

## Set Operations in the Music of Nikolai Roslavets

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### Abstract

Nikolai Andreevich Roslavets—the "Russian Schoenberg"—was at the vanguard of Russian modernism during the second and third decades of the twentieth century. Working with little knowledge of Arnold Schoenberg in 1913 and 1914, Roslavets developed a compositional system that rivaled and even surpassed the systematic tonal organization of European composers at that time. The noteworthy features of Roslavets' compositions from this period included segmentation, rotation, and other set class operations. His unique approach to composition anticipated developments by many of his European contemporaries.

### 1. Introduction

Recent research into Russian avant-garde music of the 1910s and 1920s has revealed a thriving artistic community that in many respects rivaled that of European musicians of their day. The period in Russia prior to and immediately after the Russian Revolution brought forth a wealth of artistic activities, the formation of many musical societies, the promotion of numerous concert series, and the publication of several musical journals. Of particular interest is the composer Nikolai Roslavets, who was at the forefront of the Russian avant-garde movement and whose innovations paralleled and even preceded many of the developments commonly attributed to the Second Viennese School of composition. Roslavets was one of the first composers to employ segmentation, rotation, and other operations in his compositional technique. His role as an innovator, however, has been largely ignored during the last century and consequently few are aware of his musical ingenuity. Nicknamed the "Russian Schoenberg" by one critic, Nikolai Andreevich Roslavets (1881-1944) was perhaps the most innovative composer living during the first decade of the Russian Revolution [1].

### 2. The Synthetic Chord

Roslavets' legacy is not ensured so much through the positions he held but rather by means of his unique innovations as a composer. Roslavets' term "synthetic chord" is central to his compositional approach. In his biographical article, published in 1924, Roslavets reflects upon his new compositional practice:

In the Spring of 1913 the curtain was raised for me, behind which after six years of persistent work (approximately until 1919) I finally found my individual technique. . . I see plainly that then my musical thought was taking its course, somehow independently. It was exploring a united musical complex, so-called "synthetic chords," out of which the whole harmonic plan of the work could be born. One can easily build most of the old harmonic system's existent chords out of these "synthetic chords," which contain 6-8 or more tones. Thus they were chosen to play not only the external role of tone color in the entire plan of the composition, but also the internal role of deputies for tonality [2].

There are three ways one might understand Roslavets' new "deputy for tonality." First, the synthetic chord is an abstract, pre-compositional collection that provides the pitch material of a composition. Much as a scale

(such as C major) imposes a dichotomy of diatonic and non-diatonic tones upon the 12 chromatic pitch classes, Roslavets' synthetic chord also distinguishes between tones in the collection and those outside the collection [3]. Second, as in tonal music, the tones in Roslavets' synthetic chords also are employed hierarchically, that is, although all tones contained in the collection may be freely used for harmonic material, in practice, certain tones are favored, especially at cadences and important structural moments in the composition. Finally, various transpositions of synthetic chords or even new synthetic chords articulate compositional structure much as new key centers enunciate structure in common-practice musical works.

The analytical portion of this article will focus on two compositions that best illustrate Roslavets' early professional compositional technique. The chamber work *Nocturne*, written in 1913, represents his earliest compositional practice where he typically employs a single, diatonic-based synthetic chord [4]. The song "Wolves' Cemetery" (*Volkovo kladbishche*), written in November 1913, contains innovations further explored in Roslavets' later compositional practice up to and even beyond the Russian Revolution [5]. "Wolves' Cemetery" is a seminal work that contains a sophisticated approach to composition with multiple synthetic chords, partitioning, rotation, and other set operations that predated the work of many of his European contemporaries.

Figure 1 supplies the transpositions of the synthetic chord used in the first measures of *Nocturne*. The labels for the synthetic chord transpositions employed in the composition are given in the left column of figure. The top entry in each column with note names gives the order number [6]. Figure 2 contains annotated music to the harp part in the opening of the work. This figure supplies the transpositions of the synthetic chords given in Figure 1 under the bottom most staff.

$T(x)$	0	1	2	3	4	5	6 (Order Numbers)
T4	E	F	G	A	B $\flat$	C	D
T6	F $\sharp$	G	A	B	C	D	E
T11	B	C	D	E	F	G	A

Figure 1: Synthetic Chords for the Opening of *Nocturne*.

The image shows a musical score for the harp part of the opening of *Nocturne*. The tempo is marked "Andante sostenuto". The score is in 3/4 time and consists of two staves. The first staff is the treble clef and the second is the bass clef. The music begins with a piano (*p*) dynamic. The score is annotated with synthetic chord transpositions: T6 (measures 1-3), T11 (measures 4-6), and T4 (measures 7-9). The annotations are placed below the bass staff. The first measure is marked "m1" and the second measure is marked "m3". The tempo marking "Andante sostenuto" is at the top left. The dynamic marking "p" is at the beginning of the first staff.

Figure 2: Annotated Harp Part to the Opening of *Nocturne*.

Roslavets' *Nocturne* retains certain features of traditional harmonic practice despite its innovations. The synthetic chord of the work given in Figure 1 corresponds to the pitches in a major scale (starting on the 7th scale degree). The two reiterated chords, which first appear in measures 1-3 (Figure 2), establish each transposition of the synthetic chord: that is, the chordal voicings in measure 1 reappear transposed in measures 5, 6, and subsequent measures. The perfect fourth movement in the bass, imitating a tonal V-I

motion, also serves to confirm each transpositional level. Although the common practice harmonic language has been abandoned, motions in the bass which imitate the common practice conventions remain in Roslavets' compositions much as they did in Alexander Scriabin's last compositions.

### 3. Rotation and Segmentation

A few words are needed here to explain the graphs in this paper. Figure 3 is a graphic representation of the harp part contained in Figure 2, the opening of *Nocturne*. Order numbers of the transpositions of the synthetic chord are spatially placed on the graph according to their temporal and pitch relationships. The horizontal axis gives the progression of time through the work, with the measure numbers at the top. The vertical axis provides pitch space with the left-hand border marking the "C" octaves. C4 is middle C on the piano. The synthetic chord transpositions (T6 etc.) are presented below the graph. The single solid line between groups indicates common tones. The encircled "R" and a number indicate rotational relationships between groups, that is, stacks of order numbers.

The recurring chordal section in the harp part in the opening measures of the *Nocturne* contains an interchange between two equivalency groups that are identified in the graph in Figure 3 by rounded and

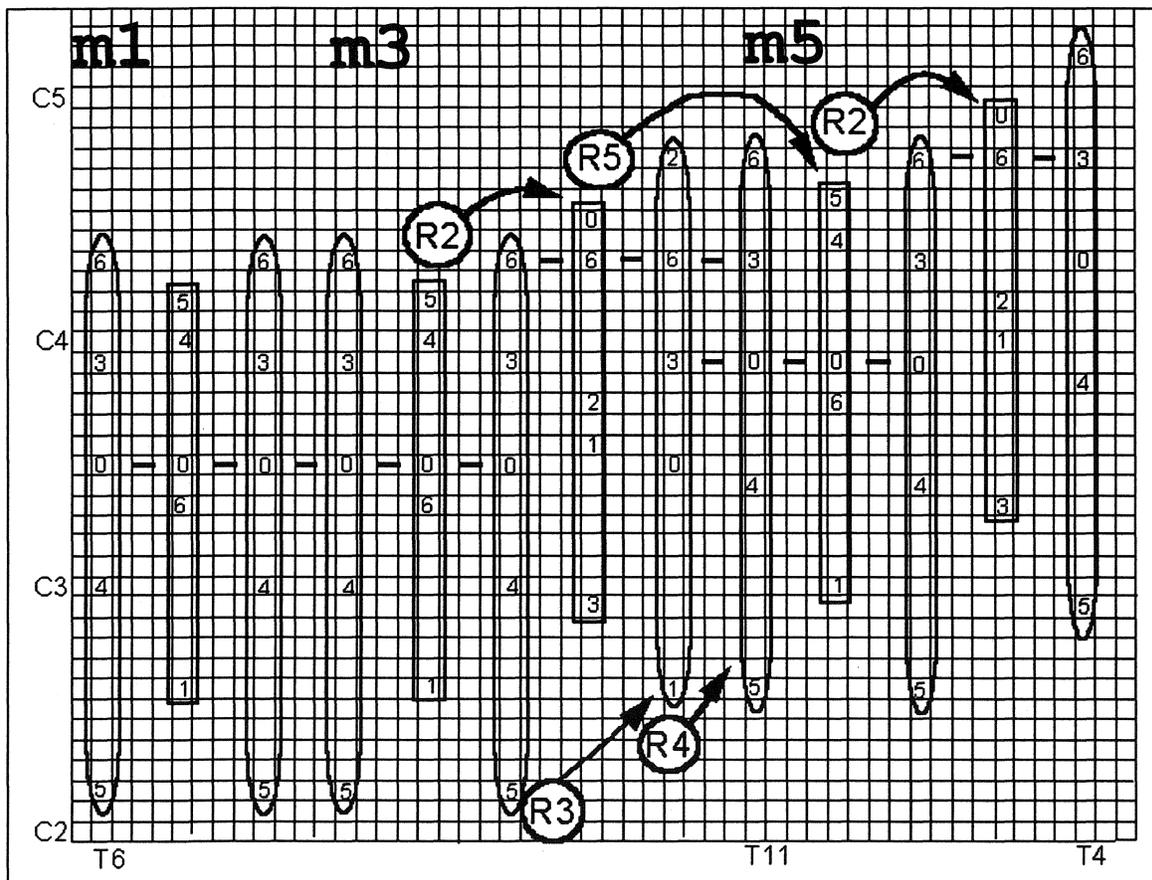


Figure 3: Graph of the Opening of *Nocturne*.

rectangular outlines. These two equivalency groups are reiterated in each transposition of the synthetic chord in the opening measures of the work. The first example of rotation in the piece is found between the

rectangular groups in measure 3. The rotation of 2 maps the order numbers in the first rectangular group (1, 6, 0, 4, 5) into the second (3, 1, 2, 6, 0) [7]. Rotational mappings between the rectangular groups are shown on the upper part of the graph. The rounded groups also participate in rotational mappings (see the bottom part of the graph). For instance, there is also a rotational mapping of 3 between the last rounded group in measure 3 and the rounded group in measure 4. Roslavets does not confine rotational mappings to groups within the same synthetic chord transposition; for instance, note the R4 mapping of the last rounded group in measure 4 (T6) to the first rounded group in measure 5 (T11). Similarly, rotations in the rectangular groups bridge different synthetic chord transpositions. The last rectangular group in measure 3 maps by rotation 5 into the first rectangular group in measure 5.

While *Nocturne* contains a few innovative uses of set operations, it is "Wolves' Cemetery" that reveals Roslavets' mature compositional insights. This is his first work to include a sophisticated approach to composition with innovations in partitioning, rotation, harmonic structure, voice leading, and multiple synthetic chords. These innovative features of this work bear evidence of a compositional vision that guided Roslavets for the next decade.

$T(x)$	0	1	2	3	4	5	6 (Order Numbers)
T1	C#	D#	E	F	G	A	Bb
T5	F	G	Ab	Bbb	Cb	Db	Ebb

Figure 4: Synthetic Chords in m. 15 of "Wolves' Cemetery."

Figure 5: Annotated Music to "Wolves' Cemetery, m. 14.

Partitions of the synthetic chord are an important method of voice leading and segmentation in many of Roslavets' 1913 compositions, particularly for "Wolves' Cemetery." Transpositions of one of the two synthetic chord transpositions employed in the work are supplied in Figure 4. In this synthetic chord the order

numbers 0 and 2 (underlined>) are reserved for motivic material and order number 1 (bold>) is exclusively confined to the bass. Measures 14 up to 15 of music with annotations and a graph are provided in Figures 5 and 6. These figures demonstrate the three-fold partitioning of the synthetic chordal transpositions into bass, motivic, and harmonic material that appears in the entire middle section of this ternary song. In Figure 6, order number 1 always appears as the lowest note. Order numbers 2 and 0 are motivic in character (dotted quarters and eighth notes in the lowest piano staff of Figure 5). The rest of the order numbers in Figure 6, including the vocal part,

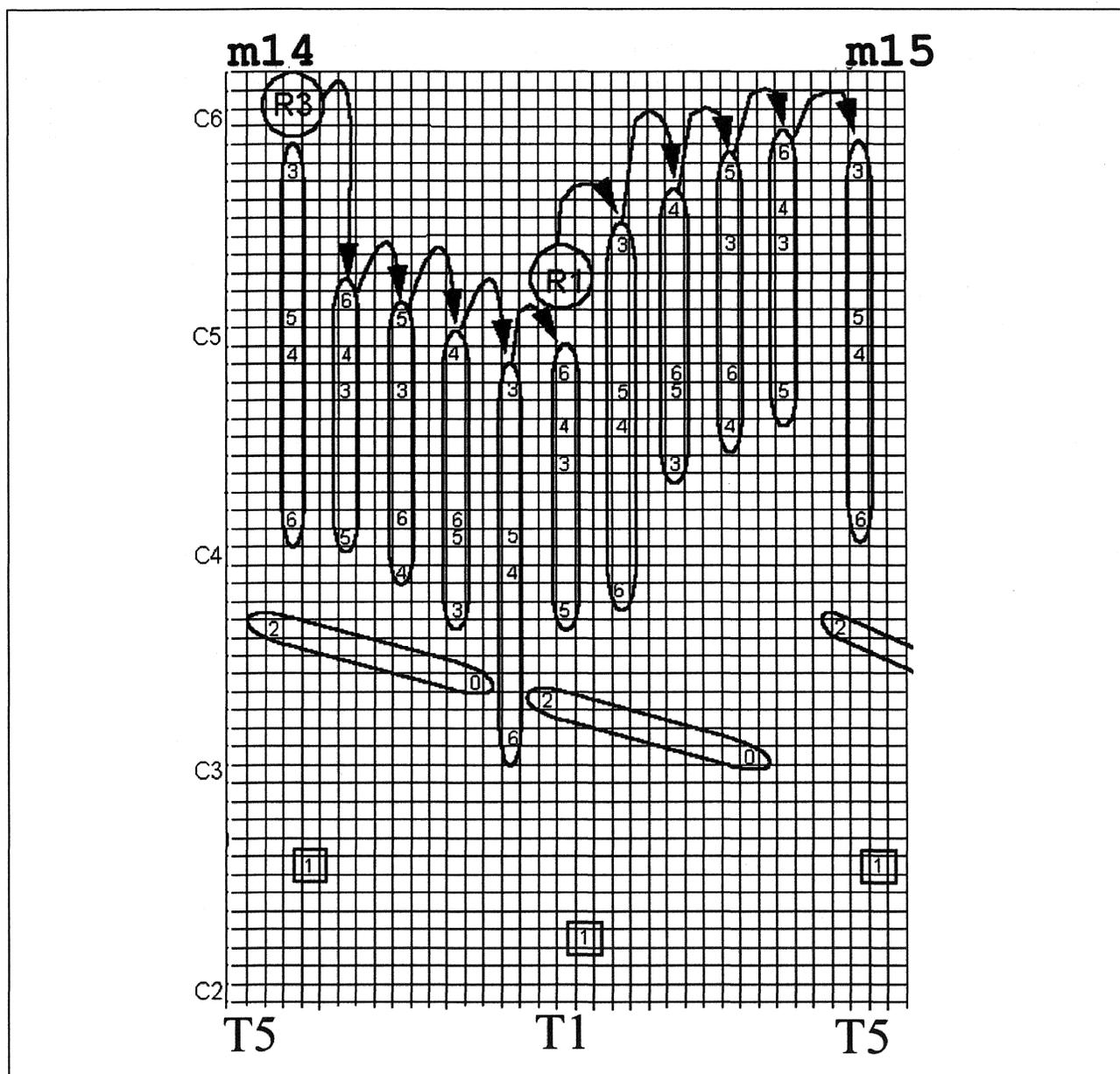


Figure 6: Graph of the "Wolves' Cemetery, m. 14.

comprise harmonic material largely grouped in the higher registers. Generally in the composition the vocal part does not participate in order operations although its pitches are drawn from the synthetic chord.

A structurally significant consequence of the threefold partitioning of the synthetic chord is a varied form of rotation (see Figure 6). Order numbers 0, 1, and 2, reserved for the melodic and bass material, are skipped by the rotation [8]. For instance the stacking (6, 4, 5, 3) skips order numbers 0, 1, and 2 to map into the second stacking (3, 5, 6, 4). Rotations of 3 cascade downwards until halted at the change of synthetic chord transposition. From there rotations of 1 ascend up to measure 15. These rotations of the harmonic material in Figure 6 are roughly analogous to the paradigm of chord inversion in tonal music. Placing the bottom member on top permutes the vertical ordering and vice versa. Here Roslavets employs only rotations of  $\pm 1$ , that is R1 and R3.

#### 4. Concluding Remarks

Although Roslavets has been dubbed "the Russian Schoenberg," clearly his compositional language could not be mistaken for Schoenberg's [9]. Yet some interesting parallels between the two composers do exist. Both painted; Roslavets exhibited his works in his youth [10]. Both were pedagogues, but Roslavets' success as a teacher was unfortunately marred by political circumstances. Both saw the necessity for a compositional system based upon logic and reason. Both believed that their method of composition would establish the future of music. Thus Roslavets wrote:

This system is, in my opinion, appointed for us to replace that obsolete classical system and to establish a solid basis by which to use the "intuitive" (in truth rather anarchistic) creative method. . . .

No argument of a similar nature is able to convince me of the error of my chosen path. I will improve upon it and also will lead others after me upon it--I am totally convinced of it [11].

The two felt the necessity to defend and explain their new creative efforts, but despite their struggle for public acceptance of their work, neither received the adulation he hoped for.

One can only speculate how the course of music history would have been changed if the "Russian Schoenberg"--Roslavets--had the advantages that Germanic society brought Arnold Schoenberg. Roslavets' artistic creativity was quickly stifled in the new Soviet Union. Shortly after the Revolution the artistic climate in Stalinist Russia turned harsh for avant-garde artists. Due to political pressures, Roslavets recanted his synthetic chordal system in the middle 1920s. A few years later he sought refuge in Uzbekistan where he wrote the ballet *Pakhta* [Cotton] (1932), the first ballet ever written there. Roslavets returned to Moscow in 1933 where he taught a compositional course at the Musical Polytechnical School, was an editor on the Radio Committee, and was political editor of the Repertoire Committee. Political pressures intensified to such a degree in 1938-1939 that his niece, Efrosin'ya Fedorovna Roslavets, feared he was in prison [12]. Roslavets' first wife, Natal'ya Alekseevna Lanovaya, left him at the height of this persecution, and shortly thereafter Roslavets suffered a stroke that resulted in a temporary loss of speech and partial paralysis. His health declined until his death on August 23, 1944 from a second stroke.

Despite the fact that his musical contribution was omitted from contemporaneous Soviet writings and texts of his day, unless of course it appeared in a scathing critique, recent Russian musicologists and theorists have begun to credit his achievements and bring attention to his compositions [13]. The works of Marina Lobonova and Yuri Kholopov among others have done much to bring his music to the world's attention [14]. With the publication and recording of his compositions and scholarly analysis of his works, finally the musical world is taking note of Roslavets' musical achievements.

## References

- [1] Marina Lobanova, "N. A. Roslavets: Tvorchestvo i sud'ba" [N. A. Roslavets: Creativity and Fate] *Sovetsko muzyke* [Soviet Music] 5 (1989): 97. Also see Boris Schwartz, *Music and Musical Life in Soviet Russia* (New York: W. W. Norton, 1983), p. 86.
- [2] Nikolai Roslavets, "Nik. A Roslavets o sebe i svoem tvorchestve" [Nik. A Roslavets about Himself and His Creative Work] *Sovremennaya Muzika* [Contemporary Music] 5 (1924): 134.
- [3] Marina Lobanova notes that Roslavets understood the synthetic chord to function both as a chord and as a mode. See Lobanova's monograph *Nikolaj Andreevi Roslavets und die Kultur seiner Zeit* (Frankfurt am Main: Peter Land, 1997), p. 156.
- [4] In addition to the self-published music in 1913, *Nocturne* was republished in Wien/Leipzig by Universal-Edition in 1929. Printed copies are resident at the Library of Congress, The New York Public Library, Liverpool University Library (UK), the Archives of Universal Edition in Vienna, and the Library of the Moscow Conservatory. The work was recorded by the Melodiya Record Company, USSR in 1986 under the title "Music of the Soviet Composers of the 20s" (SUCD 10-00077).
- [5] "Wolves' Cemetery" is contained in *Chetyre sochineniya* [Four Compositions] for voice and piano, which was self published in 1914. Printed copies are resident at Liverpool University Library (UK), the Library of the Moscow Conservatory, and the New York Public Library.
- [6] Roslavets' synthetic chords are presented in normal form, which means that T0 is the Transpositional Type. The Transpositional Type of the synthetic chords is chosen rather than the Transpositional/Transpositional Inversional Type because there is no substantiated evidence that Roslavets considered a synthetic chord to be equivalent to its inversion. Definitions of Transpositional Type and Transpositional/Transpositional Inversional Type may be found in John Rahn's *Basic Atonal Theory* (New York: Schirmer Books, 1980).
- [7] This rotation may be viewed as transposition in a musical space. See David Lewin, *Generalized Musical Intervals and Transformations* (New Haven/London: Yale University Press, 1987): p. 17, 2.1.4. In order to avoid confusion between two types of transposition (transformations of one synthetic chord transposition into another, and transformations of synthetic chord members into other synthetic chord members), rotation will refer to the voice-leading transformations elucidated here.
- [8] Alternatively this may be viewed as a new definition of the musical space. The function operates on a set with four elements (order numbers 3-6) instead of seven (order numbers 0-6). Again see David Lewin, *Generalized Musical Intervals and Transformations* (New Haven/London: Yale University Press, 1987), p. 17, 2.1.4.
- [9] Roslavets' compositional methods more closely parallel Scriabin's than Schoenberg's. For a discussion of Scriabin's orthography and use of scalar collections see George Perle, "Scriabin's Self-Analyses," *Music Analysis* 3/2 (July 1984): 101-122.
- [10] Marina Lobanova, "N. A. Roslavets," p. 97.
- [11] Nikolai A. Roslavets, "Nik. A. Roslavets o sebe i svoem tvorchestve" [Nik. A. Roslavets about Himself and His Work] *Sovremennaya Muzika* [Contemporary Music] 5 (1924): 135 and 137.

[12] Yuri N. Kholopov, "Nikolai Roslavets: Volnuyushchaya stranitsa russkoï muzyki" [Nicolai Roslavets: An Exciting Page in Russian Music], foreward to *N. Roslavets Compositions for Piano* (Hamburg: Musikverlag Hans Sikorski, 1989), p. 8.

[13] Some of Roslavets' harshest critics: L. Kaltat, "O padlinno-burzhuzhoï ideologii gr. Roslavca" ["About the True Bourgeois Ideology of Citizen Roslavets"] *Muzykal'noe Obrazovanie* [Musical Education] 3-4 (1927): 32-43. Victor Belyî, "'Levaya' fraza `muzykal'noy reakcii'" ["The `Leftist' Cliche of the `Musical Reaction'"] *Muzykal'noe Obrazovanie--Musikalische Bildung* 1 (1928): 43-47. Lev Lebedinskiï, *8 let bor'by za proletarskuyu muzyku* [The 8 Year Fight for Proletarian Music] (Moscow: c1931): 18-23.

[14] In addition to the works cited above see Marina Lobanova, "N. A. Roslavets: Tvorchestvo i sud'ba" [N. A. Roslavets: Creativity and Fate] *Sovetsko muzyke* [Soviet Music] 5 (1989): 96-103; "N. A. Roslavec zeneelmeleti hagyateka" [The heritage of Roslavets' music theory] *Magyar Zene, zenetudományi folyóirat* [Hungarian Music, musicological magazine] 28/3 (1987): 230-243, published in Budapest, Hungary; "L'eredità di N. A. Roslavec nel campo della teoria musicale *Musica/Realtà*" 12 (1983). Marina Lobanova has also edited recent printings by Schott of Roslavets' compositions. Yuri N. Kholopov, *O muzyke Roslavets: [The Music of Roslavets]*, foreward to *N. Roslavets First Sonata and Second Sonata for Piano* (Moscow: Moscow Muzyka, 1990). Musikverlag Hans Sikorski (Hamburg) is the sole agent for these editions in Europe. Also see my Ph.D. dissertation "At the Vanguard of Russian Musical Modernism: Nikolai Andreevich Roslavets" (University of Washington, 1994).