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*Leit-harmony, or Stravinsky's
Musical Characterization in The Firebird* *

Zusammenfassung: Leit-Harmonie, oder Stravinskys Charakterisierungskunst im Feuervogel. Der Aufsatz untersucht die Verwendung diatonischer bzw. chromatischer Musik, die sich jeweils mit menschlichen bzw. übernatürlichen Personen in Stravinskys Ballett Der Feuervogel verbinden. Der Komponist selbst beschreibt diese Technik als Leit-Harmonie. Aus der Verwendung der Leit-Harmonie in diesem Ballett ergeben sich zwei Fragen: Ließ Stravinsky innerhalb dieses Systems musikalischer Charakterisierung Variationen zu? Und: und falls dem so ist, stand dies im Zusammenhang mit anderen Aspekten seines Werks? Auf diese Fragen antwortet eine Analyse des Balletts Der Feuervogel, die zum Teil auf von Stravinsky hergestellten "audiographischen" Rollen für mechanisches Klavier beruht. Die Untersuchung zeigt, daß es in der Tat innerhalb der Leit-Harmonie im Feuervogel Variationen gibt, Variationen, die mit dem formalen Aufbau des Balletts zusammenhängen.

Between 1914 and 1930, Stravinsky worked closely with various types of player pianos. As he explained in his autobiography, his interest in this instrument was twofold: the player piano allowed a means of eliminating the "notorious liberty" taken by performers, while its precision piqued his curiosity as a composer.¹ His *Etude for Pianola* and an intermediate version of *Les Noces*, which included a part for Pianola, are the only original compositions stemming from this interest. Yet Stravinsky's involvement with the player piano also included many lucrative arrangements, for beginning in 1921, he was commissioned to produce sets of piano rolls of *The Firebird*, *Petrushka*, *The Rite of Spring*, *The Song of the Nightingale*, *Pulcinella*, and his Sonata for

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¹ A detailed account by Stravinsky of his interest in the player piano is found in Igor Stravinsky, *An Autobiography* (New York: Norton, 1962), p. 101.

Piano. Stravinsky either personally recorded or supervised the production of these and other works for the Aeolian and Pleyel companies.²

In 1928, the Aeolian company began to produce an "Audio-graphic" series of piano rolls for Stravinsky's works. This was to include not only piano reduction, as the earlier rolls had, but also annotations by the composer; the latter were to enable the listener to read about each passage as it was played. Because of this extra feature, these rolls were intended to be an aid to music education for the non-professional. Due to the technical nature of Stravinsky's comments, the piano rolls are an invaluable source of information by the composer himself, and worthy of consideration along with his other writings and published "conversations." Unfortunately, while all three of Stravinsky's early ballets were to be presented in the Audio-graphic series, due to financial difficulties the Aeolian company produced only *The Firebird*, in 1928-29.³

This set of six rolls is properly titled *Stravinsky: My Life and Music - The Firebird*.⁴ At the beginning of each of these rolls, Stravinsky identifies motifs and their associated characters. Also, a running description of the ballet is presented in black ink to the right of the perforations, while technical features are explained in red ink to the left; both sets of comments are aligned precisely with the music. These commentaries constitute Stravinsky's most extensive technical discussion of an original composition; not only are leitmotifs and their transformations carefully identified, but the intervalllic similarities between these figures are also explained.⁵ Stravinsky's tight-lipped attitude regarding his compositional "trade secrets" is well-known, and the extent and detail of his motivic analysis of the ballet is therefore intriguing; just as much,

2 The definitive survey of Stravinsky's relationship with the player piano is Rex Lawson, "Stravinsky and the Pianola," in *Confronting Stravinsky*, ed. Jann Pasler (Berkeley and Los Angeles: University of California Press, 1986): 284-301. In his study, Lawson includes a complete list of the piano rolls that Stravinsky made.

3 Stravinsky also recorded the first movement of his Sonata for Piano (roll number D231) as part of the Audio-graphic series.

4 Piano roll numbers D759, D761, D763, D765, D767, & D769. While the Pleyel company had already produced a set of rolls of *The Firebird* in 1926, the Aeolian Audio-graphic rolls are more valuable because of their annotations.

5 The rhythmic construction of selected passages is also examined by Stravinsky. The most extensive of these comments concerns the material that appears in the *Magic Carillon* music between Nos. 98 and 106.

⁶Then follows a kind of weird carillon, during which Kastchei's subjects invade the whole of the enchanted garden and take Ivan prisoner. This episode is divided into sections, the metrical constructions of which is as follows: first 2/2, then 3/2, after which the beat is represented by three notes, thus, 12/4, equivalent to 4/2; and then, returning, 9/4, equivalent to 3/2; and 6/4, equivalent to 2/2.

Stravinsky, *Stravinsky: My Life and Music - The Firebird*, D765.

in fact, as was his candid admission that he borrowed three Russian folksongs in the ballet.⁶

Finally, in a section of comments devoted to the ballet's harmonic construction, Stravinsky emphasizes the ballet's division between diatonic and chromatic music, referring to this harmonic distinction as *Leit-harmony*:

When I composed *The Firebird* I had not yet completely broken with all the devices covered by the term Music Drama. For example I was still rather susceptible to the system of characterization of different personages, or of different dramatic situations. And this system shows itself in the introduction of processes belonging to the order of what is called Leitmotif.

Thus, in *The Firebird* all that is concerned with the evil genius, Kastchei, all that belongs to his kingdom: the enchanted garden, the ogres and monsters of all kinds who are his subjects, and, in general, all that is magical or mysterious, marvelous or supernatural, is characterized in the music by what may be termed *Leit-harmony*.... In contrast with this magical, chromatic music, the mortal element (the prince and the princesses) is allied with characteristically Russian music of a diatonic type.⁷

The composer did not go any further towards a specific definition of the diatonic / chromatic division of the ballet, or the *Leit-harmony* (the individual harmonic characterization) for each character, although a technical explanation of these techniques would certainly not have been out of place in these annotations. Therefore, scholarship on *The Firebird* provides a much deeper understanding of the harmonic division in the ballet. Edwin Evans translated Stravinsky's annotations on the rolls into English and incorporated much of this material in his early study of the ballet, also noting that this harmonic division was borrowed from Rimsky-Korsakov's opera *The Golden Cockerel* (1906-7).⁸ Unfortunately, Evans was imprecise in his definition of Stravinsky's diatonic and chromatic music. The work of Gerald Abraham,⁹ and recent research by Richard Taruskin,¹⁰ is more specific in dealing with the historical

6 This admission is made in Igor Stravinsky and Robert Craft, *Memories and Commentaries* (Berkeley and Los Angeles: University of California Press, 1981) p. 98. However, only two of these three folksongs have been identified; see below for a discussion of their placement within the ballet.

7 Stravinsky, *Stravinsky: My Life and Music - The Firebird*, D759.

8 Edwin Evans, *Stravinsky: The Firebird and Petruska* (London: Oxford University Press, 1933).

9 Among this author's extensive writings, see especially Gerald Abraham, *Studies in Russian Music* (London: W. Reeves, 1935) and *On Russian Music* (London: W. Reeves, n.d.).

10 Richard Taruskin, "Chernomor to Kashchei: Harmonic Sorcery, or Stravinsky's 'Angle,'" *Journal of the American Musicological Society* 38 (1985), 72-142; "The

origin of this harmonic division. Their work has shown that Glinka's opera *Ruslan and Ludmilla* (1842) began a tradition that ended with *Petrushka* (1912), one in which supernatural characters were associated with either the whole-tone or octatonic scales, and mortal characters with either tonal or modal scales.¹¹ In a still more specific approach, the analytical-theoretical works of Arthur Berger¹² and Pieter van den Toorn¹³ have explored the usage of these scales in Stravinsky's *oeuvre*, clarifying certain melodic and harmonic routines, as well as interactions between these scale forms.

Despite these new approaches and techniques, the piano rolls nevertheless remain valuable because of the extensive motivic analysis they provide. An analysis of the harmonic setting of these leitmotifs (based on the composer's association between leitmotif and stage character) can clarify our understanding of the ballet's *leit-harmony*. Further, it can refine our understanding of this concept by answering two questions: first, was the ballet's *leit-harmony* used consistently, and second, how does it relate to other aspects of the work? This study will answer these questions, and reveal that there is an underlying harmonic "blueprint" for the entire ballet, one related to its formal structure. Reference will be made to the original 1910 version of *The Firebird* rather than the three concert suites subsequently extracted from the ballet.

The association of leitmotif with character is a crucial step in this investigation, for if these associations are not precise, an analysis could be flawed in significant ways. An example of this may be found in Allen Forte's study of the ballet, one based on leitmotivic pitch-class sets contained within master sets of differing genera (diatonic, whole-tone, octatonic).¹⁴ Since Forte's association of leitmotif to stage character differs from Stravinsky's, he assigns the

Petrushka: Harmony and Tonality chez Stravinsky." *Nineteenth-Century Music* 10 (Spring 1987): 265-286.

11 For a detailed survey of pitch-class polarity between diatonic and nondiatonic collections in non-theatrical works by three composers of Stravinsky's generation, see Elliott Antokoletz, "Hybrid Modes and Interval Sets as Formal Determinants in Piano Sonatas of Albrecht, Scriabin, and Prokofiev," *International Journal of Musicology* 3 (1994:309-338).

12 Arthur Berger, "Problems of Pitch Organization in Stravinsky," *Perspectives of New Music* 2 (1963): 11-42.

13 Pieter C. van den Toorn, "Some Characteristics of Stravinsky's Diatonic Music," *Perspectives of New Music* 14 (1975): 104-38 and 15 (1977): 58-95; *The Music of Igor Stravinsky* (New Haven and London: Yale University Press, 1983); *Stravinsky and "The Rite of Spring"* (Berkeley and Los Angeles: University of California Press, 1987).

14 Allen Forte, "Harmonic Syntax and Voice Leading in Stravinsky's Early Music," in *Confronting Stravinsky*, ed. Jann Pasler (Berkeley and Los Angeles: University of California Press, 1986): 95-129.

diatonic pitch-class set 4-23 (0 2 5 7) to Kastehei the Immortal, while assigning the octatonic pitch-class set 4-12 (0 2 3 6) to Prince Ivan. This not only misassigns Kastehei's leitmotif to Prince Ivan, but also contradicts the chromatic / diatonic division between supernatural and mortal characters of the ballet. Therefore, Forte's analysis contradicts Stravinsky's writings on the ballet. The complete list of leitmotifs that Stravinsky identified in the ballet is presented in Tables 1 & 2, and it is this list upon which this study is based.

With the composer's own association between leitmotif and character, the analysis of these figures can begin by examining the process of motivic generation in the ballet. The opening measures of the *Introduction* present an unaccompanied string ostinato which contains two of the most prominent leitmotifs used in the ballet, those of Kastehei the Immortal and the Firebird. The ostinato opens with a six-note figure (Ab-Fb-Eb-D-F-G, repeated twice in the opening measure) that is divided into two three-note groups: Stravinsky remarks that the third note of each group is a passing note. Omitting these passing notes (Eb and G) reveals linear statements of a major third followed by a minor third; in fact, the progression Ab / Fb - D / F forms Kastehei's leitmotif, to which Stravinsky refers exclusively as "the Magic Thirds." Further analysis of this string ostinato reveals that the first three-note group plus the first note of the second group state the Firebird motif (Ab-Fb-Eb-D). [Example II]

Stravinsky describes the similarity of these two leitmotifs in terms of the intervals they share:¹⁵

[Kastehei's Magic Thirds] consists of a major and minor third in alternation Always a minor third is followed by a major third, and vice-versa. Similarly, the melodic intervals forming these thirds consist of an augmented fourth (or a diminished fifth) which rises and a minor second which falls, alternately in the upper and the lower part (treble and bass). These intervals in turn serve to form the basis of the benevolent, but still magical apparition of the Bird.¹⁶

However, he fails to point out the derivation of the two leitmotifs from the opening ostinato. Indeed, the composer also remains silent regarding the further derivation of supernatural music from either of these two leitmotifs. Because the supernatural music can be traced back to the string ostinato, this opening figure serves as the chromatic *Grundgestalt* of the ballet.

15 The prominence of the augmented fourth or diminished fifth in the chromatic music of *The Firebird* is one of Edwin Evans's main points in his study of the ballet, a point no doubt garnered from his translation of the piano rolls.

16 Stravinsky, *Stravinsky: My Life and Music - The Firebird*, D759.

Diatonic music does not appear at all in the *Introduction*;¹⁷ indeed, it accounts for a relatively small percentage of the music in the ballet, despite the fact that Prince Ivan is on stage from beginning to end. When this music does appear, its diatonic character is frequently clouded by accompanying Magic Thirds. Further, although the opening of the main leitmotif for the Princesses arpeggiates diatonic chords (a dominant seventh chord followed by a half-diminished chord), Stravinsky actually constructed the opening of this figure from the Magic Thirds.¹⁸ [Example 2] This encroaching of chromatic music deemphasizes the mortal element in *The Firebird*, which could have been due to Stravinsky's strong feelings concerning Russian folk heroes:

In the legendary folklore of all countries there are figures which symbolize in popular form the principle of evil. Thus, in the Russian epos, Kastehei the Immortal, the Monster without a soul, represents evil incarnate. On the other hand Russian legends in particular have as heroes characters that are simple, naive, sometimes frankly stupid, devoid of all malice, and it is they who are always victorious over characters that are clever, artful, complex, cruel and powerful.¹⁹

Yet the composer's preference for the chromatic music of the ballet could also have been related to the inherent possibilities of these leitmotifs, for they are developed to a much greater extent than are any of the diatonic leitmotifs.

To return to the opening measures of the *Introduction*, the Magic Thirds (Ab / Ch – Bb / D) appear independently of the string ostinato in measure five; the Thirds are scored for a pair of trombones, as appear as an accompaniment to the string ostinato between measures five and seven. Major triads with roots of Fb and Bb are formed, so this music can be accounted for in terms of octatonic collection I.²⁰ [Example 3] Both the string ostinato and the derived

17 The alternation of the tritone-related dominant major ninth and dominant seventh chords between measures 15-17 exceed the octatonic collection in use (E# F# G# A B B# D D#), and implicate diatonic interference. However, the transposition of material from measure 15 by minor third to measure 16 firmly establishes this collection, the diatonic interference accounting for only the chordal major ninths (A# and Fx) that exceed it.

18 Despite this fact, Stravinsky referred to this music as diatonic on the piano rolls. He was able to describe it in this way, because in general, this leitmotif emphasizes the dominant seventh chord over the following half-diminished seventh chord. See, for example, the *Appearance of the Thirteen Enchanted Princesses* at Nos. 50-51, and the *Intercession of the Princesses* at No. 115. However, when this leitmotif is verticalized, and each four-note chord is given equal prominence, the music is octatonic since the eight notes of a collection are formed (see Examples 12/13 and Footnote 28).

19 Stravinsky, *Stravinsky: My Life and Music – The Firebird*, D759.

20 van den Toorn, *The Music of Igor Stravinsky*, 10. This study will follow van den Toorn's numbering of the three octatonic collections, with the ascending semitone –

Magic Thirds appear in an octatonic context in these opening measures. However, the Firebird motif, which is also derived from the string ostinato, is not harmonized with this scale when it first appears independently of this figure in the ballet's opening scene. In other words, while both these motifs stem from the opening measures of octatonic writing in the *Introduction*, Kastehei and the Firebird do not share the same *Leit-harmony*. In fact, throughout the ballet, the Firebird is generally associated with whole-tone music, Kastehei and his retinue with octatonic music. This compositional division makes the protagonist / antagonist division within the ballet clearer, since both characters are supernatural, although each uses a different type of chromatic music. With the generation of these characters' leitmotifs described above, the first goal of the following analysis is to establish their individual *Leit-harmony*. Following this, a discussion of the function of the ballet's twenty-three scenes accounts for the deviation from the established *Leit-harmony* in certain passages.

The Firebird's leitmotif and a derived motif are used to accompany the bird's appearances on stage. This derived motif, associated with the Firebird's two entrances, extends to varying degrees the chromatic trichord of the original leitmotif, producing a chromatic line. Characteristic appearances of these figures are found in Example 4. Statements of the Firebird's leitmotif are labeled according to transformation (prime, inversion, retrograde, or retrograde-inversion, based on its initial appearance Ab – Fb – Eb – D) and transposition (based on the first note of the motif, with C=0, C#=#1, etc.). Since Stravinsky labeled the second note of the motif's chromatic trichord as a passing note, prime and retrograde statements project set (0 2 6) while inversion and retrograde-inversion statements project set (0 4 6). Since statements of this leitmotif generally appear either linked together or superimposed, the motivic labeling shows that any even-numbered transpositional level implies whole-tone collection A (0, 2, 4, 6, 8, 10), odd-numbered transpositions implying collection B (1, 3, 5, 7, 9, 11). The derived motif also treats alternating notes of its chromatic line as passing notes, and therefore – depending on its length – projects either a whole-tone subset or a complete whole-tone collection.

In Example 4a, statements of the Firebird motif appear under the chromatic line to accompany the Firebird's initial appearance. Due to the length of the chromatic line and the transpositional levels at which the Firebird motif appears, whole-tone collection A is stated fully. Example 4b uses the Firebird motif in both successive and overlapping statements, forming the melodic line used in *The Firebird's Supplications*. Example 4c extends this technique by

whole-tone ordering of the scale beginning on E labeled collection I; on F, labeled collection II; and on F#, labeled collection III.

presenting two inversionally related lines, each using successive statements of the motif doubled at two different pitch levels. Augmented triads are formed by each line, sometimes reproducing one another, other times generating complete whole-tone collections. Because successive statements of the motif are consistently related by either a perfect fourth or fifth in this passage, whole-tone collections alternate with each appearance.²¹

Like the Firebird's leitmotif, Katchei's Magic Thirds are developed by sequential treatment. In Stravinsky's description the Magic Thirds begin with either a major or minor third: the lower voice ascends a tritone and the upper voice descends a semitone, creating a third of the alternate quality.²² This description of the leitmotif emphasizes the intervals of the semitone and tritone used in its voice-leading, and because this voice-leading can be extended indefinitely, sequential treatment of the Magic Thirds is possible. The Thirds, as shown in Example 3, first appear independently of the string ostinato in measure five of the *Introduction*. While the trombones use the voice-leading pattern of the motif and its reversal to simply alternate between Ab / Cb and Bb / D in measures 5 and 6, this pattern is extended to produce chains of Magic Thirds in the bassoons between measures 7 and 10, and in the woodwinds between measures 10 and 12. These extended passages of Magic Thirds become the standard form of the motif, just as linked and overlapping statements of the Firebird's leitmotif are the most common.

In the opening nine-and-a-half measures of the *Introduction*, two streams of Magic Thirds are heard, each presenting only three distinct chords: the string ostinato and horns contain the dyads D / F – Fb / Ab – G / Bb, the trombones and woodwinds Ab / Cb – Bb / D – Db / Fb. Aside from the notes Eb (a passing note) and A²³ of the string ostinato, these measures are completely

21 A revised and enlarged version of the passage in Example 4c occurs in the *Firebird* Suite of 1919. The latter is analyzed as a partial array of interlocking interval cycles in Elliott Antokoletz, "Interval Cycles in Stravinsky's Early Ballets," *Journal of the American Musicological Society* 34 (1986), pp. 578-614.

22 While there is a canon formed between the two lines (offset by a single chord) that form the Magic Thirds, Stravinsky always describes this motif in terms of alternating major and minor thirds. This is not to say that he was not interested in discussing contrapuntal features in the ballet, for he does point out the canons used at Nos. 50 – 51 and 102-44 – 103. In spite of this, Stravinsky would later say of *The Firebird* that "the few scraps of counterpoint to be found in it – in the Katchei scene, for example – are derived from chord notes, and this is not real counterpoint."

Igor Stravinsky and Robert Craft, *Exposition and Developments* (Berkeley and Los Angeles: University of California Press, 1981), p. 132.

23 Stravinsky seems to justify this A as part of a balance between major and minor thirds and an alternation of rising and falling intervals, as his comments on the piano rolls reveal:

contained within octatonic collection I.²⁴ However, these two strands of Magic Thirds are not related by the correct voice-leading; that is to say, one strand does not generate the other. The reason is that Stravinsky carefully selects two segments from the complete succession of twenty-four Magic Thirds shown in Example 5, a sequence that Richard Taruskin calls a "ladder of thirds."²⁵ The complete ladder of thirds does appear in the ballet, though never in a single passage; among its twenty-four distinct dyads, it presents both major and minor thirds on each of the twelve pitch classes. If the three octatonic minor thirds are projected onto this ladder of thirds, every minor third begins a collection of three dyads contained within a single collection. The third dyad of this succession, also a minor third, serves as a pivot into another collection; therefore, the complete ladder modulates through all three octatonic collections in turn.

Stravinsky's superimposition of multiple streams of Magic Thirds in the *Introduction* shows his awareness of the ladder of thirds and its implications for octatonic writing.²⁶ For while a single stream of Magic Thirds can produce only six of the eight octatonic scale degrees with a succession of three dyads, Stravinsky presents these thirds between two pairs of instruments simultaneously. And when these segments of the ladder of thirds are paired to move through the three collections together, this tactic allows for each octatonic collection to be fully completed before modulating. The opening nine-and-a-half measures, discussed above, present dyad numbers 1-3 and 13-15 (see Example 5), completing collection I. The woodwind passage beginning in measure 10 of the *Introduction* is shown in Example 6 to illustrate this point further.

A movement away from collection I begins on the third beat of this measure. The bassoons sustain the final notes of the trombone line (Db / Fb), while the clarinets enter with a new stream of Thirds that begins with the progression Fb / Ab – G / Bb – A / C#. The clarinet's stream opens in collection I,

Drop of Major Third (Ab – Fb, m. 1)

Rise of Minor Third (D – F, m. 1)

Drop of Minor Third (Ab – F, m. 2)

Rise of Major Third (F – A, m. 2)

Stravinsky, *Stravinsky: My Life and Music – The Firebird*, D759.

24 The harp runs, which present whole-tone collection A, present two notes (F# and C) that also exceed octatonic collection I.

25 Richard Taruskin, "Chez Petrushka," 265-286.

26 The example of the Magic Thirds that Stravinsky included on the piano rolls (shown in Table 1) also confirms his knowledge of the ladder of thirds and its octatonic interpretation, since only three thirds (dyad numbers 13-15) are shown, these notes contained within collection I.

though it exceeds it when it presents the notes A / C#. While the bassoon dyad Db / Fb is the pivot between collections I & III, this stream is slightly slow to respond to the modulation begun in the clarinets, since it momentarily moves back to the collection I dyad Bb / D before it follows the clarinets into collection III with the progression Db / Fb - Eb / G. Aside from the bassoons' Bb / D chord, the fourth beat of measure 10 begins the sequential treatment of these two strands of Magic Thirds, which open in collection III (dyads 3-5 & 15-17) and modulate in tandem in measure 11 through collections II (dyads 5-7 & 17-19) and I (dyads 7-9 & 19-21) until collection III returns (dyads 9-10 & 21-22). A reversal in the voice-leading brings back collection I (dyads 7-9 & 19-21), until collection III (dyads 9-10 & 21-22) is regained in measure 12. Although only six of the eight notes of collection III are presented in the final measure of this passage, collection III is firmly established here because the two dyads in each stream of Magic Thirds are lingered over, just as they were in measure 10. On the other hand, despite the fact that both collections I and II are stated fully in measure 11, they are quickly traversed in order to link the opening and closing passages contained within collection III, and therefore serve a transitional function only. This is why only dotted lines are used to demarcate these collections.

Both passages discussed above from the *Introduction* show Stravinsky carefully selecting sections of the ladder of thirds to superimpose in order to complete collection I in the opening nine-and-a-half measures, and to establish collection III between measures 10 and 12. However, in the ballet, while Stravinsky still superimposes streams of Magic Thirds with an awareness of their octatonic implications, it is rare for one collection to be established over the other two in these passages since the modulation between them is so rapid. A prime example of this procedure is shown in Example 7.

A variant of the Magic Thirds is used in this passage, one that alters the voice-leading of the leitmotif without effecting its harmonic implications; it is used only in its extended form, in scenes with Kaschei's retinue on stage. This variant form avoids the semitone-tritone voice-leading of the Magic Thirds, and instead allows the lowest instrument to present only the roots of the chords, while another instrument plays alternating major and minor thirds above this line. Example 7 opens with a single strand of the Magic Third variant that moves three times from dyad numbers 4-8 and back. When this pattern begins again for a fourth time, it is extended, and dyads 4-10 are superimposed over dyads 16-22. The entrance of the second strand does not alter the modulatory sequence begun by the first, and it supplies the two pitches for both collections I and II that were missing in the previous measures (collection III is not completed since only two thirds appear in each strand within this collection). However, none of these collections is projected over the other

two; while this material can be easily segmented into the three octatonic collections, the rapid motion between them nullifies an octatonic sound.

Almost without exception, superimposed pairs of Magic Thirds – in either their original or variant form – modulate through the three octatonic collections in tandem as shown in Example 7, rarely lingering within a single collection to give it prominence over the others. This technique first appears in the *Introduction*, where a modulation through the three collections occurs in measure 11 as a transition between occurrences of collection III material. In the ballet, however, these modulatory passages are not used as transitional material; instead, they appear as extended segments of the ladder of thirds, produced by the sequential treatment of the Magic Thirds. It is for this reason that Richard Taruskin has said that the ladder of thirds is clearly derived from octatonic procedures, though it transcends them.²⁷ In spite of the fact that this material does not establish any single octatonic collection, its modulatory construction and its derivation from the octatonic measures of the *Introduction* make this scale the *leit-harmony* for Kaschei the Immortal.²⁸

Another figure associated with Kaschei accompanies his aged miming at No. 110. This motif presents both descending and ascending chromatic motion spanning a major third. Because of its construction, this figure is easily subsumed by the octatonic scale, with which it is accompanied (in the form of Magic Thirds) at two moments in the ballet, the first of which is shown in Example 8.

Completing the analysis of the chromatic leitmotifs in the ballet, there are two distinct figures associated with Kaschei's retinue, each of which is derived from the Magic Thirds. The first of these, used as the refrain in the *Infernal Dance*, employs the voice-leading intervals of the Thirds in a single line, presenting melodic statements of a semitone both before and after a single tritone. This motif first emerges out of the complex web of sound in the

27 Richard Taruskin, "Chez Pétrushka," 271.

28 There are two passages associated with Kaschei in the ballet that do not superimpose sections of the ladder of thirds in the manner shown in Examples 6 & 7: the first appears at No. 169, the second at No. 191. Both passages use two streams of thirds simultaneously, each modulating independently of the other stream. However, a single octatonic collection is projected over the others in each passage. At No. 169, one stream modulates quickly and the other more slowly, remaining generally within a single collection for each of the two eight-measure phrases. It is this collection from which the other stream occasionally digresses (by a single note) in each phrase. At No. 191, two streams of thirds are superimposed in the manner found at the opening of the princesses' leitmotif (see Example 2). With each juxtaposition of dominant and half-diminished seventh chords, a single collection is fully formed; this passage begins in collection III before moving to collection II.

Magic Carillon music at No. 101, and accompanies Kastchei's retinue as they capture Prince Ivan. The initial statements of this motif gradually coalesce into its normal form, which appears in canon at No. 103, with the brass playing the motif in half notes and the strings in eighth notes. This passage is contained within octatonic collection II, with the notes of the foreign diminished-seventh chord (E G Bb C#) used consistently as appoggiaturas. The transposition of the string line along the (0 3 6 9) diminished-seventh chord "nodes" of collection II support this reading. [Example 9]

Immediately following this passage, the second motif of Kastchei's retinue appears, one that is more obviously derived from the *Magic Thirds* since it contains the same intervallic progression. Indeed, if the two components of this motif were placed in counterpoint,²⁹ *Magic Thirds* would arise – F / A moving to F# / D#. [Example 10] However, the *Magic Thirds* imbedded within this motif are not filled in with notes from the octatonic scale, the expected *Leit-harmony* for Kastchei's retinue, but rather with those from the whole-tone scale, a *Leit-harmony* foreign to them.³⁰

The whole-tone scale, a foreign harmony for Kastchei and his retinue, introduces a complete contradiction of *Leit-harmony* for all the characters. This process is related to the formal division used in the ballet; Richard Taruskin's comments on *The Firebird* define its construction:

Is there any ballet that, in general, behaves more like an opera than *Firebird*? That is to say, is there any ballet that makes such a regular, consistent, and dramatically effective alternation of mimed and danced episodes, precisely like operatic recitative and aria? The music that Stravinsky composed for the mimed passages, in which he was inspired and guided at every turn by Fokine, whose movements he followed, improvising at the keyboard in the early stages of work, comes off in fact very much like a kind of instrumental recitative (this especially true of the confrontation between Ivan Tsarevich and Kashchei)³¹

The answer to Taruskin's questions could be that *The Firebird* does in fact behave more like an opera than any other ballet, for the alternation of scenes which emphasize dramatic action over musical development and vice versa are choreographed as mimed and danced scenes, respectively. A complete list of the twenty-three scenes of the ballet and their dramatic function is contained in Table 3.

29 A possibility that does not appear in the score.

30 The stem notation of Example 10 is not intended to invoke the Schenkerian concepts of prolongation or structural levels. Instead, it is used here simply as a means to emphasize the notes embedded within this motif that form *Magic Thirds*.

31 Richard Taruskin, "From *Firebird* to *The Rite*: Folk Elements in Stravinsky's Scores," *Ballet Review* 10 (1982): 76.

Taruskin brings up another important point when he cites the close collaboration between Fokine and Stravinsky during the ballet's composition.³² In fact, in Fokine's memoirs, there are mentions of specific mime scenes that he and Stravinsky worked through together, synchronizing musical idea with stage action. Fokine even suggested at one point how Stravinsky should first introduce Prince Ivan's leitmotif. Stravinsky presumably presented the motif in its complete form at first, revising it under Fokine's influence to give it a more halting effect. Not surprisingly then, the mime scenes were Fokine's favorite in the ballet. Stravinsky had quite a different opinion of them, recalling that "the words 'For Russian Export' seemed to have been stamped everywhere . . . the mimic scenes were especially crude in this sense."³³

Because the synchronization between music and action was so critical to Fokine in the mime scenes, Stravinsky did not have the freedom allowed him in the dance scenes, which were clearly written with musical requirements placed over those of the stage action. Stravinsky used the ballet's formal division and the differing compositional demands of the mime and dance scenes to establish the *Leit-harmony* by consistently harmonizing each leitmotif in the mime scenes in a specific way. On the other hand, in the dance scenes, he liberated himself from this formula and harmonized the leitmotifs in a variety of ways. Thus, *Leit-harmony* is adhered to in the mime scenes, which form the bulk of the ballet, and often altered in the dance scenes.³⁴ Since the three concert suites derived from the ballet are primarily made up of dance scenes, they emphasize the exceptions to the system of *Leit-harmony*. This is why the ballet's suites were quickly dismissed above, since they would be unacceptable for determining the harmonic characterization used in the complete ballet.

The rule of *Leit-harmony* would dictate that the mortal characters' leitmotifs are diatonic in the mime scenes. Also, due to the greater compositional freedom afforded Stravinsky in the dances, he could place these leitmotifs in either an octatonic or whole-tone context in the dance scenes. However, at first glance this rule of *Leit-harmony* does not seem to be strictly followed. For example, in several mime scenes, where the diatonic *Leit-harmony* should be followed, appearances of the Prince's and Princesses' leitmotifs are accompanied by the *Magic Thirds*, clouding the diatonic character of this music with an octatonic accompaniment. Further, in two dance scenes (*Khorovod* [Round

32 This point is confirmed by both men. See Michel Fokine, *Memoirs of a Ballet Master*, trans. by Vitale Fokine (London: Constable & Co., 1961) and Stravinsky and Craft, *Exposition and Developments*.

33 Stravinsky and Craft, *Exposition and Developments*, 129.

34 There are slight exceptions to this rule, the most notable of which occurs at the *Dia-logue of Kashchei and Prince Ivan*. In this mime scene, Kastchei's mime motif is harmonized by the whole-tone, rather than the octatonic scale.

Dance] of the Princesses and *Disappearance of Kastehei's Palace and Magical Creations, Return to Life of the Perfumed Knights, General Rejoicing*, where the diatonic *leit-harmony* could be altered, Stravinsky unexpectedly uses material borrowed from diatonic folk-songs.³⁵ However, the rule of *leit-harmony* is indeed observed by the mortal characters and their diatonic leitmotifs, for despite their frequent octatonic accompaniment in the mime scenes, they generally stand apart from this modulating music, as shown in Examples 11a and b.³⁶ And while it is true that Stravinsky does not consistently alter the *leit-harmony* of the diatonic music in each dance scene (as he does with the chromatic music), octatonic music appears twice in association with the Princesses.

The first of these octatonic passages forms the contrasting material in the scherzo section of *The Princesses' Game with the Golden Apples*. It is contained within octatonic collection III, a collection clearly projected by the transposition by a minor third of the four-bar idea at No. 57 and the two-bar idea at No. 58.³⁷

The second passage that alters the diatonic *leit-harmony* of the Princesses in a dance scene appears in the *Khorovod* at No. 87. The Princesses' leitmotif is broken up into two-bar ideas in the woodwinds and horn, and accompanied by two streams of Magic Thirds in the strings. These Magic Thirds are a verticalization of the opening of the Princesses' leitmotif shown in Example 2, producing an alternation of dominant seventh and half-diminished seventh

³⁵ Both of these folksongs are found in Rimsky-Korsakov's *Collection of 100 Russian Folksongs*, Op. 24. The *Khorovod* borrows #79 of this collection, "In the Green Garden, Garden Fair," while the *Disappearance of Kastehei's Palace* uses #21, "By the Gateway there Swayed the Tall Pine Tree."

³⁶ As noted above in Example 2, the Princesses' motif is partially composed of Magic Thirds, although this motif's continuation is diatonic in construction, as shown in Example 11b. The leitmotivic borrowing and the diatonic / octatonic duality of this figure, qualities not found in the Prince's leitmotif, are perhaps a reflection of the Princesses' status in the ballet — as Kastehei's prisoners in all but the final scene.

³⁷ The notes of the diminished-seventh chord (G# B D F) foreign to collection III are also used prominently in this passage. These notes appear primarily due to an interpenetration of octatonic collection III and the whole-tone scale, allowing both these *leit-harmonies* foreign to the princesses to be associated with them in this dance scene. Subsets of alternating whole-tone collections appear in the eight measures of No. 57. These whole-tone subsets are contained within octatonic collection III at Nos. 57+1 and 5, although they exceed this collection at Nos. 57+2 and 6. This progression is determined in part by the ascending chromatic line begun at No. 57 in an inner voice and continued through the end of the passage. For a discussion of the French sixth chord as an intermediary between octatonic and whole-tone harmony, see Richard Taruskin, "Chernomor to Kastehei," and Jay Reise, "Late Stravinsky: Some Principles Behind the Style," *Nineteenth-Century Music* 6 (1983), 220-31.

chords. With the juxtaposition of these two chords, a complete octatonic collection is produced, and the motifs heard above these Thirds in the winds never exceed this octatonic harmonization (the bass pedal note B is the only foreign pitch in this passage, and only in collection III). [Example 12] These two four-note chords are used in sequence earlier in the ballet to accompany the Princesses' "Cadenza" motif with the Princesses' initial entrance on stage. This occurs in a mime scene, and because the "Cadenza" theme stands apart from the octatonic accompaniment rather than being subsumed by it, it thus adheres to the relation of *leit-harmony* and the formal construction of the ballet. [Example 13]

The leitmotifs associated with Kastehei and his retinue appear in both whole-tone and diatonic forms in certain dance scenes. Within the *Infernal Dance* (cast in rondo form), both the Magic Thirds and the second retinue motif are used at the opening of the second episode. They are both modified to appear in a whole-tone setting; only the second half of the retinue motif is stated, which eliminates the octatonic side of its construction by removing the Magic Thirds embedded between its two halves, as shown in Example 10. Also, there is an E-D# inflection within the Magic Thirds (between the clarinets and xylophone) to account for five of the six pitches of whole-tone collection B (the remaining F is stated in the runs at Nos. 146+3 & 146+5). [Example 14]

Diatonized Magic Thirds are heard as the main theme of the scherzo in *The Princesses' Game with the Golden Apples*. Here, the semitone-tritone oscillation between the two lines is expanded to semitone-perfect fifth voice-leading (G / B – Bb / D). Therefore these Thirds prolong the tonic G-major triad of the scene.³⁸

The first motif associated with Kastehei's retinue appears in a compressed form in the *Infernal Dance* when compared to its initial appearance in the *Magic Carillon* music. This adjustment affects its harmonic implications. This motif is heard three times between Nos. 133 and 136, and as van den Toorn has shown, these statements betray themselves as being referentially octatonic, since transpositions and transformations of the motif refer unmistakably to this scale. Van den Toorn further points out the possibility of diatonic analysis, using either the A-scale-on-A (A aeolian) or the C-scale-on-C (C ionian).³⁹

³⁸ These diatonized thirds are clearly used in association with the princesses and not with Kastehei, thus conforming to the rule of *leit-harmony* for these characters. However, the audible modification and placement of the motif within a diatonic context in this scene reflects Stravinsky's desire for the listener to hear this passage as a reharmonization of Kastehei's leitmotif, rather than as another newly-composed or borrowed diatonic tune.

³⁹ van den Toorn, *The Music of Igor Stravinsky*, 18.

The diatonic side of van den Toorn's analysis takes into account the strong rhythmic emphasis given the note B in this passage, for which octatonic collection III cannot account. Despite the interpenetration between the octatonic and diatonic scales here, these measures remain within the limits of *Leit-harmony*; however, this harmonic corruption quickly spreads, preparing first for a diatonic, then whole-tone version of the motif.

A melodic variant of this motif appears at No. 136, which drops the octatonic construction of the preceding measures; aside from the chromatic inflections in the melodic line, it is now contained completely within the A- and D-scales-on-A at No. 136 and the A- and D-scales-on-D at No. 137.⁴⁰ A rhythmic variant of the retinue motif is heard at No. 138, presenting orchestral chords appearing alternately on and off the beat. The syncopated chords here are the most important, for they are constructed from the notes B / C / E / F and Bb / C / E / F#, and serve as a harmonic transition into the whole-tone episode at No. 139. Thus, in the opening refrain of this dance scene (Nos. 133-138), variants of the first retinue motif appear, moving from octatonic / diatonic to diatonic to whole-tone accountability. [Example 15]

The Firebird motif, unlike the first retinue motif and the Magic Thirds, is not modified when it is placed in a diatonic setting. Instead, the motif retains its intervallic structure, adding a piquant chromatic element to the melodic line in sections of both *The Firebird's Supplications* and the *Lullaby*.

The Firebird motif itself does not appear in octatonic music, although there is undeniably music associated with the Firebird that is octatonic in construction. This music appears in *The Dance of the Firebird*, and is based on the harmonic progression by minor third. The violins project the tetrachord A / B / D# / F for four bars beginning at No. 14, and transpose it to C / D / F# / Ab for the second four bars of this phrase to complete octatonic collection II.⁴¹ [Example 16]

Stravinsky comments on this scene with these remarks:

Thinking herself safe the Bird flutters around the garden and amuses itself by plucking the golden apples from the magic tree. This dance of the Bird does not comprise a melody, but consists rather in the impetus of a harmonic progression, which is still based on thirds,

40 The flexible use of $\hat{6}$ in this passage accounts for the reference to both the A- and D-scales in this analysis.

41 Additionally, as Antokoletz has demonstrated, there is a connection made between octatonic collection II and the two whole-tone collections in this passage. The violin tetrachords are augmented by a tritone in the cello line to complete whole-tone collection B in the first four bars, and whole-tone collection A in the second four bars. See Antokoletz, "Interval Cycles in Stravinsky's Early Ballets," 580-87.

in their inverted form as sixths, and the fourths inverted as fifths, linked with chromatic and diatonic passing notes, this whole chiselled in a sharp "pecking" rhythm.⁴²

Stravinsky's discussion of this music comes tantalizingly close to a description of the octatonic routine of transposition by minor third when he mentions the harmonic progression based on thirds; however, Stravinsky clouds this by also mentioning sixths, fourths, and fifths in this harmonic progression. Stravinsky thus never specifically implicates or even mentions the octatonic scale anywhere on these rolls, a silence that would continue through all his later publications.

Stravinsky admitted composing *The Firebird* in a state of "revolt against Rimsky," adding further that he "tried to surpass him with *ponticello*, *col legno*, *flautando*, *glissando*, and fluttertongue effects."⁴³ Perhaps Stravinsky left one thing unsaid in this confession: the desire to surpass his teacher Rimsky-Korsakov in the ballet's musical characterization. This study began with an investigation of the piano rolls of *The Firebird* that associate the characters with the numerous leitmotifs of the ballet. This in turn permitted an investigation of the ballet's harmonic characterization, or, in Stravinsky's terms, its *Leit-harmony*. The analysis of these leitmotifs revealed that the Firebird is associated with the whole-tone scale, while Katchei and his retinue are associated with the octatonic scale; both oppose the diatonic music of the mortal characters. Finally, this study explored the breaking of the various characters' *Leit-harmonies*, a process related to the formal construction of the ballet. While Stravinsky borrowed the diatonic / chromatic division from Rimsky-Korsakov's opera *The Golden Cockerel*, he clearly developed and systematized this technique in *The Firebird* to an extent not found in the music of his teacher and mentor.

42 Stravinsky, *Stravinsky: My Life and Music - The Firebird*, D759.

43 Stravinsky and Craft, *Exposition and Developments*, 128.

Captions for Music Examples

Table 1

Supernatural Characters' Leitmotifs
"Chromatic Music"



A) The Firebird's Leitmotif



B) Kastchei's Leitmotif
"The Magic Thirds"



C) Kastchei's Mime Motif



D) Motif #1 of Kastchei's Retinue
"The Infernal Dance"



E) Motif #2 of Kastchei's Retinue

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Moral Characters' Leitmotifs "Diatonic Music"

Table 2

A) Prince Ivan's Leitmotif



B) Prince Ivan's Leitmotif Extension



C) The Princesses' Leitmotif



D) The Princesses' "Russian Melodic Theme"



E) The Princesses' "Cadenza" Theme

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Example 1

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Example 2

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Example 3 Introduction, mm. 5-7

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Example 4a Appearance of the Firebird, Pursued by Prince Ivan, No. 4

Example 4b The Firebird's Supplications, No. 37

Example 4c Appearance of the Firebird, No. 119

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Example 5 The "Ladder of Thirds"

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Example 6 Introduction, mm. 10-12

M.10
Dyad#:

14	15	16	15	16	15	15	16	15	15	16	16	17	18	18	19
A ¹ B ¹	D ¹ B ¹	D ¹ B ¹	D ¹ B ¹	B ¹ B ¹	D ¹ D ¹	B ¹	B ¹ B ¹	D ¹ D ¹	D ¹ E ¹	G ¹	A ¹	G ¹	A ¹	D ¹	F ¹
F ¹ G ¹	A ¹ G ¹	A ¹ G ¹	A ¹ G ¹	C ¹ C ¹	A ¹ A ¹	G ¹	C ¹ C ¹	A ¹ A ¹	A ¹ A ¹	C ¹ D ¹	G ¹	A ¹	C ¹ D ¹	A ¹	F ¹
F ¹	F ¹	F ¹	F ¹	F ¹	F ¹	F ¹	F ¹	F ¹	F ¹	F ¹	F ¹	F ¹	F ¹	F ¹	F ¹
D ¹	D ¹	D ¹	D ¹	D ¹	D ¹	D ¹	D ¹	D ¹	D ¹	D ¹	D ¹	D ¹	D ¹	D ¹	D ¹
3	2	3	4	4	3	4	5	5	6	7					

M.11

20	21	22	22	21	20	20	19	20	20	21	22				
C ¹	C ¹	D ¹	F ¹	F ¹	D ¹	C ¹	A ¹	C ¹	C ¹	A ¹	C ¹	D ¹	F ¹	D ¹	F ¹
G ¹	G ¹	G ¹	G ¹	B ¹	C ¹	C ¹	B ¹	G ¹	G ¹	G ¹	F ¹	G ¹	B ¹	C ¹	C ¹
D ¹	D ¹	F ¹	G ¹	G ¹	B ¹	G ¹	F ¹	G ¹	F ¹	D ¹	C ¹	D ¹	F ¹	G ¹	F ¹
C ¹	C ¹	D ¹	F ¹	F ¹	G ¹	F ¹	G ¹	F ¹	D ¹	C ¹	D ¹	F ¹	G ¹	F ¹	F ¹
7	8	9	9	10	9	9	8	7	7	8	9				9

22	21	22	21	22
F ¹	F ¹	D ¹	F ¹	D ¹
C ¹	C ¹	B ¹	C ¹	C ¹
G ¹	B ¹	G ¹	F ¹	G ¹
F ¹	G ¹	F ¹	F ¹	F ¹
9	10	9	10	9

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Example 7 Dialogue of Kashtchei and Prince Ivan, No. 112

Musical score for Example 7, Dialogue of Kashtchei and Prince Ivan, No. 112. The score consists of three staves. Brackets above the staves indicate three different collections of notes: Collection I, Collection II, and Collection III. The notes are primarily eighth and sixteenth notes, often beamed together. The staves are connected by a brace on the left.

Dyad #:

4	5	6	7	8	9	10	9	8	7	6	5	4
G	A	C	D	F	G	G	F	E	D	C	A	G
D	F	G	B	C	C	F	E	D	C	B	D	F
C	D	F	G	B	C	C	B	A	G	F	D	C
A	C	D	F	G	B	C	B	A	G	F	D	C
III		II		I		III		II		I		III
16	17	18	19	20	21	22	21	20	19	18	17	16

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Example 8 The Enchanted Garden of Kashtchei, No. 1

Musical score for Example 8, The Enchanted Garden of Kashtchei, No. 1. The score consists of three staves. Brackets above the staves indicate three different collections of notes: Collection I, Collection II, and Collection III. The notes are primarily eighth and sixteenth notes, often beamed together. The staves are connected by a brace on the left.

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Example 9 Magic Carillon, Appearance of Kashtchei's Monster Guardians, and Capture of Prince Ivan, No. 103

Musical score for Example 9, Magic Carillon, Appearance of Kashtchei's Monster Guardians, and Capture of Prince Ivan, No. 103. The score consists of two staves: 'Sung' and 'Brass'. Brackets above the staves indicate two different collections of notes: Collection II and Collection III. The notes are primarily eighth and sixteenth notes, often beamed together. The staves are connected by a brace on the left.

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Example 10 Magic Carillon, Appearance of Kashtchei's Monster Guardians, and Capture of Prince Ivan, No. 104

Musical score for Example 10, Magic Carillon, Appearance of Kashtchei's Monster Guardians, and Capture of Prince Ivan, No. 104. The score consists of a single staff. Brackets above the staff indicate three different sections: 'Motto #2 of Kashtchei's Rehine', 'Reduced to Imbedded Notes', and 'Superimposition of the motto's two halves producing Magic Thirds'. The notes are primarily eighth and sixteenth notes, often beamed together.

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Table 3

Scene Name	Scene Type
<u>1st Tableau</u>	Mime
The Enchanted Garden of Kashtei	Mime
Appearance of the Firebird, Pursued by Prince Ivan	Dance
Dance of the Firebird	Mime
Capture of the Firebird by Prince Ivan	Dance
The Firebird's Supplications	Mime
Appearance of the Thirteen Enchanted Princesses	Dance
The Princesses' Game with the Golden Apples (Scherzo)	Mime
Sudden Appearance of Prince Ivan	Dance
Khorovod (Round Dance) of the Princesses	Mime
Daybreak	Mime
Prince Ivan Penetrates Kashtei's Palace	Mime
Magie Carillon, Appearance of Kashtei's Monster Guardians, and Capture of Prince Ivan	Mime
Arrival of Kashtei the Immortal	Mime
Dialogue of Kashtei and Prince Ivan	Mime
Intercession of the Princesses	Mime
Appearance of the Firebird	Mime
Dance of Kashtei's Retinue, Enchanted by the Firebird	Dance
Infernal Dance of All Kashtei's Subjects	Dance
Lullaby (Firebird)	Dance
Kashtei's Awakening	Mime
Kashtei's Death	Mime
Profound Darkness	Mime
<u>2nd Tableau</u>	Dance
Disappearance of Kashtei's Palace and Magical Creations, Return to Life of the Petrified Knights, General Rejoicing	Dance

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Example 11a Appearance of the Firebird, Pursued by Prince Ivan, No. 6

Example 11b Appearance of the Thirteen Enchanted Princesses, No. 49

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Example 12 Khorovod (Round Dance) of the Princesses, Nos. 87-88

Collection I

Collection II

Collection III

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Example 13 Appearance of the Thirteen Enchanted Princesses, No. 52

Collection II

Collection I

Collection III

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Example 14 Infernal Dance of All Kasichei's Subjects, No. 146

Collection B

Collection I

Cl.

Xylo.

Str.

Woodwinds

Trp.

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Example 15 Infernal Dance of All Kaschei's Subjects, Nos. 136-138

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Example 16 The Dance of the Firebird, No. 14

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