in a given piece is, with some exceptions, ultimately based on the PC content of one T-level of the ICC associated with that piece. This study will initially be concerned with transpositional relationships of adjacent T-levels in a harmonic succession, and transpositional cycles which form the basis of many such adjacencies in *Trois Compositions*. This section and the one succeeding it will tentatively establish which T-levels are harmonically significant in the pieces.

Transpositional Relationships of Adjacent T-Levels

One of the characteristics of harmonic successions in *Trois Compositions* involves the transpositional relationships of adjacent T-levels and the frequencies of occurrence of such relationships (Fig. 2-1).
Figure 2-1. Transpositional relationships between successive T-levels in "I", "II", and "III".

(a) T-levels and IC relationships:

"I"

MEASURE: 1 2 3 4 5 6 7 8 9 10
T-LEVEL: 0 - 3 - 10 1 - 4 7 - 10 - 4 11 - 9 - 2 5 11 - 0 11 - 2 7 3 - 6
PC
INTERVALS: 3 7 3 3 3 6 7 10 5 3 6 1 11 3 5 8 3
IC: 3 5 3 3 3 6 5 2 5 3 6 1 1 3 5 4 3

10 11 12 13
6 - 3 - 6 - 9 - 4 - 9 0
9 3 7 5 3
3 3 5 5 3

"II"

MEASURE: 1 2 3 4 5 6 7 8 9
T-LEVEL: 0 - 5 8 - 1 10 - 3 10 - 3 6 - 9 2 - 5 10 - 3 8 - 11 - 4 7
PC
INTERVALS: 5 3 5 9 5 7 5 3 3 5 3 5 5 3 5 3 5 3
IC: 5 3 5 3 5 5 3 3 5 3 5 5 3 5 3 5 3 5 3

9 10 11 12 13 14 15
7 0 - 5 0 - 5 0 0
5 5 7 5 7 0
5 5 5 5 5 0

"III"

MEASURE: 1 2 3 4 5,6 7 8 9 10,11
T-LEVEL: 0 - 5 8 - 3 - 7 - 10 1 - 1 - 4 7 - 0 - 5 8 11 2 - 6 9 2
PC
INTERVALS: 5 3 7 4 3 3 0 3 3 5 5 3 3 3 4 3 5
IC: 5 3 5 4 3 3 0 3 3 5 5 3 3 3 4 3 5

10,11 12 13 14,15
2 - 5 - 0 5 - 0 - 4 - 7 0
3 7 5 7 4 3 5
3 5 5 5 4 3 5
The IC relationships of adjacent T-levels occurring most frequently are ICs 3 and 5, which Gojowy identifies as characteristic of many harmonic successions in Roslavets’s works.

In the succession of transpositional levels, definite regularities can be observed. The chromatic progression is definitely avoided, but, on the other hand, progressions by minor thirds are frequent, as are those by fourths and fifths.  

Transpositional Cycles of T-Levels

Not only are adjacent T-levels usually related by IC 3 or 5, but there often appears a succession of several T-levels in which adjacent T-levels are related exclusively by one of these ICs, frequently ascending. For example, in "I", mm. 1-3 (see Fig. 2-1a), the T-level succession T-10, T-1, T-4, T-7, T-10 exclusively involves an ascending IC 3. Where T-x is followed by T-x+3, T-x+6, T-x+9, T-x+0, and so on (e.g., T-10, T-1, T-4, T-7, T-10), such a succession will be termed a T-level cycle,
specifically a PC-interval 3 cycle (or interval 3 cycle). There are in fact three interval 3 cycles: T-0, T-3, T-6, and T-9 (cycle 3-0); T-1, T-4, T-7, and T-10 (cycle 3-1); and T-2, T-5, T-8, and T-11 (cycle 3-2). The interval 5 cycle involves: T-0, T-5, T-10, T-3, T-8, T-1, T-6, T-11, T-4, T-9, T-2, and T-7.

Such cycles of T-levels are the basis of harmonic successions in the pieces. Oftentimes, however, only a few T-levels of a cycle are used before a transference to another cycle or components thereof. In some instances, a single T-level of one cycle is interpolated with T-levels of another cycle. Moreover, a T-level of a cycle (especially an interval 3 cycle) may occur out of order with respect to other members of the cycle.

"I". Figure 2-2a presents the T-level successions of "I", illustrating the T-level components belonging to each interval 3 cycle, while Fig. 2-2b illustrates the relationship of these cycles to the interval 5 cycle.
Figure 2-2. T-level successions of "I" and IC cycles.

(a) Interval 3 cycles and T-levels belonging to each, with underlying balanced pattern of succession:

<table>
<thead>
<tr>
<th>MEASURE</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>10</th>
<th>11</th>
<th>12</th>
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<tbody>
<tr>
<td>T-LEVEL</td>
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<td></td>
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</tr>
<tr>
<td>CYCLES</td>
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</tr>
<tr>
<td>3-0:</td>
<td>0--3</td>
<td>9</td>
<td>0</td>
<td>3--6--3--6--9--9--0</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-1:</td>
<td>10--1--4--7--10--4</td>
<td>7</td>
<td>4</td>
<td></td>
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<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>3-2:</td>
<td>11--2--5--11--11--2</td>
<td></td>
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</tbody>
</table>

```
3-0: \\
3-1: \\
3-2: \\
```

(b) Ascending interval 5 cycle of T-levels, with T-levels of "I" derived from this cycle and the interval 3 cycles (indicated in brackets on the left):

<table>
<thead>
<tr>
<th>INTERVAL 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>CYCLE: G-5-10-3-8-1-6-11-4-9-2-7-0-5-10-3-8-1-6-11-4-9-2-7-0</td>
</tr>
<tr>
<td>MEASURE:</td>
</tr>
<tr>
<td>T-LEVEL:</td>
</tr>
<tr>
<td>(3-0):</td>
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<tr>
<td>(3-1):</td>
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<td>(3-2):</td>
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<td>MEASURE:</td>
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<td>T-LEVEL:</td>
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<td>MEASURE:</td>
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<td>T-LEVEL:</td>
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<td>(3-0):</td>
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<tr>
<td>MEASURE:</td>
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<tr>
<td>T-LEVEL:</td>
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<td>(3-0):</td>
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<td>(3-1):</td>
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<td>(3-2):</td>
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<tr>
<td>MEASURE:</td>
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<tr>
<td>T-LEVEL:</td>
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<tr>
<td>(3-0):</td>
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<tr>
<td>(3-1):</td>
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<tr>
<td>(3-2):</td>
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<tr>
<td>MEASURE:</td>
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<td>T-LEVEL:</td>
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<td>(3-0):</td>
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<td>(3-1):</td>
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<td>(3-2):</td>
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<tr>
<td>MEASURE:</td>
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<td>T-LEVEL:</td>
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<td>(3-0):</td>
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<td>(3-1):</td>
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<td>T-LEVEL:</td>
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<td>(3-0):</td>
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<tr>
<td>(3-1):</td>
</tr>
<tr>
<td>(3-2):</td>
</tr>
</tbody>
</table>
Note: The T-level succession of "I" is indicated by following the horizontal dash line from left to right and continuing on the following line.

In Fig. 2-2a, T-level successions are shown with components of the interval 3 cycles on separate lines. The transference from one interval 3 cycle to another is apparently based on a "balanced" (rather than a purely symmetrical) pattern of cycle appearance. The progression from cycle 3-0 (m. 1) to 3-1 (mm. 1-3) to 3-2 (mm. 4-7) and finally back to 3-0 (mm. 10-13) is not fully balanced unless one interprets T-7 (m. 8) and T-4 (m. 12) as references to the 3-1 cycle, of which these two T-levels are components. This 3-1 cycle occurs before the final 3-0 cycle (mm. 10-13). Such a progression of interval 3 T-level cycles is then the underlying balanced structure upon which the harmonic organization of "I" is based in part. The 3-0 cycle (with components in mm. 1 and 10-13) acts as the framework for the T-level successions of the piece, with the initial T-0,T-3 succession (m. 1) being completed in mm. 10-13 (the recapitulation) with T-3,T-6,T-9,T-0. The two other interval 3 cycles, 3-1 and 3-2, involve most of the other T-levels, and are in some degree associated with the piece's development. The central 3-2 cycle (mm. 4-7) coincides with the approximate midpoint of "I".

The three interval 3 cycles are components of the interval 5 cycle whereby each interval 3 cycle T-level (e.g., T-0, T-3, T-6, and T-9 of the 3-0 cycle) appears at a regular interval in the interval 5 cycle; in other words, every third component (see the top of Fig. 2-2b). One can thus relate the interval 3 cycles, whose components are isolated on separate lines in Fig.
2-2b, to the all-inclusive interval 5 cycle. The interval 5 cycle apparently controls the sequence of T-levels or, more specifically, the transference from one interval 3 cycle to another. The interval 5 cycle, in conjunction with the interval 3 cycles, is also the basis for some incompatible interpolations (e.g., T-9, m. 4, and T-4, m. 12, among others).

The initial T-0,T-3 (cycle 3-0, m. 1) transfers to the 3-1 cycle (mm. 1-3) by moving one T-level back on the interval 5 cycle (T-3 to T-10, m. 1). (Note the vertical dotted line in Fig. 2-2b connecting the T-level ending one horizontal line to that beginning another horizontal line. For ease of viewing, additional vertical dotted lines beginning at the top of Fig. 2-2b connect the interval 5 cycle to the aforementioned interpolated T-levels.) Once the 3-1 cycle is completed with T-4 (m. 3), there is a transference to the 3-2 cycle (mm. 4-7), also by moving back one T-level on the interval 5 cycle. Similarly, the interpolating T-4 level in m. 12 (i.e., component of the 3-1 cycle interpolated in the 3-0 cycle of mm. 10-13) is derived from the interval 5 cycle through a reversal in direction in the cycle's order. Another interpolated T-level, T-9 in m. 4 (i.e., component of the 3-0 cycle interpolated in the 3-2 cycle of mm. 4-7), is likewise explained by a similar procedure. In other words, such transferences and interpolations involve interval 7 relationships between the T-levels in question. The other significant T-level succession not explained by interval 3 cycles, the T-0,T-2,T-7 sequence (mm. 6-8), is based in part on a rotation of the T-2,T-7,T-0 portion of the interval 5 cycle.
In conclusion, the interval 5 cycle—in conjunction with
the interval 3 cycles—would appear to be the basis of most
successions in "I", especially the aspects of transference and
interpolation.

"II". The T-level successions of "II" are based on the in-
terval 5 cycle. Figure 2-3 shows the cycle is modified, how­
ever, because certain T-levels are omitted, and inserted else­
where in the piece. These transferred T-level successions are
labelled as A, B, C, and D in Fig. 2-3.

Figure 2-3. T-level successions of "II" and the interval 5
cycle.

```
MEASURE: 1  2  3-4  5  6  7  8  9  10-13
T-LEVEL: 0--5  8--1--10--3--6  --9--2--5--10--3--8--11--4--7--0--5--0
       C....  B..........  D....  A....

INTERVAL A...  C....  D....
  5  0--5--10--3--8--1  -6--11--4--9--2  --7--0
CYCLE:  B..........  
```

T-level succession C (T-10,T-3) and D (T-11,T-4) involve
interval 5 cycle components out of sequence. Successions B
(T-5,T-10,T-3,T-8, mm. 6-8) and A (T-0,T-5, mm. 10-12) are reca­
pitulations of earlier successions; A recapitulates the initial
succession of "II" following the completion of the interval 5
cycle. B would also seem to have some formal significance as it
occurs in the development, beginning with the harmony associated
with the melodic climax point of the piece.
"III". Figure 2-4 presents the T-level successions of "III" and the T-level cycles that are components thereof.

Figure 2-4. T-level successions of "III" and the T-level cycles.

(a) Surface successions:

<table>
<thead>
<tr>
<th>MEASURE: 1</th>
<th>3</th>
<th>4</th>
<th>5-6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10-11</th>
<th>12</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-LEVEL: 0--5--8--3--7--10--1--4--7--0--5--8--11--2--(6-9)--12--5--10--5</td>
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<td>CYCLES:</td>
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<tr>
<td>INTERVAL 5</td>
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<tr>
<td>INTERVAL 5</td>
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</tbody>
</table>

(b) Underlying symmetrical T-level structure of "III":

<table>
<thead>
<tr>
<th>MEASURE: 1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5,6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-LEVEL: 0--5--8--3--7--10--1--4--7--0--5</td>
<td>8</td>
<td>11</td>
<td>2--6</td>
<td>9</td>
<td>2</td>
<td>5--0</td>
<td>5--0--4--7</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

0(5)--7--7--0--5--5--5--5--5--5--7 | 0 |

3-1 | INTERVAL 5 | 3-2 |

The T-level successions of mm. 2, 8-10, and 13-15 (shown on the left side of Fig. 2-4a) are related in part through transposition as the dotted vertical lines suggest. Harmonic-melodic figurations in mm. 1-2 are transposed with modifications in mm. 12-13, while the final two phrases (mm. 8-11 and 12-15) cadence on transpositions of the same arpeggiated figuration. The other T-level successions involve cycles 3-1 (mm. 2-4) and 3-2 (mm. 4-13), connected in m. 4 by an interval 5 cycle segment (T-7, T-0, T-5). The complete 3-0 cycle does not occur in adjacent T-levels as do the other IC-3 cycles.

In a sense, cycles initiated by T-7 in mm. 2-4 and T-5 in
mm. 4-13 involve prolongations of these T-levels. In this context, prolongation refers to a situation whereby a T-level is reiterated, with a limited number of other T-levels between the initial occurrence and the reiteration. Invariance of the reiterated T-level’s PCs through the intervening T-level(s)—especially in the form of pitch continuity—facilitates the perception of T-level prolongation. Particularly when the intervening T-levels are related to the reiterated T-level and to each other by ICs 3 or 5, there is a greater incidence of PC invariance. Such PC invariance in IC-3-related T-levels or, more specifically, in T-levels of an interval 3 cycle, will be examined in a later section of this chapter; a discussion of prolongation is to be found in Appendix B. Hence, there is a simpler symmetrical structure involving T-0, T-5, and T-7 underlying the T-level successions (Fig. 2-4b). T-5 and T-7 are symmetrically related to T-0 (i.e., interval 5 above and below).

Because of this symmetrical structure, m. 4 is an apparent focal point of the piece. Surface features such as the octave ascent in the melody and inner voices contribute to this measure’s significance. Similarly, mm. 6-8 in "I" appear to be a focal point of that piece, aside from melodic, harmonic, rhythmic, textural, and formal reasons. The harmonic successions of "I", like those of "III", are generally based on interval 3 T-level cycles with the exception of mm. 6-8, where the interval 5 cycle segment (i.e., T-0,T-2,T-7) occurs. The fact that T-0 follows, rather than precedes, T-2,T-7 in the interval 5 cycle does not diminish the significance of the cycle’s appearance.
Moreover, both mm. 6-8 in "I" and m. 4 in "III" involve the subdivision of T-level PCs of three successive T-levels each into three distinct, subset harmonies, with the multiple transposition of the initial three-harmony figuration in each case. This similarity also reinforces the overall similarities of these measures and their function in the respective pieces.

Based on this preliminary study of harmonic and T-level successions, one can say that "II" and especially "III" involve a tighter control of harmonic organization than "I" because of this greater reliance on interval 3 and 5 cycles as bases for successions. This limitation of harmonic successions to certain formulae is a distinctive characteristic of Roslavets's compositional technique.

T-Level Occurrences and Their Rhythmic Characteristics:
Towards a Hierarchy of T-levels

The analytical examples indicate that certain T-levels occur more frequently than others. This suggests that certain T-levels are more significant in the harmonic structure of the pieces, so that there is in fact a hierarchy of T-levels. Such a hierarchy might be based not only on T-level frequency of occurrence but also on the total time-spans allotted to individual T-levels throughout each piece, and on the location of T-levels in relationship to formally significant time-points. This hierarchy itself suggests a form of tonality since tonality involves in part "the hierarchic ordering of PC factors" whereby "pitch content is perceived as functionally related to a specific
pitch-class or pitch-class-complex of resolution."^32 These different aspects of T-level occurrence, which essentially concern T-level rhythmic characteristics, are examined in this section to infer such a hierarchy of T-levels. To begin, the harmonic rhythm of T-levels in the three pieces is individually analyzed.

**Harmonic rhythm of "I".** Example 2-13a presents the harmonic rhythms of T-levels in "I" with the time-spans of each T-level indicated by durational notation independent of pitch. A chart indicating the form of "I" is also included (Ex. 2-13b), for the purpose of analyzing T-level location in relation to formally important time-points.

Example 2-13. Harmonic rhythm and form of "I".

(a) Harmonic rhythm of "I":

<table>
<thead>
<tr>
<th>MEASURE:</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
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<tbody>
<tr>
<td>T-LEVEL:</td>
<td>0</td>
<td>3</td>
<td>10</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>10</td>
</tr>
</tbody>
</table>

**DURATION OF T-LEVEL:**

```

RHYTHM OF SUBSET HARMONY:
```

<table>
<thead>
<tr>
<th>MEASURE:</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
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<tr>
<td>T-LEVEL:</td>
<td>7</td>
<td>3</td>
<td>6</td>
<td>3</td>
<td>6</td>
<td>9</td>
</tr>
</tbody>
</table>

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RHYTHM OF SUBSET HARMONY:
```
(b) Form of "I" (modified recapitulative ternary form):

[A]: exposition

mm. 1-3 1st phrase
m. 1 [c]  
m. 2 [c]...mm. 1 and 2 ([c]-extension) have 4 modifications of initial motive, m. 1  
m. 3 [d]...cadence (with elision, into m. 4)

mm. 4-5 2nd phrase
m. 4 [c']...initial figuration transposition of initial figuration, m. 1; followed by repetition of another modification (arpeggiation) of initial motive  
m. 5 [e]...cadence (with elision, into m. 6); 3-2 T-level cycle components in mm. 4-7 might suggest mm. 4-5 as beginning of development

[B]: development/new material

mm. 6-9 3rd phrase
m. 6 [f-g]  
m. 7 [f'-g']. initial figuration, m. 6, repeated with modifications in m. 7  
m. 8 [g'']...modified transposition of [g], m. 6 in mm. 7 and 8; abrupt cadence, m. 9 with rest

[A']: modified recapitulation

mm. 10-13 4th phrase
m. 10 [c'']  
m. 11 [c'']...mm. 10-11 modified (arpeggiated) transposition of m. 2 figurations  
m. 12 [c'']...modified [c'']  
m. 13 [c'']...cadence; mm. 10-13 have limited similarities with mm. 1-3

In mm. 3-4 and 8-9 (Ex. 2-13a), there are bracketed rhythms above the staff that indicate the time-spans of harmonies (i.e., T-4 and T-7, respectively) including rests which follow. Partially because of the irregularity produced in the harmonic rhythm by such rests and the sense of deceleration, the T-4 and T-7 harmonies (mm. 3-4 and 8-9 respectively) delinate phrases.
The harmonic rhythms of T-level successions in "I" play an important role in delineating form. For one thing, variances in the time-spans of harmonies concur with apparent formal divisions. In mm. 1-5 (the initial "A" section of the ternary form), the most common and shortest time-span of the individual harmonies is the quarter value, with longer half- and dotted-half values found at phrase beginnings and in m. 5, the final measure of this section. Measures 10-13 are similar, with quarter-value harmonic rhythm and the dotted-half-value in m. 13.

In contrast, the harmonic rhythm of mm. 6-9 is more complex. If one defines the harmony in terms of the T-levels (both basic and expanded), the most common and shortest T-level time-span of mm. 6-9 is the dotted-eighth value. This indicates a deceleration in the harmonic rhythm between mm. 1-5 and mm. 6-9, and a consequent acceleration (mm. 6-9 to mm. 10-13). On the other hand, if the rhythm of the subset harmonies is taken into consideration, then the most common and shortest T-level time-span of mm. 6-9 is the eighth-value, which indicates an acceleration and consequent deceleration involving mm. 1-5, 6-9, and 10-13, respectively. However one perceives harmonic rhythm in mm. 6-9, the acceleration and/or deceleration concurs with changes in other musical parameters (e.g., the compound rhythm, and meter) in these measures.

*Harmonic rhythm in "II".* Example 2-14 presents the harmonic rhythm and form of "II".
Example 2-14. Harmonic rhythm and form of "II".

(a) Harmonic rhythm of "II":

<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
<th>2</th>
<th>3,4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-Level</td>
<td>0</td>
<td>5</td>
<td>8</td>
<td>1</td>
<td>10</td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measure</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-Level</td>
<td>7</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

Duration of T-Level:

(b) Form of "II" (recapitulative ternary form):

[A]: exposition

mm. 1-5 1st phrase
mm. 1-2 [c]
mm. 3-5 [c']...two-pitch motive with arpeggiated harmony repeated in mm. 1-4; 2nd sub-phrase unit [c'] has repeated T-level succession (T-10,T-3, mm. 3-4), extended by repetition of mm. 4, melodic figure in m. 5; continuation into [B] without cadence (unless in m. 6, T-2,T-5)

[B] development/new material

mm. 6-9 2nd phrase
m. 6 [d]
m. 7 [d']
mm. 8-9 [d']...cadence-like figuration with simultaneities repeated in transposition in mm. 6-8; extension with cadence in mm. 8-9
Example 2-14b continued.

[A'] recapitulation

mm. 10-14 3rd phrase
  mm. 10-12 [c].m. 1 progression repeated
  m. 13 [d’]...transposed simultaneity from [B]
    for final cadence chord

What differentiates "II" from "I" and "III", among other things, is the regularity of harmonic change through much of the piece, namely the common quarter-value time-span of most harmonies. The only irregularities occur in mm. 9 and 11-14 (Ex. 2-14) because of rests following the harmonies, again interpreted as silences through which harmonic perceptions continue. In these measures, rhythmic deceleration, a factor in cadence, results. Unlike the difference in the harmonic rhythm of mm. 6-9 in "I" (i.e., another indicator of the ternary form), the harmonic rhythm of "II" is generally regular and thus not a factor in the perception of the formal distinction of mm. 6-9.

Harmonic rhythm of "III". Example 2-15 presents the harmonic rhythm and form of "III".
Example 2-15. Harmonic rhythm and form of "III".

(a) Harmonic rhythm, with time-spans of harmonies given below:

<table>
<thead>
<tr>
<th>MEASURE</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-LEVEL</td>
<td>0</td>
<td>5</td>
<td>8</td>
<td>3</td>
<td>7</td>
<td>10</td>
<td>1</td>
</tr>
</tbody>
</table>

DURATION
OF T-LEVELS:

T-Spans: (1) 5 6 4 2 4 2 10 2 4 3 5 19 17

(b) Form of "III":

[A]: exposition

mm. 1-2 1st phrase
m. 1 [c]
m. 2 [d] ......... continuation into m. 3, with no cadence

mm. 3-6 2nd phrase
(continuation of exposition with new material)

m. 3 [e] ........ initial figuration has limited similarities with initial figuration, m. 1
m. 4 [f] ......... climaxing action, consisting of two-fold modified transposition of three-harmony figuration

mm. 5-6 [g] ......... highpoint or cadence of climaxing action of m. 4
m. 7 [h] ......... bridge to "B"
Example 2-15 continued.

[B]: development/new material

mm. 8-11 3rd phrase
  m. 8 [i]
  m. 9 [i']........modified repetition of 2nd
  figuration, m. 8
  mm. 10-11 [j]....cadence

[A']: modified recapitulation

mm. 12-15 4th phrase
  m. 12 [c'].......modified transposition of m. 1
  m. 13 [d'].......modified transposition of m. 2
  mm. 14-15 [j']...transposition of mm. 10-11

The harmonic rhythm in "III" varies constantly, in contrast
to the consistent harmonic rhythm of "I" and "II". Moreover,
the initial time-points of some harmonies do not coincide with
the notated barline, examples of such being T-0 (m. 1), T-5 (m. 4), T-11 (m. 7), T-5 (m. 12), and T-0 (m. 14).

Up to m. 5 there are relatively short harmonic durations,
except for T-1 (m. 3), which is significant as it coincides with
an apparent phrase beginning. Measures 5-7 represent a rela-
tively sudden deceleration in the harmonic rhythm, after which
there is some degree of acceleration with m. 8, and another pe-
riod of deceleration with mm. 9-11. The recapitulation (mm. 12-
13) represents an acceleration, with shorter harmonic durations,
followed by a final deceleration at the cadence (mm. 14-15).

There are certain relationships between harmonic rhythm and
form in "III". Some single T-levels of longer duration coincide
with, or occur in close proximity to, cadences or formally im-
portant time-points: T-8 (mm. 5-6); T-11 (m. 7), a melodic
"bridge" to the resumption of harmonic activity in m. 8; T-2
(mm. 10-11), preceding the modified recapitulation of mm. 1-2 in mm. 12-13; and T-0 (mm. 14-15), the final measures and exact transposition of T-2 harmony (mm. 10-11). The longer durations, and the sense of deceleration produced thereby, contribute to the effect of cadence. Interestingly, each of the four aforementioned time-spans is approximately nine eighth values in duration.

Hierarchy of T-levels

Figure 2-5 presents a hierarchy of T-levels in the individual pieces and in *Trois Compositions* as a whole, based on frequency of occurrence and total time-spans. In Fig. 2-5c, the T-level hierarchies for the individual pieces (Fig. 2-5a and 2-5b) are combined by averaging.33

Figure 2-5. Hierarchy of T-levels based on frequency of occurrence and total time-spans.

(a) Hierarchy of T-levels from most significant to least based on frequency of occurrence:

**Descending Hierarchic Order, Left to Right**

"I": 0 2 / 3 / 4 / 7 / 9 / 11 6 / 10 (1 / 5; no 8)

"II": 0 5 3 / 10 8 (1 / 2 / 4 / 6 / 7 / 9 / 11)

"III": 0 5 7 2 / 4 / 8 (1 / 3 / 6 / 9 / 10 / 11)

"I"-"III": 0 5 3 / 7 2 / 4 / 10 9 / 11 6 / 8 1
Figure 2-5 continued.

(b) Hierarchy of T-levels based on total time-spans:

"I": 0 11 4/7 3/5/9 2 6/10 1

"II": 0 5 3/10 8 7 1/2/4/6/9/11

"III": 0 8 2/5 11 9 1/7 4/6 3/10

"I"-"III": 0 5 11 2 8 7 9 3 4 10 1/6

(c) Hierarchy of T-levels based on combination of (a) and (b), above:

"I": 0 11 4/7 3/9 2 5 6/10 1

"II": 0 5 3/10 8 7 1/2/4/6/9/11

"III": 0 5 8 2 7 4 11 9 1 6 3/10

"I"-"III": 0 5 7 2 3/11 4 8/9 10 1 6

Note: In (a), T-levels indicated in brackets are those that occur only once. The solidus separates two or more T-levels which are determined to have the same degree of significance, based on frequency of occurrence and total time-span.

T-O is most important in all three pieces, based on occurrence and total time-span, and because it is the first and final T-level of the individual pieces. This strongly suggests that it functions as a referential sonority, or "tonic," in each piece. In "II" and "III", and overall in the pieces, T-5 is the second most important T-level, while in "I", T-11 is the most important T-level after T-O. While T-5 and T-11 frequently occur with T-0 in T-level successions in the respective pieces at formally significant time-points, it is difficult to make analogies with conventional tonality and its hierarchy of chords, especially tonic and dominant chords. Perhaps the function of T-5 and T-11 with respect to T-0 is best described as auxiliary, es-
especially when the former occur between reiterations of T-0. Certain conventional tonal implications of these T-level hierarchies are, however, explored in Chapter Three.

T-levels that are significant due to their roles in specific IC cycles are also significant in the hierarchies illustrated in Fig. 2-5. For example, in "I", T-11 (m. 4) is the initial 3-2 cycle T-level, and T-3 (m. 10) initiates the resumption of the 3-0 cycle. In "II", T-10 and T-3, which occur in mm. 3, 4, and 7, are the first T-levels out of the interval 5 cycle. In "III", T-0, T-5, and T-7 are important in the underlying symmetrical structure which is centered at m. 4.

T-level significance, besides being determined by frequency of occurrence and total time-span, is also suggested by occurrence in relation to formally important time-points. On occasion, the reiteration of a particular T-level will coincide with another formally important time-point. Such T-level occurrences at formally important time-points are examined below in the individual pieces.

T-level Occurrences and Their Relationships to Form

"I". In addition to reasons cited above, T-0 is more significant because of its occurrences in the first and final formal sections, which help to delineate the recapitulative ternary form of "I". Perle notes the relationship of T-level recurrence to form: "The larger formal implications of controlled transpositional relations are realized to a limited extent in . . . the derivation of the concluding bars of the first piece from trans-
positions of the set that are closely related in PC content to the original statement of the set.\textsuperscript{34} In addition, T-0 occurs in m. 6, at the approximate midpoint of "I". T-11 initiates the second phrase (mm. 4-5) with an exact pitch transposition of the T-0 harmony (m. 1), and initiates the middle section (m. 6), and recurs within it (m. 7).\textsuperscript{35} Interestingly, the T-11,T-0,T-11 succession (mm. 6-7), employing the two most significant T-levels in "I", occurs in the middle formal section, and strongly implies two conventional tonalities, which are discussed in more detail in Chapter Three.

T-4, T-5, and T-7 are used to terminate the first, second, and third phrases, respectively. T-3, which succeeds T-0 (m. 1), initiates the recapitulation and recurs in it, in m. 11. Other T-levels which recur in similar situations are T-2 (mm. 4 and 7), as part of cadential harmonic successions, and T-4 (mm. 2 and 12), decorating or connecting more important T-levels in cyclic progressions. Hence, T-0, T-11, and, to a lesser extent, T-3, T-4, T-5, and T-7 can be considered to be the most significant T-levels in "I" both because of their positions within the T-level hierarchies (Fig. 2-5) and because of their locations in relation to the piece's form.

"II". There are a few points of interest concerning the relationship of T-levels to form. First, the T-0,T-5 succession (mm. 1 and 10-12) is one indicator of the recapitulative ternary form. Interestingly, the only other occurrence of T-5 takes place in m. 6 (T-2,T-5), the first measure of the middle sec-
tion, with the T-2 sonority containing the highest melodic pitch of the piece. Another succession of interest is T-10, T-3 (mm. 3, 4, and 7), occurring in both the first and middle formal sections, although neither T-level occurs elsewhere in "II". Surface features of the three occurrences betray no similarity (other than the PC content of the harmonies), so that there is no readily perceivable connection between the two formal sections due to this recurrence. Finally, the only occurrence of T-7 (m. 9) concludes the middle section (mm. 6-9), like that of "I" (T-7, m. 8), and precedes the recapitulation (mm. 10-13) and its T-0, T-5, T-0 successions.

"III". T-0 and T-5, which appear together in a number of harmonic successions in "III", occur at formally important time-points: m. 1, the first succession; m. 4, a focal point in the first part of "III", preceding the harmonic "repose" of mm. 5-7; and mm. 12-13, the modified recapitulation of mm. 1-2. The coincidence of these T-levels with such time-points is quite similar to that in "II", where T-0, T-5 begins the piece and is used in the recapitulation. (Of course, there are the formal implications of T-0's appearance as the first and final T-level of "III", which Perle has noted.)

Associated with recurrences of the T-0, T-5 T-level succession are three other T-levels: T-4, T-7, and T-8. T-0, T-5, T-8 occurs in both mm. 1-2 and 4-6, the beginning and end of the first formal section. T-4, T-7, T-0 occurs in mm. 3-4, in connection with the approach to the harmonic repose of mm. 5-7, and
also occurs in mm. 13-15, the final cadence. T-4, T-7, and T-8 function as T-levels either following or preceding T-0 and/or T-5, generally with adjacent T-levels related by ICs 3 or 5. One other T-level of significance is T-2, which initiates and concludes the first phrase of section "B" (mm. 8-11) of the ternary form of "III".

In general, T-levels that are more significant, based on the hierarchies presented in Fig. 2-5, usually appear at formally important time-points.

Recurrent Harmonic Successions

Components of the three interval 3 cycles and the interval 5 cycle of T-level successions recur, some with more frequency than others, and some in two or three pieces (Fig. 2-6).
Figure 2-6. Recurring T-level successions in *Trois Compositions*.

(a) Frequently occurring T-level successions, with the number of occurrences:

<table>
<thead>
<tr>
<th>T-level successions</th>
<th>IC</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-0,T-5</td>
<td>5-3</td>
<td>&quot;II&quot;</td>
</tr>
<tr>
<td>T-5,T-4</td>
<td>3-5</td>
<td>&quot;III&quot;</td>
</tr>
<tr>
<td>T-4,T-2</td>
<td>3-5</td>
<td>&quot;II&quot;</td>
</tr>
<tr>
<td>T-5,T-8</td>
<td>5-55-5-5</td>
<td>&quot;II&quot;</td>
</tr>
<tr>
<td>T-2,T-9</td>
<td>10-12</td>
<td>&quot;II&quot;</td>
</tr>
<tr>
<td>T-6,T-4</td>
<td>8-10</td>
<td>&quot;II&quot;</td>
</tr>
<tr>
<td>T-7,T-9</td>
<td>13-15</td>
<td>&quot;II&quot;</td>
</tr>
<tr>
<td>T-10,T-3</td>
<td>3-4</td>
<td>&quot;II&quot;</td>
</tr>
</tbody>
</table>

(b) Multiple T-level successions:

<table>
<thead>
<tr>
<th>Successions</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-0,T-5,T-8</td>
<td>1-2</td>
</tr>
<tr>
<td>T-5,T-0,T-5</td>
<td>4-5</td>
</tr>
<tr>
<td>T-4,T-7,T-0</td>
<td>3-5,8-10</td>
</tr>
<tr>
<td>T-5,T-8,T-4</td>
<td>3-4</td>
</tr>
<tr>
<td>T-6,T-9,T-3</td>
<td>13-15</td>
</tr>
<tr>
<td>T-7,T-0,T-5</td>
<td>3-5-5,8-10</td>
</tr>
<tr>
<td>T-9,T-2,T-3</td>
<td>3-4,10</td>
</tr>
<tr>
<td>T-10,T-3,T-1</td>
<td>3-4</td>
</tr>
</tbody>
</table>

(c) Recurring T-level successions of two and more T-levels:

"I"

<table>
<thead>
<tr>
<th>Measure</th>
<th>T-Level</th>
<th>Recurrent</th>
<th>Successions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4</td>
<td>5 6 7 8</td>
<td>10,11 12 13</td>
<td>&quot;---&quot; &quot;-&quot; &quot;---&quot;</td>
</tr>
</tbody>
</table>

"II"

<table>
<thead>
<tr>
<th>Measure</th>
<th>T-Level</th>
<th>Recurrent</th>
<th>Successions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3,4</td>
<td>5 6 7 8</td>
<td>9 10,11 12 13</td>
<td>&quot;---&quot; &quot;-&quot; &quot;---&quot;</td>
</tr>
</tbody>
</table>

Figure 2-6c continued.

"III"

<table>
<thead>
<tr>
<th>MEASURE</th>
<th>T-LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2</td>
<td>3 4 5,6 7,8 9 10 12 13 14</td>
</tr>
<tr>
<td>T-LEVEL:</td>
<td>0-5 8-3-7-10 1-4 7-0-5 8</td>
</tr>
</tbody>
</table>

RECURRENT: 

SUCCESSIONS: 

Note: Recurring T-level successions are indicated above using "*---*", with "*" denoting first and last sonorities of the recurring successions. 

Based on Fig. 2-6a, only 44 of the 144 possible T-level successions involving different combinations of two T-levels are utilized in the three pieces (16 recurrent successions and 28 non-recurrent). Some of these frequently occurring two-T-level successions are components of multiple T-level successions (Fig. 2-6b), all of which have adjacent T-levels related by ICs 3 or 5. Figure 2-6c illustrates the recurrent T-level successions.

Some successions, by virtue of their recurrences at formally important time-points, have certain relationships to the forms of "I", "II", and "III". The succession T-0,T-5,T-8 begins "II" and "III" and occurs in mm. 4-6 of "III" at the conjunction of the interval 5 and the 3-2 cycles (mm. 4-7). Succession T-7,T-0,T-5 occurs both in "II" (mm. 9-10) and "III" (m. 4), although the occurrences differ in function. Similarly, another cyclic succession, T-3,T-6,T-9, occurs in "I" (mm. 10-12) and "II" (mm. 4-5), with each occurrence having a different formal function. As noted earlier, the cyclic succession 3-1 occurs in the first phrases of "I" (mm. 1-3) and "III" (mm. 2-
4). The succession T-9, T-2, T-5 ("I", mm. 4-5) and its variant T-6, T-9, T-2, T-5 ("II", mm. 5-6, and "III", mm. 8-12) recur, coinciding with important junctures: in "I", at the cadence of the form's "A" section; in "II", linking the "A" section, mm. 1-5, to the middle "B" section; and in "III", linking the first phrase and cadence of the "B" section with the recapitulation in m. 12. Finally, there is the alternation of two T-levels involved in the succession T-0, T-5, T-0, T-5 which occurs in "II", mm. 10-14, and "III", mm. 12-13 (mm. 12-15, if interpolated levels are discounted), both of which are concluding successions. Those interpolated levels, T-4, T-7 with T-0 following, previously occurred in mm. 3-4 of "III" and in "II", mm. 8-10 (i.e., T-4, T-7, T-0, T-5).

To complete this study of the ICC system and the T-level successions underlying the harmonic progressions, the next sections of this chapter will examine T-level successions as to PC content, and element occurrence and ordering, respectively.
Characteristics of T-Level Successions as to PC Content

PC Invariance and Pitch Continuity

With six or more PCs per T-level, there are a number of invariant PCs in most T-level successions, and a number of these invariant PCs involve pitch continuity, that is, PC invariance in the same register. The number of invariants in a PCC and a transposition of it depends on the total IC content of the PCC, as indicated by the interval vector. Quite simply, with the interval vector of the ICC of "I" (not including element "10") being [3 3 5 4 4 2], there are three invariants between T-levels related by IC 1, three between IC-2-related T-levels, five between IC-3-related T-levels, four between IC-4-related T-levels, and four between IC-5-related T-levels. In the case of IC-6-related T-levels, the interval vector number for IC 6 (in this case, two) must be multiplied by two in order to determine the number of invariant PCs. Such invariance and continuity can affect one's perception of similarities and differences in harmonic progression.

PC invariance and pitch continuity are examined in Exx. 2-16 and 2-17. In Ex. 2-16, PCs of T-levels of the three pieces, in scale form, are compared on the basis of T-level IC relationships to illustrate differences in the numbers of invariant PCs. Boxes highlight these invariant PCs. Variant elements in each T-level are bracketed, with the implication that their absence in certain harmonic successions in the music will mean possibly fewer invariant PCs in those successions.
Example 2-16. Invariant PCs of IC-1- to IC-6-related T-levels.

"I"

T-0

\begin{align*}
\text{ELEMENT NUMBERS: } & 0 1 4 9 10 0 1 4 8 10 \\
\end{align*}

T-1

\begin{align*}
\text{ELEMENT NUMBERS: } & 0 3 8 9 8 9 0 4 6 \\
\end{align*}

T-2

\begin{align*}
\text{ELEMENT NUMBERS: } & 10 0 1 4 6 8 10 0 1 3 6 8 9 \\
\end{align*}

T-3

\begin{align*}
\text{ELEMENT NUMBERS: } & 0 3 4 6 9 10 0 3 4 6 9 10 \\
\end{align*}

T-4

\begin{align*}
\text{ELEMENT NUMBERS: } & 9 10 0 1 3 6 6 9 10 0 3 4 \\
\end{align*}

T-5

\begin{align*}
\text{ELEMENT NUMBERS: } & 0 1 3 4 6 9 10 0 3 4 6 9 10 \\
\end{align*}

T-6
Example 2-16 continued.

"II"

\begin{align*}
\text{T-0} & \quad \text{T-0} \\
0 & \quad 4 & 9 \\
\text{T-1} & \quad \text{T-4} \\
11 & \quad 3 & 8 \\
\text{T-0} & \quad \text{T-0} \\
0 & \quad 3 & 6 & 8 & 11 \\
\text{T-2} & \quad \text{T-5} \\
11 & \quad 0 & 1 & 4 & 6 & 9 \\
\text{T-0} & \quad \text{T-0} \\
0 & \quad 3 & 4 & 6 & 9 & 11 \\
\text{T-3} & \quad \text{T-6} \\
9 & \quad 0 & 1 & 3 & 6 & 8 & 6 & 9 & 0 & 3
\end{align*}
Example 2-16 continued.

"III"

T-0

T-0

T-1

T-4

T-0

T-0

T-2

T-5

T-0

T-0

T-3

T-6
There may be as few as two and as many as seven PCs common to adjacent harmonies. IC-1-related T-levels in "I" and "II" (which occur very infrequently) usually have only four common PCs, while IC-3- and IC-5-related T-levels (which occur most frequently in all three pieces) have five to seven invariant PCs.

Example 2-17 illustrates PC invariance and pitch continuity in the harmonic successions of the pieces. These harmonic successions are shown on the first of three systems, with pitch continuity highlighted in the second, and PC invariance (involving different registers) isolated in the third, with lines connecting the invariant PCs. A pair of numbers (the first unbracketed, the second bracketed) for every succession indicates the total number of invariant PCs and pitch continuities, respectively.

Following the systems illustrating PC invariance and pitch continuity in a given piece, a graph—based on information presented in the systems—visually illustrates the degree of changing PC content in each succession, with the height of the solid line indicating the number of invariant PCs in each succession. An elevation in the line indicates less similarity because of fewer invariant PCs. In order to account for pitch continuity, an additional half-unit value is assigned to such pitches, based on one unit value per invariant PC as indicated on the left side of the graphs. Dash lines in the graphs illustrate pitch continuity.
Example 2-17. PC invariance and pitch continuity in T-level successions of Trois Compositions.

MEASURE: [1] [2] [3]
T-LEVEL: 0 3 10 1 4 7 10

PITCH COLLECTIONS:

PITCH CONTINUITY:

PC INVARIANCE
(WITHOUT PITCH CONTINUITY):
Example 2-17 continued.
Example 2-17 continued.

Graph of changing PC content in "I":

NUMBER OF INVARIANT PCs

T.: 0 3 10 1 4 7 10 11 9 2 5 11 0 11 2 7 3 6 9 4 9 0
M.: 1 2 3 4 5 6 7 8 10,11 12 13
Example 2-17 continued.

"II"

\[
\begin{array}{ccccc}
0 & 5 & 8 & 1 & 10 & 3 & 10 & 3
\end{array}
\]
Example 2-17 continued.
Example 2-17 continued.

Graph of changing PC content in "II":

NUMBER OF INVARIANT PCs

```
T: 0 5 8 1 10 3 10 3 6 9 2 5 10 3 8 11 4 7 0 5 0 0
N: 1 2 3 4 5 6 7 8 9 10,11 12 13

"III"

[1] [2] [3]
0 5 8 3 7 10 1 1
```

```

5(0) 4(1) 3(2) 3(0) 3(0) 5(0) 7(1)
```
Example 2-17 continued.
Example 2-17 continued.

<table>
<thead>
<tr>
<th>0</th>
<th>4</th>
<th>7</th>
<th>0</th>
</tr>
</thead>
</table>

Graph of changing PC content in "III":

In "I" and "II", IC-3-related T-levels generally have five invariant PCs, while IC-5-related T-levels have four; in "III", there are on average four, and three invariant PCs, respectively. IC-1-, 2-, 4-, and 6-related T-levels which occur infre-
quently in all three pieces generally have fewer invariant PCs (i.e., usually between three and four PCs). When one compares the total number of successions in each piece and the total number of invariant PCs, there are fewer invariant PCs in "III" for the number of harmonic successions, compared with "I" and "II". (There are in total slightly more invariant PCs in successions in "II" than in "I".) In other words, successions of "III" exhibit a greater degree of harmonic change, based on PC invariance. This is due in part to the frequent occurrence of PCCs with few or no variant elements.

Moreover, PC invariance has certain, albeit limited, implications for the forms of the pieces. In the first and final phrases of "I" (mm. 1-3 and 10-13, respectively), there is more PC invariance and pitch continuity than in mm. 6-8 (including progressions T-5,T-11 [mm. 5-6] and T-7,T-3 [mm. 8-10]). In mm. 1-4 and 9-13 of "II", there is less PC invariance and pitch continuity than the middle section. In "III", mm. 1, 2 (from T-10), 3, and 8-12 (the third phrase) have more PC invariance and pitch continuity than mm. 2, 4-8 (development), and 12-15 (recapitulation).

An equally important factor in the perception of similarity in two harmonies is the extent of pitch continuity. Even with invariant PCs in a succession, it is difficult to perceive similarity in the two harmonies with little or no pitch continuity, as is the case with most harmonic successions in Trois Compositions. In going from "I" to "III", there is an increasing tendency for harmonic successions with no pitch continuity (i.e.,
from 11% to 33% of successions).

Like PC invariance, pitch continuity has some implications for form. In "I", successions T-0,T-3 (m. 1), T-10,T-4 (m. 3), and T-9,T-0 (mm. 12-13), with at least three pitch continuities each, occur at the beginning or at cadences. Successions T-4, T-11 (mm. 3-4) and T-5,T-11 (mm. 5-6), with no pitch continuity and fewer invariant PCs than preceding successions, span adjacent formal sections. In "II", successions T-6,T-9 (m. 4) and T-4,T-7 (mm. 8-9), with at least three pitch continuities each, immediately precede new formal sections. In "III", successions T-4,T-7,T-0,T-5 (mm. 3-4, with the climaxing action of the first section, mm. 1-7) and T-9,T-2,T-5 (mm. 9-12, third phrase cadence and link to the recapitulation) have at least three pitch continuities in each component succession, although PC invariance is less in mm. 4-8. Structurally significant pitch continuities include: C4 and F#/Gb4 ("I", m. 3), D4 ("I", mm. 12-13), E2,3 ("II", mm. 8-9), and A#1 ("III", mm. 7-8), all of which occur at cadences.

PC Invariance in IC-3-Related T-Levels

The greater number of invariant PCs in T-levels related by IC 3, the basis of interval 3 cycles which govern many T-level successions in the three pieces, supports the concept of T-level families based on T-levels comprising the interval 3 cycles (e.g., T-0, T-3, T-6, and T-9 of the 3-0 cycle comprising the 3-0 T-level family). In fact, there may be some basis for the notion of "modulation" from one T-level family (or component T-
level thereof) to another. In a given T-level family (in "I" and "II" at least), there is an invariant PC collection forming a conventional diminished-seventh chord (i.e., three superimposed IC 3 intervals, elements "0", "3", "6", and "9" of each T-level), this collection being invariant to the four T-levels of the family. In "III", element "9" does not consistently occur with every T-level; hence only three PCs of the invariant diminished-seventh PC collection of a family occur with any given T-level of the family.

PC invariance in T-level families in all three pieces is illustrated in Ex. 2-18. In Ex. 2-18a, which presents T-levels T-0, T-3, T-6, and T-9 (T-level family 3-0) of "I", "II", and "III", four invariant PCs in each T-level of a family (i.e., the diminished-seventh chord) are highlighted with solid vertical lines, and indicated in Ex. 2-18b by open noteheads in a scalar presentation of T-level family invariant PCs. Those four PCs occurring in at least two of the four T-levels, referred to as "quasi-invariant PCs," are highlighted in Ex. 2-18b with solid noteheads. The other four PCs in a family occur with only one T-level, and possibly two, if variant elements are employed. The invariant and quasi-invariant PCs of T-level families 3-1 (T-1, T-4, T-7, and T-10) and 3-2 (T-2, T-5, T-8, and T-11) in the three pieces are also illustrated in Ex. 2-18b. Interestingly, the PC collections shown in Ex. 2-18b are octatonic collections."
Example 2-18. PC invariance in IC-3-related T-level families.

(a) T-0, T-3, T-6, and T-9 in "I", "II", and "III":

```
     "I"   "II"   "III"
T-0  
T-3  
T-6  
T-9  
```

(b) Collections of invariant and quasi-invariant PCs of T-level families 3-0, 3-1, and 3-2:

T-LEVEL FAMILY 3-0:

```
```

T-LEVEL FAMILY 3-1:

```
```

T-LEVEL FAMILY 3-2:

```
```
Figure 2-7 presents the successions of T-level families in the three pieces, based on the T-levels, and tables of T-level family occurrences and total time-spans.

Figure 2-7. Successions of T-level families.

"I"

<table>
<thead>
<tr>
<th>MEASURE:</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-LEVEL:</td>
<td>0 - 3 - 10</td>
<td>1 - 4</td>
<td>7 - 10</td>
<td>4</td>
<td>11 - 9</td>
<td>2</td>
<td>5</td>
<td>11 - 0</td>
</tr>
</tbody>
</table>

T-LEVEL FAMILY:
3-0/1/2: | 0-------1------------------------2--0--2---------0--2-------1

| MEASURE: | 10,11 | 12 | 13 | | T-LEVEL FAMILY: | 3-0 | 3-1 | 3-2 |
|------|------|---|----|| OCCURRENCES: | 7 | 5 | 5 |
| T-LEVEL: | 3 - 6 | 9 - 4 | 9 | 0 | TOTAL TIME-SPANS |
| 3-0/1/2: | 0-------1---0--- | (8TH VALUES): | 28 | 18 | 30 |

"II"

<table>
<thead>
<tr>
<th>MEASURE:</th>
<th>1</th>
<th>2</th>
<th>3,4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10,11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-LEVEL:</td>
<td>0 - 5</td>
<td>8 - 1</td>
<td>10 - 3</td>
<td>6 - 9</td>
<td>2 - 5</td>
<td>10 - 3</td>
<td>8 - 11</td>
<td>4</td>
<td>7</td>
<td>0 - 5</td>
</tr>
</tbody>
</table>

3-0/1/2: | 0---2-----1---1---0-----2------1---0--2---------1-----0--2--0

T-LEVEL FAMILY: | 3-0 | 3-1 | 3-2 |
OCCURRENCES: | 7 | 4 | 5 |
TOTAL TIME-SPANS: | 29 | 13 | 18 |
There are no clear consistencies in the locations and functions of the invariant diminished-seventh PCs of each T-level family, although with "I" there is a tendency for these PCs to be exposed in some sense (i.e., location in the outer voices, or exposure through temporal isolation). Such inconsistency cannot be explained by tonal procedures, such as resolutions of the two tritones comprising the invariant diminished-seventh structures (i.e., outward or inward semitonal resolution). Nor are there apparent consistencies in the locations and functions of the quasi-invariant PCs.

In general, Fig. 2-7 illustrates the fact that 3-0 and 3-2 family T-levels each tend to occur more frequently and have total time-spans greater than 3-1 family T-levels.

Perle indicates that pivotal connections between harmonies in *Trois Compositions* are generally used "merely as a means of immediate association." This is generally true when "pivot" is defined as a pitch continuity in adjacent harmonies, since such pivot pitches generally exist between only two adjacent harmonies in *Trois Compositions*. On average, there is one pitch

---

<table>
<thead>
<tr>
<th>MEASURE:</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-LEVEL:</td>
<td>0-5</td>
<td>8</td>
<td>3</td>
<td>7</td>
<td>10</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>3-0/1/2:</td>
<td>0--2-----0--1------------------0--2------------------0---2-----0---</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MEASURE:</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-LEVEL:</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>OCCURRENCES:</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL TIME-SPANS</td>
<td>26.5</td>
<td>15</td>
</tr>
</tbody>
</table>
continuity per succession, although there is constant fluctuation in the number of such pivot pitches with each succession. When "pivot" is understood more broadly as any invariant PC in adjacent harmonies, then there are more pivots as Ex. 2-17 has shown. The above-mentioned diminished-seventh formations common to IC-3-related T-level families represent a more specific type of pivot reminiscent of Scriabin's *Seventh Sonata*, as analyzed by Perle.

Another pivotal formation is the "diminished-seventh" chord, comprising the only notes common to all four members of the transpositional complex [i.e., the set at T-0, T-3, T-6, and T-9]. . . . Of importance in its connection with larger formal elements is the group of notes comprising the tritone relationships within the set, the invariance of which at the transposition of a tritone results in a six-note segment common to any two sets a tritone apart.*

While there is, on average, one pitch continuity per succession, approximately 76% of such pivot pitches of *Trois Compositions* (79% in "I", 77% in "II", and 73% in "III") are invariant diminished-seventh PCs of the T-level family to which either T-level of the given succession belongs.
Element Occurrence and Ordering in *Trois Compositions*

Besides the study of T-level successions as to PC contents, there is the matter of vertical and linear element occurrence and ordering, both within individual harmonies and between adjacent harmonies. Although Gojowy observes that only PC content of harmonically or linearly disposed collections (and not ordering or registral location) is determined by the ICC system, there are identifiable, though limited, patterns of element occurrence and ordering which will now be examined.

**Linear Element Occurrence and Ordering**

"I". Example 2-19 presents the pitches of the primary melody of "I", with corresponding element numbers.

*Example 2-19. Primary melody of "I".*

<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-Level</td>
<td>0</td>
<td>3</td>
<td>10</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

\[\text{EXAMPLE 2-19} \]

**Example 2-19. Primary melody of "I".**

- **MEASURE**: 1, 2, 3, 4, 5
- **T-LEVEL**: 0, 3, 10, 1, 4

The pitches of the primary melody of "I", with corresponding element numbers.

**ELEMENT**: 1, 1, 1, 1, 1

**NUMBERS**: 3 8 10 9 8 3 4 3 8 3 4 3 0 6 3 8 10 3 0 0 1
Elements "3", "8", and "0" (in descending order of occurrence) are used more frequently in the primary melody, particularly in mm. 1-5 and 10-13. Where there are two or more primary melody pitches per harmony, one finds that "3" and, to a lesser extent, "1", "8", and "9" occur frequently as initial melodic elements. In most cases, these elements represent the texturally isolated initial pitches of harmonies. Where there is only one melody pitch per harmony, elements "3" and "0" frequently occur. Hence, element "3" would seem to be limitedly associated with this initiating function. Elements "0", "4", and "8" frequently succeed "3" in the primary melody. Element "0" also occurs in certain cadences (i.e., T-5, m. 5; T-0, m. 13; and T-10, m. 3).
"II". Example 2-20 presents pitches of the primary melody of "II", with corresponding element numbers.

Example 2-20. Primary melody of "II".

Elements "11", "3", and "8" occur most frequently in the primary melody, with element "11" the most significant of these as it is the initial element of the piece and of the recapitulation, and also the final element. Moreover, the final T-level (T-0, m. 13) is transposed in m. 6 (T-5, which succeeds T-2 and its pitch climax), m. 7 (T-3), and m. 8 (T-11), with element "11" retained in the primary melody in each case. However, there is no association with function, as with element "3" in "I". There are no apparent patterns of element ordering within the primary melody.

"III". Example 2-21 presents pitches of the primary melody of "III", with corresponding element numbers.
Although elements "0", "3", "4", and "10" occur more frequently and have the greatest total time-spans, there is no apparent consistency in element recurrence or ordering. There are a number of element sequences that do recur, such as: "3"-"9"-"10" in mm. 1 and 12; "0"-"4"-"4"-"3" in mm. 2 and 13; and "10"-"0"-"1" in m. 4. All three involve the transposition of harmonic-melodic figures, while sequences "3"-"9"-"10" (m. 1) and "3"-"11"-"9"-"10" (m. 3) involve no such repetition. Certain element recurrences suggest a limited form of element control: element "10" in m. 1, in m. 3 as a local melodic goal, in m. 4 as an initial element, and in mm. 5-6 as a melodic goal; and the
alternation of "8" and "0" in mm. 7-11.

In the three pieces, elements "3", "0", and "8" occur most frequently in the primary melody.

**Element occurrence in bass lines.** In the bass lines, "1", "0", and "6" in "I", "4" and "6" in "II", and "1" and "6" in "III" occur most frequently. In general, "1" and "6" occur most frequently in the bass lines of the three pieces.

Analyses of linear element successions involving adjacent harmonies reveal no consistent principles of ordering.

Vertical Element Occurrence and Ordering in Individual Harmonies

Limited patterns of vertical element occurrence and ordering are, to some extent, significant despite any inconsistencies.

"I". Example 2-22a illustrates the PCs of the ICC at T-0, with Ex. 2-22b presenting the verticalized harmonies of "I" in staff notation and, below this, with pitches represented by appropriate element numbers. In the case of two or more primary melody pitches per harmony, the representative elements are stated both linearly (i.e., on one line usually with dashes separating element numbers) and vertically. Brackets and asterisks highlight these verticalized melody pitches. Melody pitches in the score have stems that are connected to beams.
Example 2-22. Harmonies of "I" with pitches represented by element numbers.

(a) PCs of ICC AT T-0:

![Diagram of CHORDS OF "I" WITH ELEMENTS](image)

ELEMENTS: 0 1 3 4 6 8 9 10 0

(b) Verticalized T-levels, with representative element numbers:

![Diagram of CHORDS OF "I" WITH ELEMENTS](image)
Example 2-22 continued.

Note: Asterisks (*) indicate primary melody elements, while "+" (m. 4, T-9 and T-2) indicates a simplification in the representation of these sonorities whereby melody elements "3" and "0", respectively, doubled one octave below, are deleted in order to show the seven-element sonority. "++" (m. 5, T-5) shows an alternate way of regarding the lower pitches of T-5 harmony, as melodic approach pitches to Eb4.

In Ex. 2-22 and those to follow, the lowest vertical position in a chord (i.e., the lowest pitch) is designated "position one," the next lowest position "position two," and so on. Hence, the first harmony of "I" (Ex. 2-22) has element "6" in position one, "1" in position two, "4" in three, "9" in four, and so on. Because seven-PC harmonies consistently appear, especially in mm. 1-5 and 10-13, certain patterns of element occurrence in the individual vertical positions can be observed, as illustrated in Figure 2-8.
Figure 2-8. Element occurrences in vertical positions of the harmonies of "I".

(a) Most frequent element occurrences in positions in "I":

<table>
<thead>
<tr>
<th>Position</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:</td>
<td>0,8,9</td>
</tr>
<tr>
<td>6:</td>
<td>3,4</td>
</tr>
<tr>
<td>5:</td>
<td>0,4</td>
</tr>
<tr>
<td>4:</td>
<td>9,3,8,1</td>
</tr>
<tr>
<td>3:</td>
<td>4,6,9</td>
</tr>
<tr>
<td>2:</td>
<td>1,3</td>
</tr>
<tr>
<td>1:</td>
<td>1,6,0,4</td>
</tr>
</tbody>
</table>

(b) Most frequent element occurrences in position ranges in "I":

<table>
<thead>
<tr>
<th>Position</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-8:</td>
<td>0,3,8,9,4,10</td>
</tr>
<tr>
<td>1-3:</td>
<td>1,4,6,3</td>
</tr>
<tr>
<td>5-8:</td>
<td>0,3,4,8,9</td>
</tr>
<tr>
<td>1-3:</td>
<td>1,3,4,6,9,8</td>
</tr>
</tbody>
</table>

Note: In proceeding from left to right in Fig. 2-8a and 2-8b, there is a descending order of element frequency in a position or position range. A comma between two elements (e.g., 0,4) indicates that elements "0" and "4" occur the same number of times in a certain position. "*" indicates the most frequent occurrences of an element in any position.

Patterns of vertical element occurrence in ranges of vertical positions (Fig. 2-8b) have elements "1", and, to a lesser extent, "3", "4", and "6" as occurring frequently in the lower positions of harmonies, while elements "0", and, to a lesser extent, "3", "4", "8", and "9" occur more frequently in the upper positions.

However, as shown in Figure 2-8a, a different element is generally the most frequently occurring in each vertical position, except for positions one and two, in both of which element "1" is most frequent. If we substitute the next most frequent element, "6", for "1" in position one, we obtain a "referential" harmony for "I", in the sense that it reflects the average registral distribution of the elements of the PCC. That is, many
of the harmonies in "I", especially in mm. 1-5 and 10-13, are variations of this "referential" structure. It consists of elements "6"-"1"-"4"-"9"-"0"-"3"-"8", ordered from lowest to highest in register. When we substitute T-0 PCs for these elements, this "referential" harmony is Ab-Eb-Gb-Cb-D-F-Bb, the first verticality of "I". In other words, the first verticality of "I" establishes a normative registral distribution of elements of the PCC, a distribution which is maintained, statistically, throughout "I". This statistical uniformity is not maintained in mm. 6-8 due to the use of the expanded ICC, and the textural differences.

"II". The patterns of vertical element occurrence are illustrated in Ex. 2-23.
Example 2-23. Harmonies of "II" with pitches represented by element numbers.

(a) PCs of the ICC at T-0:

\[
\begin{array}{cccccccc}
0 & 1 & 3 & 4 & 6 & 8 & 9 & 11 \\
\end{array}
\]

(b) Verticalized T-levels, with representative element numbers:
Note: Asterisks (*) indicate deleted doublings of primary melody and bass elements, simplifications of harmonies in order to show the seven-element sonority. "+" (m. 6) indicates a modification of the T-2 harmony, with all elements including "1" in the vertical representation.

Unlike the harmonies of "I", those of "II" always have the primary melody element in the uppermost vertical position. With regard to element occurrence in ranges of positions (lower three positions and the upper four, as suggested by the duple-triple polyrhythmic figures of mm. 1-5 and 10-13), elements "4" and, to a lesser extent, "9", "6", and "0" (F, Bb, G and C#, respectively) occur frequently in the lower three positions while "8", "11", and "3" (A, C, and E, respectively) occur frequently in the upper four positions.

As with "I", a "referential" harmony of "II" can be derived from the frequently occurring elements (from lowest to highest, "4"-"9"-"3"-"6"-"0"-"8"-"11"). Like the "referential" harmony of "I", this structure actually occurs in "II", in mm. 13 (T-0), 6 (T-5), 7 (T-3), and 8 (T-11).

"III". Because of the variable texture of "III", in the number of elements per harmony, and in the contrapuntal inner voice fragments, the harmonic structures are not consistent. However, Ex. 2-24 attempts to interpret the music similar to Exx. 2-22 and 2-23. Elements within one T-level or harmony that can be interpreted as melodic (especially those separated by a semitone or tone from adjacent elements) are included in Ex. 2-24 with the adjacent element(s) in one position, but these are also verticalized so that only one element occurs in one posi-
Example 2-24. Harmonies of "III" with pitches represented by element numbers.

(a) PCs of the ICC at T-0:

![Diagram of harmonies with PC representation]

Elements: 0 1 3 4 6 8 9 10 11

(b) Verticalized T-levels, with representative element numbers:

<table>
<thead>
<tr>
<th>Vertical 10</th>
<th>#6-9-9</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Position 9</td>
<td>0</td>
<td>#3-11-9-10</td>
</tr>
<tr>
<td>8</td>
<td>#3-9-10</td>
<td>#9</td>
</tr>
<tr>
<td>7</td>
<td>#10</td>
<td>#8</td>
</tr>
<tr>
<td>6</td>
<td>#9</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>8-9-10</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

T-Level 0 5 8 3 7 10 1 1 4

Measure 1 2
Example 2-24 continued.
A study of element occurrence in lower and upper ranges of positions reveals a tendency for elements "1", "4", and "6" (G#, B, and Db) to appear more frequently in lower vertical positions, and "0", "3", and "8" (G, Bb, and D#) in the upper positions. This pattern of occurrence is similar to that of "I".

Elements "2", "5", "9", "10", and "11" do not appear as consistently as elements "0", "1", "3", "4", "6", and "8", the invariant or unbracketed elements of the ICC. Patterns of element occurrence in individual positions are such that often two and more elements are strongly represented in one position; hence, there is no clear "referential" harmony.

"I", "II", and "III" as a whole. There are no apparent consistencies in vertical element location and occurrence in the three pieces as a whole. As suggested by the "referential" harmonies of "I" (elements "6"-"1"-"4"-"9"-"0"-"3"-"8", lowest to highest registers) and "II" ("4"-"9"-"3"-"6"-"0"-"8"-"11"), vertical element distributions in harmonies of the two pieces tend to be quite different. With "III", there is no "referential" harmony, although a few harmonies bear some resemblance to those of "I". Figure 2-9 illustrates limited tendencies in ranges of vertical element positions in the three pieces as a whole.
Figure 2-9. Vertical element occurrence in ranges of positions in *Trois Compositions*.

Groups of vertical positions:

Frequently occurring elements (descending order of frequency; elements with fewer occurrences in brackets):

- 4-7: 0, 3, 8, 9 (4, 9, 11)
- 1-3: 4, 1, 6 (8, 0, 9)
- 5-7: 8, 3, 0 (4, 9, 11)
- 1-4: 6, 4, 1, 0 (8, 9, 3)

Elements "1", "4", and "6" (Eb, Gb, and Ab) tend to occur in the lower three or four vertical positions while "0", "3", "8", and "9" (D, F, Bb, and Cb) tend to occur in upper vertical positions.

**Vertical Element Adjacencies**

Element adjacencies, which are independent of vertical position, likewise have no consistencies indicative of deliberate PC control. There are however a few identifiable adjacencies (e.g., elements-pairs, and element-trichords) occurring with enough frequency to be of interest. What is particularly noteworthy is the fact that the vertical element orderings of many of the harmonies in each of the pieces (especially in "I" and "II") appear to be derived from a limited number of vertical element structures in the respective pieces. Derivation is primarily through rearrangements of element-pairs and -trichords, and inversions of elements within these pairs and trichords. This would suggest that elements, and not just PCs, are an important determinant in vertical element ordering. Example 2-25 illustrates such a process of derivation with the harmonies of
Example 2-25. Similarities of harmonies in "I" (with pitches represented by element numbers).

<table>
<thead>
<tr>
<th>T-LEVEL</th>
<th>MEASURE</th>
<th>T-LEVEL</th>
<th>MEASURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,11</td>
<td>1,4</td>
<td>7,3,9,4,3</td>
<td>0,10,4,1,10,10,0,4,1</td>
</tr>
<tr>
<td>3,1,12</td>
<td>12,10,11</td>
<td>0,11,2,1,3</td>
<td>1,13,1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<th>MEASURE</th>
<th>T-LEVEL</th>
<th>MEASURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>9,2,2,5</td>
<td>(0) 6,11,10</td>
<td>0,2,7,0,1</td>
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<tr>
<td>4,4,4,5</td>
<td>(1) 10,11</td>
<td>6,7,8,13</td>
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</tbody>
</table>
Note: In this and following Examples dealing with vertical element adjacencies, gaps in the vertical presentations of elements are for the purpose of highlighting vertically adjacent elements used in other harmonies. T-0 (m. 1) is restated for purposes of comparison.

Many of the harmonies are clearly derived from T-0, m. 1, which explains the resemblance between the "referential" harmony and the T-0 harmony of m. 1. However, the derivation of some harmonies require explanation. T-1 (m. 2) is the same as T-0 (m. 1) except for an exchange of "4" and "8". T-10 (m. 3) is similar to T-0 (m. 1) if the uppermost elements "6" and "4" are rotated to the bottom of the harmony, while T-4 (m. 3) is likewise similar if "3" and "8" are rotated to the top of the harmony. T-9 (m. 4) results in a harmony similar to T-0 (m. 1) if interpolated elements are removed. In other words, "8" and "0" (upper position elements) are interpolated with "6"-"4"-"1" to produce "6"-"8"-"4"-"0"-"1", with "9"-"3" in the upper two positions. Likewise, T-6 (mm. 10-11) involves a similar alternation of elements. Although T-2 (m. 4) and T-5 (m. 5) do not readily resemble element formations of other harmonies, T-2 is derived from T-5, with the vertical rearrangement of element-pairs and an element-trichord. The harmonies of mm. 6-8 do not appear to have been derived from other harmonies in the piece, but these measures comprise a distinct formal section with different harmonic structures based on an expanded ICC. However, one harmony which has limited similarities to the final harmonies of mm. 6, 7, and 8 is T-0 (m. 13), which shares elements "1", "3", "4", and "8" with this final harmony.

Similar methods of element reordering are used to illu-
strate the derivation of some harmonies in "II" (Ex. 2-26).

Example 2-26. Similarities of harmonies in "II" (with pitches represented by element numbers).
Example 2-26 continued.

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<table>
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<tr>
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<tbody>
<tr>
<td></td>
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<tr>
<td>0 8 1 5</td>
<td>0 3 3 3</td>
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<tr>
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<td>10 10 10</td>
</tr>
<tr>
<td>1 2 2 1</td>
<td>1 3 4 7</td>
</tr>
<tr>
<td></td>
<td>3 4 7</td>
</tr>
</tbody>
</table>
```
Example 2-26 continued.

The ascending order of elements in T-1 (m. 2) particularly elements "9"-"8"-"0"-"6"-"11") would seem to be derived from the extraction from T-5 (m. 1) of every second element in an ascending order. This process of extraction includes rotation through the element order, in the sense that once the uppermost element or next to uppermost element of the harmony's ascending order has been used, one proceeds to the next-lowest or lowest element, respectively, of the harmony to extract the next element in the order. Similarly, the descending order of T-11's (m. 8) lower elements (i.e., "0"-"6"-"3"-"9"-"4") are used to derive every second element of T-4's (m. 8) ascending order of elements. T-7 (m. 9) then involves a partially symmetrical reor-
dering of T-4's (m. 8) elements.

Unlike those of "I" and "II", many of the harmonies of "III" are not clearly derived from element reorderings of other harmonies. Example 2-27 illustrates those harmonies with similarities in vertical element adjacency.

Example 2-27. Similarities in the harmonies of "III" (with pitches represented by element numbers).
In general, the vertical element orderings of harmonies in "III" are such that fewer chords are derived from preceding chords. This constrasts to some degree with the harmonies of "I", many of which are derived in some recognizable extent from preceding harmonies, particularly T-O, m. 1. In fact, there are certain similarities between the chord structures of "I" and "III", because of the common element content (i.e., "0"-"1"-"3"-"4"-"6"-"8") of their respective ICCs, as shown in Ex. 2-28. As many of the harmonies in "I" are derived from T-O (m. 1), this will be the only harmony of "I" cited in the comparison with structures of "III".
Example 2-28. Similarities in vertical element orderings of harmonies in "I" and "III".

<table>
<thead>
<tr>
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<td>1</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

T-LEVEL: 0 2 0 0 2 10 1 6 6 1  |
MEASURE: 1 10 14 13 8 2 3 8 10 11 3  |
PIECE (1,3): 1 3 3 3 3 3 1 3  |

Such vertical adjacencies and derivations of harmonies by element reorderings of preceding harmonies may well be typical of Roslavets's music.

Conclusion

Having examined the ICC system in *Trois Compositions* and characteristics that pertain to its application in the music, we should summarize some of the important points raised in this chapter.

Each piece's harmonic organization is based in part on the ICC associated with the given piece, the ICC whose PC content is transposed to produce the PC collections comprising a piece, usually expressed harmonically but at times linearly. Although there is a basic ICC for each piece, and each PC collection represents a transposition of that basic ICC, there are variations in element content. Interestingly, though the PC content of the three basic ICCs differs, there are important similarities in element contents (i.e., elements "0", "3", "4", "6", and "8",...
with "1" and "9" in two of the three ICCs).

In each piece, one T-level (T-0) acts as a referential sonority for the given piece, in the sense that the sonority begins and concludes the piece and is most significant in that respect and as to frequent occurrence, greater total time-span through the piece, and coincidence with formally important time-points. T-levels can in fact be hierarchized, based on these criteria, indicating the significance of each in a given piece. Each piece has a different hierarchy of T-levels, although T-0, T-5, T-3, and T-8 are significant T-levels in the three pieces as a whole.

Harmonic successions generally involve IC-3- and IC-5-related T-levels, and frequently employ two, three, and four component T-levels of an ascending interval 3 or 5 cycle, or combinations thereof. Especially in "I" and "III", three or four T-levels of an interval 3 T-level family in cyclic order (e.g., with the 3-0 cycle, T-0,T-3,T-6,T-9) are employed before proceeding to another interval 3 cycle or component(s) thereof. However, a number of the transferences from one interval 3 T-level family (or component) to another involve IC-5-related T-levels. In fact, in "II", as opposed to "I" and "III", the harmonic succession is based on a reordered interval 5 cycle.

PC invariance in all four (or even three or two) T-levels of a family of IC-3-related T-levels and transferences from one family (or component) to another may be viewed as analogous to the PC collection of a tonal key and modulations between such keys.
Studies of PC and element occurrence, ordering, and association, within individual PC collections and involving adjacent collections, show no readily apparent consistencies indicative of deliberate control of PC organization. Because most harmonic successions involve IC-3- or IC-5-related T-levels, there are usually three or four invariant PCs in a given succession, while only one of these invariant PCs involves pitch continuity. IC-1-, -2-, -4-, and -6-related T-levels, which occur infrequently in all three pieces, have fewer invariant PCs. Pitches tend to proceed by IC-1 and -2, somewhat less by IC-3 and -4, and much less by IC-5, and -6, to those pitches of succeeding harmonies in the same voice or vertical position, with no apparent, consistently applied principles of voice-leading or pitch succession.

Elements "3", "0", and "8" tend to occur most frequently in the primary melodies of the three pieces, with "3" in "I" (as to its occurrence as initial element of most T-levels) and "II" in "II" having added significance. Elements "1" and "6" occur most frequently in the bass-lines of the three pieces. In general however, few apparent consistencies in element ordering are found in the melodies and bass-lines of "II" and even moreso in "III".

Some significant patterns of vertical element occurrence, ordering, and association are to be found, especially in "I" and "II". In the three pieces as a whole, elements "1", "4", and "6" tend to occur in the lower register, "0", "3", "8", and "9" in the upper. "Referential" harmonies of "I" and "II" consist
of the most frequently occurring element in particular vertical placements. Many harmonies in "I" and "II" represent modifications of the respective "referential" harmonies. The study of vertical element adjacencies (i.e., element-pairs and -trichords), and the derivations of element orderings of many harmonies from those of a few, bear this out to some extent. Such derivations are through the following means: rearrangements of element-pairs and -trichords; inversions of elements within these pairs and trichords; rotations upward and/or downward; the derivation of alternate elements of one chord (in one direction or another) to produce the element ordering of another; and symmetrical reorderings of elements. This suggests that elements, and not just PCs, are a determinant in vertical ordering. Many of the harmonies in fact involve some recognizable, minimal modification of the element ordering of others. With "I" and "II", there is a certain homogeneity of element order in the harmonies, much less true of "III".

In general, there are certain stylistic characteristics that differentiate "I" and "II" from "III", the more salient of these being: (1) the PC contents and ICAs of the ICCs, and the use of more variant T-levels in "III", indicative of freer applications of the ICC system in the last piece; (2) the greater flexibility in harmonic rhythm in "III", specifically the inconsistency in T-level time-spans, compared with the harmonic rhythms of "I" and "II"; (3) the more pervasive use of complete, uninterrupted ascending interval 3 cycles of T-levels in "III" as compared with "I"; (4) fewer identifiable patterns of PC and
element occurrence, ordering, and association in "III", due in part to the variances in texture, and the tendencies toward linear, contrapuntal activity; and (5) fewer, overtly tonal structures and procedures in "III", which is made evident in Chapter Three.

However, there are certain similarities between "I" and "III" that perhaps suggest a recapitulative ternary structure relating the three pieces as a set. Such a structure in fact imitates the recapitulative ternary form of each piece. These similarities are: (1) the use of complete interval 3 cycles of T-levels in "I" and "III", as opposed to the use of the interval 5 cycle which characterizes "II"; (2) both "I" and "III" have portions of their development sections (mm. 6-8, and m. 4, respectively), employing successions from the interval 5 cycle; (3) the general irregularity of the harmonic rhythm, as opposed to that of "II"; (4) the tendency to have elements "1", "4", and "6" in the lower range of vertical positions, with "0", "3", "8", and "9" in the upper range; and (5) the procedure of subdividing PC contents of a T-level to produce contrasting harmonic content in mm. 6-8 of "I" (specifically, T-0, T-2, and T-7) and m. 4 of "III" (T-7, T-0, and T-5).

Notes

3. Perle, Serial Composition, 43.
5. Wallace Berry defines a pitch-class (PC) as "pitch independent of specific registral occurrence" and pitch-class-complex (PCC) as "a complex of such pitches generically understood." (Wallace Berry, *Structural Functions in Music* [Englewood Cliffs, New Jersey: Prentice-Hall, 1976], 27n.)

6. Although the PCs of a T-level can be expressed linearly in the music, as they are to some degree in "I" (T-11, mm. 6 and 7) and "III" (T-11, m. 7), a T-level in *Trois Compositions* usually occurs in the music as a single harmonic unit with certain melodic components (i.e., pitches of the primary melody, bass line, or inner melodies). "Primary melody" refers to a linear pitch continuity usually found in the upper voice of a piece, although it may appear for a time elsewhere in the texture. Such a placement in the uppermost part of the texture, in contrast to other linear pitch continuities found in inner voices or those forming a bass line, focuses one's attention on it; hence the primacy of this melody. The "bass line" is the sequence of pitches formed by the lowest pitches of harmonies, usually one for each harmony.

7. Perle, *Serial Composition*, 43; Gojowy, *Neue sowjetische Musik*, 138-141. However, Gojowy does not apparently explain the method of segmentation into pitch collections used to arrive at these T-level successions. In Gojowy's notational system, which is used for his charts that identify the ICCs and their PC contents in musical excerpts, the twelve-PC system (i.e., PCs of a chromatic scale beginning with C) is used. PCs of the ICC, in ascending scale form, are represented by X's, while those PCs not of the ICC are represented by O's. Hence, the ICC of "I" is represented by the following: 0-0-X-X-O-X-X-O-X-X. Gojowy also represents this ICC with a short-hand designation XII=1, 2, 5, 8, 10, where an ICC based on a 12-PC system (XII) lacks elements 1(C), 2(C#/Db), 5(E), 8(G), and 10(A). In notating the ICC T-levels, Gojowy uses a designation very similar to that used by Perle; namely, "T1" to represent the initial appearance of the PCC in the piece, "T2" as this PCC transposed up a semitone, and so on. In my study, as in Perle's, the initial PCC will be referred to as the "T-O" level.

8. More specific guidelines of segmentation should be established. One principle is to isolate simultaneities and delineate pitch collections using time-points where there are interruptions in pitch activity in all voices or parts. In other words, one groups together into single collections those pitches whose time-spans overlap. While not prohibiting the inclusion of single pitches into two adjacent T-levels, this initial principle makes that less likely while allowing most pitches that are temporally associated to be included in the same collection. Then, and especially when there is consistency in the number of PCs per collection, these segmented collections are examined for PC and IC similarities. Combining smaller collections into larger ones or dividing collections into subsets in order to main-
tain consistency of collection size, is another principle in determining the derivation of harmonies from ICCs in Roslavets's music. There are a few exceptions to the above-mentioned guidelines of PC segmentation. In m. 3, the three harmonies (T-7, T-10, and T-4) would otherwise be considered as one, because of the sustained C4 and the guidelines indicating that overlapping pitches are included in a single ICC T-level. The consistent occurrence of six to eight PCs per harmony, often as simultaneities, is the criterion for designating three harmonies in m. 3. Although the second halves of mm. 6 and 7, and m. 8, would appear to represent a situation similar to that of m. 3 (whereby these time-spans, despite the trills, are segmented into three harmonies), a different approach is employed in assessing the segmenting of these time-spans, as discussed later in this section of Chapter Two.


10. Berry defines an interval class (IC) as including "any given interval within the octave together with its inversion (complement) and all compound extensions (expansions by one or more octaves) of the given interval or its inversion. If enharmonically equivalent forms are considered of the same class, there are six interval classes (the unison excluded). . . ." (Berry, *Structural Functions*, 193n.)

11. To reiterate, each ordered PC is numbered according to the PC interval it forms with the first PC of the collection.

12. Elements (i.e., the PCs in specific positions within the ICC scale form) have numbers in quotation marks (e.g., "0") in the text of the thesis to distinguish these from other arabic numbers. Again, element "0" in an ICC or its T-level would represent the "first" PC although "first" does not imply primacy or importance as of the first degree of a tonal scale.


15. Ibid., 44.

16. See fn. 8 for principles underlying segmentation of pitches into PC collections.


18. In thinking ahead to the discussion of "III" and to Gojowy's analysis of ICC structure (he identifies four similar but individual ICCs), one wonders why he indicates that four
ICCs are operative in "III" while only one is operative in "I", this despite the fact that the original ICC of "I" does not easily explain the PC collections of mm. 6-8. Another approach to T-level identity in mm. 6-8 is to base each of the three harmonies in the three aforementioned time-spans on an ICC T-level most closely resembling the PC content of the harmony in question. This is examined in more detail in Appendix B.


20. Ibid., 139.

21. Interestingly, in Gojowy's listing of T-level successions, there is an "X" in m. 7 which is likely meant to designate the T-level with element "1" although this particular variation also occurs in mm. 6 and 8 (which have no "x" in Gojowy's listing).

22. That is, element "1" pitches occur a perfect fourth (IC-5) below the initial bass pitch, as the fifth of the minor-minor-seventh chord that constitutes the lower component of these harmonies. In a sense, element "1" has strong tonal implication.

23. Gojowy, Neue sowjetische Musik, 139.

24. Ibid., 141.

25. Perle, Serial Composition, 43-44. A recent article by Perle prompted an examination of "III" in terms of its musical orthography. (Perle, "Scriabin's Self-Analyses," Music Analysis, 3/2 [July 1984]: 101-124; especially 107, 110-111.) Such constancy in the intervals formed between ordered (scale form) PCs of T-levels in "III" undoubtedly led Perle to suggest the use by Roslavets of a single ICC. Quite likely although unsubstantiated is the fact that Roslavets may have been influenced by Scriabin in this regard. Although the ICC of "III" is noted because of its different PC interval pattern, those of "I" and "II" are similar in the sense that the respective T-levels consistently reflect the PC interval pattern of the particular piece's ICC.

26. Perle indicates the practice of element omission but the illustration of the ICC or "set" of "III" fails to bracket PC Bb (i.e., element "3" in ICC at T-0) as such a variant element. (Perle, Serial Composition, 43-44.)

27. Another approach to T-level identity in the three pieces, given the similarities of the three ICCs, is to have one single ICC for all three pieces. This is briefly examined in Appendix B.

29. Later studies of PC invariance in IC-3-related T-levels will group such T-levels into T-level families (i.e., with T-level family 3-0 including T-0, T-3, T-6, and T-9, and 3-1 and 3-2 families including T-levels corresponding to those in the 3-1 and 3-2 cycles, respectively).

30. The reasons for these displacements would seem to be related to the tonal aspects of the piece, which will be dealt with in Chapter Three. The T-10, T-3 succession, reiterated in mm. 3-4 (which in itself is significant), has an Eb-major triad PC component which is generally invariant through these measures. The T-11, T-4 succession (m. 8) similarly has an E-major PC component which is invariant in mm. 8-9. Both of these triads have important structural implications for and relationships with the apparent "tonality" of "II", F major.

31. If T-level designations were altered so as to reflect the use of one ICC for all three pieces, there would be no connections between the cyclic T-level successions of the three pieces, in terms of some structure involving all three. Such T-level successions appear to be independent of one another.

32. Berry, *Structural Functions*, 27.

33. This is done in order to provide a more realistic evaluation of T-level significance in the event that a T-level occurs frequently but has relatively short time-spans, or with the opposite situation.


35. Interestingly, T-11 in "I" (mm. 6 and 7) and in "III" (m. 7) both involve linearizations of the T-level PCs.

36. Both T-5 and T-7, IC-5-related to T-0, have a somewhat symmetrical or "opposing" relationship. The tonal analogies associated with T-0 (tonic?), T-5 (subdominant?) and T-7 (dominant?) will be examined in Chapter Three.


39. PC invariance and pitch continuity as pertaining to prolonged T-levels is discussed in Appendix B.

40. T-levels T-1, T-4, T-7, and T-10 are part of T-level family 3-1; T-levels T-2, T-5, T-8, and T-11, part of T-level family 3-2.

41. With T-level families of "I" and "III", these invariant and "quasi-invariant" PCs form octatonic 1-2 (i.e., semitone-tone) collections while such a PC collection derived from T-
level families of "II" forms an octatonic 2-1 (i.e., tone-semitone) collection. In a recent article on the development of octatonicism in Russian and non-Russian music, Richard Taruskin has some interesting observations concerning the octatonic collection in the music of Scriabin that have some implications for the music of Roslavets. He states that in "the music of his [Scriabin's] last period, . . . the octatonic collection does not interact with diatonic harmony or emphasize triadic cognates. . . . Rather, in a work like the Sixth Sonata, Op. 62 (1911-12) . . . the three octatonic sets act as referential collections, functionally akin to keys in the traditional sense. . . . A sense of tonal motion is achieved by modulations from one octatonic grouping to another. That this was a conscious technique based on traditional tonal procedures is made clear by the fact that a Scriabin essay in octatonicism, whatever the vagaries along the way, will always end in the same octatonic key as it began. That Scriabin conceptualized the octatonic collection as a pair of intercalated diminished-seventh collections . . . is revealed by his note spelling. . . ."

(Richard Taruskin, "Chernomor to Kashchei: Harmonic Sorcery; or, Stravinsky's 'Angle'," Journal of the American Musicological Society, 38/1 [Spring 1985]: p. 99, fn. 47). In the case of the three individual pieces by Roslavets, the three octatonic collections are derived from the invariant and "quasi-invariant" PCs of 3-0, 3-1, and 3-2 T-level families, respectively. Moreover, transference from one octatonic collection to another, or, in other words, from one T-level family to another, whether a T-level family is represented by one or by more T-levels (as is the case with the three pieces, where series of T-levels ascending by IC 3 are common). With regard to the final cadence, Roslavets not only concludes with the same T-level family with which the piece begins, but ends with the same T-level. Of course, similarities in the usage of octatonic techniques by Scriabin and Roslavets may be limited because of such things as the PCs in a T-level family which occur with only one T-level. (There is no readily apparent pattern to the location or function of these "non-octatonic" PCs in Trois Compositions. Hence, the octatonic system as applied to the pieces is primarily theoretical in nature, and is not indicated in PC events.) There are situations in the three pieces (as will be demonstrated in the discussion of tonality in Chapter Three) where tertian tonal structures and tonal procedures are employed, which differ from Scriabin's practice of non-interaction between the octatonic collection and tonal structures. Yet, despite such differences in the form of octatonicism in the music of Roslavets, there may be some basis for the application of octatonic theory and structures to the music of Roslavets, if not to the three pieces. In Chapter Three, there is some additional discussion of octatonicism in the three pieces.

42. Perle, Serial Composition, 43.

43. Perle, Serial Composition, 41-42. Excerpts of the Seventh Sonata (pp. 42-43) illustrate such PC invariance in "sets"
(T-levels) a tritone apart. Jim Samson challenges some of these observations when he states: "In Serial Composition and Atonality, George Perle has drawn attention to pivotal segments other than the 7/3 unit which create links between transpositions, notably the diminished seventh and the segment superimposing two minor thirds a perfect fourth apart. Undoubtedly Skryabin made use of such pivotal segments as a means of linking and even (occasionally) combining transpositions, but I have found no evidence to support Perle's claim [excluded in the above quotation] that there is a "closed system of transpositions" based on these segments. The choice of transpositions in the seventh sonata has been governed by the tritone link and by the work's quasitonal structure, not mentioned by Perle." (Samson, *Music in Transition*, 209). In fact, in *Trois Compositions*, the frequent use of IC-3-related T-levels as the basis for harmonic successions (often proceeding through three or more T-levels of a T-level cycle [e.g., "I", mm. 1-3, T-10, T-1,T-4,T-7,T-10]), in combination with the interval 5 cycle, indicates a limited system of transposition. With regard to the term "pivot", another interpretation might include a single, "initiating" pitch which precedes other PCs of a given harmony. This occurs frequently with the harmonies of "I" and "III". Such a pitch would be pivotal if it (or rather the PC) were common to the harmony preceding it as well as its own harmony. Of those adjacent harmonies with single, initiating pitches in "I", 71% have an initiating pitch which is pivotal (65% when one includes all adjacencies of harmonies), while 60% of adjacent harmonies with single, initiating pitches in "III" have an initiating pitch (56% including all adjacent harmonies). Hence, there is no strong tendency for such initiating pitches to act as pivots.

44. To reiterate and clarify, "element" represents the position of a PC within an ordered collection of PCs—in this thesis, a scale—with the element numbered according to the PC interval it forms with the first PC of the collection. The first PC of each PCC of the three pieces is determined by using the prime forms of the PCCs of "I" and "III", as they are most similar when one excludes from consideration the variant PCs as shown in Perle's analysis. (Perle, *Serial Composition*, 43.) The prime form of the PCC of "I" has elements "0", "1", "3", "4", "6", "8", and "9" (Forte set 7-32), while that of "III" has elements "0", "1", "3", "4", "6", and "8" (Forte set 6-224). (The numbering should not be confused with Forte's integer notation, where PC C is 0, C#/Db is 1, and so on.) While the prime form of the PCC of "II" differs from those of "I" and "III", there are certain similarities between the ICCs of the three pieces (as illustrated in Ex. 2-2). Hence, D, the first PC of the ordered PCC at T-0 for "I", is element "0", C#/Db is element "0" in the PCC of "II" at T-0, and G is element "0" in the PCC of "III" at T-0. Again, the designation element "0" does not necessarily imply primacy of the PC represented by "0" in relation to the other PCs of the T-level. In fact, it may be rather difficult for the listener to relate each PC to the "0" PC. However, as will be noted in the discussion of "I", element "3" has
a limited form of primacy, given its frequent occurrence as the initial element of many T-levels.


46. Element successions in harmonic successions with the same T-level sequences were examined, whether the PC content and overall sequence of PCs was similar (i.e., a single ICC being used for all three pieces) or not (i.e., individual ICCs used for the pieces). Harmonic sequences whose T-levels were related by the same IC value (e.g., IC-3-related T-levels, such as T-0, T-3, T-1, T-4, and so on) and those that were not, thus all T-level successions, were investigated for consistencies in element successions. Even element successions involving the same vertical positions (i.e., successions of elements in position one, two, three, and so on) of adjacent harmonies were evaluated. It appears that there are no consistencies indicative of principles of element ordering. Temporal ordering of elements not necessarily in the same melody or line, particularly elements that are isolated or exposed (e.g., through single pitch attacks, or being outer elements of simultaneities) were examined for any patterns of ordering, revealing no consistent principles.

47. Similar references to PCs in this study will assume the use of PCs of the ICC at T-O (i.e., the ICC of the piece being examined, or of "I" if no reference to a piece is made).

48. In a discussion of chord structures in Roslavets's music, Gojowy indicates that the tritone is frequently found, while the perfect fourth is infrequently used, and the minor second generally avoided. IC 1 usually appears as a major seventh or minor ninth. Gojowy provides one example from "I" (m. 6) where IC 1s (in the form of minor ninths) are resolved to more consonant intervals. (Gojowy, *Neue sowjetische Musik*, 196-197.)

49. Although not discussed in Chapter Three, the tonal implications of vertical element occurrences are noteworthy. Elements "0", "3", and "8" form the dominant chord of the minor tonality suggested by the PCs of any of the three ICCs. (The PCs of the ICC of "II" actually suggest D minor and F major.) For example, elements "0", "3", and "8" (PCs D, F, and Bb) of the ICC of "I" at T-O form the dominant of Eb minor, the tonality suggested by the ICC PCs. In "II", elements "8" and "11", which frequently occur as uppermost pitches, are the mediant and dominant PCs of the major tonality that the ICC of "II" suggests. Elements "I" and "6" occurring frequently in the bass-lines are the tonic and subdominant PCs of the minor tonalities which the ICCs suggest.
CHAPTER THREE

TONALITY IN TROIS COMPOSITIONS

Introduction

Roslavets suggests that classical tonality is completely absent in his works up to 1924, although "tonality as a concept of harmonic unity" exists in the form of the "synthetic chords."¹

[Roslavets's system] was based on [synthetic] chords . . . used . . . as substitutes for the functional relationships of classical tonality, which he did not reject but rather tried to expand. . . . Composition based on the manipulation of tone complexes [i.e., the synthetic chords] may at times approach the technique of twelve-tone writing. . . . This, however, occurs fortuitously, not out of necessity. The method may also generate other structures unrelated to twelve-tone procedures [i.e., tonal structures].²

The significance of Roslavets's compositional technique is noted by Gojowy:

This system of transposing tone-complexes is to be observed principally in the composers of the Moscow region. However, one need not regard this necessarily as as a revolutionary revival of composition: Roslavets regards his system not so much as the means of emancipation from tradition as an instrument for imposing order in opposition to the present impressionistic-expressionistic tonal anarchy, which guides music to a dead-end.³

Chapters Three and Four explore structures and procedures of other systems of PC organization in Trois Compositions. Of particular interest are tonal, octatonic, and dodecaphonic serial ordering procedures. Initially, we will be concerned with tonality.
Although this present study centers primarily on more conventional tonal structures and procedures (i.e., characteristic of the "common practice period"), Roslavets's ICC system may represent an expanded tonal system, in the sense of Wallace Berry's definition of tonality, whereby these conventional tonal structures and procedures are but one facet of Roslavets's ICC system. The system has an apparent hierarchy of T-levels, with T-0 as a referential harmony or "pitch-class-complex of resolution," as well as procedures for harmonic succession (i.e., the use of cycles of T-levels in ICs 3 and 5). The hierarchy of T-levels as well as certain symmetrical characteristics of T-level successions and of IC-3-related T-level families suggest certain middleground/background structures not unlike such large-scale structures in tonal compositions.

It is from the resources of this expanded tonal system that Roslavets derives tonal structures and procedures. The notational orthography for ICC PCs of "I" and "II" in particular, the fact that all three pieces have ICCs resembling the minor scale, and the fact that certain harmonic successions are based on IC-5-related T-level successions (which resemble tonic-subdominant or tonic-dominant progressions) indicate that the ICC system is contingent in part on traditional tonal procedures. This study will involve an examination of the individual pieces for surface and middleground/background tonal implications and tonally suggestive procedures.
Surface Tonal Features

Perhaps the tonalities most clearly suggested in "I" are Eb, D, and G (generally minor mode). This is not surprising as the most frequently occurring T-levels in "I" (T-0, T-11, and T-4) consist of PCs forming these minor scales, respectively (Ex. 3-1).

Example 3-1. ICC T-levels T-0, T-11, and T-4 in "I".

Note that two of the less significant tonalities in "I", F major and Bb major (mm. 7-8), are related to D minor and G minor, respectively. Of course, not all harmonies suggesting the Eb, D, and G tonalities are necessarily derived from these respective T-levels, nor do these T-levels as they appear in the music necessarily suggest the respective tonalities. A T-level PC collection can suggest a number of different harmonic structures, and a number of different tonalities. However, it is interesting to note that the most significant PCs of "I" (determined by evaluating both frequency of occurrence and total time-
spans of all occurrences of each PC) include tonic triad PCs of these three tonalities.

Example 3-2 provides a comprehensive analysis illustrating surface harmonic and melodic structures associated with these three tonalities.

Example 3-2. Surface structures and progressions of Eb, D, and G tonalities in "I".

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<tr>
<td>T-O</td>
<td>T-4</td>
<td>T-4</td>
<td>T-11</td>
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HARMONIES

TONAL FEATURES

*d: I--------bii
*eb: vii-------i   *g: ii------iv------bVI------v------i
*gb: ii--------v----i

(HARMONIC SUCESSION)
Example 3-2 continued.

To some degree, the temporal-textural configuration of harmonies permits a tonal interpretation, as in mm. 10-13. Even those simultaneities with six and more PCs imitate tonal tertian structures by placing apparent chord "roots," thirds, fifths,
and sevenths in the lower register of the harmonies as well as in exposed upper voices. Therefore, they can be interpreted tonally, as Ex. 3-2 shows in mm. 1-8. Many of the PCs that are not part of these tonal tertian subsets can be perceived as tonal chord extensions (i.e., ninths, elevenths, thirteenth, or chromatic alterations thereof) although this also depends upon vertical configurations. In general, the tonal harmonic analysis in Ex. 3-2 is self-explanatory, with some exceptions.

The succession from D minor to Eb that involves the entirety of m. 6 is reiterated but reduced in the first half of m. 7 to a D minor-to-Eb major harmonic succession that precedes the vii-I succession in F. Measure 8 involves a modified vii-I succession in Bb. What is interesting about the final three harmonies of mm. 6 and 7 and of m. 8 are the tritone sequences and their implications of the Eb, D, and G tonalities (Ex. 3-3).

(Of course, not all pitches indicate these tonalities, as is suggested by the references to Eb in m. 6 and Bb in m. 8.)

Example 3-3. Tritone sequences of mm. 6-8 and their tonal implications.

\[ \text{Example 3-3. Tritone sequences of mm. 6-8 and their tonal implications.} \]

\[\text{[6]} \quad \text{[7]} \quad \text{[8]}\]

\[
\begin{align*}
\text{Eb: } & I------- \\
\text{F: } & I--- \\
\text{Bb: } & I-------
\end{align*}
\]
The final harmony of "I", T-0 (m. 13), represents in part a combination of G minor and Eb tonalities. Although T-0 is associated with Eb minor, T-0 in m. 13 has been modified by the replacement of Gb with G. (The PC collection is also T-10 of the ICC in "II", serving a connective function between the two pieces.) An examination of middleground/background linear (i.e., primary melody- and bass-line-derived) structures, and middleground/background harmonic structures, will further illuminate tonal implications in the piece, and in particular the interactions of these three tonalities as suggested by the T-0 harmony of m. 13.

Middleground/Background Linear Structures of "I"

Pitches comprising the outer voices of a texture are critical for perception, especially since the harmonies, comprising six and more different PCs (often with no octave doublings), produce a relatively thick texture, and generally progress by step motion. While certain linear structures or aspects thereof in the three pieces have tonal implications, there are others that do not. These are, nonetheless, discussed in this Chapter because of their apparent significance. One important aspect of linear structures in "I" is that of initiating single-pitch exposure.

Initiating single-pitch exposure. The sequence of initial, texturally-isolated single primary melody pitches is illustrated in Ex. 3-4 with open noteheads on the first of two staves.
The second staff involves a reductive analysis of this sequence of initiating pitches viewed as a background structure. Given the frequency of IC 3 relationships between adjacent initiating pitches, it is possible to perceive such adjacent pitches as dyads, with three or more successive pitches related by IC 3 as chords. An IC relationship between two adjacent pitches other than IC 3 represents a "break," so to speak, with the second of these two pitches forming a dyad with a pitch following it.

Example 3-4. Initiating single pitches in "I".

```
T-0 T-3 T-10 T-1 T-4 T-7 T-10 T-4 T-11 T-9 T-2 T-5
```

```
[6] [7] [8] [10,11] [12] [13]
T-11 T-0 T-11 T-2 T-7 T-3 T-6 T-9 T-0
```
In most cases the duration of an initiating pitch equals or represents a significant portion of the time-span of the harmony to which it belongs. Hence, these pitches have a surface agogic value in addition to metric accent as a result of coincidence withmetrically stronger time-points. Duration is thus as important a characteristic of these initiating pitches as is precedence. Therefore, Eb4 (m. 5), although preceded by grace notes Fb3 and Bb3, is thus considered a part of this sequence of initiating pitches.

Similarly, the trill pitches of m. 8 as well as those following the initial pitches of mm. 6 and 7 are deemed part of the sequence of initiating pitches because of their durations, and because they represent a continuation of that sequence through a chromatic ascent from the initial trill pitches of mm. 6 and 7 (D4-E4). The trill pitch D4 (and not E4) is the primary initial pitch, given the initial harmonies suggested in these measures. This sequence of initiating pitches could be thought of as a "pitch axis", a series of prominent pitches around which other pitches gravitate.

In the reductive summary of Ex. 3-4, the sequence of primarily IC 3 dyads, formed by pairs of these initiating single pitches, is seen to form a structure indicative of a large-scale plan of PC control. This series of IC 3 dyads chromatically ascends from D-F to F-Ab, with arpeggiation of diminished-seventh harmonies (i.e., mm. 1-3 and 7-13). However, there appears to be a bifurcation in this structure in mm. 4-5 when the progression from E-(G) can be perceived to descend as well, through Eb
to D. This alternate path is represented in Ex. 3-4 with a dash-line beam in mm. 4-7.

**Linear structures in "I".** Example 3-5 presents a more complete illustration of linear structures in "I". The sequence of pitches includes those extracted from the primary melody, the bass line, and those uppermost harmonic pitches (indicated in Ex. 3-5 with "X"s) that occur higher than current melody pitches. Primary melody pitches having durations longer than an eighth value are denoted with open noteheads while shorter-valued pitches are designated with solid noteheads.

Example 3-5. Linear structures in "I".
Example 3-5 continued.

There is a middleground structure in mm. 1-6 involving both primary melody and bass-line pitches, with the PC lines—suggested by successions of certain prominent pitches—descending by ICs 1 and 2 (i.e., F4-E4-Eb4-D4 in the primary melody, and Ab2-G2-F2-Fb3-Eb4-D4). D4 in fact remains as an important structural pitch in mm. 6-13. In mm. 5-13, a middleground progression of G5-G#6-G#4-G4, involving both primary melody and upper register pitches, is apparent. A similar structure involves bass pitches in mm. 6-13 (i.e., D4-G#3-A2-G#2-G2). Again, there is an apparent descending tendency in the PC line suggested by these pitches.
Melodic fragments. Additionally, there are certain melodic fragments characterized by similar successive IC sequences that suggest another dimension of underlying linear structure (Ex. 3-6). Some of the pitches are notated an octave higher to show similarities in IC sequence (numbers above the pitches). All noteheads are beamed together to identify melodic fragments, labelled with lower case letters.

Example 3-6. Melodic fragments of mm. 1-5 and 10-13 of "I".

There is an antecedent-consequent relationship between fragments m and n, and o and p in that consequent fragments n and p, transpositions of each other, cadence by step to final pitches of three quarter values in duration, while the antecedent m and o fragments are characterized by larger intervals moving in disjunct motion. Hence, as there is a connective PC
(F#) between fragments m and n, so too there is a connection between fragments o and p, a progression between the final G of o and the initial G# of p. This progression involves pitch activity in mm. 6-8 (Ex. 3-7).

Example 3-7. The PC progression G-G#/Ab in mm. 6-8.

Both G and G#/Ab are prolonged, in a sense, in mm. 6-8, thus emphasizing the G-to-G#/Ab progression in mm. 5-10. Studies of PC frequency and duration have indicated the general significance of G and G#/Ab in "I". In addition, there are tonal implications of this G-G#/Ab succession for Eb tonality, which is also prominent in these measures.

In general, the frequent occurrence of such melodic sequences (IC 5 followed by a series of ICs 1 and/or 2), indicate such sequences are significant in "I", perhaps motivic.

**Bass-line linear structures.** There are middleground/background indicators of both Eb and G tonalities in the bass-line pitches (Ex. 3-8).
Example 3-8. Bass-line structure of "I".

(a) E flattened tonality:

(b) G tonality:
The reiterated A2-G#/Ab2 (mm. 10-11), the Ab2-G2 succession (mm. 1-4), the prominence of D4 (mm. 6-7), and the final G bass pitch (mm. 12-13) might indicate a tendency towards G tonality (Ex. 3-8b). In addition, the reiterated primary melody D4 in mm. 12-13 reinforces G. However, tritones in the background structure suggest Eb tonality in the final measures. Of course, Eb minor with Gb replaced by G is suggested by T-0 PCs (m. 13), this harmony indicating both G and Eb tonalities.

Middleground/background harmonic structures of "I"

Besides structures indicative of Eb, G, and D tonalities, the most significant T-levels of the piece as to frequency of occurrence and total time-spans (i.e., T-0, T-11, T-4, T-3, T-9, and T-7), and "balanced" occurrences of IC-3-related T-level families (i.e., 3-0, 3-1, 3-2, 3-1, and 3-0) would all be significant factors of middleground/background structure of "I" (Ex. 3-9).
Example 3-9. Middleground/background harmonic structure of 
"I".

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<tbody>
<tr>
<td>T-0</td>
<td>T-3</td>
<td>T-10</td>
<td>T-10</td>
<td>T-4</td>
<td>T-11</td>
<td>T-5</td>
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**Tonality in "II"**

**Surface Tonal Features**

As in "I", references to tonality in "II" are fleeting, ob­
scured by non-diatonic PCs and the absence of tertian struc­
tures. However, of all inferable tonal centers, F appears to be 
the most significant. The ICC at T-0, although similar to the D
minor scale, actually resembles the relative F scale more closely: 
element "1" (D, T-0) is a variant element, and because ele­
ment "11" (C), the dominant degree of F, is included in the ICC
of "II" (Ex. 3-10). Indeed, the PC hierarchy of "II" (based on PC occurrence and total time-spans) is indicative of F as the most significant PCs are diatonic to F, with dominant, tonic, and subdominant PCs at the top of the hierarchy.

Example 3-10. ICC of "II" and its resemblance to F.

In some situations a vertical harmony will resemble the tonic chord of the major tonality suggested by the harmony's T-level. T-0 is the most significant T-level in "II" as indicated by a hierarchization of T-levels (based on T-level occurrence and total time-spans). Other significant T-levels (from greater to lesser) are T-5, T-3, T-10, T-8, and T-7, with the other T-levels each occurring only once. The temporal-textural characteristic of T-0 (m. 13) is such that it suggests a I-V-I progression in F (Ex. 3-11); the Fs are doubled and reiterated. Although the third and fifth of the F chord (i.e., A5 and C6) are part of the T-0 simultaneity, the temporal and textural separation of the simultaneity and its short duration make it possible to perceive it as a V7 chord in F situated between the
doubled F and its recurrence (implied I). In comparison, other T-0 harmonies do not have such a temporal-textural configuration that facilitates the perception of F structures (Ex. 3-11).

Example 3-11. T-0 harmonies in mm. 13, 1, and 10-12.

![Example 3-11: T-0 harmonies in mm. 13, 1, and 10-12.]

In some sense, the T-5 harmonies adjacent to those T-0 harmonies in mm. 10-12 suggest auxiliary harmonies since five of the seven T-0 pitches proceed by step to those of T-5. Other tonal surface features are presented in Ex. 3-12.
Example 3-12. Surface tonal features in "II".

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<tr>
<td>T-0</td>
<td>T-3</td>
<td>T-10</td>
<td>T-3</td>
<td>T-10</td>
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**HARMONIES**

**TONAL FEATURES**

Eb: I----- (bII)-----I----- (bII)-----I Bb: vii7-----I-V7-I
Example 3-12 continued.

The same textural-temporal configuration of T-0 (m. 13) characterizes T-5 (m. 6), T-3 (m. 7), and T-11 (m. 8), with each harmony suggesting a tonal tertian chord and conceivable local tonality (i.e., Bb, Ab, and E, respectively). The doubled E pitches (E2, E3) and the reiterations of G# and B (mm. 8-9: T-11, T-4, T-7) prolong the E chord and tonality. And with T-5 (m. 6) and T-11 (m. 8), immediately preceding chords reinforce the implied tonalities (Bb and E, respectively) because lower pitches of the preceding T-2 and T-8 harmonies suggest dominant-functioning tertian chords (Ex. 3-13).
Example 3-13. Harmonies of mm. 6-9 and their tonal implications.

\[
\begin{array}{cccccccc}
(6) & (7) & (8) & (9) \\
T-2 & T-5 & T-10 & T-3 & T-8 & T-11 & T-4 & T-7 \\
\end{array}
\]

\[
\begin{array}{cccccccc}
\text{Bb: vii}^7 & \text{I--V}7 & \text{I} \\
\text{E: vii}^7 & \text{I--V}7 & \text{I} \\
\text{Ab: vii}^7 & \text{(V)}-\text{I--V}7 & \text{I} \\
\end{array}
\]

Another harmonic succession (similar to that of mm. 8-9) involving invariant PCs of tonal implication occurs in mm. 3-5 (Ex. 3-14).

Example 3-14. Eb in mm. 3-5.

\[
\begin{array}{cccc}
(3) & (4) & (5) \\
T-10 & T-3 & T-10 & T-3 & T-6 & T-9 \\
\end{array}
\]
The emphasis on Eb is due in part to the reiteration of the T-10, T-3 succession. Eb-triad PCs occur in the outer voices of the T-10 harmonies, and the E2 pitches (T-3) suggest an upper leading-tone to D#/Eb (i.e., bII). Although most of the T-10 PCs are diatonic to Eb, the Eb-triad PCs, especially G and Bb (due in part to their vertical configuration), are partially obscured by these other PCs. Hence, it may be more accurate to describe the occurrences of Eb pitches in the bass line as Eb "roots" rather than specifically describing the chords as Eb triads.

Middleground/background linear structures of "II"

*Diminished-seventh structures in mm. 6-9.* Certain middleground/background structures, linear and harmonic, imply tonality, especially F. An important component of the linear structures in "II" is the segment in mm. 6-9. Between F6 (m. 6) and F5 (m. 9), two alternating diminished-seventh chords are formed by primary melody pitches, while a third diminished-seventh chord is formed by bass-line pitches. In Ex. 3-15a, these pitches are highlighted by beams, while in Ex. 3-15b open noteheads comprise the diminished-seventh chord of which the melody pitch is a component, solid noteheads denoting components of the other diminished-seventh chords. For example, diminished-seventh chord C-D#/Eb-F#/Gb-A is prominent in T-2 (m. 6) and T-8 (m. 8), whose melodic pitches form C-D#/Eb-F#/Gb-A. Likewise, diminished-seventh chord D-F-G#/B is prominent in T-10 (m. 7), and in T-4 and T-7 (mm. 8-9). Example 3-15c suggests the essen-
tial chord progression governing the primary melody pitches of mm. 6-9.

Example 3-15. Arpeggiated diminished-seventh harmonies in the primary melody of mm. 6-9.

(a) Primary melody and bass-line pitches:

\[
\begin{array}{cccc}
\text{Primary melody and bass-line pitches:} & \text{[6]} & \text{[7]} & \text{[8]} & \text{[9]} \\
\text{[6]} & \text{[7]} & \text{[8]} & \text{[9]} \\
\end{array}
\]

(b) Diminished-seventh components of harmonies in mm. 6-9:

\[
\begin{array}{cccccccc}
\text{Diminished-seventh components of harmonies in mm. 6-9:} & \text{T-2} & \text{T-5} & \text{T-10} & \text{T-3} & \text{T-8} & \text{T-11} & \text{T-4} & \text{T-7} \\
\text{T-2} & \text{T-5} & \text{T-10} & \text{T-3} & \text{T-8} & \text{T-11} & \text{T-4} & \text{T-7} \\
\end{array}
\]

(c) Background harmonic succession suggested by diminished-seventh chords formed by melody pitches:

\[
\begin{array}{cccc}
\text{Background harmonic succession suggested by diminished-seventh chords formed by melody pitches:} & \text{[6]} & \text{[7]} & \text{[8]} \\
\text{[6]} & \text{[7]} & \text{[8]} \\
\end{array}
\]
These melodic chords imply a harmonized "expansion" of the initial F#-F melodically of this section, an expansion involving a progression of two semitonally displaced diminished-seventh chords whose uppermost pitches are F# and F, respectively. The C-D#/Eb-F#/Gb-A diminished-seventh chord, first in this middleground harmonic progression, is in fact a component of the initial harmonies in mm. 6 (T-2) and 8 (T-8), while the D-F-G#/Ab-B diminished-seventh chord (the consequent harmony) is a component of the final harmonies in mm. 8-9 (T-4,T-7). The third diminished-seventh chord (C#/Db-E-G-A#/Bb) occurs in the bass line of mm. 6-8. Also, note the coincidence between IC-6-related T-levels in mm. 6-9 (e.g., T-2 and T-8, T-5 and T-11, T-10 and T-4) and the diminished-seventh chords (Ex. 3-15).

The middleground/background resolutions of structural as well as surface tritones, some including the melody pitches of mm. 6-9, indicate the significance of certain tonalities, especially F. An analysis of linear structures articulated by the primary melody and bass line (Ex. 3-16) incorporates these previous observations with a study of middleground/background tonal structures.
The prominence of PCs F and C, the structural tritone resolutions suggested by the local tonal regions Bb (m. 6) and E (mm. 8-9), and "exposed" pitches strongly imply F. The Eb "root" (mm. 3-5), as well as outer-voice occurrences of Eb (e.g., mm. 6, 7, 8), act as a preparation for the E-F structural resolution.
Middleground/background harmonic structures of "II"

Example 3-17 presents these structures.

Example 3-17. Middleground/background harmonic structures of "II".

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</tbody>
</table>

The interval 5 cycle of T-levels underlying the harmonic sequence of "II" would not itself suggest a middleground/background structure, were it not for cycle fragments taken out of sequence and repeated, as well as the coincidence of certain T-levels with formally important time-points.
Surface Tonal Features

Of the three pieces, "III" represents PC organization that is the least tonal, partially because of the infrequent use of clear tertian tonal harmonies and tonal harmonic progressions. Even the notation of PCs of the ICC of "III" (i.e., specifically the choice of accidentals used with the PCs), unlike those of the ICCs of "I" and "II", is not readily conducive to tonal interpretation although the PCs of the ICC of "III" themselves do form a minor scale (Ex. 3-18).

Example 3-18. The ICC of "III".

Yet, despite the apparent tonal nature of the ICC, it is not clearly exploited as a "tonal" resource in "III". Example 3-19 shows a few surface features that do suggest tonal procedures and structures.
Example 3-19. Surface tonal structures in "III".

In mm. 3-7, there is a series of IC-5-related PCs with most of the component pitches approached (at times with inter-regis-
tral connections) as tonics, by upper and lower semitonal
leading-tones suggestive of an augmented-sixth chord on the flattened supertonic degree (Ex. 3-20). Long stems and beaming at the bottom of the system indicate these tonic pitches. To a limited extent, IC 3 and 4 dyads formed between pitches of individual harmonies (isolated by brackets in Ex. 3-20, second system) suggest tonal chords in a "tonicizing V-I" sequence; these tonal implications are indicated.

Example 3-20. IC-5-related PC successions in mm. 3-7 of "III".

Only in such PC successions of mm. 5-7 are tonalities represented with any clarity, either because of the PC successions or because PC configuration suggests tertian harmonies.
Middleground/background linear structures of "III"

Example 3-21 illustrates the linear structures of "III".

Example 3-21. Middleground/background linear structures of "III".
There is a clear middleground/background linear structure involving a PC ascent of primary melody pitches, including the registrally highest pitches in mm. 1-4. It continues to Cx4 (m. 7) and could be perceived to continue to Eb5 (m. 12). While such continuities have no specific tonal implication, they do affect one's perception of melodic motion and in this sense establish a perceptible path through the piece.

A PC that occurs frequently in the primary melody in close proximity to pitches of this "ascending" structural line is F#/Gb. F#/Gb may in fact represent a secondary tonal center. This pattern of occurrence is shown in Ex. 3-22, where the structural line, represented by beamed pitches, are separated from occurrences of F#/Gb. Interestingly, such exposed occurrences of F#/Gb do not occur after m. 7, the apparent terminus of the "ascending" structural line.

Example 3-22. F#/Gb and the linear structures of "III".

\[\text{Example 3-22. F#/Gb and the linear structures of "III".}\]
A possible explanation of this F#/Gb involves interpreting the final T-O (mm. 14-15) as a dominant (V) harmony of F#/Gb, although the tonic harmony neither precedes nor follows it. It does however appear in the linear structure associated with the primary melody in mm. 1-7, with the recurrences of F#/Gb, and with the A#/Bb (third of the tonic triad) and C#/Db (fifth) of the PC ascent of the structural line (Ex. 3-22).

Bass-line linear structures are shown in isolation in Ex. 3-23.

Example 3-23. Bass-line structure in "III".

In mm. 12-15, the bass line is centered around and cadences on C#/Db. A middleground progression of Eb2 (mm. 10-11) to Db2 (mm. 12-15), preceded by an enharmonically spelled, arpeggiated Bb triad (suggestive of a V-I PC progression in Eb), links these two phrases. In mm. 1-7, however, the bass line is not as clearly defined as it is in mm. 8-15 (given the short duration
of many bass pitches), which complicates the derivation of a middleground/background structure. On the other hand, an essential bass line could be perceived to begin with G#2 (m. 1), as shown in Ex. 3-23. As a result, it may be possible to perceive mm. 12-15 as a "summary" of the PC events in mm. 1-11 because of the modified transposition of mm. 1-2 in mm. 12-13. Hence, the middleground/background bass-line structure would be reducible to certain salient PCs (Ex. 3-23, last staff).

Interestingly, the ascending PC line (Bb-Cx) essentially involves mm. 1-7, while the bass-line structure includes mm. 8-15, with m. 7 as an inter-registral bridge between the two structural lines, involving a descending PC succession D (Cx4), C (C3), and Bb (A#2). This indicates some formal distinction between mm. 1-7 and 8-15, highlighted by parametric changes such as reduced tempo and generally slower harmonic rhythm (especially mm. 5-11), and the partial transposition of mm. 1-2's T-level succession in mm. 8-9.

Middleground/background harmonic structures of "III".

The harmonies forming the middleground/background harmonic structures in "III" are shown in Ex. 3-24.
Example 3-24. Middleground/background harmonic structures of "III".

The underlying symmetrical structure based on cyclic successions of T-levels (indicated earlier in Chapter Two) forms the main component of a middleground/background structure, which
also includes cadential and other structurally important harmonies not part of the cycles. With few exceptions however, none of these significant harmonies takes on explicitly tonal qualities, either in vertical configuration or in harmonic succession. As with the linear structures discussed above, there is only a sense of proceeding to a following tonality in a fluctuant context, whether suggested by a single PC or by a tertian harmony, with no apparent return to or emphasis of certain harmonies, except for T-0 and, to a lesser extent, for T-5, T-8, T-2, T-7, and so on. In addition, there is no recurrent PC collection coincident with the recurring F#/Gb in mm. 1-7.

As has been established in the previous analyses of the three pieces, "III" differs from the other two pieces in its surface and middleground/background harmonic and melodic characteristics. "III" seems to represent the more mature, or experimental, of the three pieces, involving fewer obvious references to tonal harmonic structures and procedures while using more linear structures in a more contrapuntal texture.

Conclusion

The three pieces exhibit some important features of conventional tonality. From the ICCs which are the basis of each piece, tonal structures and procedures are derived and employed in the pieces, especially in "I" and "II". In fact, some characteristics of the ICC system (e.g., the PC content of the ICCs) are evidently tonal, indicating that the system is contingent upon tonal procedures. However, tonal manifestation takes dif-
ferent forms, and is dependent upon certain features in the mu-
sic to highlight the tonal aspects. For one thing, given the
six to eight (and more) different PCs per harmony, and the many
non-diatomic PCs, it is often difficult to perceive tonal ter-
tian chords unless vertical and registral distribution of PCs
highlights PCs of such chords. In addition, linear structures
(both surface melodic features and middleground/background
structures) need to adhere to certain tonal conventions (e.g.,
dissonance resolution, pitch successions such as ascending
interval 5 cycles) and emphasize tonic and dominant PCs of given
tonalities through PC reiteration and agogic accentuation.

In "I", Eb, G, and D tonalities are most obvious and sig-
nificant, suggested to some degree by clear tertian chord struc-
tures of these tonalities, by surface melodic features, and also
by middleground/background linear structures. In "II", surface
features do not as clearly imply the piece's principal tonality,
F, with the exception of the final harmony. Likewise, other
subordinate tonalities are implied by transpositions of the fi-
nal harmony. The linear structures, both surface and middle-
ground/background, are responsible for conveying the impression
of F. In "III", tonality is at best fluctuant. There are tem-
porary indications of certain tonalities (e.g., A, D, and G, as-
associated with the interval 5 PC succession, mm. 5-7; C#/Db, mm.
12-15) but no recurring, clear indications of any tonality. Un-
like the T-0 harmonies of "I" and "II" that are not only refer-
ential sonorities in the sense of being hierarchically important
but also incorporate tonic triads of the respective tonalities,
the T-O harmony of "III" does not readily suggest a tonic triad for any tonality. ¹

Certainly, tonal structures and procedures cannot be adduced to explain all PC occurrences and functions. An inferred tonal system does, however, allow one to perceive musical motion and relationships between musical events with respect to vestiges of familiar tonal procedures and structures.

Notes

1. Roslavets, "Roslavets"-NsM, 397.

2. Gojowy, "Half Time," 212. Elsewhere, Gojowy indicates the non-functional nature of harmonies in Roslavets's music, despite their correspondence to romantic chord structures. (Gojowy, Neue sowjetische Musik, 196.)

3. Gojowy, Neue sowjetische Musik, 146; my translation.

4. Berry states: "Tonality may be thus broadly conceived as a formal system in which pitch content is perceived as functionally related to a specific pitch-class or pitch-class-complex of resolution, often preestablished and preconditioned, as a basis for structure at some understood level of perception. The tonal system consists of a hierarchic ordering of PC factors, with the tonic (final, axis, center, etc.) the ultimate point of relationship which tonal successions are contrived to "expect." . . . In more recent styles in which tonality is relevant a system may (but need not) consist of specific scalar formulations (PC collections) of these or other kinds, with derivative melodic and harmonic configurations disposed in such a way as to express and give primacy to a particular "tonic" or, in fluctuant contexts, particular "tonics." Often such tonal content is reminiscent of conventions of the tonal period. . . . (Berry, Structural Functions, 27-28.)

5. Ibid.
6. In this thesis, "middleground/background" indicates some underlying or non-foreground aspect or structure. Although the combination of the two Schenkerian terms may be confusing and contradictory, and although the pieces are not tonal (hence, a rather loose application of the two Schenkerian concepts to the pieces), their use together is apt, considering that there is oftentimes more than one non-foreground level. Moreover, it is difficult to differentiate the "middleground" from the "background" in this music; hence, the more general designation "middleground/background" to indicate any or all non-foreground structures or aspects, rather than one term or the other.

7. Exceptions to this use of an initiating single-pitch exposure are: T-0, T-1, and T-0 harmonies (m. 6), T-2, T-3, and T-2 (m. 7), and T-7, T-8, and T-7 (m. 8). Significantly, these measures are a distinct formal unit.

8. This is similar to the idea of pitch axis as expounded by Richard Chrisman in his Ph.D. dissertation "A Theory of Axis-Tonality for Twentieth-Century Music" (Ph.D. dissertation, Yale University, 1969), 22f. To quote Chrisman, a pitch axis is "a line or series of points about which other pitch structures are arranged." This term is, according to Chrisman, relatively free of associations with tonic-dominant tonality and free of specific functional associations (p. 22). Some of Chrisman's analytical processes (e.g., determining significant PCs and T-levels through calculation of occurrences and total time-spans through a given piece) are employed in this thesis.

9. A PC line is a series of successive PCs, in this case representing actual pitches in the music, although the pitches are not located within one register or octave, and need not be adjacent to each other. In "I", the PC lines have a descending tendency (e.g., the PC line Ab-G-Fb-Eb-D, mm. 1-6, representing bass pitches). A "prominent pitch" is one that is usually temporally and/or registrally isolated (e.g., in the outer voices of the texture), often having metrical and/or agogic accentuation. In "I", the single initiating pitches are examples of prominent pitches.

10. The hierarchy of T-levels, in descending hierarchic order, is: 0, 11, 4, 3/9, 7, 2, 5, 6/10, 1. T-8 is not used in "I".

11. The 3-0 family of T-levels includes T-0, T-3, T-6, and T-9; 3-1 includes T-1, T-4, T-7, and T-10; and 3-2 includes T-2, T-5, T-8, and T-11.
12. As stated earlier, two tonal tertian chord components as the lowest pitches and another component as the highest pitch would facilitate tonal interpretations of more complex harmonies. Such harmonies are: T-10, mm. 3-4 (Eb); T-5, m. 6 (Bb); T-3, m. 7 (Ab); T-11, m. 8 (E); and T-0, m. 13 (F).

13. The PC content of T-10 corresponds to the Eb-major scale. This also suggests the reason why T-10 and T-3 were removed from the interval 5 cycle that is the basis of T-level successions in "II".

14. To reiterate, "exposed" pitches refer to those that occur in outer voices of a homophonic texture, or that are rhythmically or temporally isolated in some manner. For example, A#/Bb in mm. 1, 4, 5, 8, and 10-12; and E in mm. 3, 4, and 5.

15. Interestingly, the PC content of the ICC of "III" does suggest a potential approach to understanding PC organization. This involves subdividing the ICC into subsets, based on the accidentals of the PCs as notated. In other words, G, Bb, and Db (elements "0", "3", and "6", respectively) form one subset while G#, B, and D# (elements "1", "4", and "8", respectively) form another. In fact, the G-Bb-Db subset forms a vii-i relationship to the G#=B-D# subset, when one of the two is enharmonically understood. There are some instances where two- and three-pitch subdivisions of harmonies, produced by temporal-textural configurations of pitches (such as dyads formed by simultaneously attacked pitches), involve PCs of one subset or another. This principle of PC location is however not consistently applied to all harmonies, nor is the above-mentioned "vii-i" relationship exploited in the temporal-textural configurations of individual harmonies.

16. Ascending PC line refers to a non-literal ascent in the sense that there is no constant ascent within one register. In "III", the PC ascent is: Bb5-B5-C5/C6-C#4-Cx4.

17. Each two-pitch succession suggests a leading-tone-to-tonic succession.

18. To reiterate, this structure includes the T-7-centered cycle (3-1, mm. 2-4), T-0 (m. 4), and the T-5-centered cycle (3-2, mm. 4-13), with an initial T-0,T-5 succession (m. 1) and final T-7,T-0 succession (mm. 13-15). Both T-5 and T-7, IC-5-related to T-0, have a somewhat symmetrical or "opposing" relationship. These T-levels T-0, T-5, and T-7 have associations with tonality at least on a superficial basis (i.e., T-0 being "tonic", T-5 being "subdominant", and T-7 being "dominant"). The hierarchy of T-levels in "III", based on frequency of occurrence and total time-span, is: T-0, T-5, T-8, T-2, T-7, T-11, T-4, T-9, T-1, T-6, T-3, and T-10. Hence, the more significant T-levels of this hierarchy would be included in the middleground/background harmonic structure.
19. As suggested by Ex. 3-22, it could be, on the other hand, the dominant of F#/Gb.
CHAPTER FOUR

OTHER SYSTEMS OF PITCH-CLASS ORGANIZATION IN

TROIS COMPOSITIONS

Our attention is now turned to systems of PC organization that are to some degree apparent in the three pieces, namely octatonicism, and serialism.

Octatonicism, which will be considered first, can be classified as a form of tonality in the general sense of the term because of its hierarchization of PCs. Because Russian contemporaries of Roslavets (e.g., Nikolai Rimsky-Korsakov, Stravinsky, and Scriabin) used the octatonic collection as a basis for some of their music,¹ we need to investigate the extent of its applicability in Trois Compositions. Example 4-1 illustrates the resemblance of the ICCs of the three pieces to octatonic collections.
The ICC of "I" closely resembles octatonic collection 1-2 (i.e., semitone-tone) while that of "II" resembles both octatonic collections 1-2 and 2-1, with each ICC having six of eight PCs common to those of the respective octatonic collec-
tion. With the ICC of "III", there are five PCs matching the octatonic collection 1-2.

Deliberate use of the octatonic collection might be indicated by some consistency in the temporal-textural location and/or function of ICC elements not belonging to the closest octatonic collection. Although non-octatonic elements usually occur in functionally less significant situations, such patterns of occurrence are still not consistent enough to be strongly indicative of deliberate octatonicism. The fact that these non-octatonic elements are components, albeit inner-voice components, of the various harmonies would seem to rule out the idea that Roslavets used the system at all. All elements appear in nearly all vertical positions of harmonies.

Invariant and "quasi-invariant" PCs in T-level families of "I" and "III" (see Chapter Two section entitled "PC Invariance in IC-3-Related T-Levels," and fn. 40 in Chapter Two) form octatonic 1-2 collections while those of "II" form an octatonic 2-1 collection. While some similarities could be observed in Roslavets's music and that of Scriabin, based on Taruskin's descriptions of octatonicism in the latter's music (see Chapter Two, fn. 40), there is no readily apparent pattern of location or function of non-octatonic PCs of a T-level family. Hence, the octatonic system does not appear significantly applicable to PC events assessed as to function and position.
Serial PC Organization

In the pertinent literature, there seems to be some conflict regarding the extent to which Roslavets's music reflects dodecaphonic thinking. Some writings refer to the composer as a "Russian Schoenberg." In fact Gojowy's earlier writings indicate that he may have regarded aspects of Roslavets's works to be dodecaphonic. These are, for example: a reference in Gojowy's *Neue sowjetische Musik* to Roslavets's use in "II" of "all twelve levels of one complex ... in a perceivable methodical ordering;" an earlier reference in this same text to "the prompt reappearance of a transposition-level" being "usually avoided—a principle that likewise underlies the twelve-tone row;" and an earlier article by Gojowy entitled "Nikolaj Andreevic Roslavec, ein früher Zwölftonkomponiert."

Perle qualifies his use of the terms "set" and "series" with regard to the music of Scriabin and Roslavets. Initially he defines the term "set" as comprising "all 12 notes of the semitonal scale, arranged in a specific linear order" and that "[no] note appears more than once within the set." Later, he states:

In a strict sense the term "series" denotes an ordered succession of elements, such as the Schoenbergian 12-tone set. Hauer's "tropes" are only partially ordered, while in the works of Scriabin and some other composers the set is a collection of pitches the specific ordering of which is purely compositional. The term "serial composition" is used in the present study as a general designation for music based on any of these types of sets.
In addition, Perle states: "[The] term unordered set will designate such a collection . . . employed . . . only in a single aspect [i.e., not applicable in inverted and retrograde forms], as in the works of Scriabin; for . . . a specified succession of the notes [is not] assumed to be a defining characteristic of the set."\(^\text{10}\)

Recently, Gojowy has suggested that Roslavets's music was not intentionally dodecaphonic.

Through systematic application of such transpositions [i.e., through the use of all twelve T-levels], Roslavets's compositions revealed elements similar to dodecaphonic serial thinking as early as 1914-15 in the works mentioned above. For this reason, George Perle [Serial Composition and Atonality, pp. 40-44] has classified Roslavets's system, together with that of Scriabin, as "nondodecaphonic serial composition." I cannot entirely agree with this designation, since it seems to imply that the Russian system amounted merely to a kind of pre-figuring of the fully developed twelve-tone system. In reality, the Russian system, which had already been identified as such in Scriabin's work by the Polish musicologist Zofia Lissa in the 1930's, stands as an independent method with its own principles. A series or row, whether dodecaphonic or not, is defined by the invariable order of its members. But in the tone complex, as used by Scriabin and Roslavets, the order of its elements remains free; the complex is defined only by its intervallic structure. Composition based on the manipulation of tone complexes may at times approach the technique of twelve-tone writing, as happens occasionally in Roslavets as a consequence of his particular choices of scale degree for transposition of a tone complex. This, however, occurs fortuitously, not out of necessity. The method may also generate other structures unrelated to twelve-tone procedures.\(^\text{11}\)

While there is no apparent use of invariant PC ordering characteristic of serial music as previously established in
studies of element ordering, there are aspects of Roslavets's music that approach serial dodecaphonic organization. Such organization is not consistently applied, thus reflecting no conscious use of serial techniques. Yet, its existence is nonetheless important, symptomatic perhaps of the highly chromatic and sometimes atonal musical styles prevalent in the post-Romantic era at the time of *Trois Compositions*. An examination of T-level successions and certain melodic segments of the three pieces will illustrate such serial and/or dodecaphonic sequences.\textsuperscript{12}

Serial Ordering of T-Levels and of PCs in T-Levels

The succession of T-levels in the three pieces is "quasi serial" in the sense that all or most T-levels are used in the three pieces individually while certain T-levels are reiterated. Moreover, there appears to be some coincidence between the completion of the series of twelve T-levels and formally important time-points. This is shown in Fig. 4-1, with the first occurrence of each T-level given separately below the sequence of T-levels.

**Figure 4-1.** Serial ordering of T-levels in *Trois Compositions*.

\begin{verbatim}
I
MEASURE:  1  2  3  4  5  6  7  8  10,11  12  13
T-LEVEL:  0-3-10  1-4  7-10-4  11-9-2  5  11-0  11-2  7  3-6  9-4-9  0
T-LEVEL'S FIRST OCCURRENCE:  0-3-10--1-4--7------11-9-2--5-------------6 missing
\end{verbatim}
In "I", the series-final T-level (T-6, m. 10) occurs in the first measure of the recapitulation. In "II", the series-final T-level (T-7, m. 9) precedes the recapitulation in m. 10. In "III", the series-final T-9 (m. 9) forms with T-2 (mm. 10-11) the cadence which precedes the recapitulation in m. 12.

Despite the six to eight different PCs per harmony, there is no true PC complementarity involving PCs of adjacent harmonies. At least one and usually more PCs are not part of two adjacent harmonies, with completion of a PC series involving three or more adjacent harmonies. Moreover, there is no consistency in occurrences and completions of such PC series, in terms of registral or temporal location.
Serial Ordering of Melodic Pitches

Certain primary melody and bass-line segments of the three pieces exhibit limited forms of serial ordering. Again, what is of interest is the coincidence of series-final PCs with formally important time-points. Additionally, many PCs of individual series are stated in initial measures of the respective pieces, a sign of the chromatic nature of these melodies. Example 4-2 presents the primary melodies and bass lines of the pieces, and indicates the PC series involved with each. Melodic pitches are designated both by staff notation and by PC numbers. T-levels are also indicated for the purposes of comparison.

Example 4-2. Serial ordering of primary melody and bass-line PCs.

```
\begin{itemize}
  \item M.: \{1\} \{2\} \{3\} \{4\} \{5\}
  \item T.: 0 3 10 1 4 7 10 4 11 9 2 5
\end{itemize}

\begin{itemize}
  \item M.: \{6\} \{7\} \{8\} \{10\}
  \item T.: 11 0 11 2 7 3 6 (T-8 MISSING)
\end{itemize}
```
Example 4-2 continued.

"II"

M. (11) [12] [13] [14] [15] [16] [17] [18]
T- 0 5 8 1 10 3 10 3 6 9 2 5 10 3 8 11
(T-4,7 IN MM. 8-9)

"III"

M. (11) [12] [13] [14]
T- 0 5 8 3 7 10 1 1 4 7 0 5

M. (5-6) [17] [18] [19] [20-11] [12]
T- 8 11 2 6 9
The primary melodies of "I" and "III" and the bass line of "III" have twelve PCs each. The primary melody and bass line of "II" and the bass line of "I" have eleven PCs each.

In addition, there is a certain amount of coincidence between the series-final PCs and formally significant time-points, at least in "I" and "II". The series-final bass-line PC in "I" (Bb, m. 5) occurs in the cadence of the second phrase. The series-final primary melody PC (G♯, m. 10) and the series-final T-level (T-6) coincide with the recapitulation. (There is however, an earlier significant occurrence of G♯ [G♯6, m. 7], the pitch climax in the piece.) In "II", both the series-final primary melody PC (A) and the series-final bass-line PC (Db) occur in m. 8, adjacent to m. 9 and the series-final T-level (T-7), which precedes the recapitulation. In "I" and "II", there is a relative coincidence of series-final PCs and T-levels with each other, and with formally important time-points. Such coincidence is not as evident in "III", however, with disjunction of the series-final primary melody PC (C#, mm. 5-6), the series-final bass-line PC (C#, m. 12, coinciding with the recapitulation), and the series-final T-level (T-9, m. 9). The latter does, however, form a cadence with the T-2 harmony (mm. 10-11) preceding the recapitulation. In all three pieces, there are no apparent repetitions of numerical sequences representing the series of PCs or T-levels, or of IC patterns underlying such PC and T-level series (although there are limited similarities under inversion in the IC pattern underlying the T-level series).
It is difficult to determine whether completions of such partially or fully dodecaphonic series are coincidental or are deliberate. The recurrences of T-levels, T-level successions, and melodic-harmonic figurations in "I" (mm. 10-13) and "II" (mm. 10-13), and the reiteration of such material within these recapitulative measures, indicate a complete use of all original pitch and rhythmic material by m. 9 of both pieces. In one sense then, there should be some manner of coincidence between this formally important time-point, the recapitulation, and completion of PC or T-level series. Whether these series represent deliberate dodecaphonic serialism is questionable since some of the series (particularly those involving T-levels) are based on non-dodecaphonic, non-serial techniques (e.g., the interval 5 cycle of T-levels which includes all twelve T-levels). However, such series, whether deliberate or not, are manifestations of the highly chromatic nature of Roslavets's music.

Notes


2. In general, non-octatonic elements occur in less significant situations more than 50% of the time. In "I" the non-octatonic element is "8"; in "II", "1" (the variant element) and "4"; and in "III", "8" and "11" (one of the three variant elements). In the case of element "8" in "I", 17 of 25 occurrences of the element can be described as functionally less significant, that is, in a relatively concealed inner voice, or on a
relatively weaker metric time-point, sometimes with a correspon­
dingly short duration. (6 of these 17 occurrences are in
the primary melody, on weaker metric time-points and with short
durations.) Of the 24 individual harmonies or T-levels in "II",
the non-octatonic element "1" occurs only three times (in the
bass line) while element "4" occurs fourteen times in more ex­
posed outer voices although only eleven of these can be de­
scribed as functionally significant situations according to the
criteria stated above. On the other hand, if one were to con­
sider the octatonic 1-2 scale as the referential collection,
then elements "8" and "11" would be non-octatonic. Element "8"
occurs 75% of the time (i.e., in 75% of element "8"’s occur­
cences) as an inner-voice pitch although it occurs in half of
the T-levels as the second highest pitch in the harmonies (and
seven times in the outer voices). Element "11" occurs 60% of
the time as an inner voice pitch although it occurs 40% of the
time as the second highest pitch in the harmonies (and ten times
in the outer voices). In "III", element "8" occurs 66% of the
time as a less significant outer-voice pitch or an inner-voice
pitch, while element "11" occurs only twice in the piece, each
of these as a less significant melodic pitch.

3. To reiterate, certain observations made by Taruskin con­
cerning octatonicism in Scriabin’s later music (Taruskin,
"Stravinsky’s ‘Angle’," 99, fn. 47) have implications for
Roslavets’s music: the three octatonic sets (or IC-3-related T-
level families) act as referential collections, functionally
akin to keys in the traditional sense; a sense of tonal motion
achieved by modulations from one octatonic grouping to another,
or, in the case of the three pieces, transference from one T-
level family to another; and the return to the same octatonic
key (T-level) with which the piece began. There may be some
basis for the application of octatonic theory and structures to
the music of Roslavets, if not to the three pieces in particu­
lar. However, one point of difference between the music of the
two composers is the fact that, in Scriabin’s later music, the
octatonic collection "does not interact with diatonic harmony or
emphasize triadic cognates" (Taruskin, "Stravinsky’s ‘Angle,’"
99, fn. 47), while diatonic harmonies and triadic cognates are
observed to exist, albeit in a limited way, in the three pieces.

4. One such reference occurs in Schwarz, Music and Musical
Life in Soviet Russia, 86.

5. Gojowy, Neue sowjetische Musik, 171-2, in a section
entitled "Frühe Ansätze von Zwölftonentechnik bei Roslavec und
Lourié: Zwölftonentechnik und Zwölftonkomplexe."

6. Ibid., 140.

7. Gojowy, "Nikolaj Andreevič Roslavec, ein früher
Zwölftonkomponist," Die Musikforschung, 22/1 (January-March

9. Ibid., p. 40, fn. 1, in a chapter entitled "Nondodecaphonic Serial Composition."

10. Ibid., 46.


CHAPTER FIVE

CONCLUSION

The ICC System

What can we conclude about Roslavets's compositional techniques in *Trois Compositions*? Each piece has a complex PC organization, involving a basic ICC realized as a PCC at various T-levels, whose content can be varied within certain limitations. Transposition and element variance of a referential PCC thus determine the content of most PC collections in a given piece, expressed vertically, divided into sparser harmonies made up of ICC subsets, and, in a few instances, linearized. The ICCs of the three pieces differ in PC and element content.

One T-level (T-0) acts as a referential sonority for the given piece, in the sense that the sonority begins and concludes the piece, and is most significant as to frequency of occurrence, greater total time-span, and coincidence with formally important time-points. All T-levels can in fact be hierarchized, as to these criteria, in assessment of the significance of each in a given piece. T-5, T-3, and T-8, aside from T-0, are significant T-levels in the three pieces.

Successions of T-levels are generally based on ascending interval 3 and 5 cycles. Particularly in "I" and "III", three or four T-levels of an interval 3 cycle are employed in an ascending succession, before yielding to another interval 3 cycle.
or component(s) thereof. PC invariance in all four (or even three or two) T-levels of a family of IC-3-related T-levels, and transferences from one family (or component) to another, are somewhat analogous to the PC collections of tonal keys and modulations between such keys. In fact, many of the transferences from one interval 3 T-level family (or component) to another involve IC-5-related T-levels. Since the three different interval 3 T-level cycles can be mapped onto the interval 5 cycle, as shown in Chapter Two, it is possible to view the interval 3 T-level families as components of the interval 5 cycle.

There are no readily apparent consistencies of PC and element occurrence and ordering, within individual PC collections or through adjacent collections, indicative of deliberate control. Because most T-level successions involve IC-3- or 5-related T-levels, there are on average three or four invariant PCs in a given succession, one of these involving pitch continuity. Likewise, there are no apparent, consistently applied principles of voice leading or pitch succession, despite Roslavets's indication to the contrary, although these may have evolved with later works.

There are, however, certain limited tendencies in element occurrence (i.e., in the primary melodies and bass lines of the three pieces, and in ranges of vertical positions) and ordering (i.e., similarities in vertical element orderings of harmonies, as well as frequent occurrences of certain element adjacencies), tendencies suggesting that elements, and not just PCs, are determinants of chord structures.
The ICC system and various principles discussed above constitute an "expanded" tonal system, which can be manipulated to produce different types of structures, including tonal structures. In a sense, two systems are employed at once: a theoretical ICC system, and a more perceptible tonal system. The ICCs resemble tonal scales, and have consequent potential for tonal exploitation. In "I", three tonalities—D minor, Eb (major/minor), and G minor—are evident, while one tonality, F, is evident in "II". Tonality in "III" is best described as fluctuant, involving references to various tonalities, since it is difficult to identify any pervasive centricity. Studies of middleground-background structures in fact reveal large-scale tonal structures and procedures in "I" and "II", which are not readily apparent in "III". Moreover, while tonal exploitation of harmonic resources of a given piece is dependent upon, and may be limited by, prior decisions concerning the ICC system and T-level successions, there are instances where ICC system-based structures and successions are altered to allow for tonal implications (one example being the repetition of T-10,T-3 ["II", mm. 3-4], for emphasis on Eb triad components of T-10).

Both octatonicism, which can be a basis of tonality in the broad sense of the term, and serialism (both dodecaphonic and non-dodecaphonic) are applicable to a limited extent in Trois Compositions. Such inconsistent use of octatonic and serial methods, quite unlike the deliberate use of tonal structures and
procedures in the pieces, is typical of the music of the com­
poser's era.

Implications of "III" Concerning Matters of Style and
Large-Scale Form

As little is known about details of Roslavets's life, his
compositional activities and practices, influences upon this
music, and his personal and professional contacts, there is much
upon which one can speculate. One matter, arising in the pre­
sent study, upon which one can make some interesting and impor­
tant speculations, is the circumstance of pronounced differences
between "I" and "II" on the one hand, and "III" on the other.
Plausible reasons for such differences could be: a time lapse
between the composition of the first two pieces and the third,
intervening influences from various sources, and/or deliberate
redirections in Roslavets's compositional techniques. Whatever
the actual reasons for these differences, "III" would seem to
represent the more experimental and, perhaps, mature of the
three pieces, one involving fewer references to tonal proce­
dures, more linear structures, and a more contrapuntal texture.

On the other hand, there are certain similarities between
"I" and "III" that perhaps suggest their formal association,
even suggesting a large-scale ternary form in *Trois Compositions*
as a whole.

This study has established some basic principles of
Roslavets's compositional technique, based on *Trois Composi­
tions*, which belong to an early phase of the composer's career.
It is hoped that it will contribute to a deepened understanding and appreciation of Roslavets’s music, which is largely unknown, and will encourage further study and performance of this music. With such study, the composer and his music will be accorded a position of deserved importance in twentieth-century Russian musical development.


Montagu-Nathan, Montagu. *Contemporary Russian Composers.*


Chronological List of Works by Roslavets

This chronological listing of works by Roslavets, followed by a classification by genre, represents an amalgamation of the following listings: Gojowy, Neue sowjetische Musik, 327-329; Gojowy, "Half Time," 217-219; Gojowy, "Roslavec," Die Musikforschung, 22/1: 36-38; Grove Dictionary, 6th ed., s.v. "Roslavets" (by Gojowy); and Die Musik in Geschichte und Gegenwart [MGG], s.v. "Roslawetz" (by Guido Waldmann). This present listing is the most complete of any published, to date. Dates with square brackets indicate approximate dates of composition; in some cases, only the decade has been estimated. If the date of composition is not known or cannot be approximated, the date of publication (e.g., pub. 1925) is indicated. With songs, the name of the poet is given in parentheses, and a piano accompaniment is assumed. For most unpublished works, an indication of extant manuscripts is given, with the Soviet library in which these are located (i.e., Central State Archive for Literature and Art [CSALA]; Glinka Museum of Musical Culture [GMMC]; Moscow Conservatory Library [MCL]; Lenin Library, Moscow [LLM]).
1907  *Menuet* for String Quartet. CSALA.

*Rêverie* for Violin and Orchestra. Score. CSALA.

1908  *Romance, Rêverie, Morgenstimmung*, Sonata (beginning), Gavotte, *Élégie, Sérénade*, etc. Pieces for violin and piano. CSALA.

1909  *Serenada* for Two Violins. CSALA.

1909-1910  *3 Poèmes* and *Romance-arabesque* for Violin and Piano. CSALA.

[1910s]  *V chasy novoluniiia* [In the Hours of the New Moon]. Symphonic poem for large orchestra. Score with parts. CSALA.

*Liritcheskaia poema/Poème lyrique* for Violin and Piano. CSALA.

1910  String Quartet. GMMC.

Symphony in C Minor. Score. CSALA.

1912  *Tantsy belykh dev/Danses des vierges blanches* for Violin and Piano. CSALA.

*Heaven and Earth*. Cantata, after Byron. Unpublished, apparently lost (included in MGG and Gojowy listings).

1913  *Premier Quatuor à cordes*: also Quartet/Quatuor No. 1, first violin part, at CSALA.)

*Tri sochineniiia* [Three Compositions]. Songs: 1. "Sumrak tikhii" (V. Briusov); 2. "Ty ne ushla" (A. Blok); 3. "Vetere naletite" (A. Blok).


*Noktiurn/Nocturne*. Harp, oboe, two violas, violoncello.

1913-1914  *Sonate pour violon et piano.*


1914  *Trois compositions pour piano.*
1914 *Tri Etiuda/Trois Etudes pour piano.*

1915 *Dva sochinenia/Deux compositions pour piano.* "Quasi prélude," "Quasi poème."

*Prélude pour piano.*


*Pesenka Arlekina* [Harlequin's Little Song] (E. Guro). Song.

1916 Quartet, second and third movements. Score; piano score. CSALA.

1917 Sonata No. 2 for Violin and Piano. CSALA.

Quartet No. 2. Incomplete score. CSALA.


[1920s Orchestral work, without title. *Lento.* Unfinished score. CSALA.]

Orchestral work, without title. Unfinished score. CSALA.

1920 *Dve Poemy/Deux Poèmes.* Piano.

Third Quartet.

Trio No. 2. CSALA.

1921 Sonata. Violoncello and piano; also, Sonata for Violoncello and Piano at GMMC.

*Trois Danses.* Violin and piano.

*Razdum’el Méditation.* Violoncello and piano.

Third Trio. Violin, violoncello, piano.

*Man and Sea.* Symphonic poem, after Baudelaire. Unpublished, apparently lost (included in MGG listing).

1922 Sonata No. 2 for Violoncello and Piano. CSALA.

*World's End.* Symphonic poem, after Laforgue. Unpublished, apparently lost (included in MGG listing).

1923 Symphony No. 2 for Orchestra and Chorus. Unfinished score and sketches. CSALA.

Sonata No. 5. Piano.

1924 Fourth Sonata. Violin and piano. (Pub. 1924.)

Piano Quintet for Two Violins, Viola, Violoncello, and Piano. Score. CSALA.

1925 Violin Concerto. Arranged for violin and piano.


Contributions to agitation-propaganda song cycles (pub. 1925-26)

Song cycle *Pesni revoliutsii* [Revolutionary Songs]: 1. "Na pervoe maia" (P. Oreshin). (Baritone voice.) (Pub. 1925); 2. "Na poliach" (P....Oreshin). Choir a cappella. (Pub. 1925); 3. "Oktiabr'" (S. Rodov). Choir a cappella. (Composed 1924.) LLM.


1926 Chamber Symphony. Unfinished piano score with notes for orchestration. CSALA.

Sonata for Viola and Piano. CSALA.
1926 *Gimn sovetskoi raboche-krest’ianskoist militsii* [Hymn of the Soviet workers’ and peasants’ military (Viatich-Berezhnich)]. Wind band and chorus, orchestra ad. lib.

1927 Trio. Violin and viola parts. CSALA.
Concerto for Violin and Orchestra, in four movements. Without beginning. Piano score. CSALA.

1928 Concerto No. 1 for Violin and Orchestra. Sketches for violin-piano score. CSALA.

*Komsomol’skaia.* Symphonic Poem for Orchestra, Chorus, and Piano Solo. Sketches for score. CSALA.

Sonata No. 1 for Viola and Piano. Incomplete. CSALA.

1929 *Bab’ia dolia* (P. Druzhinin). Agit-prop. song. LLM.

*Kon’ki* (A. Shiriaevets). Agit-prop. song. LLM.

1929-1931 Quartet. Fragments of score. CSALA.

[1930s] Sonata No. 2 for Viola and Piano. CSALA.

*Uzbekistan.* Symphonic Poem. Piano score with notes for orchestration. CSALA.

Orchestral work. Unfinished score. CSALA.


1932-1933 *Geroia* [Song of the Hero]. Song arranged for orchestra. CSALA.

1934-1935 Quartet for Four Domras, on themes of Chechen folk songs. Score. CSALA.

1935 *Invention and Nocturne* for Violin and Piano. CSALA.

Dance for Violin and Piano. GMMC.

*Kolybel’naia* [Lullaby] for Violin and Piano. GMMC.

*Scherzo* for Violin and Piano. GMMC.

*Walse* for Violin and Piano. GMMC.
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<thead>
<tr>
<th>Year</th>
<th>Composition</th>
<th>Composer/Copyright</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1936</td>
<td>Concerto for Violin and Orchestra, in three movements. Score. CSALA.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1939</td>
<td>Quartet No. 4. Unfinished score. CSALA.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Potpourri-Fantasie</em>, on themes of Soviet popular songs, for Xylophone and Piano. CSALA.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1940</td>
<td><em>Legenda</em> for Violin and Piano. CSALA; also <em>Legenda</em> for Violin and Piano in D minor, n.d., at GMMC.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1941</td>
<td>Quartet No. 5 in Eb Major. GMMC.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1941-1942</td>
<td>24 Preludes for Violin and Piano. GMMC.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1942</td>
<td><em>Tabachok</em> (A. Prishelets). Agit-prop song. LLM.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n.d.</td>
<td><em>Rondo</em> and <em>Polonaise</em> for Violin and Piano. GMMC.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Listing of Works by Genre

A. Orchestral Works

Reverie for Violin and Orchestra. 1907.

Symphony in C Minor. 1910.

V chasy novoluniia. Symphonic poem for large orchestra. [1910s.]

Man and Sea. Symphonic poem, after Baudelaire. 1921.
    Unpublished, apparently lost.

Symphony in four movements. 1922. Without beginning, ending.

    Unpublished, apparently lost.

Symphony No. 2 for Orchestra and Chorus. 1923. Unfinished.

Violin Concerto. Arranged for violin and piano. 1925.

Chamber Symphony. 1926. Unfinished.

Concerto for Violin and Orchestra, in four movements. 1927.
    Without beginning.

Concerto No. 1 for Violin and Orchestra. 1928. Sketches for
    violin-piano score.

Komsomol’skaia. Symphonic Poem for Orchestra, Chorus, and Piano Solo. 1928.
    Sketches for the score.

Orchestral work, without title. Lento. [1920s-1930s.]
    Unfinished.

Orchestral work, without title. [1920s-1930s.] Unfinished.

Pakhta. Ballet. [1930s.]

Uzbekistan. Symphonic Poem. [1930s.]

Orchestral work. [1930s.] Unfinished.


Concerto for Violin and Orchestra, in three movements. 1936.
B. Solo and Chamber Works

1. Works for Solo Piano.

*Trois Compositions pour piano.* 1914.

*Tri Etiuda/Trois Études pour piano.* 1914.

*Dva sochinenii/Deux Compositions pour piano.* 1915.

*Prélude pour piano.* 1915.

Five Preludes. 1919-1922.

*Dve Poemy/Deux Poèmes.* 1920.

Sonata No. 5. 1923. (No indications of other piano sonatas.)

2. Sonatas for Violin and Piano.

(*Grove Dictionary,* 6th ed., s.v. "Roslavets," indicates that five violin sonatas were written.)

*Sonate pour violon et piano.* c. 1913-1914.

Sonata No. 2 for Violin and Piano. 1917.

Fourth Sonata. Pub. 1924.

3. Other Works for Violin and Piano.

Romance, Rêverie, Morgenstimmung, Sonata (beginning), Gavotte, Élégie, Sérénade, etc. Pieces for violin and piano. 1908.


*Liricheskaia poema/Poème lyrique* for Violin and Piano. [1910s.]

Tantsy belykh dev/Danses des vierges blanches for Violin and Piano. 1912.

*Poema.* Pub. 1915.

7 Pièces for Violin and Piano: *Étude mortelle, Étude in Eb Major, Canon, Fuga, Adagio, Preludiiia, Romanticheskaia poema.* [1920s.]
1921.

Invention and Nocturne for Violin and Piano. 1935.

Dance for Violin and Piano. 1935.

Kolybel'naia for Violin and Piano. 1935.

Scherzo for Violin and Piano. 1935.

Valse for Violin and Piano. 1935.

Legenda for Violin and Piano. 1940. (Also Legenda for Violin and Piano in D minor. n.d.; likely the same work).

24 Preludes for Violin and Piano. 1941-42.

Rondo and Polonaise for Violin and Piano. n.d.


Sonata for Viola and Piano. 1926.

Sonata No. 1 for Viola and Piano. 1928. Incomplete.

Sonata No. 2 for Viola and Piano. [1930s.]

5. Sonatas and Other Works for Violoncello and Piano.

Sonata. 1921.

Sonata for Violoncello and Piano. 1921.

Razdum'elMéditation. 1921.

Sonata No. 2 for Violoncello and Piano. 1922.

6. Piano trios.

Trio No. 2. 1920.

Third Trio. For violin, violoncello, and piano. 1921.

Trio. Violin and viola parts. 1927.
7. String Quartets.

*Menuet* for String Quartet. 1907.

String Quartet. 1910.

Quartet/Quatuor No. 1. First violin part. 1913.

*Premier Quatuor à cordes.* 1913.

Quartet, second and third movements. 1916.

Quartet No. 2. 1919. Incomplete.

Third Quartet. 1920.

Quartet. 1929-1931. Fragments of score.

Quartet No. 4. 1939. Unfinished.

Quartet No. 5 in Eb Major. 1941.

8. Other Miscellaneous Chamber Works

*Serenada* for Two Violins. 1909.

*Noktiurn/Nocturne.* Harp, oboe, two violas, violoncello. 1913.

Piano Quintet for Two Violins, Viola, Violoncello, and Piano. 1924.

Quartet for Four Domras, on themes of Chechen folk songs. 1934-1935.

*Potpourri-Fantasie,* on themes of Soviet popular songs, for Xylophone and Piano. 1939.

C. Vocal Works

1. Choral Works.


From song cycle *Pesni Revoliutsii:* "Na poliakh" (P. Oreshin). Choir a cappella. (Pub. 1925); "Oktiabr’" (S. Rodov). Choir a cappella. 1924.
From song cycle *Poeziia rabochikh professii*: "Tokaria" (A. Tverdy). Choir a cappella. 1926.

*Gimn sovetskoi raboche-krest'ianskoii militsii* (Viatich-Berezhnich). Wind band and chorus, opt. orchestra parts. 1926.

2. Songs for Voice and Piano.

*Tri sochineniia*. 1913. 1."Sumrak tikhii" (V. Briusov); 2."Ty ne ushla" (A. Blok); 3."Vetere naletite" (A. Blok).


3. Agitation-propaganda songs.

*Poslednee chudo* (A. Andreev). Baritone voice. (Pub. 1925.)

From song cycle *Pesni Revoliutsii*: "Na pervoe mai" (P. Oreshin). Baritone voice. (Pub. 1925.)

From song cycle *Poeziia rabochikh professii*: "Tkach" (Litkovsky). Middle voice. (Pub. 1925); "Shveya" (G. Korenev). (Pub. 1926.)

From song cycle *Pesni o 1905 goda*: "Smolkli zalpy. .." (E. Tarasov). (Pub. 1925); "Mat' i Syn" (G. Galinaia). (Pub. 1926.)

From song cycle *Dekabristy*: "Poslanie v Sibir' dekabristam" (A. Pushkin). (Pub. 1925); "Otvet' na poslanie v Sibir'" (F. Odoevskii). High voice. (Pub. 1925.)

*Ba'bia dolia* (P. Druzhinin). 1929.

*Kon'ki* (A. Shiriaevets). 1929.


This appendix provides a brief examination of issues of PC content tangential to the discussions in Chapter Two.

T-level Identities of Individual Harmonies in "I", Measures 6-8

A further, conceivable explanation of T-level identity in mm. 6-8 of "I" involves designating each harmony with a T-level of most similar PC content, with individual harmonies conforming to the T-0, T-2, T-7 transpositional relationship assumed for mm. 6, 7, and 8, respectively (Ex. 6-1).

Example 6-1. Collections in mm. 6-8 and the most similar T-levels.

\[
\begin{align*}
\text{T-0 (5)} & \quad \text{T-1 (5)} & \quad \text{T-0 (5)} \\
\text{T-9 (5)} & \quad \text{T-4 (5)} & \\
\text{T-7 (6)} & \\
\end{align*}
\]
Example 6-1 continued.

Note: PCs in T-levels that match the collection's PCs are listed as whole notes, with the number of common PCs being given in brackets.

Moreover, the first and third collections of m. 6, second half (and likewise of m. 7, second half, and of m. 8) have four PCs out of six in common, as do the second and third. Because of these common PCs and because the middle collection of each group of three tends to function as an auxiliary, decorative collection (a function that is easily perceived since many PCs of these middle collections are approached and/or left by step),
the outer collections of each group of three are designated as the same T-level.

The T-level succession thus adduced for mm. 6-8 is:
T-11, T-0, T-1/T-9, T-0 (m. 6), T-11, T-2, T-3/T-11, T-2 (m. 7),
T-7, T-8/T-4, T-7 (m. 8). Such a succession of T-levels reflects:
the application of individual collections rather than subsets of an enlarged ICC; the T-0, T-2, T-7 transpositional relationship of mm. 6, 7, and 8; a consistency of T-level sequence in the three measures; and the similarity of the first and third collections of each time-span, as noted above.

Gojowy's Analysis of T-Levels in "III"

Gojowy's four ICCs of "III" include the four most frequently occurring PC collections or transpositions thereof. His sequence of ICCs and their T-levels is illustrated in Fig. 6-1.
Figure 6-1. T-level successions in "III", as given in Gojowy's analysis.

(a) ICCs of "III":

(b) T-level successions in "III":

There is, however, a compromise of Gojowy's system of four ICCs that is more practical. The similarities between ICCs "a" and "b", and between ICCs "c" and "d" (in either case with only one PC that differs), are such that two of the ICCs could be cited instead of four; "a" and "d" are more inclusive. Figure 6-2a presents the two ICCs; the altered sequence of T-levels is given in Fig. 6-2b.
Figure 6-2. ICCs "a" and "d" in "III".

(a) Modified ICCs:

"a0": Db-D#-E-F-G-G#---Bb---B  "c0": Eb-E-Gb-G-Bbb-B

"b0": Db-D#-E-F-G-G#-------B  "d0": Eb-E-Gb-G-Bbb-B--Db

"new
a0": Db-D#-E-F-G-G#-(Bb)-B  "new
d0": Eb-E-Gb-G-Bbb-B-(Db)

ICAs:  2--1-1-2-2---2 2
      (2 + 1)  1-2-1-2---2----4
             (2 + 2)

(b) T-levels of ICCs "a" and "d":

<table>
<thead>
<tr>
<th>M.</th>
<th>[1]</th>
<th>[2]</th>
<th>[3]</th>
<th>[4]</th>
<th>[5,6]</th>
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<tr>
<td>ICC,</td>
<td>a0</td>
<td>a0</td>
<td>a5</td>
<td>a1</td>
<td>a4</td>
</tr>
<tr>
<td>T-</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>a4</td>
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<tr>
<td></td>
<td>0</td>
<td>5</td>
<td>d7</td>
<td>d8</td>
<td>d9</td>
</tr>
</tbody>
</table>

| M.  | [7] | [8] | [9]  | [10,11] | [12]  | [13]  | [14,15] |
|-----|-----|-----|------|----------|-------|-------|
| ICC, | a0  | a0  | a5   | a1   | a4    | a5    | a1    |
| T-   | 0   | 5   | a5   | a4   | a5    | a1    | a4    |
|      | 0   | 5   | d1   | d2   | d3    | d4    | d5    |
|      | 0   | 5   | d4   | d5   | d6    | d7    | d8    |
|      | 0   | 5   | d9   | d10  | d11   | d12   | d13   |

(c) T-level occurrences and total time-spans:

| ICC, | a0  | a1  | a4  | a5  | a7...|a1 |
| T-   | 0   | 5   | 1   | 3   | 1...  |

| OCCURRENCES | 2   | 2   | 1   | 3   | 1...  |
| TOTAL TIME-SPAN | 4   | 5   | 1   | 8   | 2....|
| (8TH VALUES):  | 20  | 20  |

| ICC, | d0  | d1  | d2  | d3  | d4  | d5  | d6  | d7  | d8  | d9  | d10 | d11 | d12 | d13 | d14 | d15 | d16 |
| T-   | 0   | 5   | 1   | 1   | 2   | 1   | 1   | 1   | 1   | 2... | 6   |

| OCCURRENCES | 3   | 1   | 1   | 1   | 2   | 1   | 1   | 1   | 2... | 16   |
| TOTAL TIME-SPAN | 14  | 6   | 1   | 9   | 9   | 10  | 1   | 2   | 2   | 3   | 3... |

This system of two ICCs represents a compromise between Gojowy's four (i.e., the most frequently occurring PC collections and transpositions thereof, with no variant elements), and Perle's use of a single ICC with three variant elements not occurring with every collection.

An examination of locations and functions of variant elements (i.e., represented by the bracketed PCs in ICCs "a" and "d", Fig. 6-2a) establishes no consistent relationship between
these elements and their location and function in the music.  

Figure 6-2c shows the occurrences and total time-spans of ICC  
T-levels in order to establish which of the collections can be  
considered more significant. In this light, T-levels "d0" and  
"d6" (and to a lesser extent "d3" and "d4") can be identified as  
of greater significance. 

An Analytical Alternative: A Single ICC for "I", "II", and "III"  

Similarity of content makes it possible to analyze the har­  
monic successions of the three pieces in terms of a single ICC  
including elements "0", "3", "4", "6", and "8". If the initial  
T-level of this common ICC, occurring as the first harmony of  
"I", were to be designated as T-0, then the first T-level of  
"II" would be T-11, and the first T-level of "III" would be T-5.  
There are obvious analytical advantages in using a single common  
ICC; however, there are some problems with this method. The use  
of a single common ICC implies that initiating harmonies in two  
of the three pieces are somehow subordinate to that of the piece  
whose initial T-level is designated as T-0. And since there are  
differences in variant elements associated with each piece  
(e.g., element "10" in "I", "1" in "II", and "9", "10", and "11"  
in "III"), and in the extent of their use, and also differences  
in the notational orthography of ICC T-levels in the music, par­  
ticularly that of "III", three individual ICCs are taken as a  
basis for analyses in this thesis.
Prolongation of T-Levels

Reiterated T-levels, with only a few harmonies separating occurrences, imply a prolongation of the T-levels and their consequent, special significance. PC invariance and pitch-class continuity can play a role in the perception of prolongation, this perception being facilitated when: there are no more than three or four interpolating T-levels; the vertical position or register of reiterated pitches remains the same in both appearances of the T-level; pitches in the recurring T-level appear also in the interpolated T-levels, preferably in the same register; the reiterated T-levels appear on stronger metric time-points, and/or have similar rhythmic patterns; and both appearances of the reiterated T-level are given similar forms of emphasis, exposure, accentuation, or articulation. Example 6-2 presents prolonged T-levels, with the musical notation of these illustrating invariant PCs and pitch continuity.
Example 6-2. Prolonged T-levels in *Trois Compositions*.

"I"

<table>
<thead>
<tr>
<th>MEASURE</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-LEVEL</td>
<td>10</td>
<td>1--4</td>
<td>7--10--4</td>
<td>11--9--2</td>
<td>5</td>
<td>11--0</td>
<td>11--2</td>
<td>3--6</td>
<td>3--6</td>
<td>9--4--9</td>
</tr>
<tr>
<td>PROLONGED</td>
<td>[10----------10]</td>
<td>[11------------11------11]</td>
<td>[3-----3]</td>
<td>[9-----9]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T-LEVEL</td>
<td>[4---------4]</td>
<td>[6------6]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

```
(1)  (2)  (3)  (2)  (3)
T-10  T-4  T-7  T-10  T-4  T-4  T-7  T-10  T-10  T-4
  5(1)  5(1)  5(2)  5(2)  5(2)  5(2)  4(3)
```

```
(4)  (5)  (6)  (7)
T-11  T-9  T-2  T-5  T-11  T-0  T-11  T-11
  4(1)  4(1)  5(1)  3(0)  2(1)  3(1)  4(2)  4(3)
```
Example 6-2 continued.

\[ \begin{array}{cccc}
\text{MEASURE} & 3 & 4 & 7 \\
\text{T-LEVELS} & 10-3 & 10-3 & 10-3 \\
\end{array} \]

\[ \begin{array}{cccc}
\text{MEASURE} & 1 & 10 & 11 & 12 & 13 \\
\text{T-LEVELS} & 0-5 & 0-5 & 0-5 & 0-5 \\
\text{PROLONGED} & [0] & [0] & [0] & [0] \\
\text{LEVELS:} & [0] & [0] & [0] \\
\end{array} \]

\[ \begin{array}{cccc}
\text{MEASURE} & 10 & 11 & 12 & 13 \\
\text{T-LEVELS} & 0-5 & 0-5 & 0-5 & 0-5 \\
\text{PROLONGED} & [0] & [0] & [0] & [0] \\
\text{LEVELS:} & [0] & [0] & [0] \\
\end{array} \]
Example 6-2 continued.

"III"

<table>
<thead>
<tr>
<th>MEASURE</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>12</th>
<th>13</th>
<th>14-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-LEVELS</td>
<td>8--3--7--10</td>
<td>1--4</td>
<td>7--0--5</td>
<td>2--6</td>
<td>9</td>
<td>2</td>
<td>5--0</td>
<td>5--0--4--7</td>
<td>0</td>
</tr>
<tr>
<td>PROLONGED LEVELS</td>
<td>7----------7</td>
<td>2--------2</td>
<td>0--------0--------0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[
\begin{array}{cccccccc}
2 & 3 & 4 & 8 & 9 & 10 & 12 & 13 & 14-15 \\
\end{array}
\]
Note: Lines in the first of two staves with each example of prolongation connect invariant PCs in adjacent harmonies. The unbracketed and bracketed numbers above each harmonic succession indicate the number of invariant PCs and the number of pitch continuities, respectively. On the second of two staves, horizontal lines illustrate invariance of PCs of the prolonged T-levels through interpolated T-levels.

Given the above-stated conditions, T-levels T-11 (mm. 6-7), T-3 and T-6 (mm. 10-11), and T-9 (m. 12) in "I", T-10 and T-3 (mm. 3-4), and T-0 and T-5 (mm. 10-11), and T-2 (mm. 8-11) in "III" are particularly convincing, while other reiterated T-levels less easily interrelated as prolongations.