Thesaurus of Scales and Melodic Patterns

Nicolas Slonimsky

Amsco Publications
New York/London/Paris/Sydney

SCHIRMER BOOKS
A Division of Macmillan Publishing Co., Inc.
866 Third Avenue, New York, N.Y. 10022

Collier Macmillan Canada, Ltd.

This Edition is reprinted by arrangement with Schirmer Books.
Exclusive distributors to the Music Trade
in the United States and Canada under license from
Schirmer Books, A Division of Macmillan Publishing Co., Inc.
Music Sales Corporation
257 Park Avenue South,
New York, NY 10010 USA

Library of Congress Catalog Card Number: 86-75442

printing number
8 9 10

Library of Congress Catalog-in-Publication Data

Slonimsky, Nicolas, 1894–
Thesaurus of scales and melodic patterns.
Previously published: New York: C.Scribner, 1947.
1. Musical intervals and scales. I. Title
MT45.S55 1986 86-75442
ISBN 0-02-611850-5

Printed in the United States of America by
Vicks Lithograph and Printing Corporation

CONTENTS

THESAURUS OF SCALES AND MELODIC PATTERNS

INTRODUCTION

THE PRESENT THESAURUS is a reference book of scales and melodic patterns, analogous in function with phrase books and dictionaries of idiomatic expressions. But while phrase books are limited to locutions consecrated by usage, the THESAURUS includes a great number of melodically plausible patterns that are new. In fact, many compositions appearing in recent years contain thematic figures identical with those found in the THESAURUS.

From time to time musical theorists have suggested the possibility of forming entirely new scales based on the division of the octave into several equal parts. As early as 1911 the Italian musician Domenico Alaleona proposed such new scales. Alois Haba, in his *Neue Harmonielehre* (1927), classifies a great number of scales based on equal intervals and suggests harmonizations of these new scales. Joseph Schillinger in his posthumously published *Schillinger System of Musical Composition* classifies new tonal progressions in the chapter Theory of Pitch-Scales.

The scales and melodic patterns in the THESAURUS are systematized in a manner convenient to composers in search of new materials. The title THESAURUS OF SCALES AND MELODIC PATTERNS is chosen advisedly. The term scale, as here used, means a progression, either diatonic or chromatic, that proceeds uniformly in one direction, ascending or descending, until the terminal point is reached. A melodic pattern, on the other hand, may be formed by any group of notes that has melodic plausibility. There are scales of 4 notes only; and there are scales and patterns of 12 different notes. But counting repeated notes appearing in different octaves, a scale may have as many as 48 functionally different notes, as in the Disjunct Major Polytetrachord (No. 958). As to melodic patterns, there is virtually no limit to the number of such tones.

The THESAURUS is arranged in the form of piano scales and melodic studies. No fingering is given, for the pianist will readily find the type of digitation best suited to the hand. Other instrumentalists, too, will find most of the scales and melodic patterns in the THESAURUS adaptable to their instruments. The notation throughout is enharmonic, and accidentals are used according to convenience. Double sharps and double flats are avoided entirely. Precautionary natural signs are placed here and there when an unusual melodic interval occurs. All accidentals affect only the note immediately following.

The scales and patterns in the THESAURUS are arranged according to the principal interval of each particular section. In order to avoid association with a definite tonality, these basic intervals are here referred to by Latin and Greek names derived from old usage. In addition, new terms had to be coined for intervals not in the system of historic scales. In these new terms the prefix *sesqui* stands for the addition of one-half of a tone. Thus, Sesquitone is 1½ tones, or a minor third; Sesquiquadritone is 4½ tones, or a major sixth; and Sesquiquinquetone is 5½ tones, or a major seventh.

The table of intervals from the semitone to the major seventh appears as follows:

Semitone	Minor Second	*Tritone*	Augmented Fourth
Whole Tone	Major Second	*Diapente*	Perfect Fifth
Sesquitone	Minor Third	*Quadritone*	Minor Sixth
Ditone	Major Third	*Sesquiquadritone*	Major Sixth
Diatessaron	Perfect Fourth	*Quinquetone*	Minor Seventh
		Sesquiquinquetone	Major Seventh

The interval of a major ninth is called Septitone, to indicate that it contains 7 whole tones.

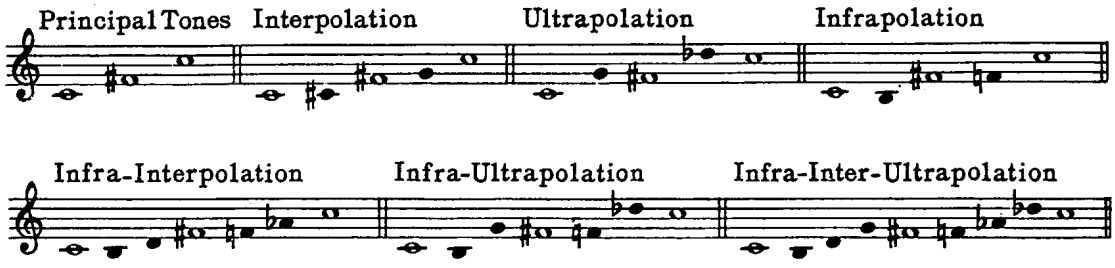
These basic intervals are regarded as fractions of one or more octaves. Thus, the Tritone Progression represents the division of the octave into 2 equal parts, and it produces sequential scales and patterns. The Ditone Progression is the division of the octave into 3 equal parts, and is intervallically identical with the augmented triad. The Sesquitone Progression is the division of the octave into 4 equal parts, and is identical with the familiar diminished-seventh chord. The Whole-Tone scale represents the equal division of the octave into 6 parts. The Semitone Progression is equivalent to the chromatic scale. By the process of permutation the chromatic scale is productive of characteristic patterns of the 12-tone technique.

By dividing 2 octaves into 3 equal parts we obtain the Quadritone Progression, which is closely related to the Ditone Progression, being in fact a spread-out augmented triad. By dividing 3 octaves into 4 equal parts we obtain the interval of the major sixth. This is the Sesquiquadritone Progression, which is an unfolded Sesquitone Progression, productive of patterns related to diminished-seventh harmonies.

In the cycle of scales the interval of a perfect fifth is one-twelfth part of 7 octaves, and it is so represented in the Diapente Progression. A perfect fourth is one-twelfth part of 5 octaves, and is classified as such in the section Diatessaron Progression.

Pursuing a similar process, we find that the Sesquiquinquetone Progression, or the progression of major sevenths, is the result of the equal division of 11 octaves into 12 parts. Finally, the Septitone Progression is the equal division of 7 octaves into 6 parts, with the basic interval of a major ninth.

Scales and melodic patterns are formed by the processes of Interpolation, Infrapolation, and Ultrapolation. The word Interpolation is in common usage; here it signifies the insertion of one or several notes between the principal tones. Infrapolation and Ultrapolation are coined words. Infrapolation indicates the addition of a note below a principal tone; Ultrapolation is the addition of a note above the next principal tone. Infrapolation and Ultrapolation result in the shift of direction, with the melodic line progressing in zigzags. Infrapolation, Interpolation and Ultrapolation may be freely combined, resulting in hyphenated forms: Infra-Interpolation, Infra-Ultrapolation, and Infra-Inter-Ultrapolation.



Progressions and patterns based on unequal division of the octave are exemplified by Heptatonic scales and Pentatonic scales. Among Heptatonic scales, or 7-tone scales, are our familiar major and minor scales as well as the church modes. In the section Heptatonic Arpeggios the scales are spread out in thirds. In the section Bitonal Arpeggios the C major arpeggio is combined with arpeggios in all other 23 major and minor keys.

Busoni, who had earnestly explored new musical resources, found 113 different scales of 7 notes. Mentioning as an example the scale: C, Db, Eb, Fb, Gb, Ab, Bb, C (it is No. 1035 in the THESAURUS), he writes in his *Entwurf einer neuen Aesthetik der Tonkunst:* "There is a significant difference between the sound of this new scale when C is taken as the tonic and when it is taken as the leading tone of the scale of Db minor. By harmonizing the tonic with the customary C major triad as a fundamental chord, a novel harmonic sensation is obtained."

In his *Chronicle of My Musical Life* Rimsky-Korsakov mentions the use he made of an 8-tone scale, formed by alternating major and minor seconds. This is Scale No. 393 in the THESAURUS. Sporadic uses of the Whole-Tone scale are found in Glinka and even in Mozart (as a jest to mock the inept *Dorfmusikanten*), but it did not become a deliberate device before Debussy. In Debussy's piano piece *Voiles* the principal melodic structure is in the Whole-Tone scale, but the middle part is written exclusively on the black keys, exemplifying the Pentatonic scale.

The Whole-Tone scale has 6 notes to the octave; the Pentatonic scale has five. The Whole-Tone scale is possible in only one form on a given note, but there can be many Pentatonic scales. There are 49 Pentatonic scales in the THESAURUS.

The 12-Tone Technique of composition promulgated by Schoenberg is based on permutations of the Semitone scale. Various 12-tone patterns are found in the THESAURUS in examples No. 1214 to No. 1318. For example, it is possible to arrange the 12 chromatic tones in 2 major and 2 minor triads without repeating a note. It is also possible to form 4 mutually exclusive augmented triads using all 12 chromatic tones. The theme of Liszt's *Faust* Symphony is composed of 4 augmented triads. It is further possible to split the chromatic scale into a diminished triad, a minor triad, a major triad, and an augmented triad. These mutually exclusive triads can be arranged in the form of Quadritonal Arpeggios.

A recent development of the 12-Tone Technique is the 11-interval technique, which prescribes the formation of progressions containing 11 different intervals. The idea was first introduced by the Austrian musician Fritz Klein in 1921 in a curious composition entitled *Die Maschine,* with the sub-title *Ex-Tonal Self-Satire.* The name of the composer was concealed behind a characteristic nom de plume *Heautontimorumenus* which means Self-Torturer. In this piece Klein introduced a Mother Chord which contains not only all 11 different intervals, but 12 different notes as well.

A further elaboration on the Mother Chord is an invertible 11-interval, 12-tone chord introduced by the author and appropriately christened Grandmother Chord. It has all the intervallic properties of the Mother Chord plus an especial order of intervals so arranged that they are alternately odd-numbered and even-numbered when counted in semitones, with the row of odd-numbered intervals forming a decreasing arithmetical progression and the row of even-numbered intervals forming an increasing arithmetical progression. The order of notes in the Grandmother Chord is identical with the 12-tone Spiral Pattern No. 1232a.

All chords composed of 11 different intervals add up to the interval of 66 semitones, which is the sum of the arithmetical progression from 1 to 11. The interval of 66 semitones equals 5½ octaves, and so forms a Tritone between the lowest and the highest tones in the Pyramid Chord, Mother Chord, Grandmother Chord, and other 11-interval structures.

Scales and patterns listed in the main body of the THESAURUS readily lend themselves to new melodic possibilities. For instance, a descending scale may be played in the form of the melodic inversion of the ascending scale, as suggested in the section Mirror Interval Progressions. It is possible to form complementary scales in the range of 2 octaves, by using in the second octave the notes not used in the first. Other possibilities for the formation of new patterns are demonstrated in the section on Permutations.

A Diatonic counterpart of the 12-Tone Technique is the system of Pandiatonic composition. The term Pandiatonic, first introduced by this writer in 1937, denotes the free use of all 7 tones of the diatonic scale, both melodically and harmonically. In one-part Pandiatonic Progressions, the melody is made up of 7 different notes of the diatonic scale. Such a progression may then be melodically inverted, read backward, or both, resulting in 4 different forms. Pandiatonic Counterpoint in strict style uses progressions of 7 different notes in each voice, with no vertical duplication.

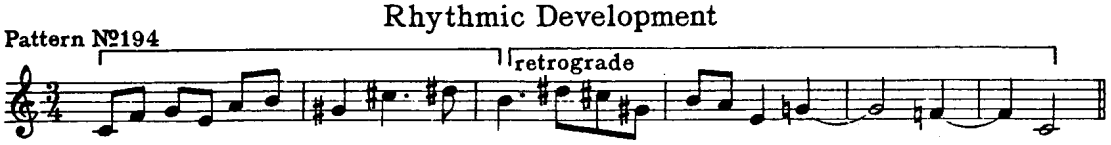
Pandiatonic Harmony is the twentieth century counterpart of classical harmony. Modern composers of such varied backgrounds and musical persuasions as Ravel, Stravinsky, Hindemith, Milhaud, Copland and Roy Harris make use of this technique, arriving at it by different creative processes. Jazz composers, too, have found, by sheer experimentation, effective application for the enriched chords of Pandiatonic formations. It is a common practice to end an orchestral arrangement of a popular song by the enriched major triad with an added sixth, seventh, or ninth.

The concluding sections of the THESAURUS demonstrate the various methods by which tonal materials may be used to best advantage. The section Double Notes shows the combinations derived from corresponding scales and patterns. Plural Scales and Arpeggios give examples of common major and minor progressions arranged consecutively in chromatic transposition. Polytonal Scales are simultaneous progressions in different keys. Polyrhythmic Scales are progressions in different rhythms. Polytonal Polyrhythmic Scales combine different rhythms in different tonalities.

A special word is to be said about Palindromic Canons. Palindromes are words or sentences that read the same forward or backward, as the sentence *Able Was I Ere I Saw Elba* (applied to Napoleon). Similarly, Palindromic Canons read the same backward or forward. The two Palindromic Canons based on Pattern No. 72 are particularly interesting. They result in a progression of enharmonic triads or their inversions, alternating in major and minor keys.

Fragments of the scales and patterns in the THESAURUS may be used as motives and themes. The rhythmical elaboration is left to the imagination of the composer. By using a portion of a pattern in forward and retrograde motion, in varied rhythms within a given meter, it is possible to form an unlimited number of melodic figures.

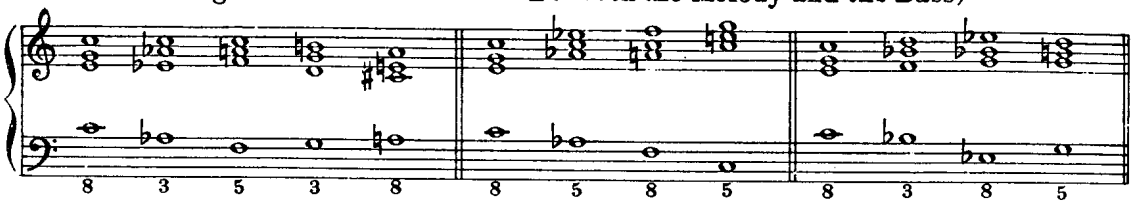
Rhythmic Development



Two formulas are used in the harmonization of the scales and patterns: one by common triads, and one by seventh-chords. In the harmonization by common triads, only root positions of major triads in close harmony are applied. Either the root, the third, or the fifth may appear in the melody. These positions are referred to as Octave, Tertian, and Quintan, or in figures, 8, 3, and 5. When the melody ascends, diatonically or chromatically, the positions change from the Octave to the Tertian to the Quintan to the Octave. When the melody descends, the order of the positions is reversed. Furthermore, the order of positions may be reversed at the end of a cadence even in ascending motion. When the melody is stationary, the order of positions is free. The resulting harmony traverses several tonalities in an alternation of successive major chords.

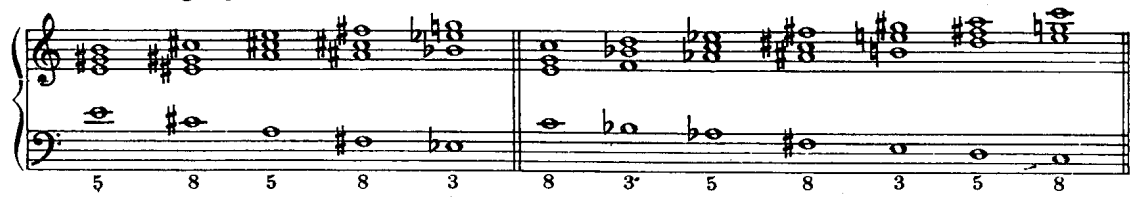
Harmonization in Major Triads

(Figures Indicate Intervals Between the Melody and the Bass)



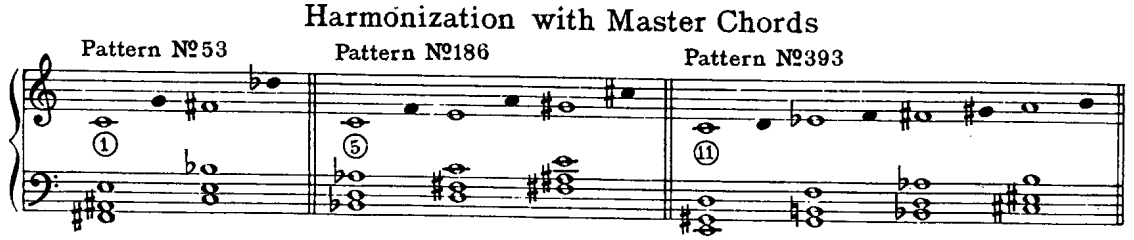
The harmonization in major triads is found in the music of Debussy, Moussorgsky, and other composers of the French and Russian schools. A classical example is the scene in the monk's cell in Moussorgsky's opera *Boris Godunov*. In the second act of Puccini's opera *Tosca* the Whole-Tone scale in the bass is harmonized by a row of major triads with the positions following the Octave-Tertian-Quintan (8-3-5) formula.

Moussorgsky: *Boris Godunov* Puccini: *Tosca* (Whole-Tone Scale in the Bass)



The second type of harmonization is effected by means of Master Chords. These Master Chords are dominant-seventh chords with the fifth omitted. In combination with melodic elements of a given scale or pattern, these chords form harmonic structures of the type of seventh-chords, ninth-chords, or whole-tone chords. The Master Chords are indicated for ascending scales and patterns in the sections Tritone Progression, Ditone Progression and Sesquitone Progression by figures within circles, as ⑤, and are used to harmonize an entire rhythmic group in a given progression. In the Tritone and Sesquitone Progressions it is also possible to harmonize the entire octave range with a single Master Chord. Furthermore, any Master Chord suitable for harmonization of a given progression may be transposed a tritone up or down with satisfactory results.

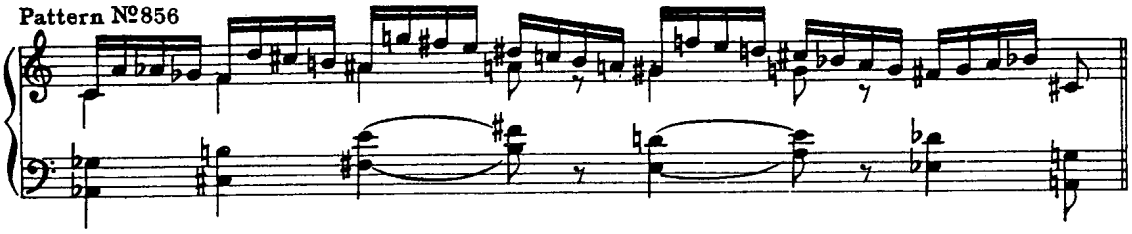
Harmonization with Master Chords



Harmonization of both types is given in the tables on pp.240-241. To harmonize in major triads, it is necessary to alternate the Octave, Tertian, and Quintan positions given in the table. In harmonizing by seventh-chords, ninth-chords, and whole-tone chords, any chord under a given melody note will furnish a workable harmony.

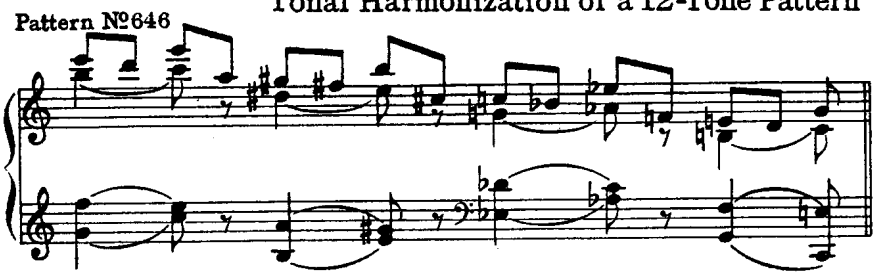
The patterns in the Diatessaron and Diapente Progressions lend themselves to harmonization characteristic of the Dominant-Tonic cycle. When harmonized in consecutive seventh-chords, such patterns acquire a Schumannesque quality.

Harmonization in Seventh-Chords



A harmonization of the Dominant-Tonic type will impart a feeling of tonality even to a 12-tone progression.

Tonal Harmonization of a 12-Tone Pattern



Traditional harmonization in major and minor keys uses chords formed by the diatonic scale. Similarly, new scales may be harmonized with the aid of chords formed by the notes of the scale itself. Examples of such Autochordal Harmonization are given in a special table. There are scales that admit of only 2 different triads, as Scale No. 7, which can be harmonized with C major and F♯ major triads. The 8-tone scale No. 393 is capable of forming 8 different triads, while other scales, such as No. 5, do not yield a single triad.

All scales and patterns in the THESAURUS are centered on C as the initial and concluding tone. It goes without saying that these progressions can be transposed to any tonal center according to a composer's requirements.

John Stuart Mill once wrote: "I was seriously tormented by the thought of the exhaustibility of musical combinations. The octave consists only of five tones and two semitones, which can be put together in only a limited number of ways of which but a small proportion are beautiful: most of these, it seemed to me, must have been already discovered, and there could not be room for a long succession of Mozarts and Webers to strike out, as these have done, entirely new surpassing rich veins of musical beauty. This sort of anxiety, may, perhaps, be thought to resemble that of the philosophers of Laputa, who feared lest the sun be burnt out."

The fears of John Stuart Mill are unjustified. There are 479,001,600 possible combinations of the 12 tones of the chromatic scale. With rhythmic variety added to the unbounded universe of melodic patterns, there is no likelihood that new music will die of internal starvation in the next 1000 years.

NICOLAS SLONIMSKY

1 January 1947 Boston, Massachusetts

EXPLANATION OF TERMS

AUTOCHORDAL HARMONIZATION. Application of chords derived from the tones of a given scale (Example, Scale No. 12: C, D♯, F, F♯, A, B, C, harmonized in 2 triads, F major and B major).

BITONAL ARPEGGIOS. [Nos. 1191-1213]. Melodic progressions formed of alternating arpeggios in 2 different keys.

BITONAL PALINDROMIC CANONS. Canons that result in the formation of 6-tone chords composed of 2 triads (Example, Scale No. 7: C, C♯, E, F♯, G, A♯, C, developed canonically, forming bitonal chords of C major and F♯ major).

CHORD OF THE MINOR 23RD. Chord consisting of 12 different notes, arranged in thirds, and forming 4 mutually exclusive triads.

COMPLEMENTARY SCALES. Melodic progressions of two octaves in range, comprising all 12 tones of the chromatic scale (Example, C major scale plus the pentatonic scale on black keys).

CONJUNCT POLYTETRACHORD. Progression of 12 tetrachords traversing all 12 keys, with the terminal tone of one tetrachord being the initial tone of the next (Examples, Phrygian Polytetrachord, No. 830; Minor Polytetrachord, No. 832; Major Polytetrachord, No. 833).

CROSSING INTERVALS. [Nos. 1243-1250]. Two overlapping 6-tone rows comprising all 12 different tones, each row forming a progression of major or minor seconds, thirds, fourths, fifths and sixths.

DIAPENTE. Interval of 3½ tones; a perfect fifth.

DIATESSARON. Interval of 2½ tones; a perfect fourth.

DISJUNCT POLYTETRACHORD. Progression of 12 tetrachords traversing all 12 keys, with adjacent tetrachords separated by one diatonic degree (Examples, Disjunct Phrygian Polytetrachord, No. 951; Disjunct Minor Polytetrachord, No. 956; Disjunct Major Polytetrachord, No. 958; Disjunct Lydian Polytetrachord, No. 959).

DITONE. Interval of 2 whole tones; a major third.

GRANDMOTHER CHORD. Chord, invented by Nicolas Slonimsky on February 13, 1938, containing all 12 different tones and different intervals symmetrically invertible in relation to the central interval, the tritone, which is the inversion of itself; the intervallic structure being a row of alternatingly odd and even intervals (counted in semitones), the odd-numbered series forming a diminishing arithmetical progression, and the even-numbered series an increasing progression.

HEPTATONIC ARPEGGIOS. [Nos. 1088-1141]. Melodic progressions by thirds derived from Heptatonic scales.

HEPTATONIC SCALES. [Nos. 1034-1087]. Diatonic progressions of 7 degrees, such as major and minor scales and church modes, and also scales containing 1 or 2 augmented seconds.

INFRA-INTER-ULTRAPOLATION. Pattern formed by the insertion of notes below, between, and above the principal tones of a progression (Example, Pattern No. 341).

INFRAPOLATION. Insertion of a note below the principal tones of a progression (Example, Pattern 231).

INTERPOLATION. Insertion of one or more notes between the principal tones of a progression (Example, Scale No. 21).

INTER-ULTRAPOLATION. Insertion of 2 notes, one between the principal tones of a given progression, the other above the principal tone (Example, Pattern No. 123).

MAJOR BITONAL CHORD. Chord of 2 major triads usually in keys whose tonics are at the interval of a tritone, as C major and F♯ major.

MAJOR POLYTETRACHORD. A series of major tetrachords, conjunct or disjunct, covering all 12 major keys (Examples, No. 833 and No. 958).

MASTER CHORDS. Dominant-seventh chords with the fifth omitted, tabulated chromatically in 12 different keys, to be used in harmonizing scales and melodic patterns, and indicated by figures, enclosed in circles, from 1 to 12.

MINOR BITONAL CHORD. Chord consisting of 2 minor chords, usually with tonics at the interval of a tritone, as C minor and F♯ minor.

MINOR POLYTETRACHORD. A series of minor tetrachords, conjunct or disjunct, covering all 12 minor keys (Examples, No. 832 and No. 956).

MIRROR INTERVAL PROGRESSIONS. Scales and patterns in which the descending figure is the melodic inversion of the ascending figure (Example, Scale No. 1 ascending is the mirror inversion of Scale No. 4 descending).

MOTHER CHORD. Chord, introduced by Fritz Klein in 1921, containing all 12 tones and 11 different intervals.

MUTUALLY EXCLUSIVE TRIADS. Four triads (major, minor, diminished or augmented) comprising all 12 different tones (Example, C major, F♯ major, D minor, and G♯ minor).

NON-SYMMETRIC INTERPOLATION. Free insertion of additional notes between the principal tones.

OCTAVE POSITION. In four-part harmony, a triad with the root both in the melody and in the bass.

PALINDROMIC CANONS. Canons that read the same backward or forward.

PANDIATONIC HARMONY. Part-writing in chords freely combined from the 7 tones of the diatonic scale.

PANDIATONIC PROGRESSIONS. Tonal rows composed of all 7 different tones of the diatonic scale.

PATTERN. Melodic figure in which the direction changes from ascending to descending, or vice versa, before arriving at the terminal point (All infrapolated and ultrapolated progressions are patterns).

PENTATONIC SCALES. [Nos. 1142-1190]. Scales of 5 notes.

PERMUTATION. Distribution of notes of a given melodic pattern in different orders of succession.

PHRYGIAN POLYTETRACHORD. Polytetrachord composed of 12 conjunct or disjunct Phrygian tetrachords (1 semitone plus 2 whole tones), (Examples, No. 830 and No. 951).

PLURAL SCALES. Progressions formed by disjunct scales, as C major, D♭ major, D major, and E♭ major.

POLYRHYTHMIC SCALES. Simultaneous progressions in different rhythms.

POLYTETRACHORD. Progression of 12 tetrachords passing through all 12 keys conjunctly (with the last tone of one tetrachord coinciding with the first tone of the next), or disjunctly (with the terminal tone of the first tetrachord separated by a diatonic degree from the initial tone of the next).

POLYTONAL POLYRHYTHMIC SCALES. Simultaneous progressions in different keys and in different rhythms.

POLYTONAL SCALES. Scales in different tonalities played simultaneously.

PROGRESSION. General term for any scale or melodic pattern.

PROMETHEUS SCALE. [No. 50]. The 6-tone scale (C, D, E, F♯, A, B♭) used by Scriabin in his symphonic poem *Prometheus.*

PYRAMID CHORD. Chord, introduced by Fritz Klein in 1921, composed of a series of diminishing intervals from an octave to a semitone.

QUADRITONE. Interval of 4 whole tones; a minor sixth.

QUADRITONAL ARPEGGIOS. [Nos. 1251-1291]. Melodic progressions formed by 4 mutually exclusive triads, as C major, D minor, F♯ major, and G♯ minor.

QUARTAL CHORD. 12-tone chord arranged in perfect fourths.

QUINQUETONE. Interval of 5 whole tones; a minor seventh.

QUINTAN POSITION. In four-part harmony, a triad with the root in the bass and the fifth in the melody.

SCALE. Progression of tones changing its direction only at terminal points (All interpolated progressions are scales).

SEMITONE PROGRESSION. Scale consisting of consecutive semitones; a chromatic scale.

SEPTITONE. Interval of 7 whole tones; a major ninth.

SESQUI. Prefix signifying the addition of a semitone to a given interval (Sesquitone = 1½ tones; Sesquiquadritone = 4½ tones).

SESQUIQUADRITONE. Interval of 4½ tones; a major sixth.

SESQUIQUINQUETONE. Interval of 5½ tones; a major seventh.

SESQUITONE. Interval of 1½ tones; a minor third.

SPIRAL PATTERNS. Melodic progressions converging toward a central tone.

SYMMETRIC INTERPOLATION. Insertion of notes at equal intervals from respective pivotal points, resulting in invertible progressions (Example, Scale No. 37: C, D, F, F♯, G, B♭, C, in which the intervals are the same from C upward and from the upper C downward).

TERTIAN POSITION. In four-part harmony, a triad with the root in the bass and the third in the melody.

TONE-CLUSTER. Term, introduced by Henry Cowell, signifying a complex of notes filling one or more octaves, diatonically, chromatically, or pentatonically.

TRITONE. Interval of 3 whole tones; an augmented fourth, or a diminished fifth.

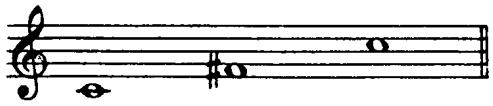
TWELVE-TONE PROGRESSIONS. Melodic figures of 12 different tones.

ULTRAPOLATION. Insertion of one or more notes above a principal tone of a scale (Example, Pattern No. 53, in which G is inserted above F♯).

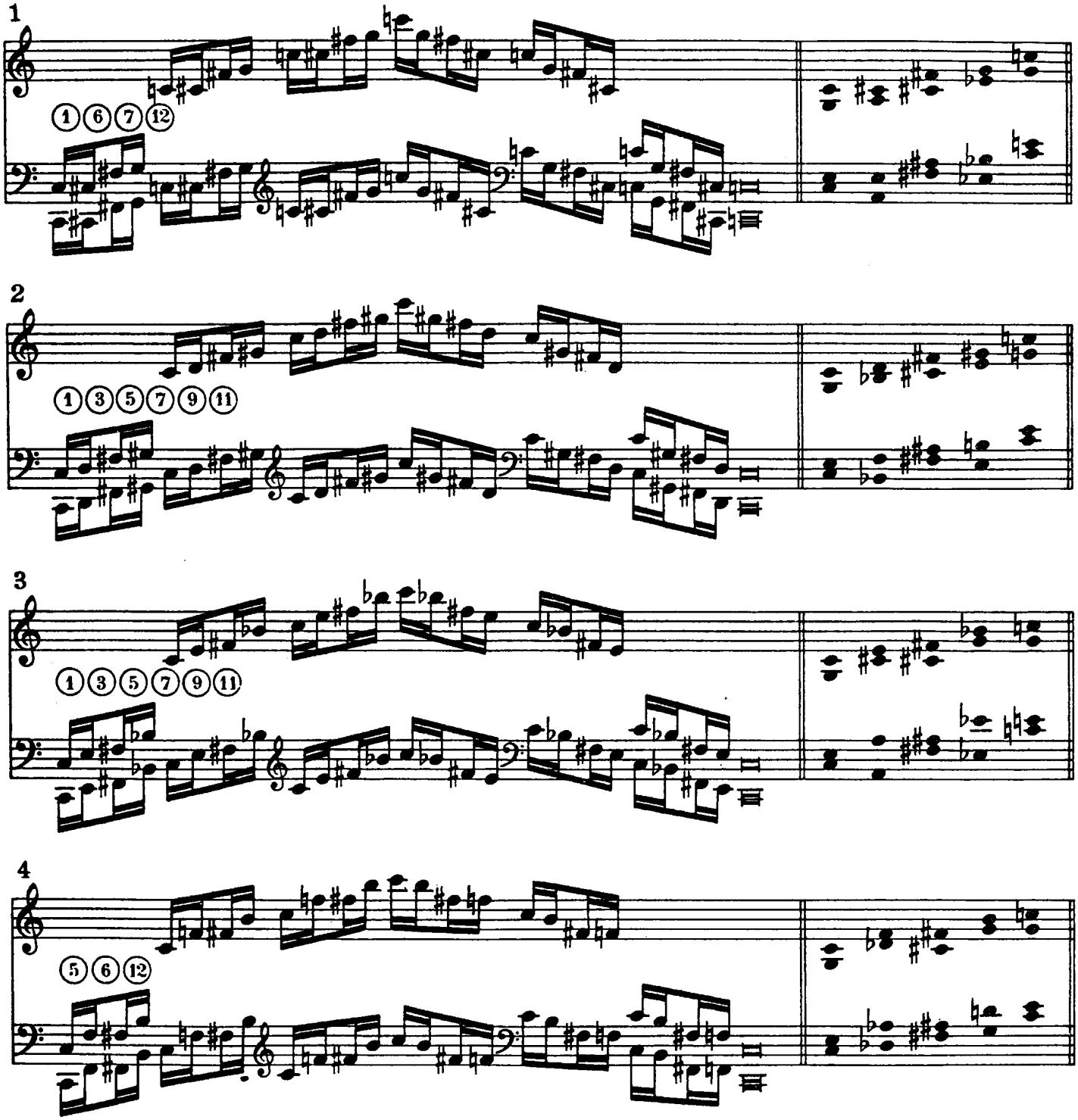
WHOLE-TONE CHORDS. Chords composed of intervals of one or several whole tones each.

Tritone Progression

Equal Division of One Octave into Two Parts

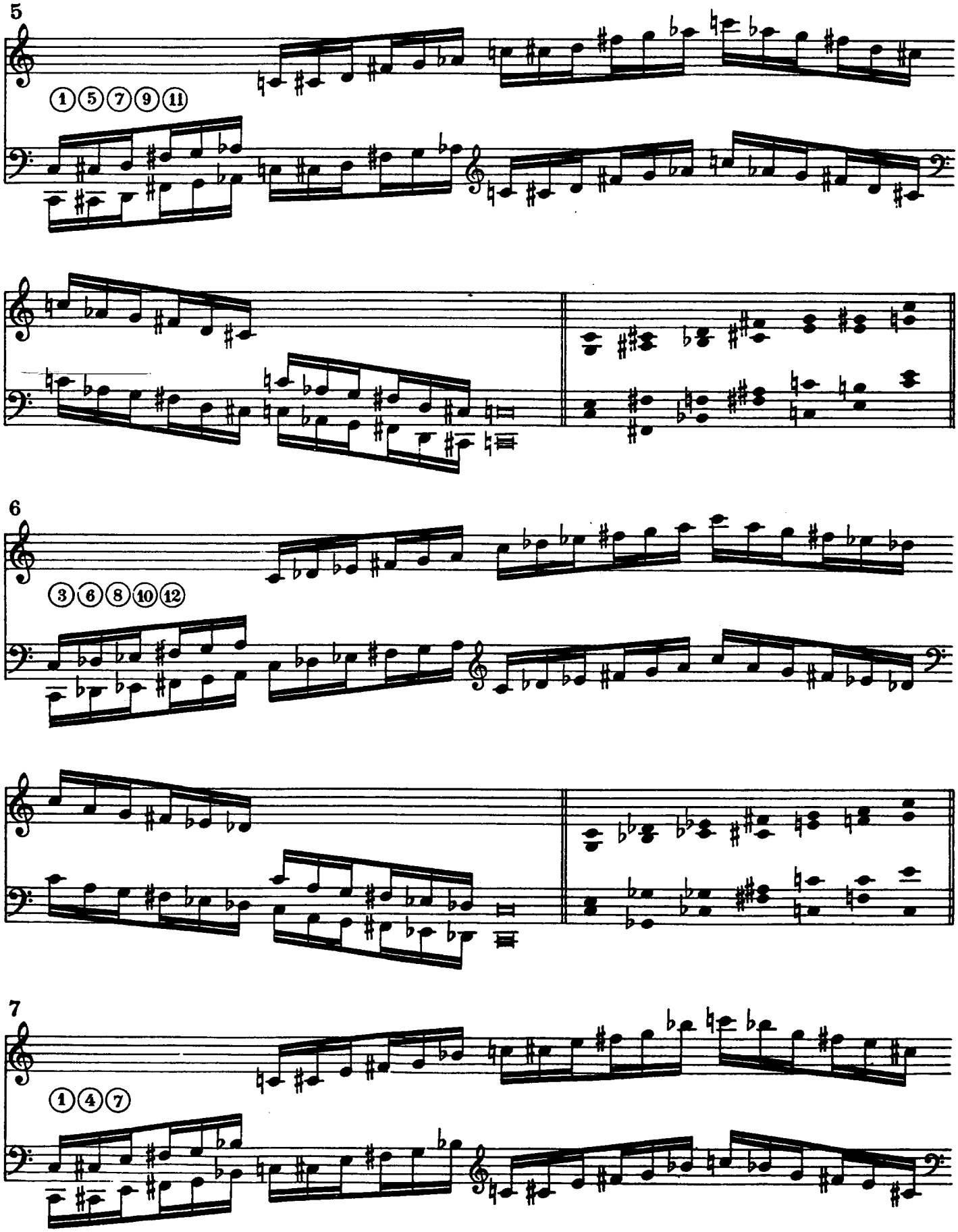


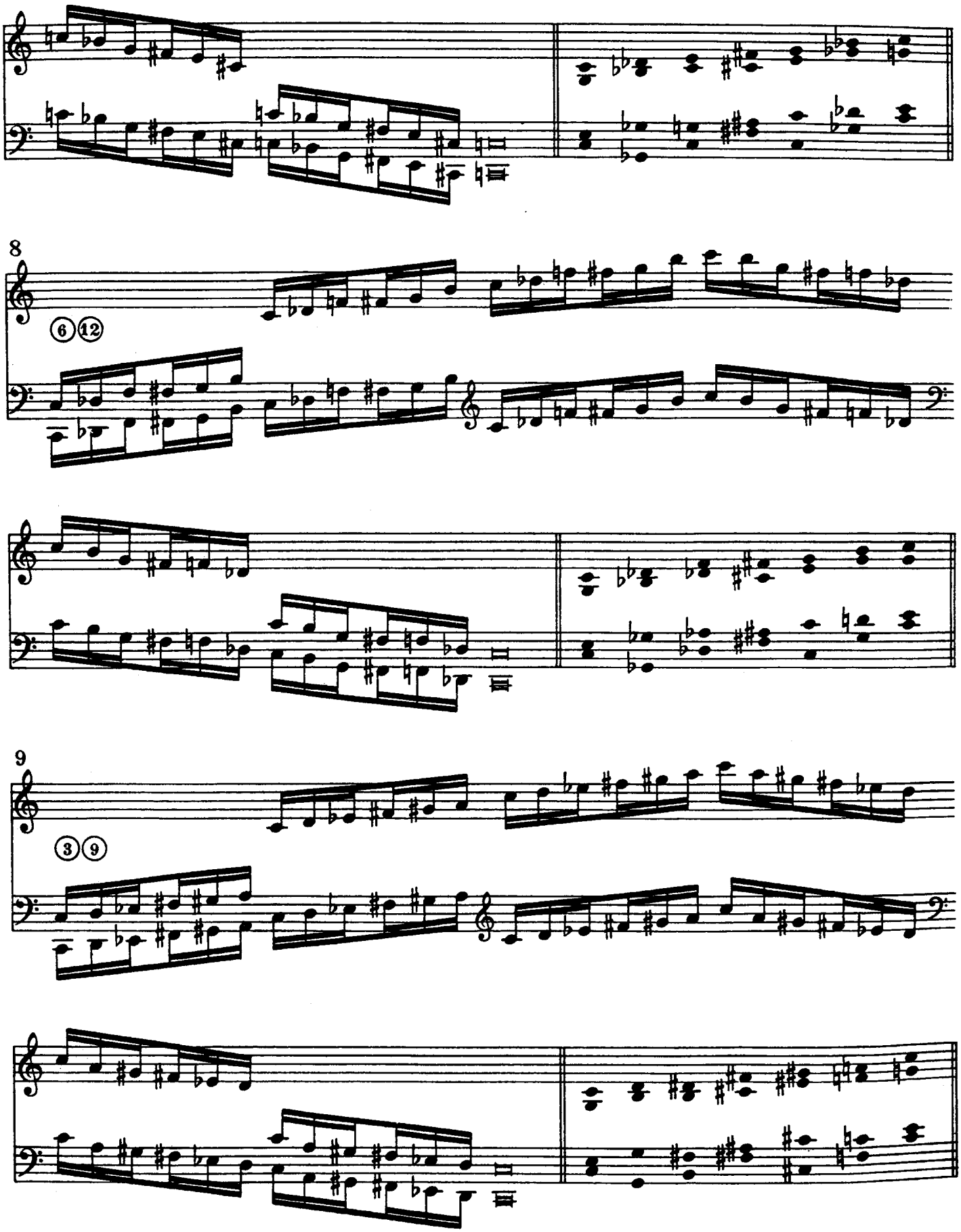
Interpolation of One Note

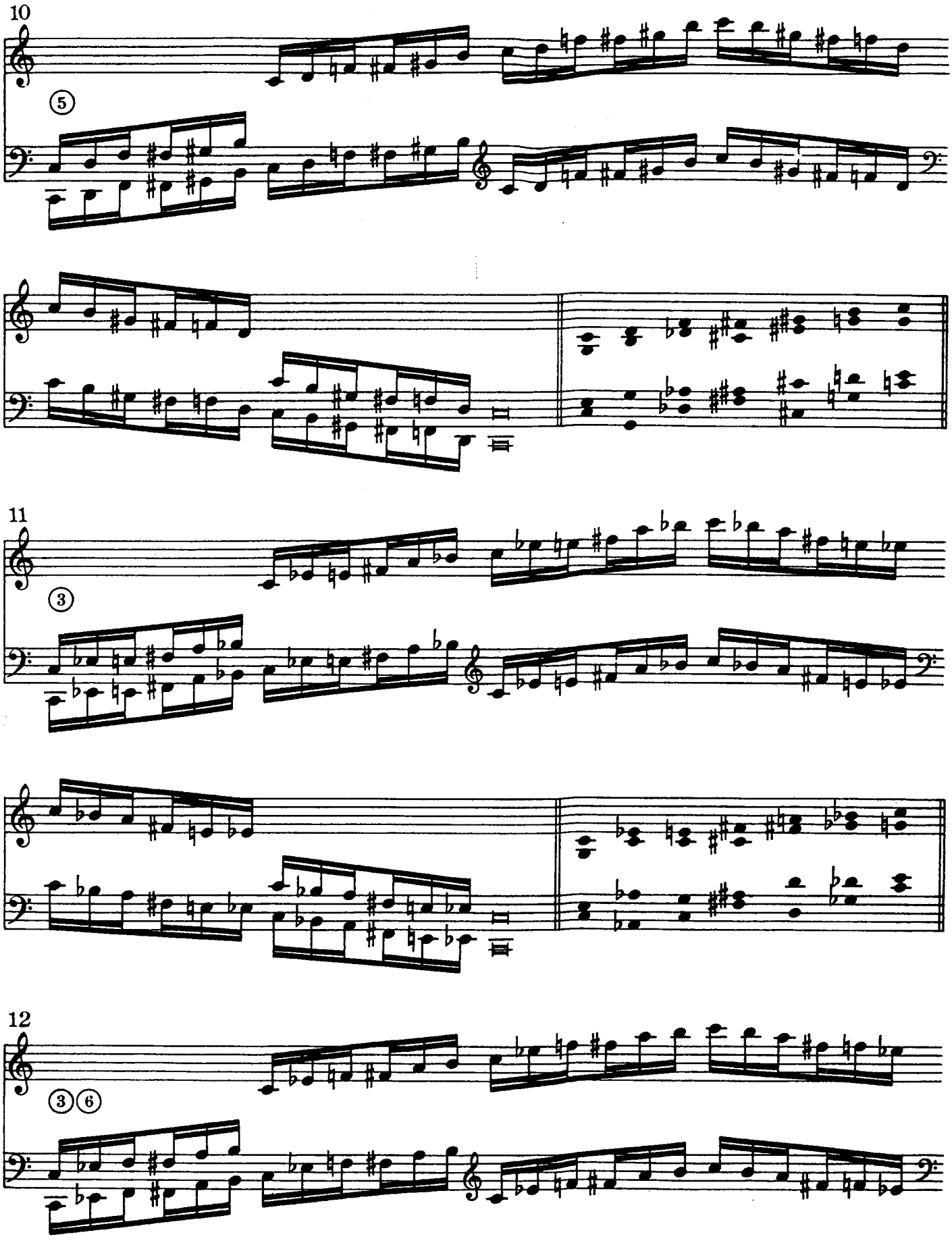


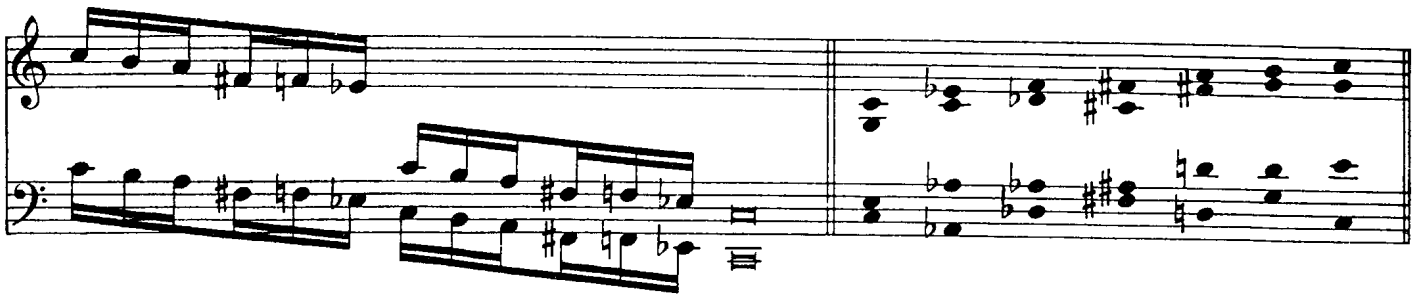
①②③④⑤⑥⑦⑧⑨⑩⑪⑫ indicate Master Chords.

Interpolation of Two Notes

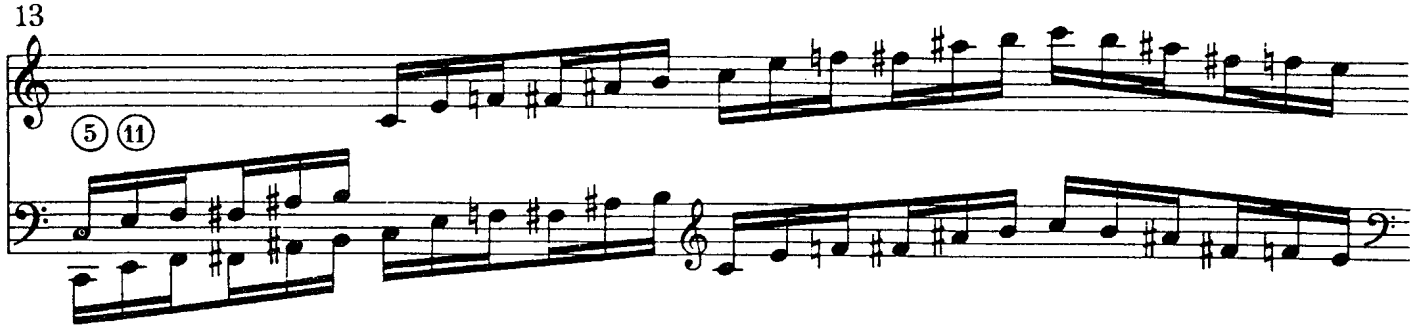


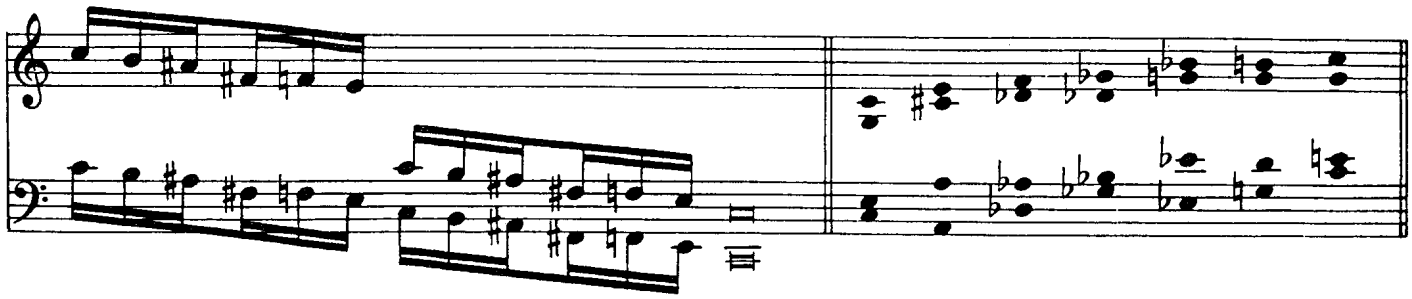

8
6 12
9
3 9


10
5
11
3
12
3 6



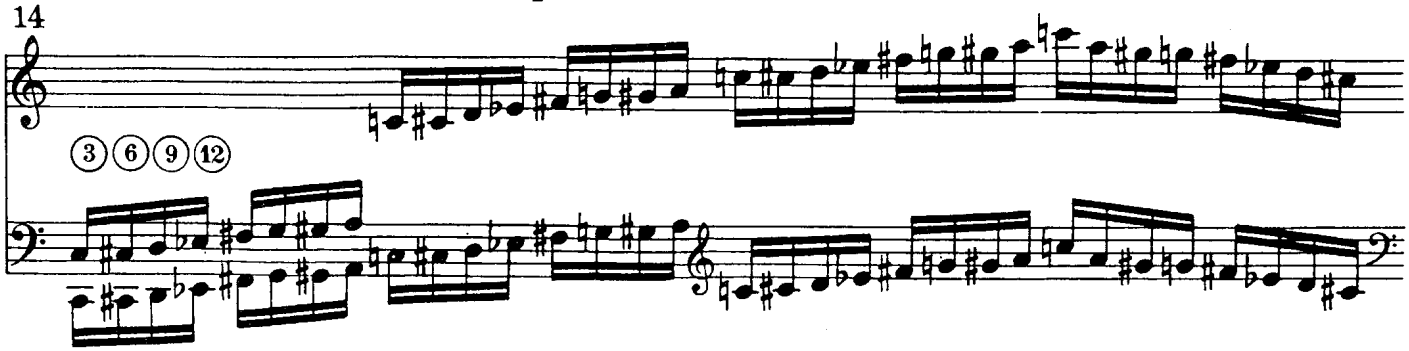
13

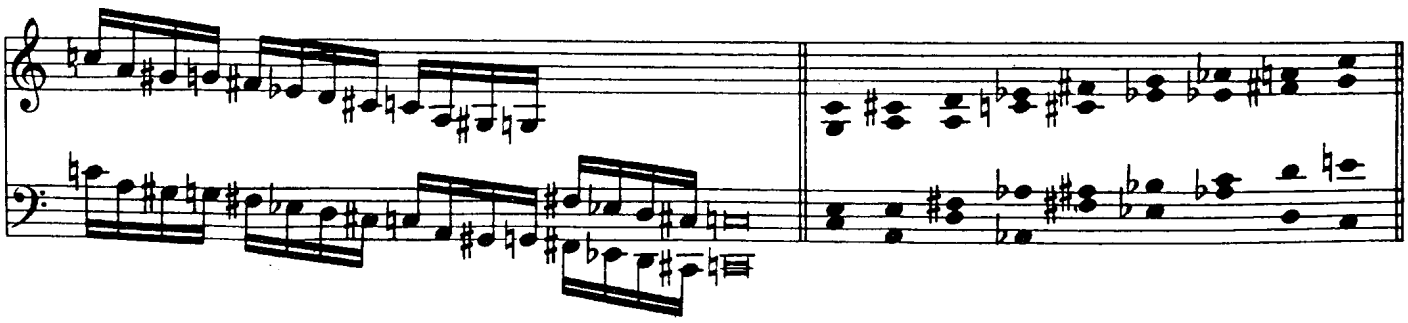


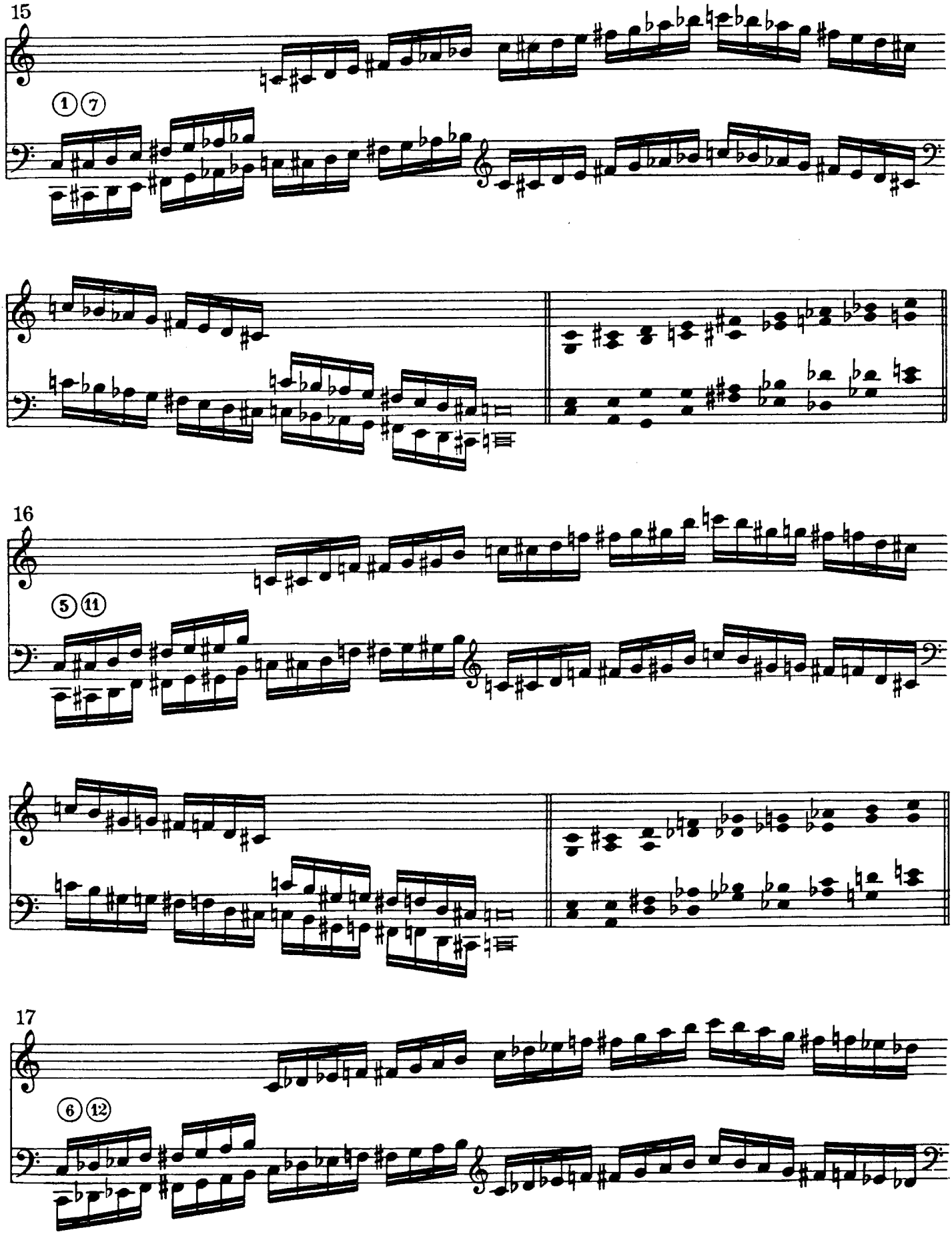


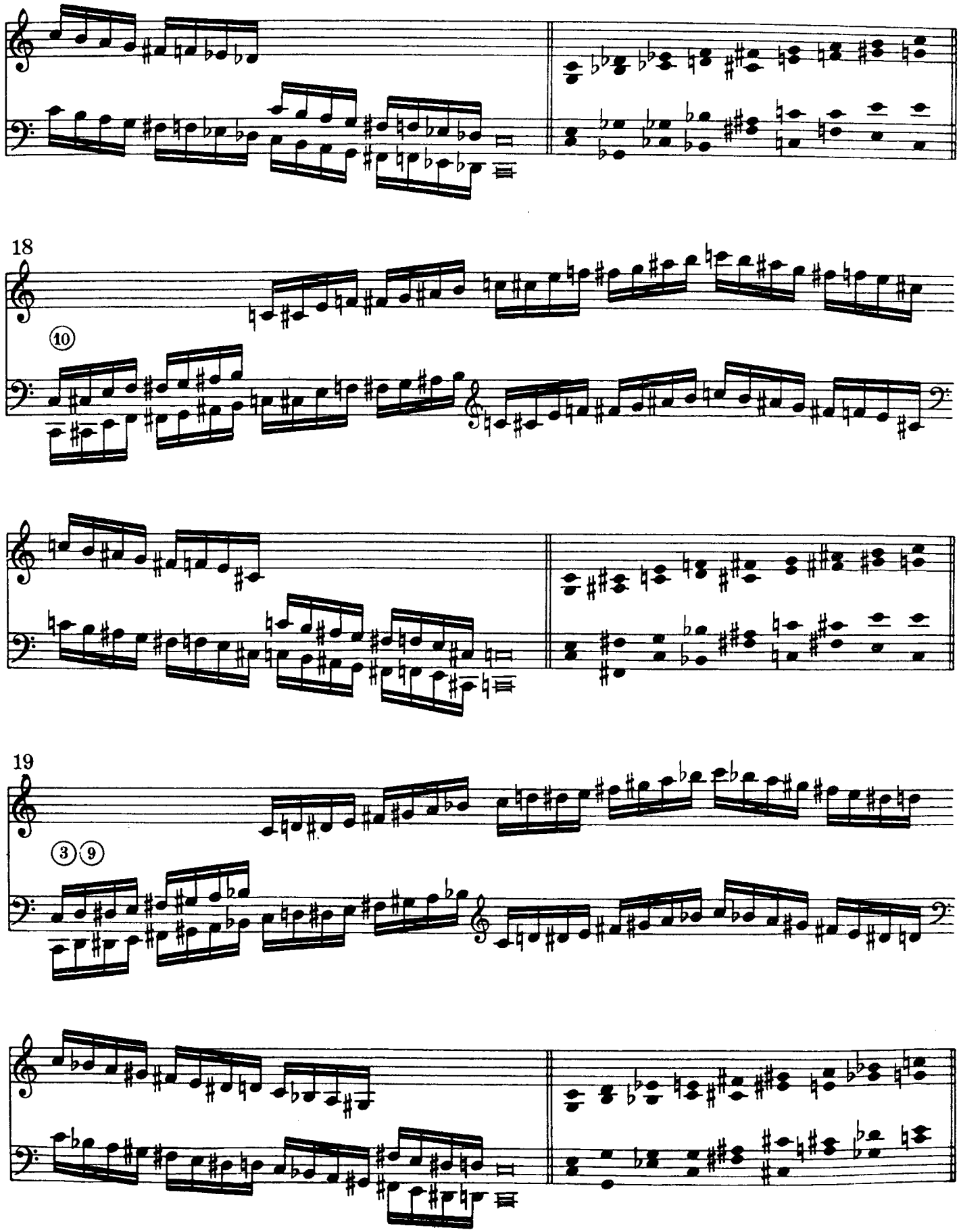
Interpolation of Three Notes

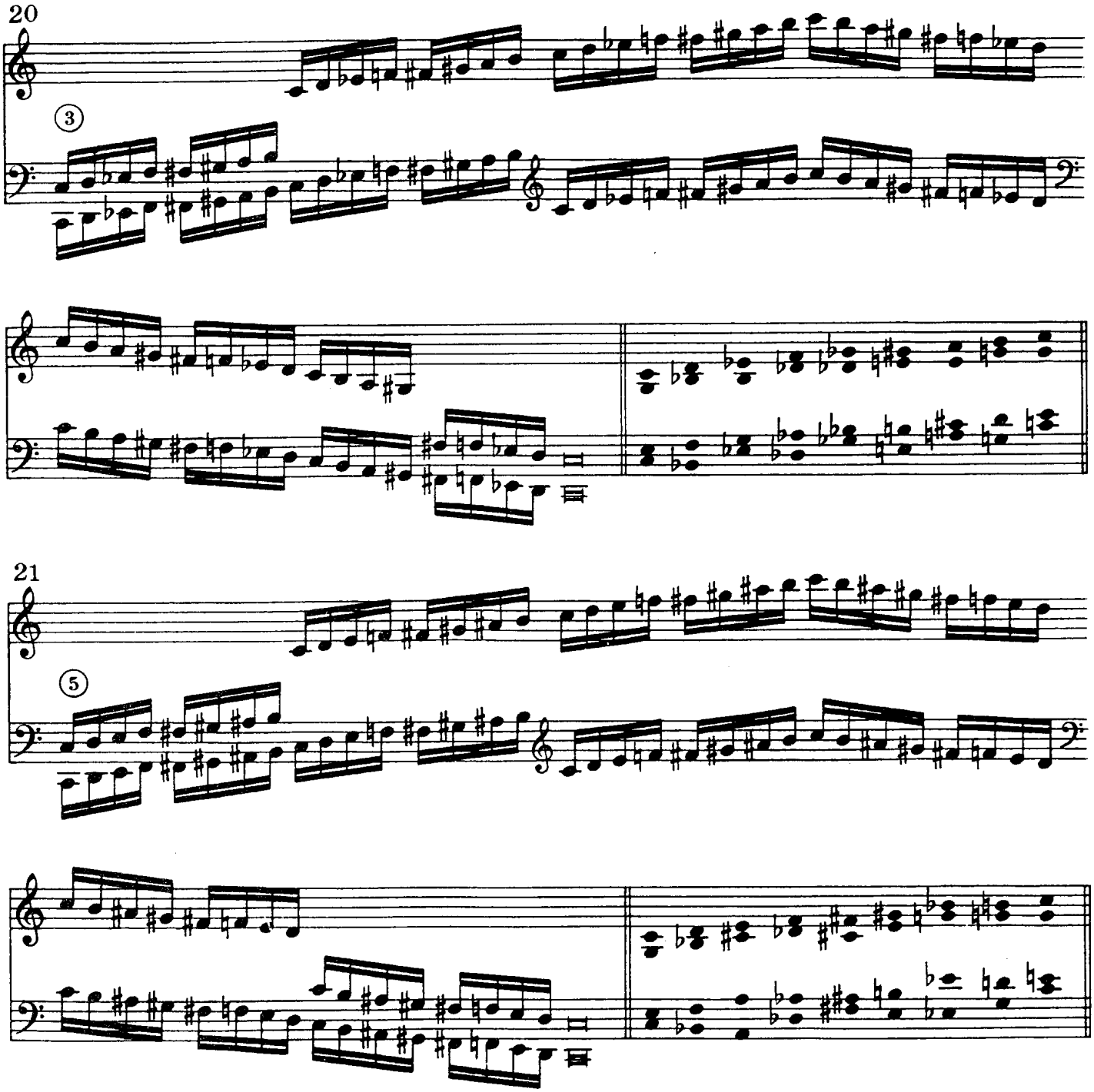
14



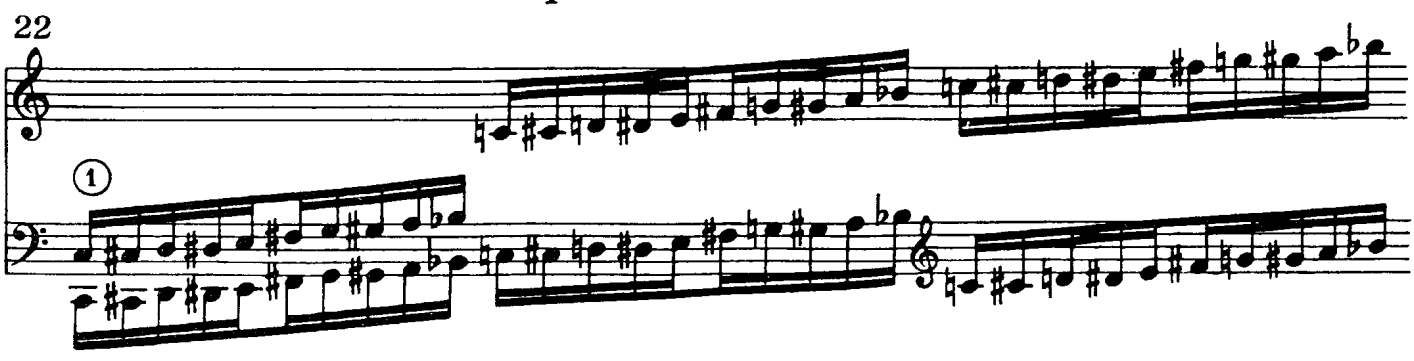


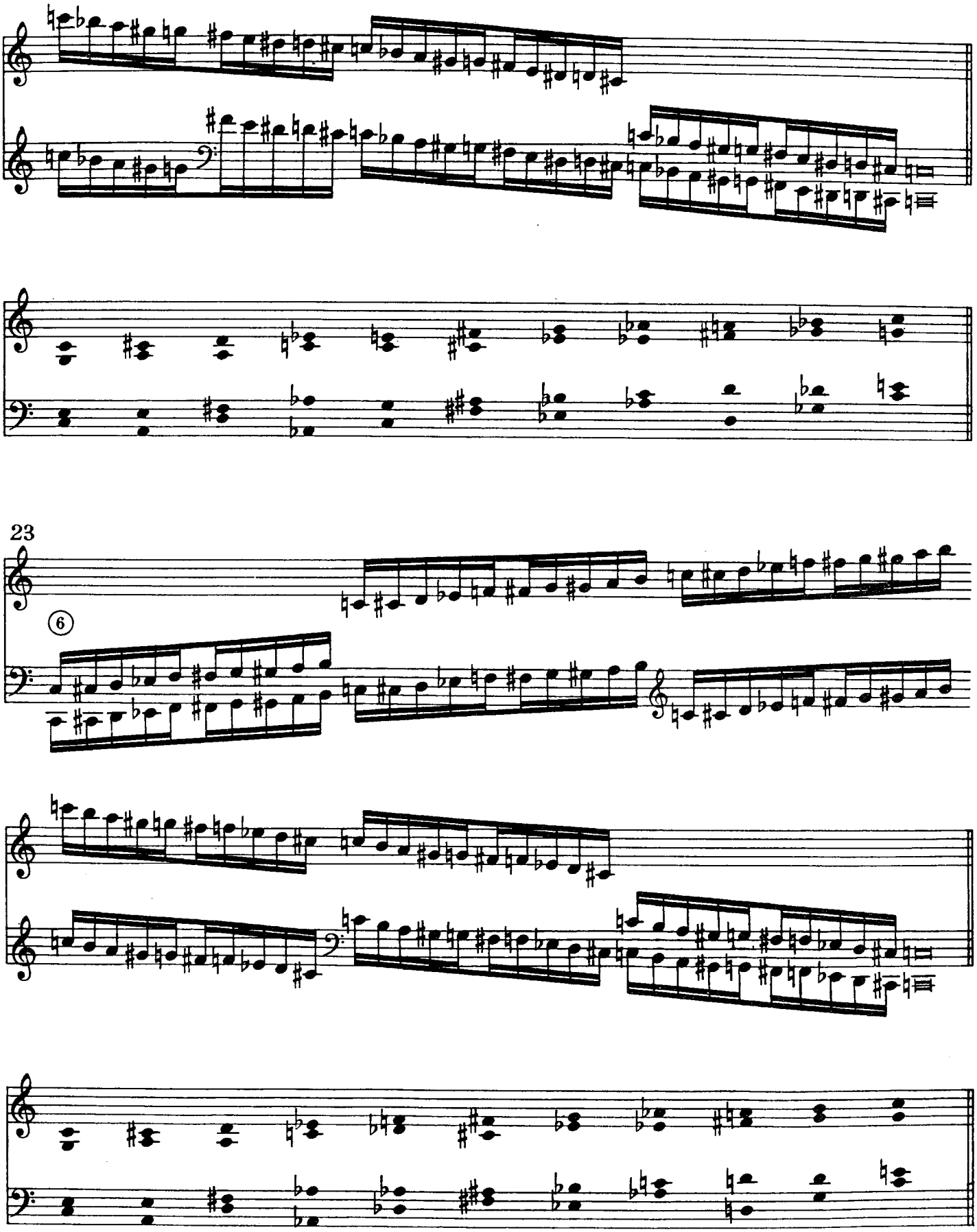

15
1 7
16
5 11
17
6 12

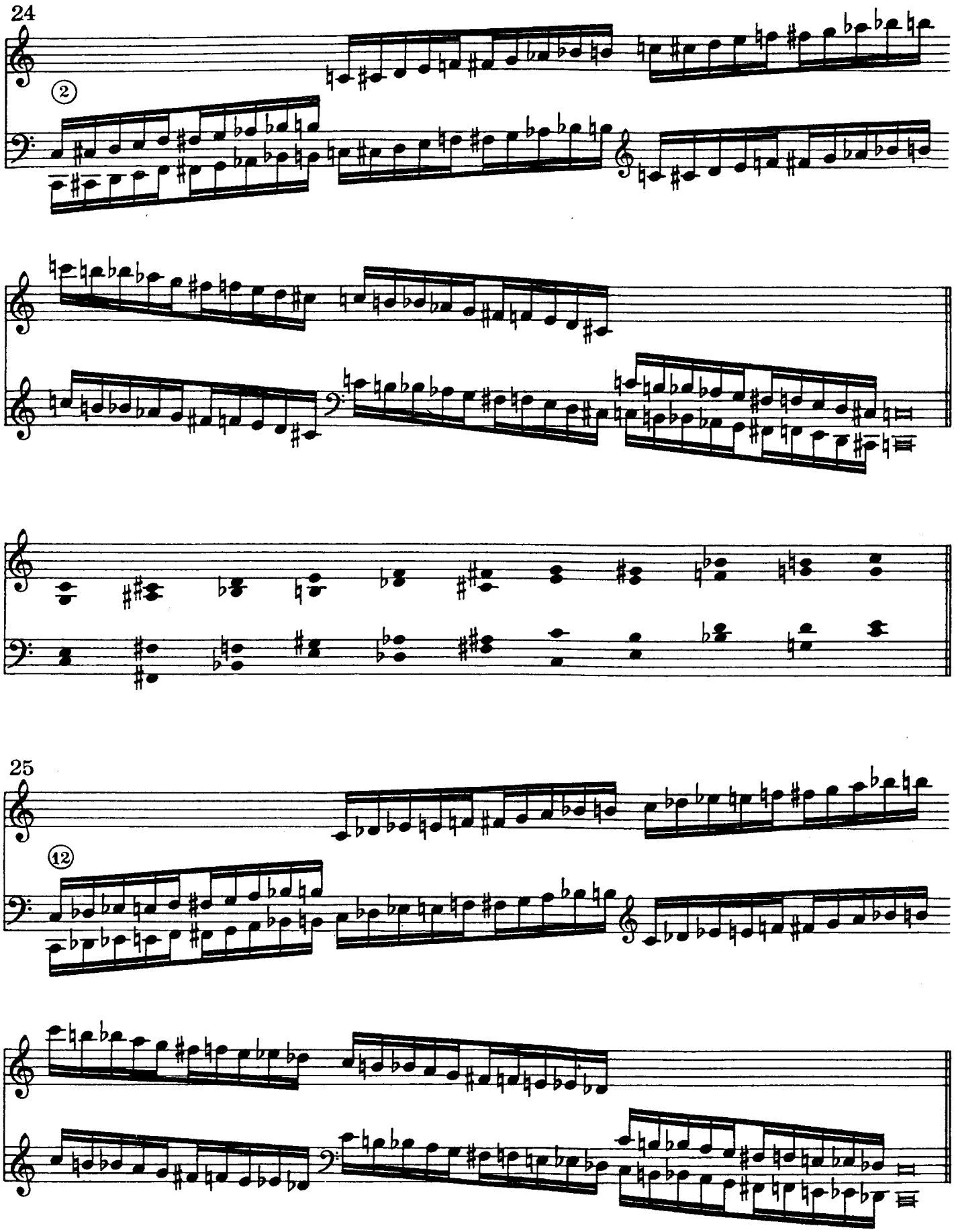

18
10
19
3
9

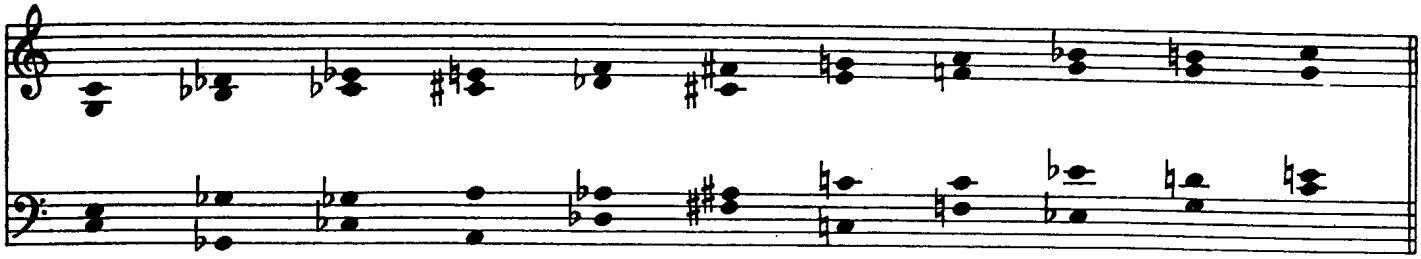


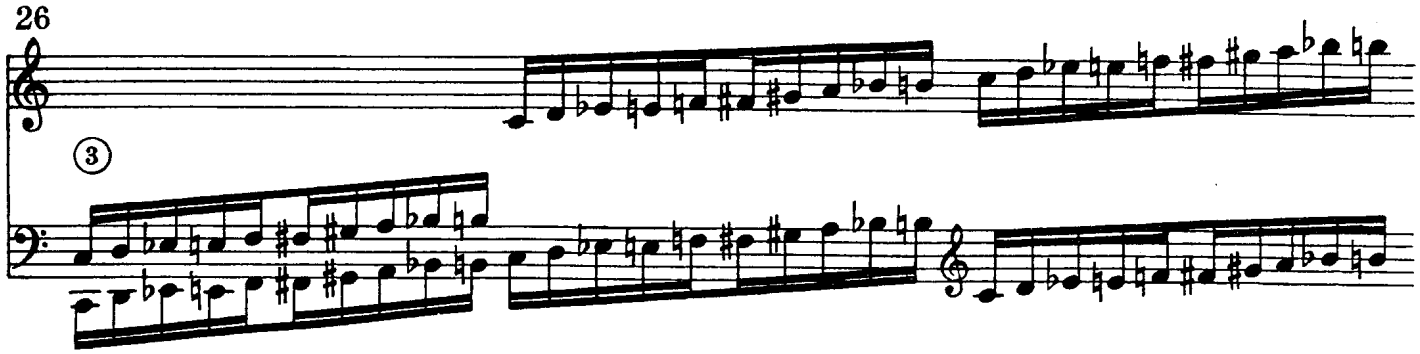
Interpolation of Four Notes

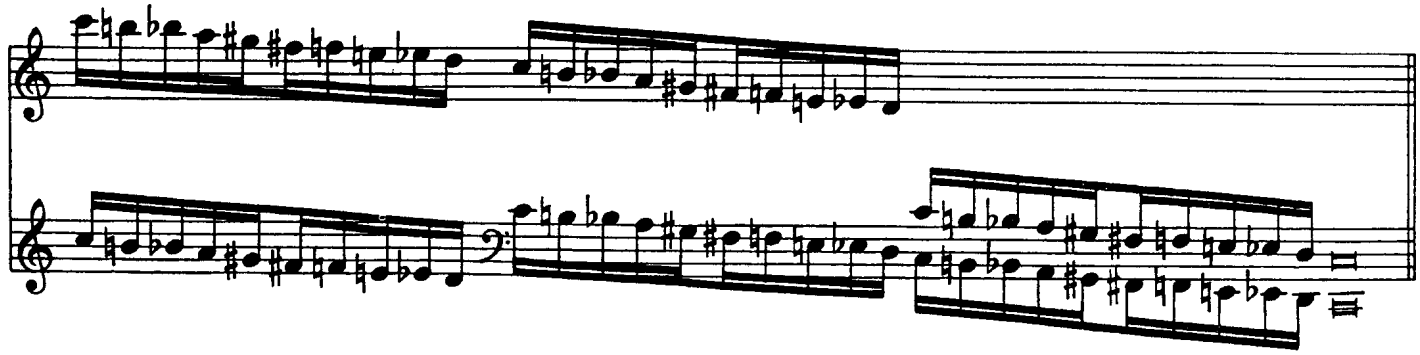


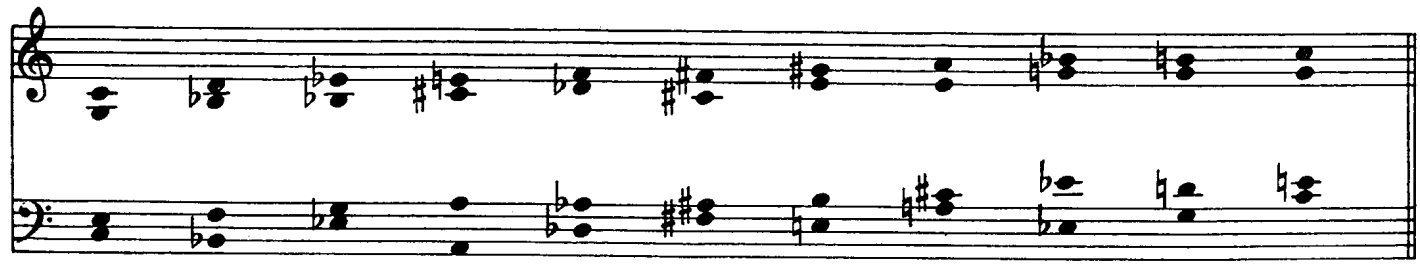

23
6


24
2
25
12




26
3

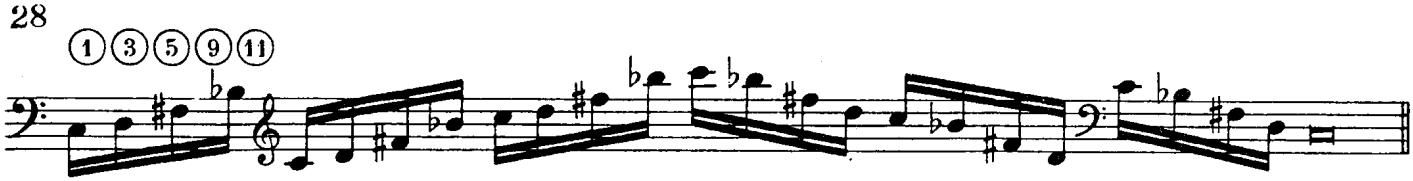




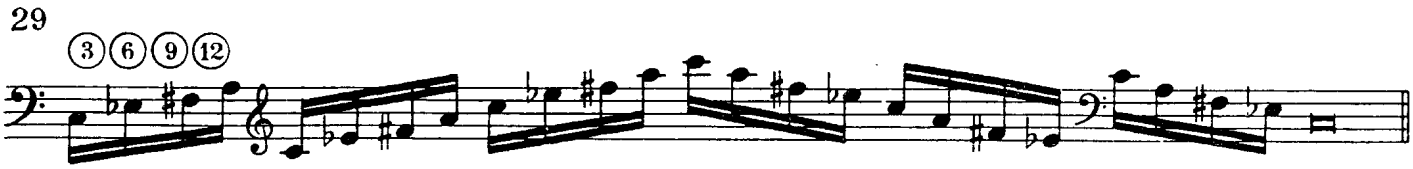
Symmetric Interpolation of One Note

27 ⑥ ⑫

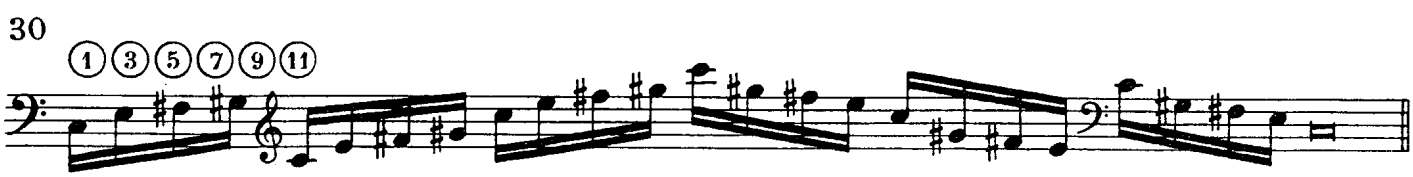
28 ① ③ ⑤ ⑨ ⑪



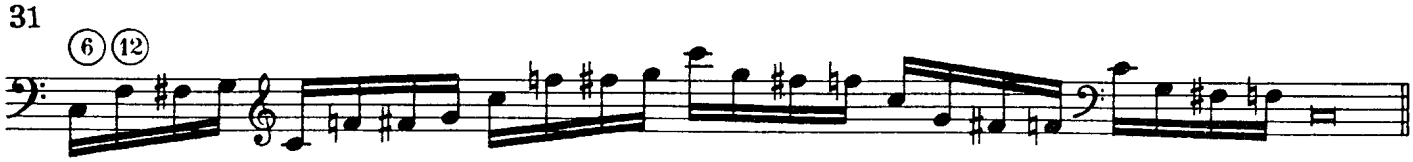
29 ③ ⑥ ⑨ ⑫



30 ① ③ ⑤ ⑦ ⑨ ⑪

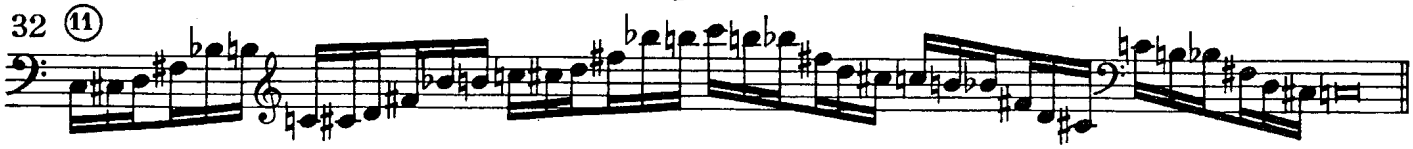


31 ⑥ ⑫

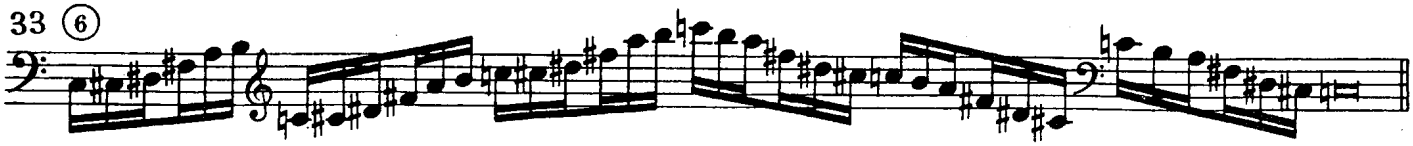


Symmetric Interpolation of Two Notes

32 ⑪

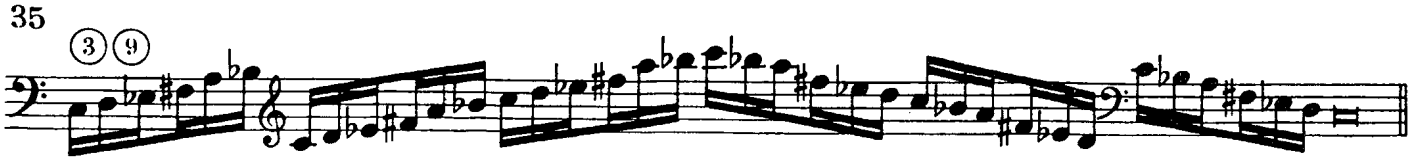


33 ⑥

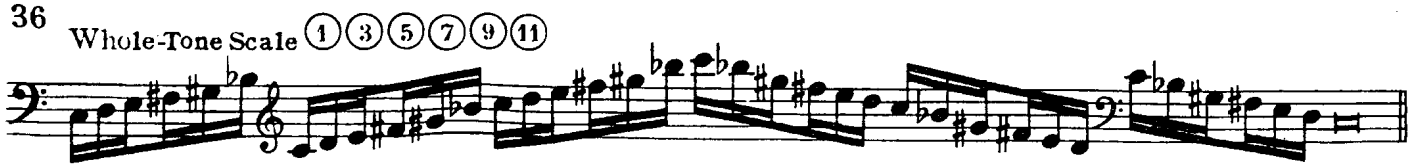


34 ⑪

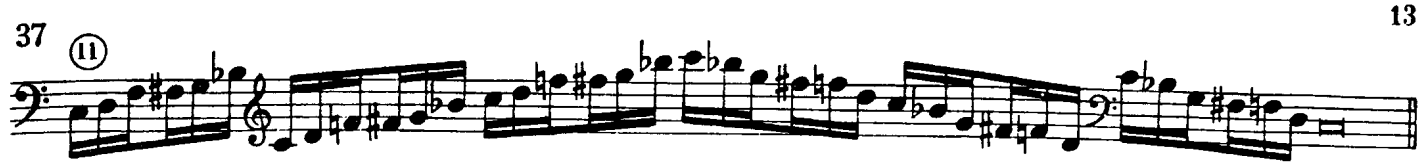
35 ③ ⑨



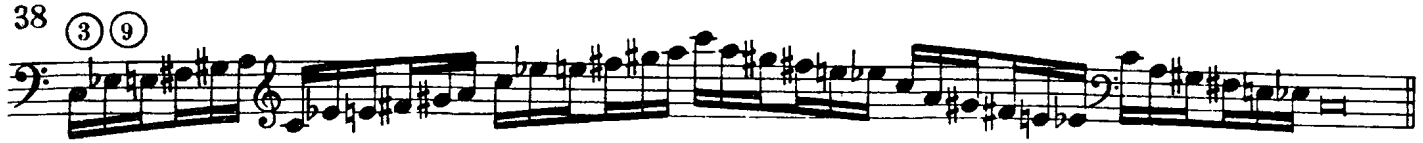
36 Whole-Tone Scale ① ③ ⑤ ⑦ ⑨ ⑪



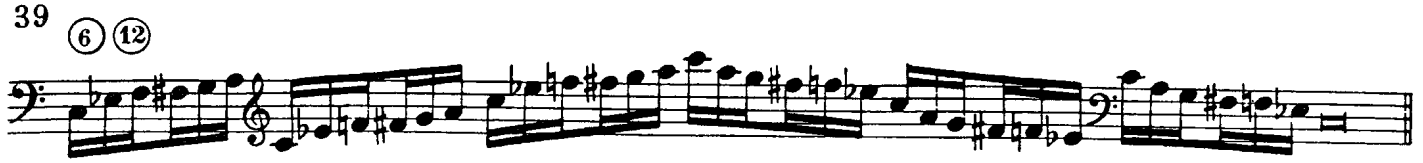
37 ⑪



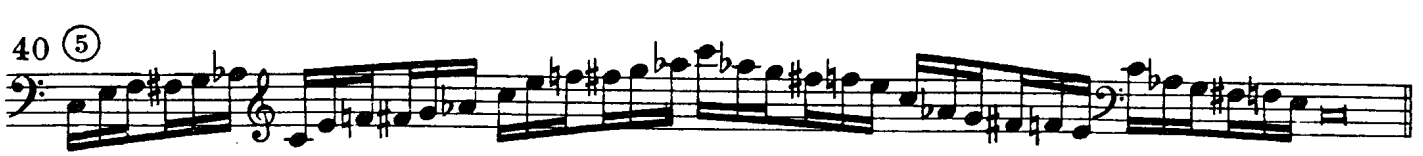
38 ③ ⑨



39 ⑥ ⑫

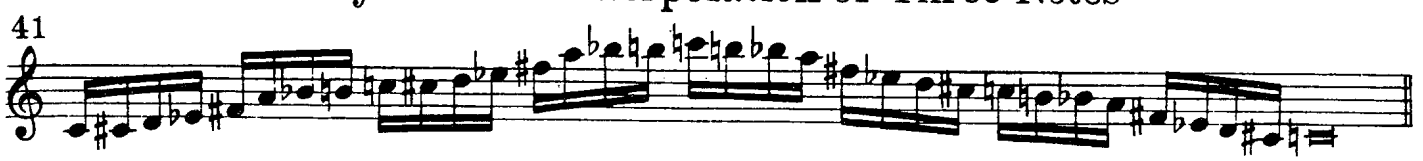


40 ⑤



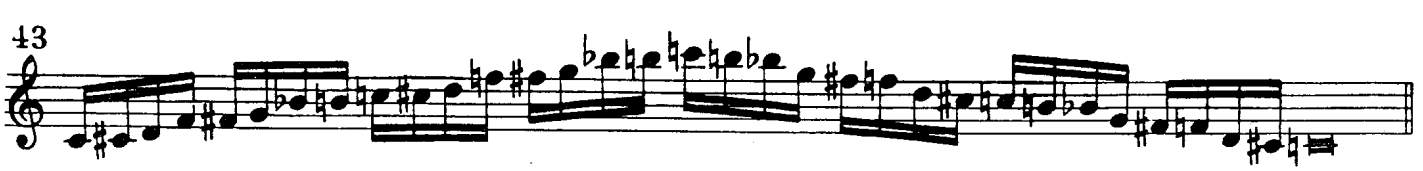
Symmetric Interpolation of Three Notes

41

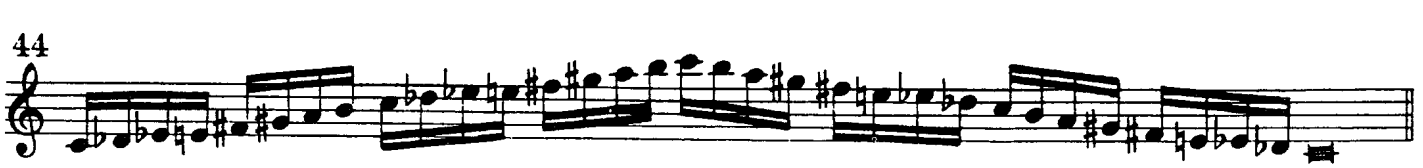


42

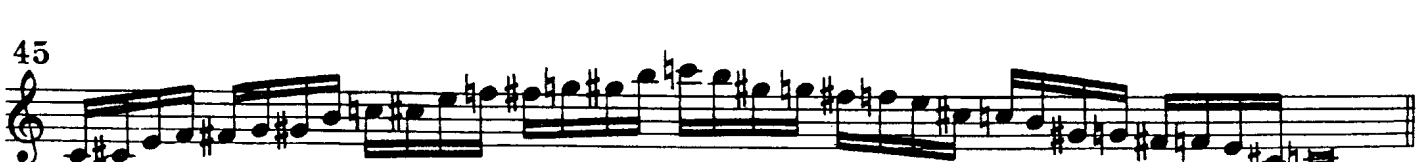
43



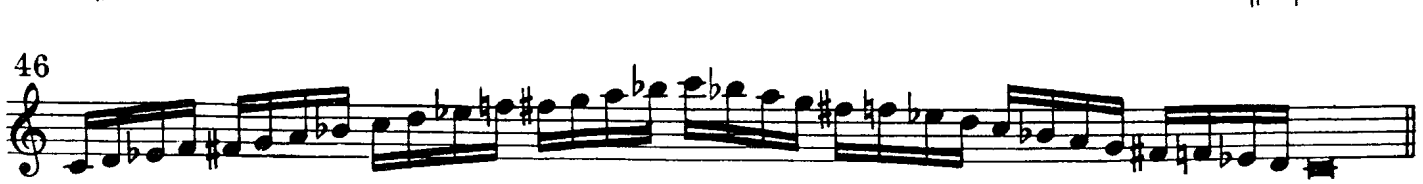
44



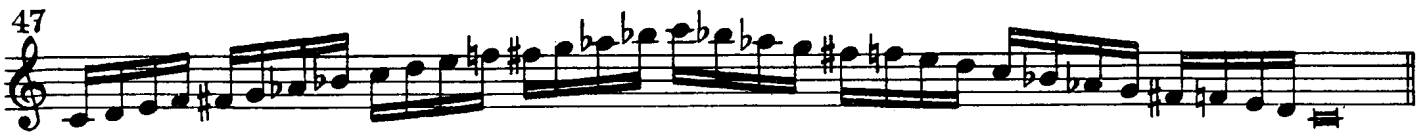
45



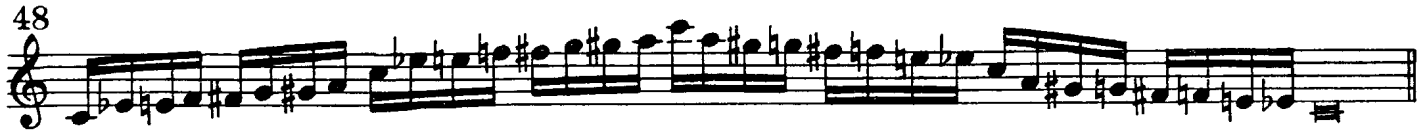
46



47

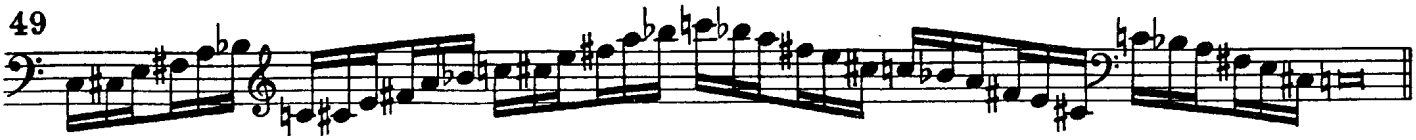


48

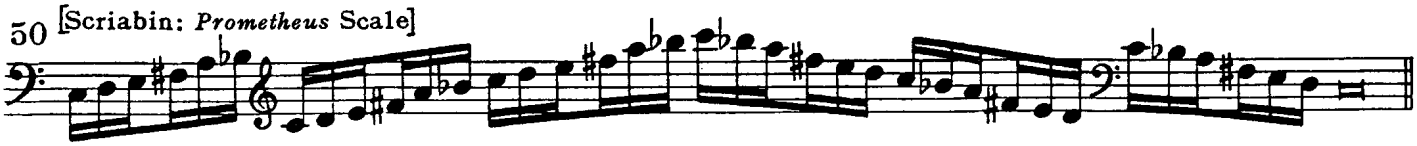


Non-Symmetric Interpolation

49



50 [Scriabin: *Prometheus* Scale]

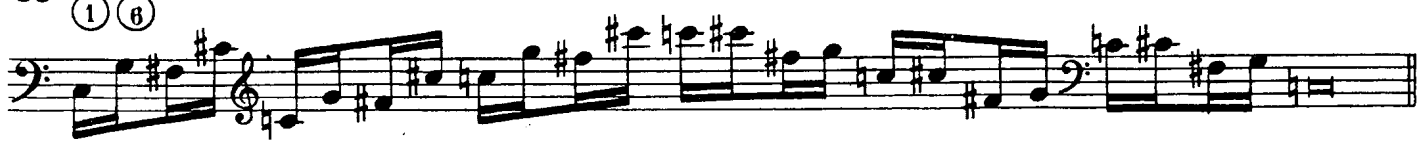


51

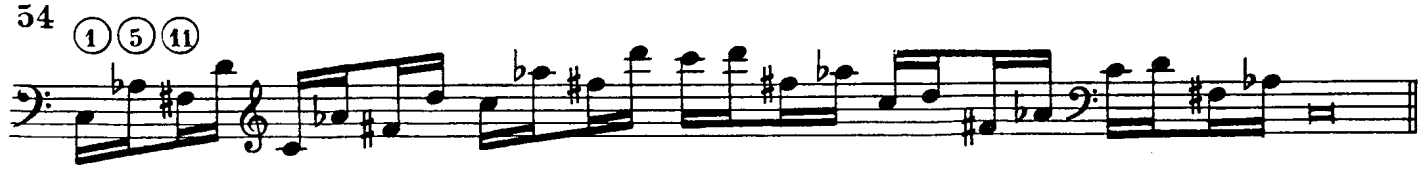
52

Ultrapolation of One Note

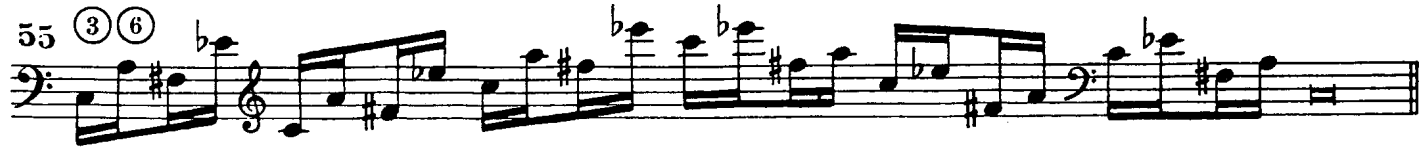
53 ① ⑥



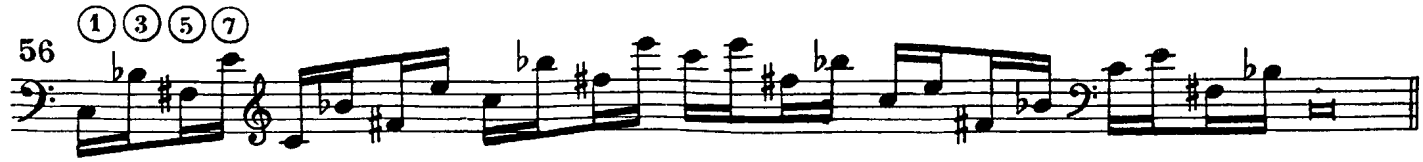
54 ① ⑤ ⑪



55 ③ ⑥



56 ① ③ ⑤ ⑦



57 ⑤⑥⑪⑫

58 ①⑫

Ultrapolation of Two Notes

59 ①

60 ⑥⑫

61 ①

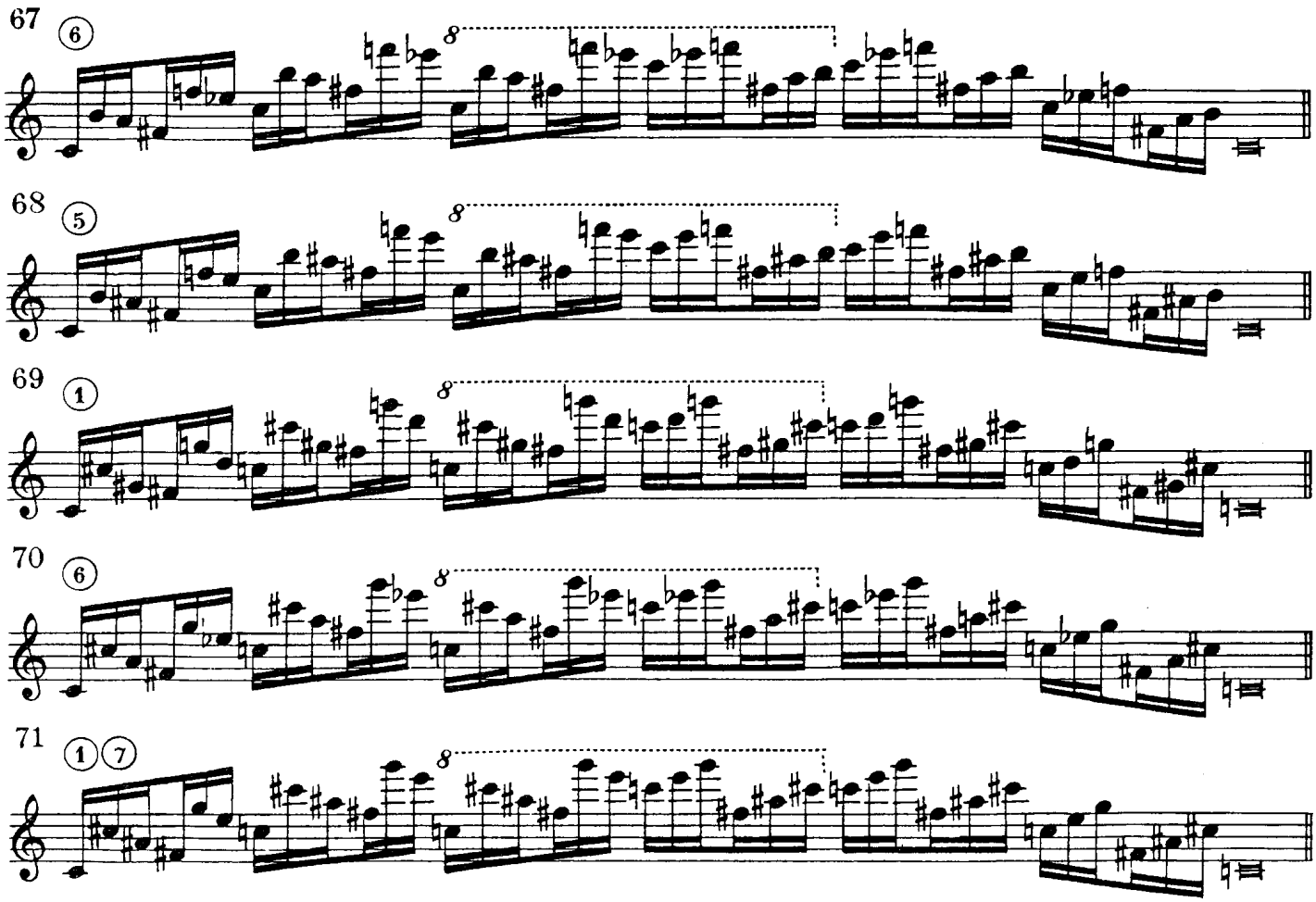
62 ⑥⑫

63 ③

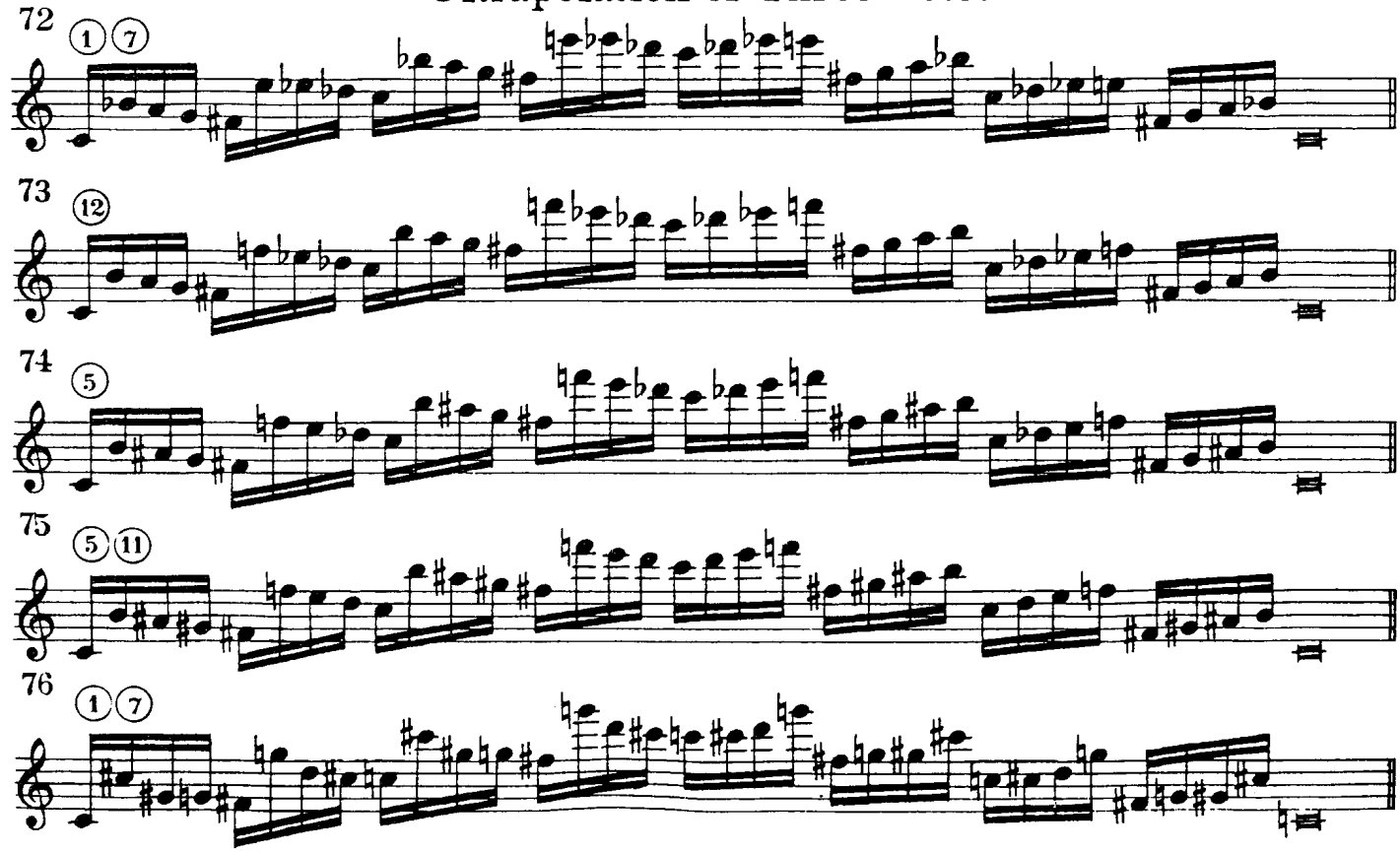
64 ③⑤⑦⑨⑪

65 ⑤⑪

66 ③⑨



Ultrapolation of Three Notes



77 ⑥⑫

78 ①⑦

79 ①

Infrapolation of One Note

80 ⑤⑪

81 ①③⑤⑦⑨⑪

82 ③⑥⑨

83 ③⑤⑨

84 ①⑥⑫

Infrapolation of Two Notes

85 ⑤⑥⑩ 8

86 ⑥⑫ 8

87 (5)(11)

88 (6)

89 (3)(9)

90 (1)(3)(5)(7)(9)(11)

91 (1)(7)

92 (3)(9)

93 (6)(12)

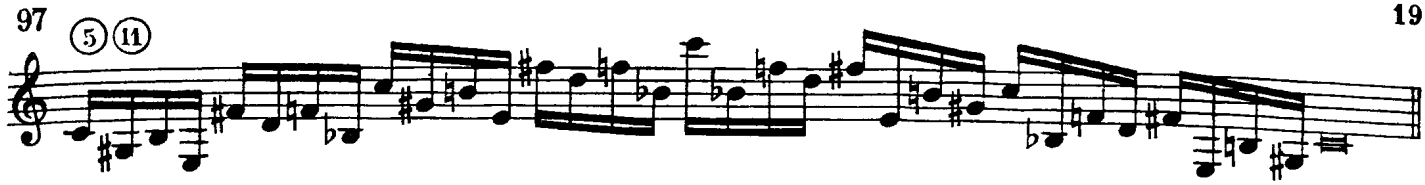
Infrapolation of Three Notes

94 (6)(12)

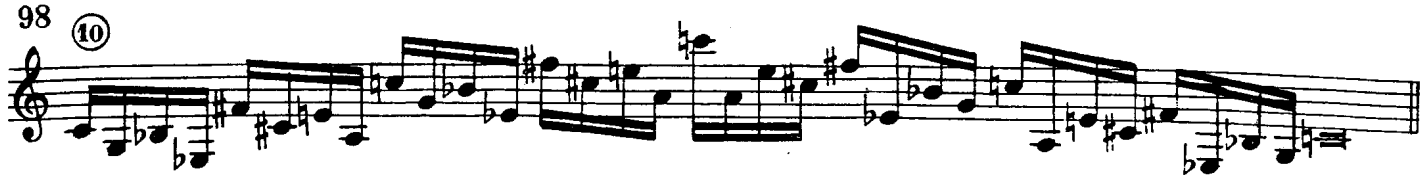
95 (1)(7)

96 (3)(9)

97 ⑤⑪

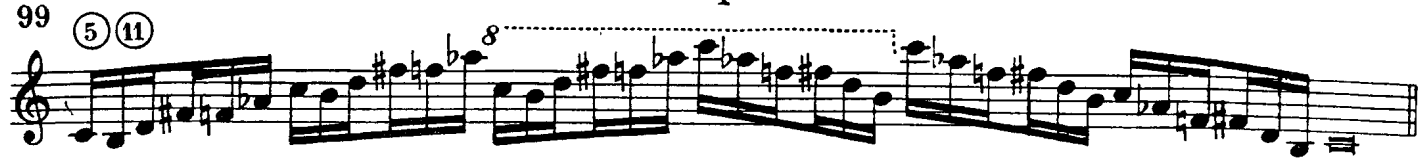


98 ⑩

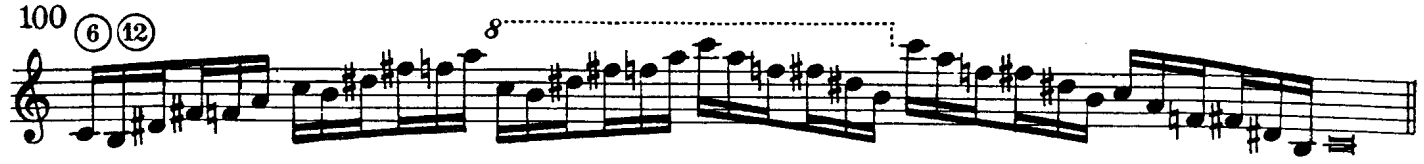


Infra-Interpolation

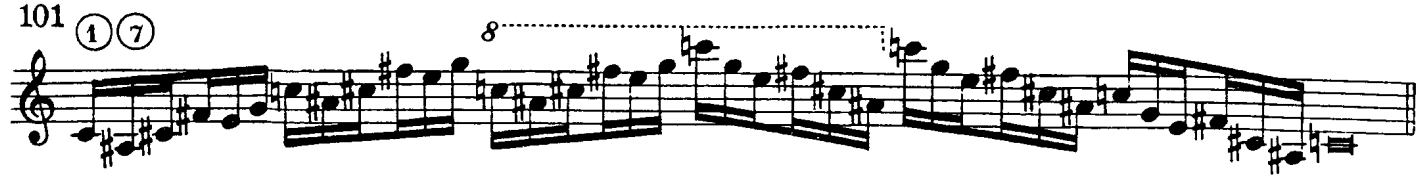
99 ⑤⑪



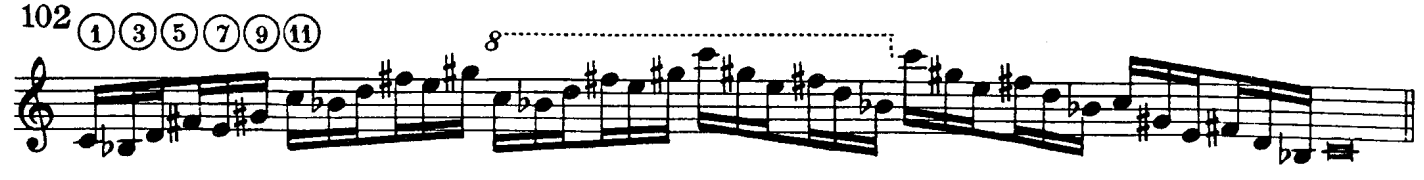
100 ⑥⑫



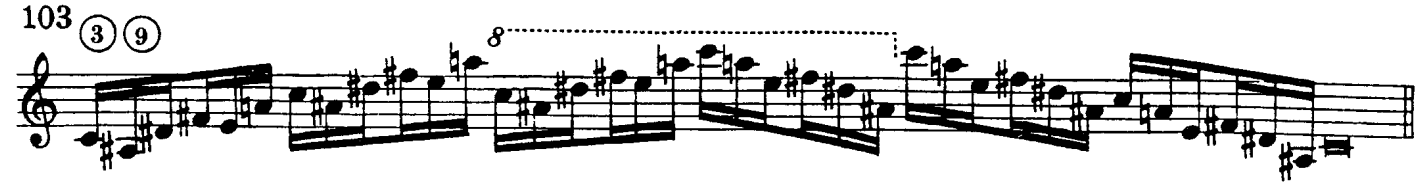
101 ①⑦



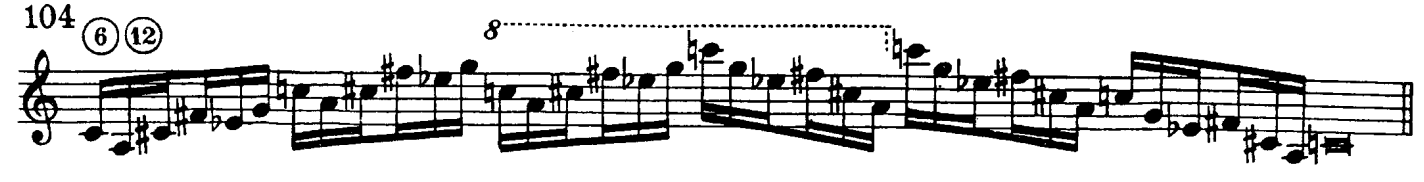
102 ①③⑤⑦⑨⑪



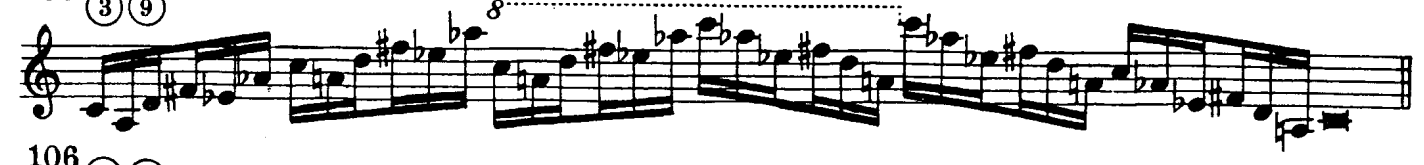
103 ③⑨



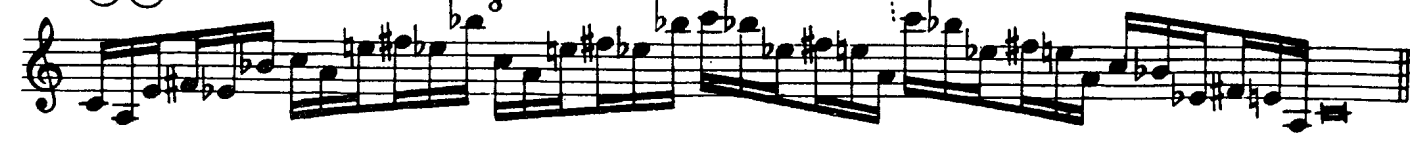
104 ⑥⑫

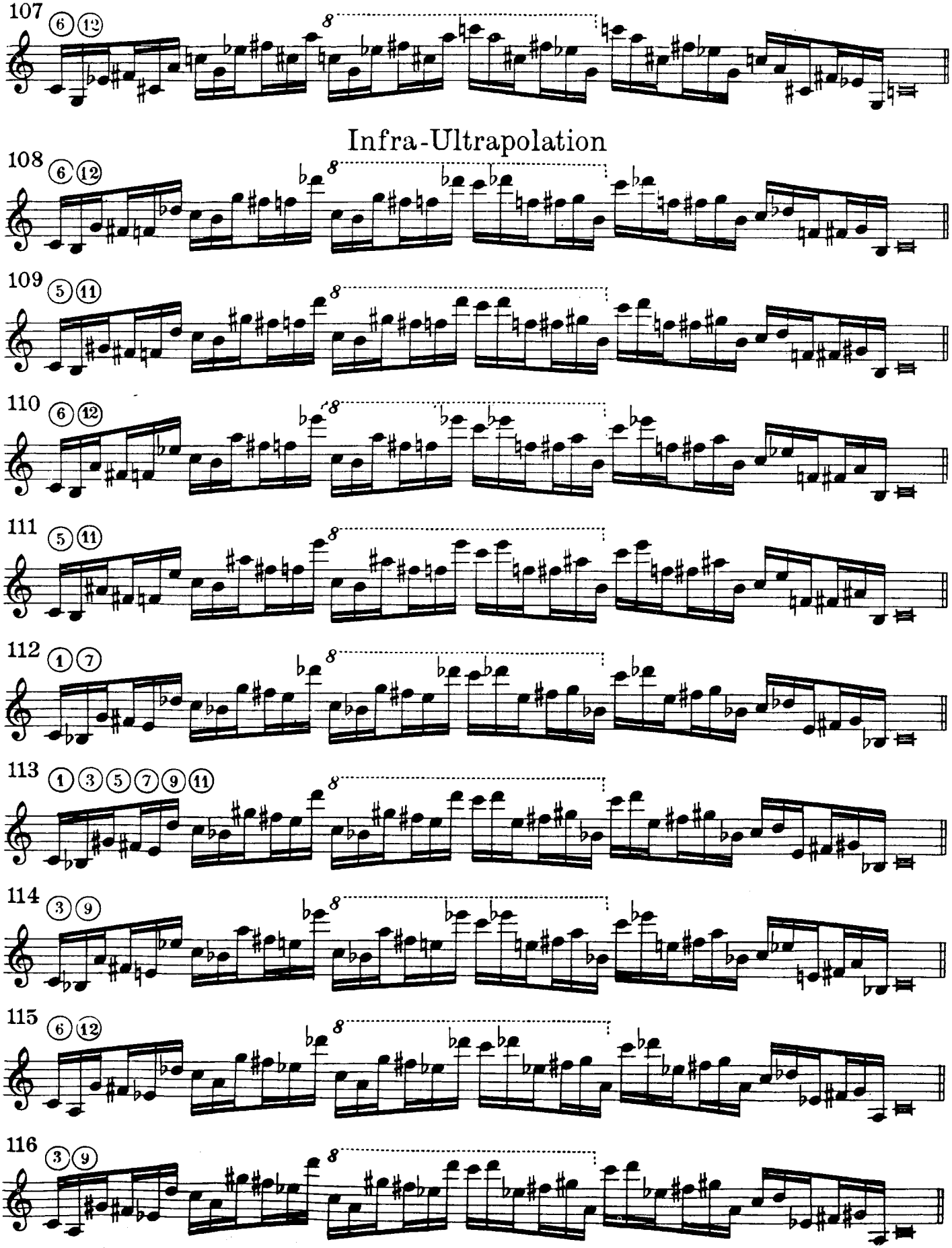


105 ③⑨



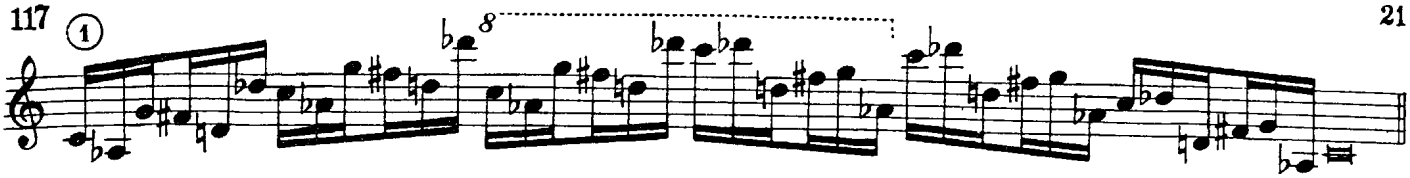
106 ③⑨



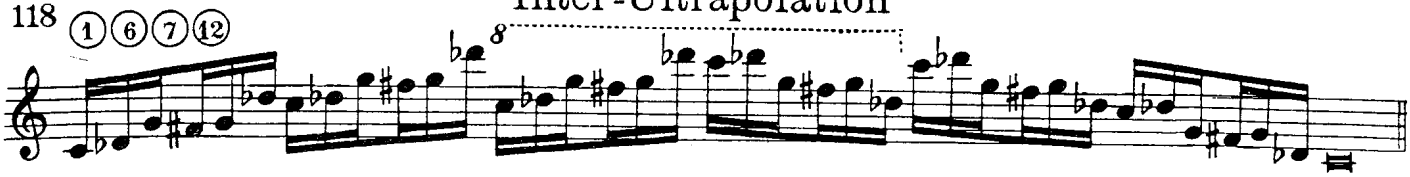

107
6 12
Infra-Ultrapolation
108
6 12
109
5 11
110
6 12
111
5 11
112
1 7
113
1 3 5 7 9 11
114
3 9
115
6 12
116
3 9

Inter-Ultrapolation

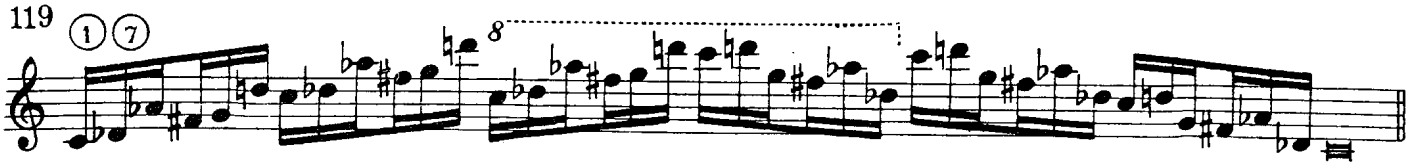
117 ①



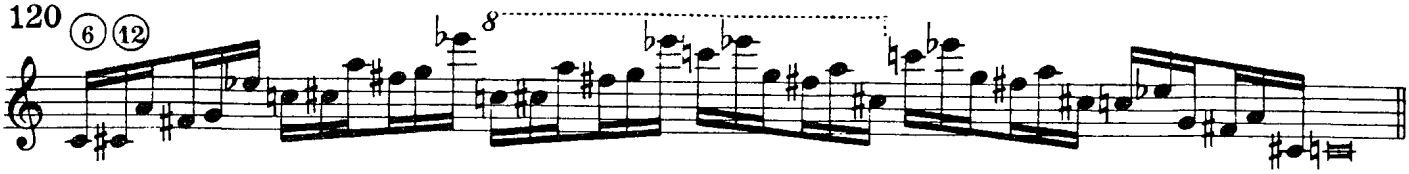
118 ①⑥⑦⑫



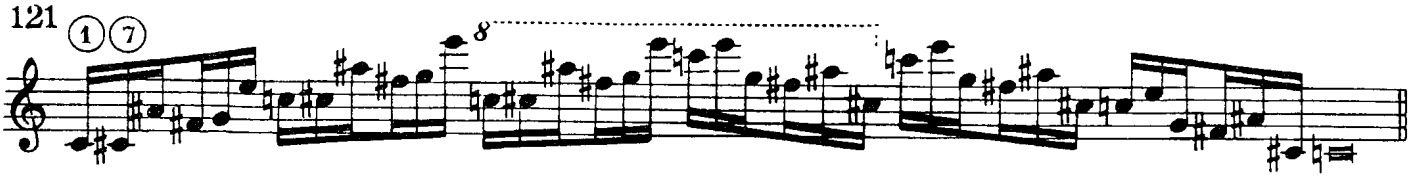
119 ①⑦



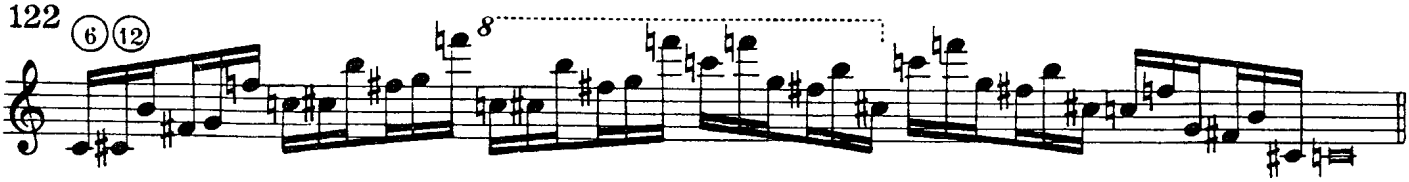
120 ⑥⑫



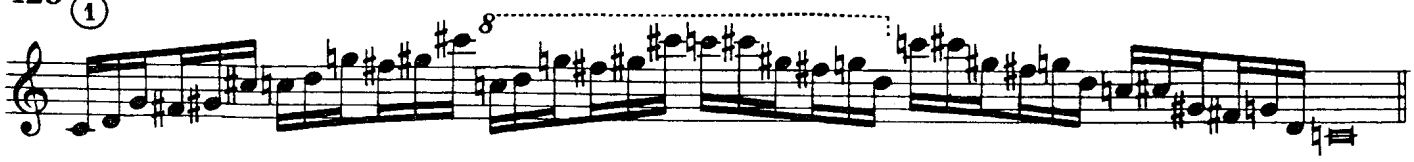
121 ①⑦



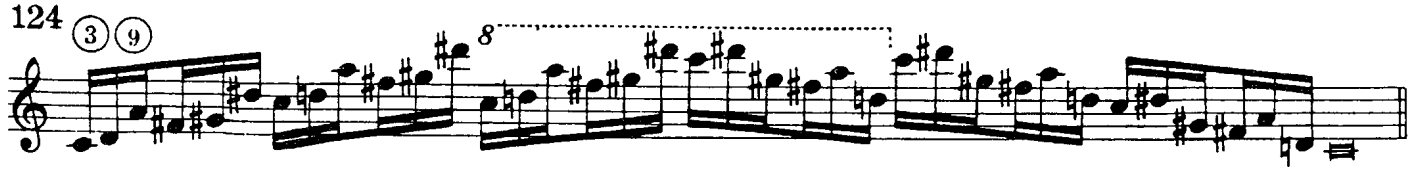
122 ⑥⑫



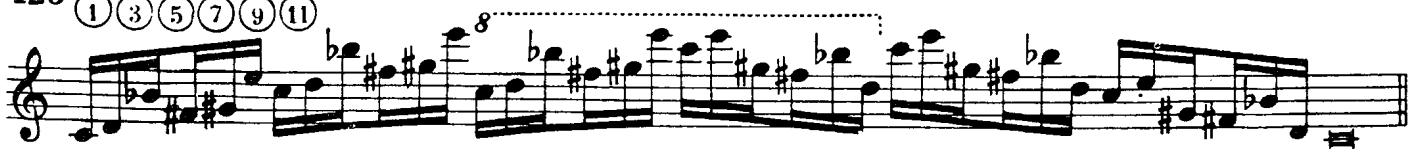
123 ①



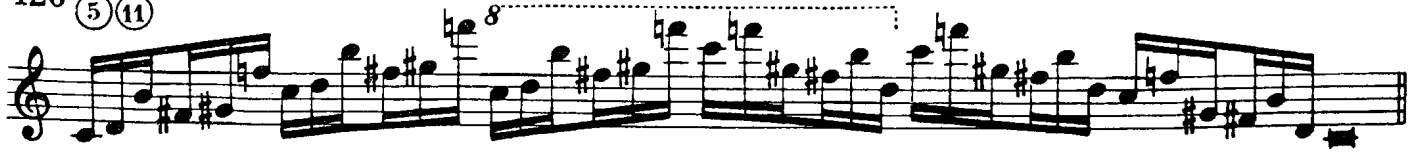
124 ③⑨

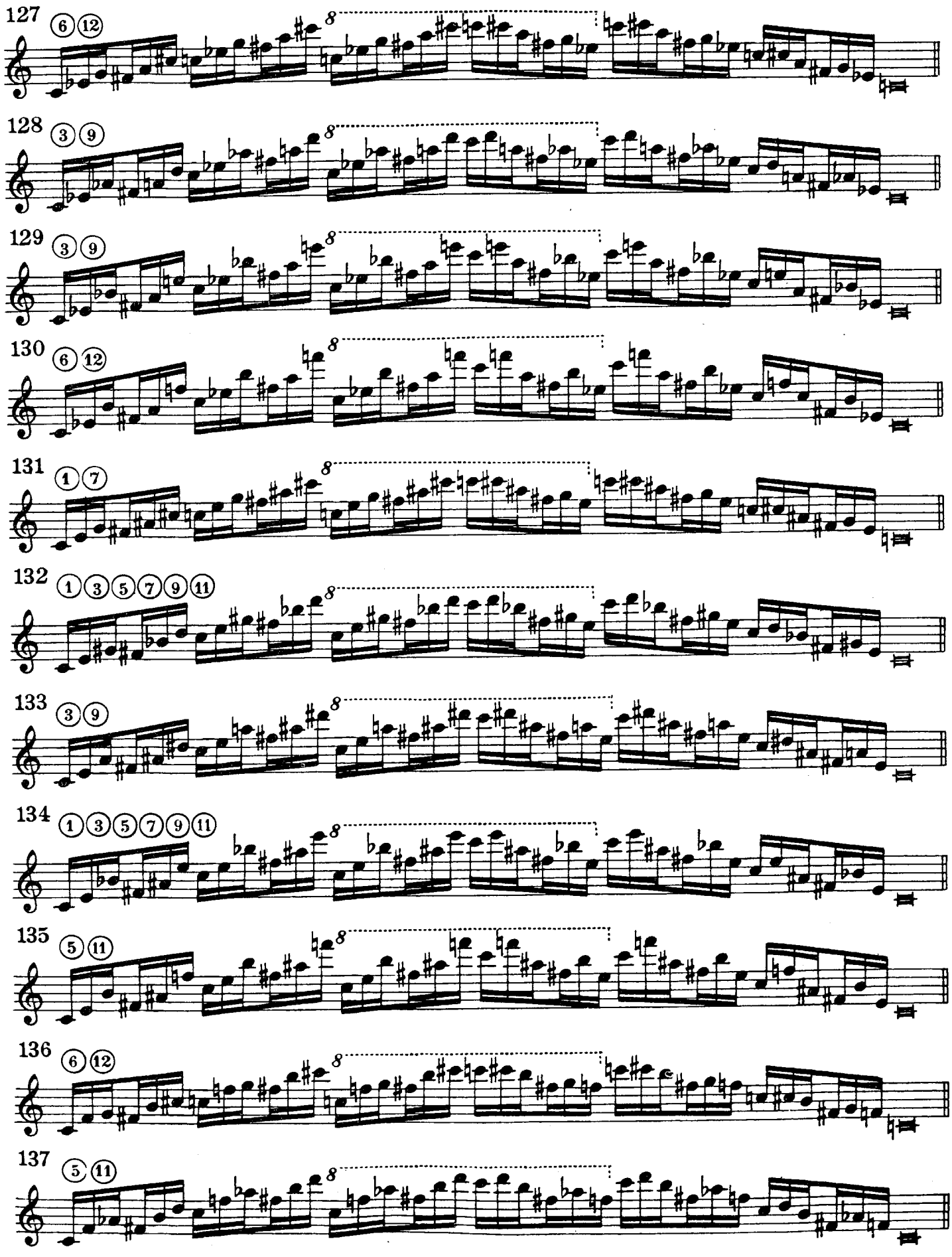


125 ①③⑤⑦⑨⑪

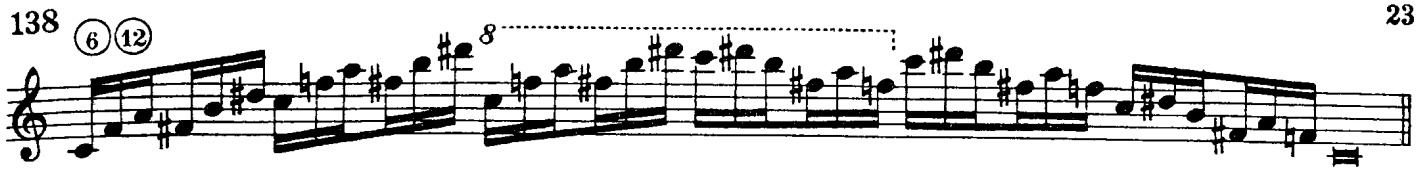


126 ⑤⑪

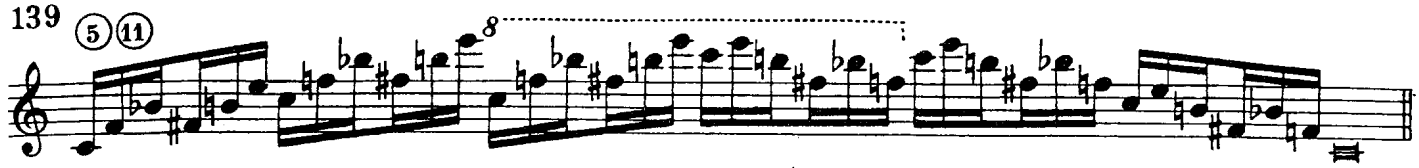



127
6 12
128
3 9
129
3 9
130
6 12
131
1 7
132
1 3 5 7 9 11
133
3 9
134
1 3 5 7 9 11
135
5 11
136
6 12
137
5 11

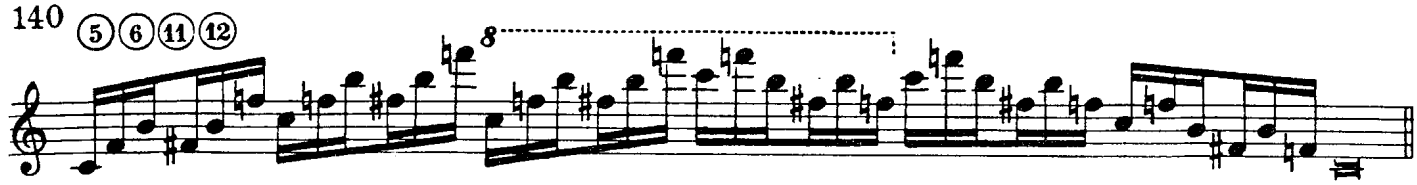
138 ⑥⑫



139 ⑤⑪

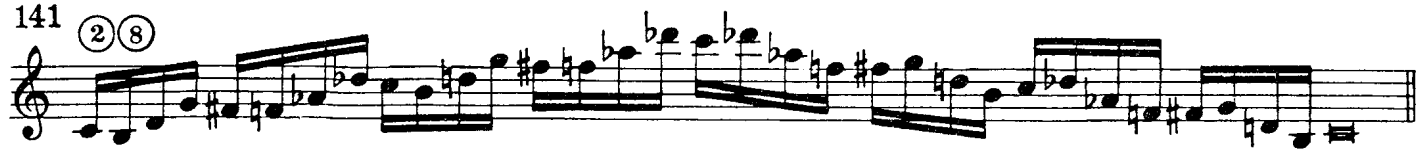


140 ⑤⑥⑪⑫

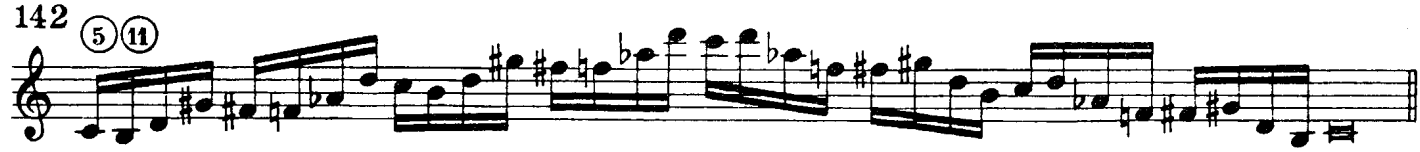


Infra-Inter-Ultrapolation

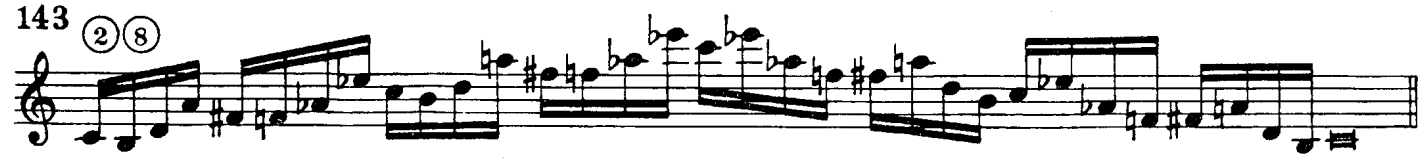
141 ②⑧



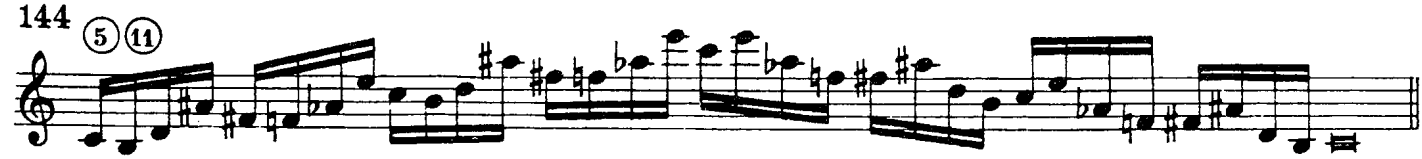
142 ⑤⑪



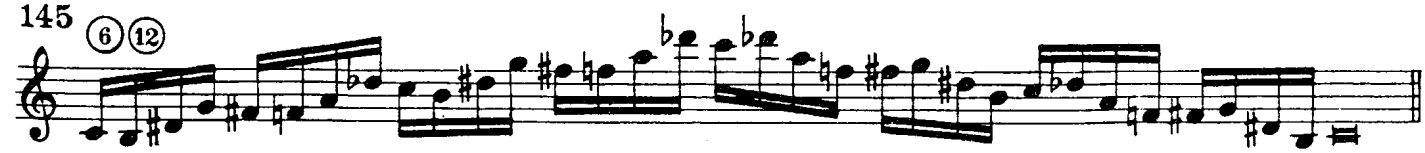
143 ②⑧



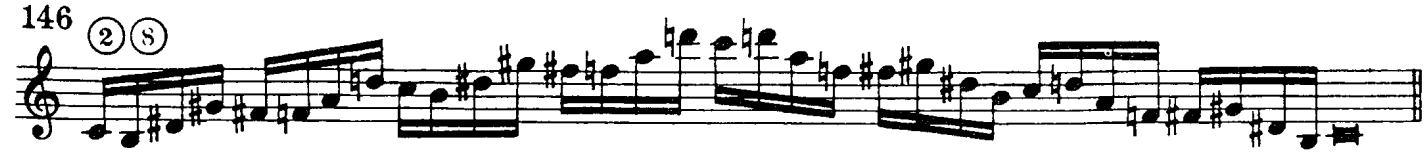
144 ⑤⑪



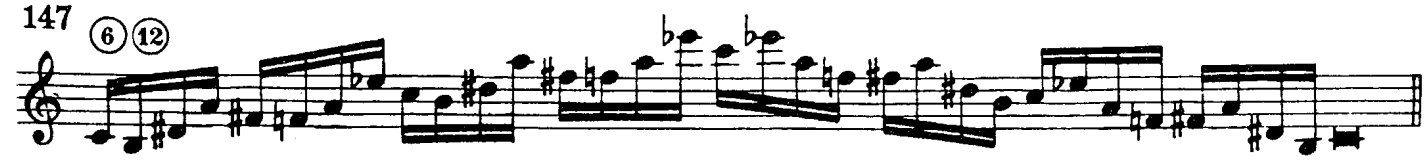
145 ⑥⑫

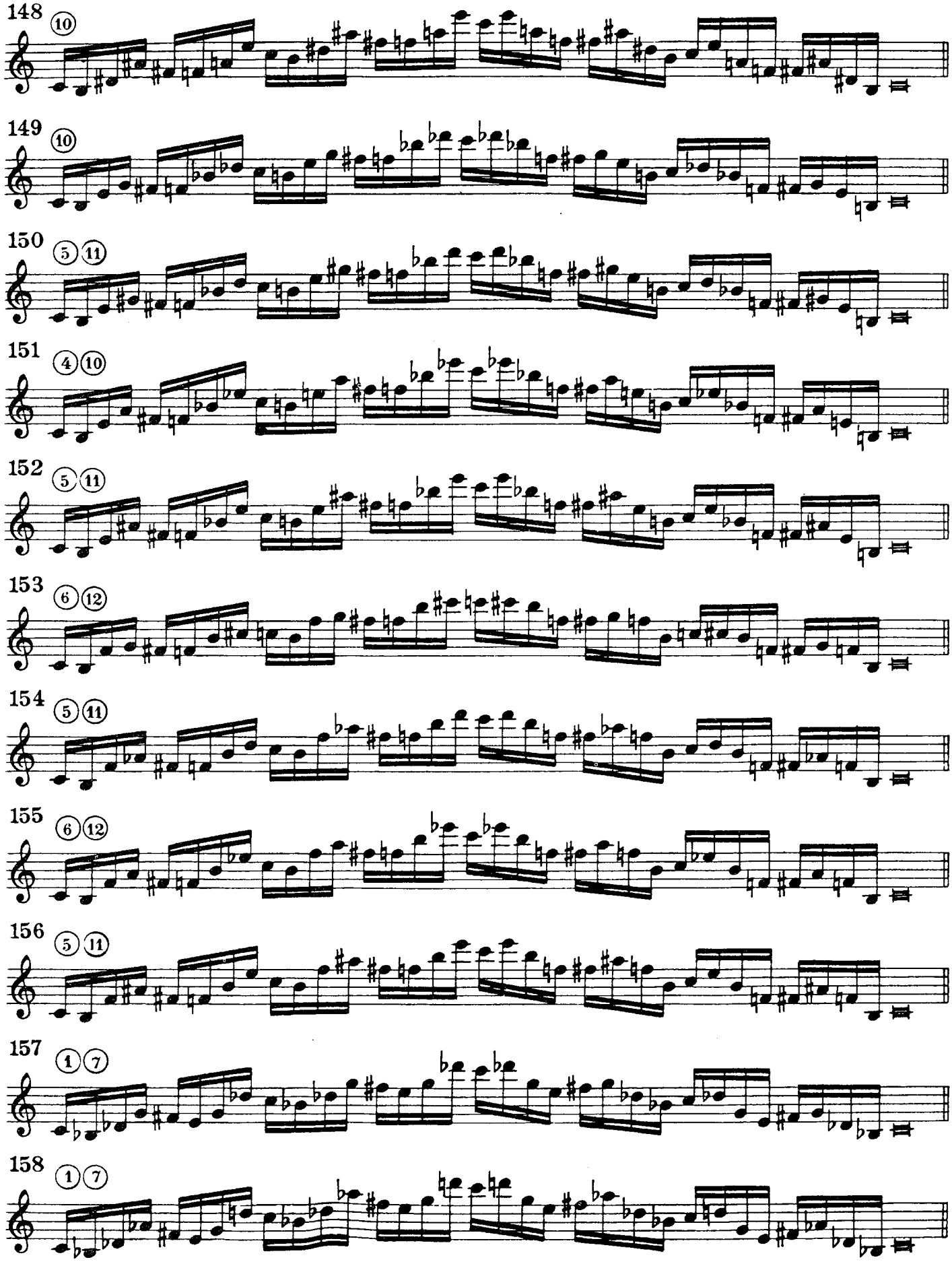


146 ②⑧

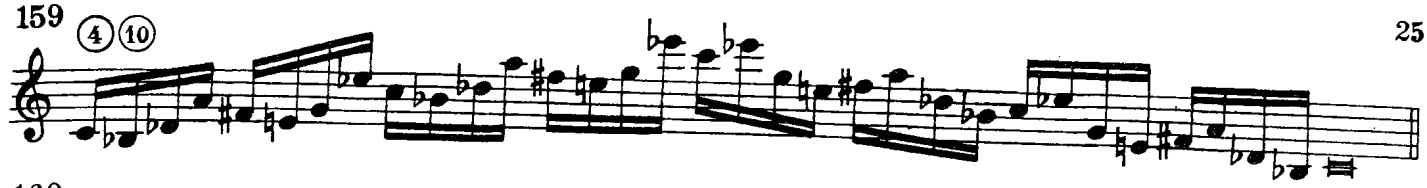


147 ⑥⑫

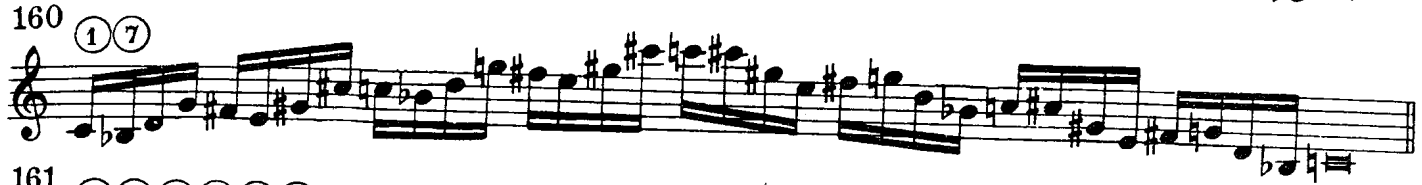



148 ⑩
149 ⑩
150 ⑤ ⑪
151 ④ ⑩
152 ⑤ ⑪
153 ⑥ ⑫
154 ⑤ ⑪
155 ⑥ ⑫
156 ⑤ ⑪
157 ① ⑦
158 ① ⑦

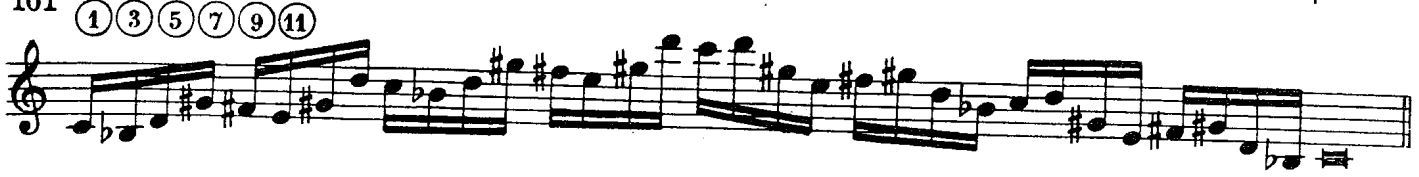
159 ④⑩



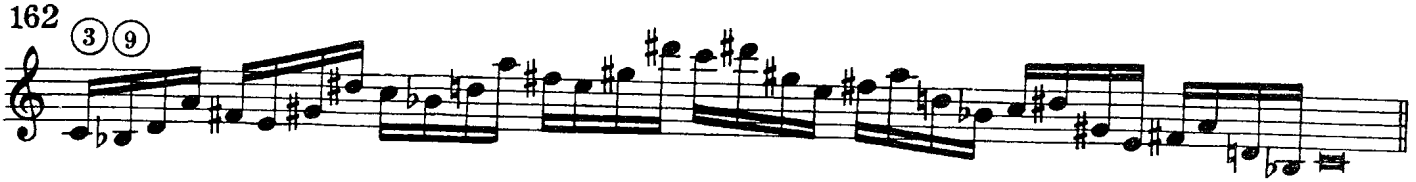
160 ①⑦



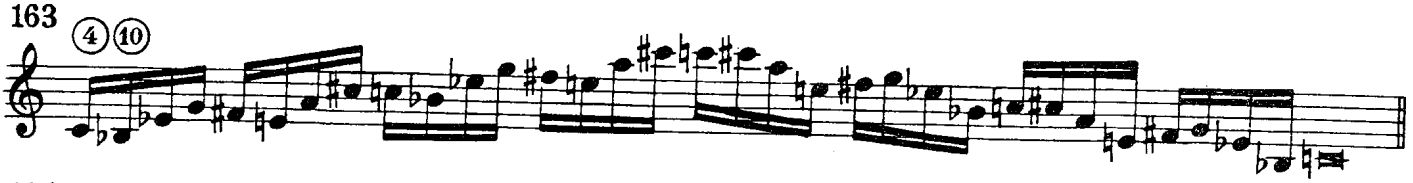
161 ①③⑤⑦⑨⑪



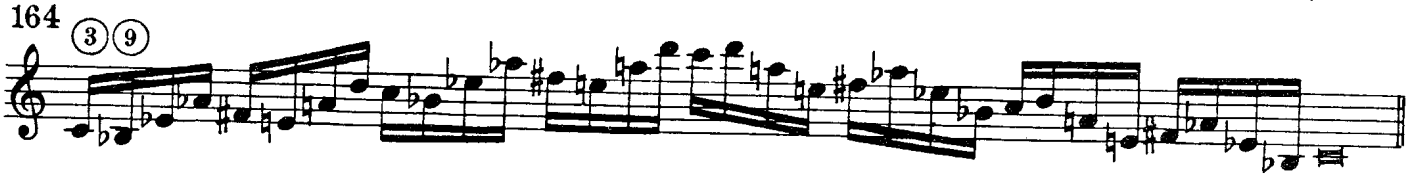
162 ③⑨



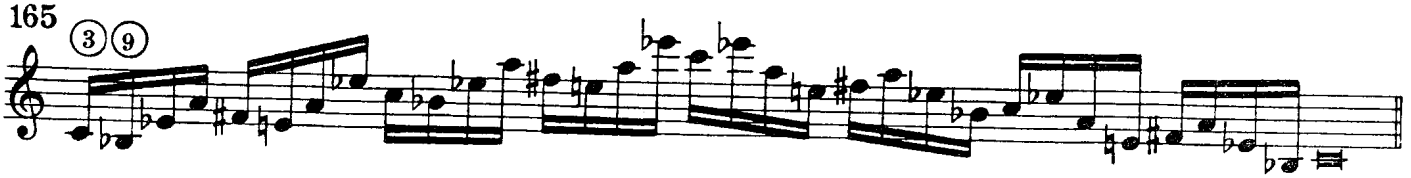
163 ④⑩



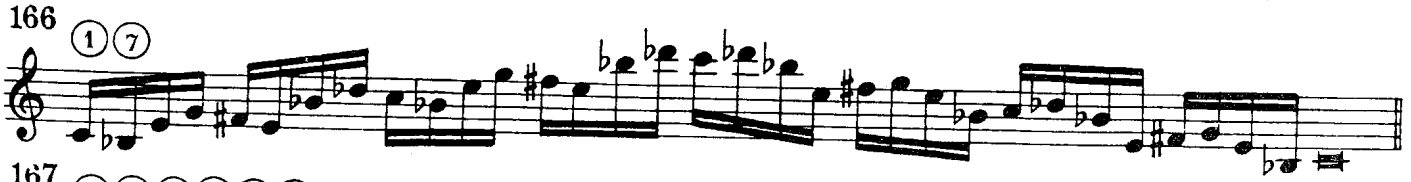
164 ③⑨



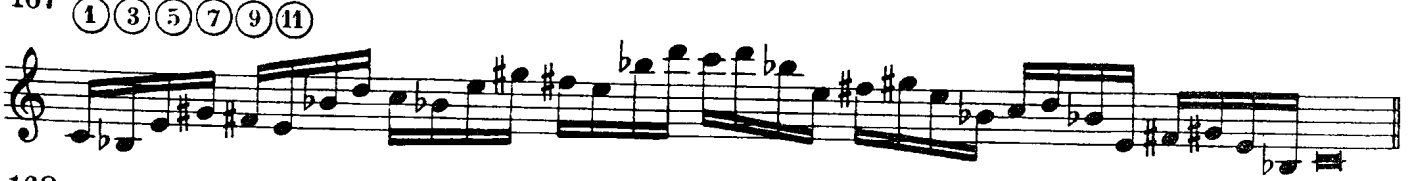
165 ③⑨



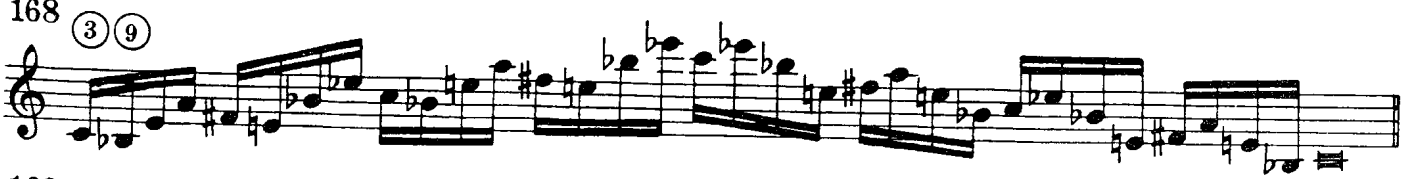
166 ①⑦



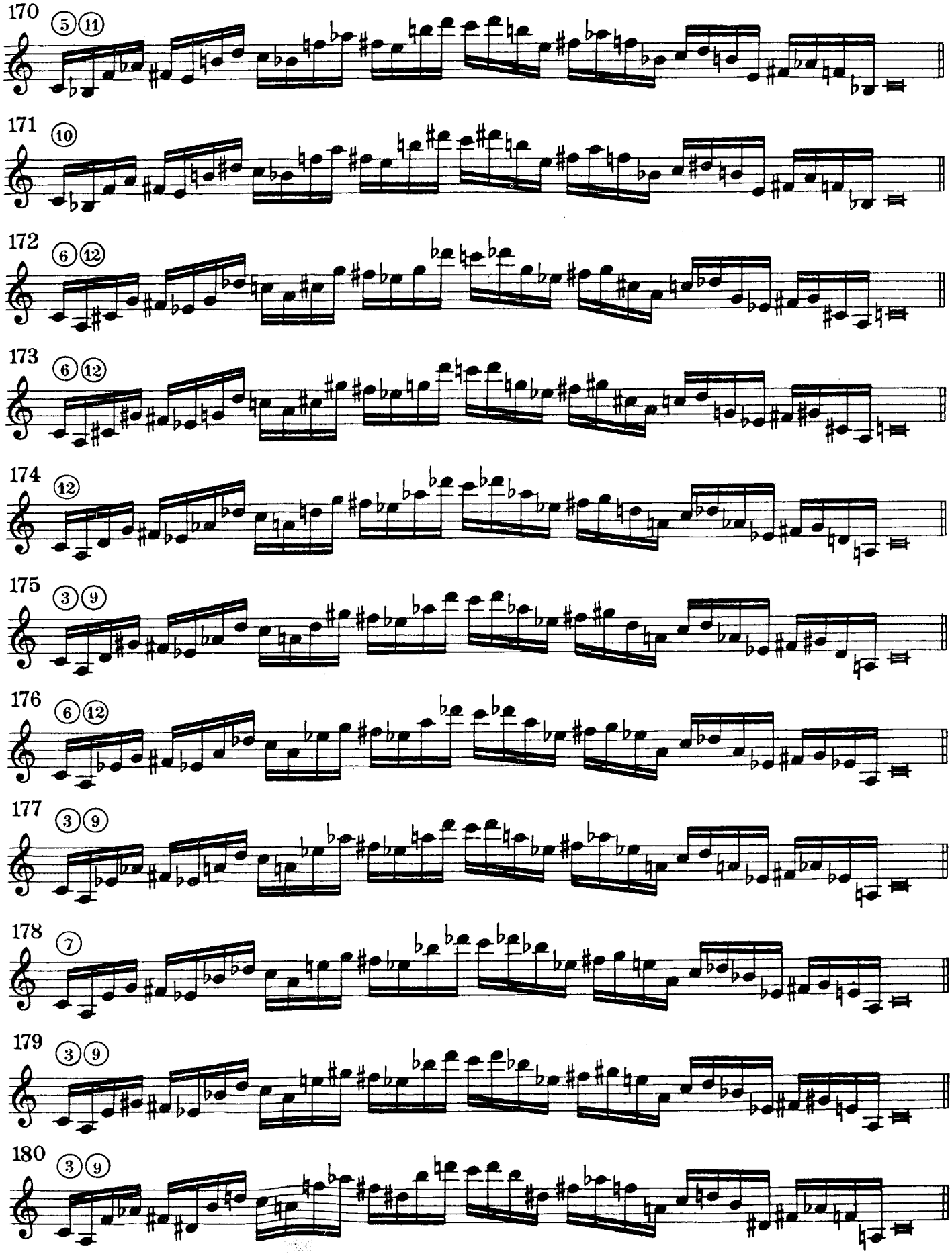
167 ①③⑤⑦⑨⑪



168 ③⑨

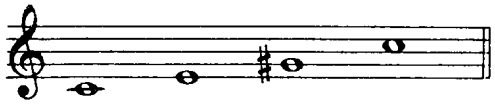


169 ⑤⑪


170
5 11
171
10
172
6 12
173
6 12
174
12
175
3 9
176
6 12
177
3 9
178
7
179
3 9
180
3 9

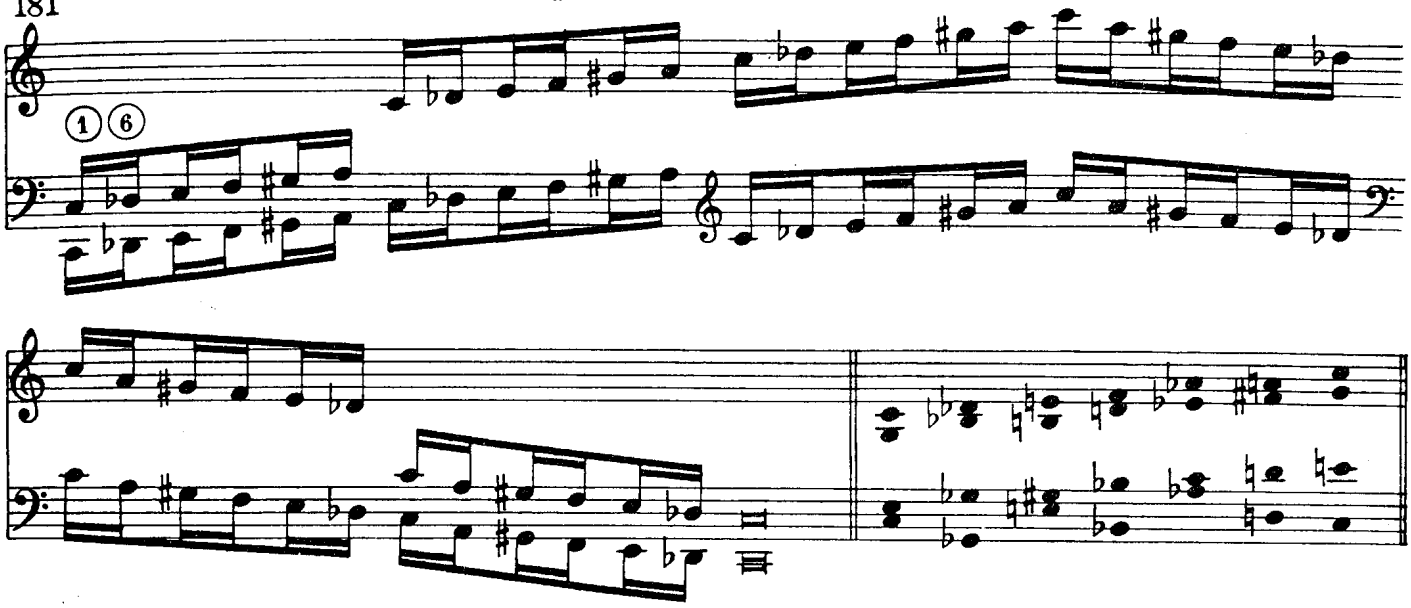
Ditone Progression

Equal Division of One Octave into Three Parts

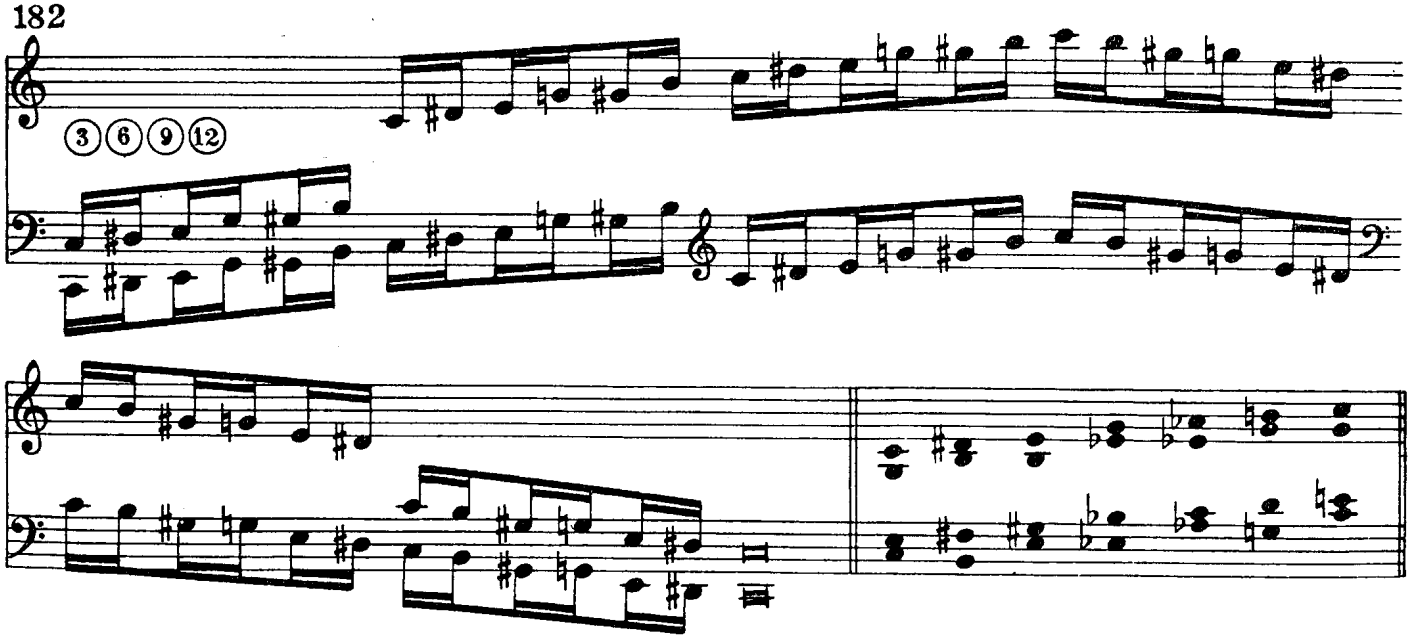


Interpolation of One Note

181

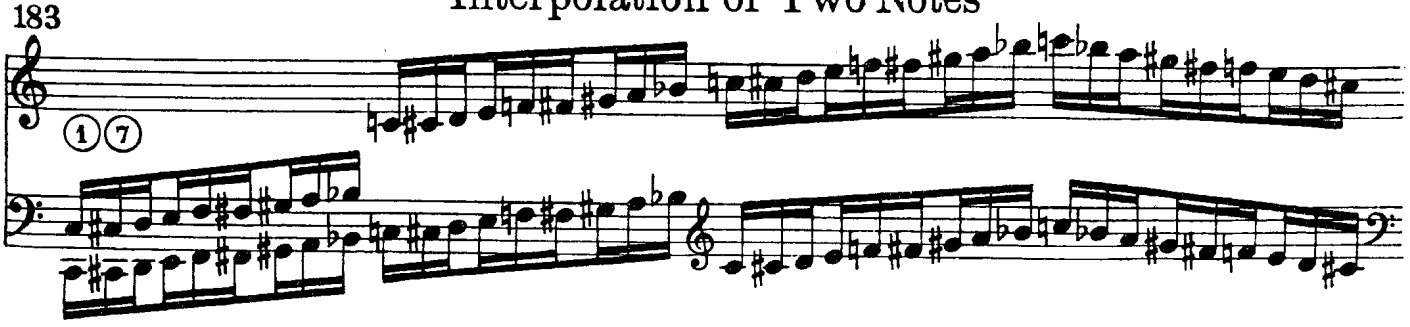


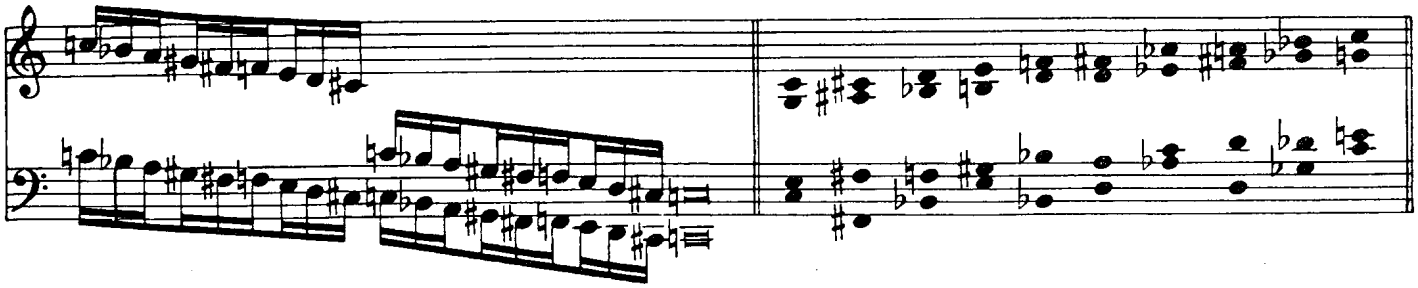
182



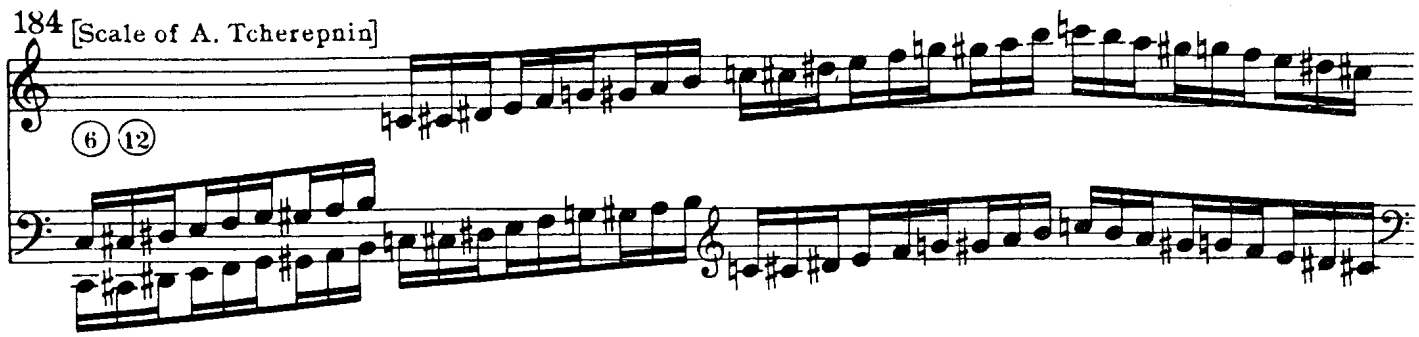
Interpolation of Two Notes

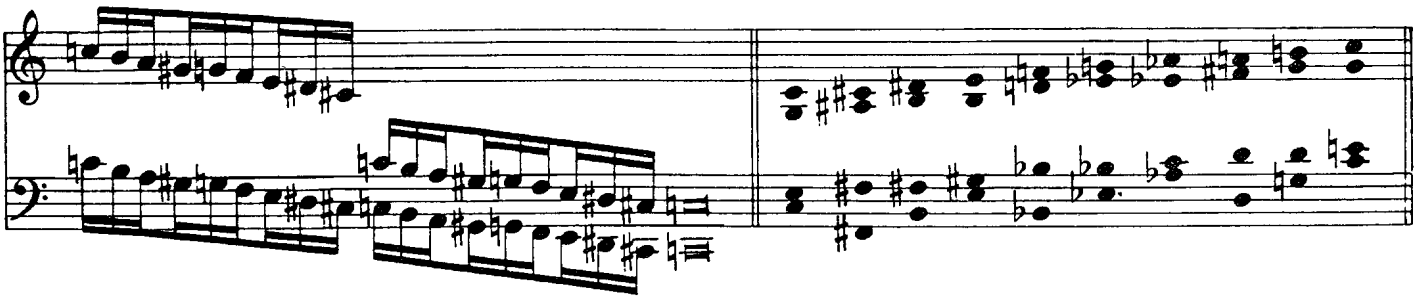
183



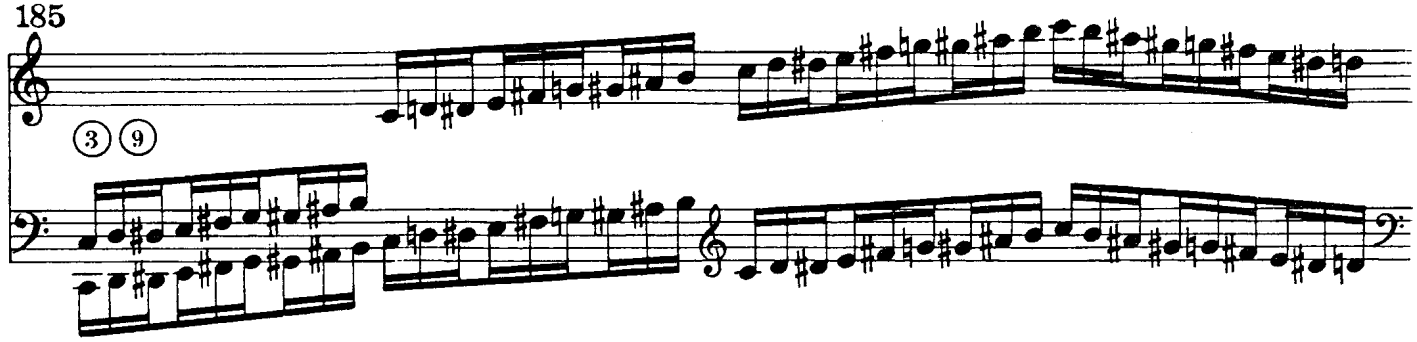


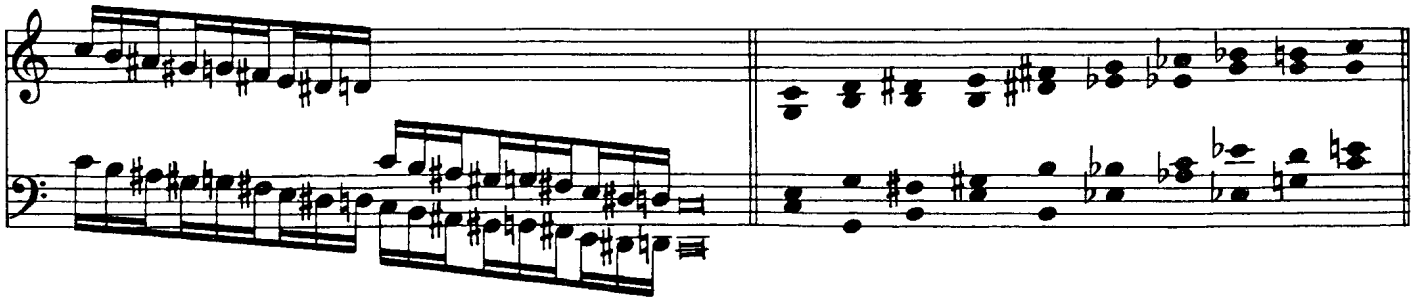
184 [Scale of A. Tcherepnin]





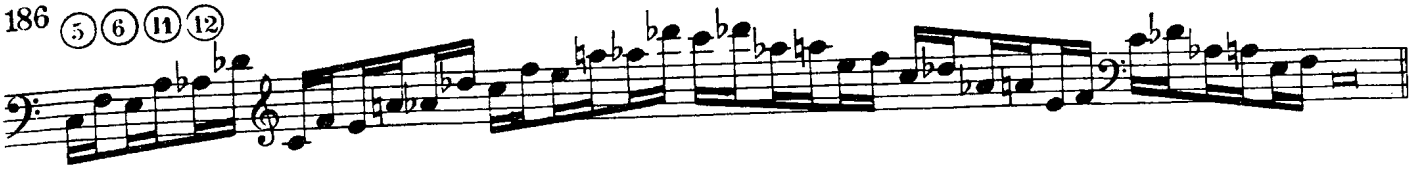
185





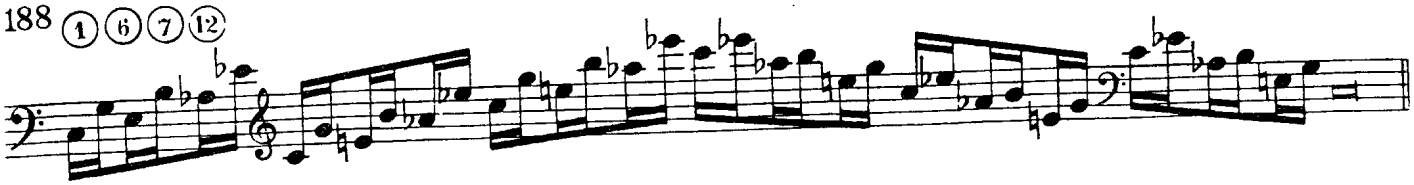
Ultrapolation of One Note

186 ⑤⑥⑪⑫



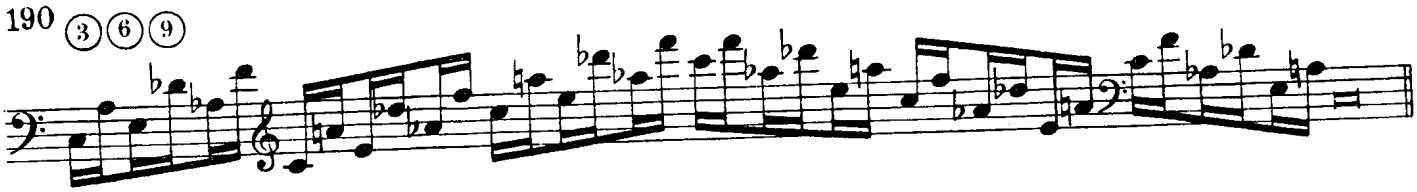
187 ①③⑤⑦⑨⑪

188 ①⑥⑦⑫

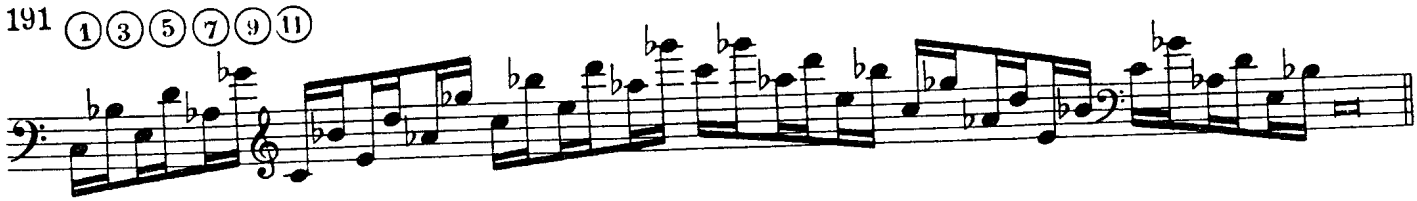


189 ①③⑤⑦⑨⑪

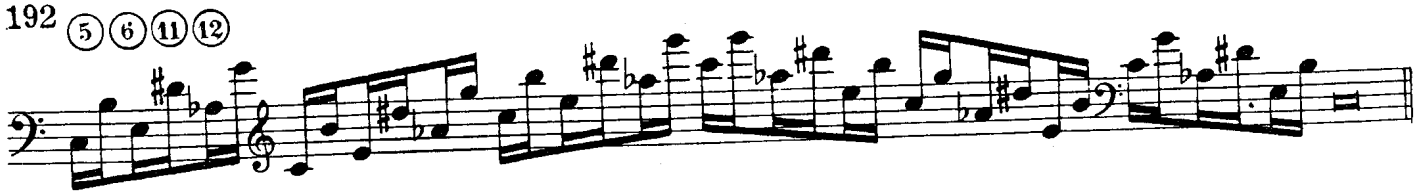
190 ③⑥⑨



191 ①③⑤⑦⑨⑪



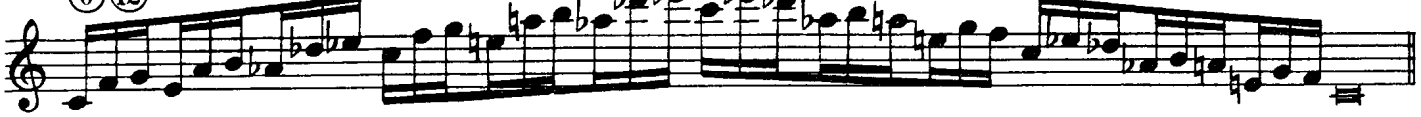
192 ⑤⑥⑪⑫



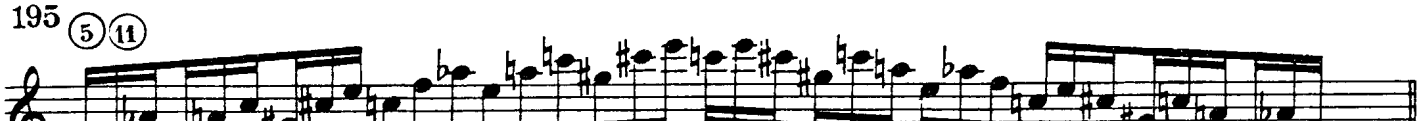
Ultrapolation of Two Notes

193 ⑤⑥⑪⑫

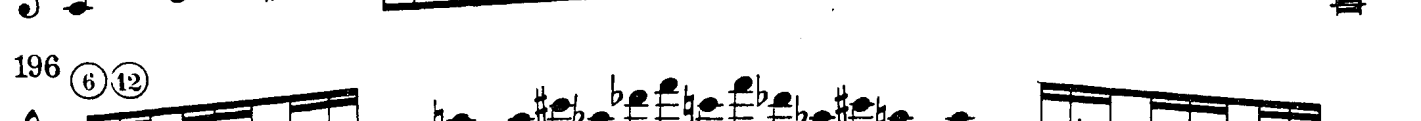
194 ⑥⑫



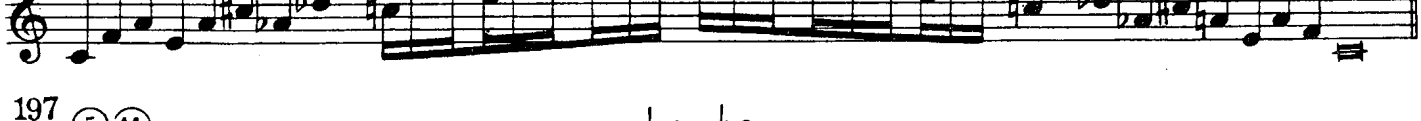
195 ⑤⑪



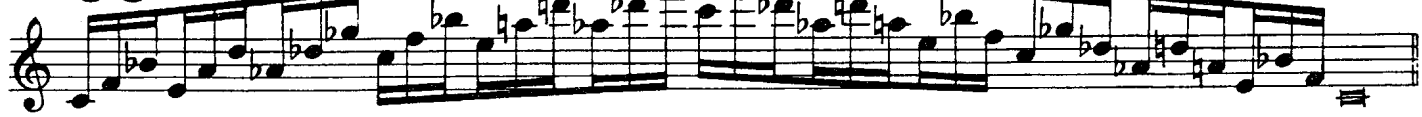
196 ⑥⑫



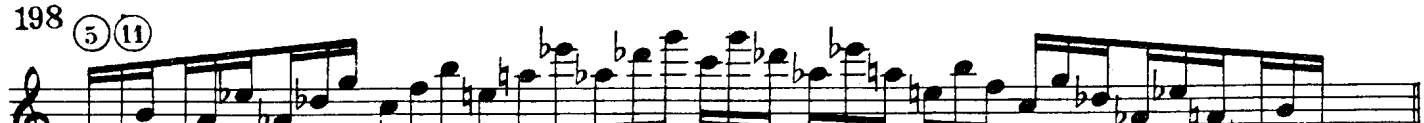
197 ⑤⑪



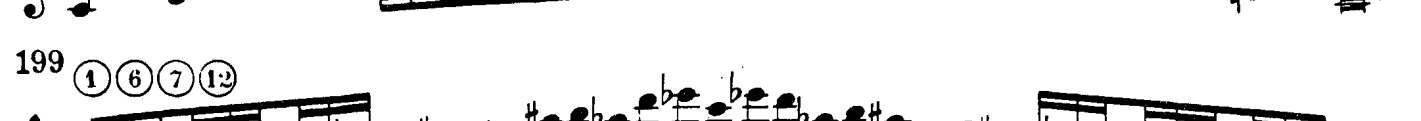
198 ⑤⑪



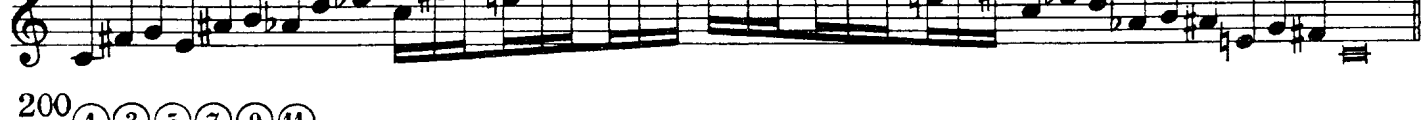
199 ①⑥⑦⑫



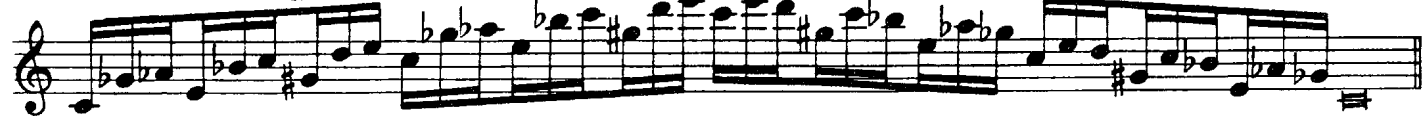
200 ①③⑤⑦⑨⑪



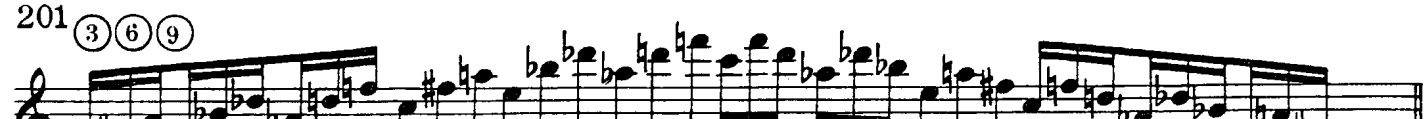
201 ③⑥⑨



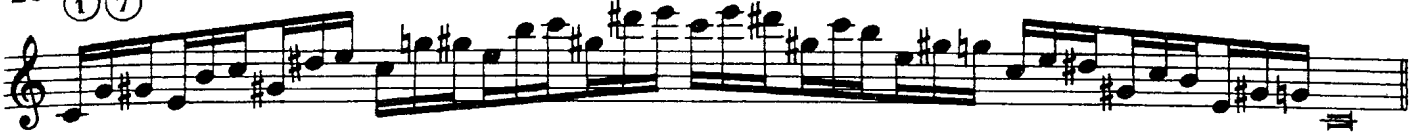
202 ①③⑤⑦⑨⑪



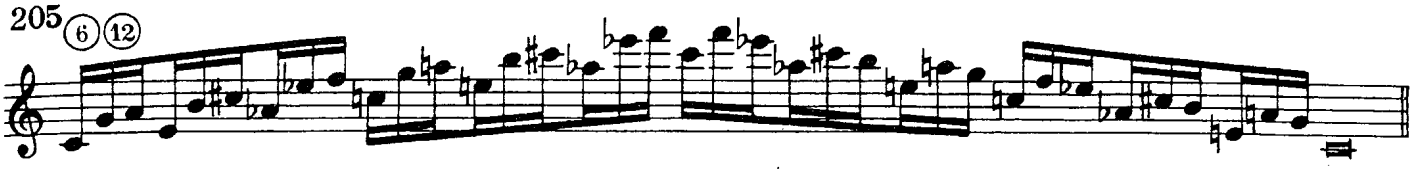
203 ⑤⑥⑪⑫



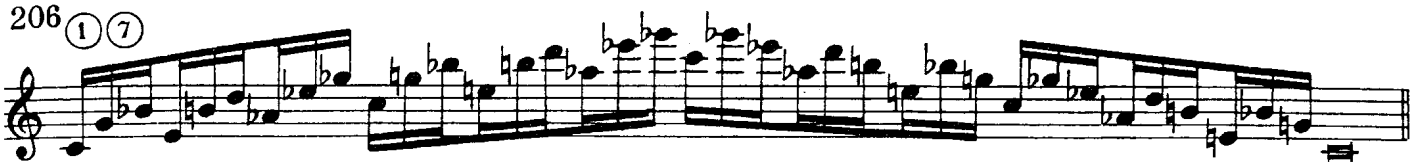
204 ① ⑦



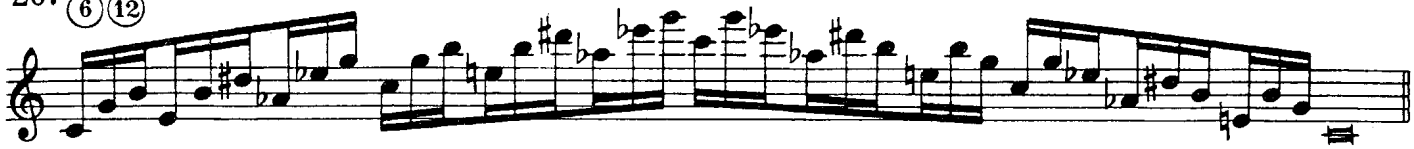
205 ⑥ ⑫



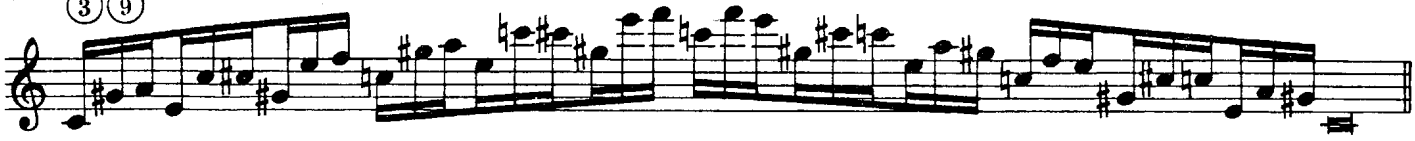
206 ① ⑦



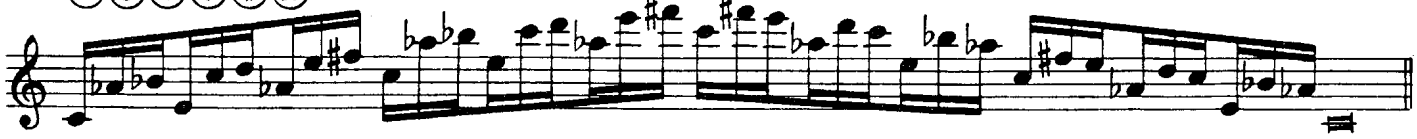
207 ⑥ ⑫



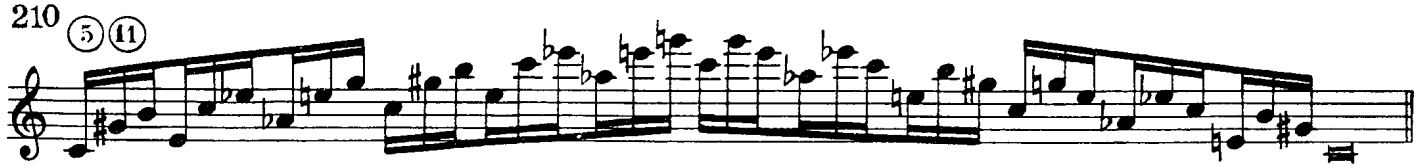
208 ③ ⑨



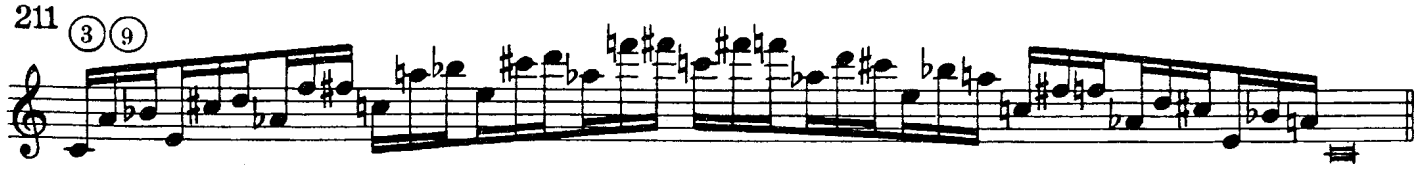
209 ① ③ ⑤ ⑦ ⑨ ⑪



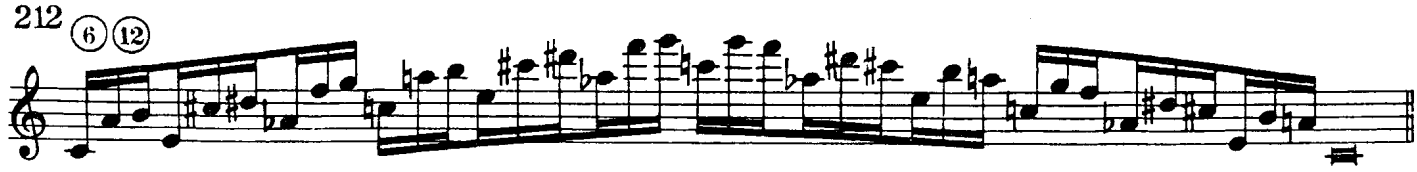
210 ⑤ ⑪



211 ③ ⑨

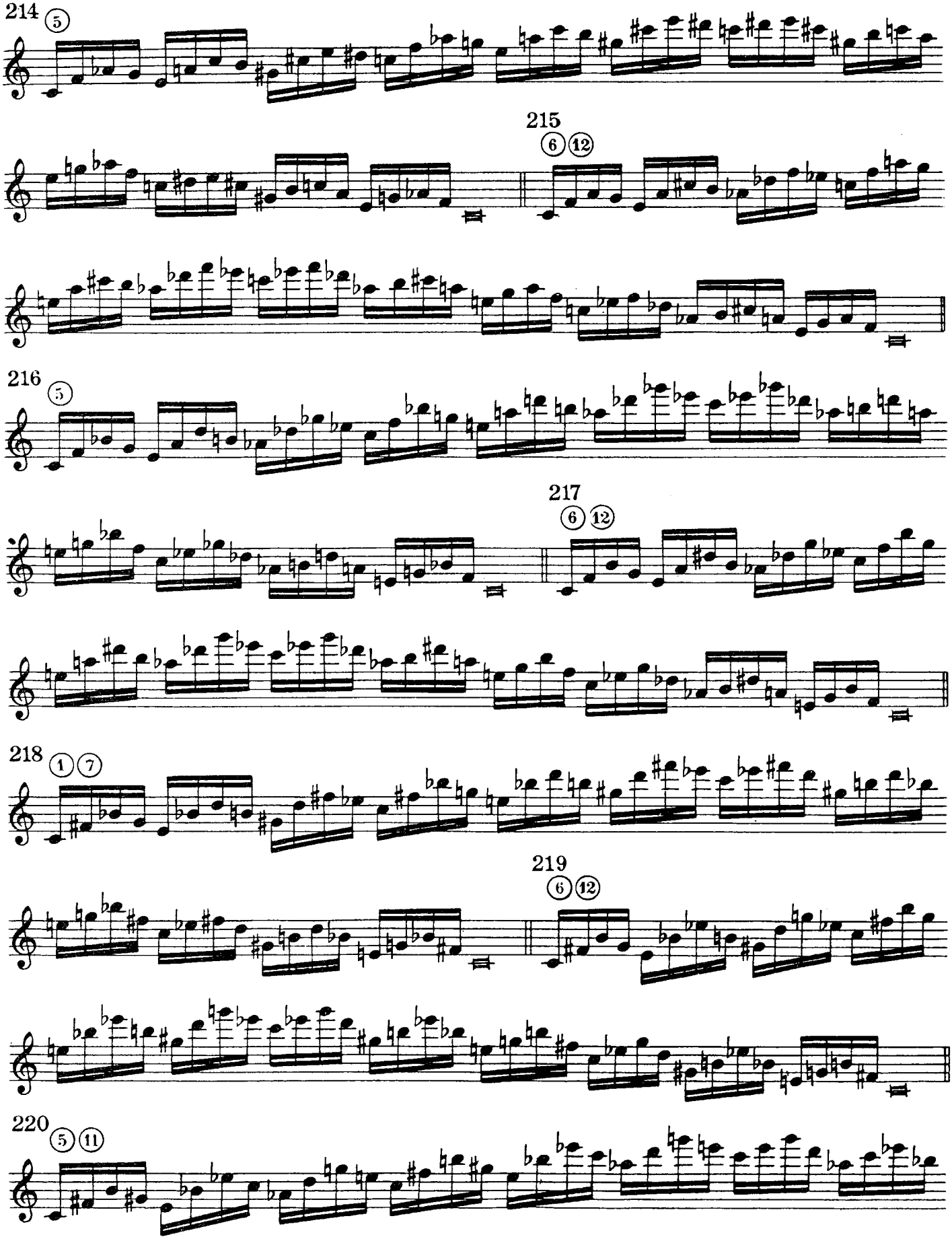


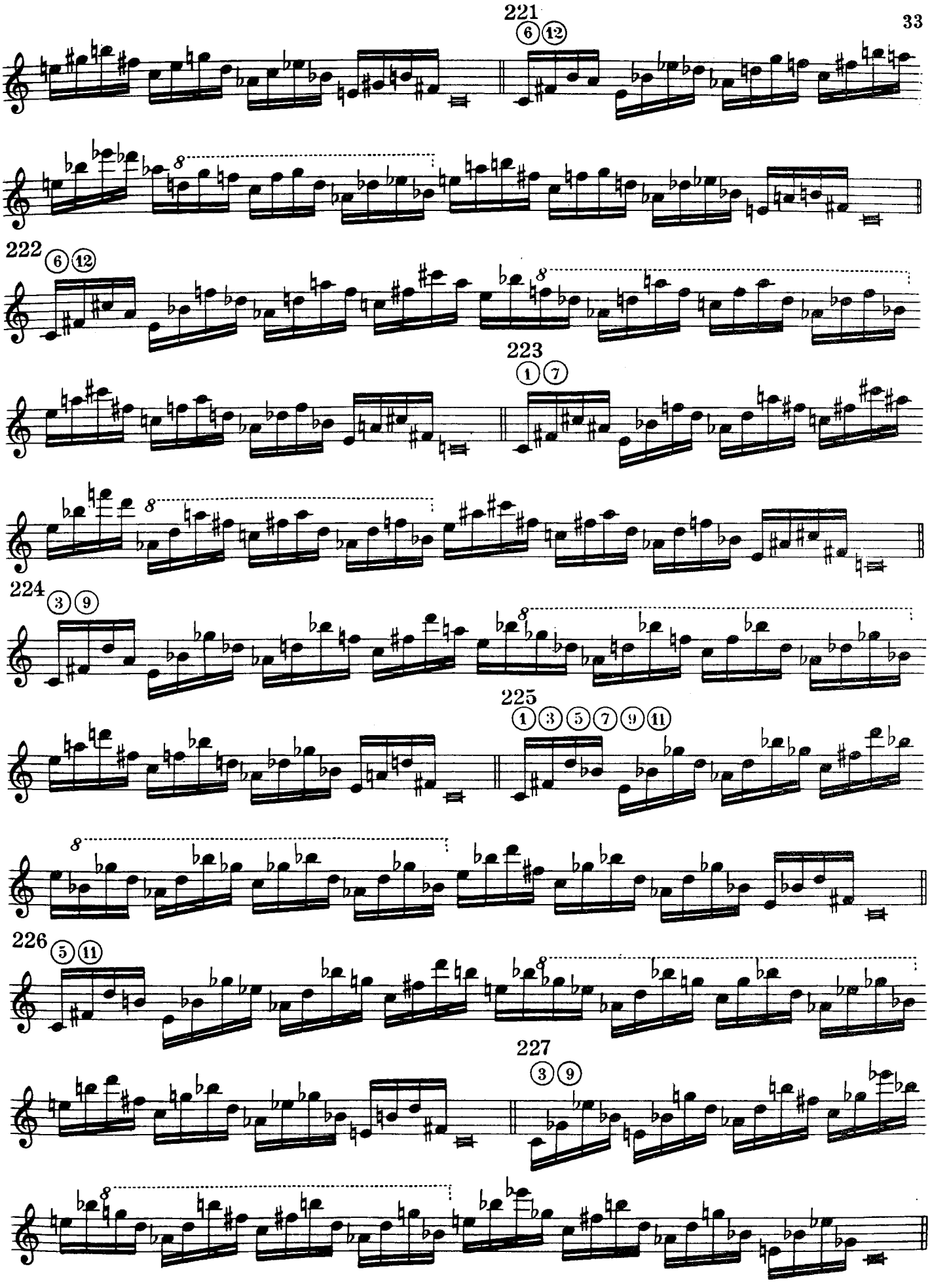
212 ⑥ ⑫



213 ⑤ ⑪

Ultrapolation of Three Notes




221
6 12
8
222
6 12
8
223
1 7
8
224
3 9
8
225
1 3 5 7 9 11
8
226
5 11
8
227
3 9
8

228 ⑥⑫

8

229 ⑤⑪

8

230 ⑤⑪

8

Infrapolation of One Note

231 [Schoenberg: *Ode to Napoleon*] ⑤⑥⑪⑫

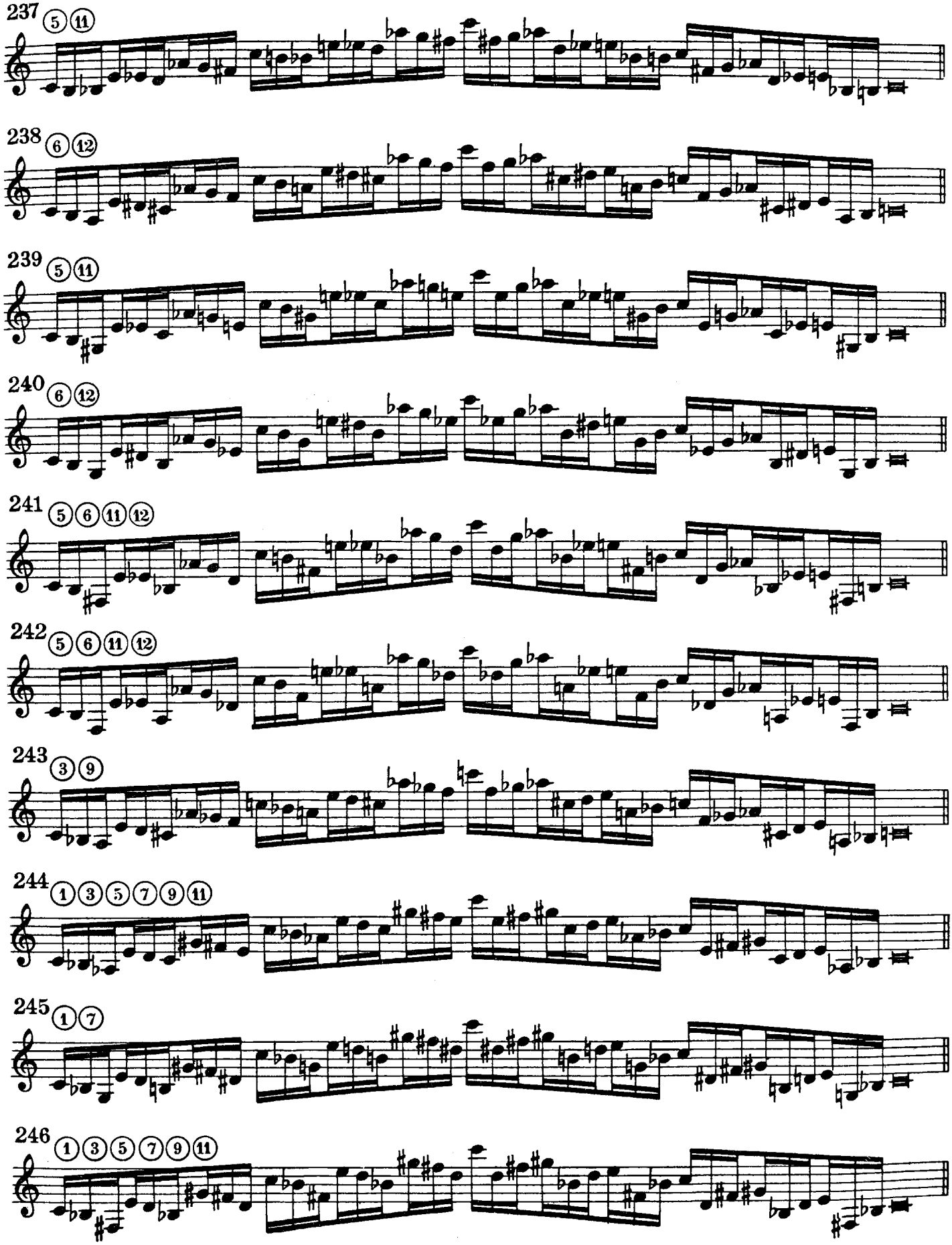
232 ①③⑤⑦⑨⑪

233 ③⑥⑨⑫

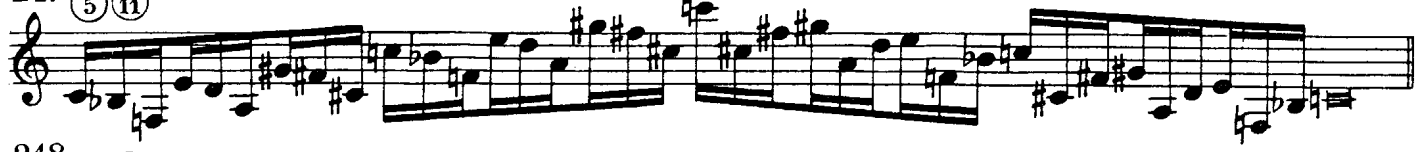
234 ①⑥⑦⑫

235 ①③⑤⑦⑨⑪

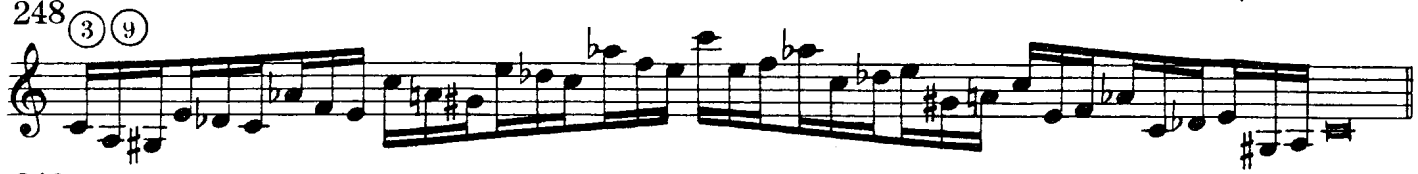
236 ⑤⑥⑪⑫


237 ⑤⑪
238 ⑥⑫
239 ⑤⑪
240 ⑥⑫
241 ⑤⑥⑪⑫
242 ⑤⑥⑪⑫
243 ③⑨
244 ①③⑤⑦⑨⑪
245 ①⑦
246 ①③⑤⑦⑨⑪

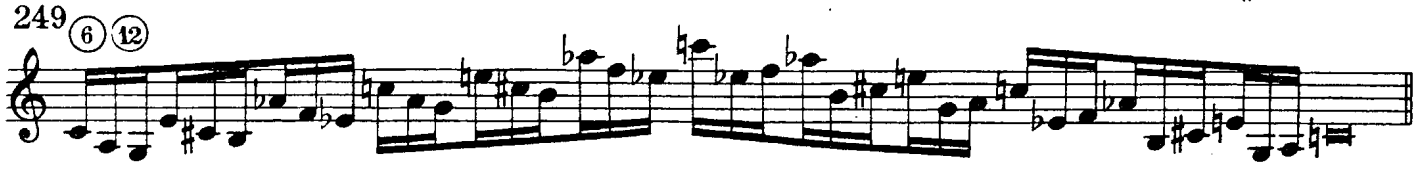
247 ⑤⑪



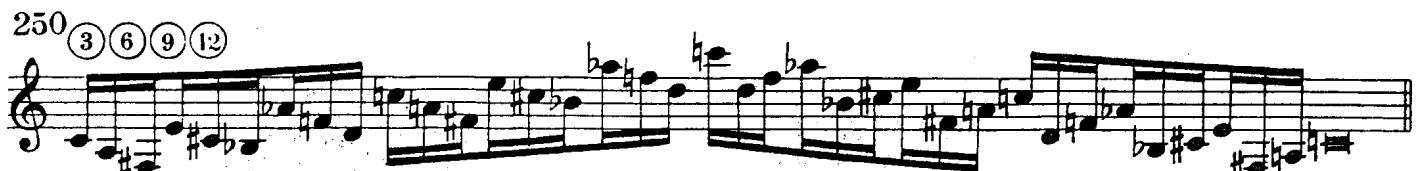
248 ③⑨



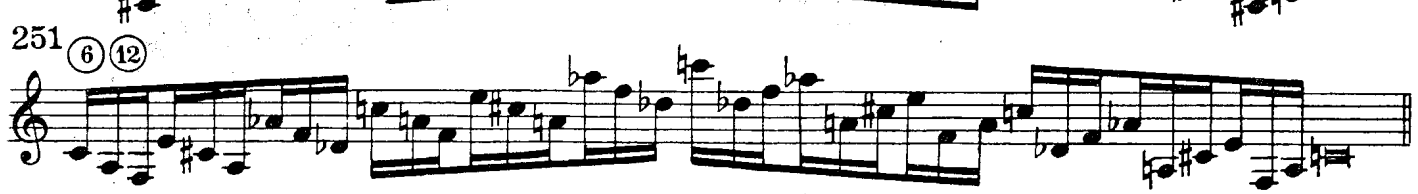
249 ⑥⑫



250 ③⑥⑨⑫



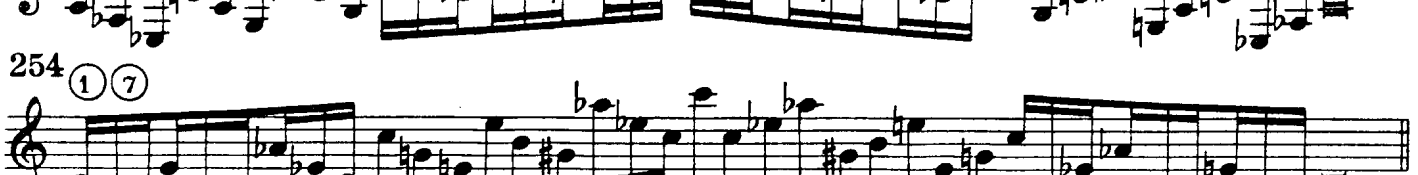
251 ⑥⑫



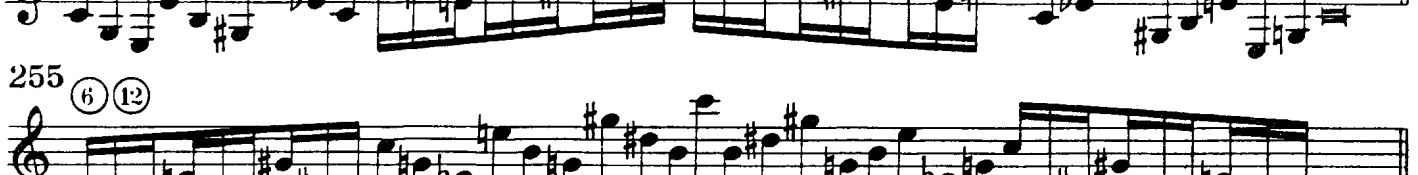
252 ③⑨

253 ⑨

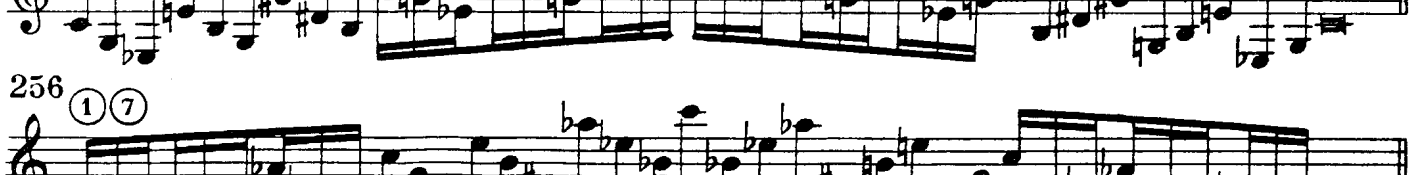
254 ①⑦



255 ⑥⑫



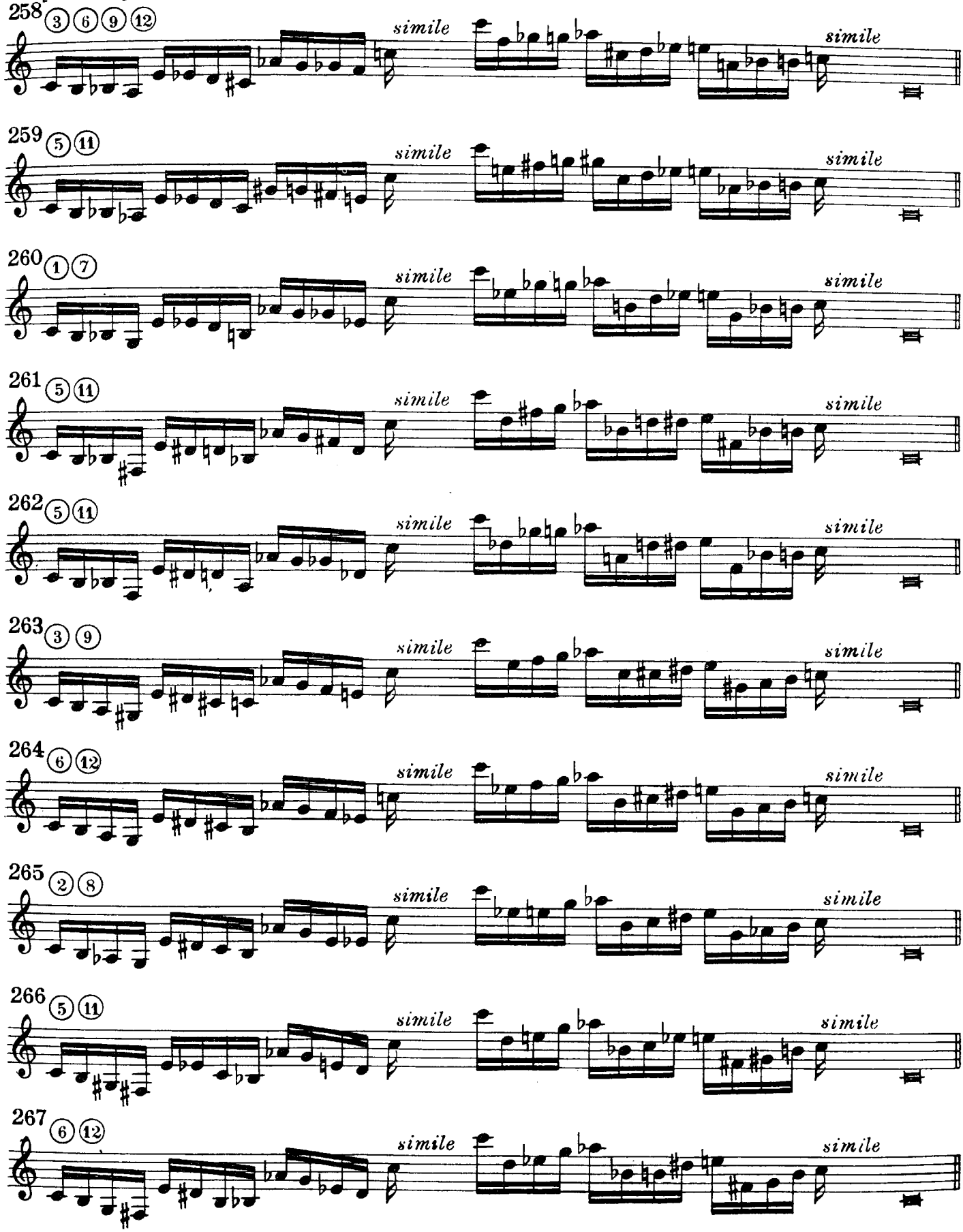
256 ①⑦

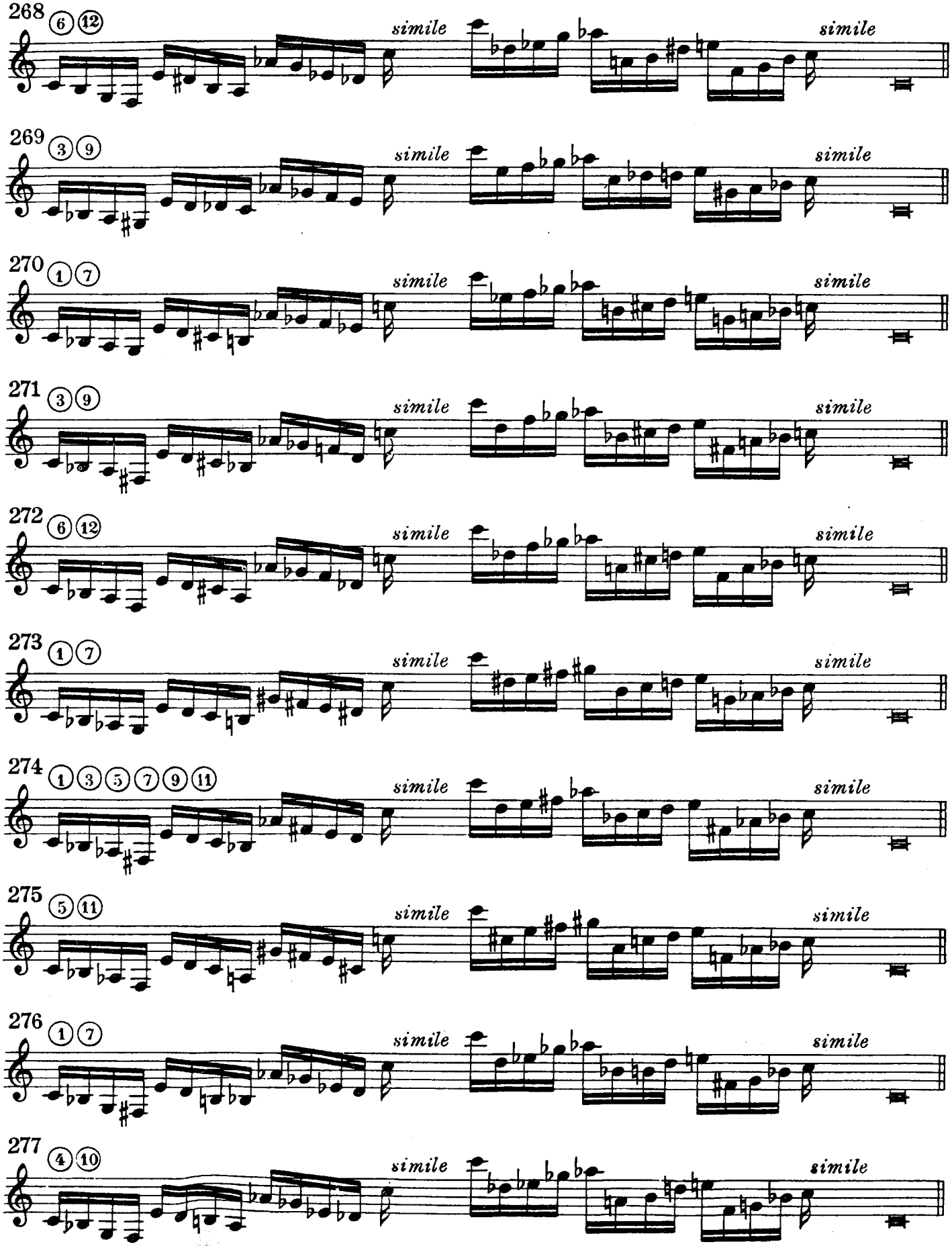


257 ①⑥⑦⑫

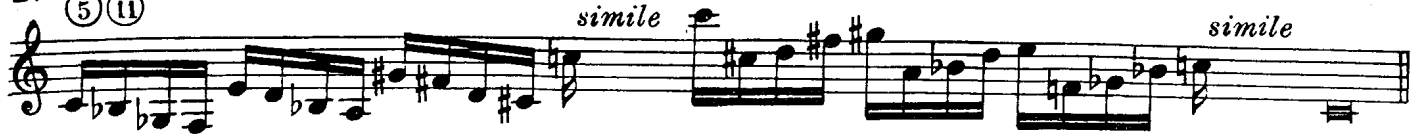
Infrapolation of Three Notes

[12 Tones]

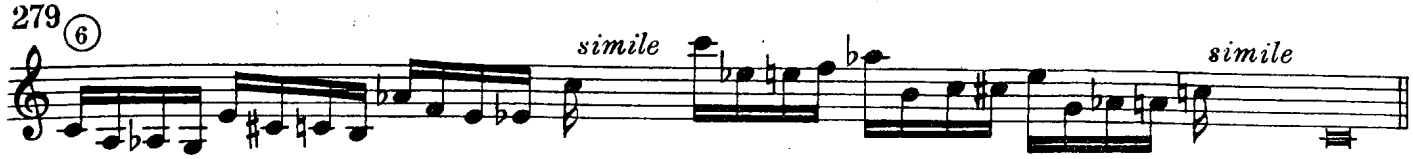



268 ⑥ ⑫
simile
simile
269 ③ ⑨
simile
simile
270 ① ⑦
simile
simile
271 ③ ⑨
simile
simile
272 ⑥ ⑫
simile
simile
273 ① ⑦
simile
simile
274 ① ③ ⑤ ⑦ ⑨ ⑪
simile
simile
275 ⑤ ⑪
simile
simile
276 ① ⑦
simile
simile
277 ④ ⑩
simile
simile

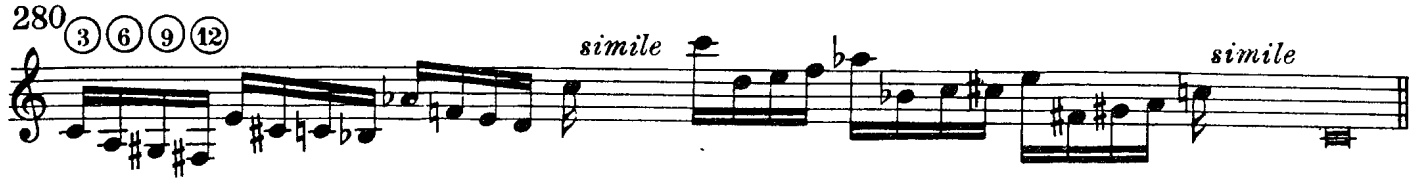
278 ⑤ ⑪



279 ⑥



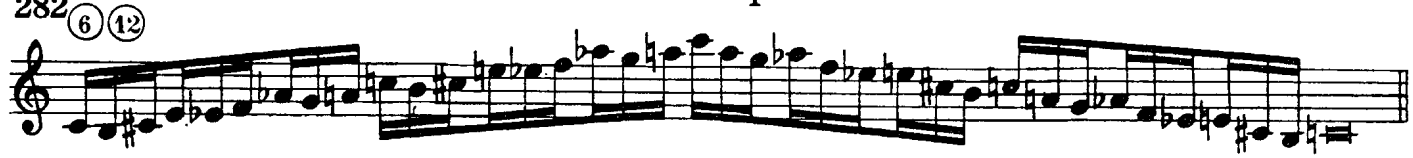
280 ③ ⑥ ⑨ ⑫



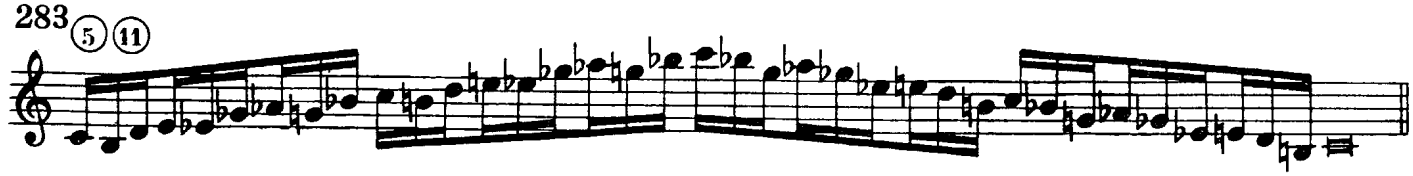
281 ⑤

Infra-Interpolation

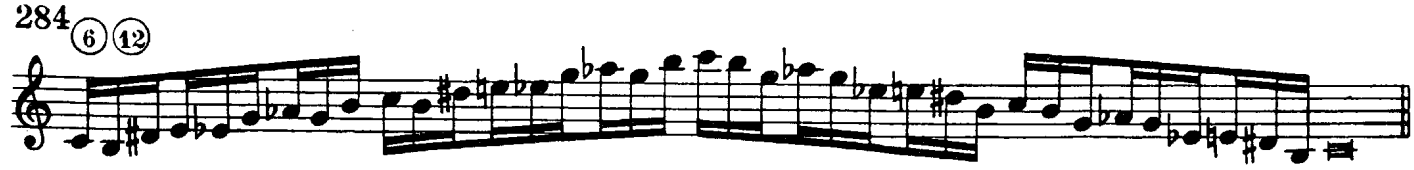
282 ⑥ ⑫



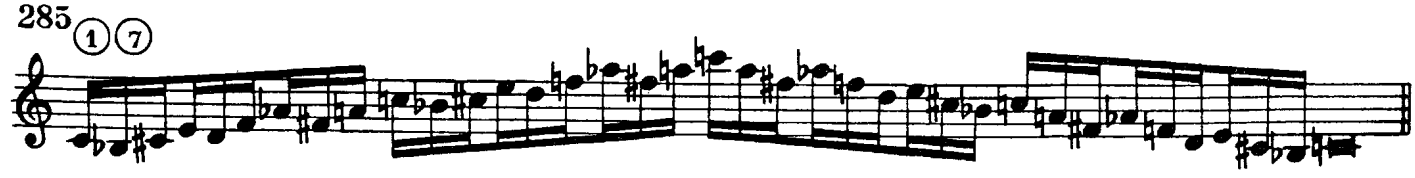
283 ⑤ ⑪



284 ⑥ ⑫

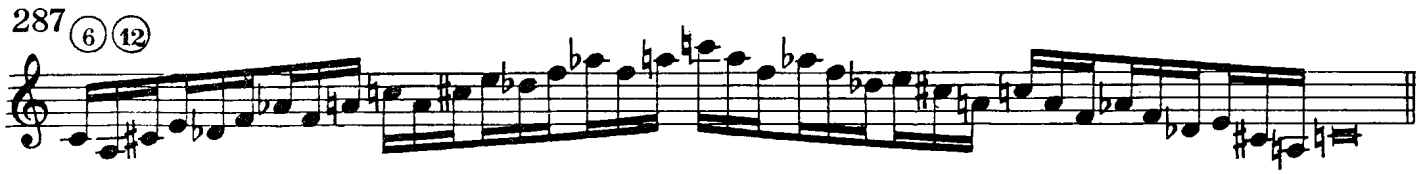


285 ① ⑦

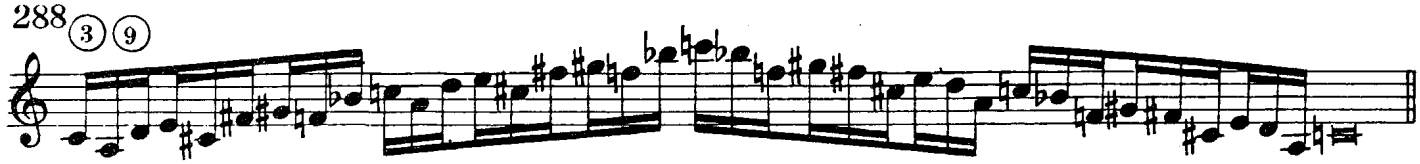


286 ③ ⑨

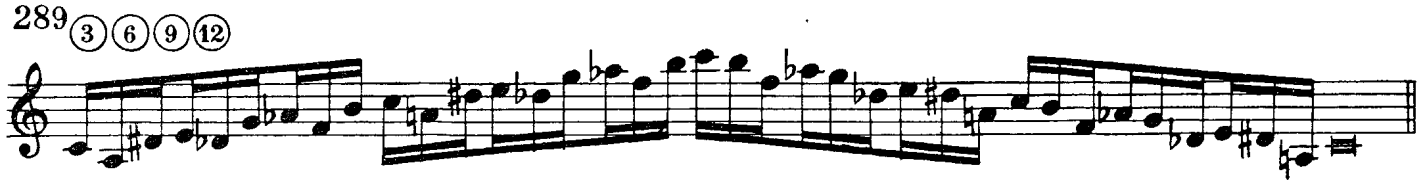
287 ⑥ ⑫



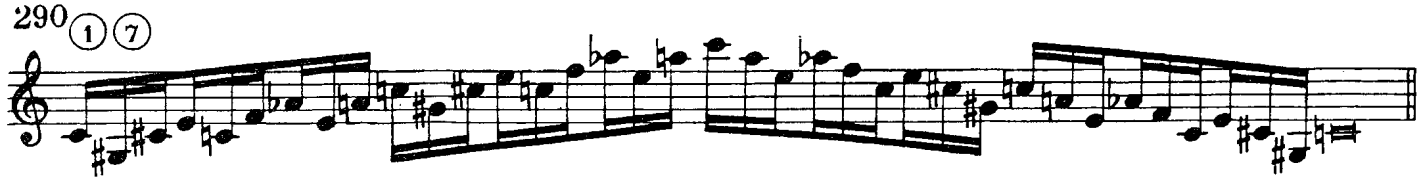
288 ③ ⑨



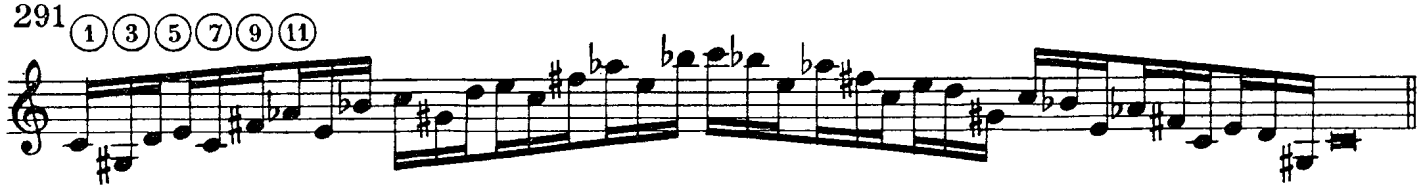
289 ③ ⑥ ⑨ ⑫



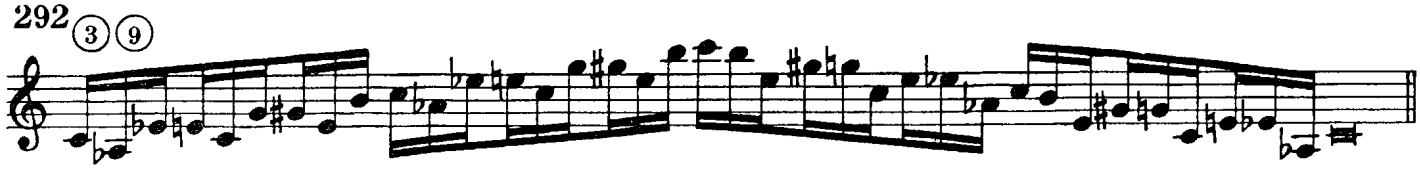
290 ① ⑦



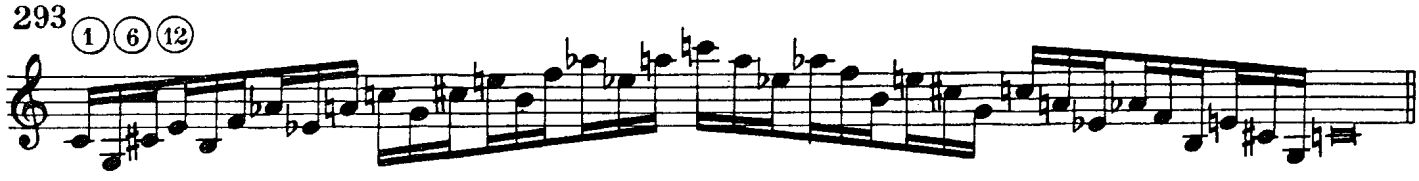
291 ① ③ ⑤ ⑦ ⑨ ⑪



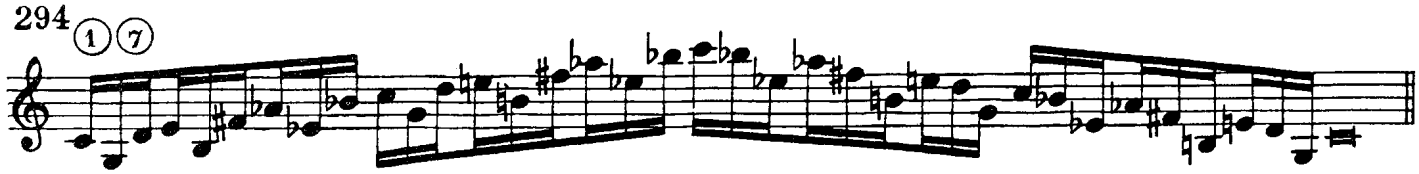
292 ③ ⑨



293 ① ⑥ ⑫

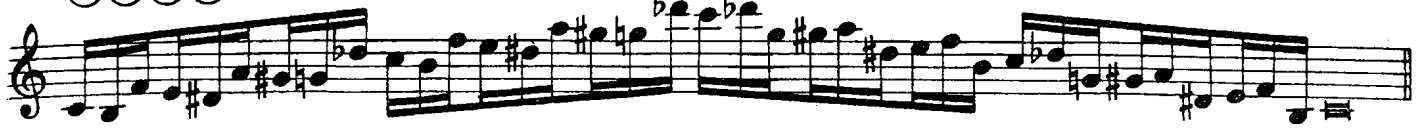


294 ① ⑦



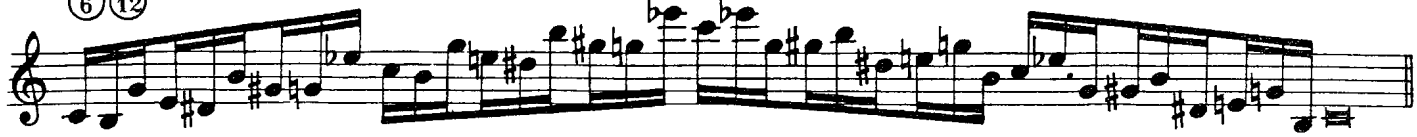
Infra-Ultrapolation

295 ⑤⑥⑪⑫

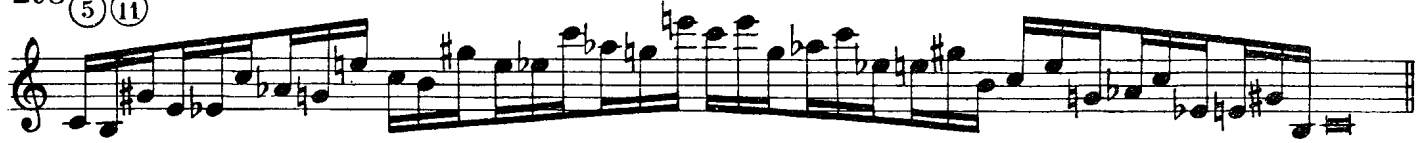


296 ⑤⑥⑪⑫

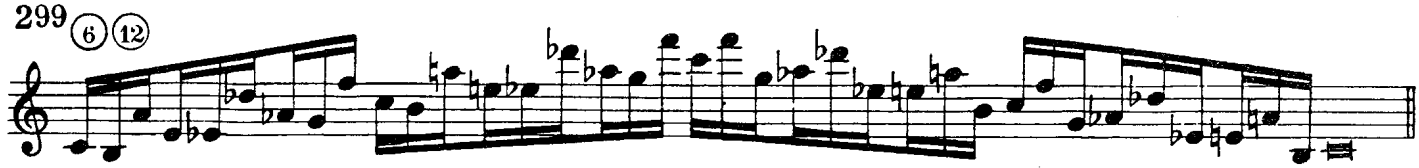
297 ⑥⑫



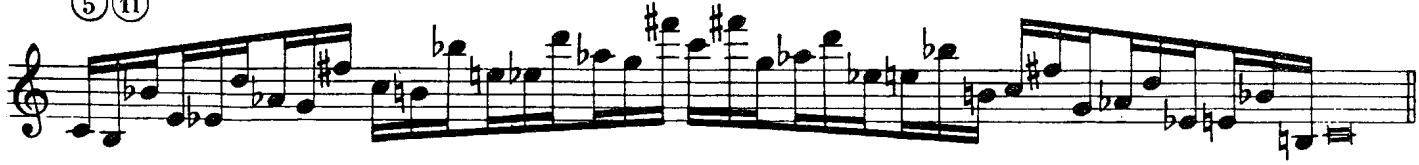
298 ⑤⑪



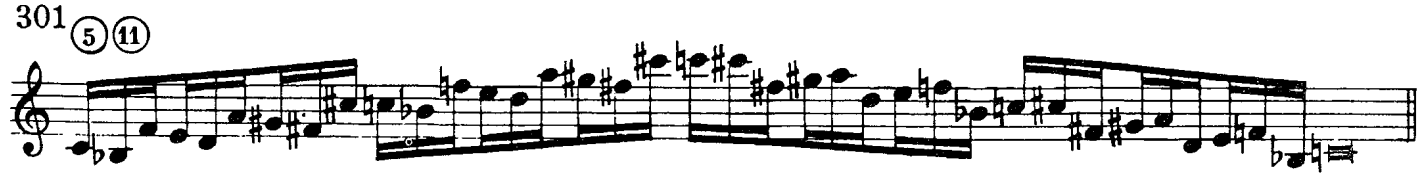
299 ⑥⑫



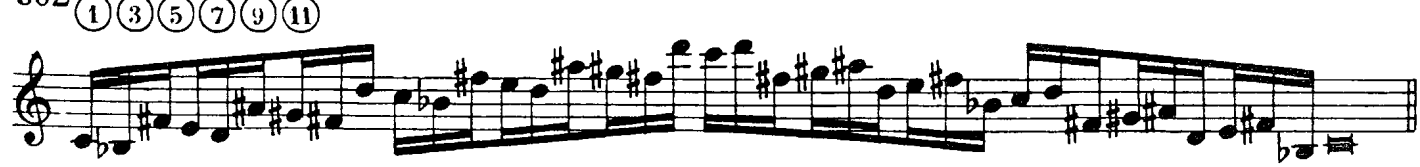
300 ⑤⑪



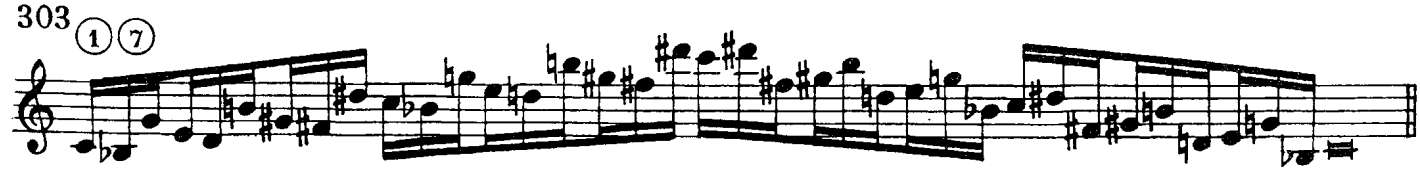
301 ⑤⑪



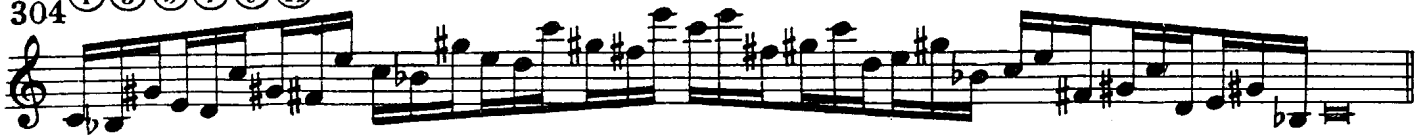
302 ①③⑤⑦⑨⑪



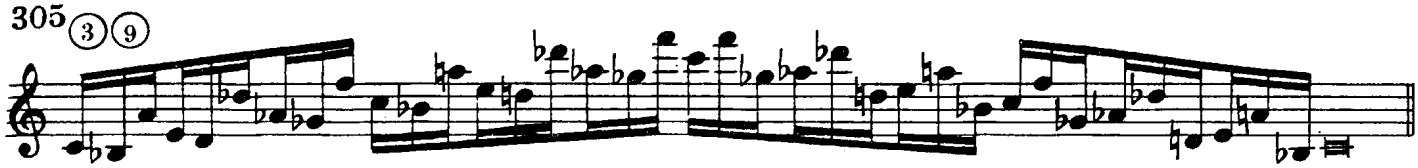
303 ①⑦



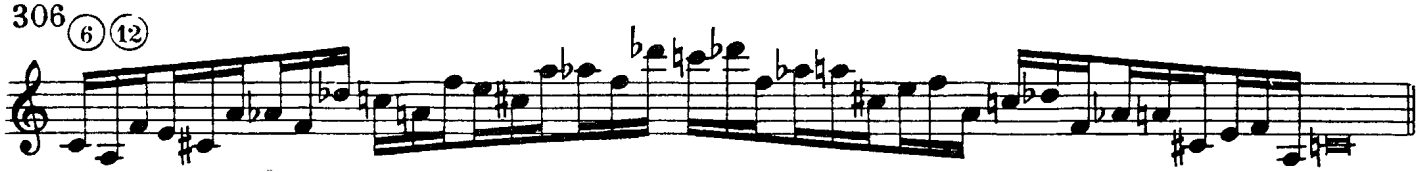
304 ①③⑤⑦⑨⑪



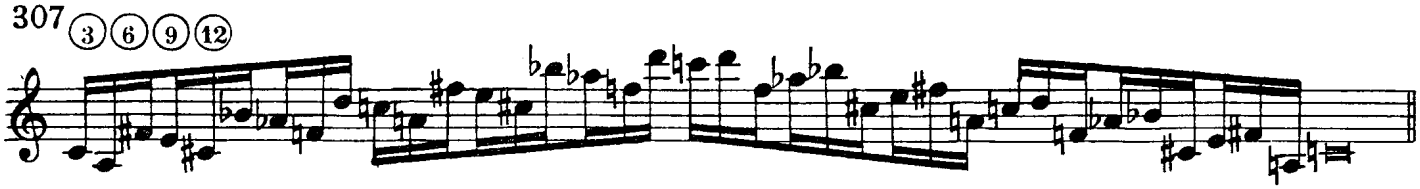
305 ③⑨



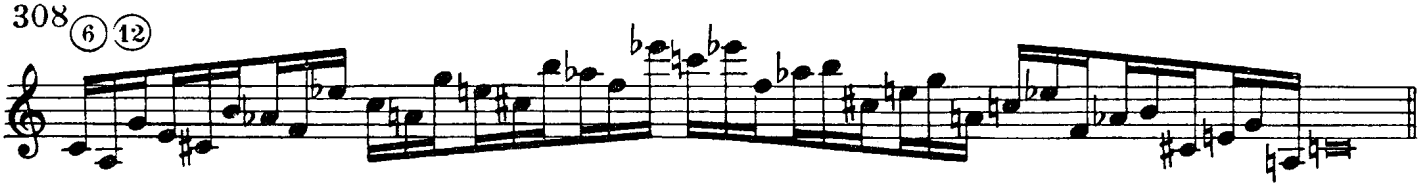
306 ⑥⑫



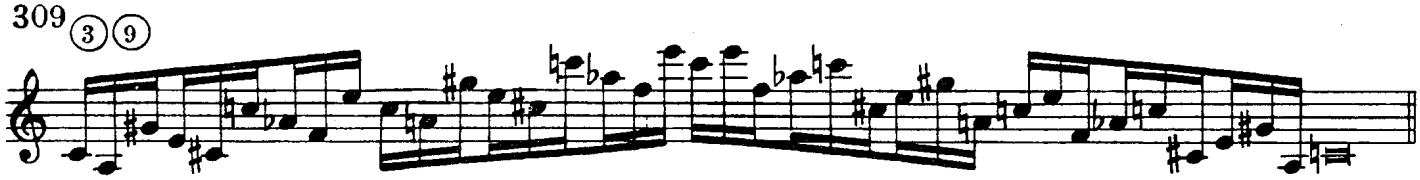
307 ③⑥⑨⑫



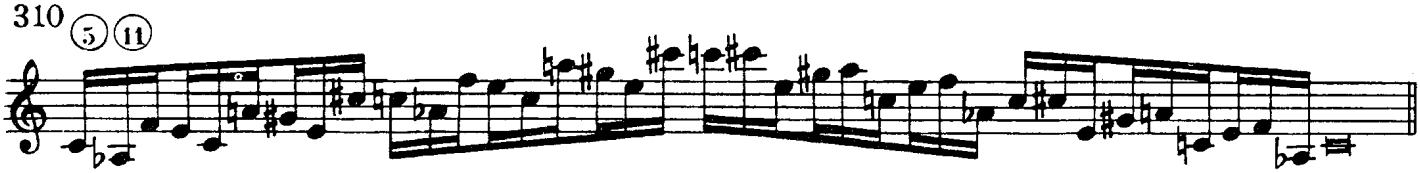
308 ⑥⑫



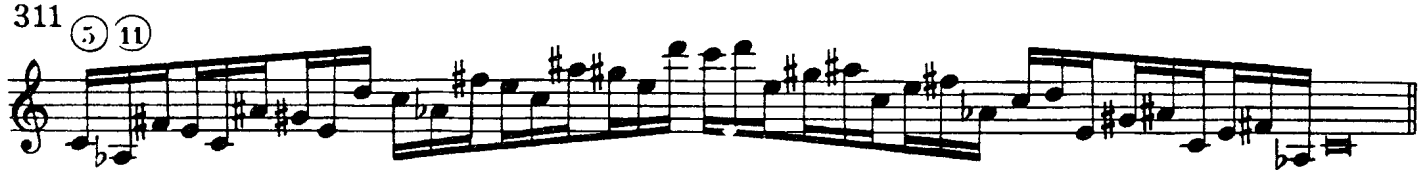
309 ③⑨



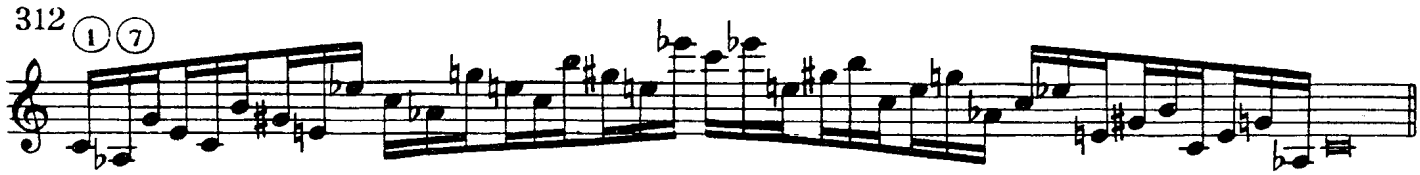
310 ⑤⑪



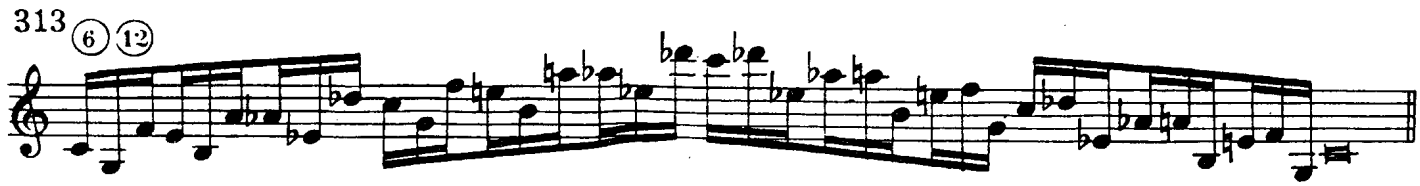
311 ⑤⑪



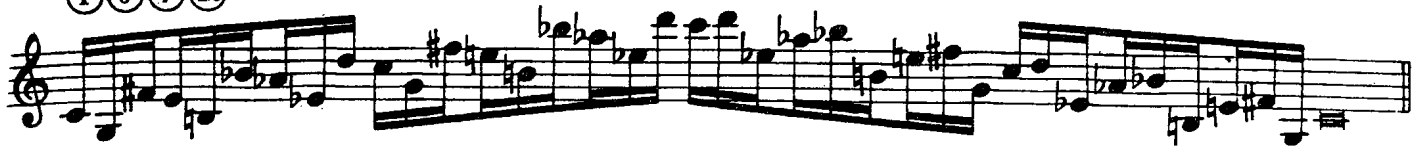
312 ①⑦



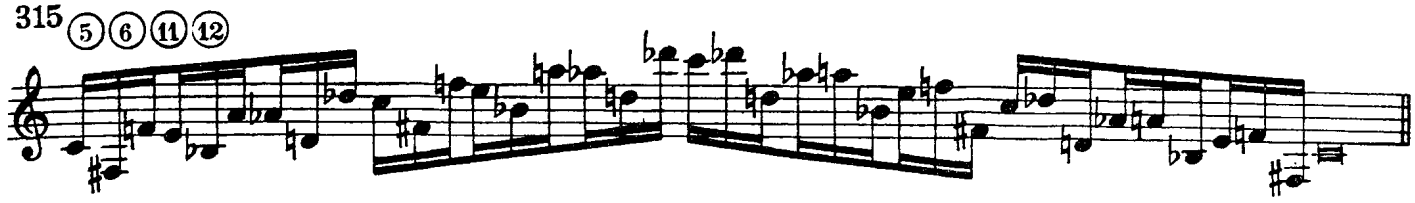
313 ⑥⑫



314 ①⑥⑦⑫



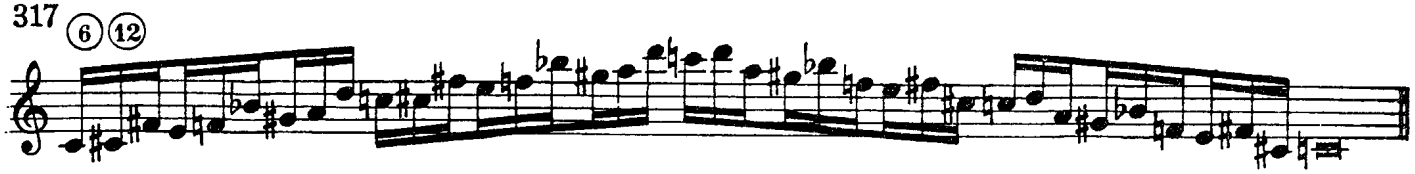
315 ⑤⑥⑪⑫



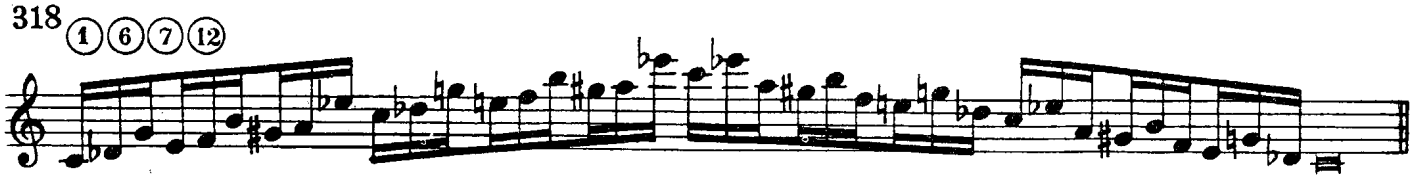
Inter-Ultrapolation

316 ⑥⑫

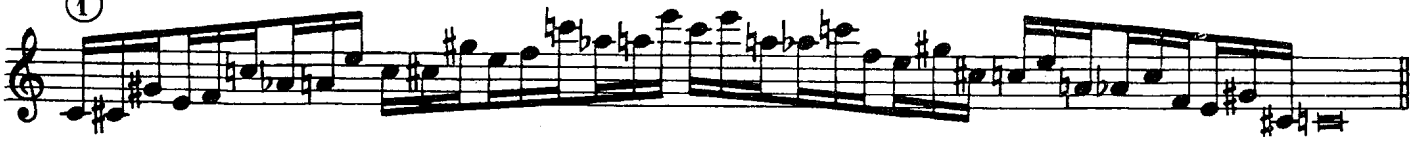
317 ⑥⑫



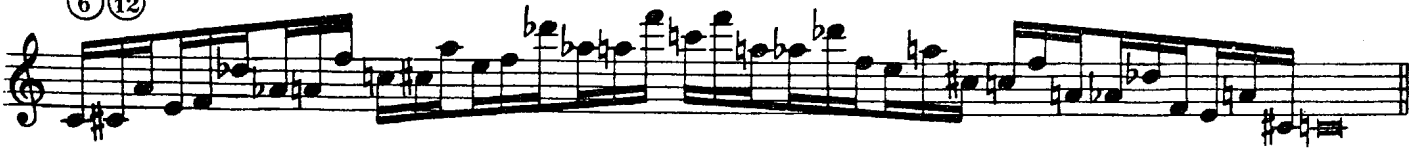
318 ①⑥⑦⑫



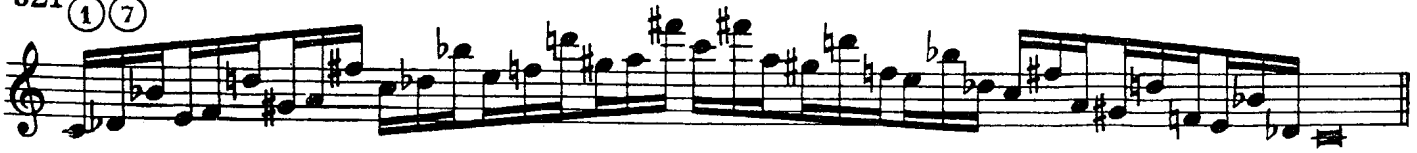
319 ①



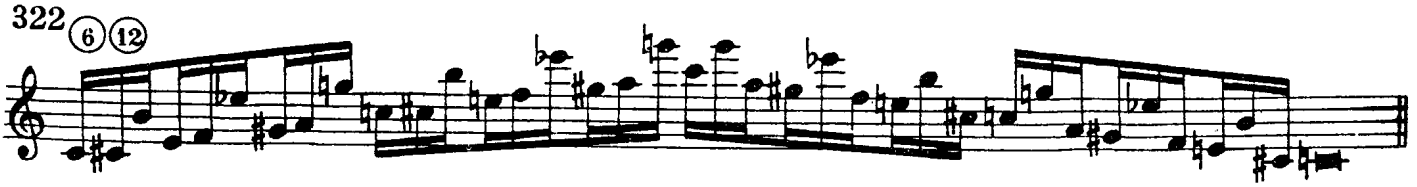
320 ⑥⑫



321 ①⑦

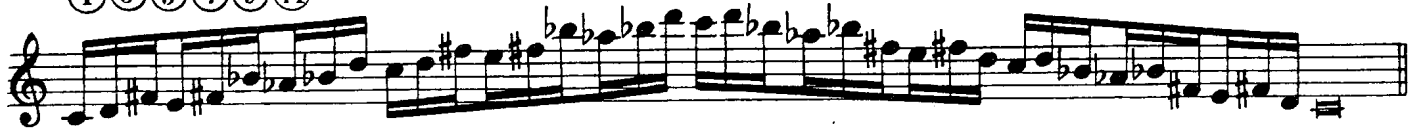


322 ⑥⑫

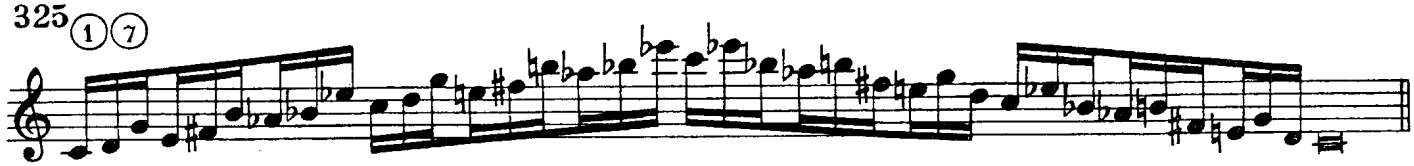


323 ⑤⑪

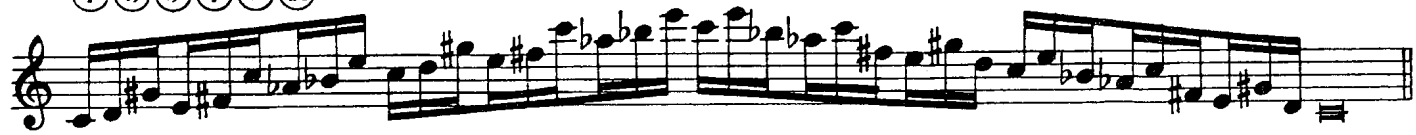
324 ①③⑤⑦⑨⑪



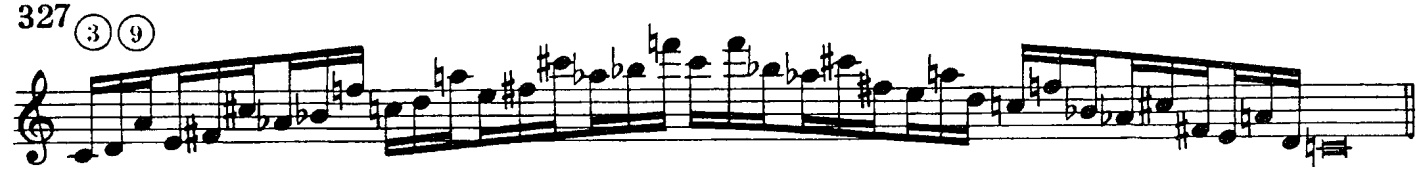
325 ①⑦



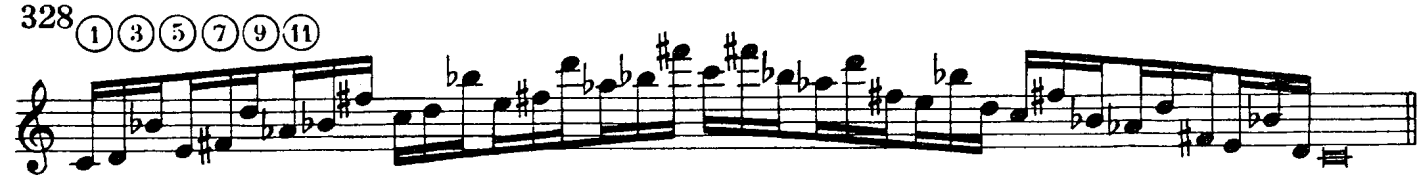
326 ①③⑤⑦⑨⑪



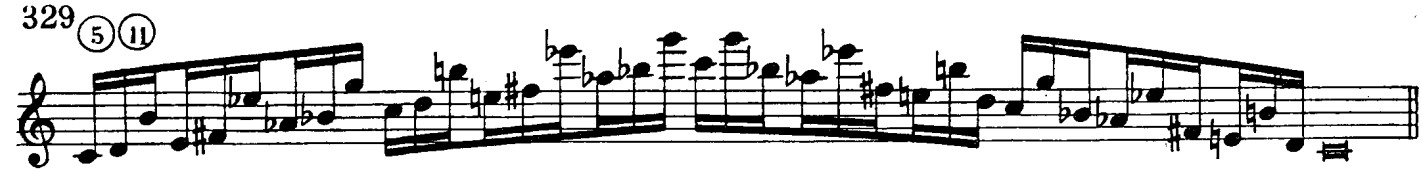
327 ③⑨



328 ①③⑤⑦⑨⑪

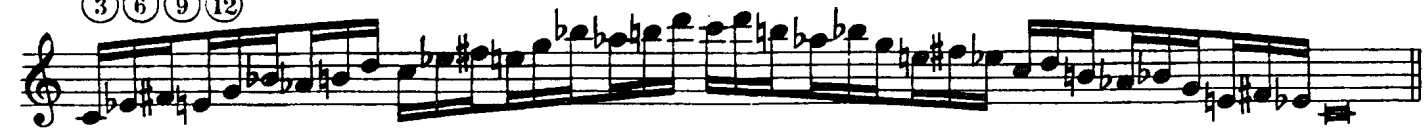


329 ⑤⑪

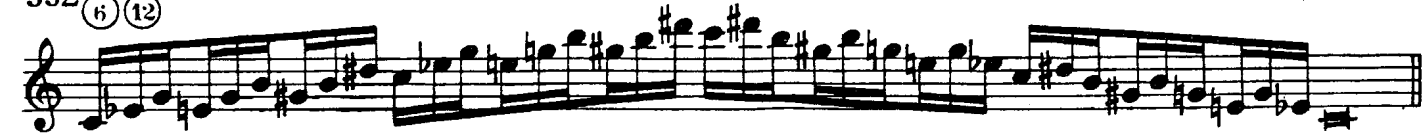


330 ⑥⑫

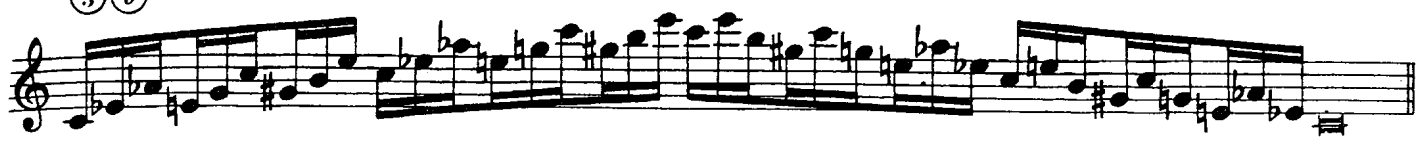
331 ③⑥⑨⑫



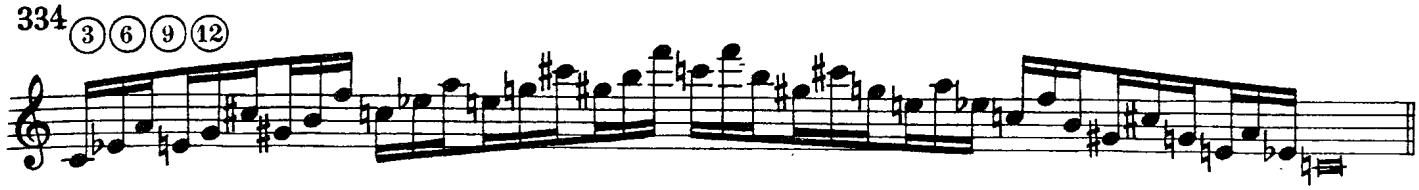
332 ⑥⑫



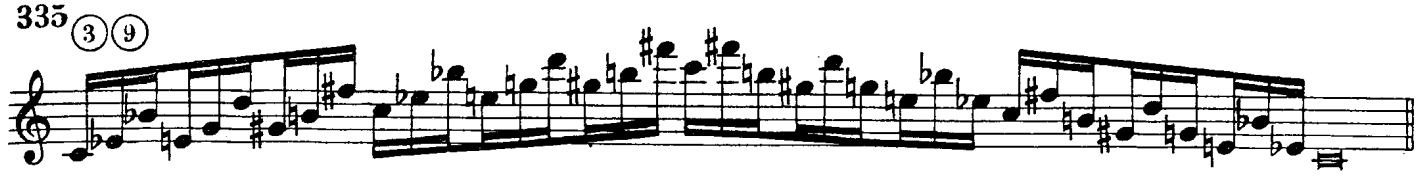
333 ③ ⑨



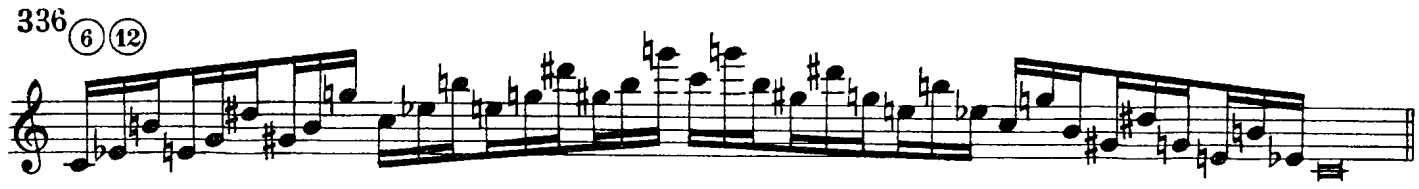
334 ③ ⑥ ⑨ ⑫



335 ③ ⑨

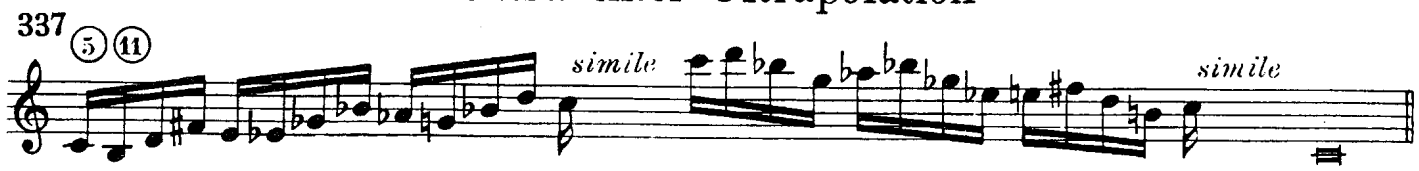


336 ⑥ ⑫

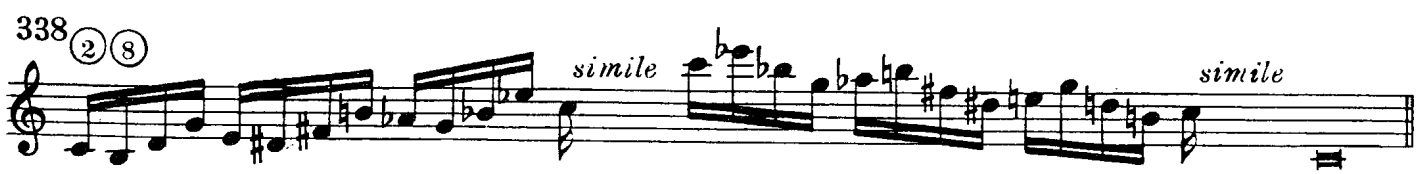


Infra-Inter-Ultrapolation

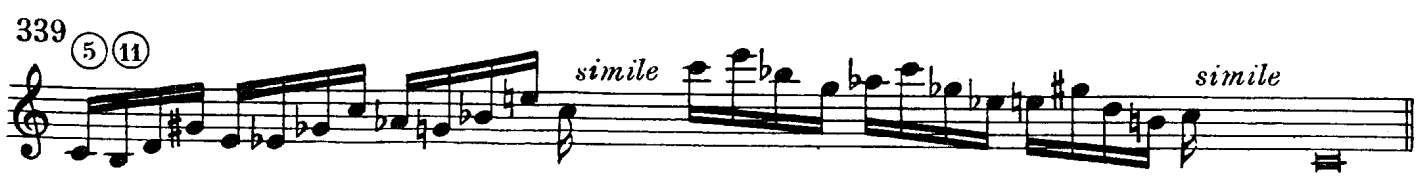
337 ⑤ ⑪



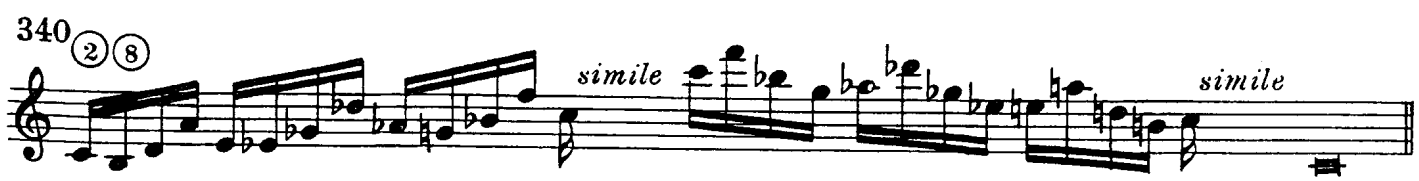
338 ② ⑧



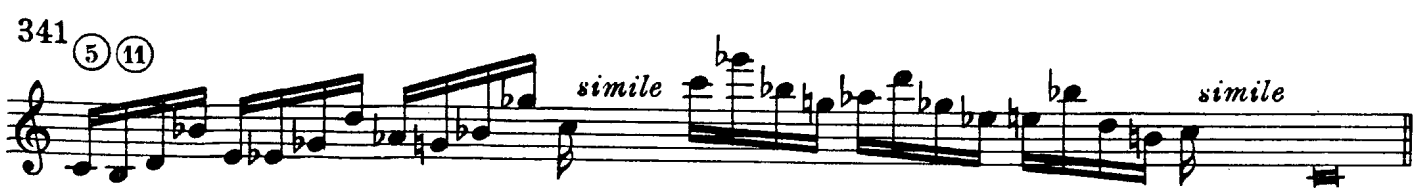
339 ⑤ ⑪



340 ② ⑧



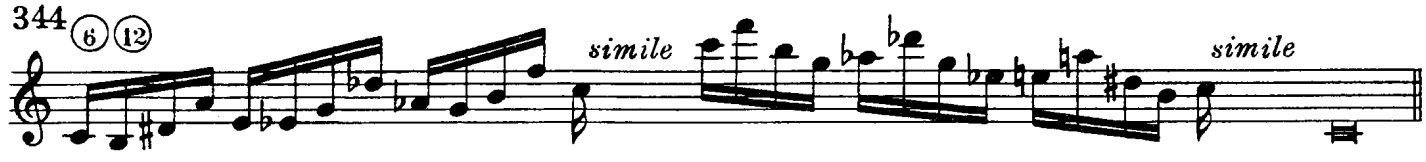
341 ⑤ ⑪



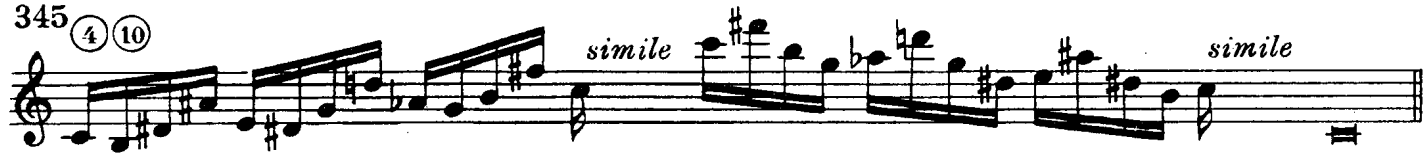
342 ⑥ ⑪

343 ② ⑧

344 ⑥ ⑫

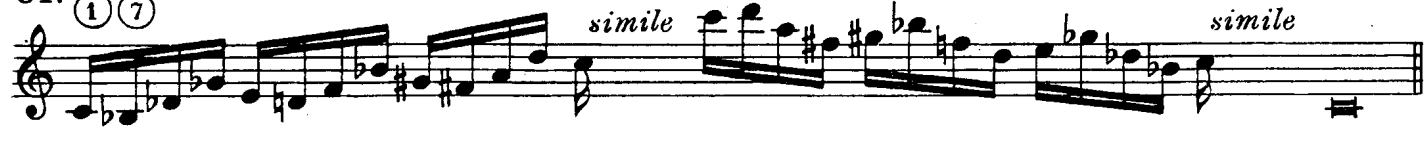


345 ④ ⑩

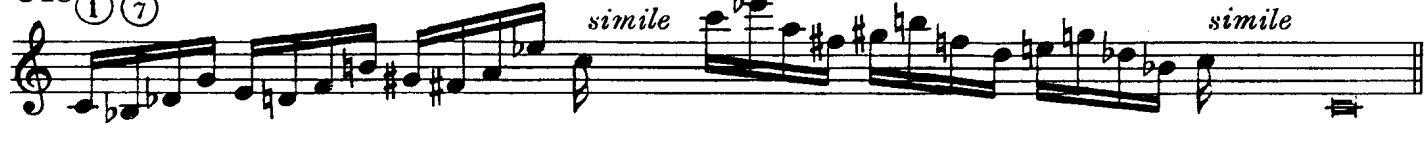


346 ⑩

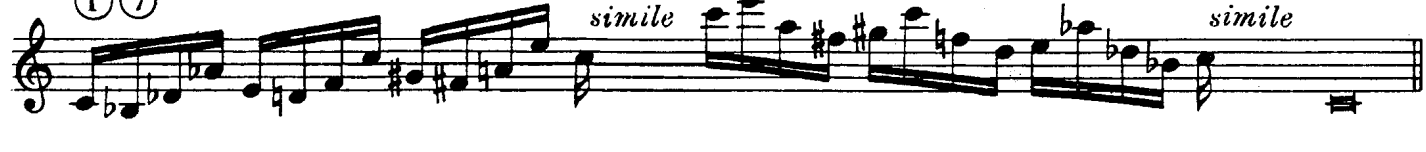
347 ① ⑦



348 ① ⑦



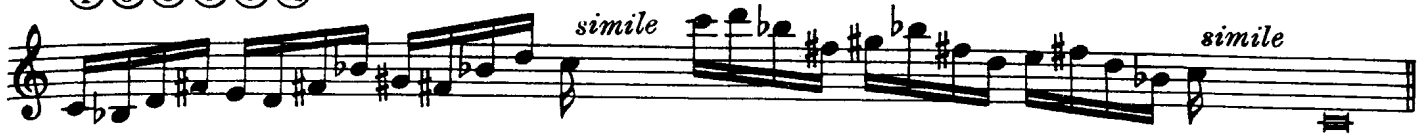
349 ① ⑦



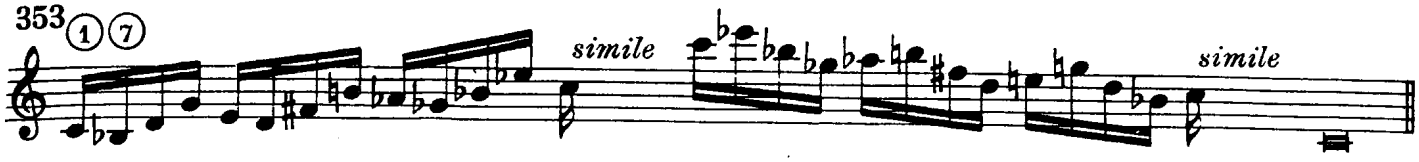
350 ④ ⑩

351 ⑤ ⑪

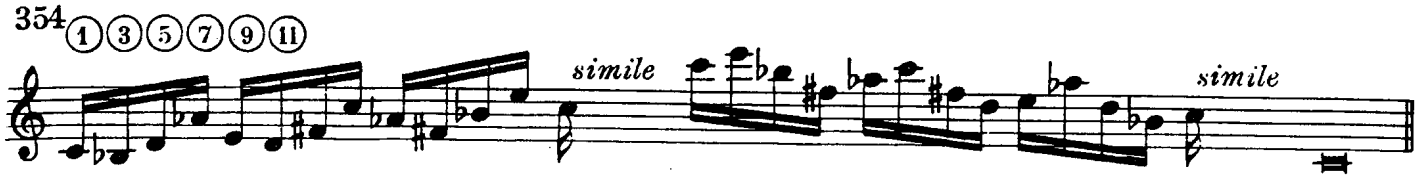
352 ① ③ ⑤ ⑦ ⑨ ⑪



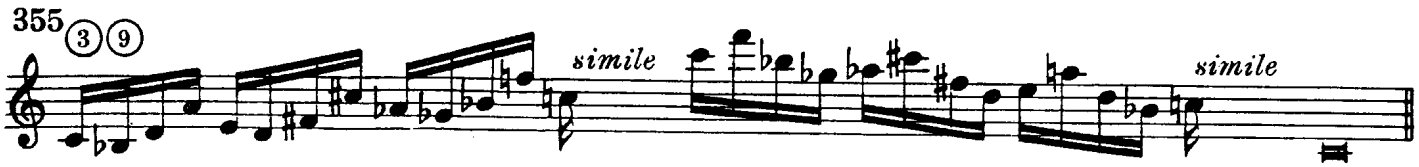
353 ① ⑦



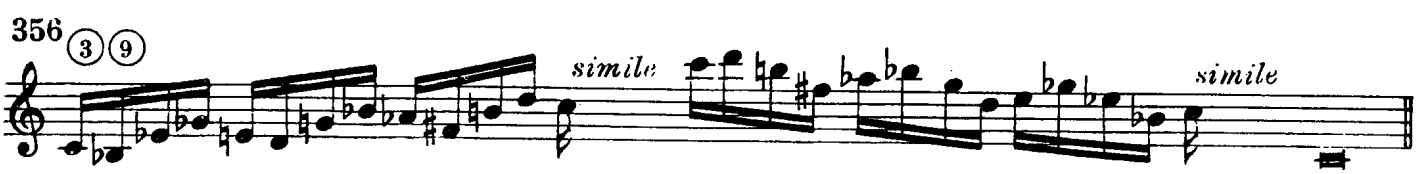
354 ① ③ ⑤ ⑦ ⑨ ⑪



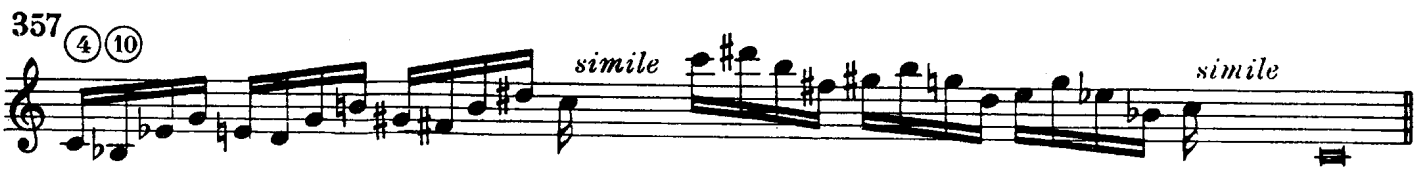
355 ③ ⑨



356 ③ ⑨

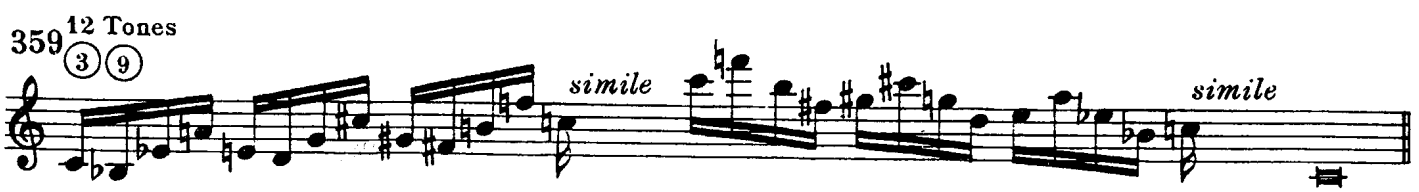


357 ④ ⑩

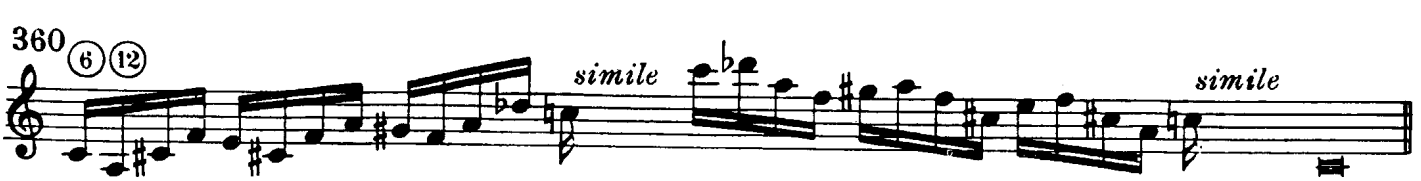


358 ③ ⑨

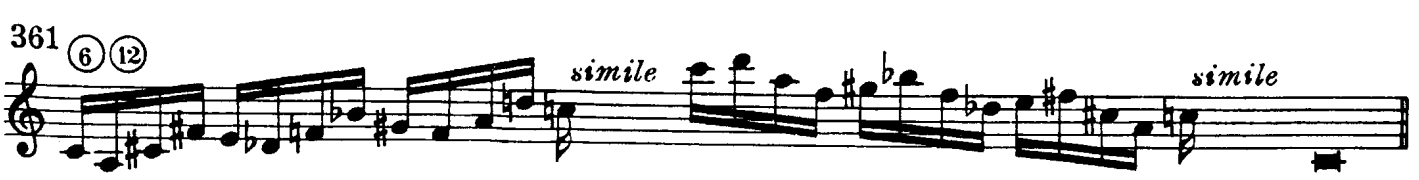
359 12 Tones ③ ⑨

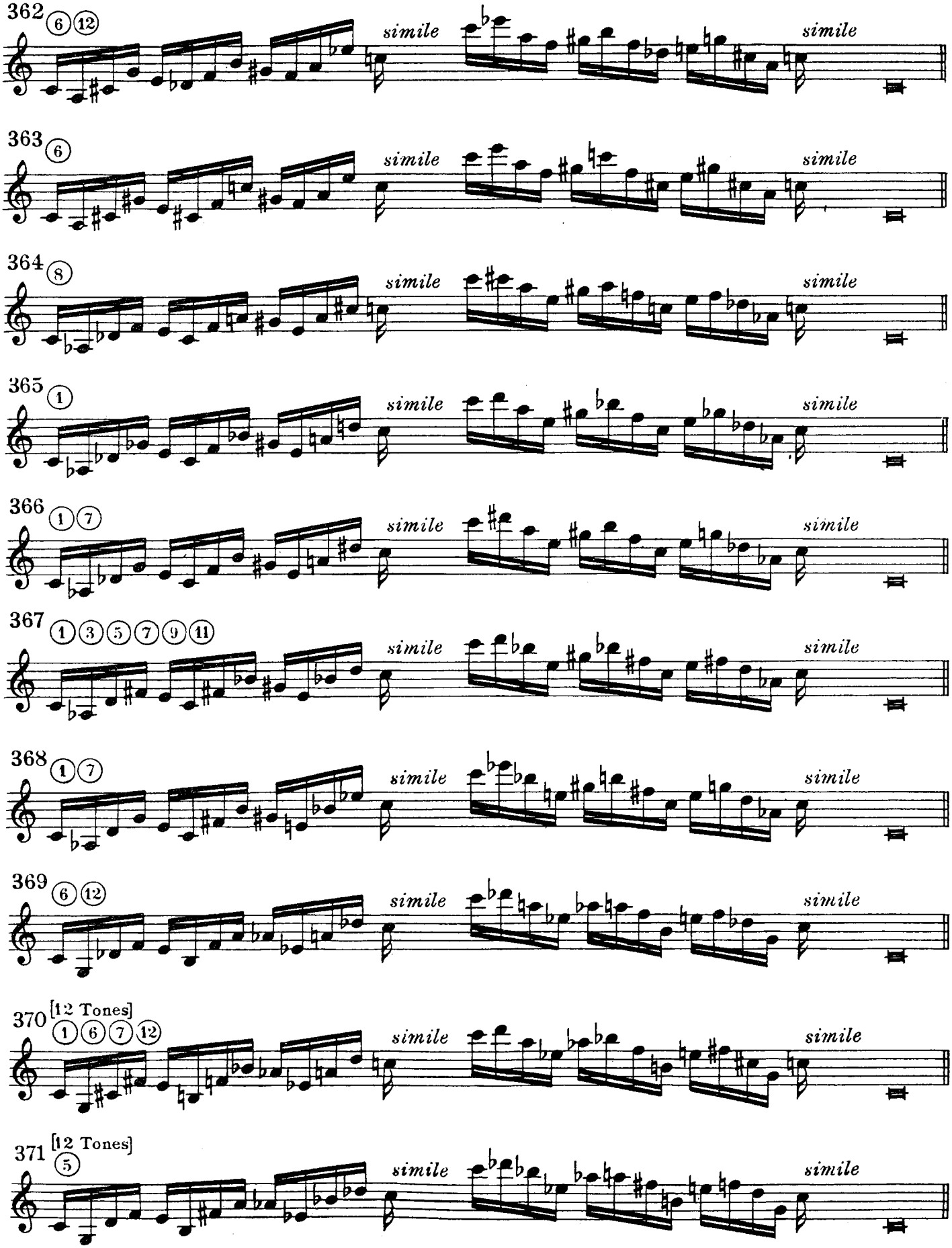


360 ⑥ ⑫

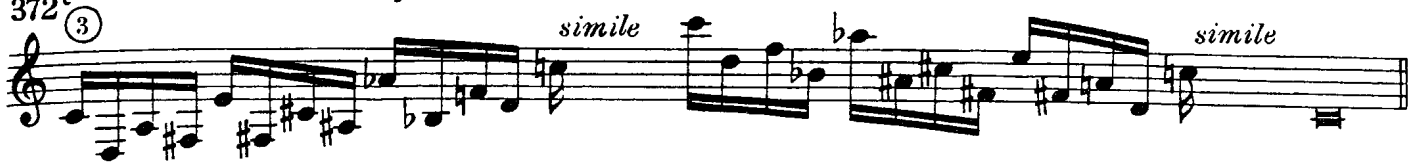


361 ⑥ ⑫

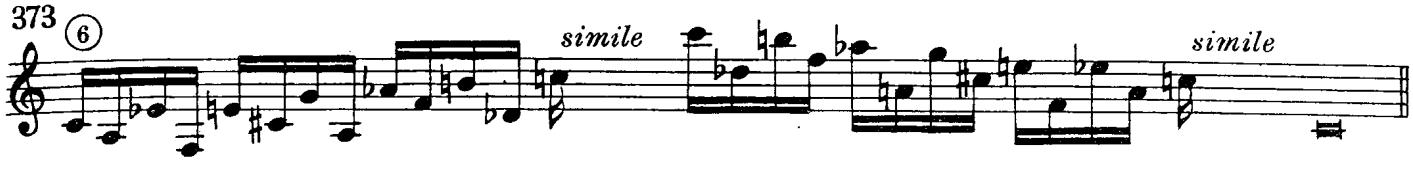



362 6 12
simile
simile
363 6
simile
simile
364 8
simile
simile
365 1
simile
simile
366 1 7
simile
simile
367 1 3 5 7 9 11
simile
simile
368 1 7
simile
simile
369 6 12
simile
simile
370 [12 Tones]
1 6 7 12
simile
simile
371 [12 Tones]
5
simile
simile

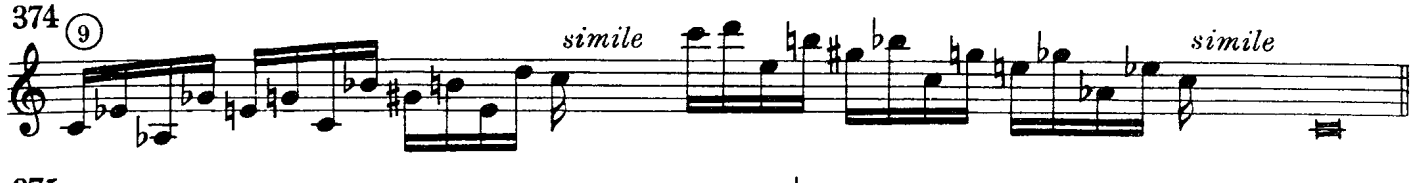
372 [Dominant Seventh Chords] ③



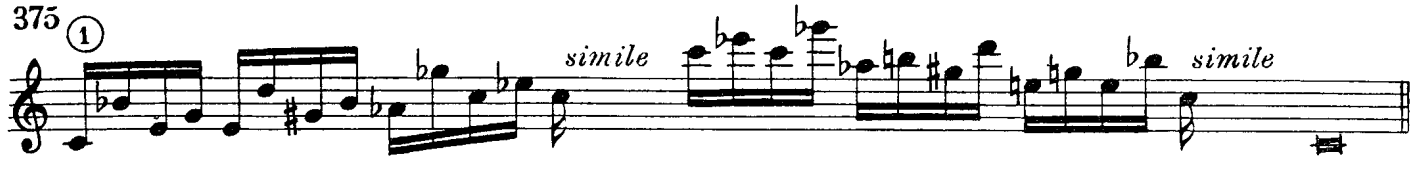
373 ⑥



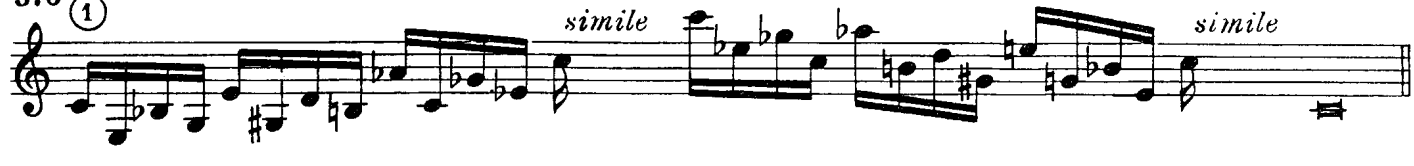
374 ⑨



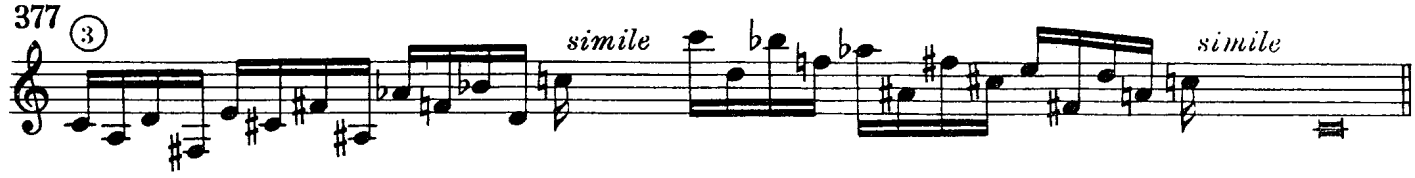
375 ①



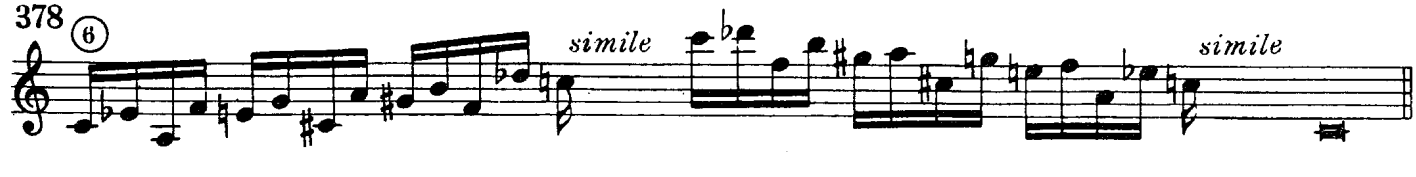
376 [Six-five chords] ①



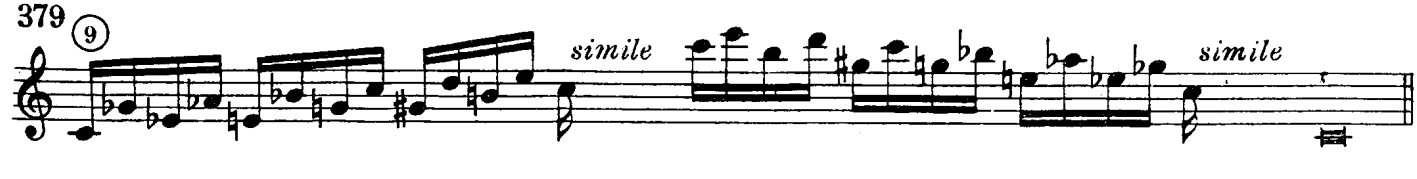
377 ③



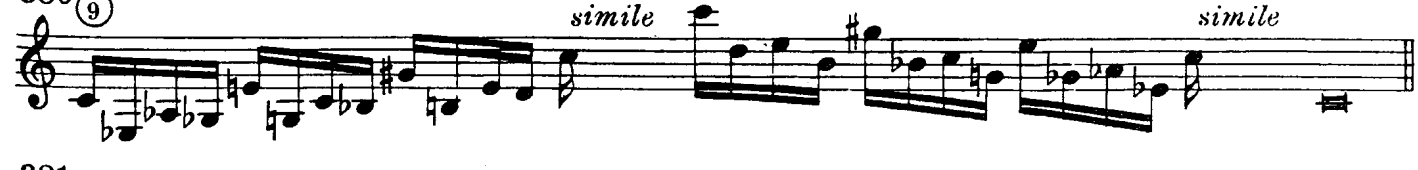
378 ⑥



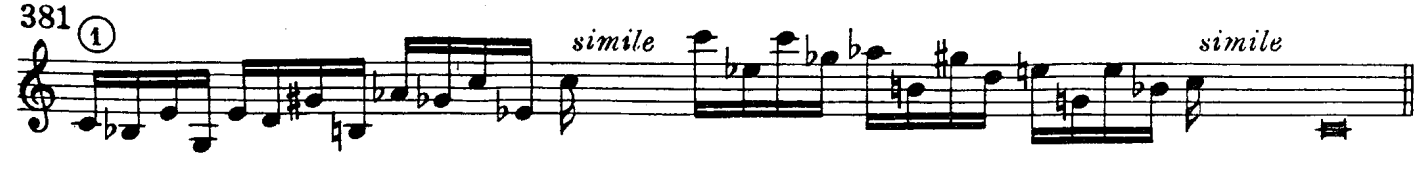
379 ⑨

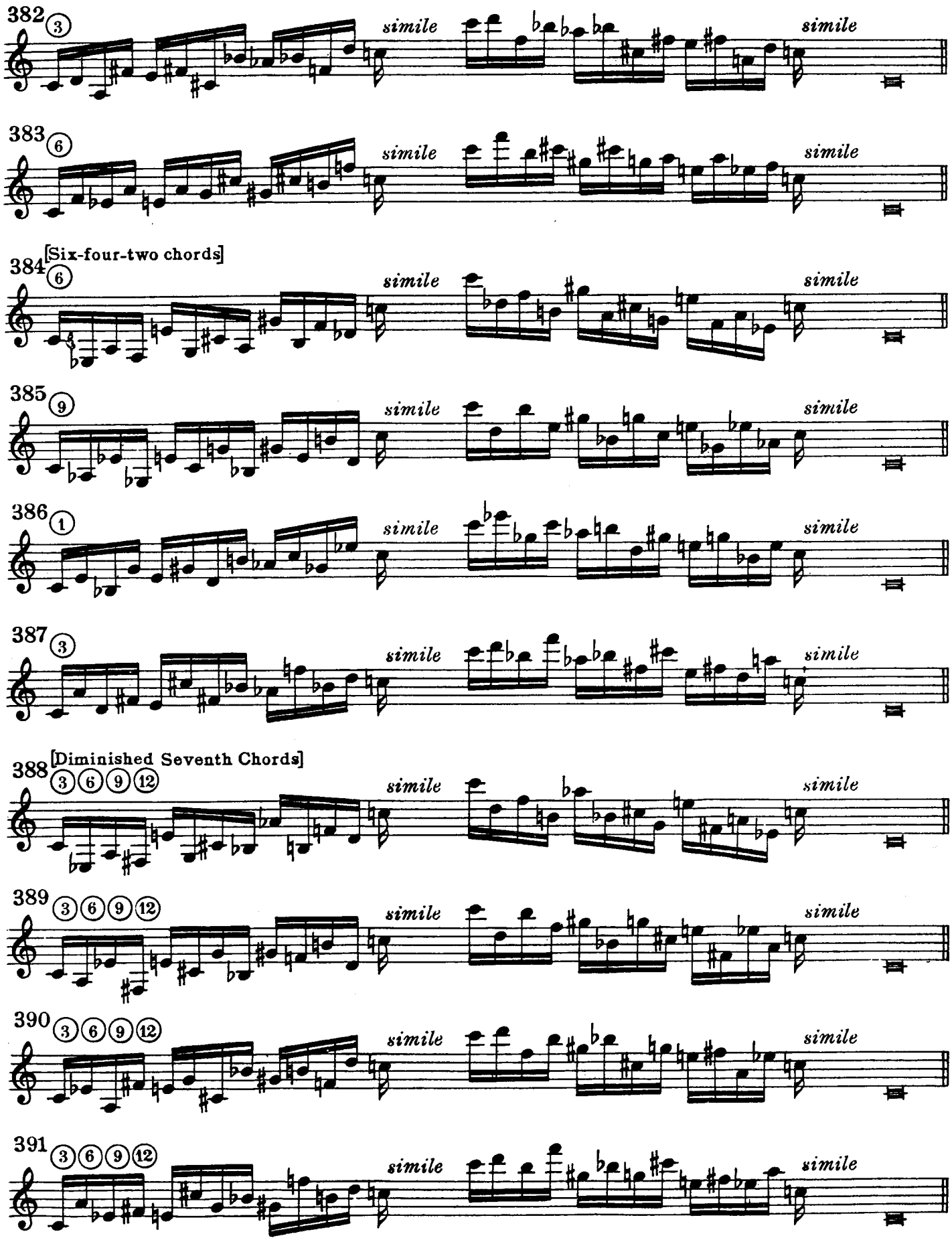


380 [Six-four-three chords] ⑨



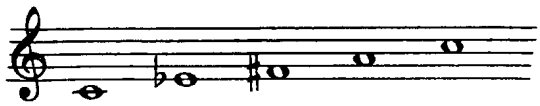
381 ①




382 ③
simile
simile
383 ⑥
simile
simile
[Six-four-two chords]
384 ⑥
simile
simile
385 ⑨
simile
simile
386 ①
simile
simile
387 ③
simile
simile
[Diminished Seventh Chords]
388 ③ ⑥ ⑨ ⑫
simile
simile
389 ③ ⑥ ⑨ ⑫
simile
simile
390 ③ ⑥ ⑨ ⑫
simile
simile
391 ③ ⑥ ⑨ ⑫
simile
simile

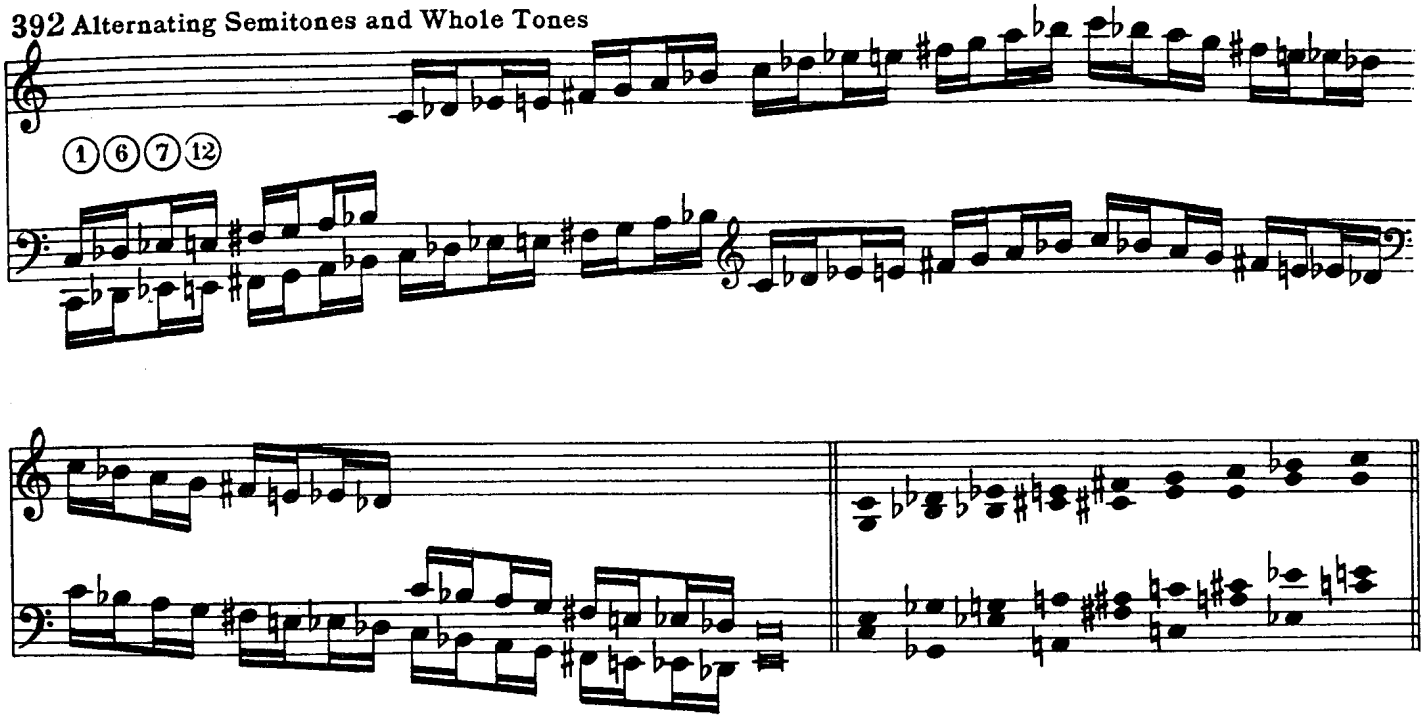
Sesquitone Progression

Equal Division of One Octave into Four Parts

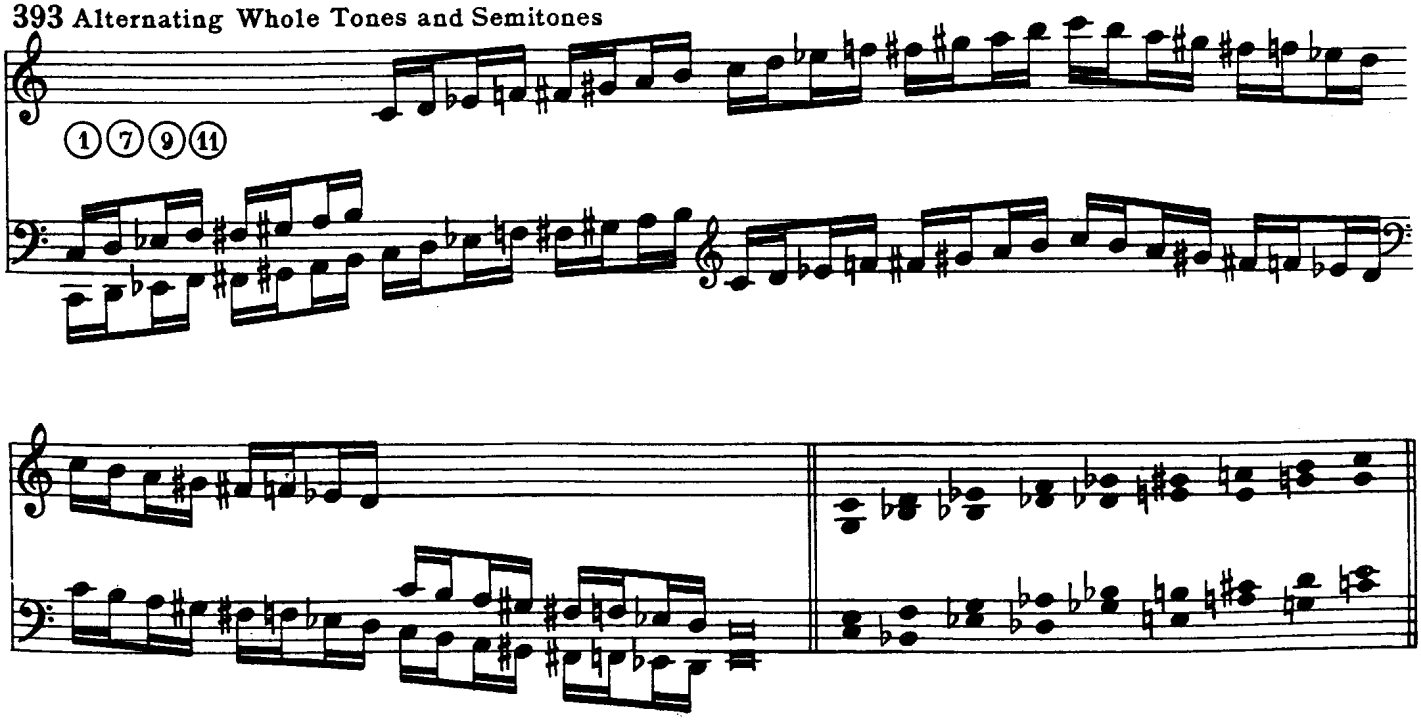


Interpolation of One Note

392 Alternating Semitones and Whole Tones



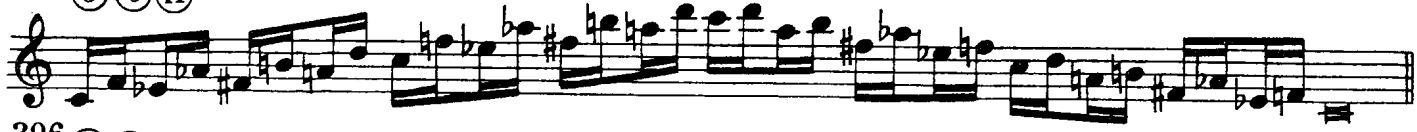
393 Alternating Whole Tones and Semitones



Ultrapolation of One Note

394 ① ③ ⑤ ⑦ ⑨ ⑪

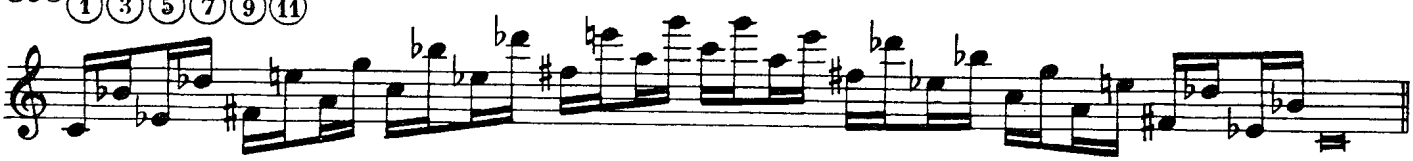
395 ⑤ ⑥ ⑪



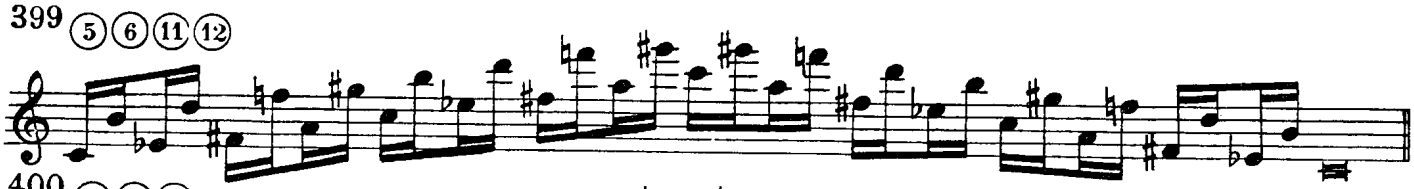
396 ① ⑥ ⑫

397 ⑤ ⑪

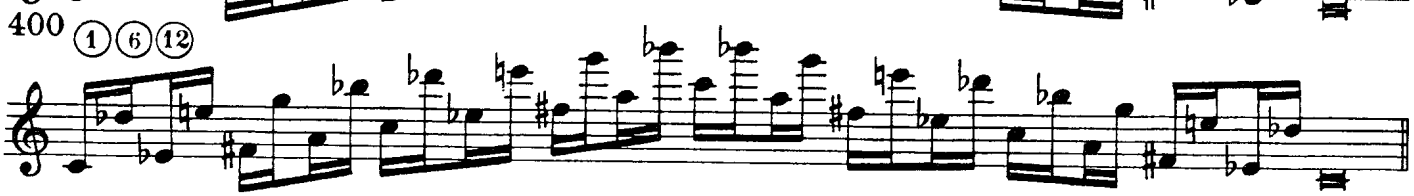
398 ① ③ ⑤ ⑦ ⑨ ⑪



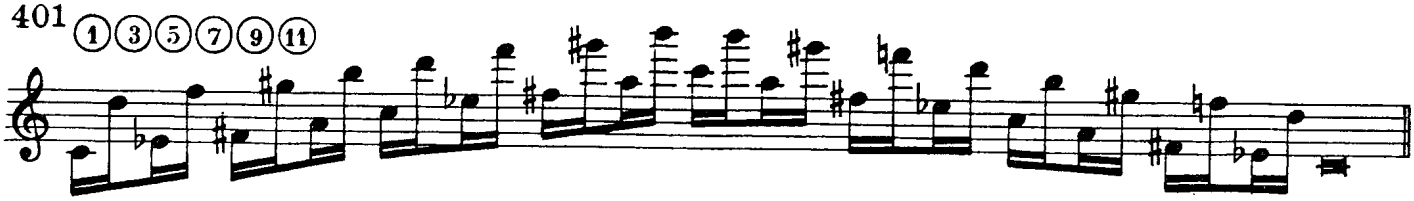
399 ⑤ ⑥ ⑪ ⑫



400 ① ⑥ ⑫

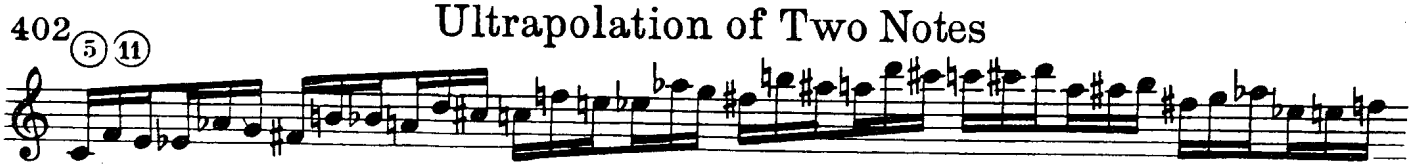


401 ① ③ ⑤ ⑦ ⑨ ⑪

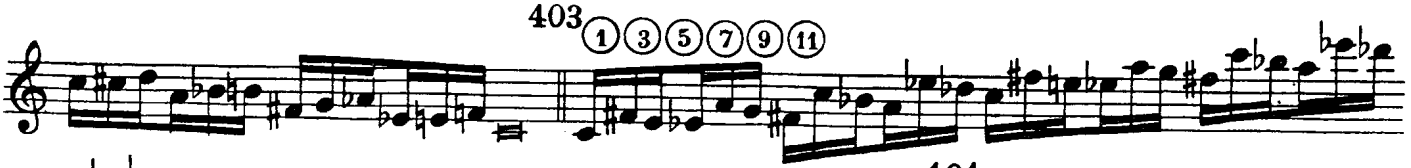


Ultrapolation of Two Notes

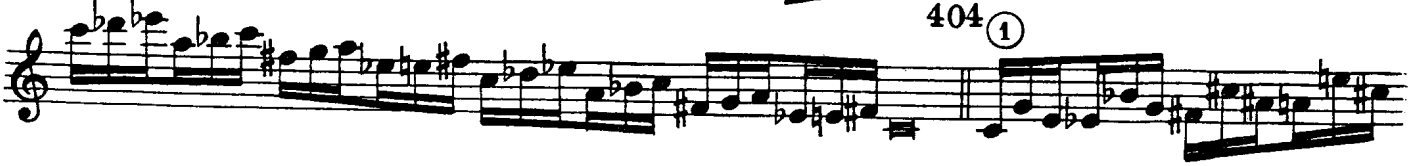
402 ⑤ ⑪

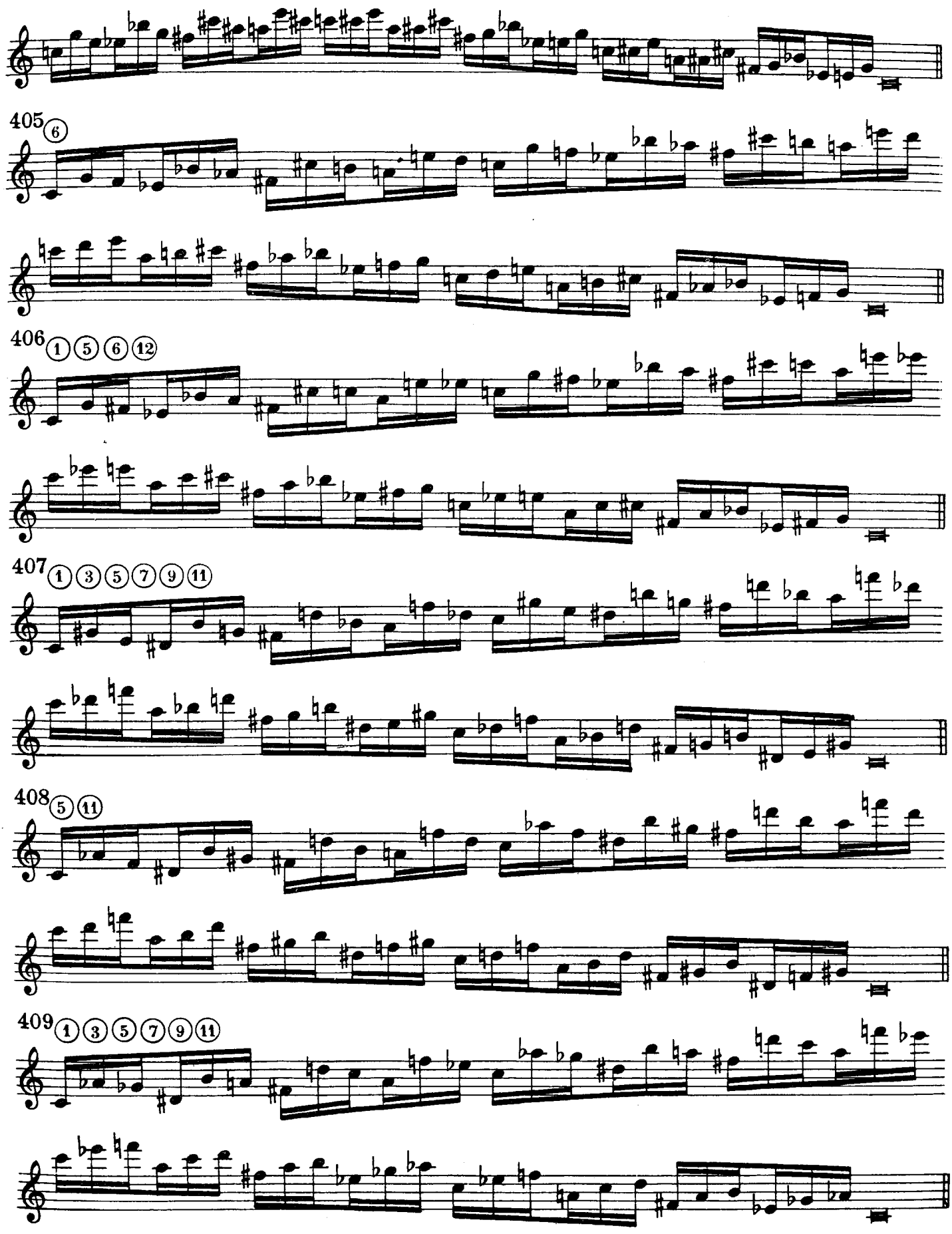


403 ① ③ ⑤ ⑦ ⑨ ⑪

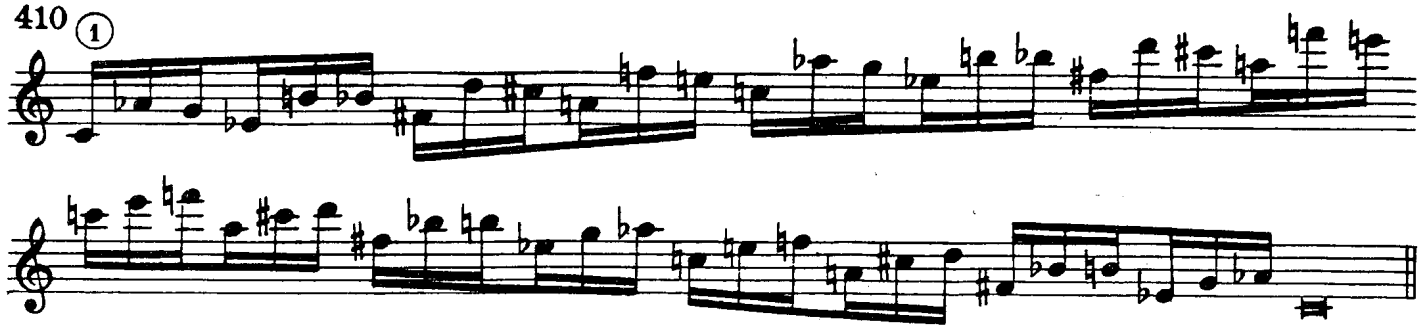


404 ①

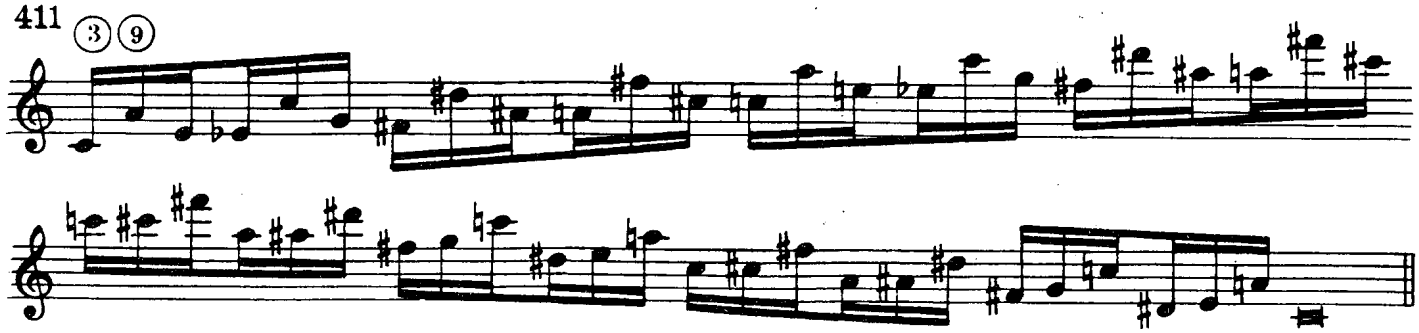



405 ⑥
406 ① ⑤ ⑥ ⑫
407 ① ③ ⑤ ⑦ ⑨ ⑪
408 ⑤ ⑪
409 ① ③ ⑤ ⑦ ⑨ ⑪

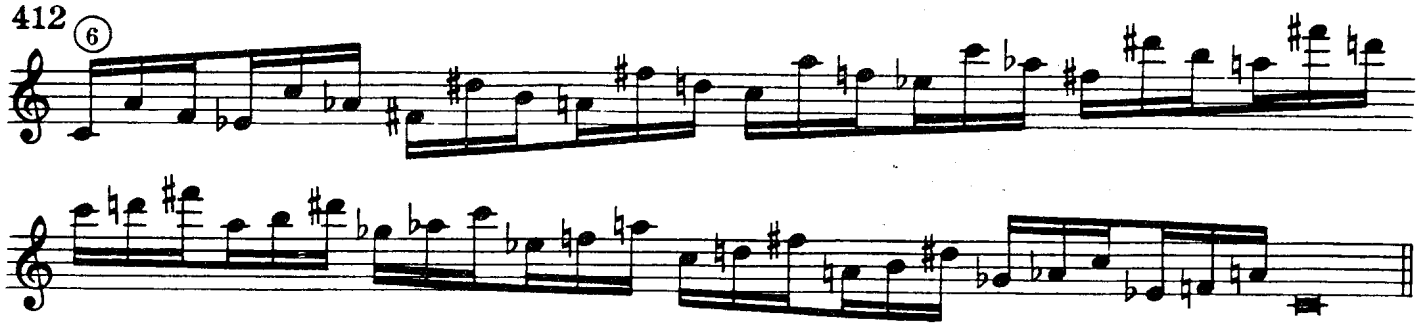
410 (1)



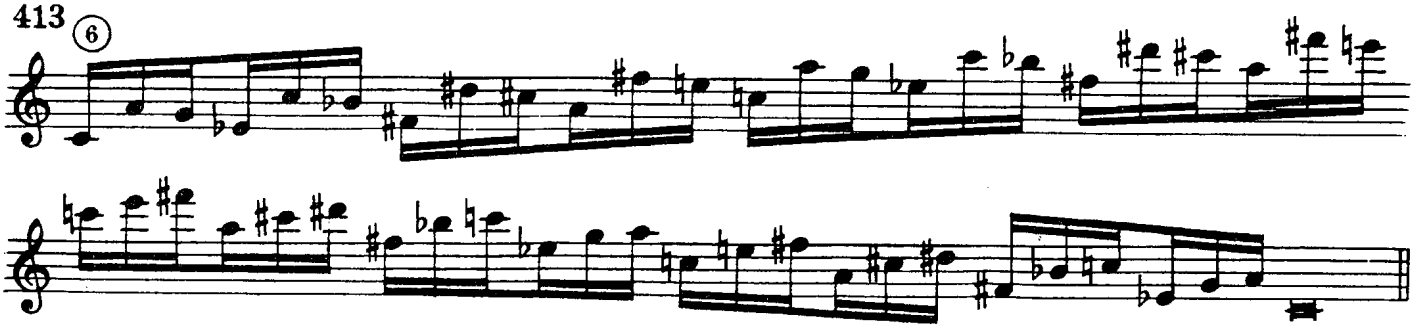
411 (3) (9)



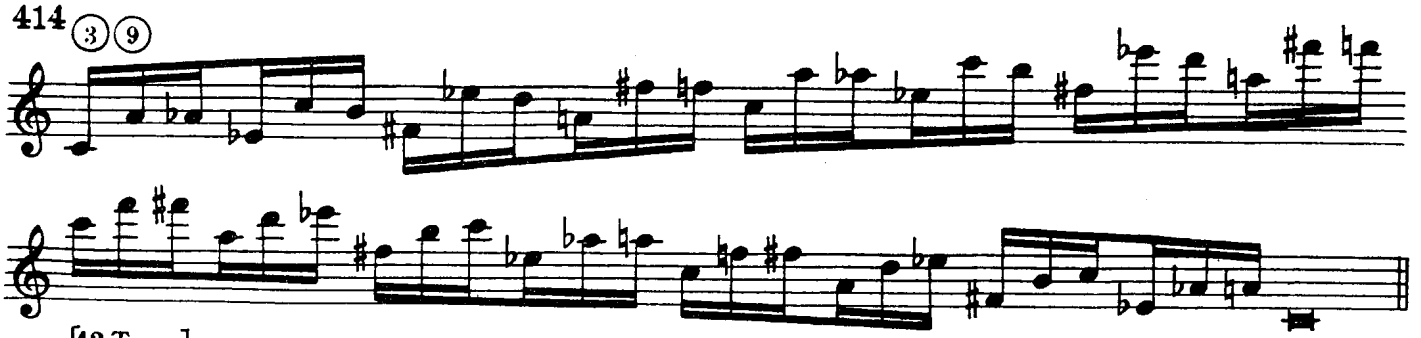
412 (6)



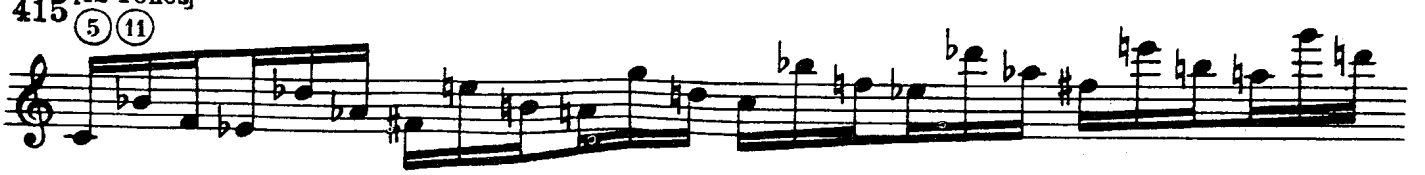
413 (6)



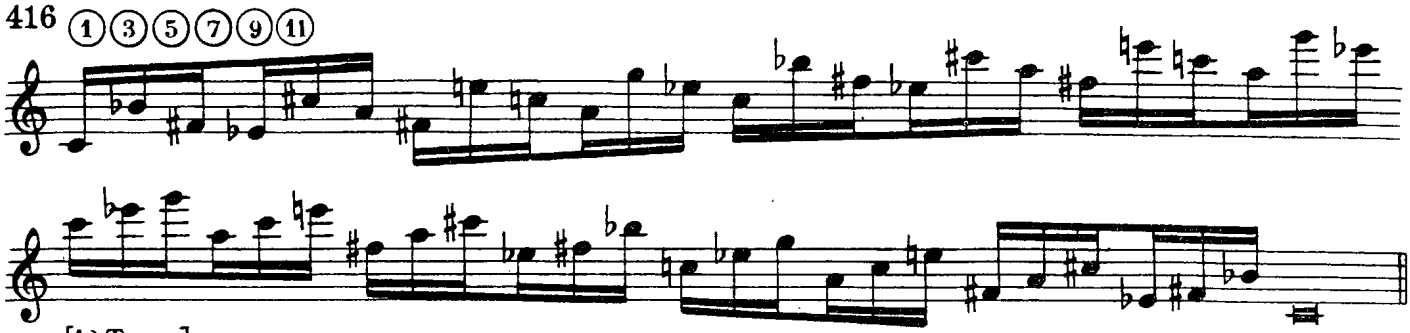
414 (3) (9)



415 [12 Tones] (5) (11)

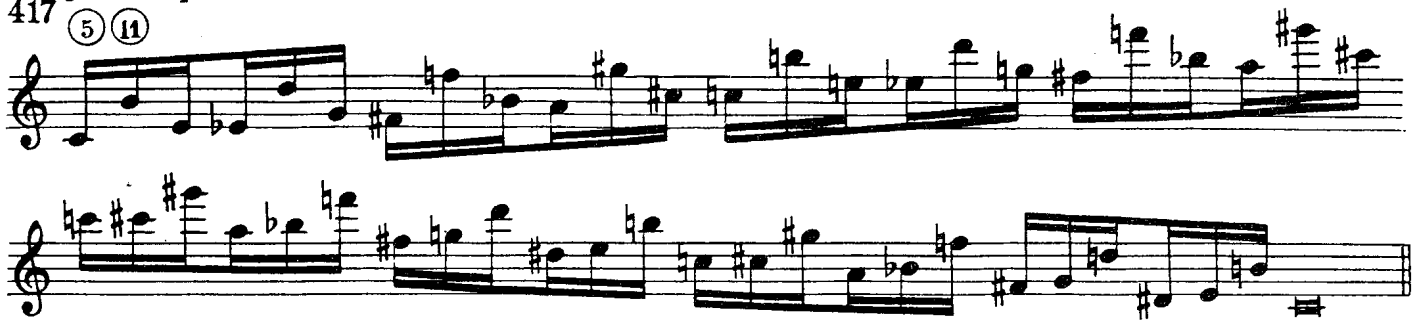


416 ① ③ ⑤ ⑦ ⑨ ⑪

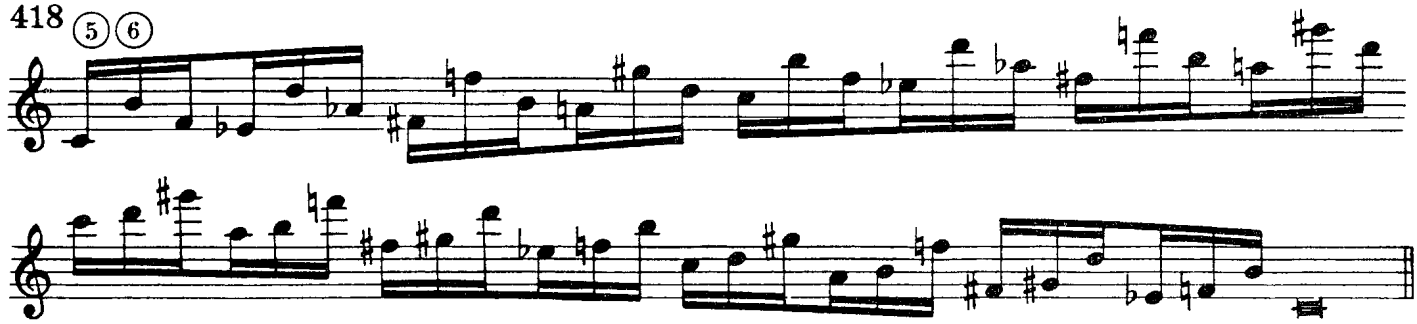


[12 Tones]

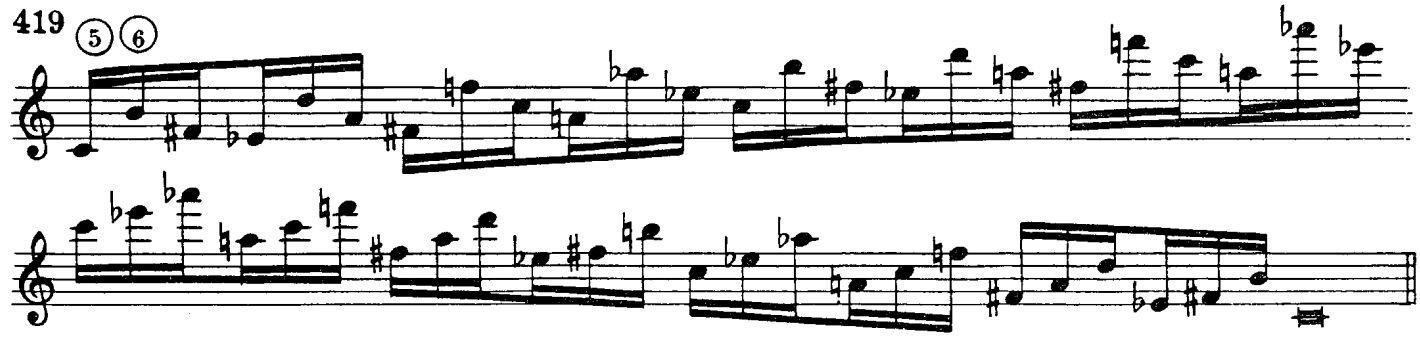
417 ⑤ ⑪



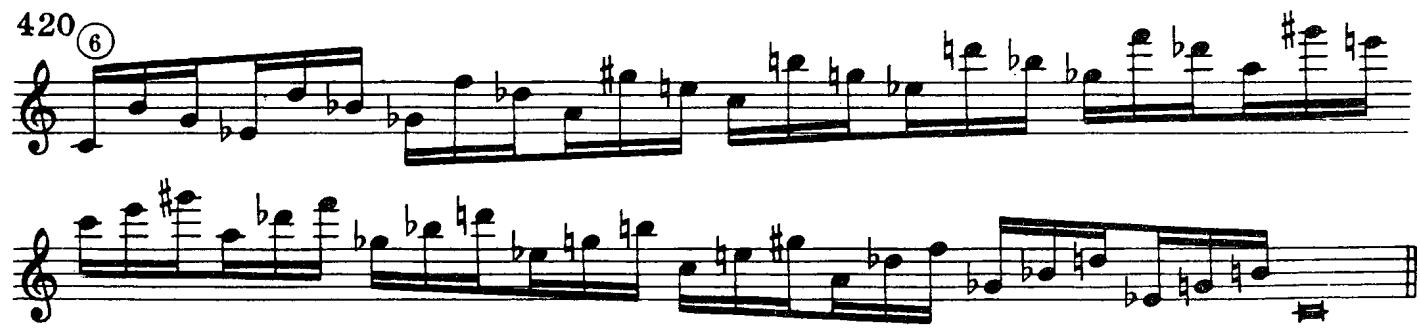
418 ⑤ ⑥



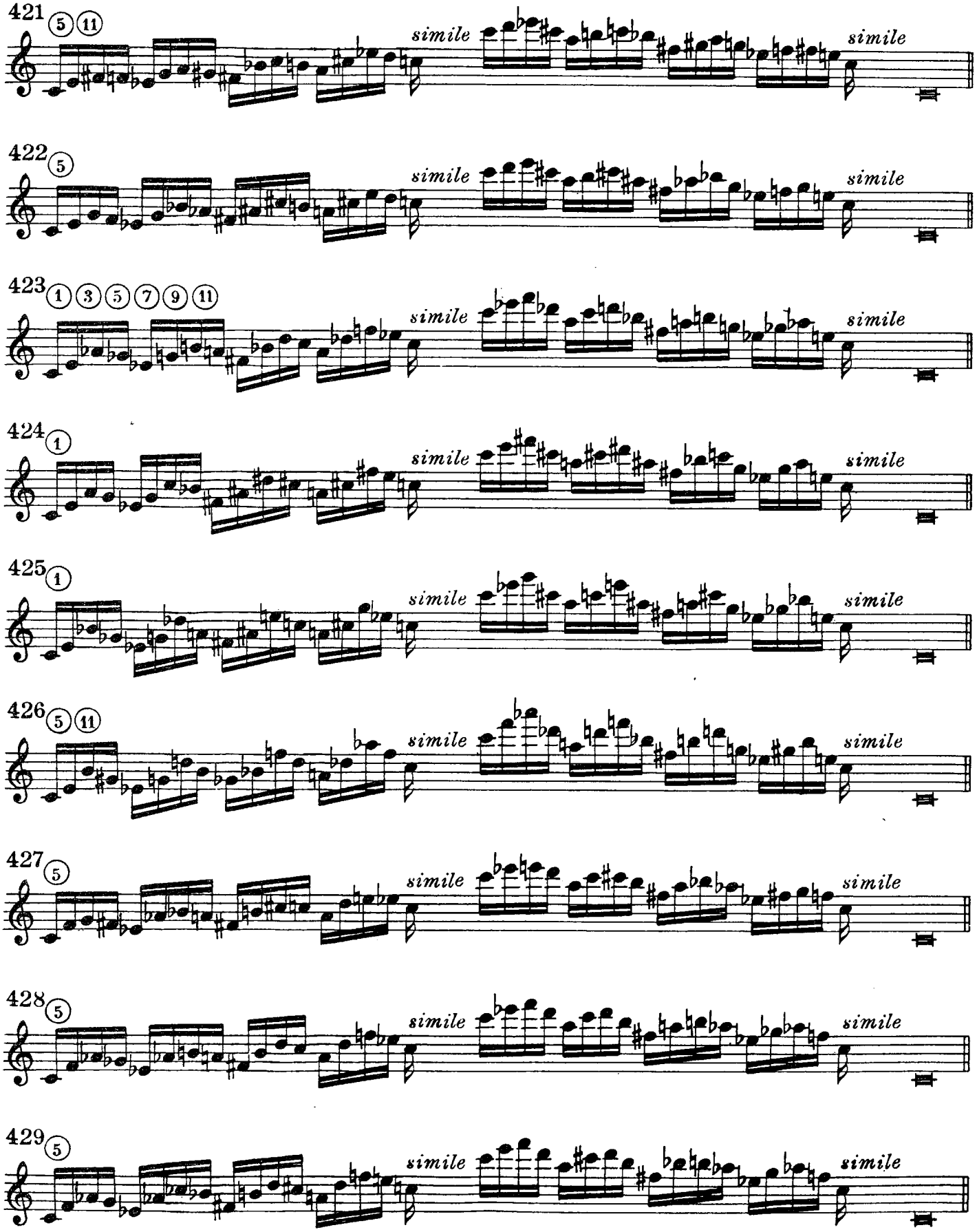
419 ⑤ ⑥

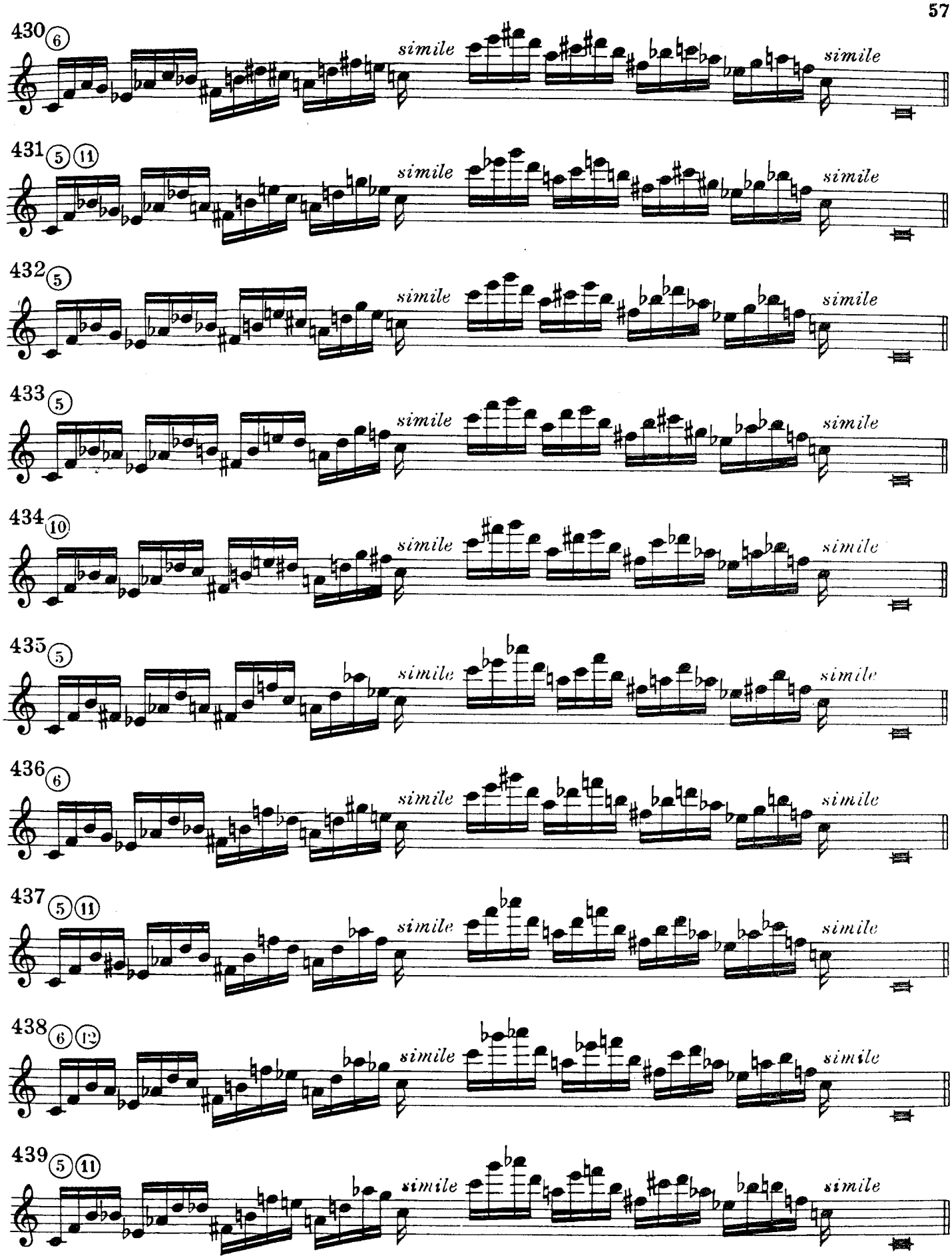


420 ⑥

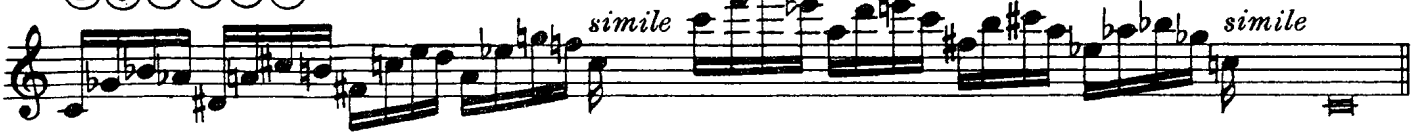


Ultrapolation of Three Notes

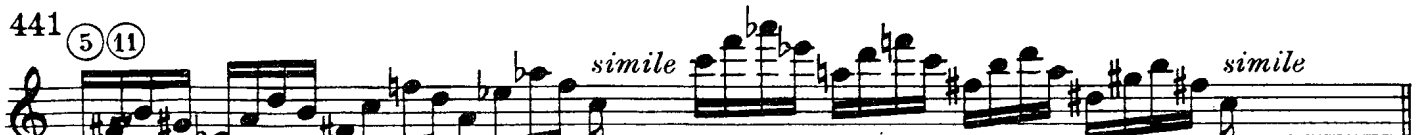



430 6
simile
simile
431 5 11
simile
simile
432 5
simile
simile
433 5
simile
simile
434 10
simile
simile
435 5
simile
simile
436 6
simile
simile
437 5 11
simile
simile
438 6 12
simile
simile
439 5 11
simile
simile

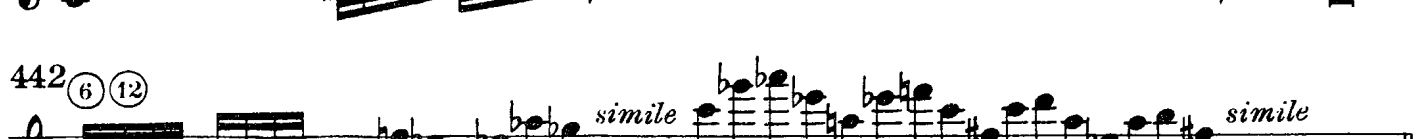
440 ① ③ ⑤ ⑦ ⑨ ⑪



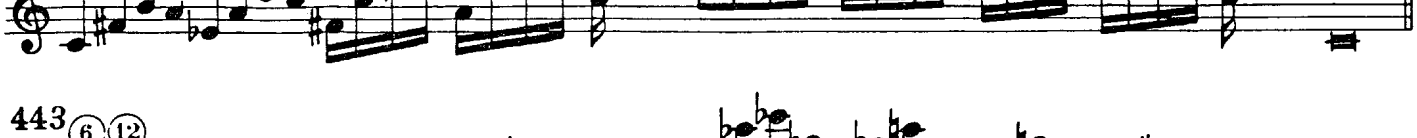
441 ⑤ ⑪



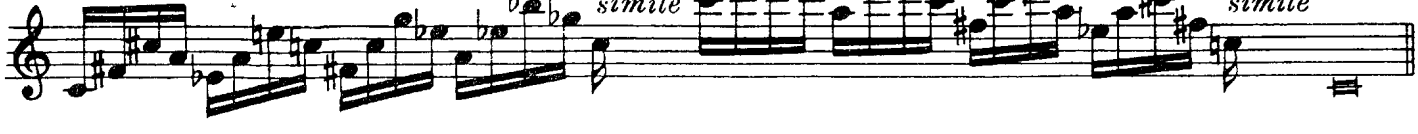
442 ⑥ ⑫



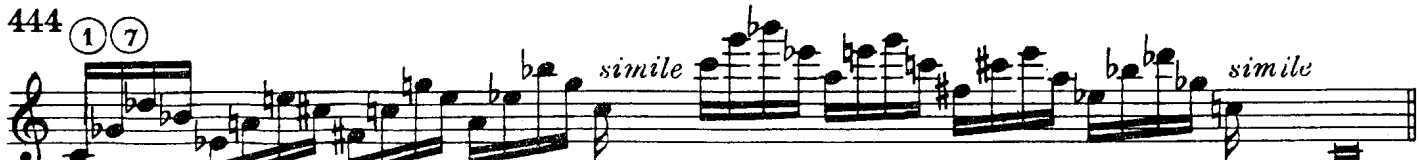
443 ⑥ ⑫



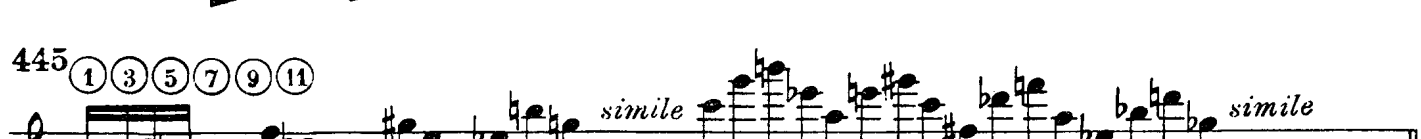
444 ① ⑦



445 ① ③ ⑤ ⑦ ⑨ ⑪

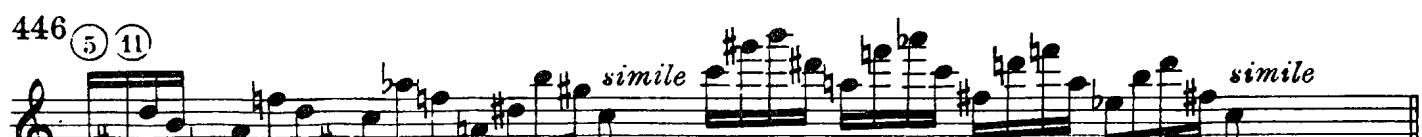


446 ⑤ ⑪

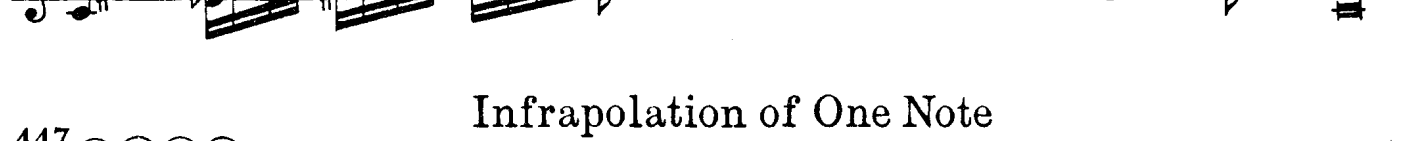


Infrapolation of One Note

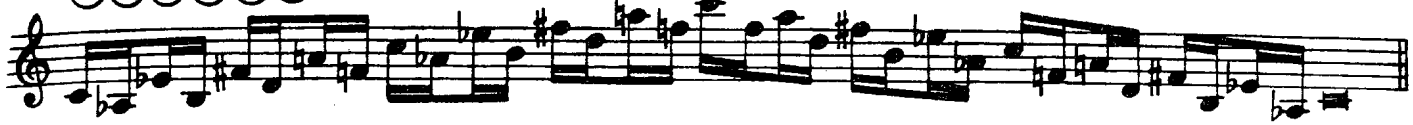
447 ⑤ ⑥ ⑪ ⑫



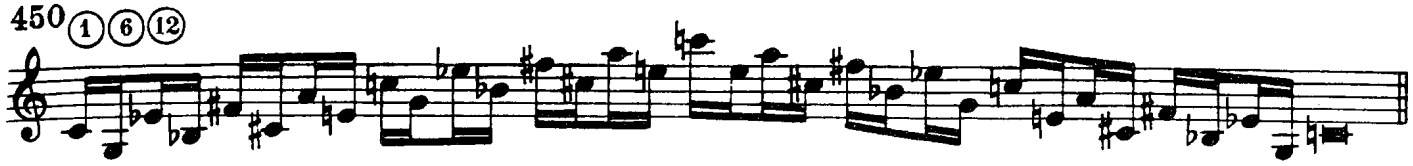
448 ① ③ ⑤ ⑦ ⑨ ⑪



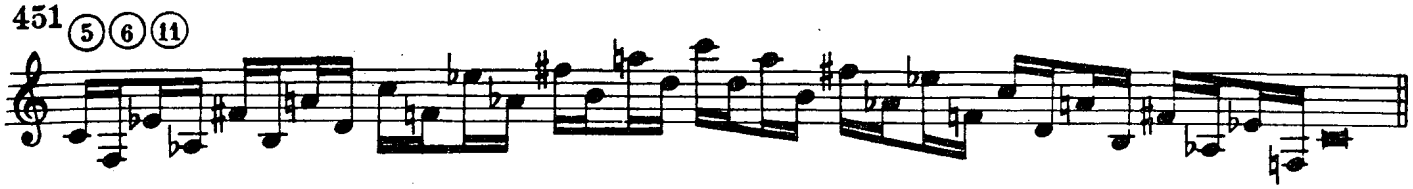
449 ①③⑤⑦⑨⑪



450 ①⑥⑫



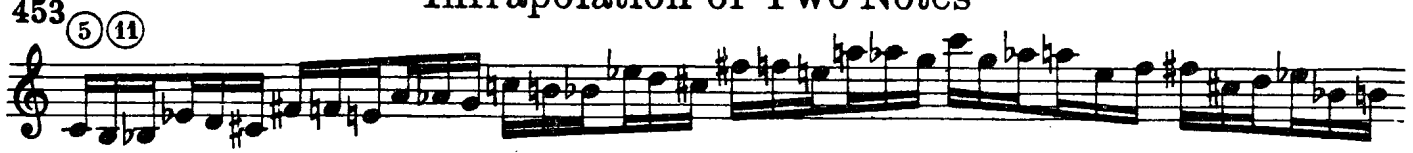
451 ⑤⑥⑪



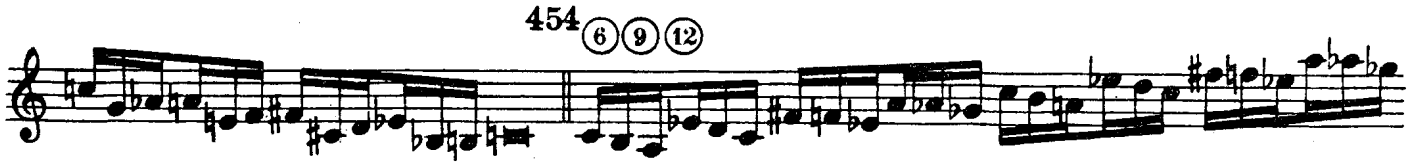
452 ①③⑤⑦⑨⑪

Infrapolation of Two Notes

453 ⑤⑪

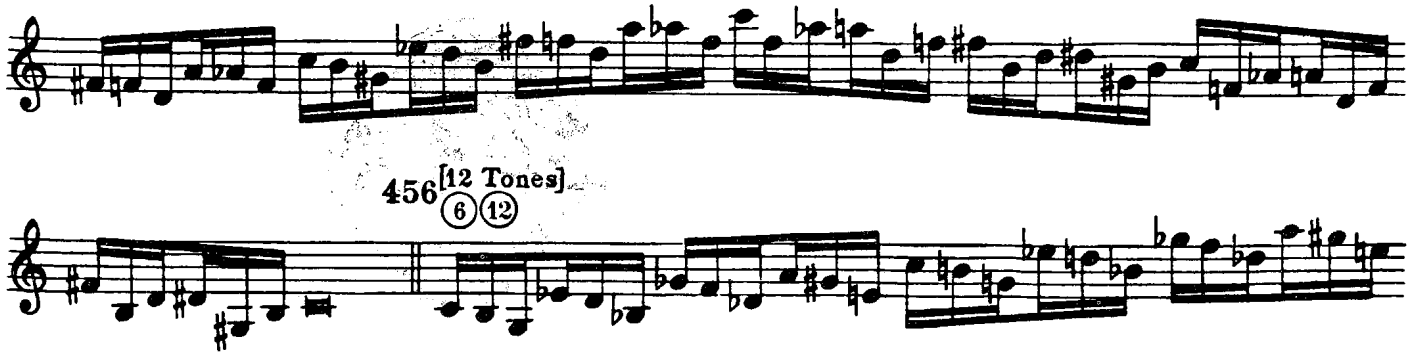


454 ⑥⑨⑫



455 ⑤⑪

456 [12 Tones] ⑥⑫



457 ⑤ ⑥ ⑪ ⑫

458 ③ ⑨

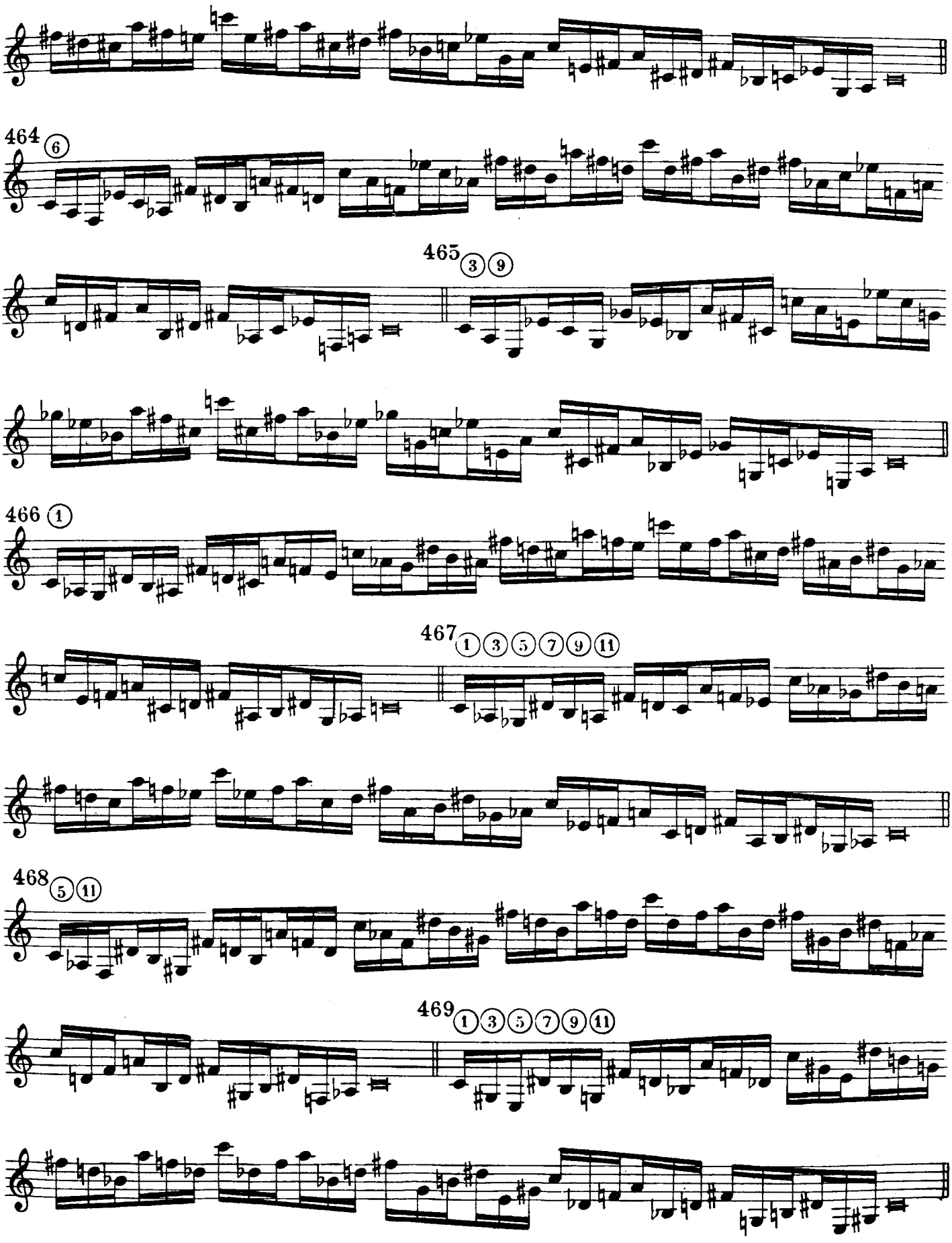
459 ① ③ ⑤ ⑦ ⑨ ⑪

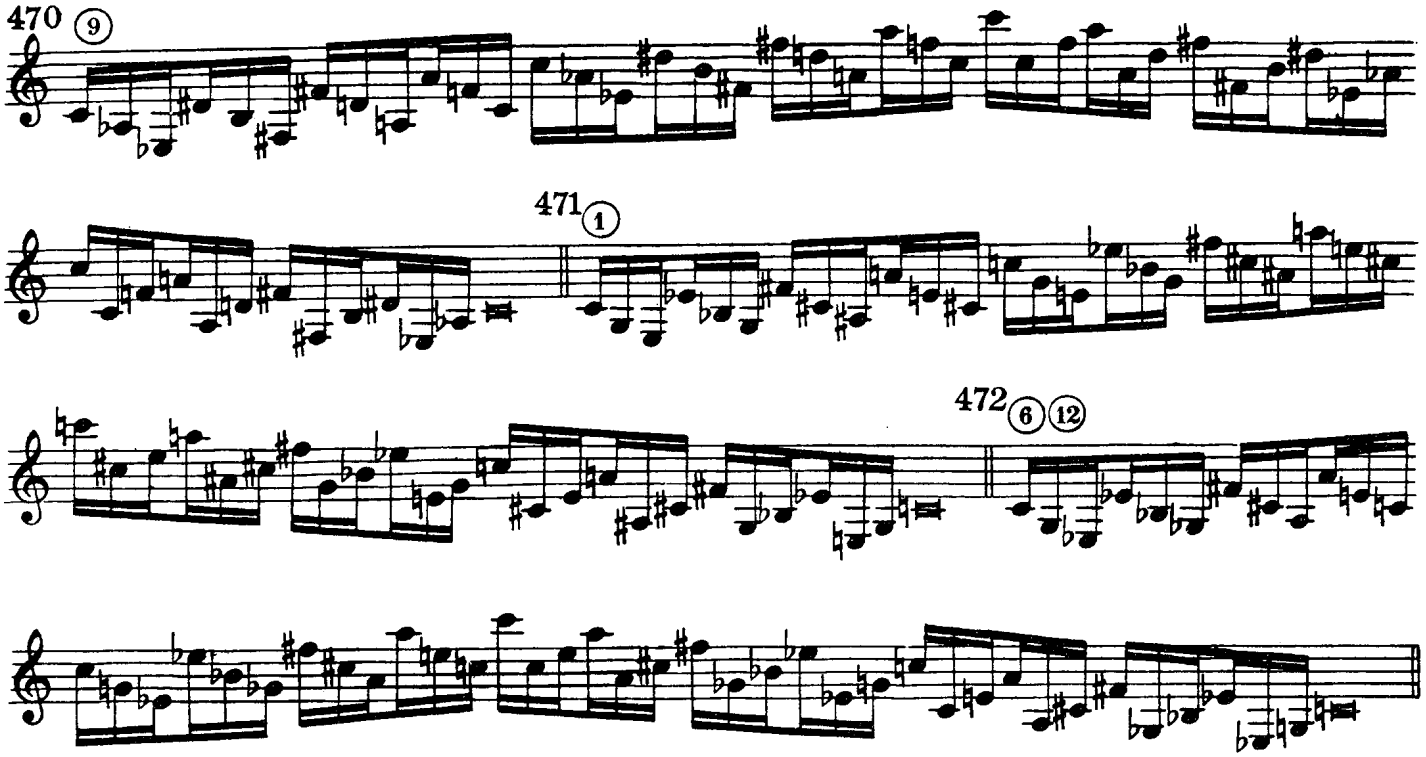
460 ① ⑦

461 ① ③ ⑤ ⑦ ⑨ ⑪

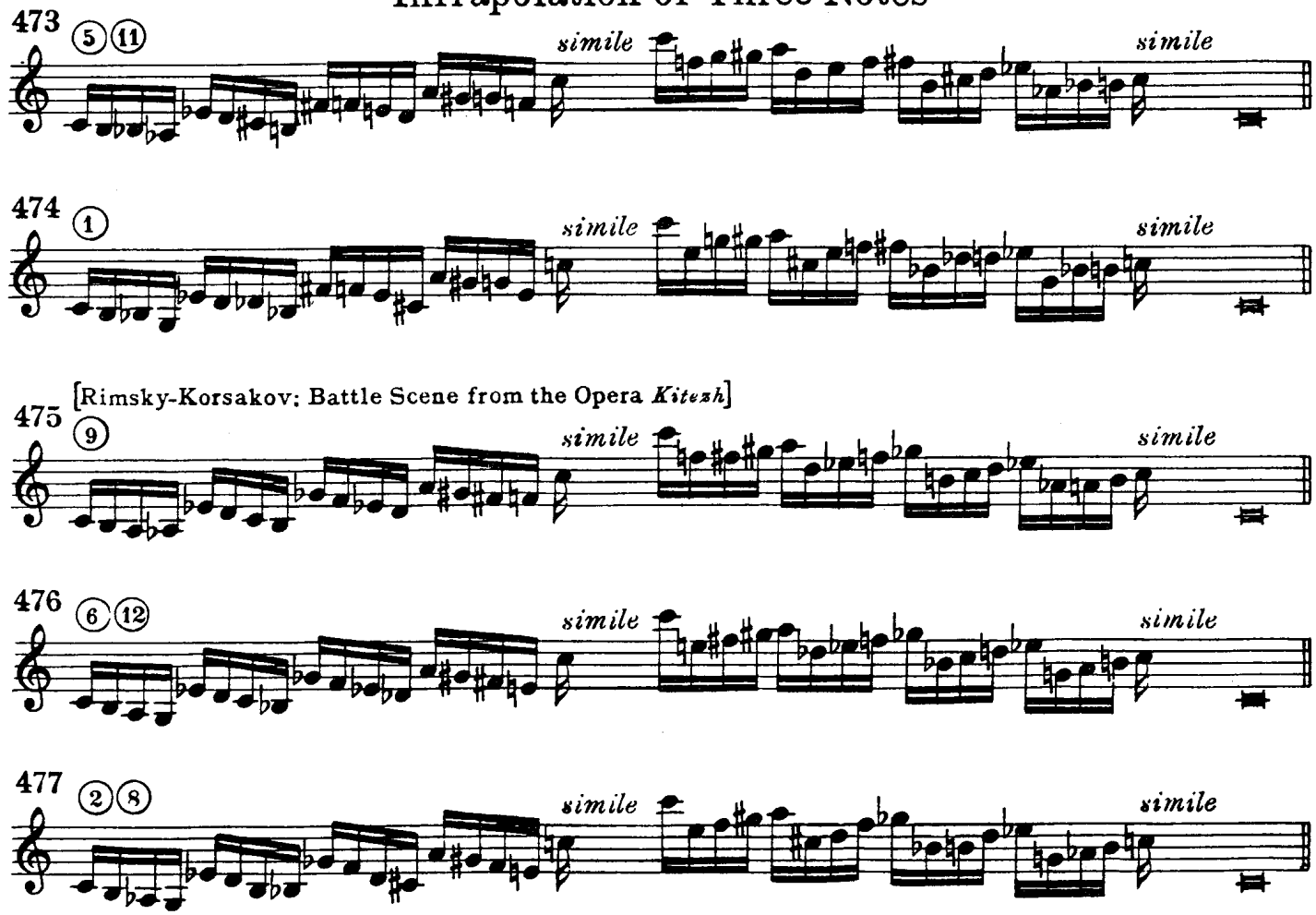
462 ③ ⑨

463 ⑥ ⑫


464 6
465 3 9
466 1
467 1 3 5 7 9 11
468 5 11
469 1 3 5 7 9 11



Infrapolation of Three Notes



[Rimsky-Korsakov: Battle Scene from the Opera *Kitezh*]

478 ③ ⑨ *simile* *simile*

479 ⑩ *simile* *simile*

480 ① *simile* *simile*

481 ① ③ ⑤ ⑦ ⑨ ⑪ *simile* *simile*

Infra-Interpolation

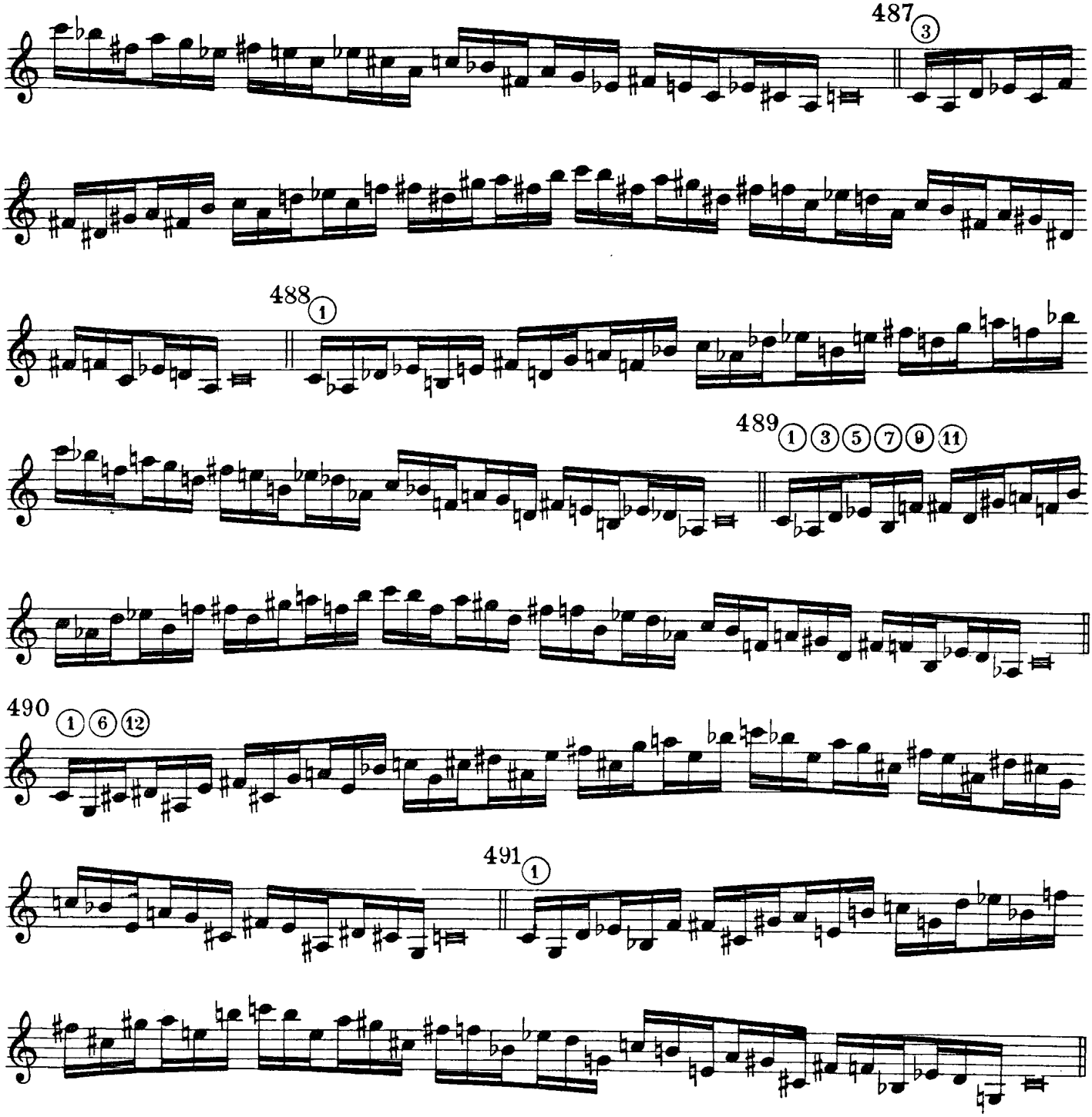
482 ⑥ ⑫

483 ⑤ ⑪

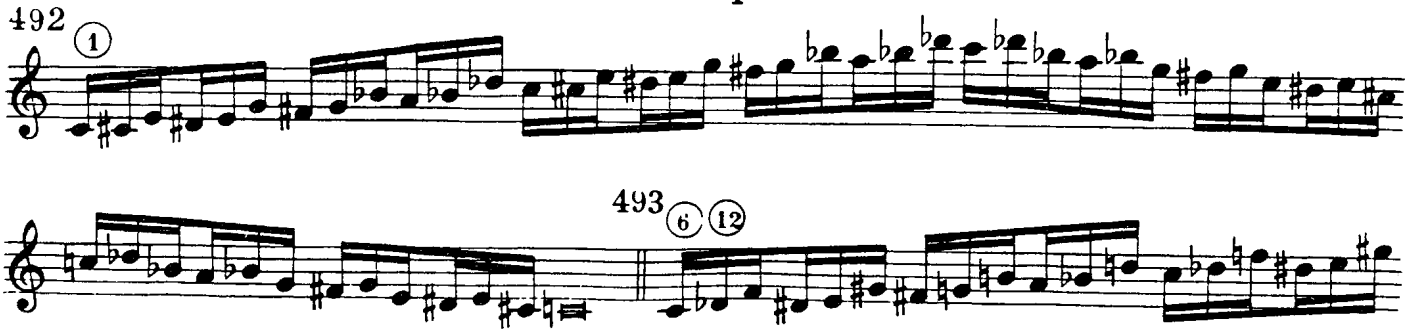
484 ①

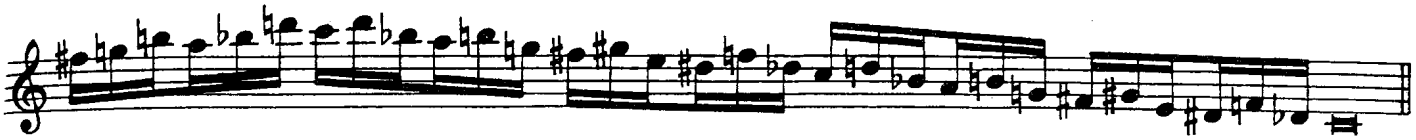
485 ① ③ ⑤ ⑦ ⑨ ⑪

486 ⑥ ⑫

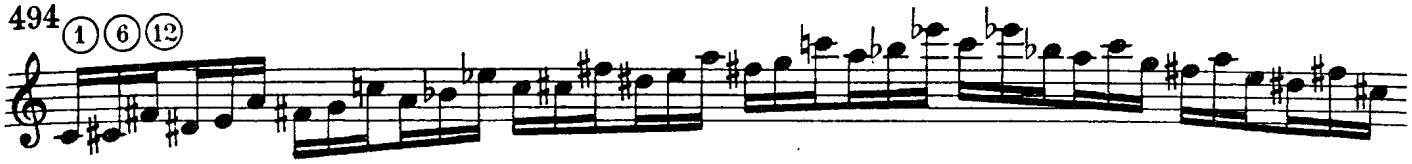


Inter-Ultrapolation

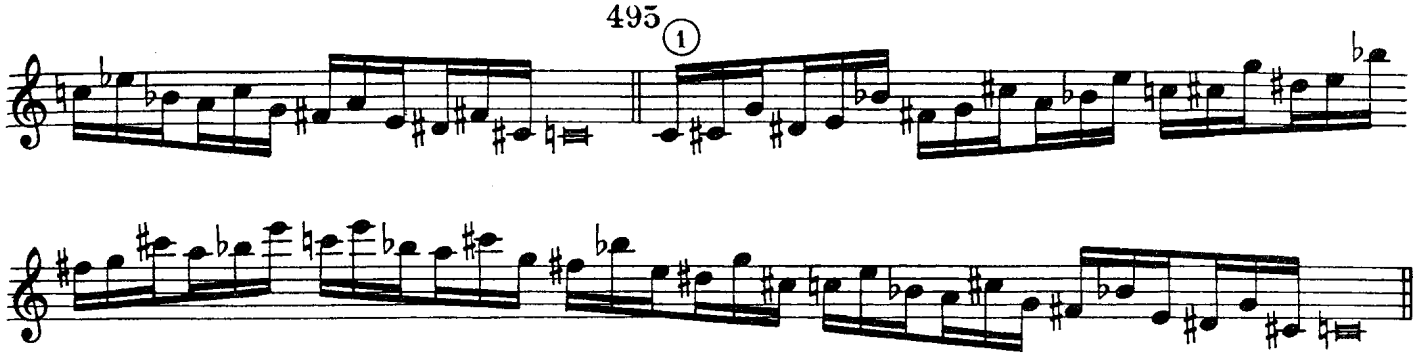




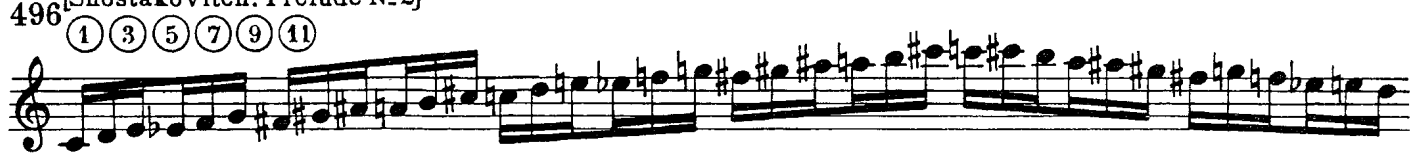
494 ① ⑥ ⑫



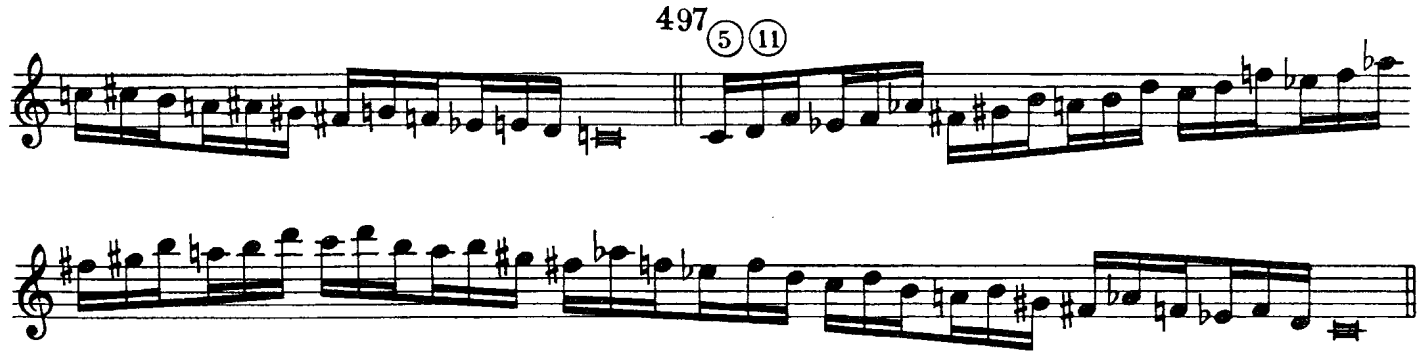
495 ①



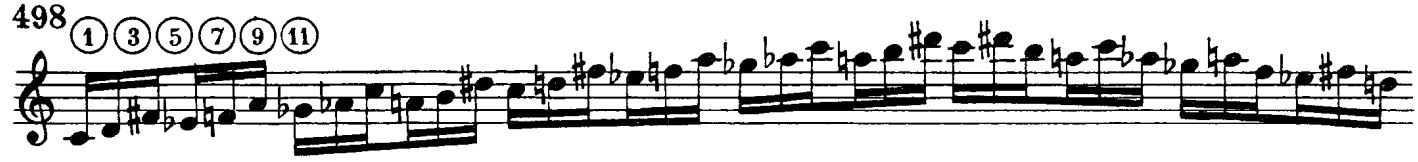
496 [Shostakovitch: Prelude №2]
① ③ ⑤ ⑦ ⑨ ⑪



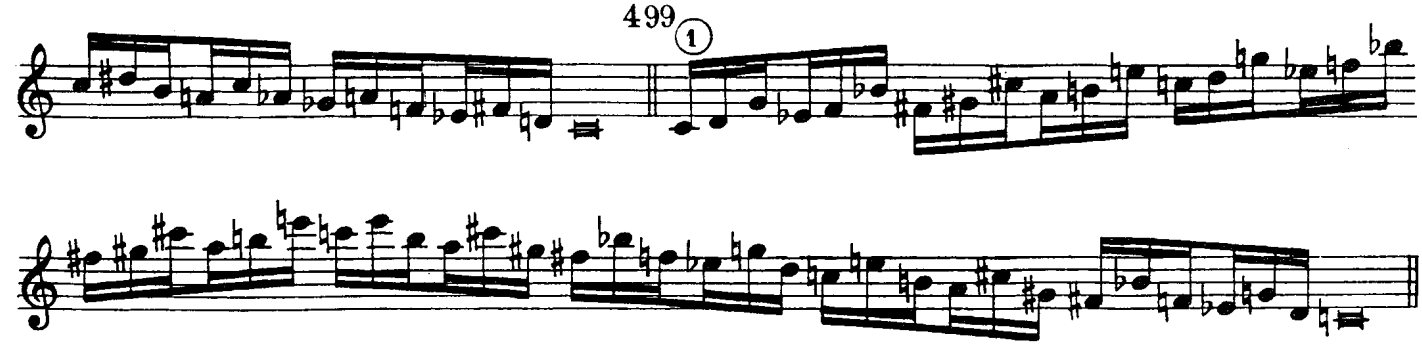
497 ⑤ ⑪



498 ① ③ ⑤ ⑦ ⑨ ⑪



499 ①



Infra-Ultrapolation

500 [12 Tones] ⑤

501 ⑤ ⑥ ⑪ ⑫

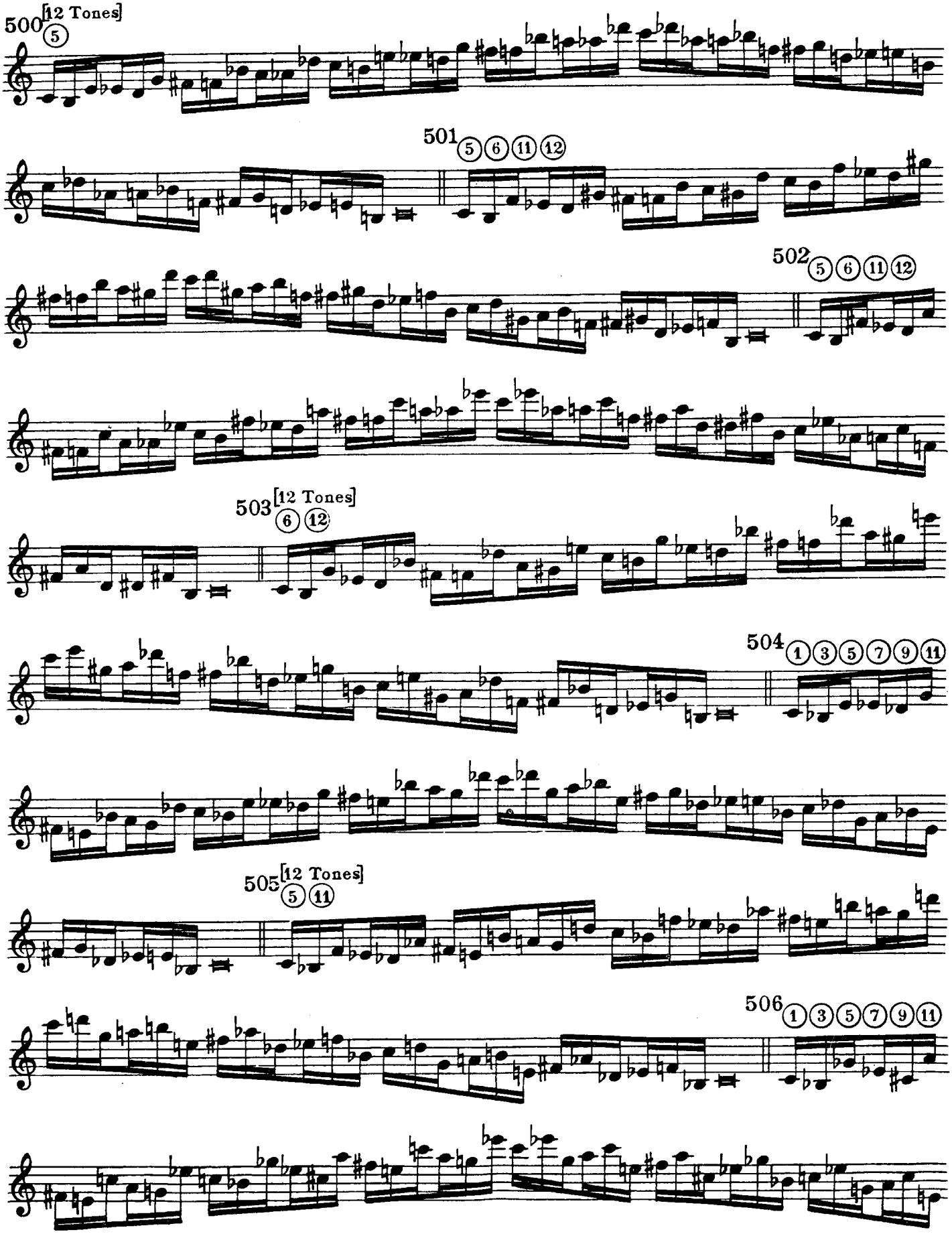
502 ⑤ ⑥ ⑪ ⑫

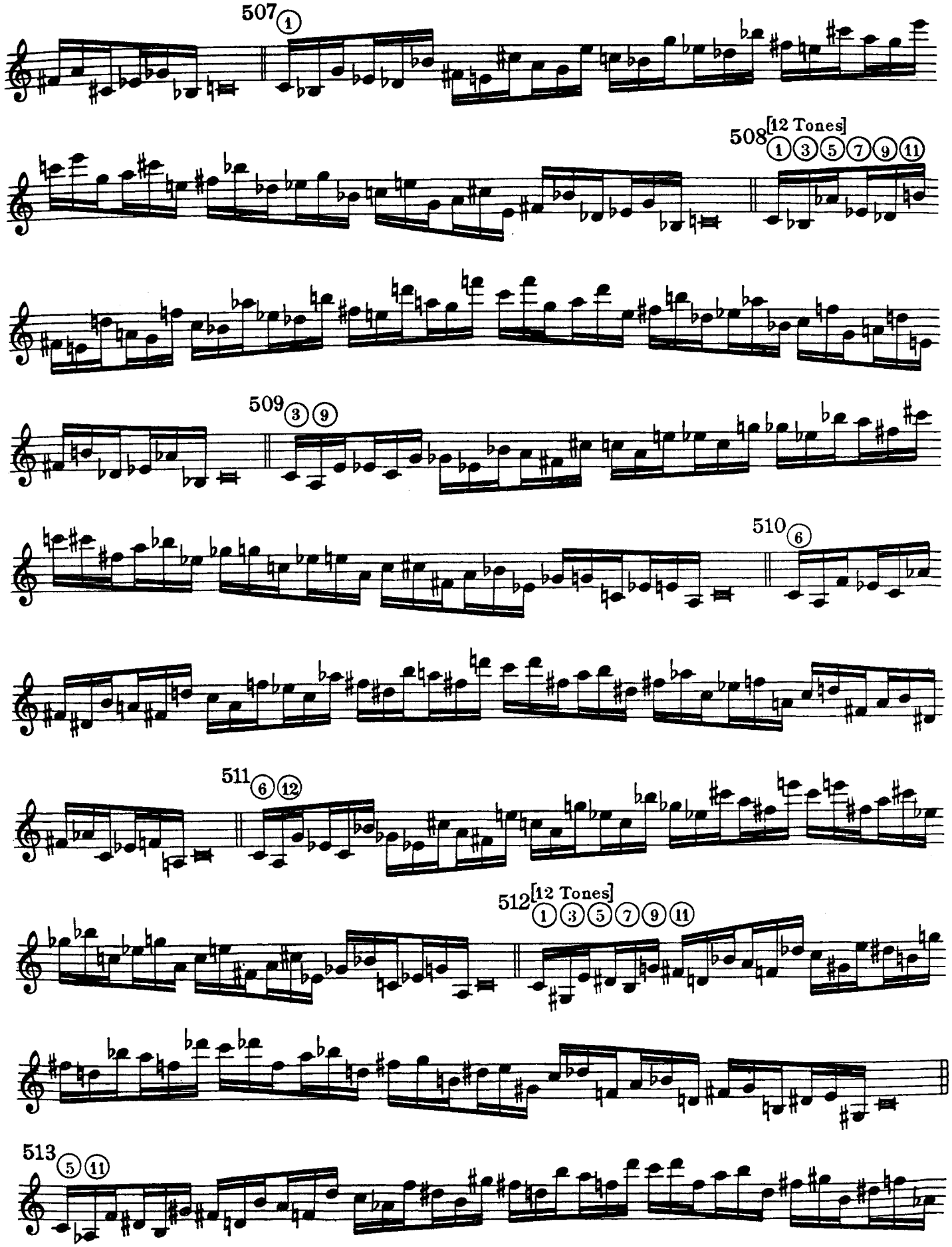
503 [12 Tones] ⑥ ⑫

504 ① ③ ⑤ ⑦ ⑨ ⑪

505 [12 Tones] ⑤ ⑪

506 ① ③ ⑤ ⑦ ⑨ ⑪




507 ①
508 [12 Tones] ① ③ ⑤ ⑦ ⑨ ⑪
509 ③ ⑨
510 ⑥
511 ⑥ ⑫
512 [12 Tones] ① ③ ⑤ ⑦ ⑨ ⑪
513 ⑤ ⑪

514 ① ③ ⑤ ⑦ ⑨ ⑪

515 ①

Infra-Inter-Ultrapolation

516 ⑩

517 ⑥ ⑫

518 ⑥ ⑫

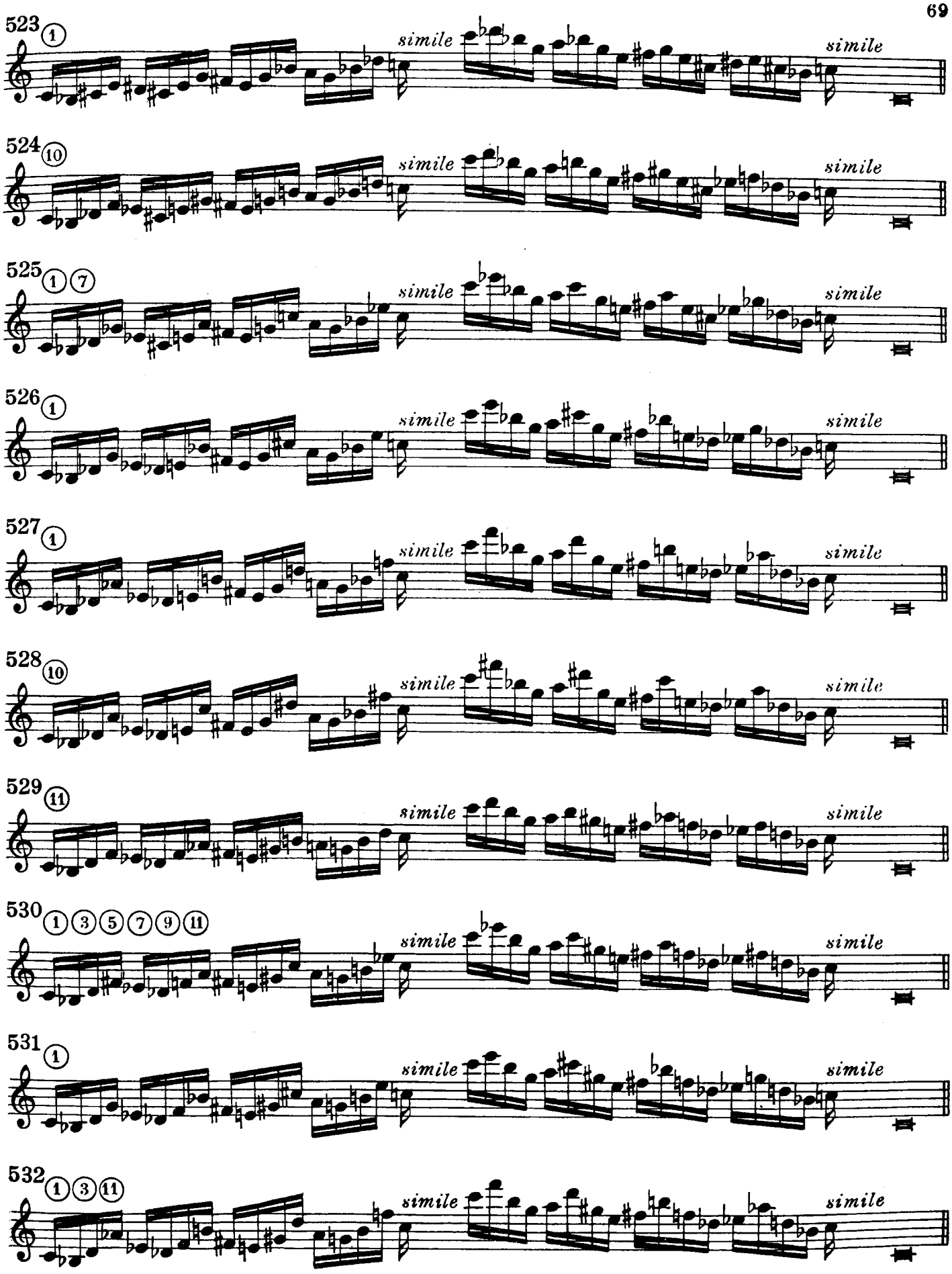
519 ⑤ ⑪

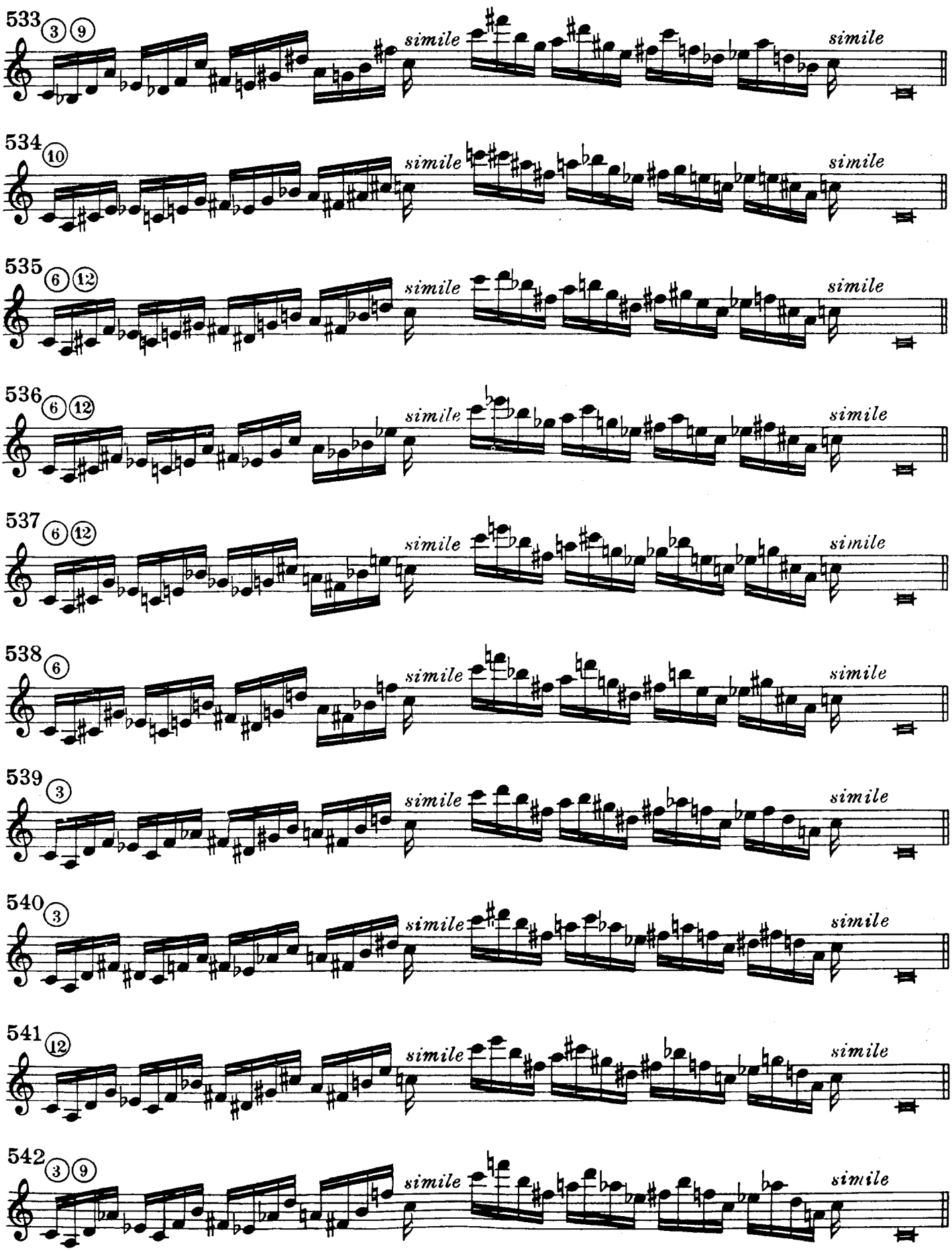
520 ⑤ ⑪

521 ⑤ ⑪

522 ② ⑧

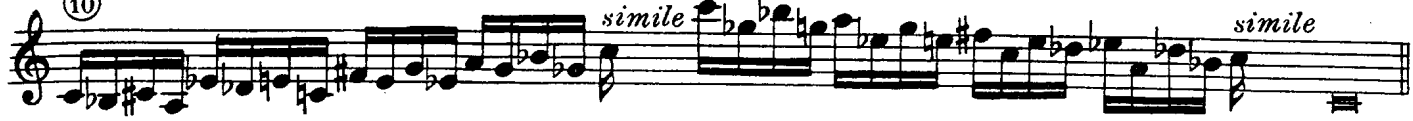
simile *simile*


523 ①
simile
simile
524 ⑩
simile
simile
525 ① ⑦
simile
simile
526 ①
simile
simile
527 ①
simile
simile
528 ⑩
simile
simile
529 ⑪
simile
simile
530 ① ③ ⑤ ⑦ ⑨ ⑪
simile
simile
531 ①
simile
simile
532 ① ③ ⑪
simile
simile

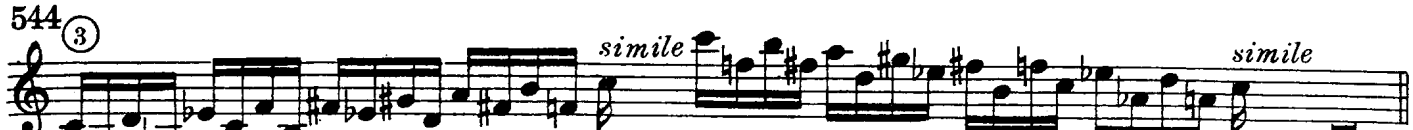

533 3 9
simile
simile
534 10
simile
simile
535 6 12
simile
simile
536 6 12
simile
simile
537 6 12
simile
simile
538 6
simile
simile
539 3
simile
simile
540 3
simile
simile
541 12
simile
simile
542 3 9
simile
simile

Miscellaneous Patterns

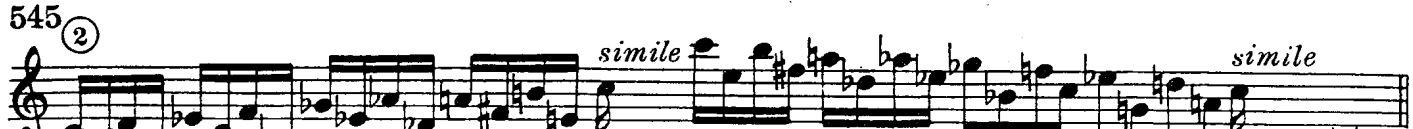
543 ⑩



544 ③

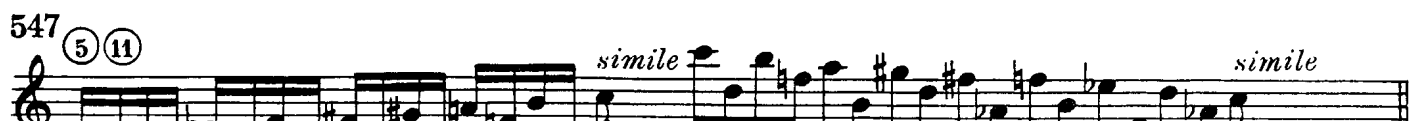


545 ②

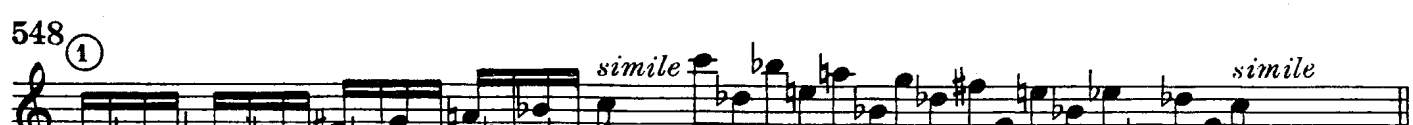


546 ① ③ ⑤ ⑦ ⑨ ⑪

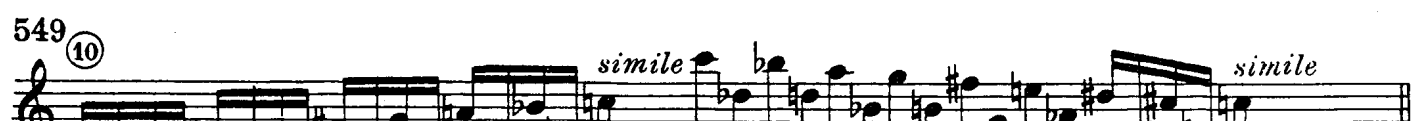
547 ⑤ ⑪



548 ①



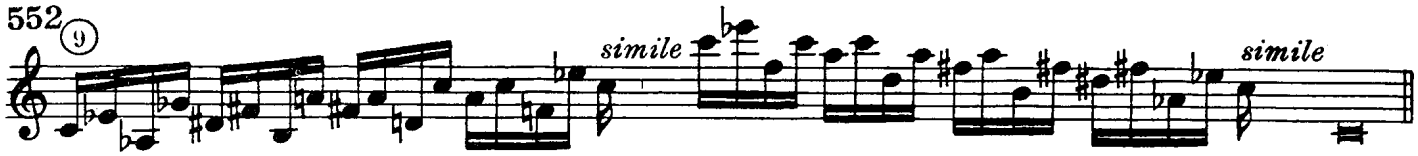
549 ⑩



550 [Dominant seventh chords] ③

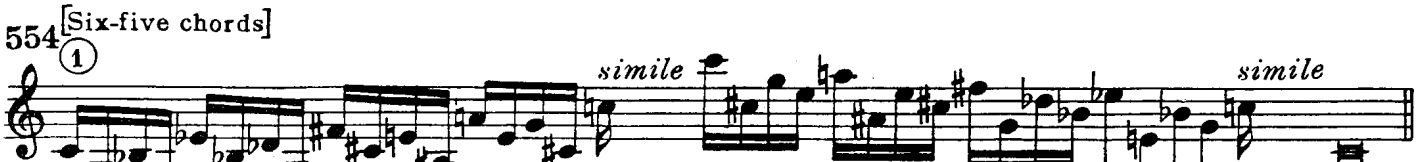
551 ⑥

552 (9)

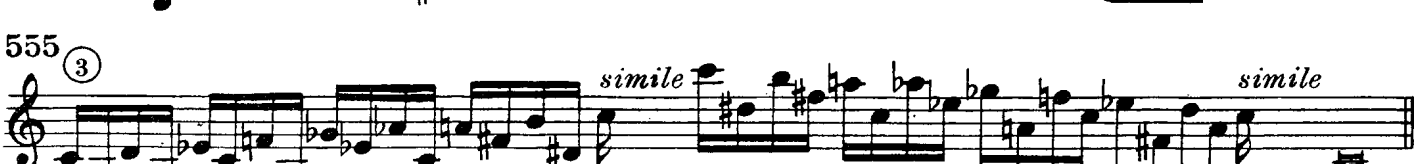


553 (1)

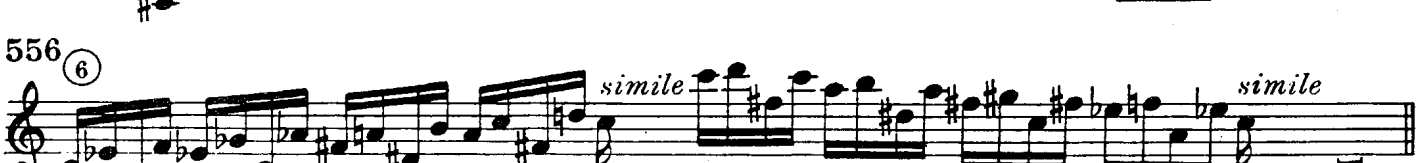
554 [Six-five chords] (1)



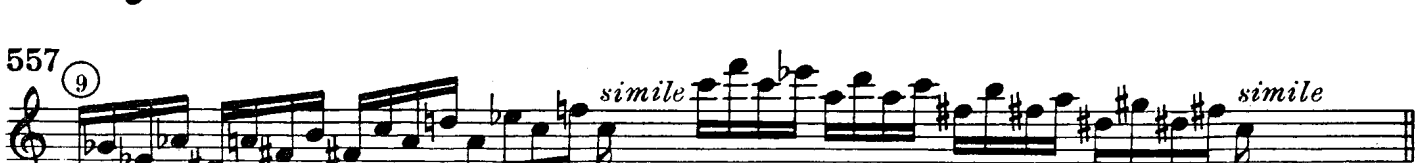
555 (3)



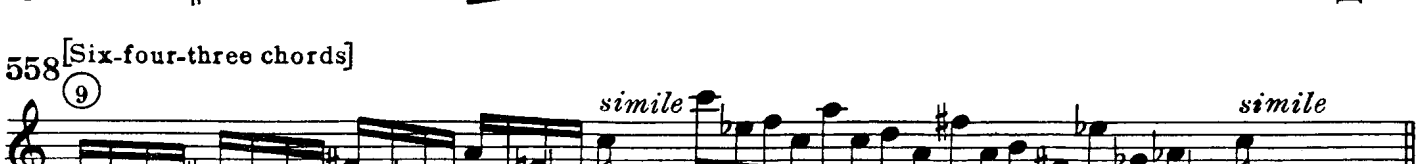
556 (6)



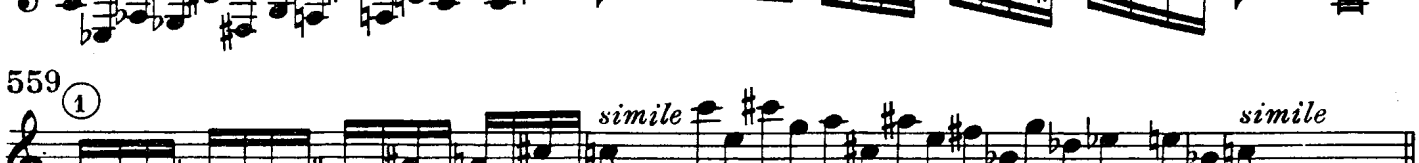
557 (9)



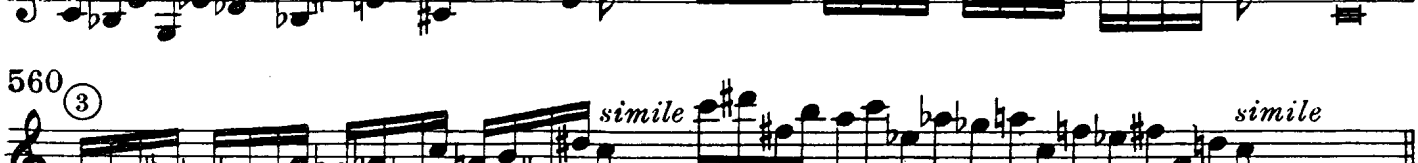
558 [Six-four-three chords] (9)



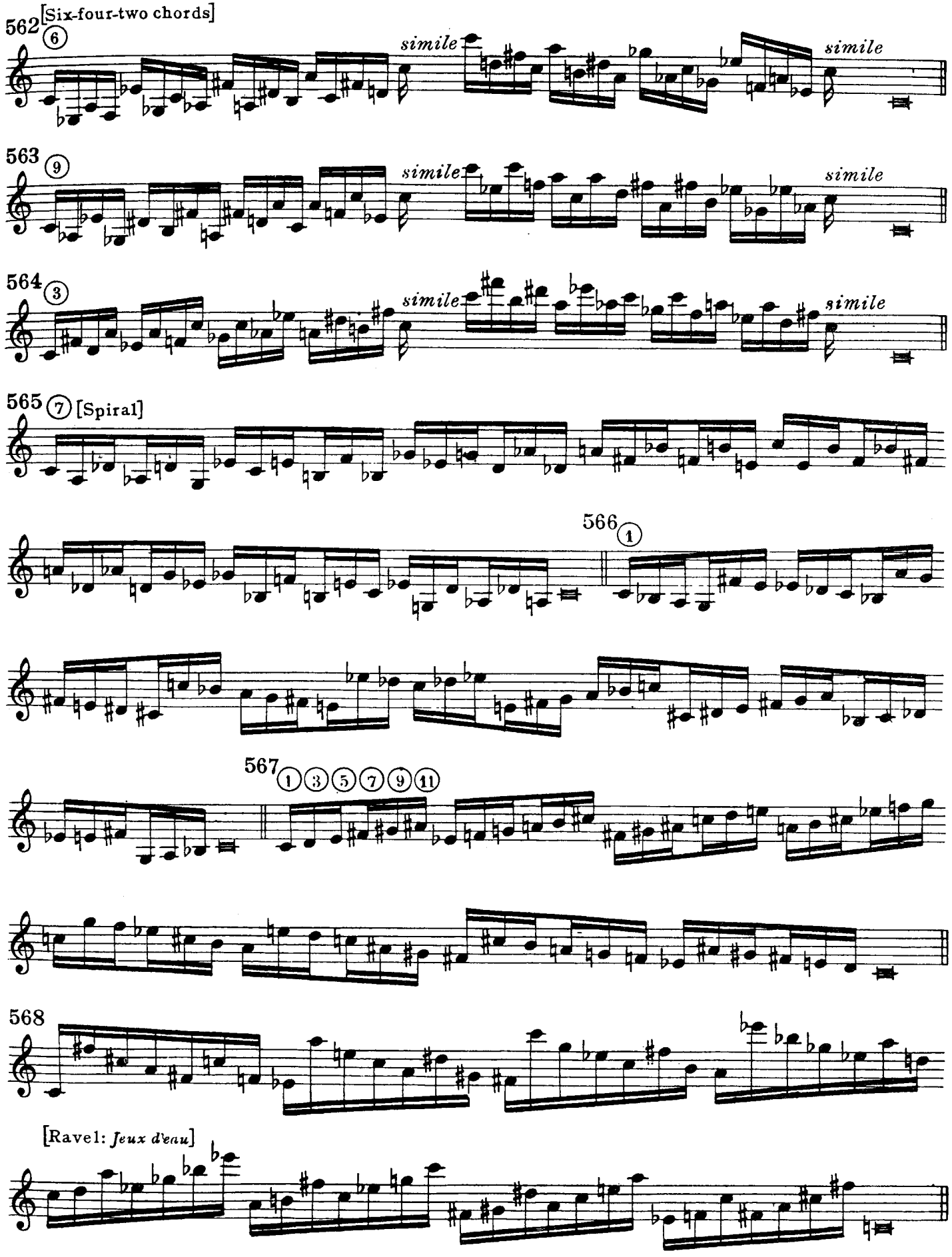
559 (1)



560 (3)

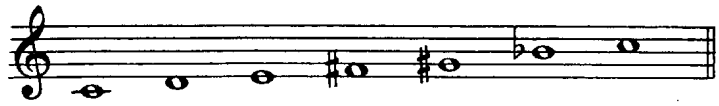


561 (6)

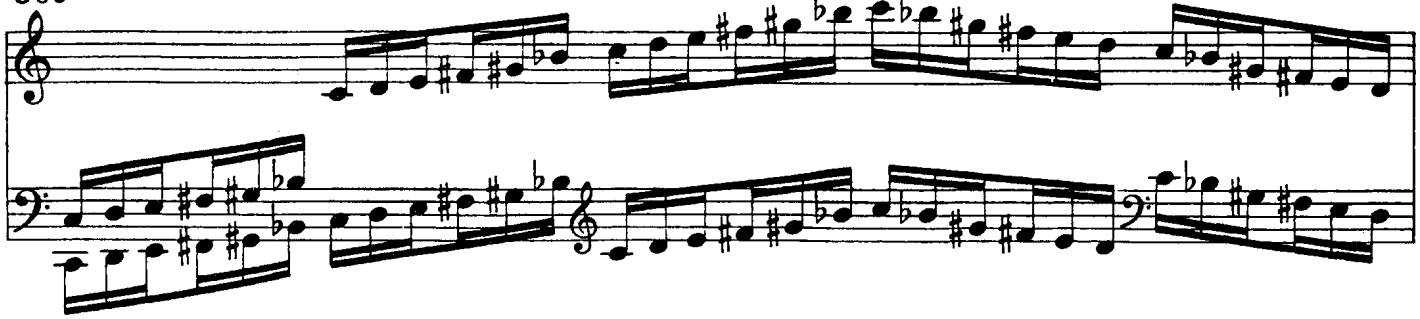

562 [Six-four-two chords]
6
simile
simile
563
9
simile
simile
564
3
simile
simile
565 7 [Spiral]
566
1
567
1 3 5 7 9 11
568
[Ravel: Jeux d'eau]

Whole-Tone Progression

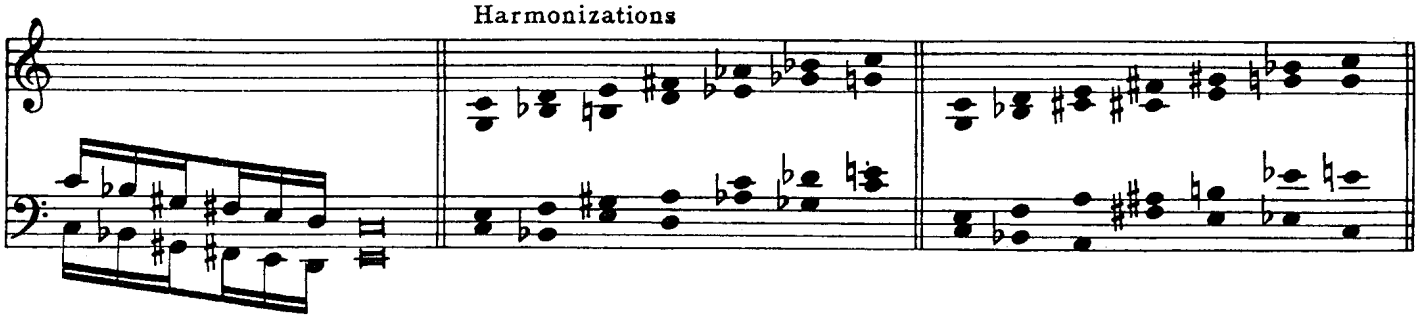
Equal Division of One Octave into Six Parts



569

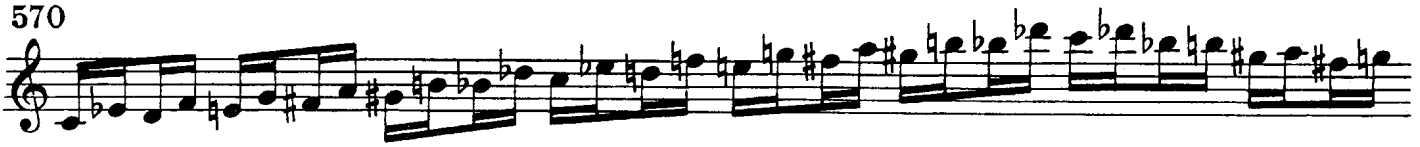


Harmonizations

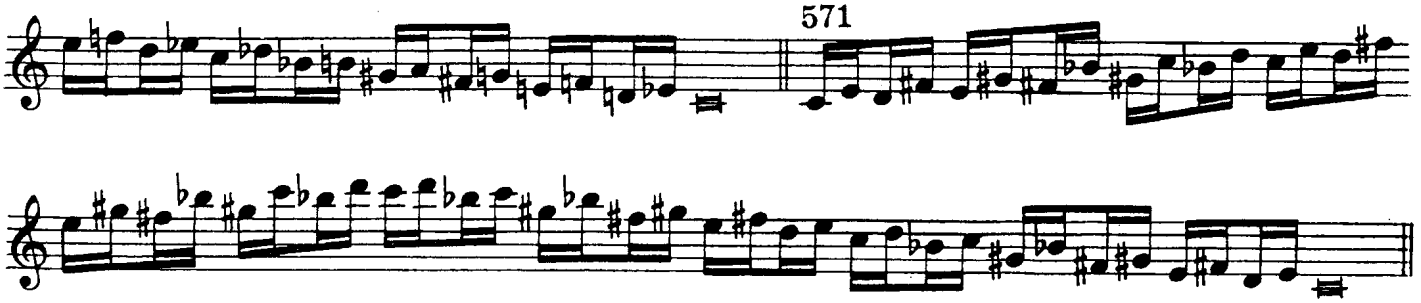


Ultrapolation of One Note

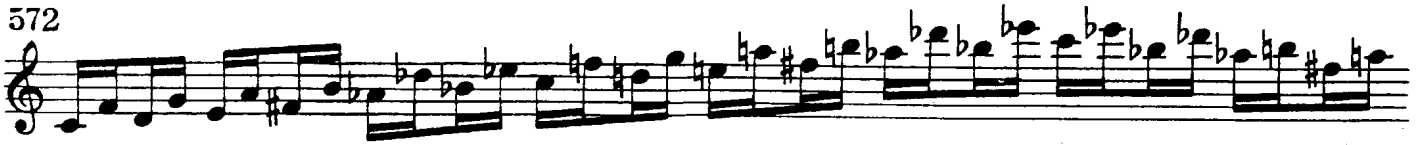
570

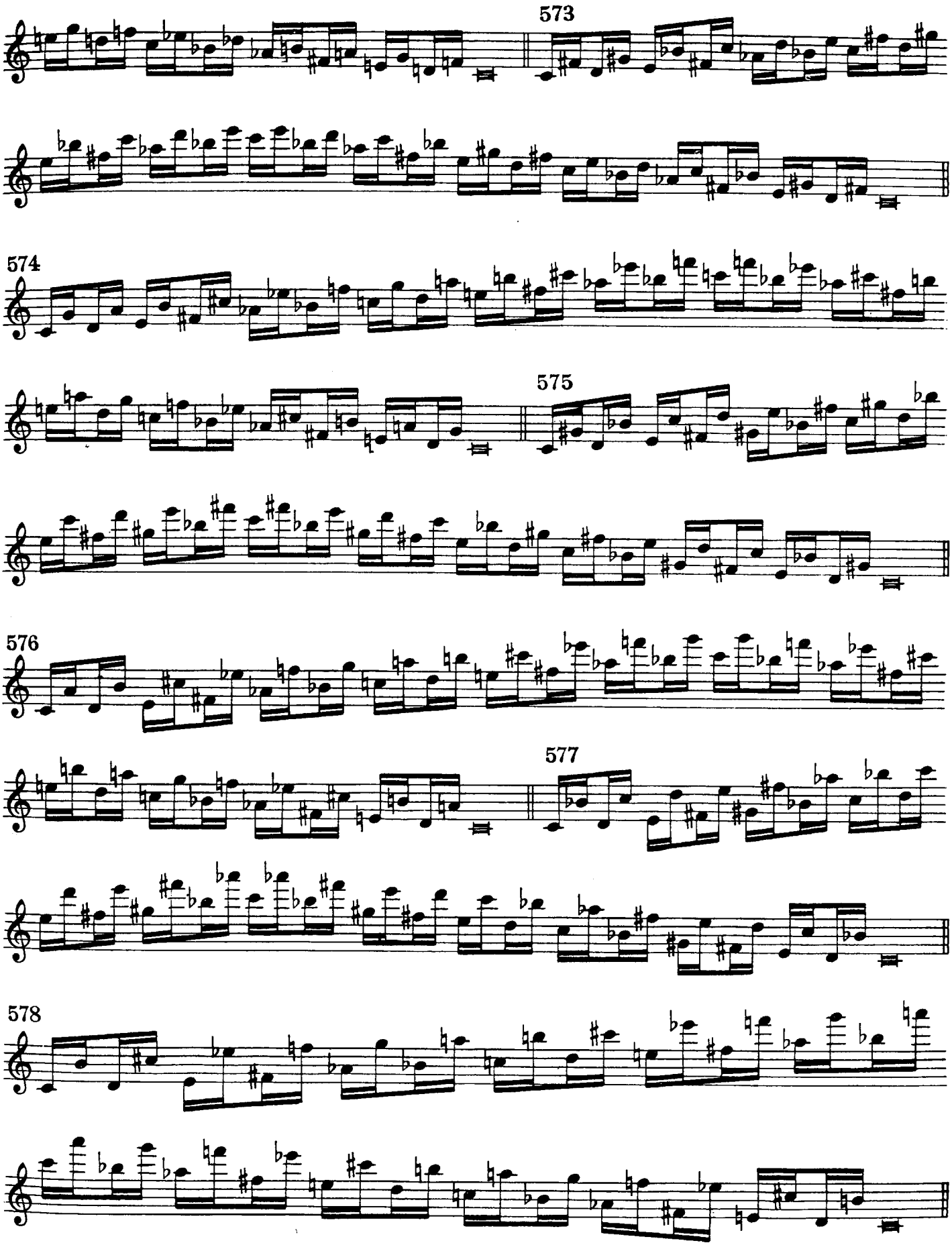


571

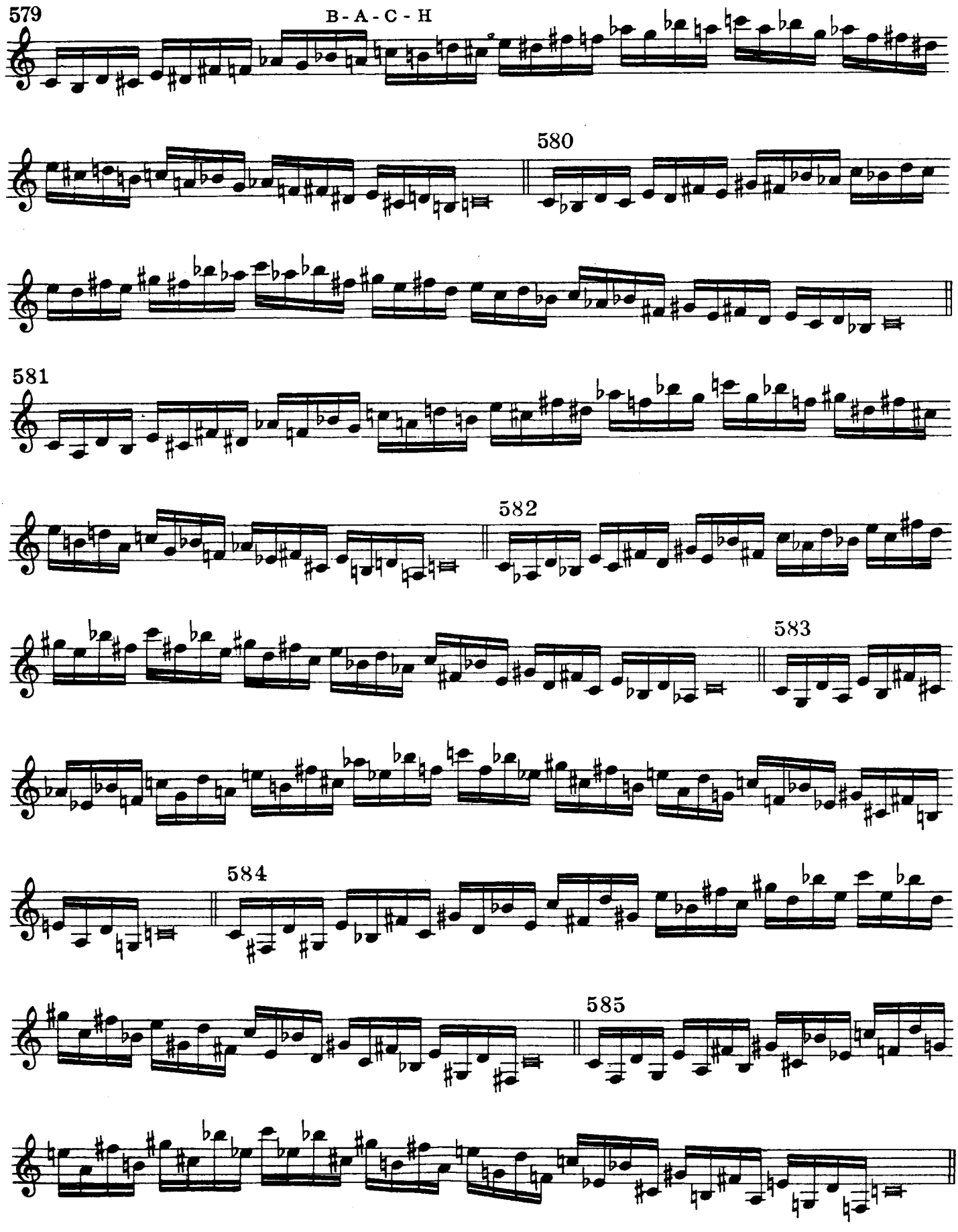


572



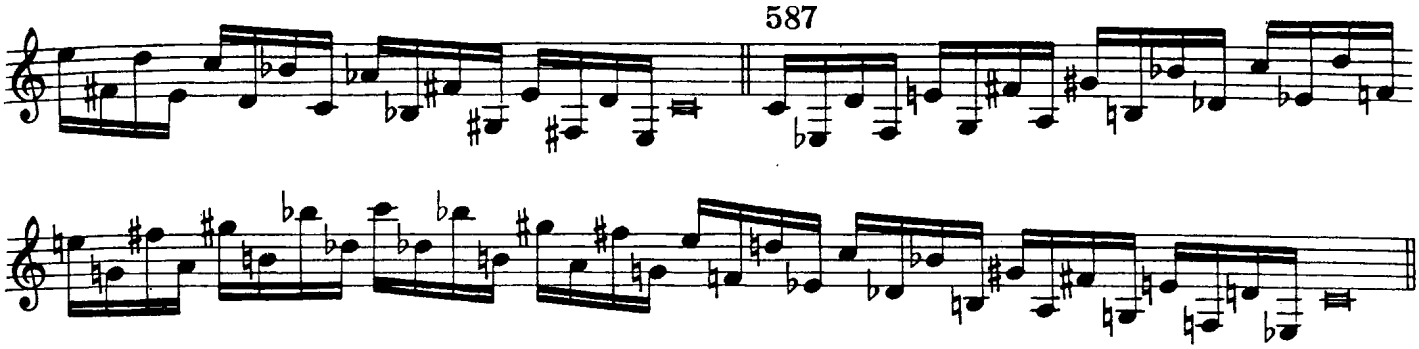

573
574
575
576
577
578

Infrapolation of One Note



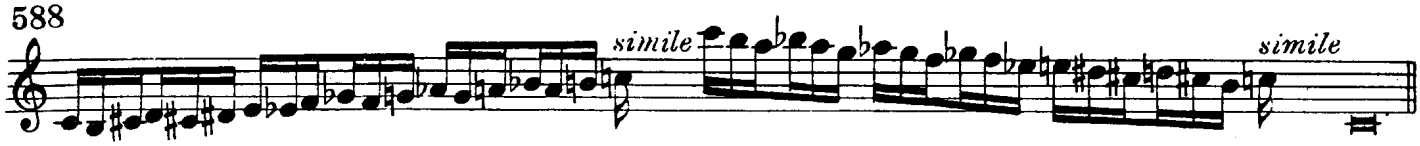
586

587



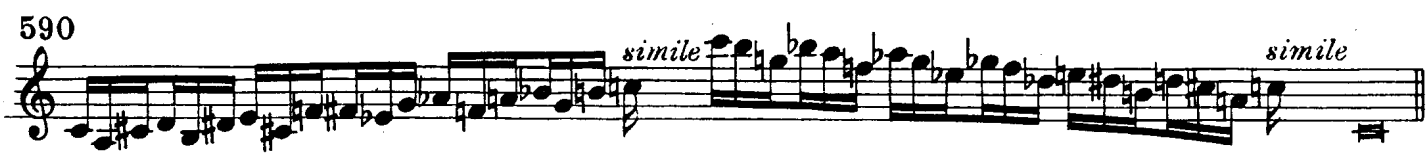
Infra-Interpolation

588

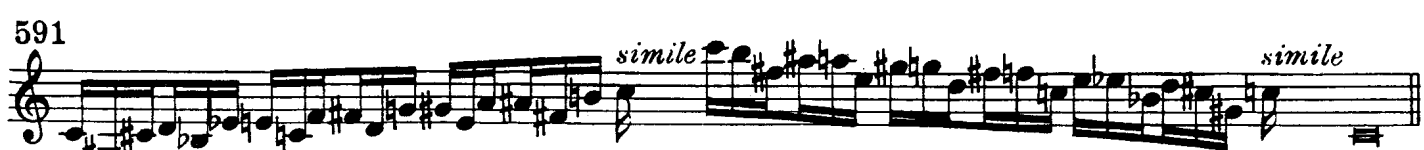


589

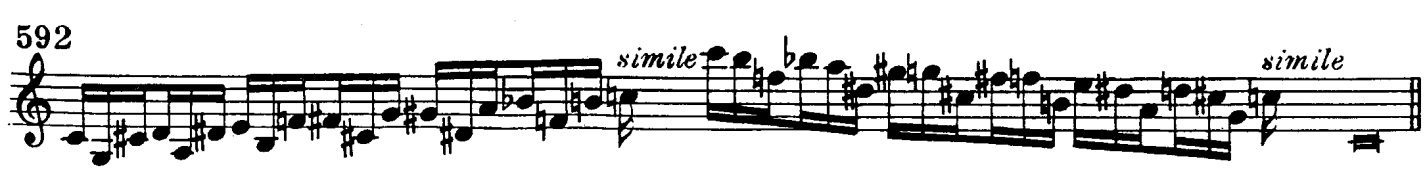
590



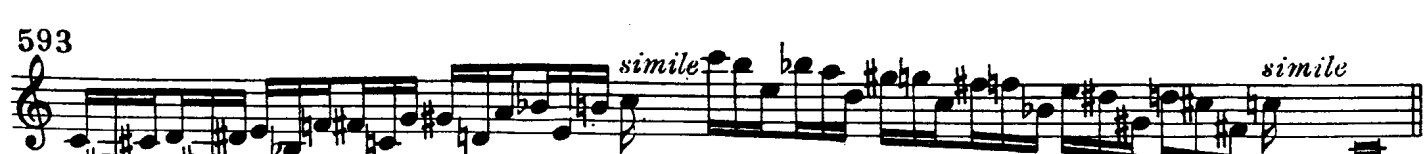
591



592

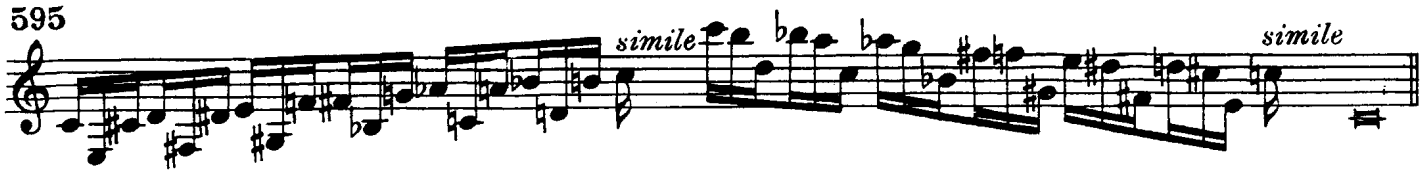


593

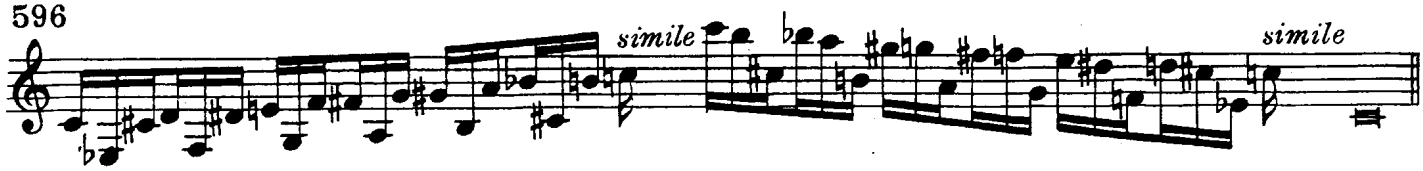


594

595

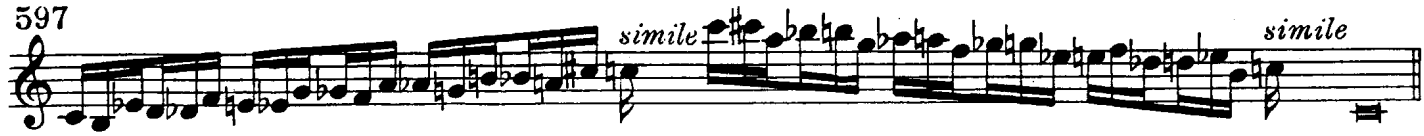


596



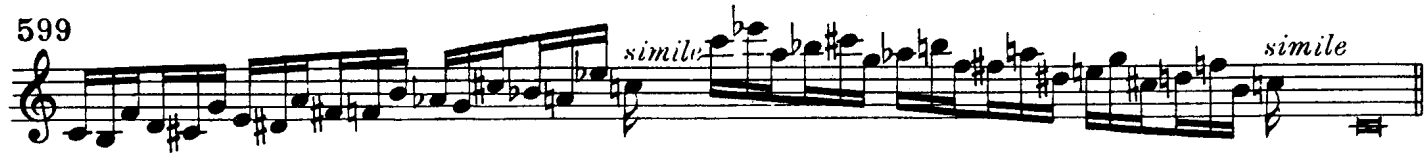
Infra-Ultrapolation

597

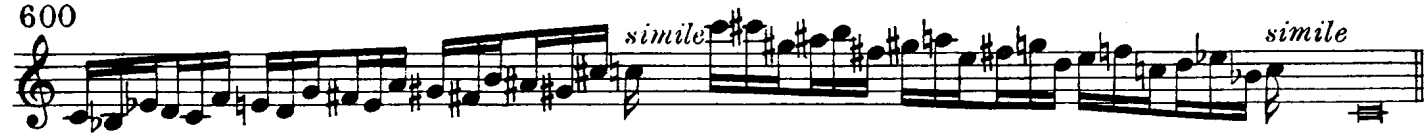


598

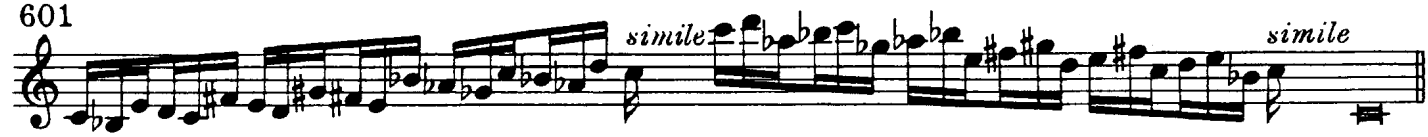
599



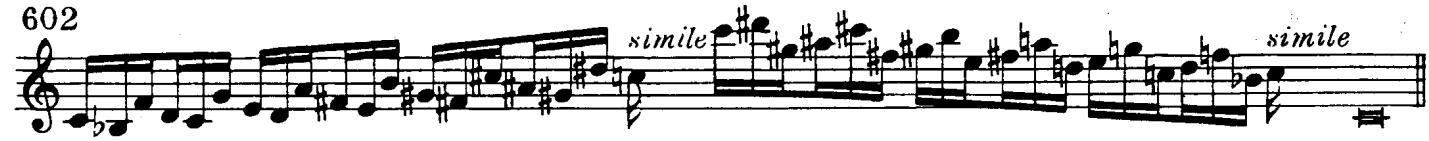
600



601

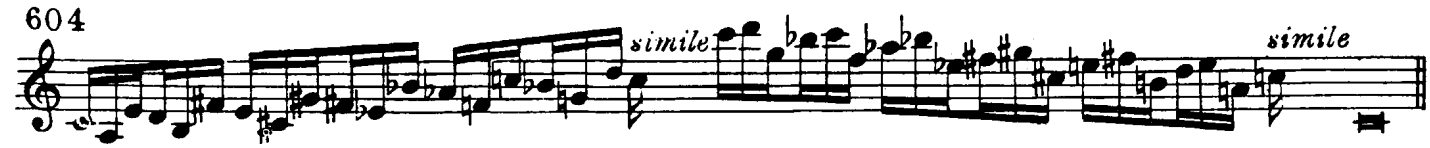


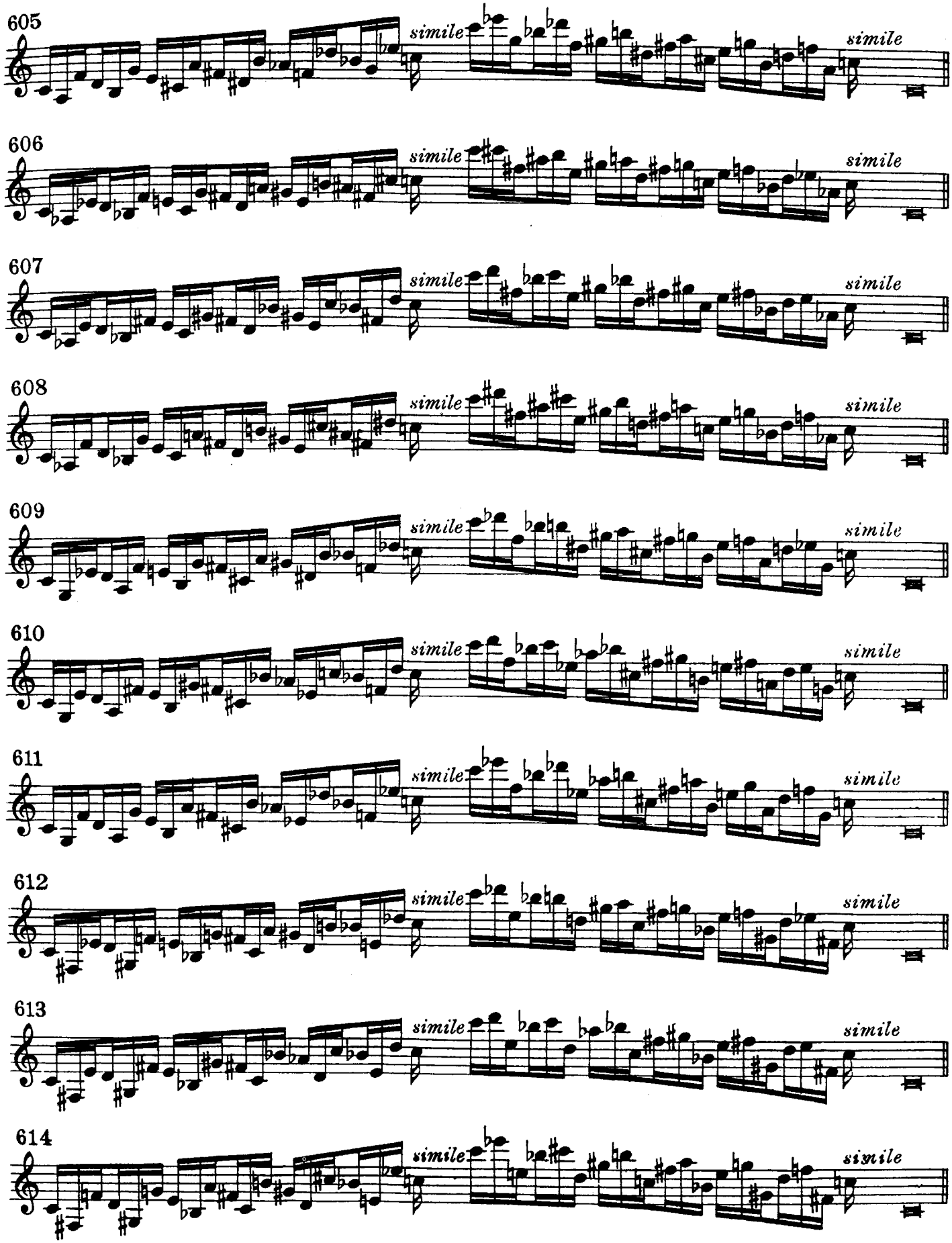
602



603

604




605
simile
simile
606
simile
simile
607
simile
simile
608
simile
simile
609
simile
simile
610
simile
simile
611
simile
simile
612
simile
simile
613
simile
simile
614
simile
simile

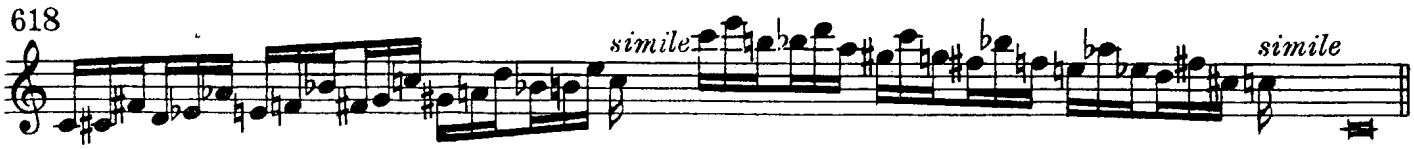
Inter-Ultrapolation

615

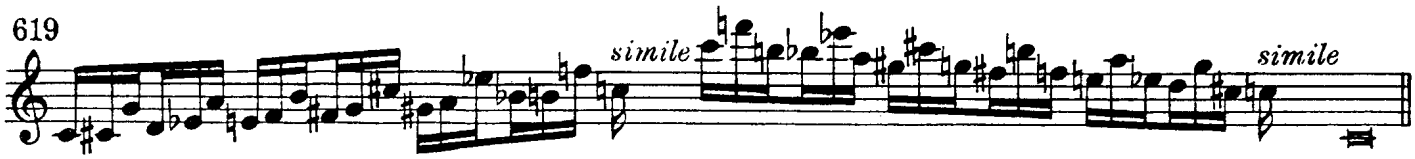
616

617

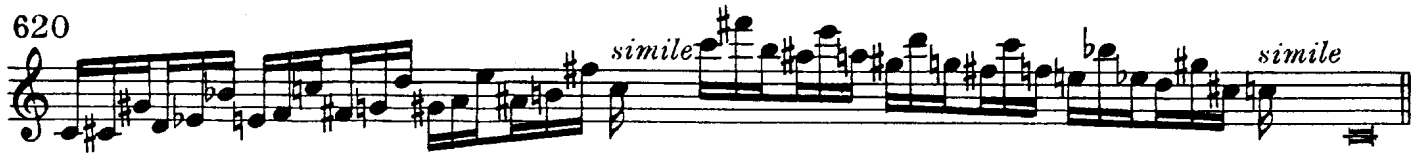
618



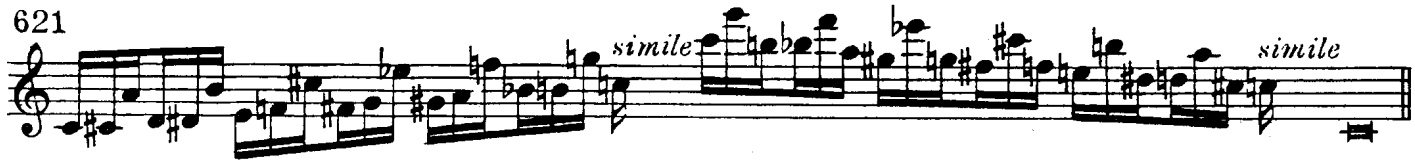
619



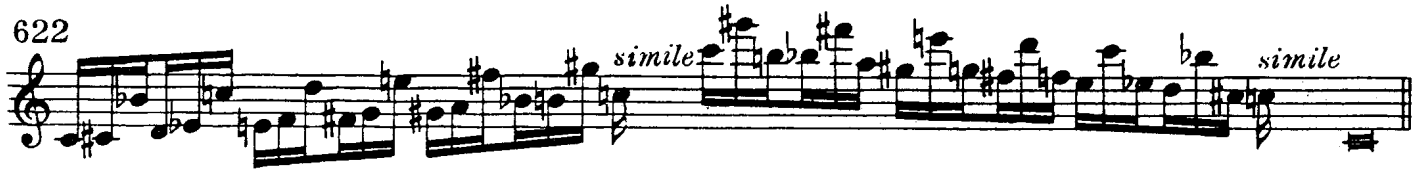
620



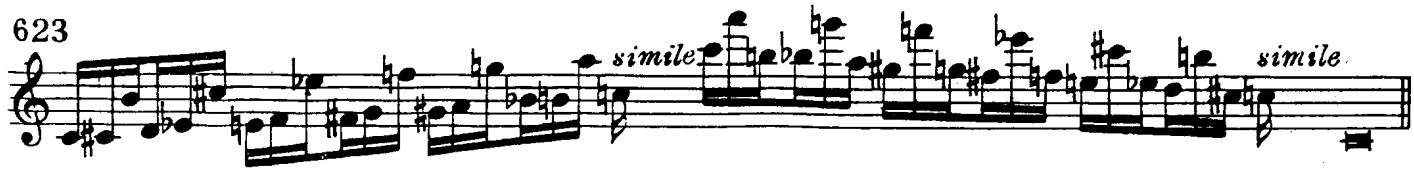
621

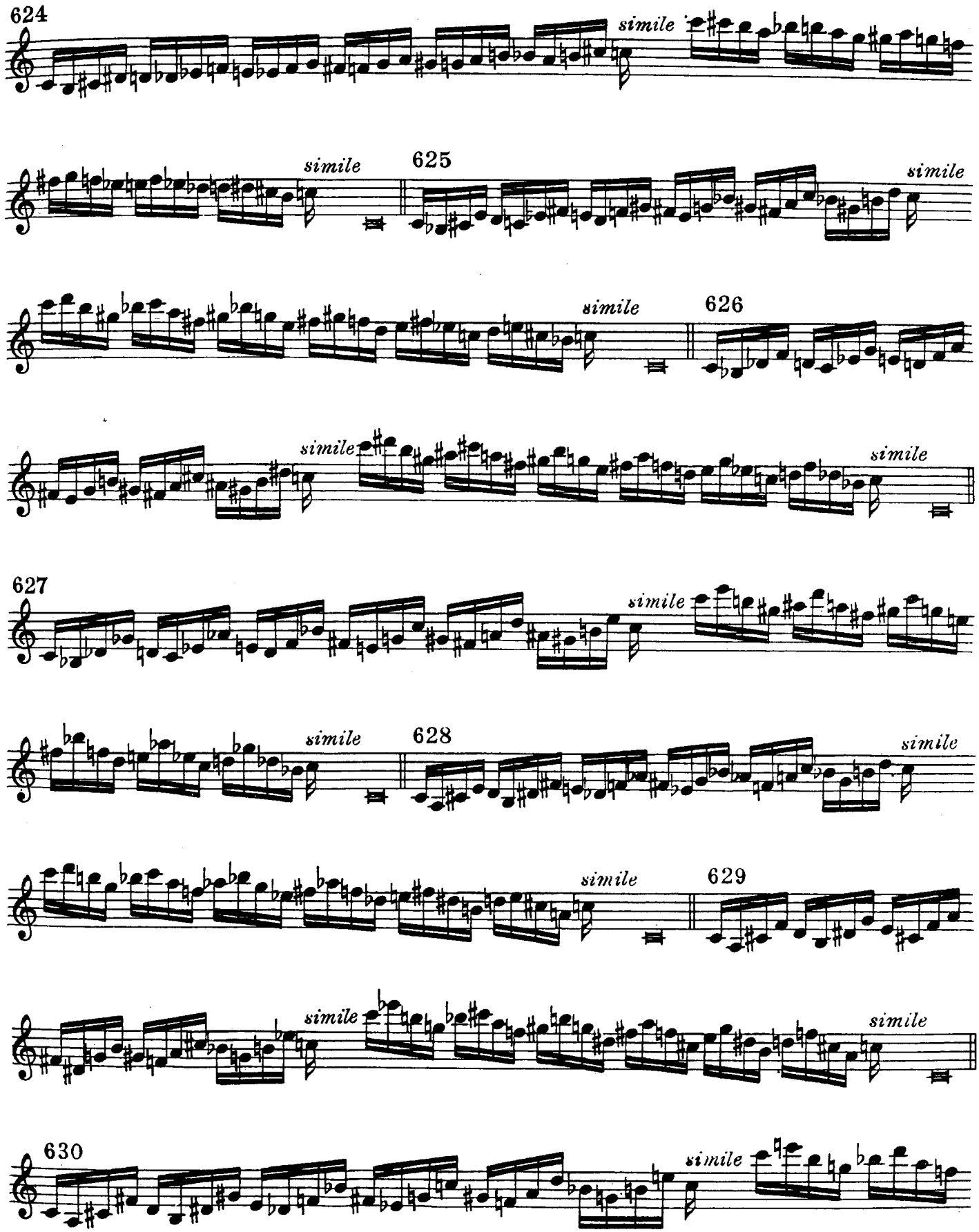


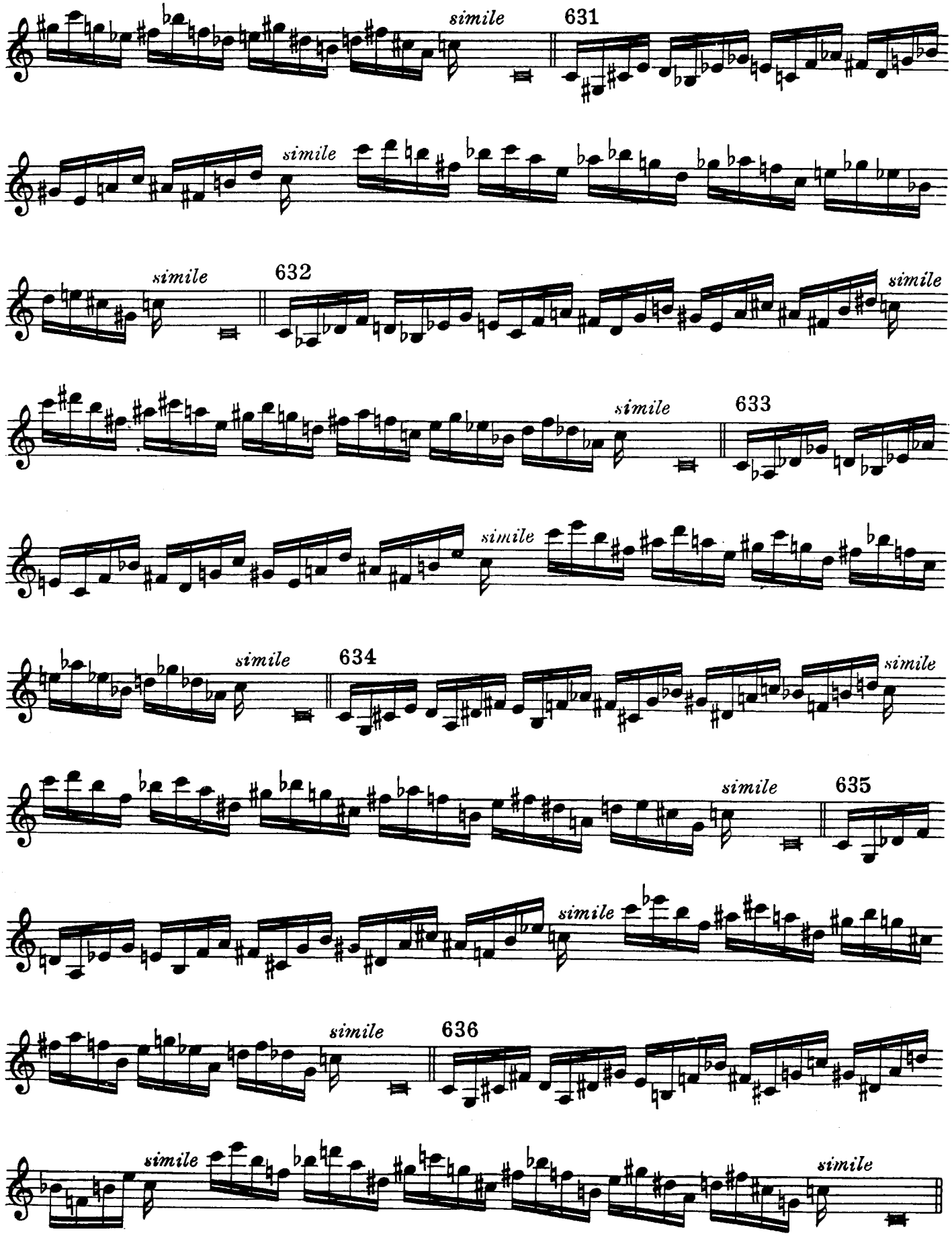
622



623

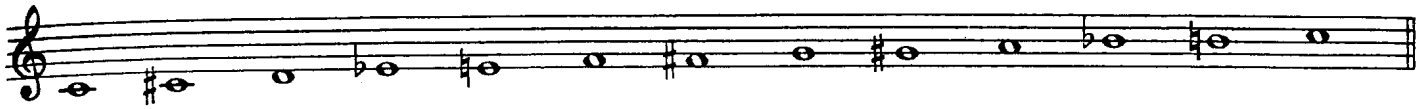



624
simile
simile
625
simile
simile
626
simile
simile
627
simile
simile
628
simile
simile
629
simile
simile
630
simile

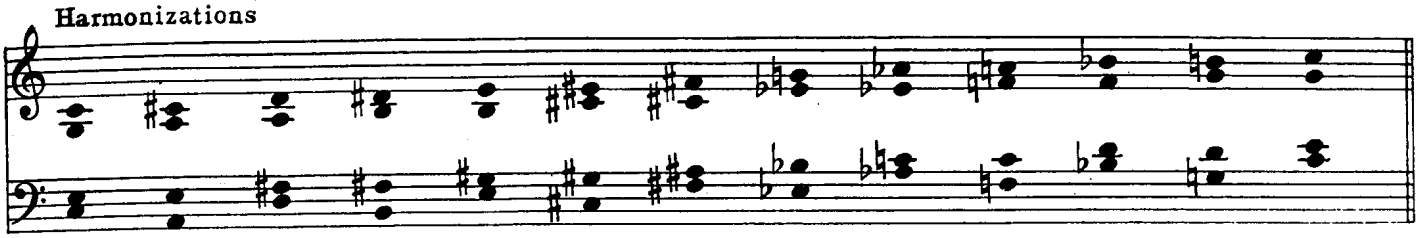

simile
631
simile
simile
632
simile
simile
633
simile
simile
634
simile
simile
635
simile
simile
636
simile
simile

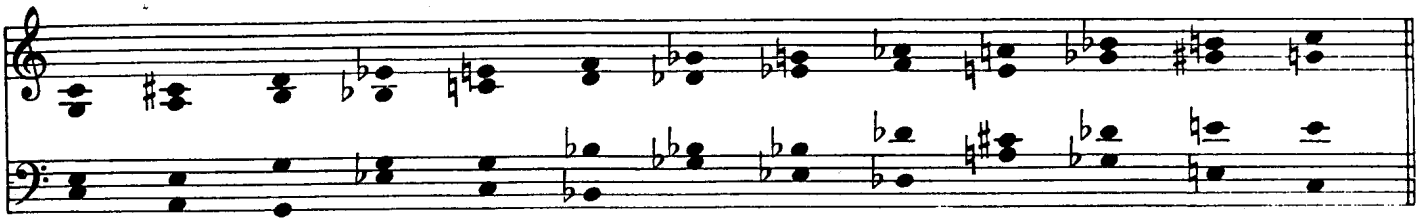
Semitone Progression

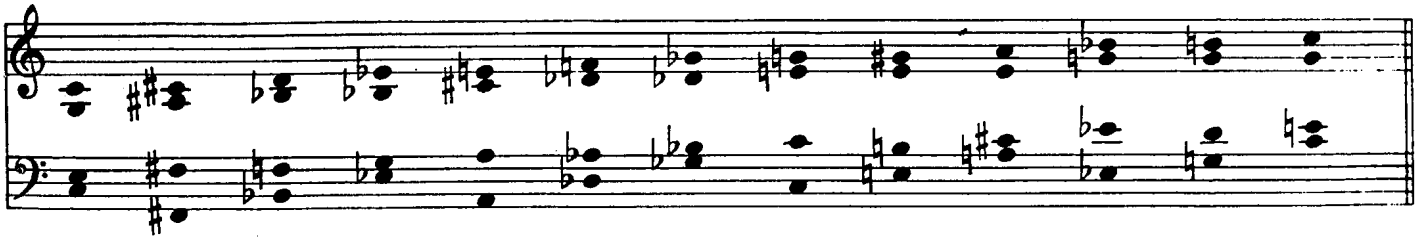
Equal Division of One Octave into Twelve Parts



Harmonizations

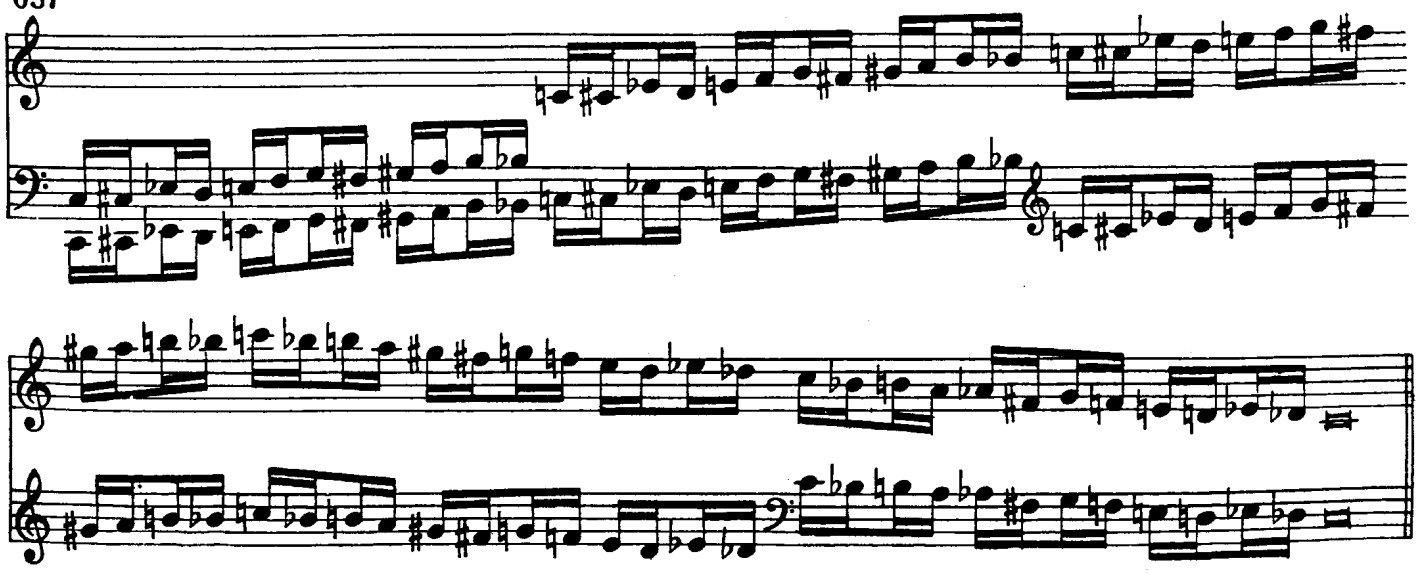




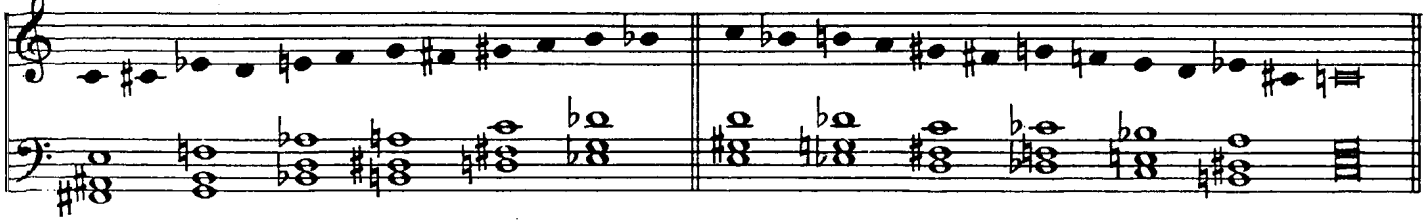


Permutations

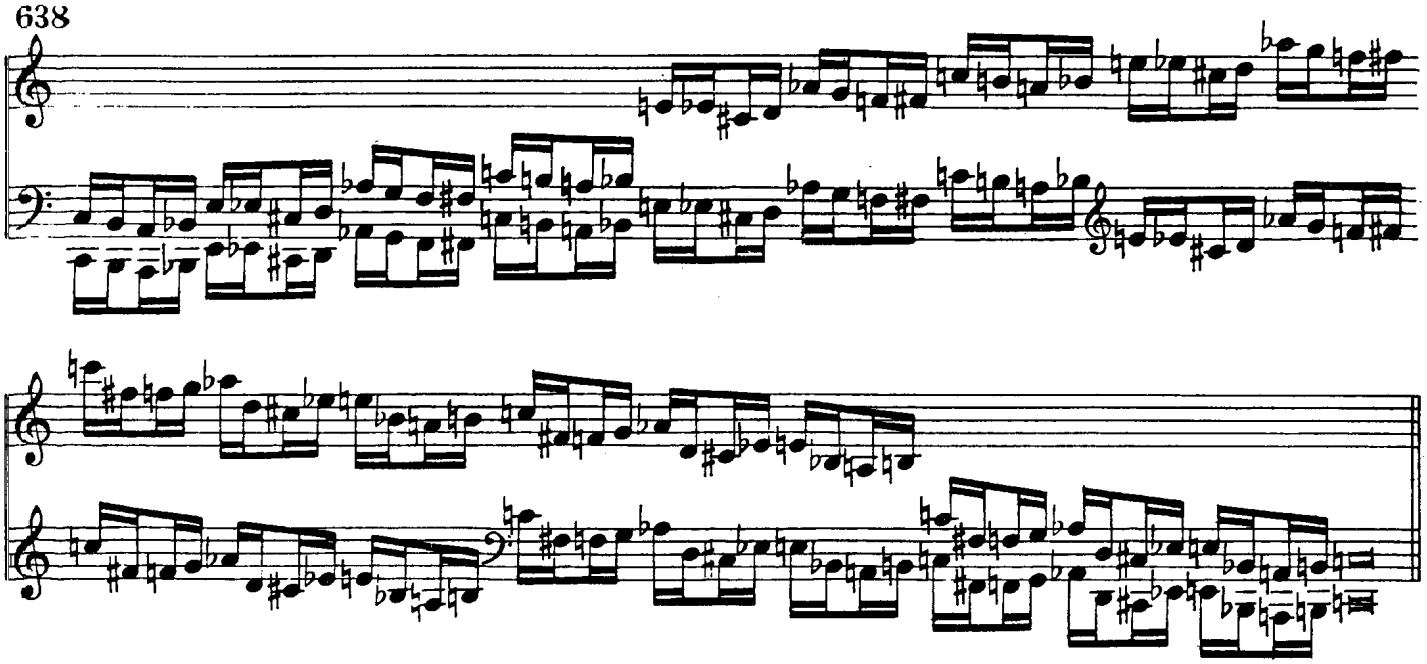
637



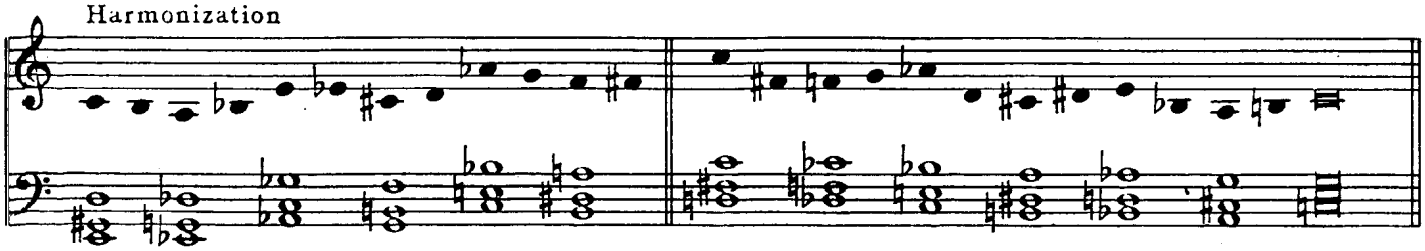
Harmonization



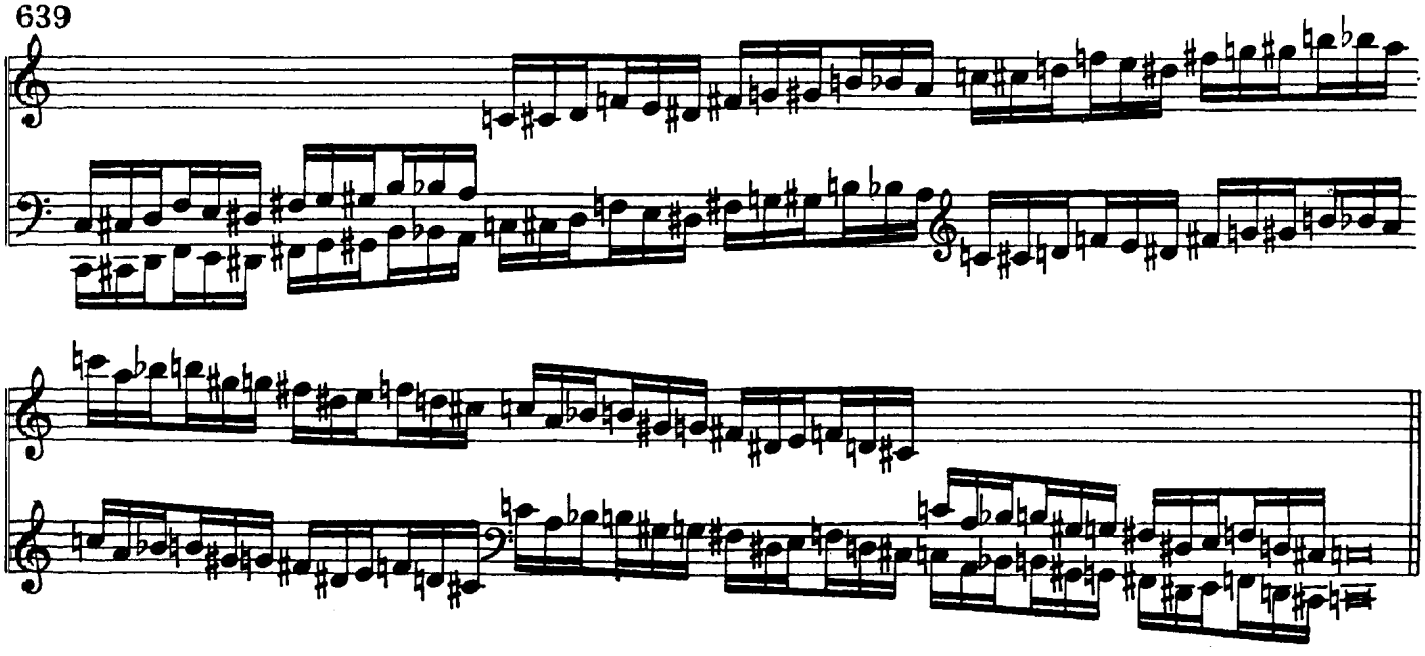
638



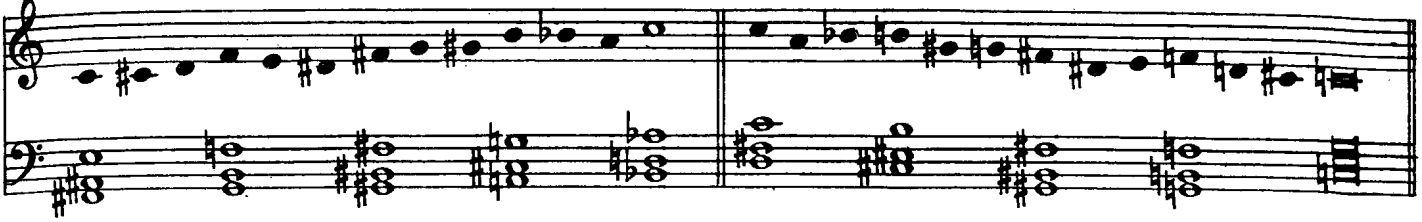
Harmonization



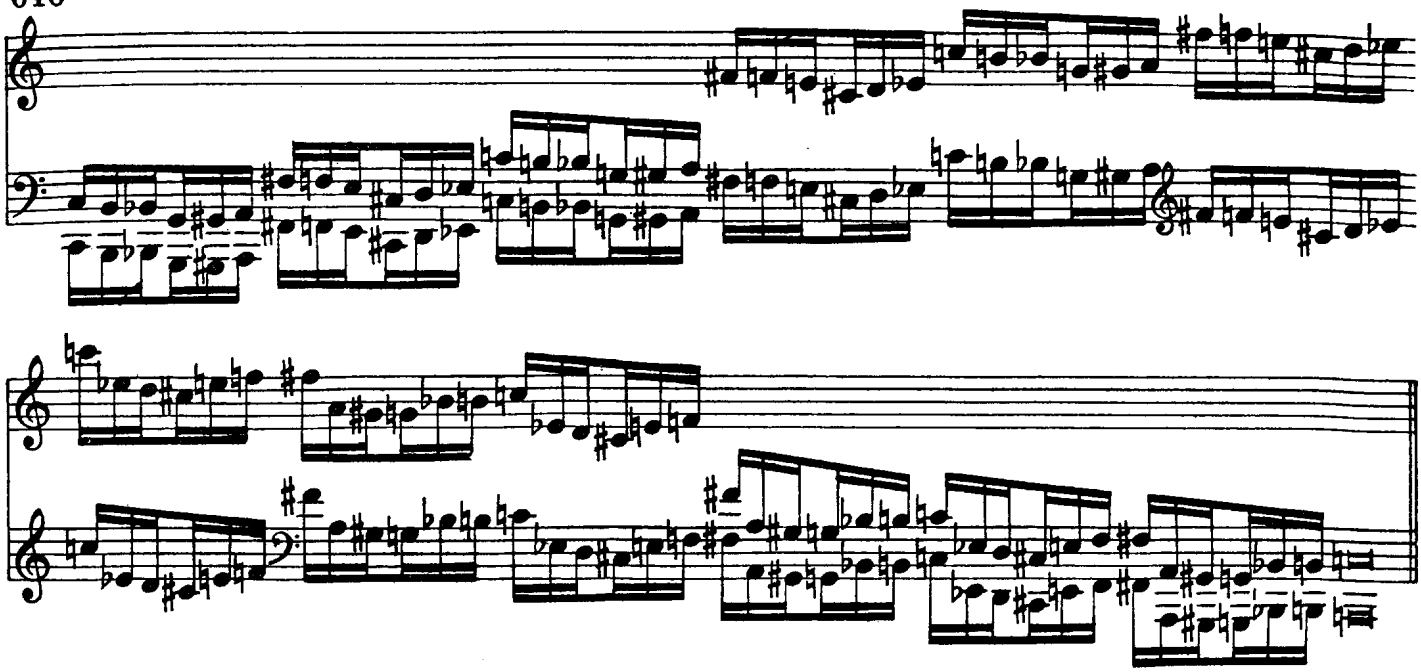
639



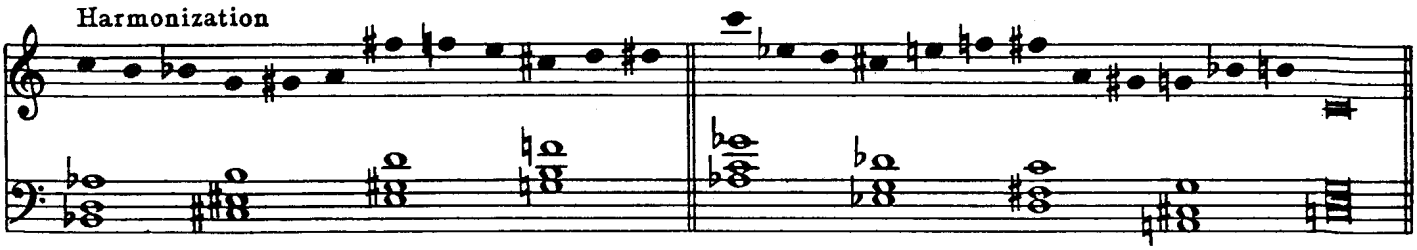
Harmonization



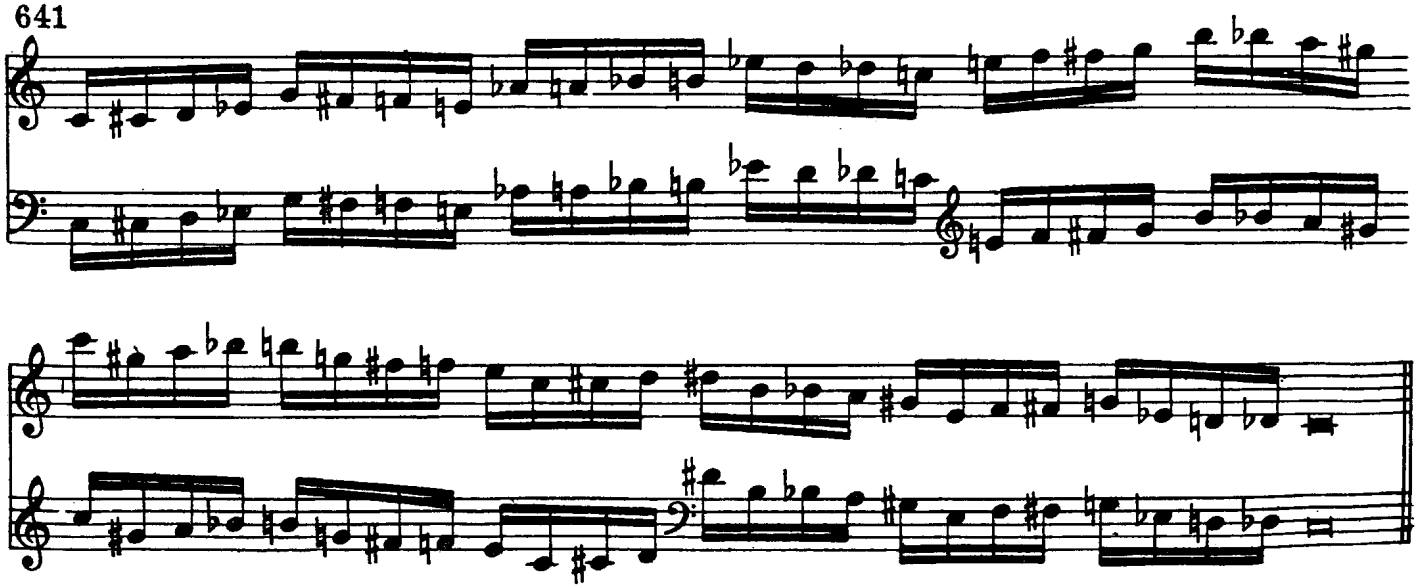
640



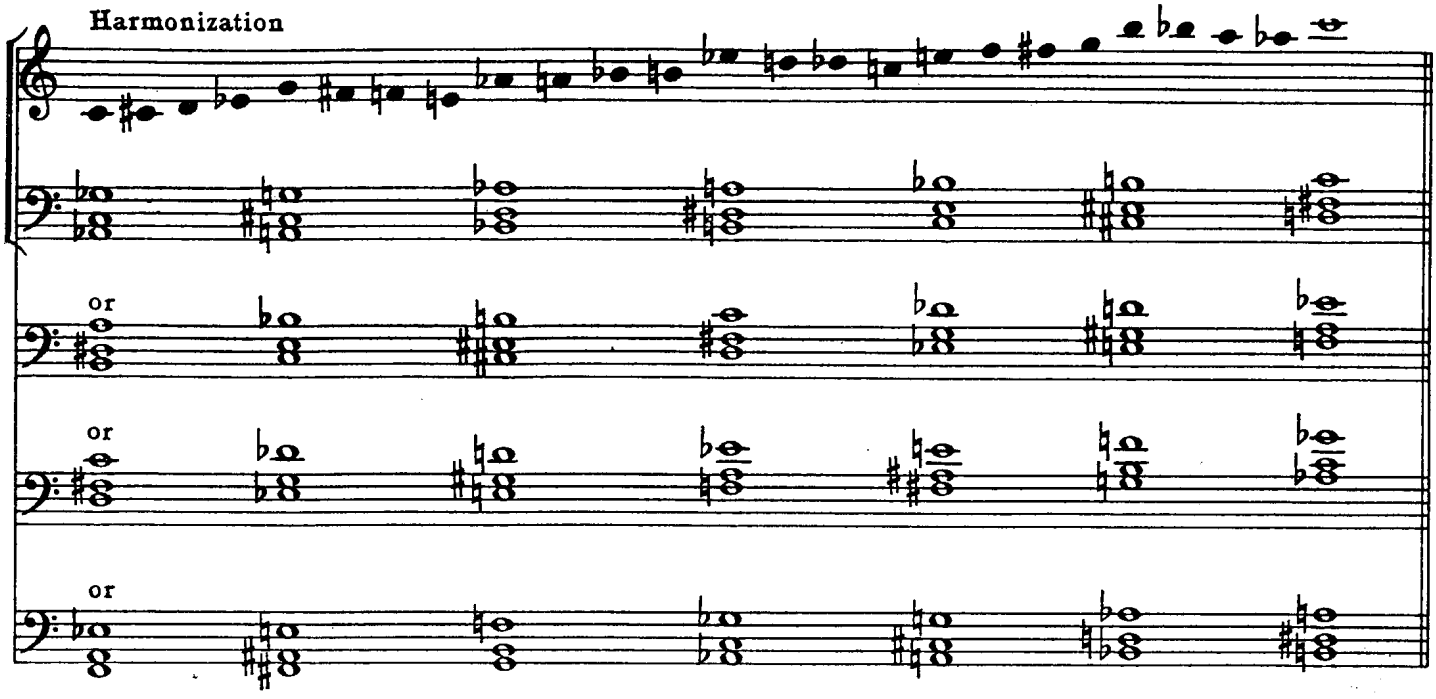
Harmonization

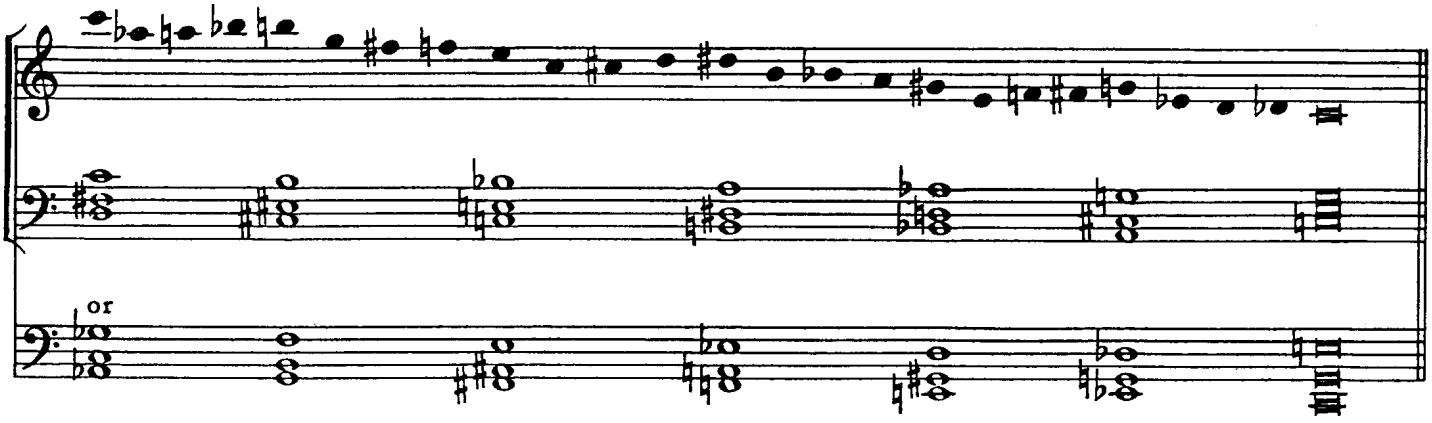


641

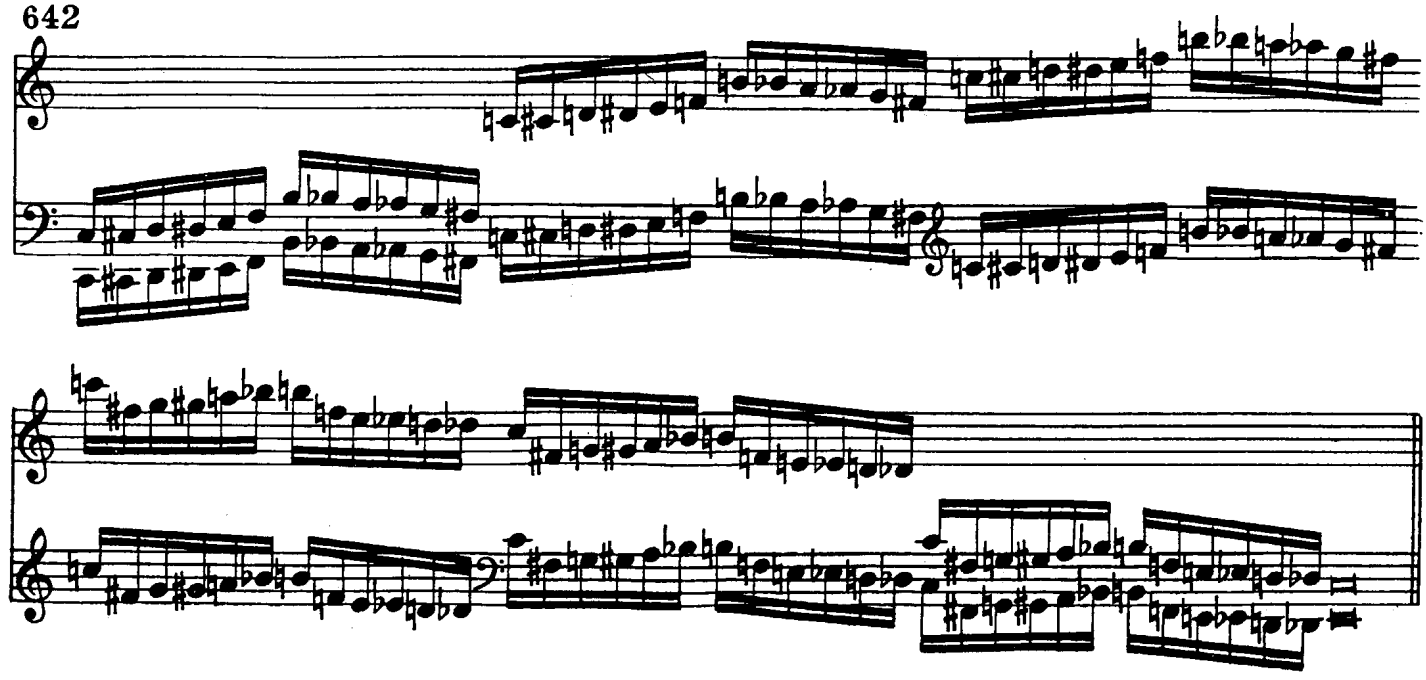


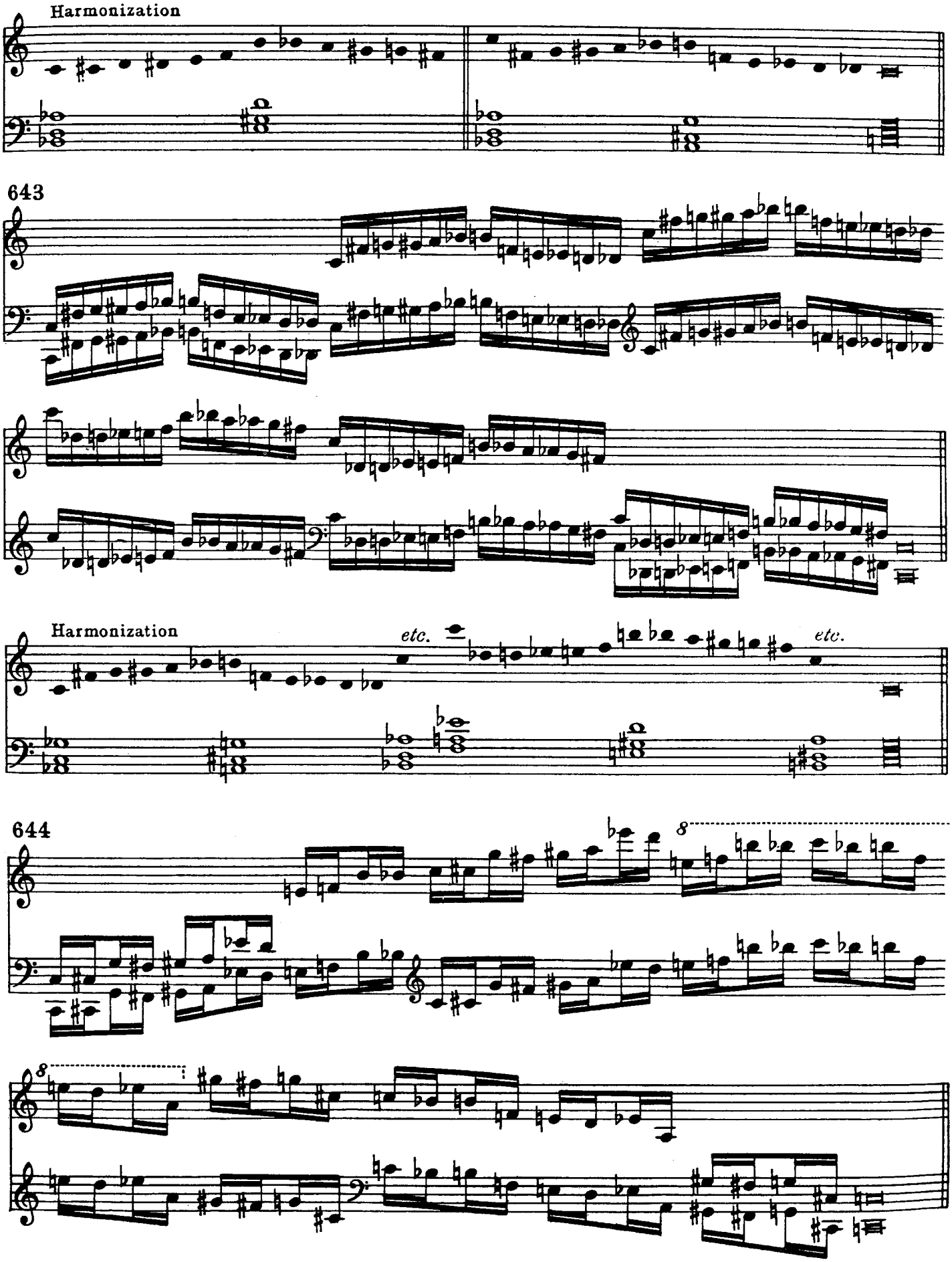
Harmonization

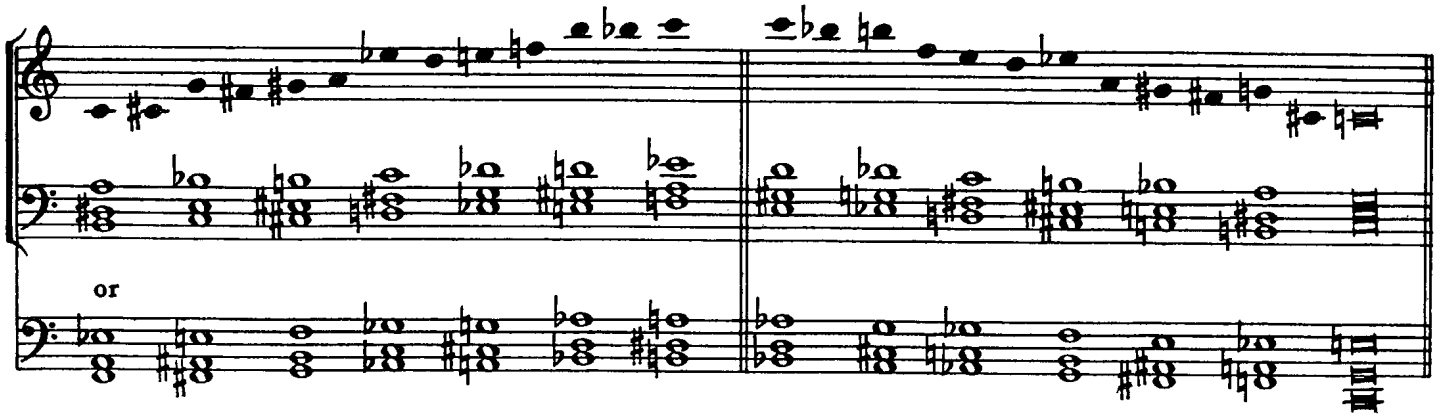




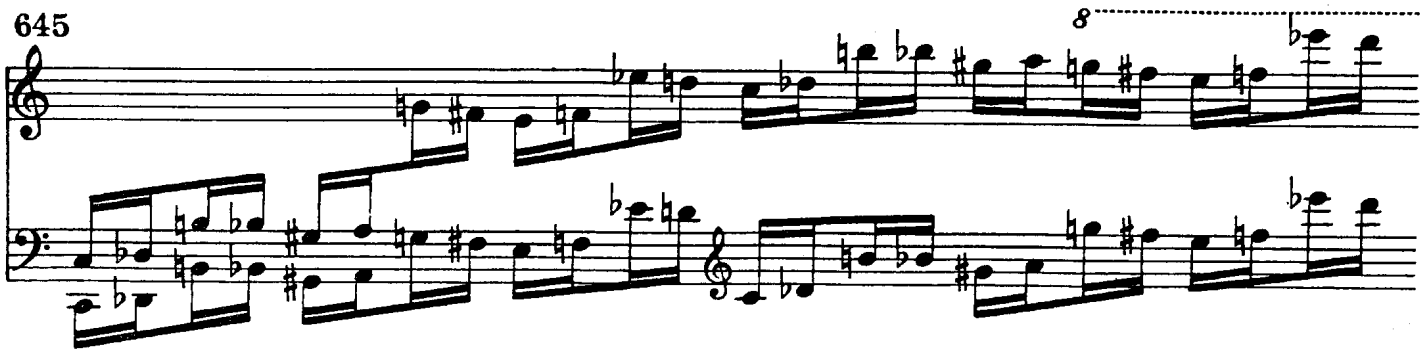
642

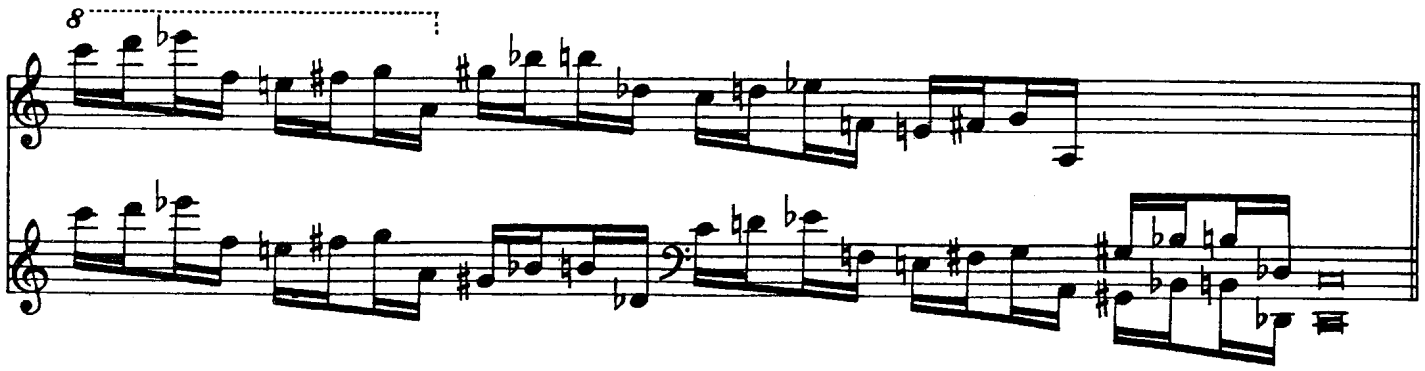


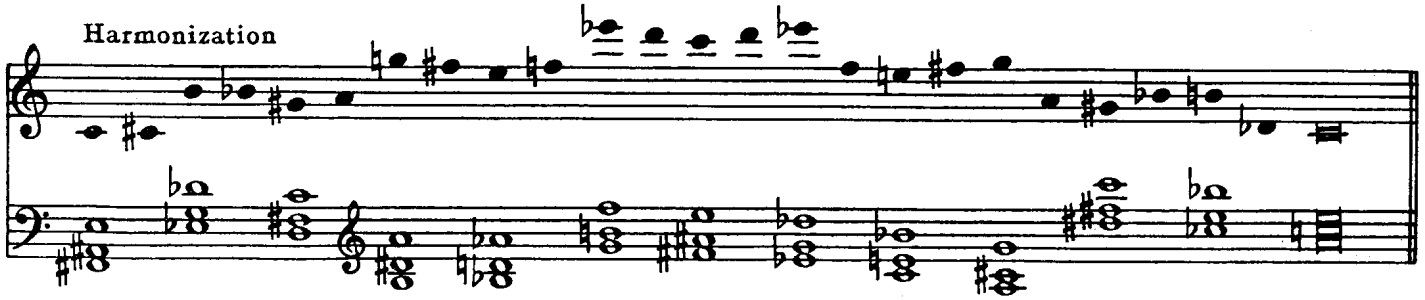

Harmonization
643
Harmonization
etc.
etc.
644
8
8



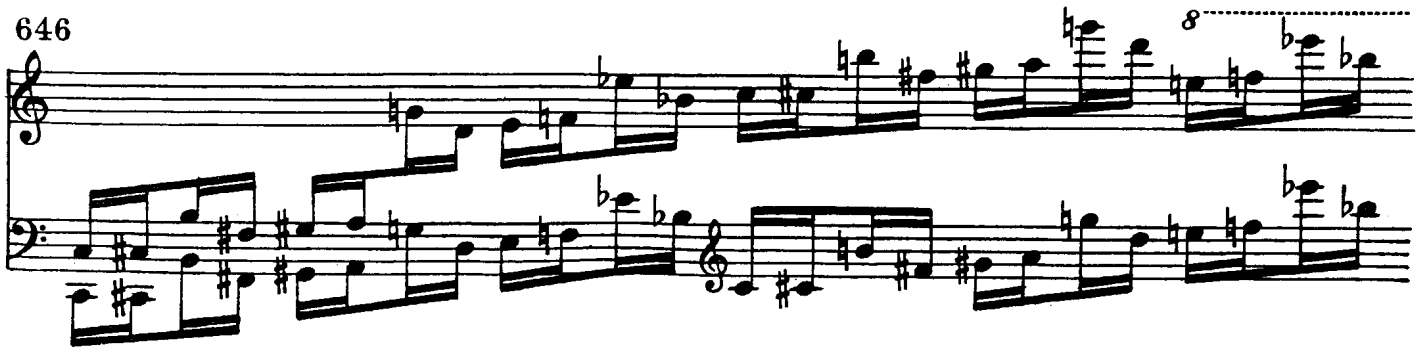
645

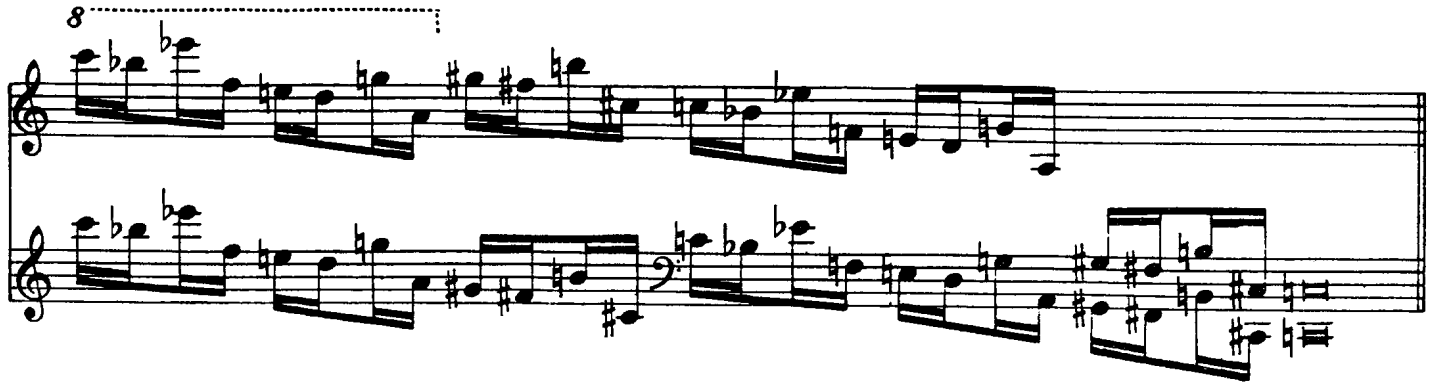


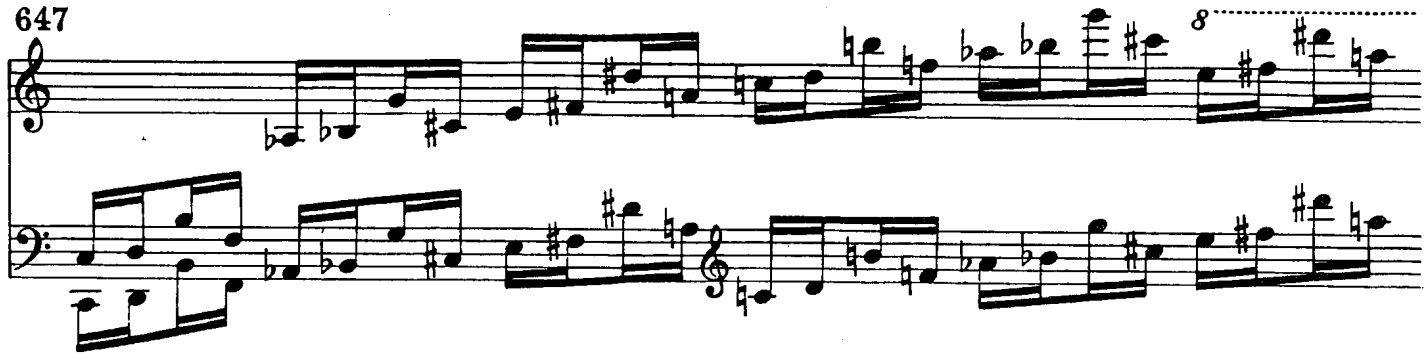


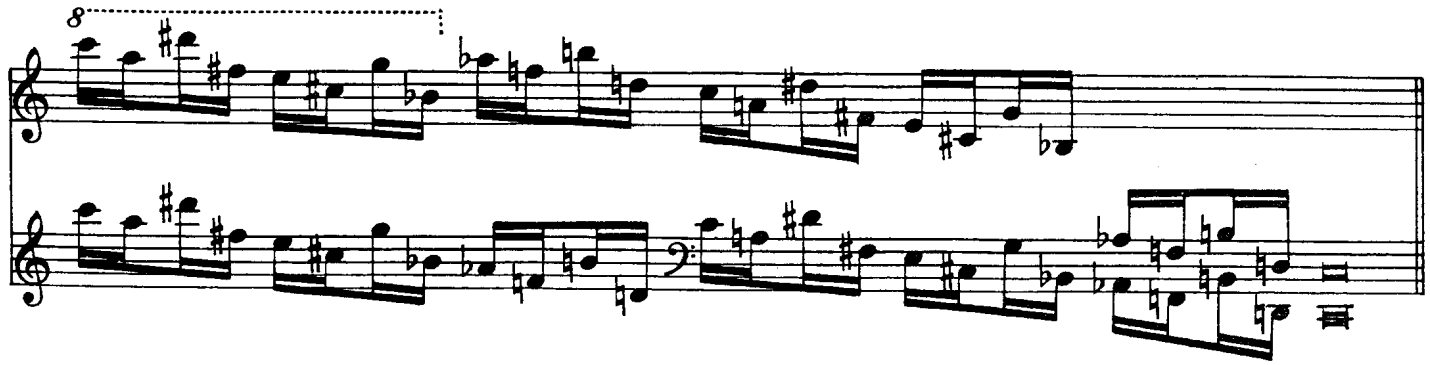


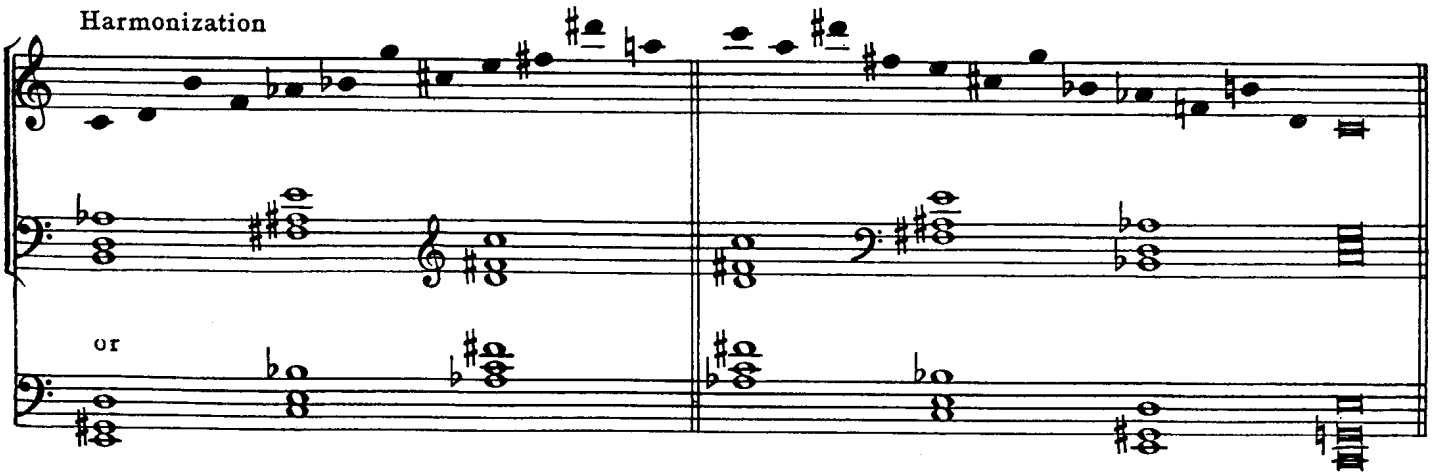
646

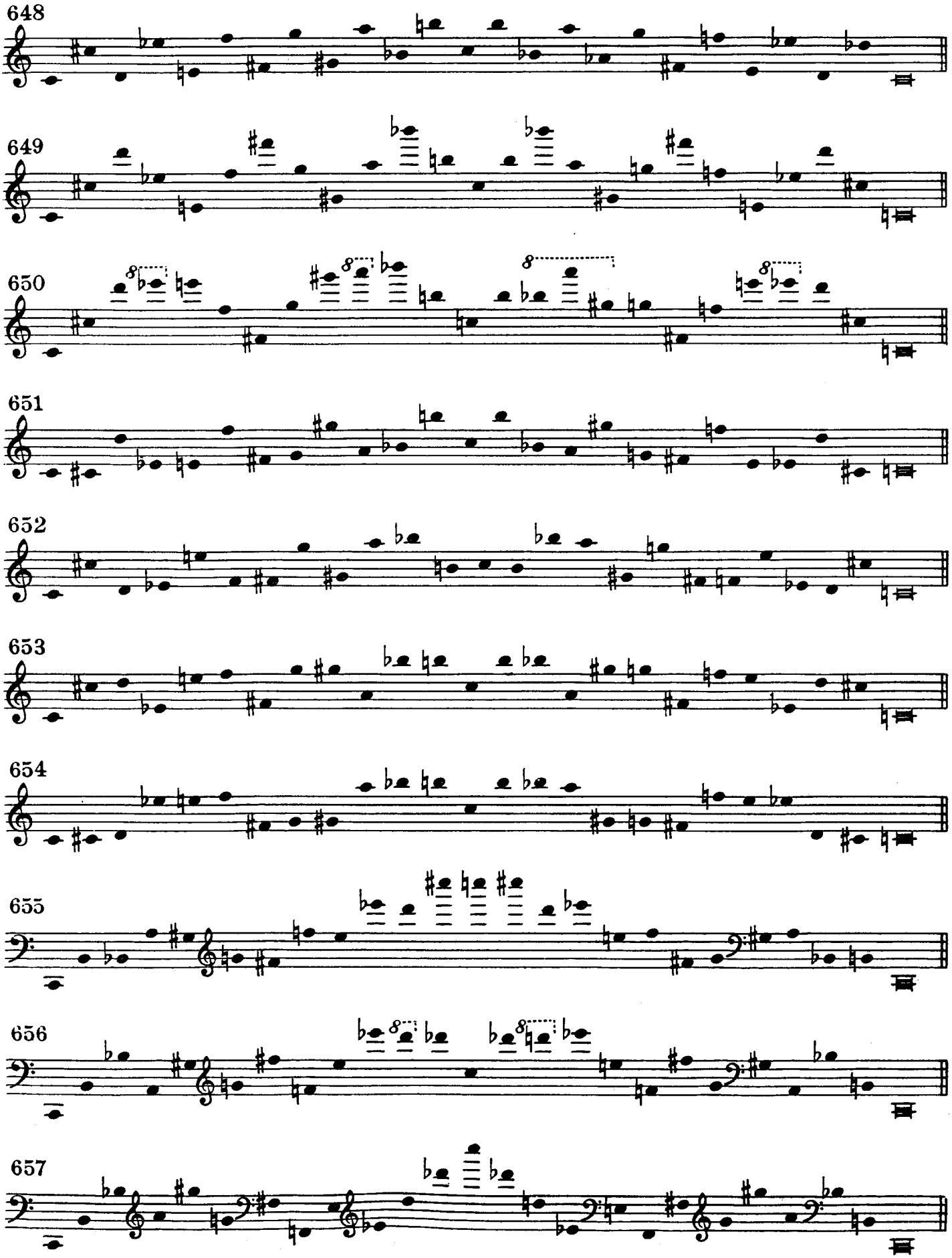



8


647
8

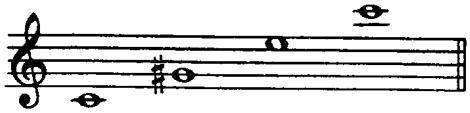

8


Harmonization
or

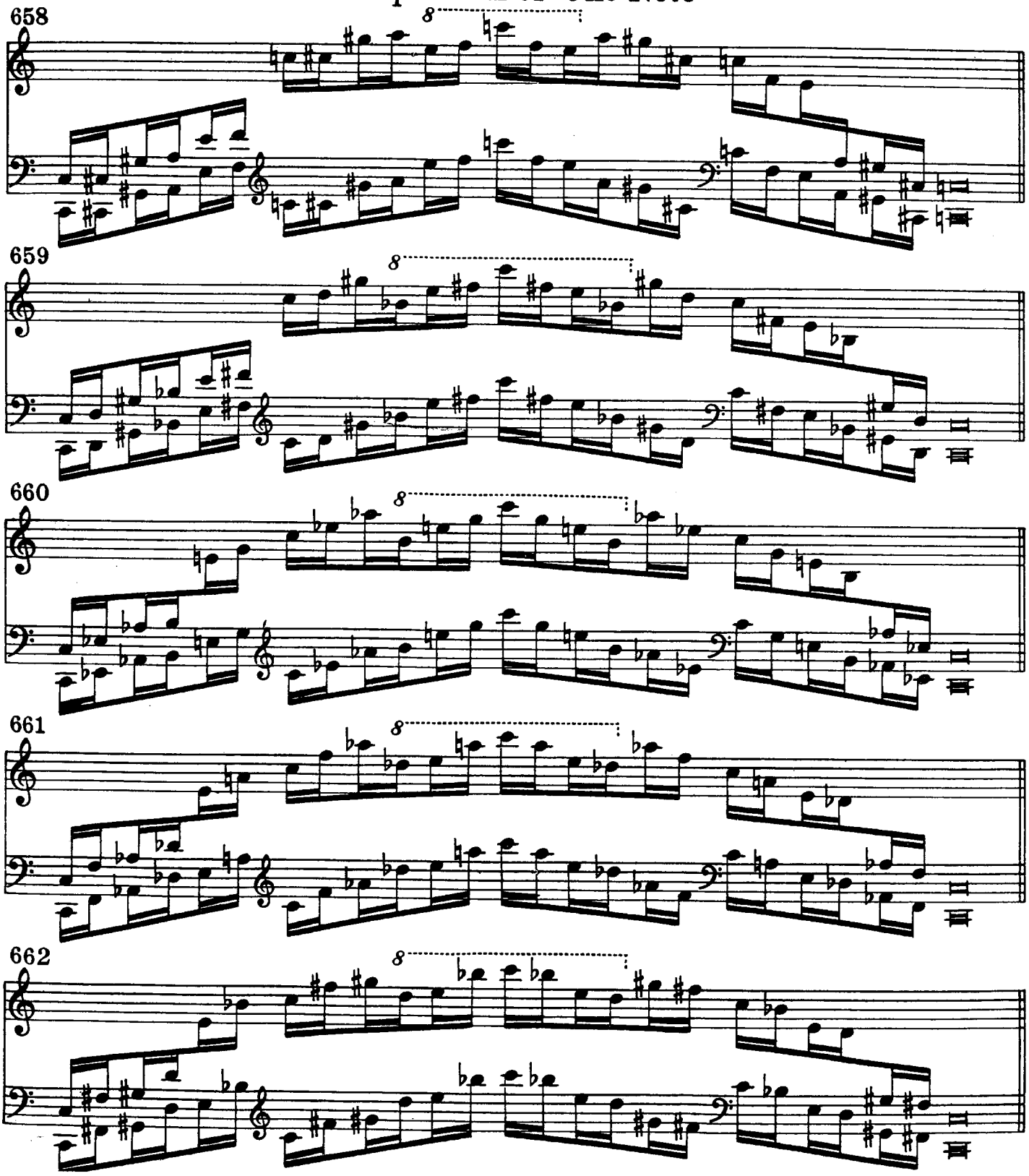

648
649
650
651
652
653
654
655
656
657

Quadritone Progression

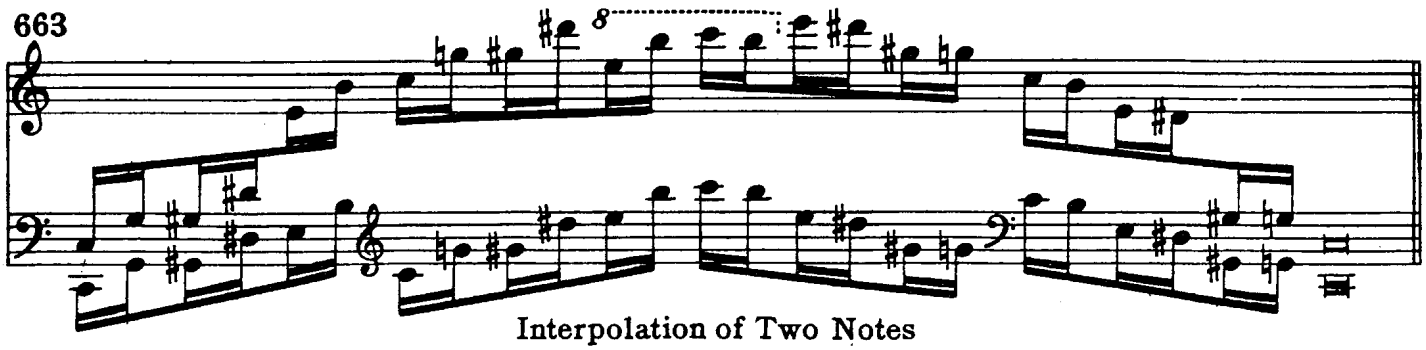
Equal Division of Two Octaves into Three Parts



Interpolation of One Note

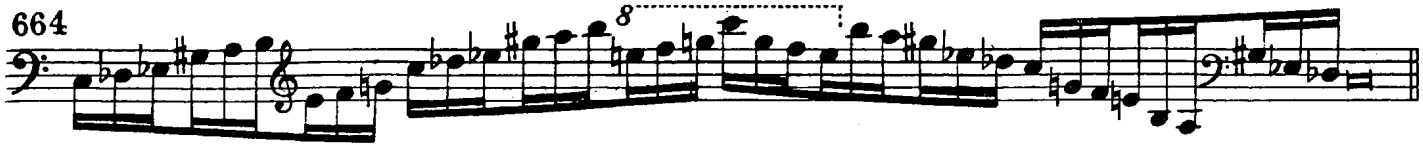


663

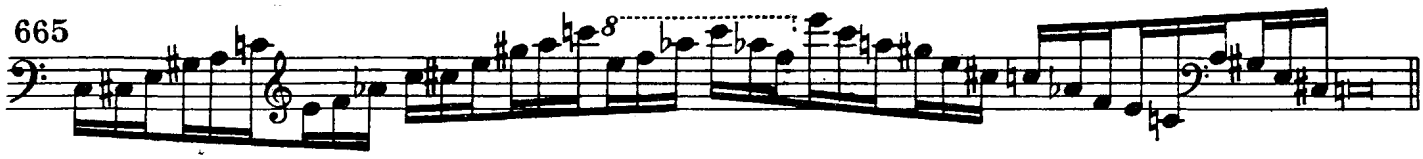


Interpolation of Two Notes

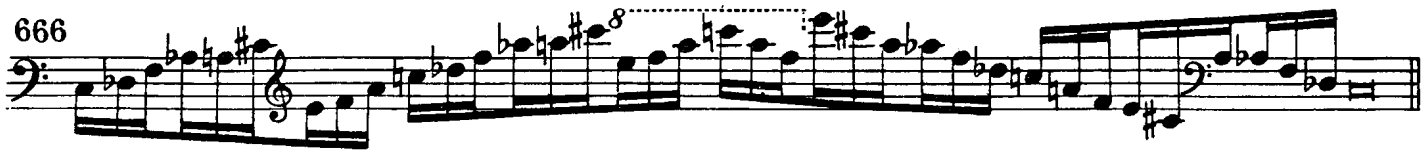
664



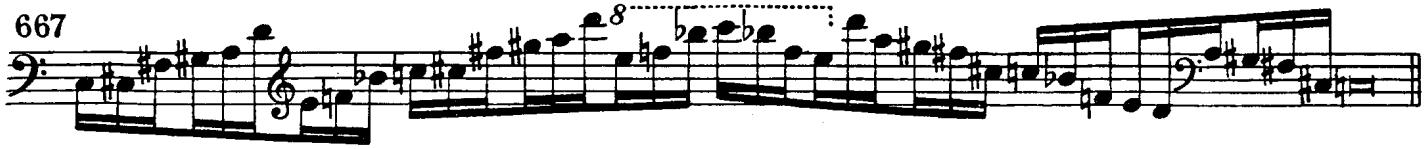
665



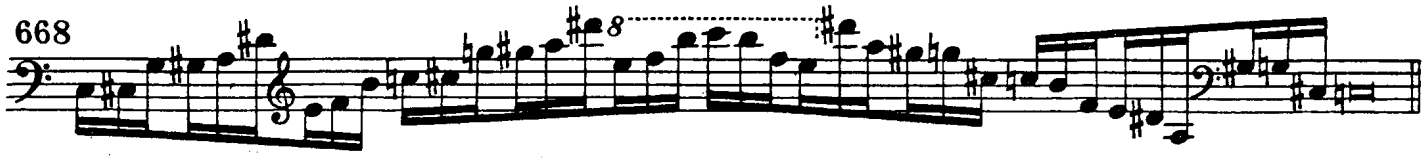
666



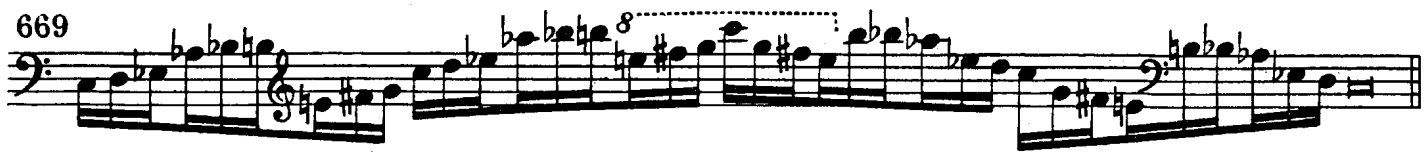
667



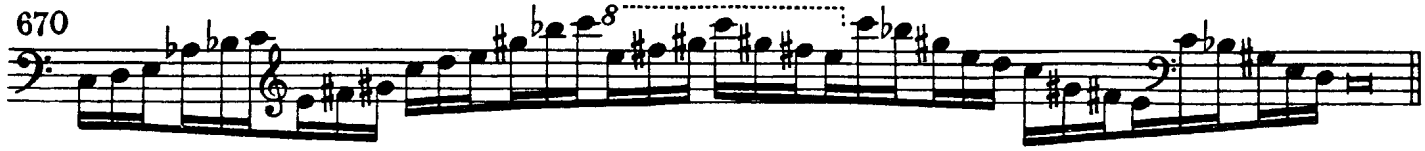
668



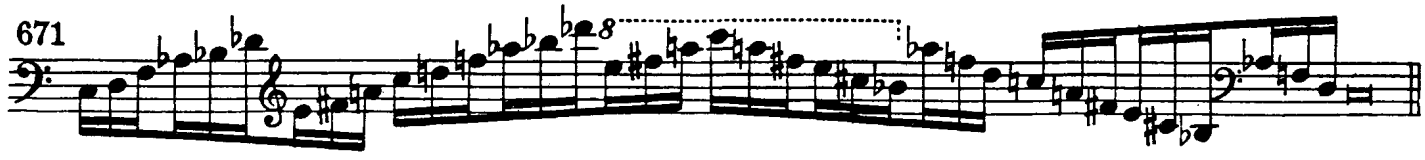
669



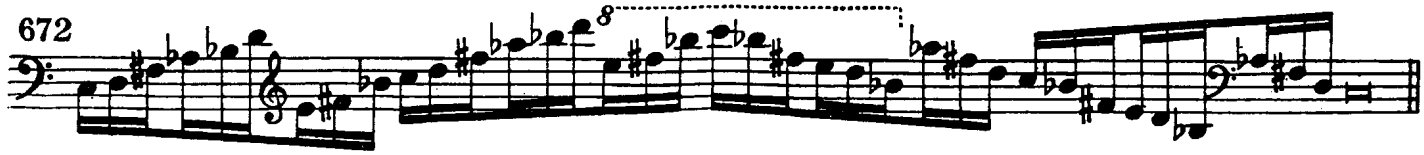
670



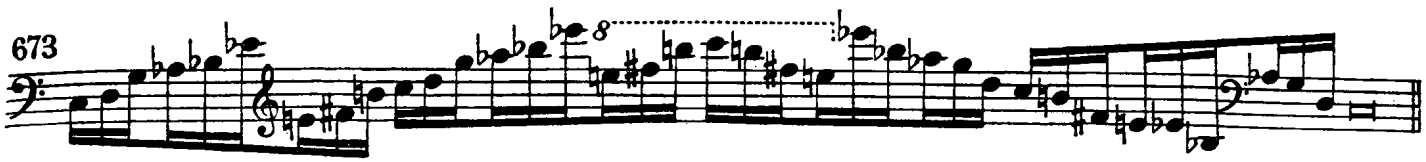
671



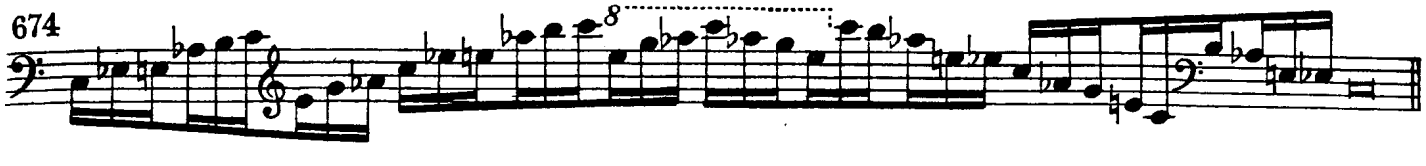
672



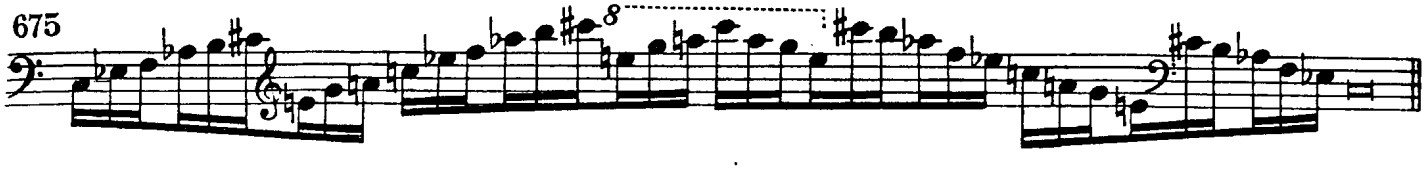
673



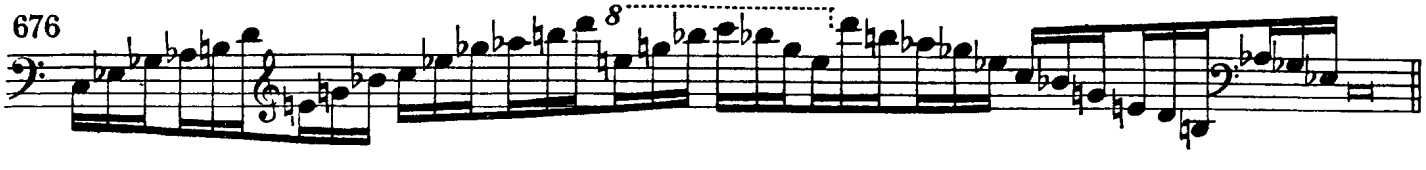
674



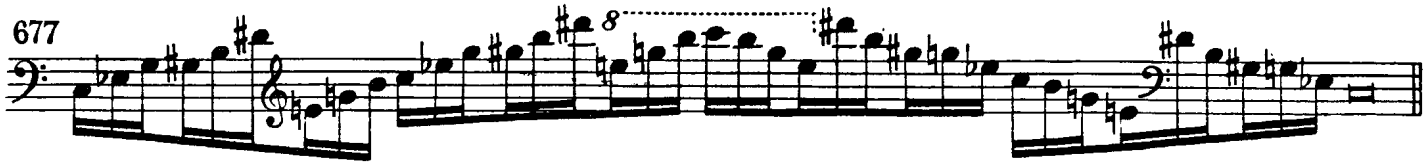
675



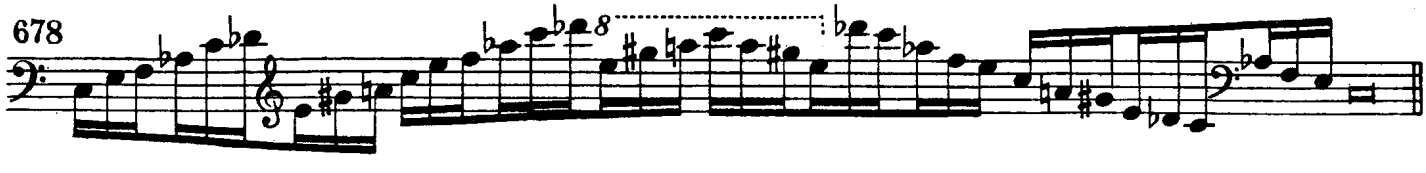
676



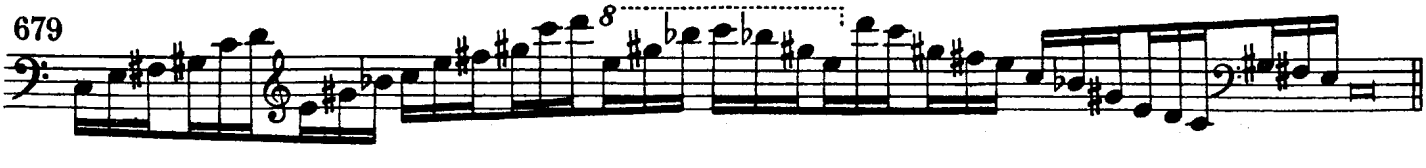
677



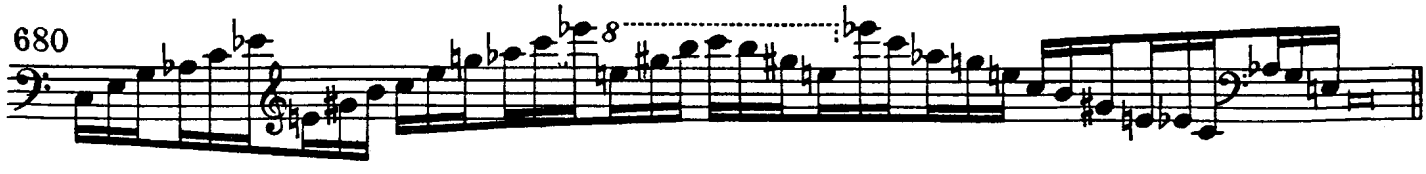
678



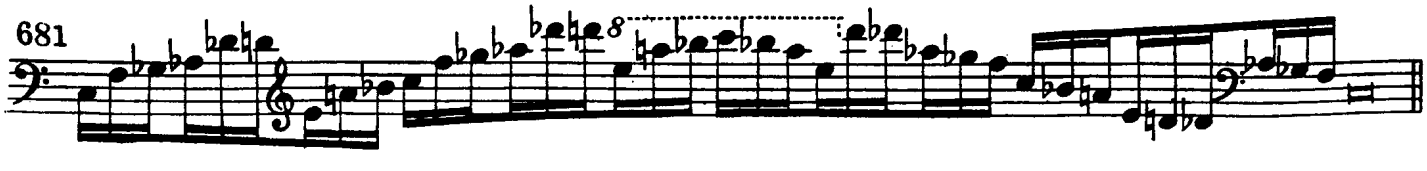
679



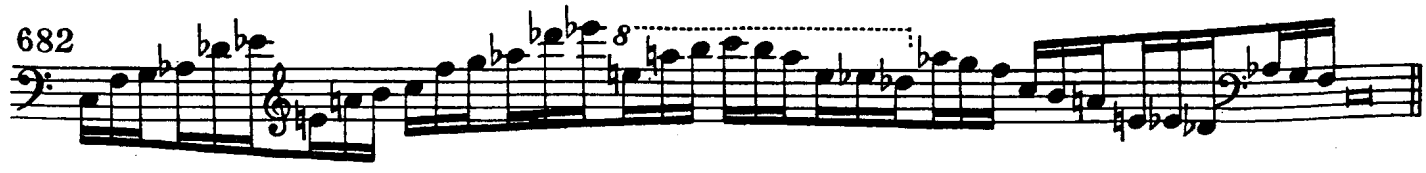
680



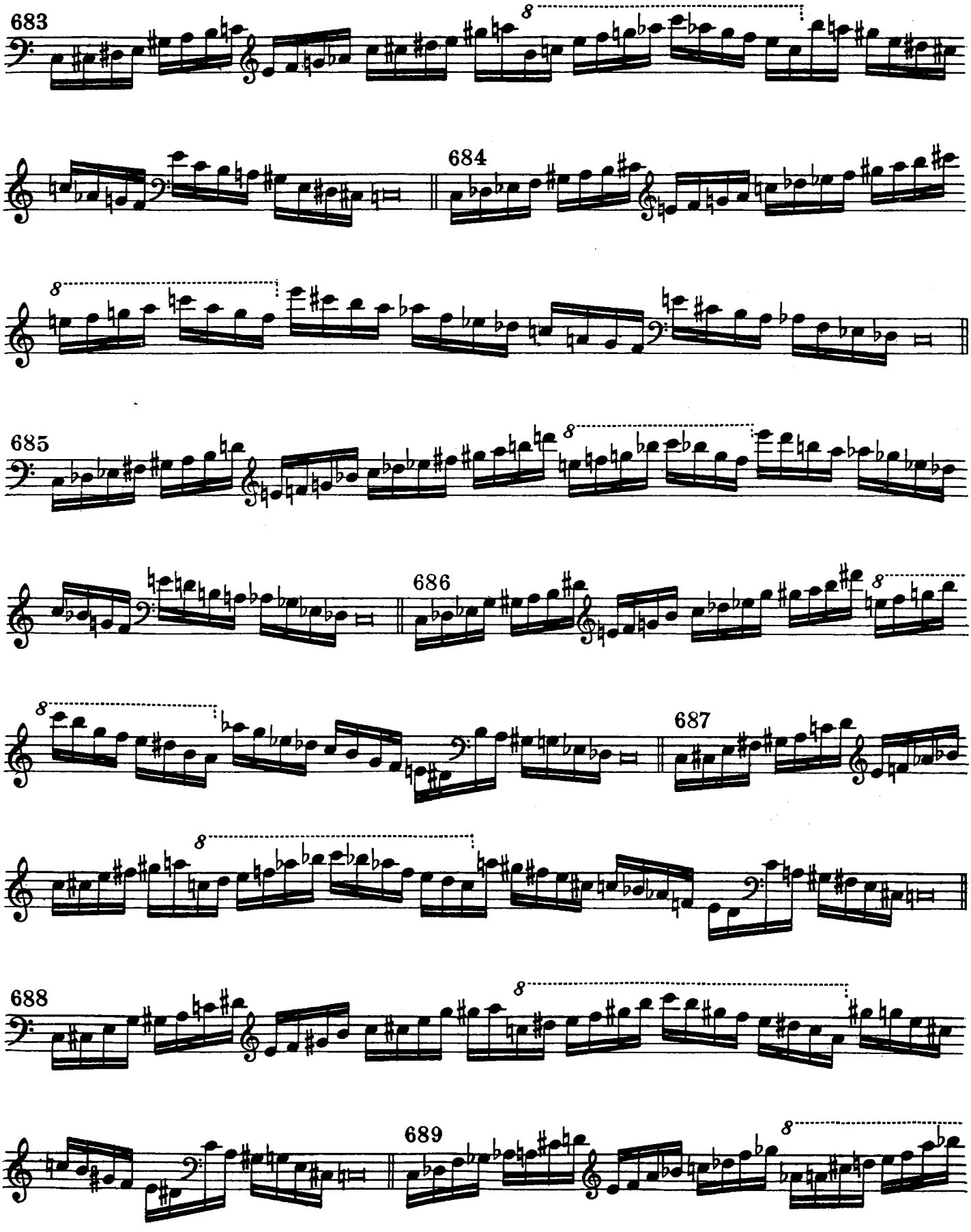
681

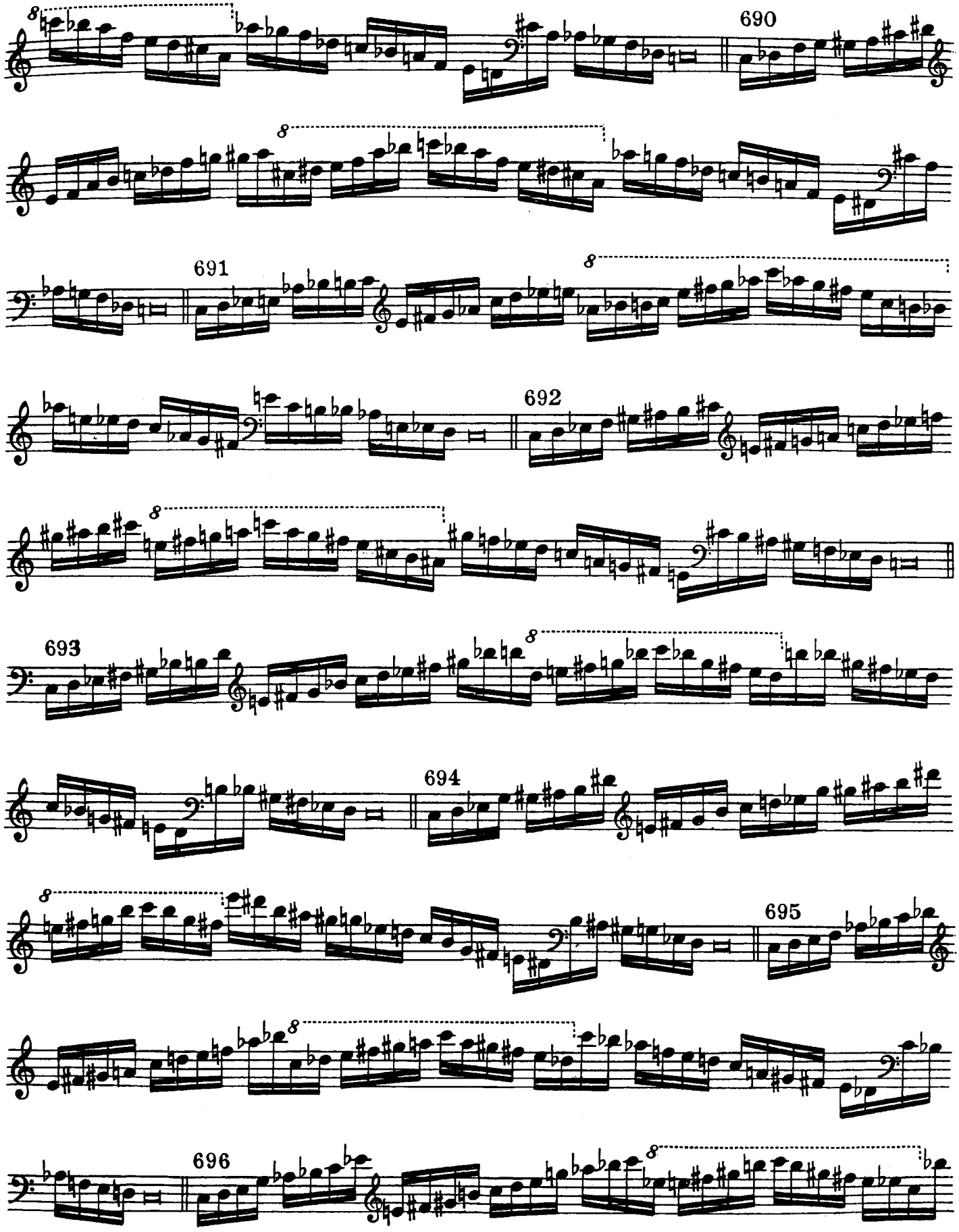


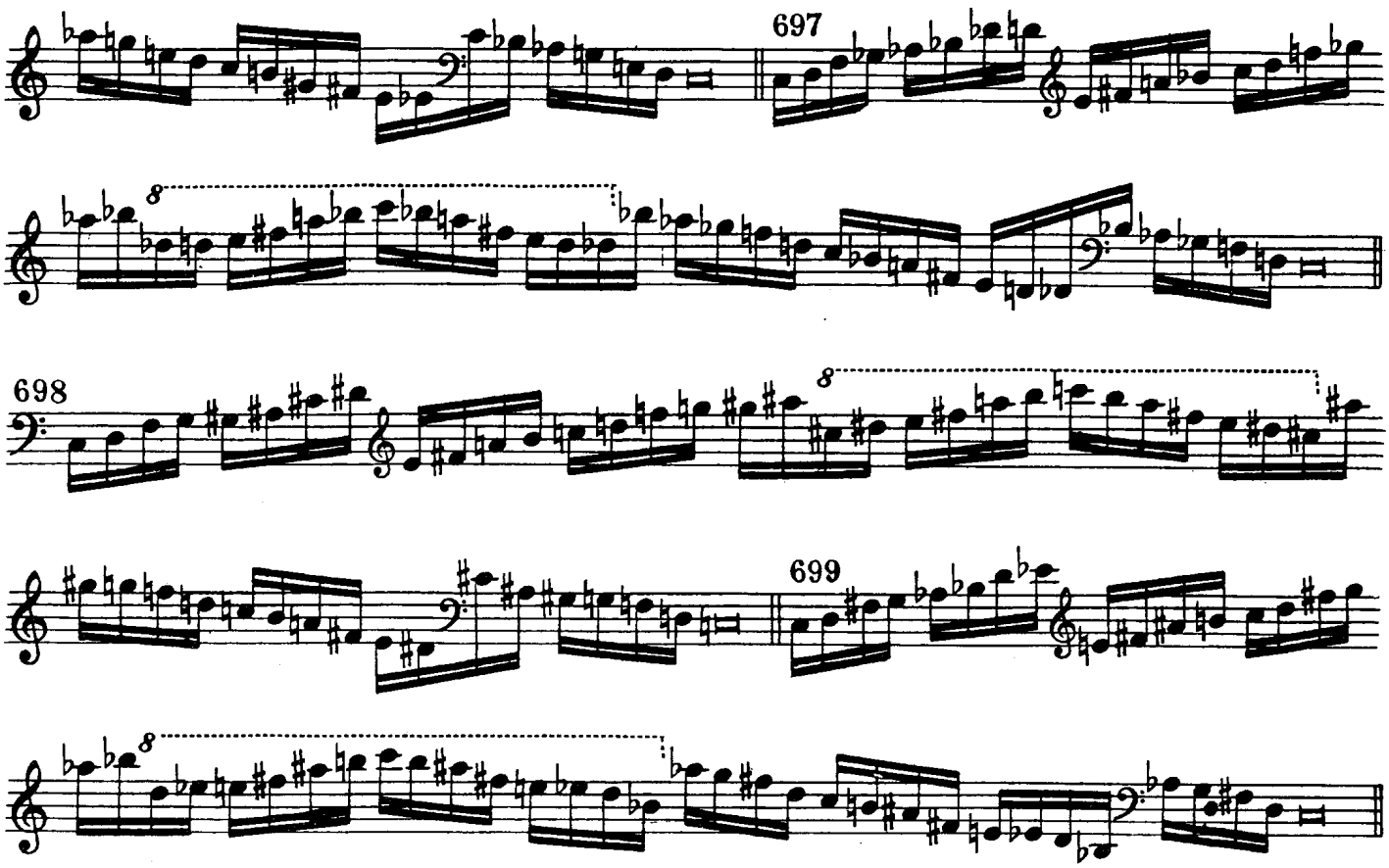
682



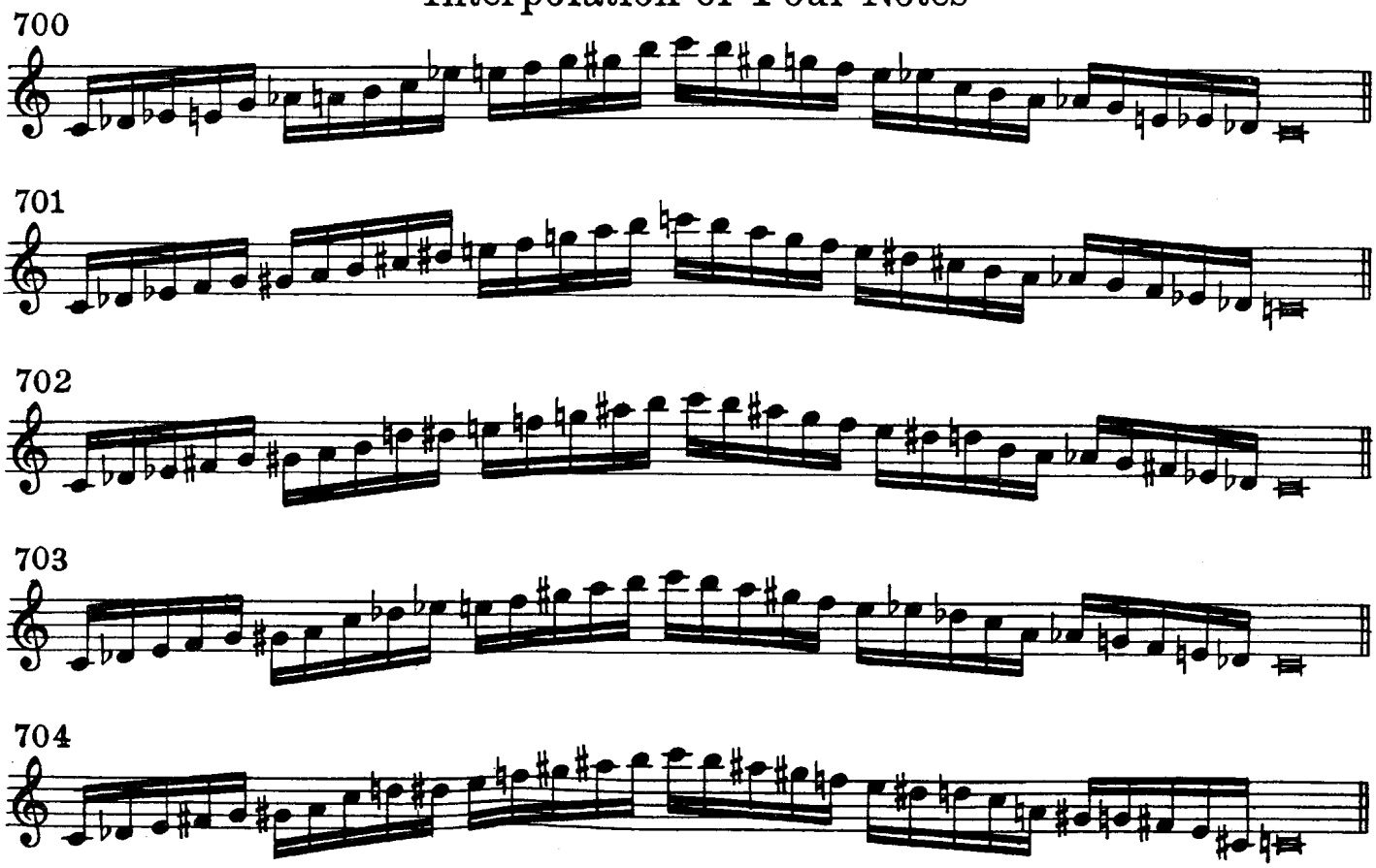
Interpolation of Three Notes




690
691
692
693
694
695
696



Interpolation of Four Notes



705

706

707

708

709

710

711

Ultrapolation of One Note

712

713

714

715

716

717

Infrapolation of One Note

[Rimsky-Korsakov: *Coq d'or*, Scene II]

718 719

720

721 722

723

Inter-Infrapolation

724

725

726

727

Ultra-Interpolation

728

729

730

731

732

Inter-Infra-Ultrapolation

733

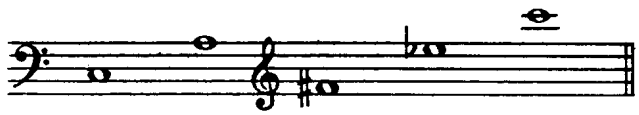
734 [12 tones]

735 [12 tones]

736 [12 tones]

Sesquiquadritone Progression

Equal Division of Three Octaves into Four Parts



Interpolation of One Note

737 738

739 740

741 742

743 744

Interpolation of Two Notes

745

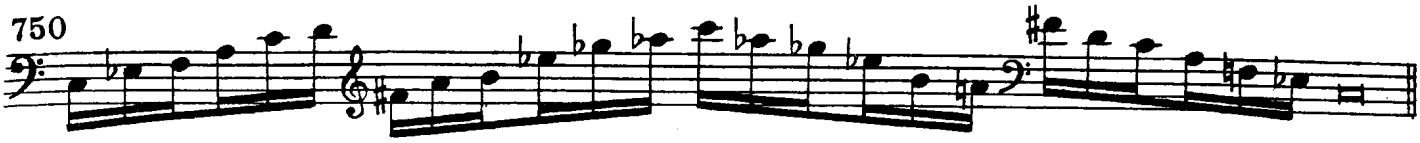
746

747

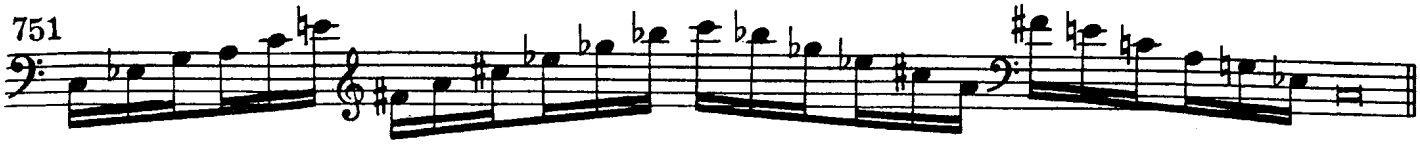
748

749 [12 tones]

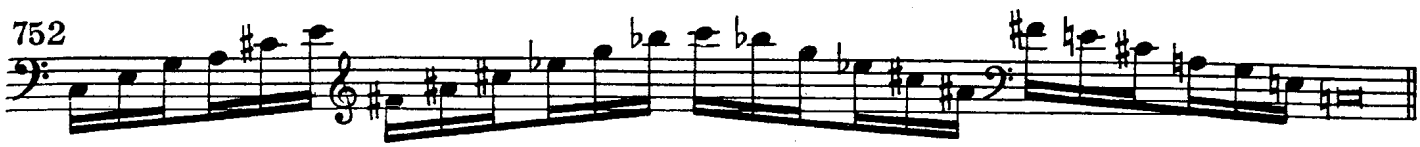
750



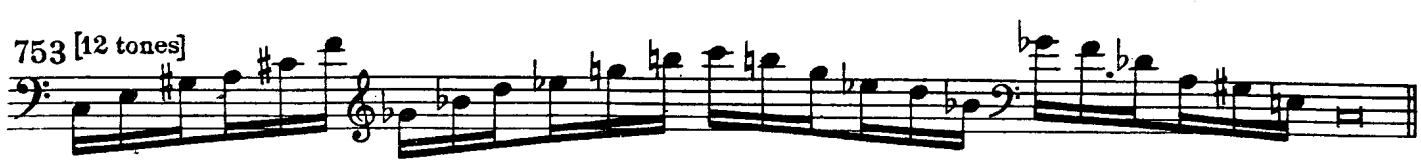
751



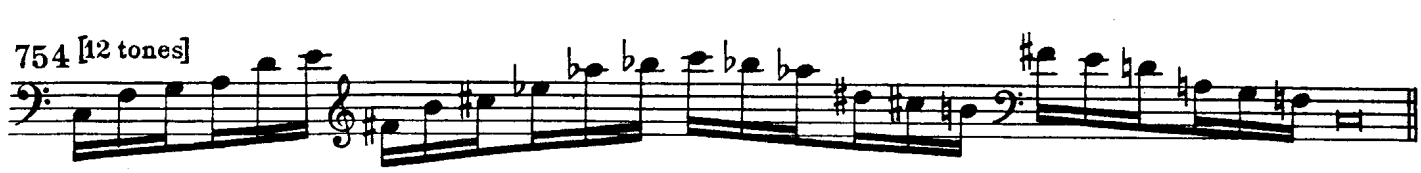
752



753 [12 tones]

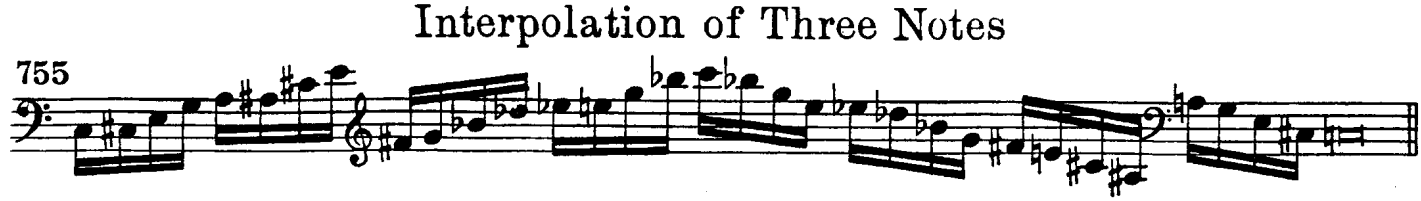


754 [12 tones]

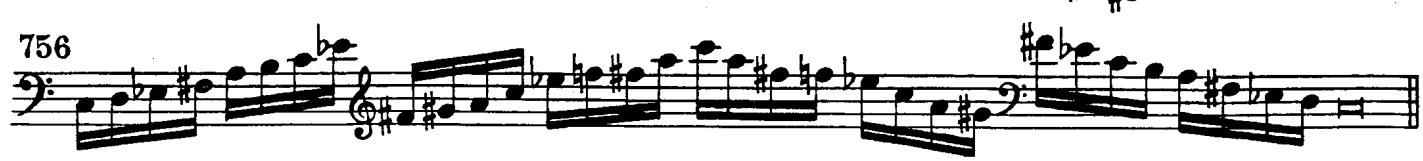


Interpolation of Three Notes

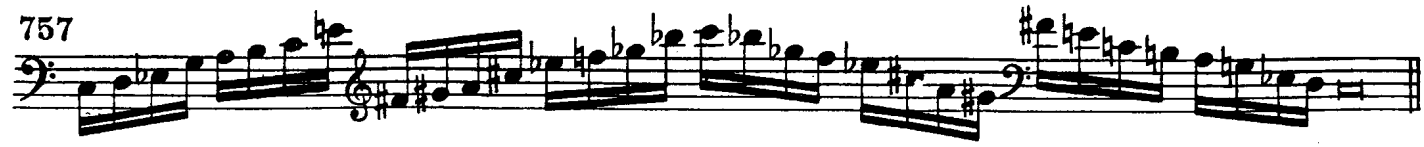
755



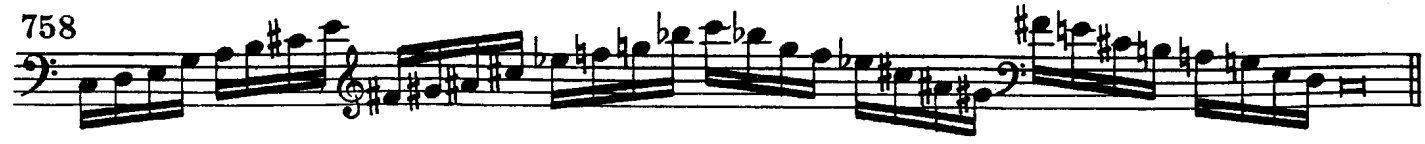
756



757



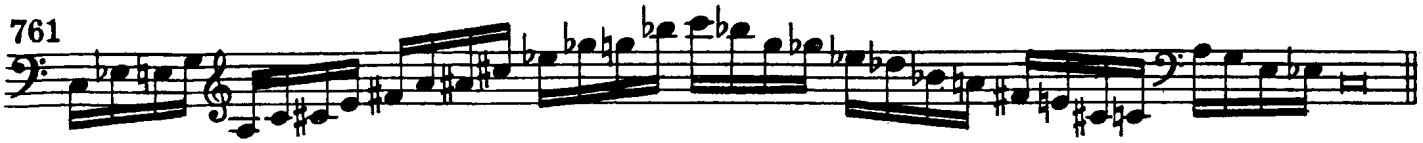
758



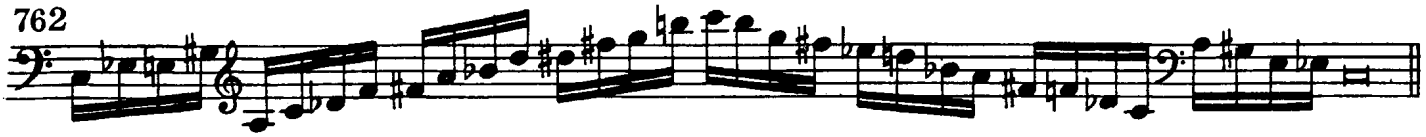
759

760

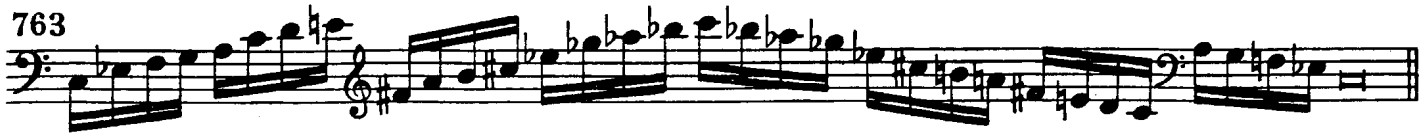
761



762

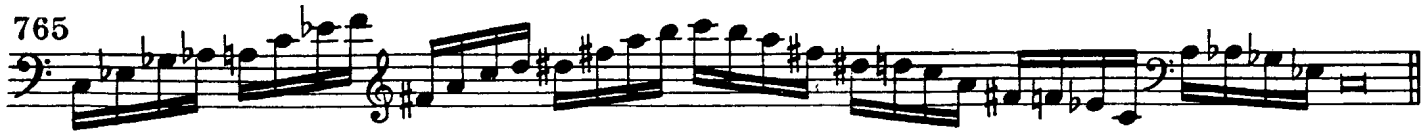


763

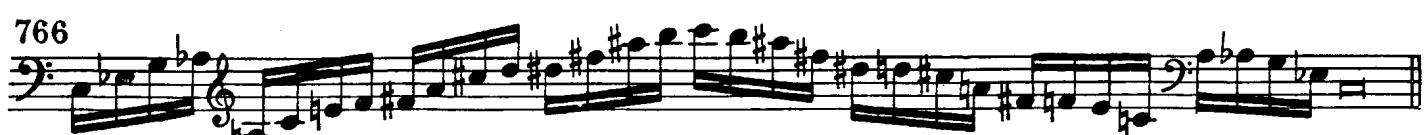


764

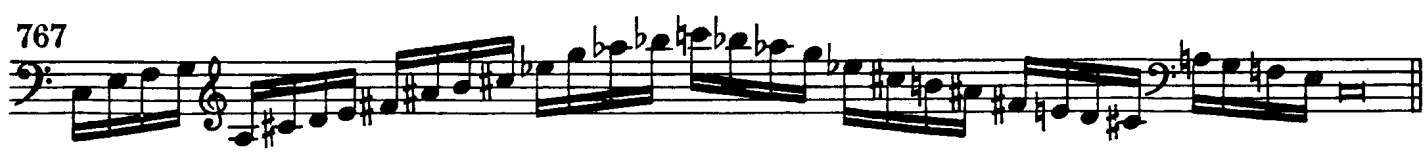
765



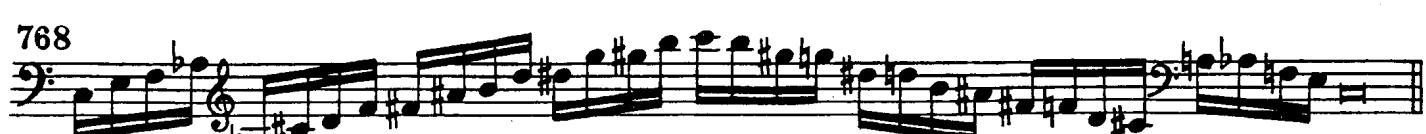
766



767

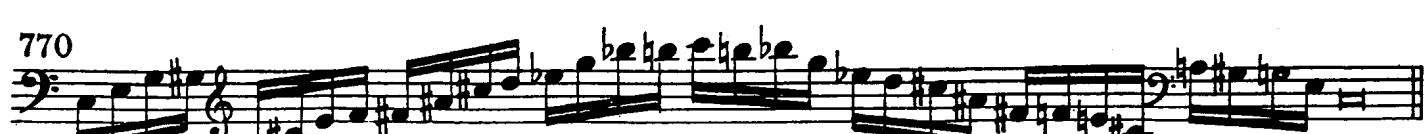


768



769

770



771

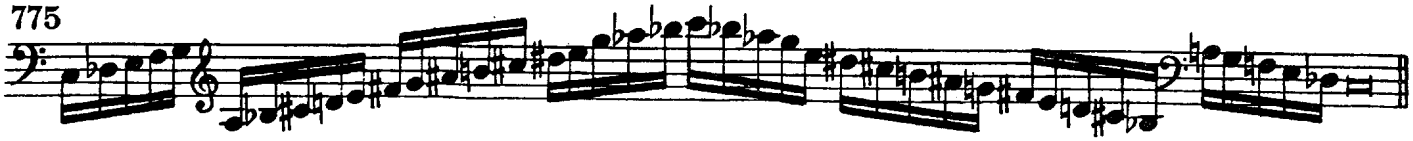
Interpolation of Four Notes

772

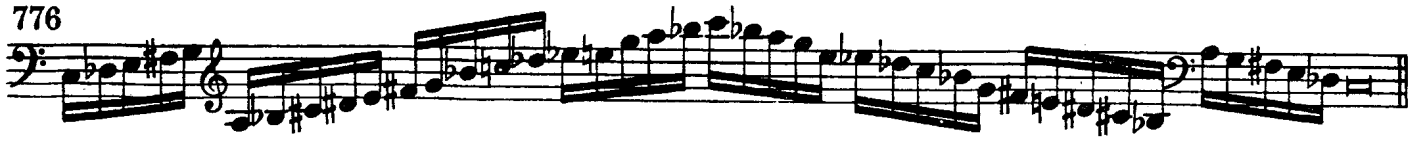
773

774

775

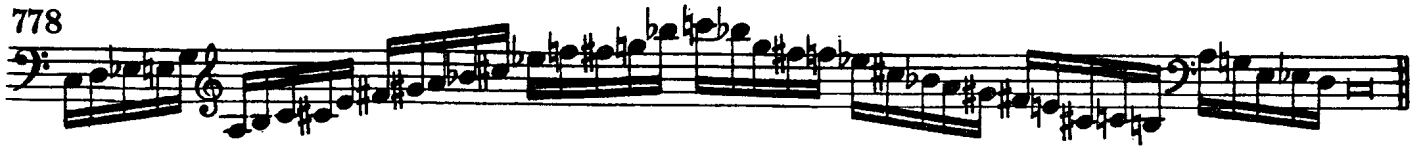


776

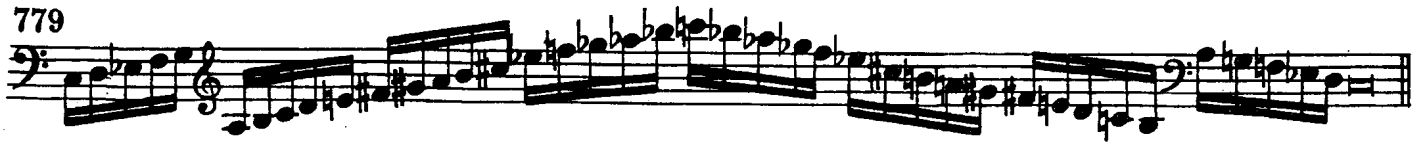


777

778



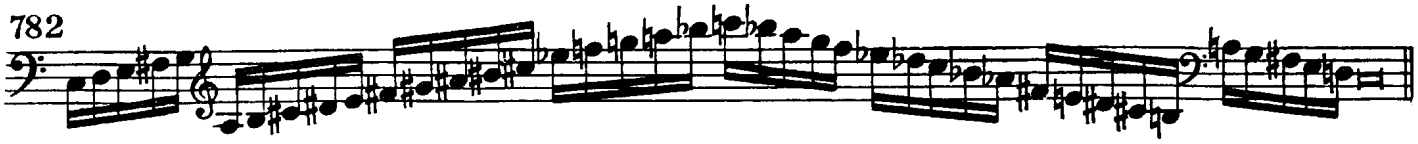
779



780

781

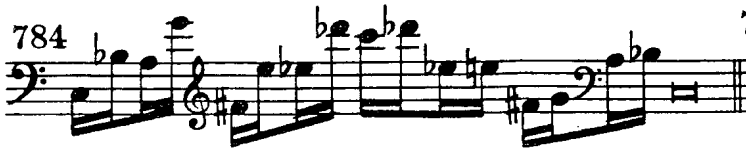
782



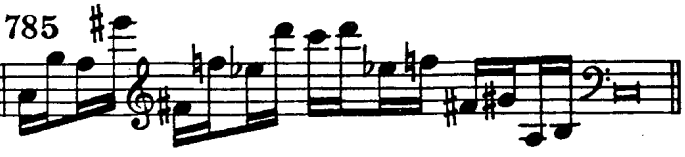
783

Ultrapolation of One Note

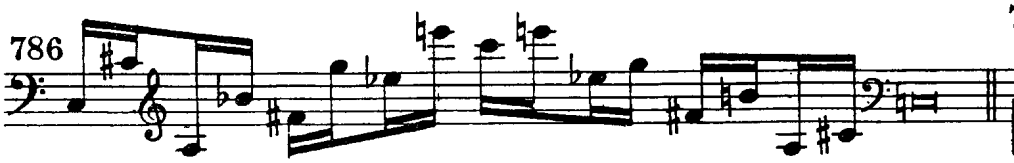
784



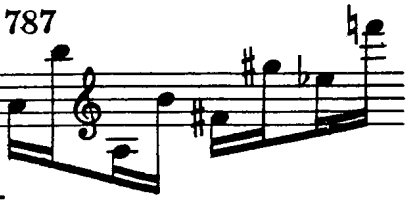
785



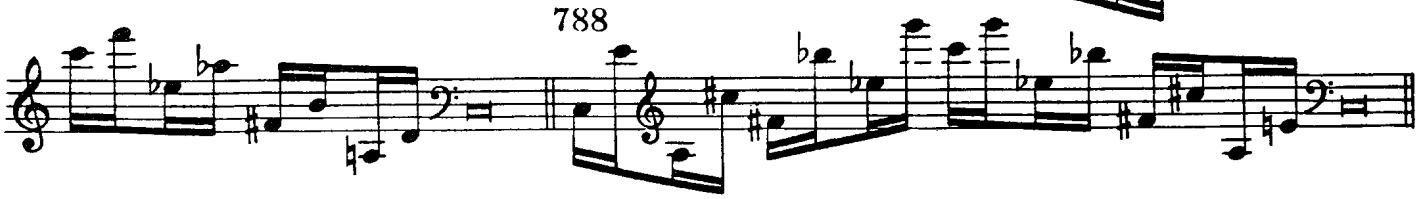
786



787

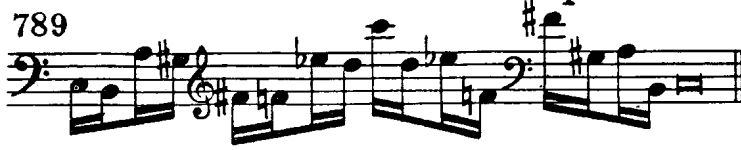


788

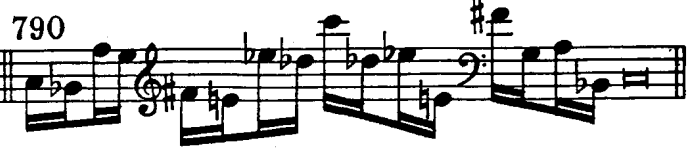


Infrapolation of One Note

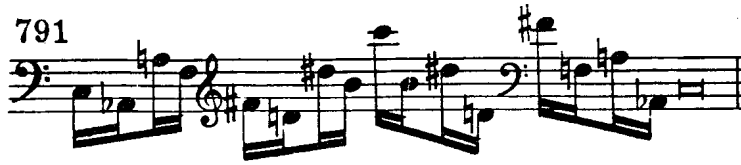
789



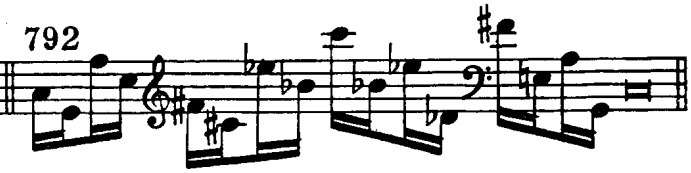
790



791

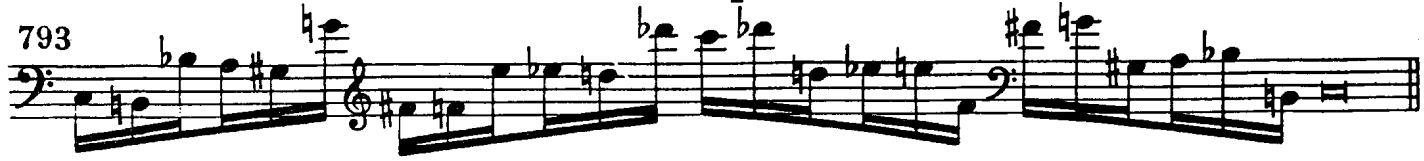


792



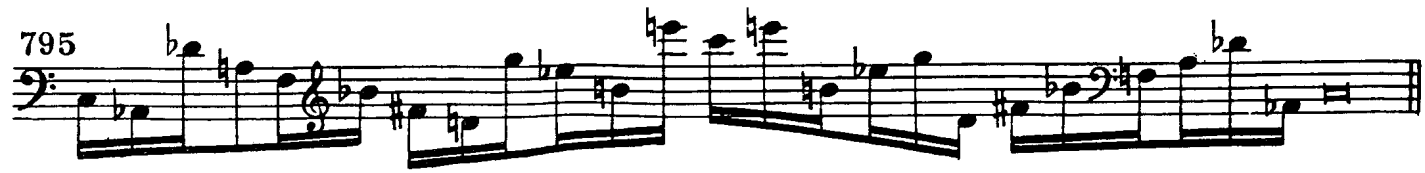
Infra-Ultrapolation

793



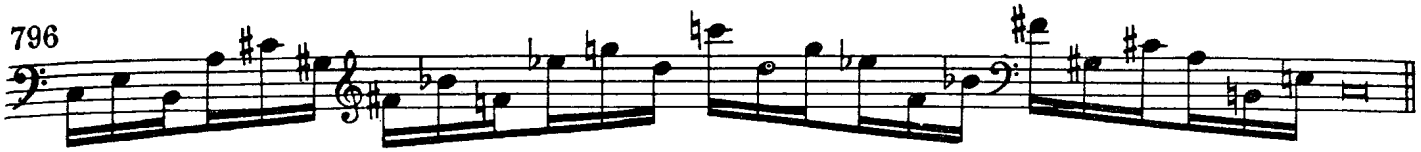
794

795

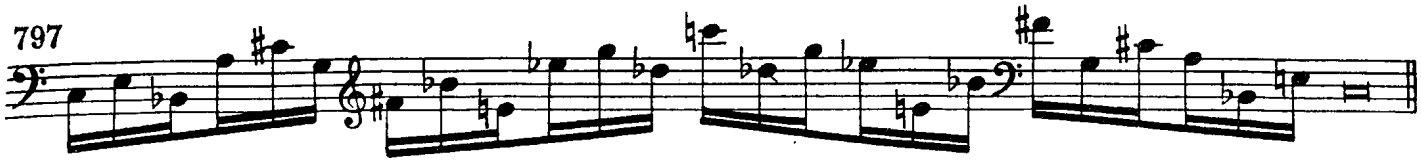


Inter-Infrapolation

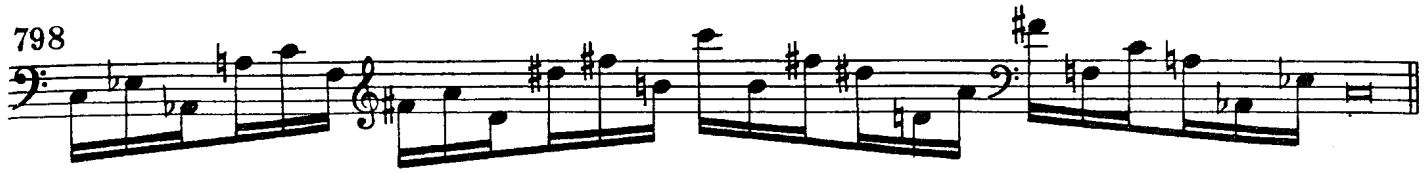
796



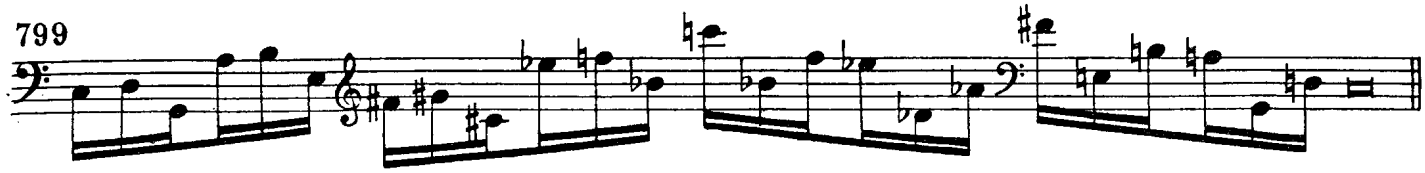
797



798

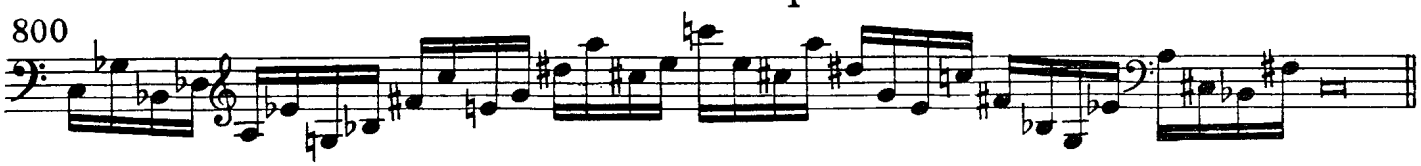


799

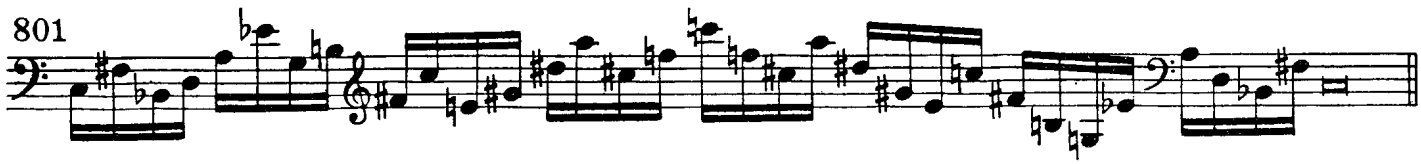


Inter-Infra-Interpolation

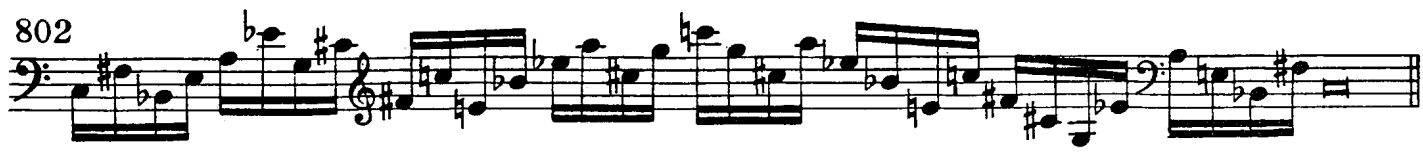
800



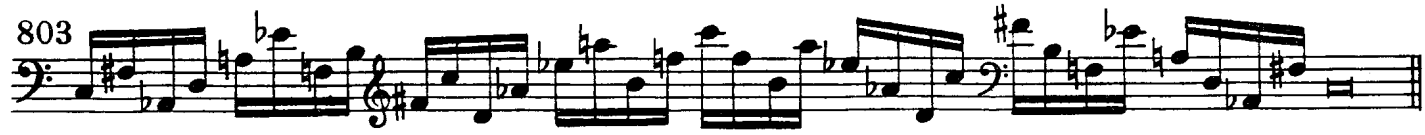
801



802

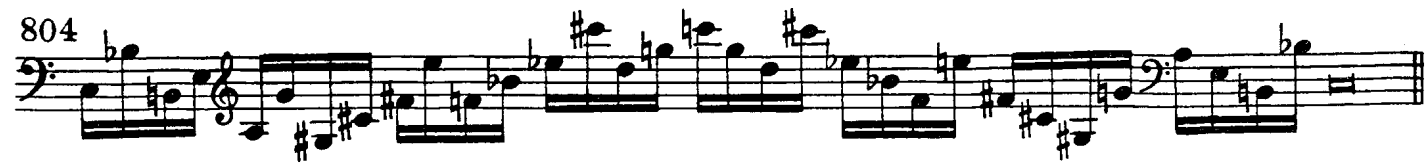


803



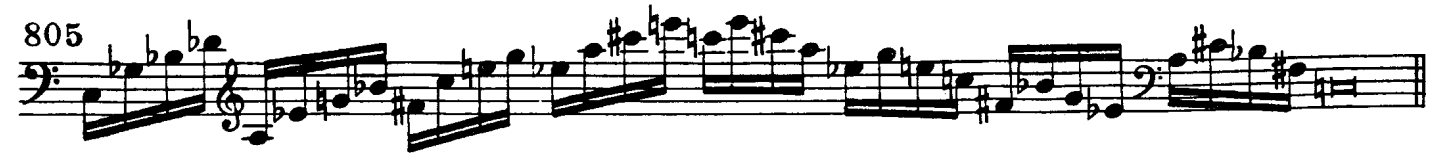
Ultra-Infra-Interpolation

804



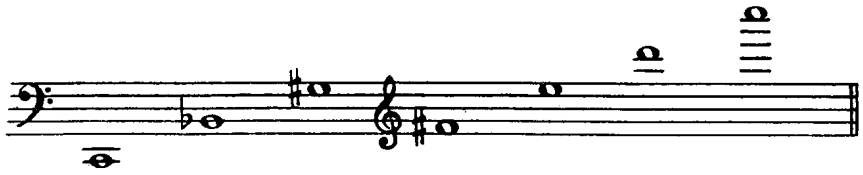
Inter-Ultrapolation

805

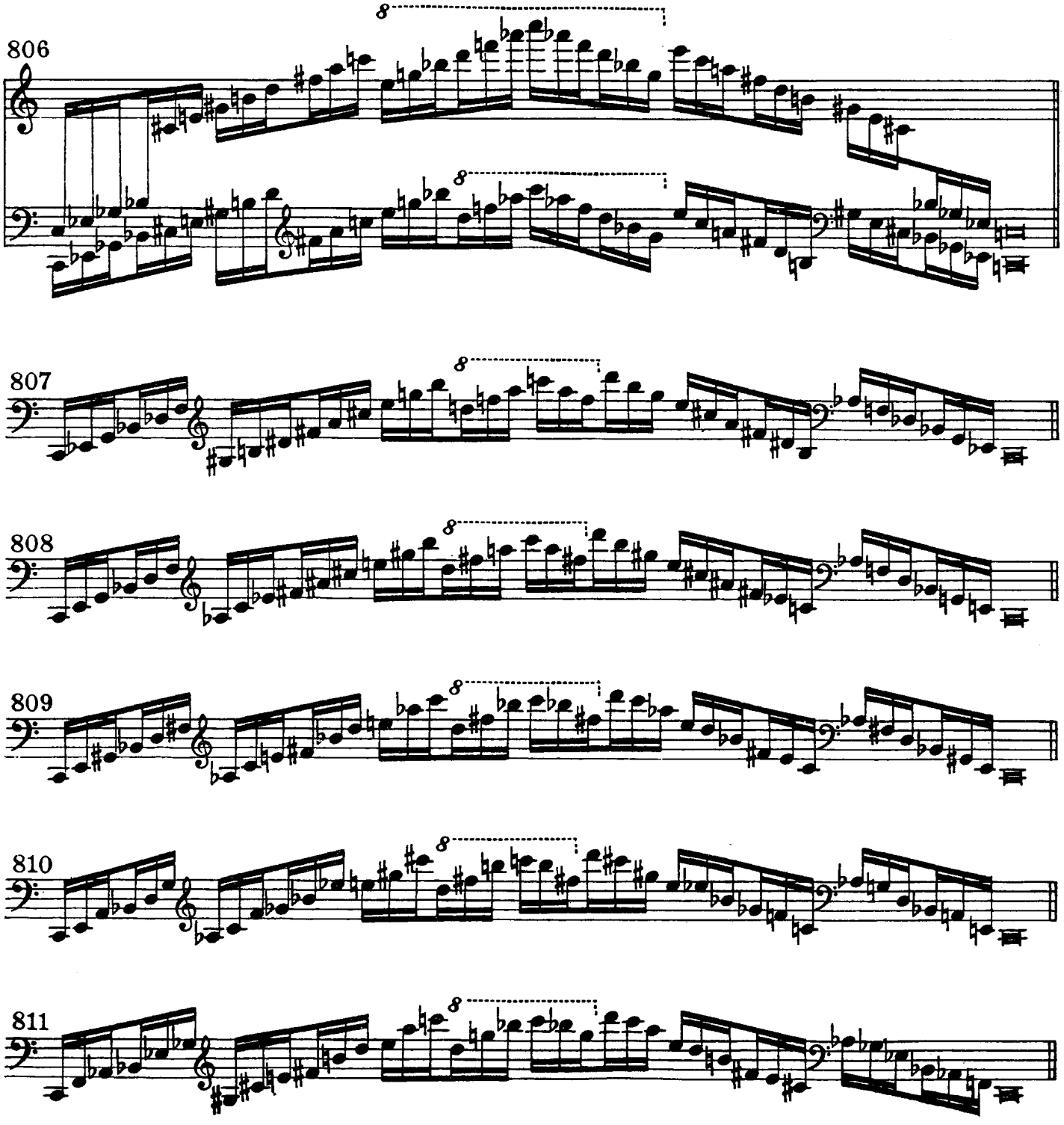


Quinquetone Progression

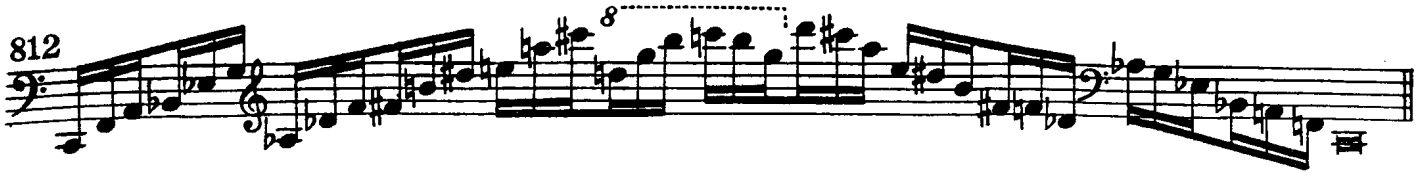
Equal Division of Five Octaves into Six Parts



Interpolation of Two Notes

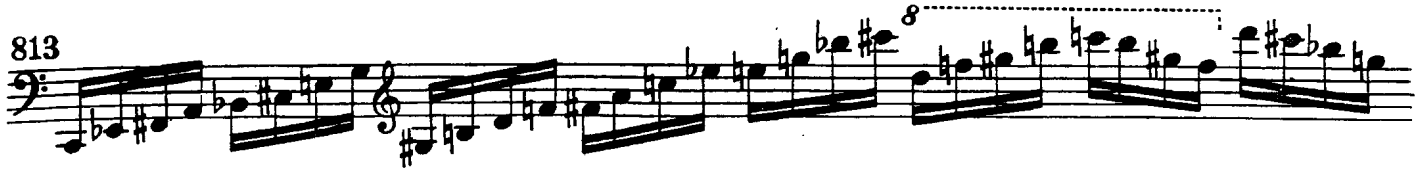


812

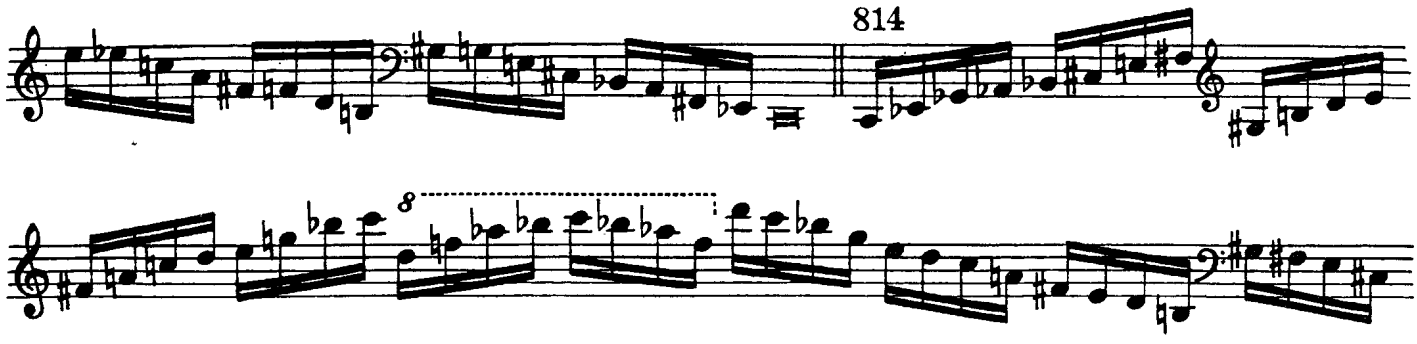


Interpolation of Three Notes

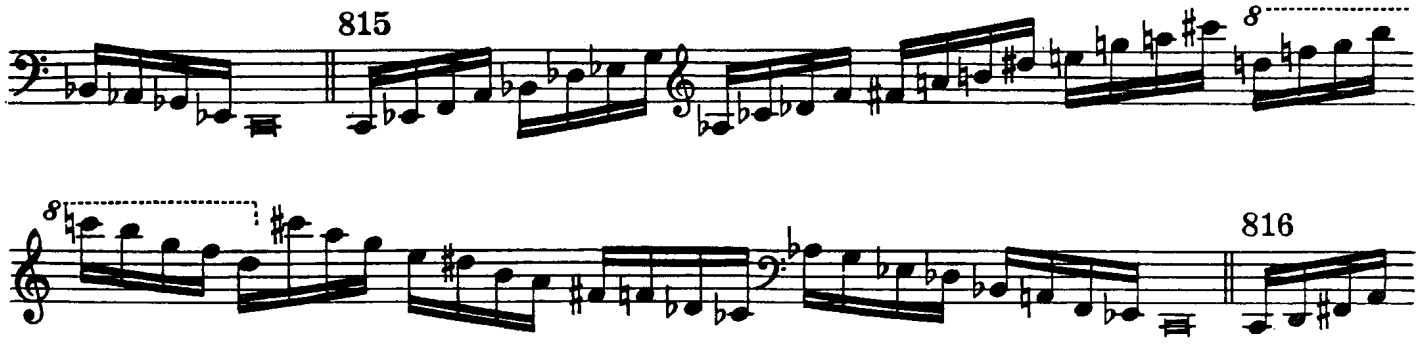
813



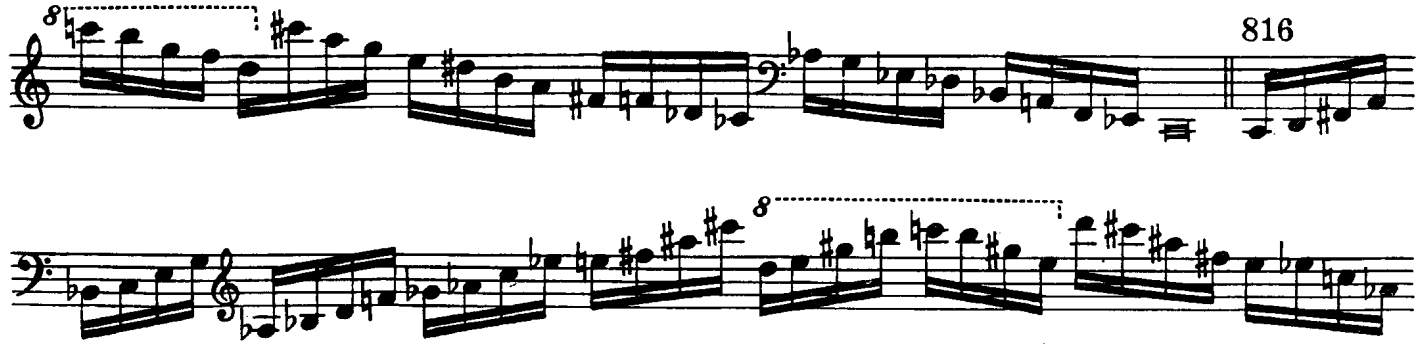
814



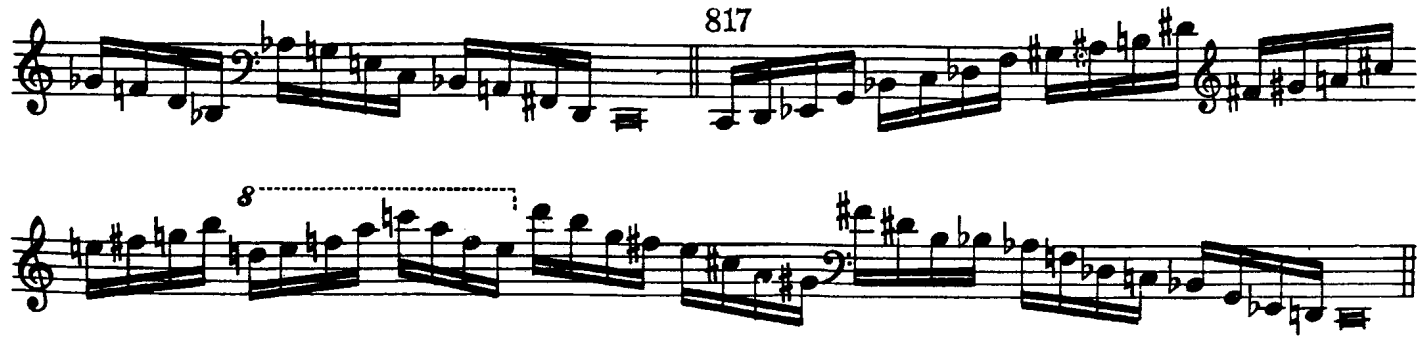
815

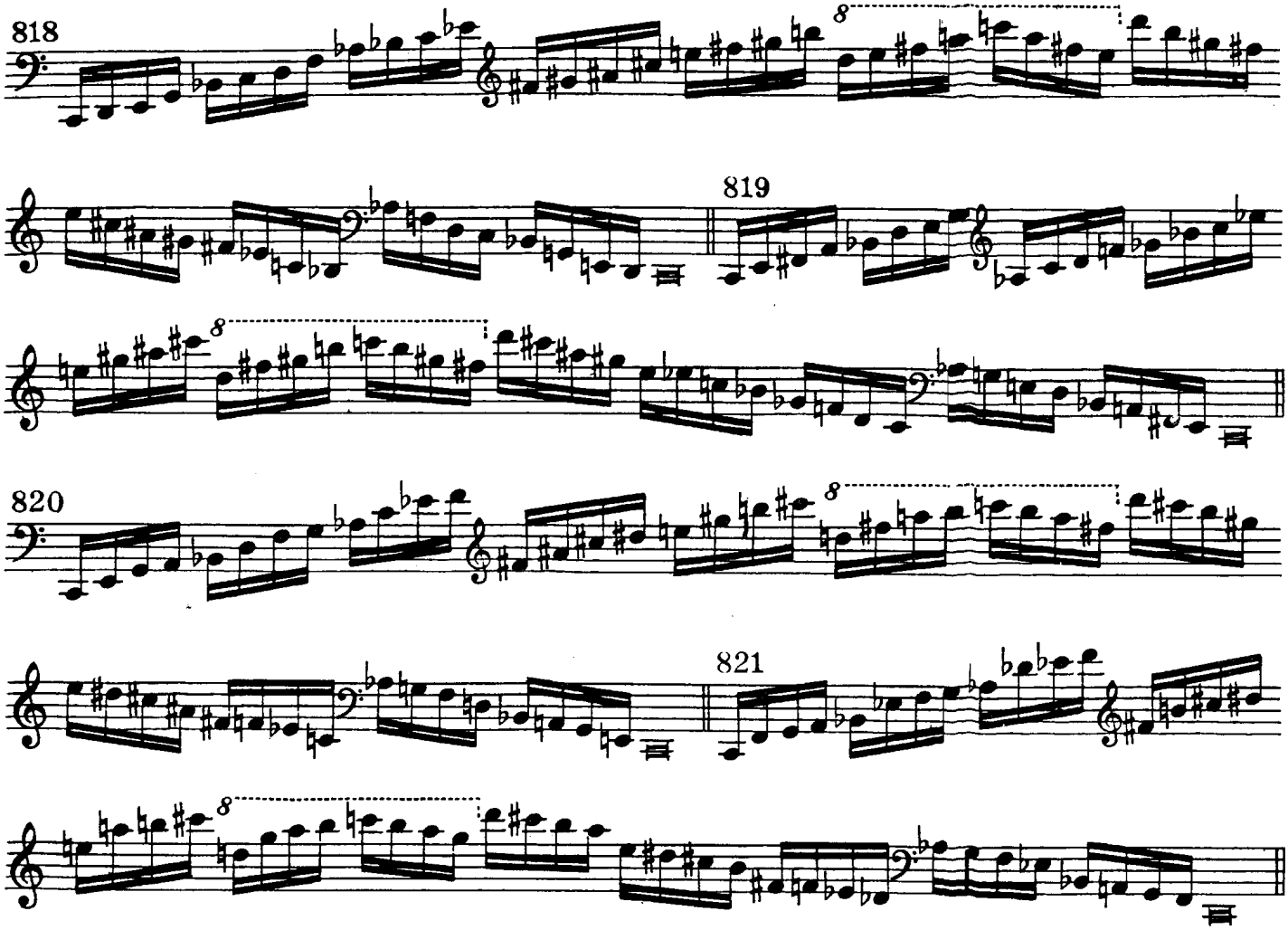


816

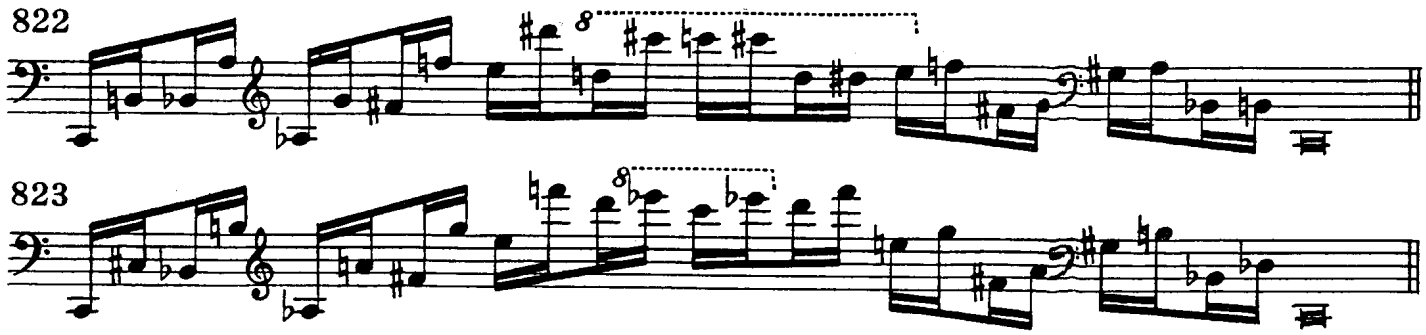


817

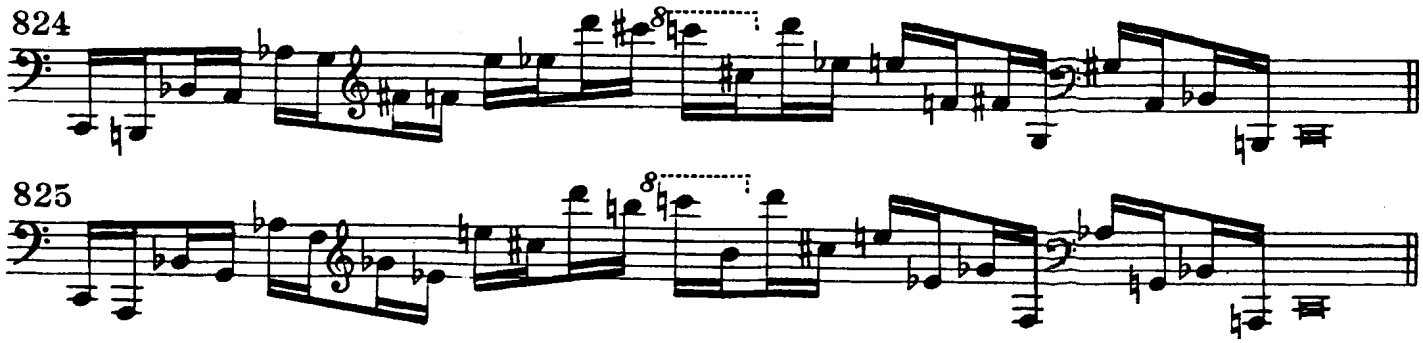




Ultrapolation of One Note

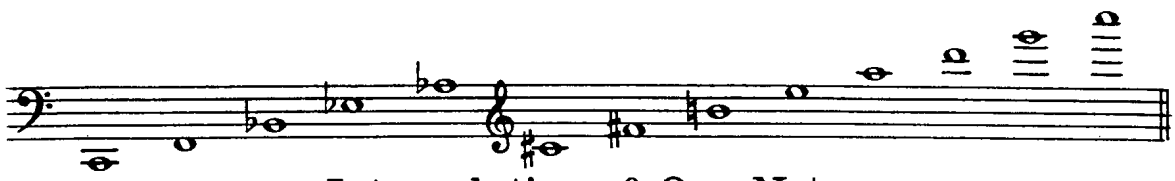


Infrapolation of One Note



Diatessaron Progression

Equal Division of Five Octaves into Twelve Parts



Interpolation of One Note

826

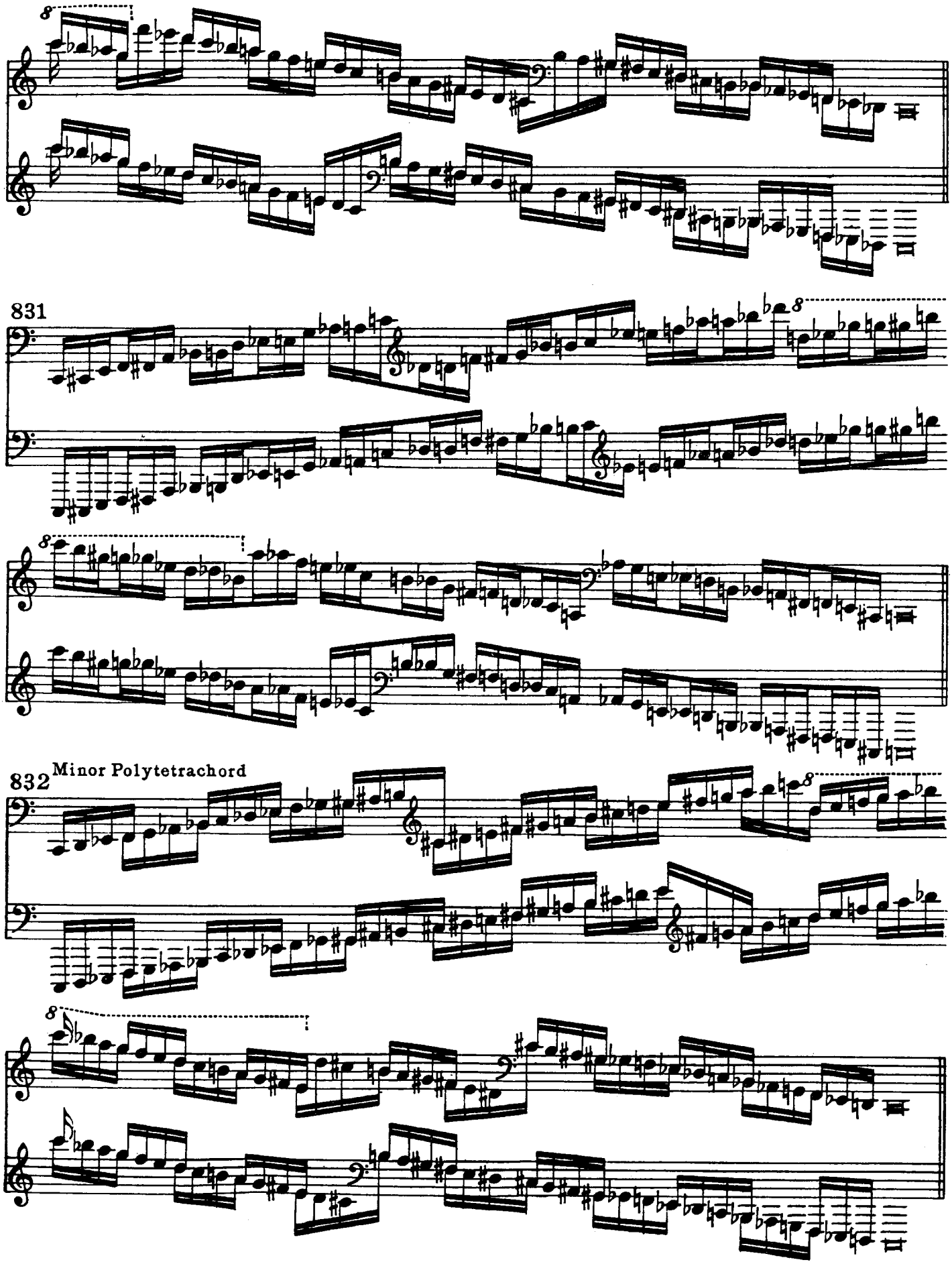
827

828

829

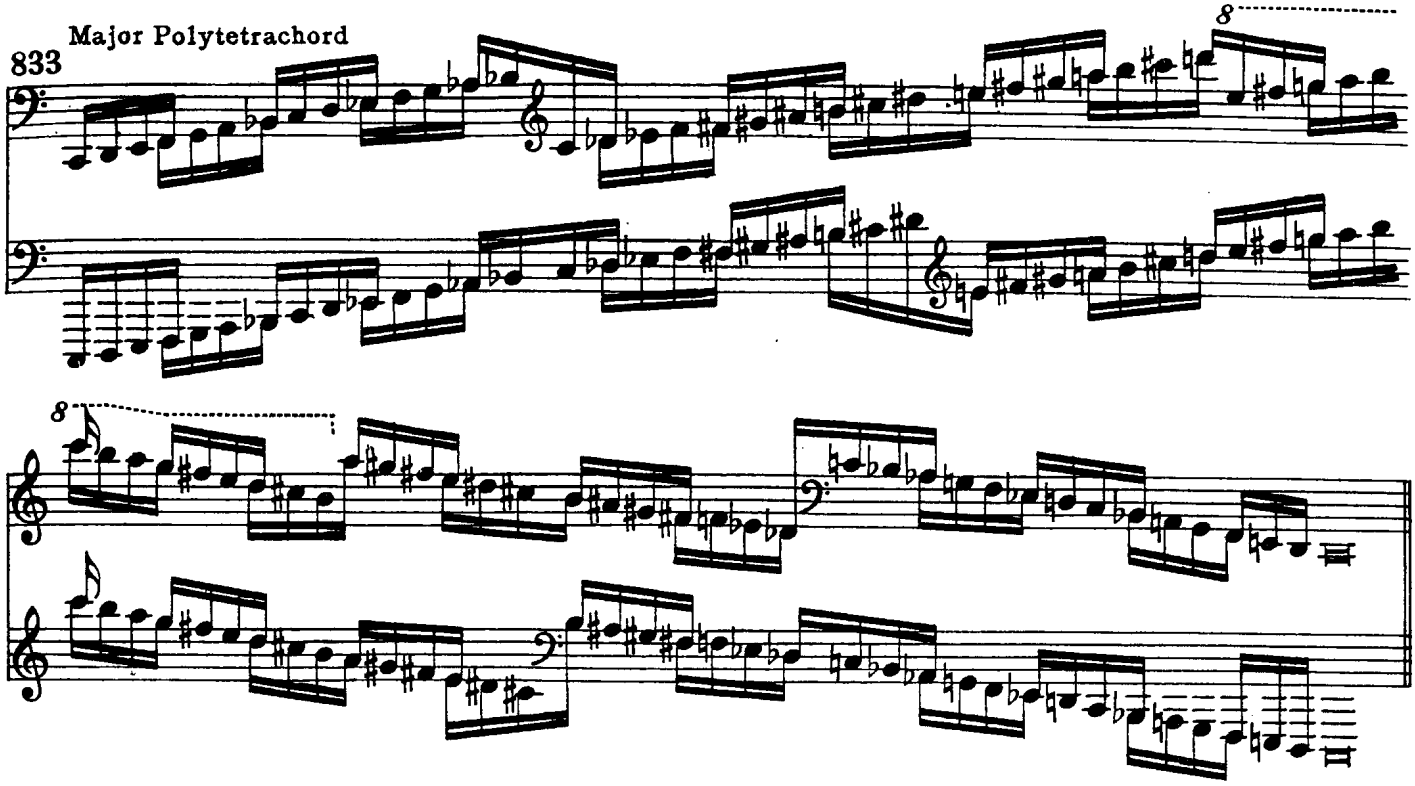
Interpolation of Two Notes

830 Phrygian Polytetrachord

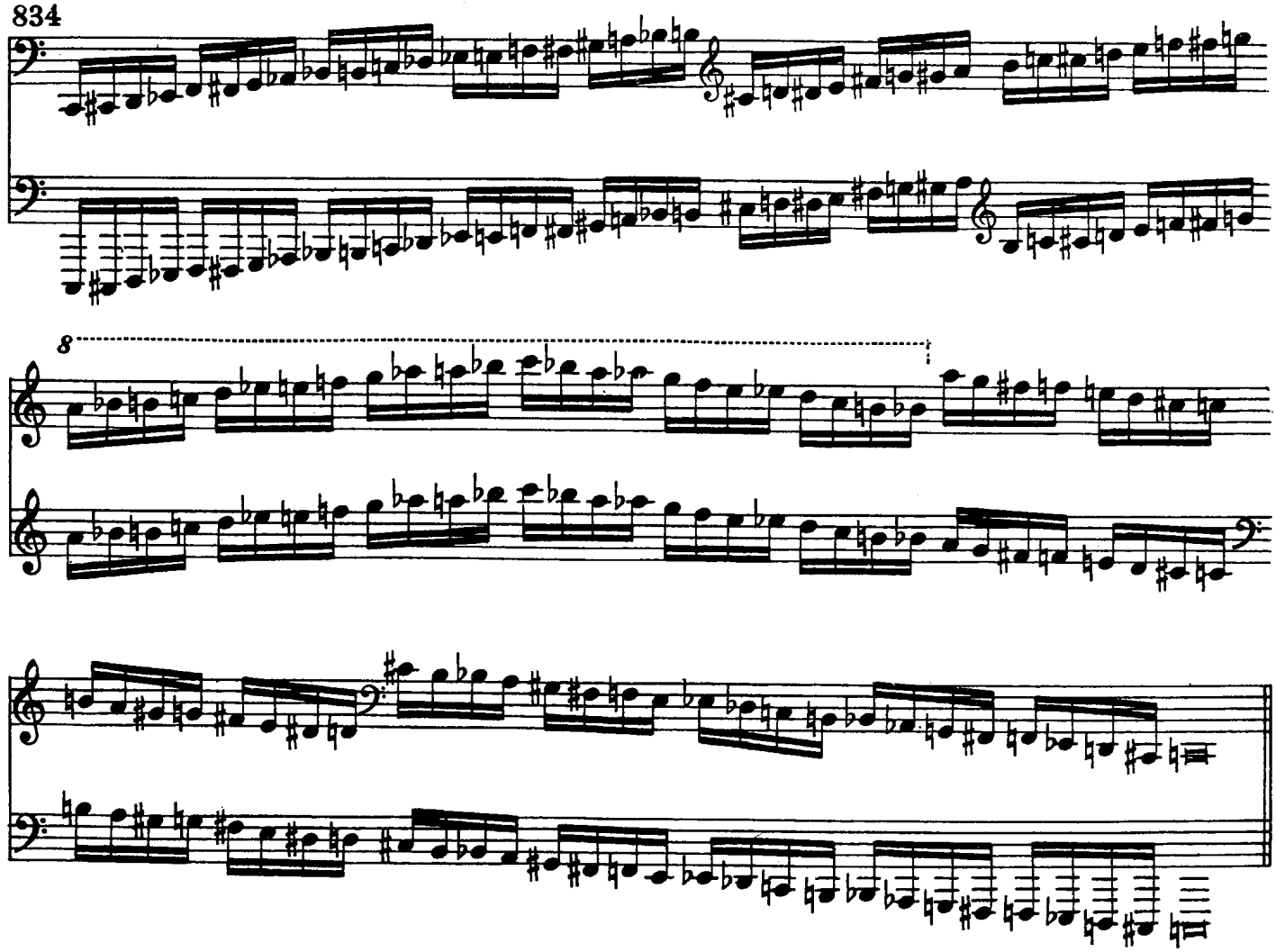

831
832
Minor Polytetrachord

Major Polytetrachord

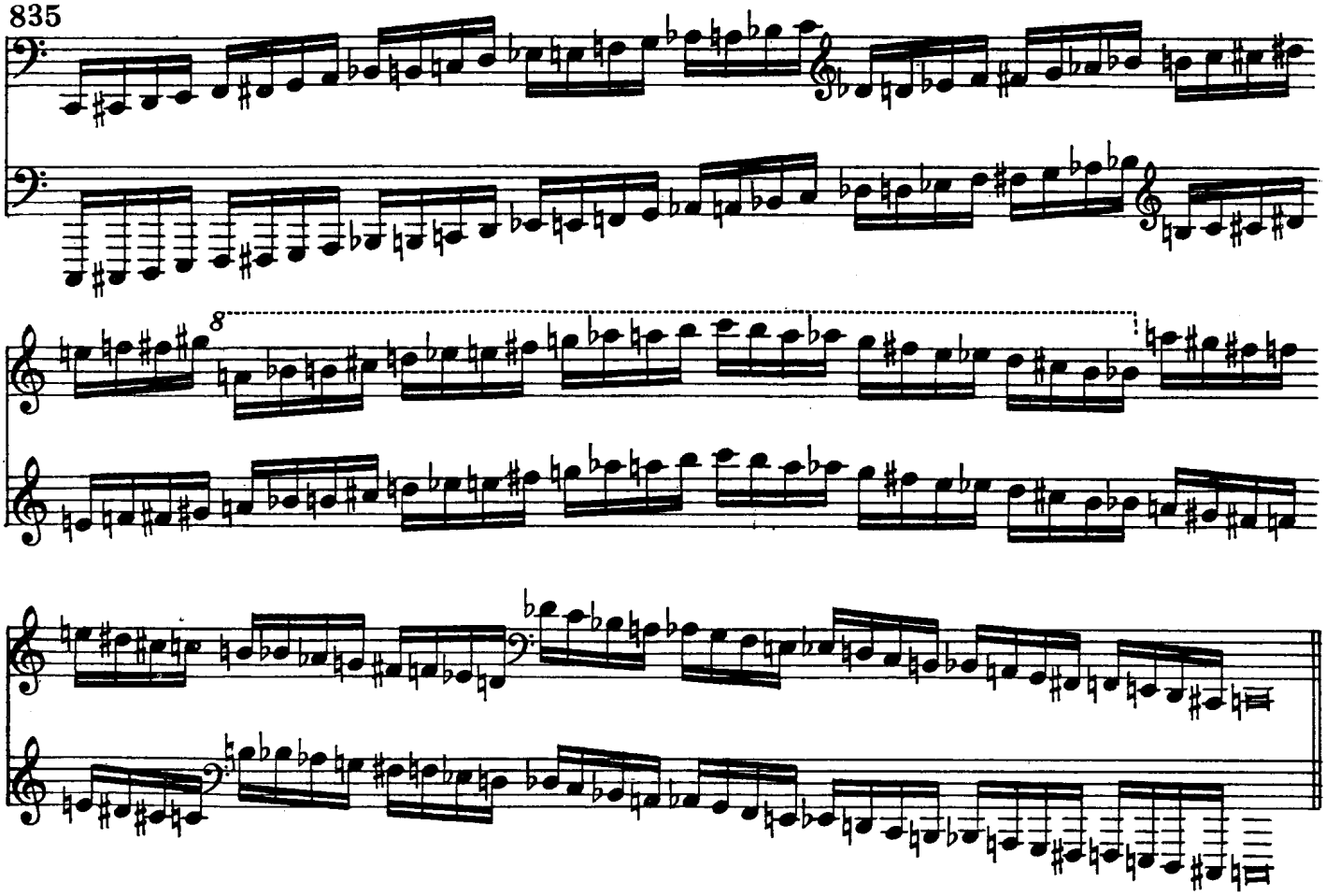
833



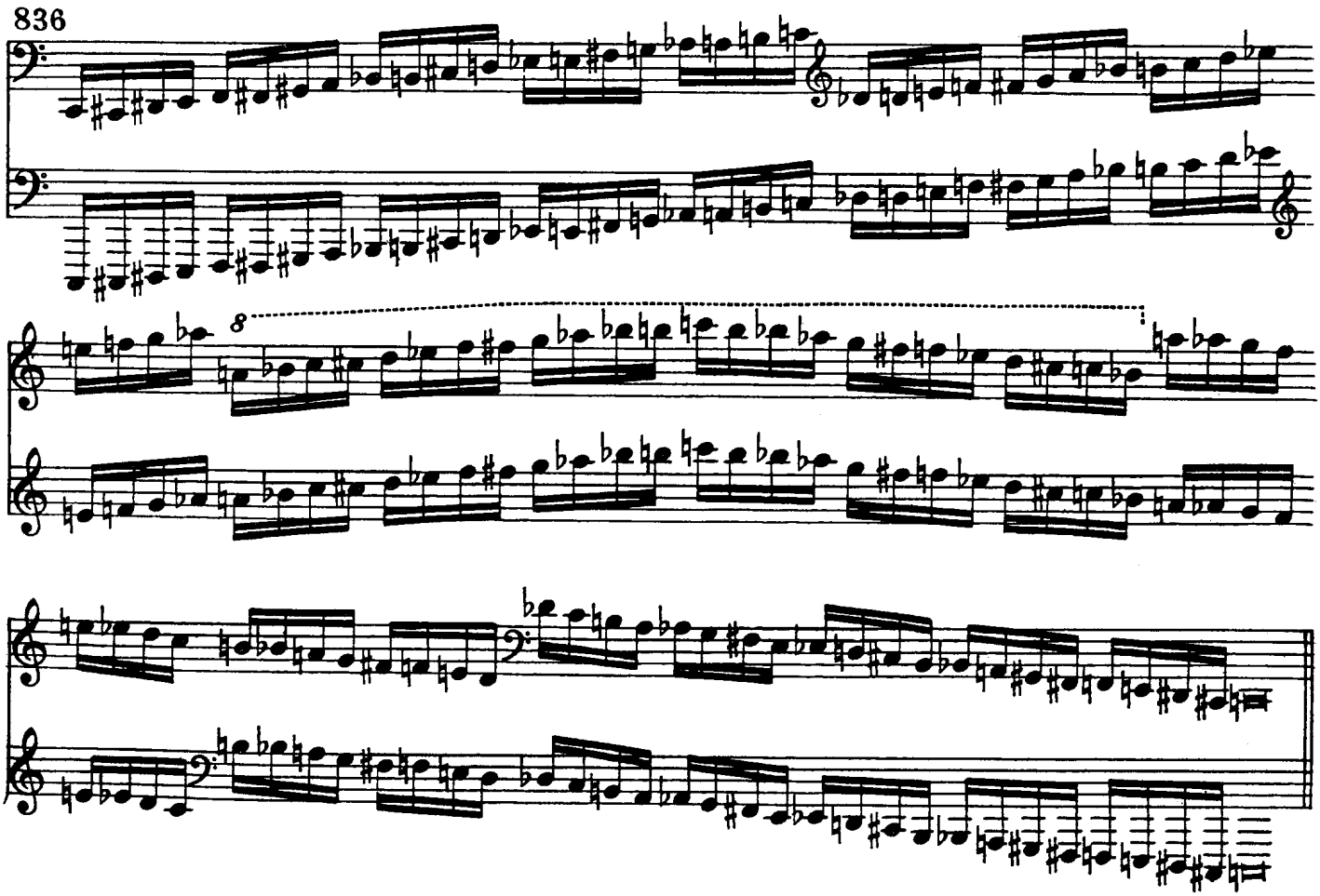
834



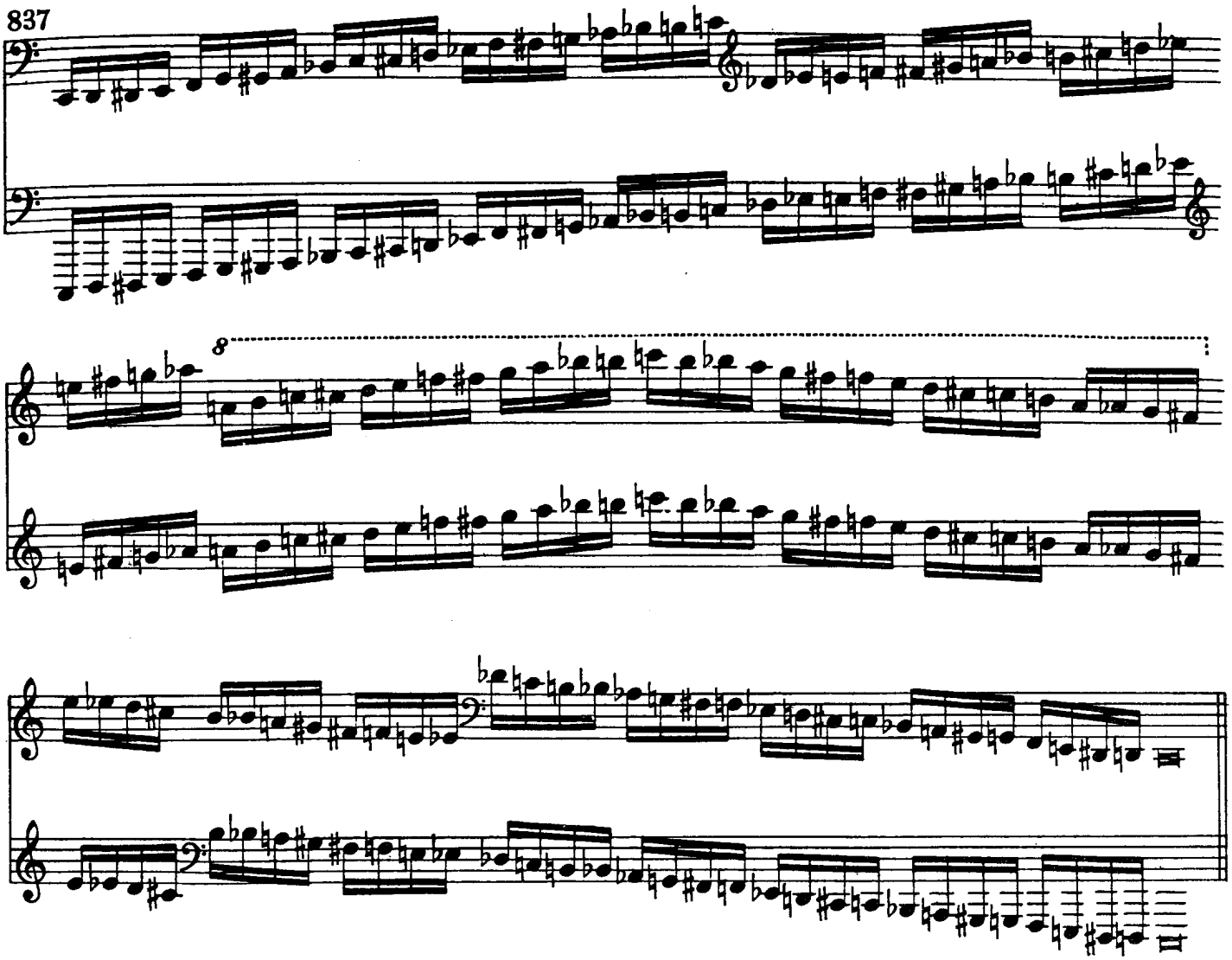
835



836

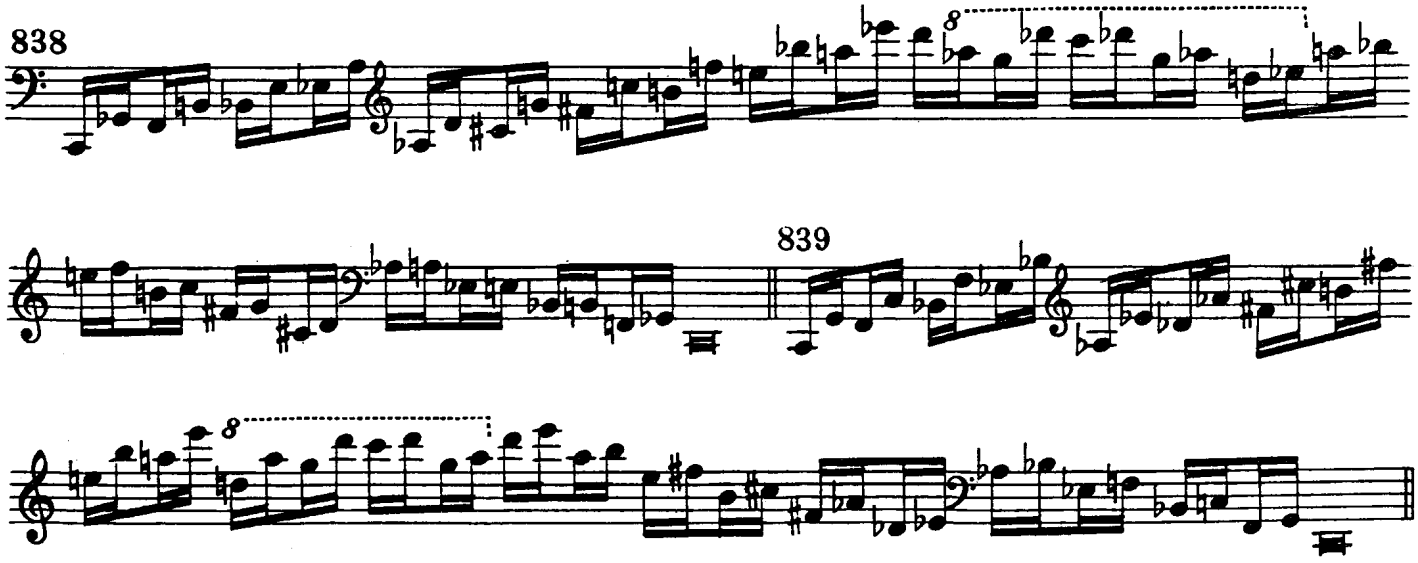


837



Ultrapolation of One Note

838



839

840

841

842

843

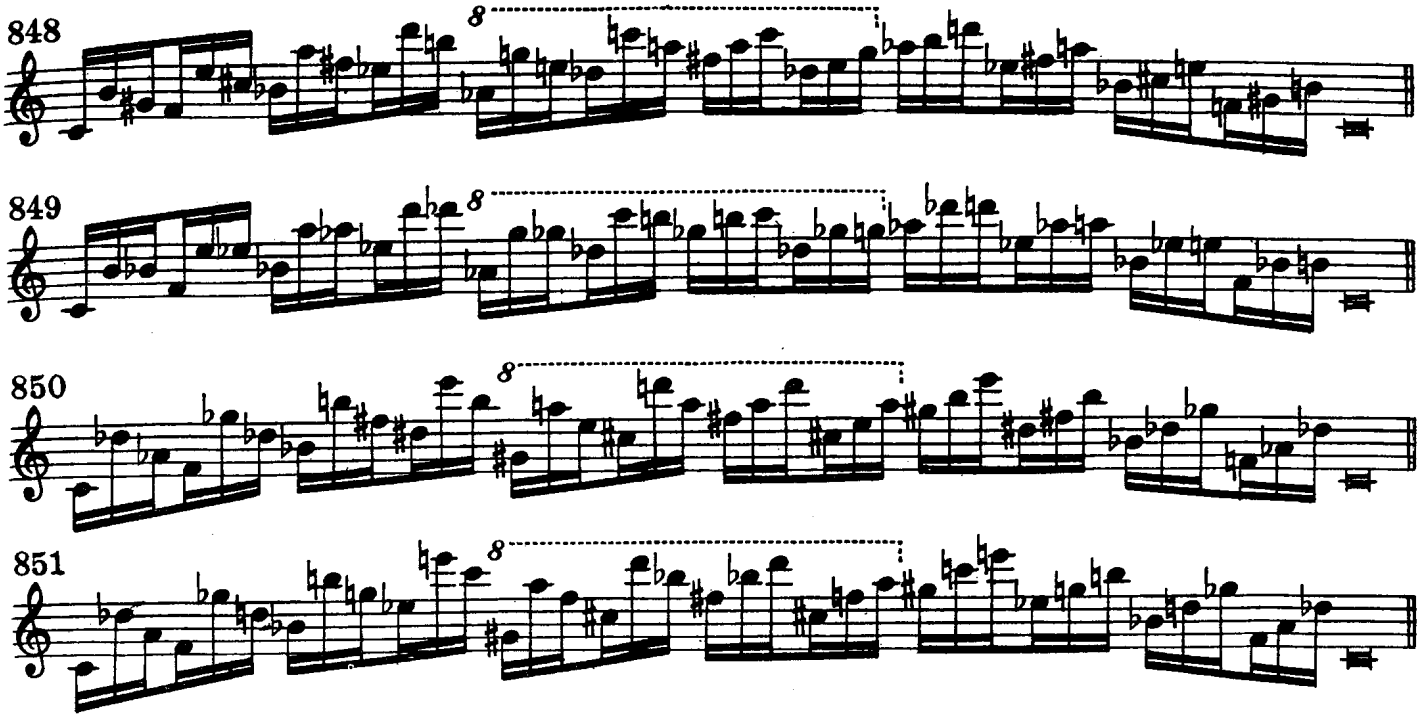
Ultrapolation of Two Notes

844

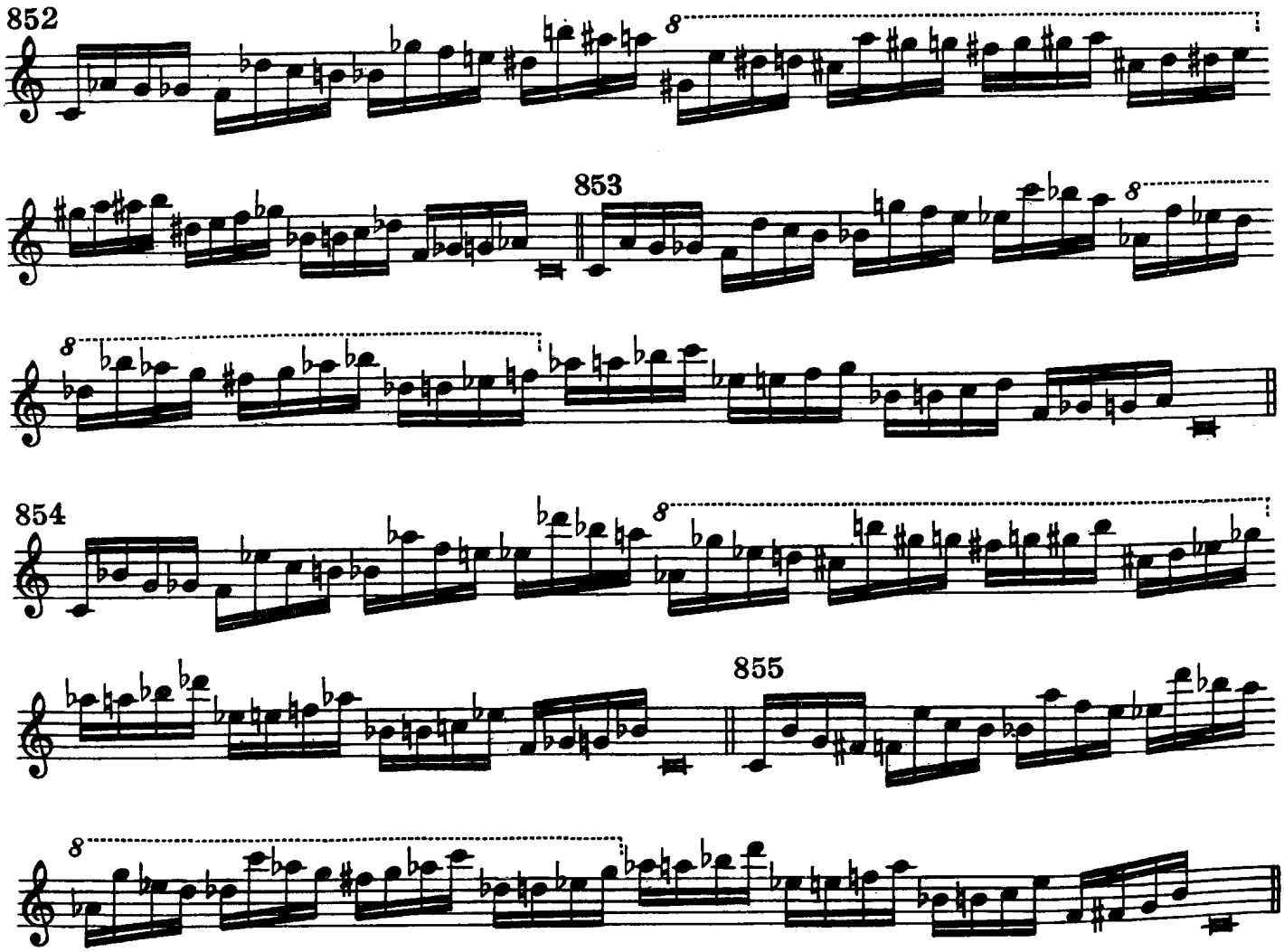
845

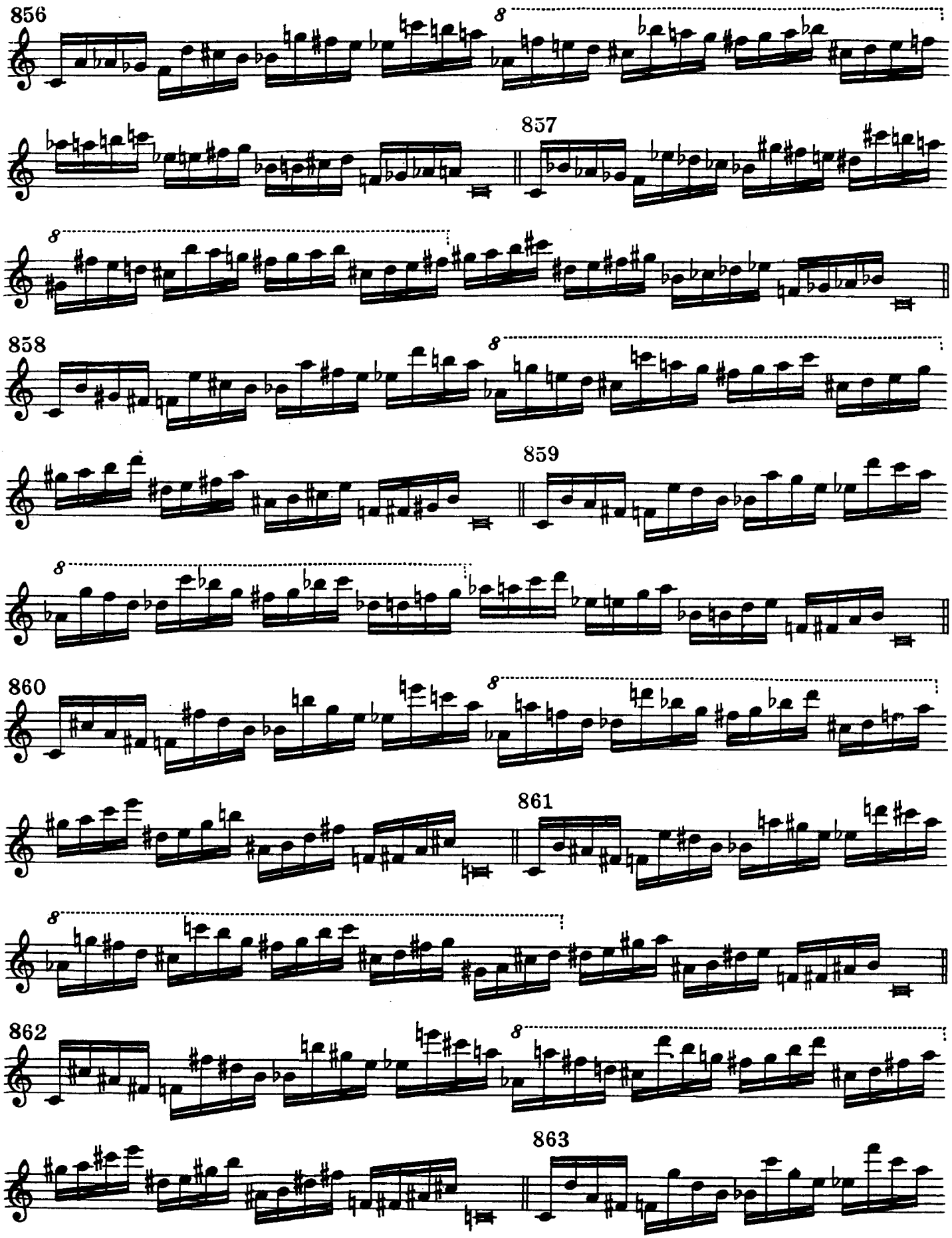
846

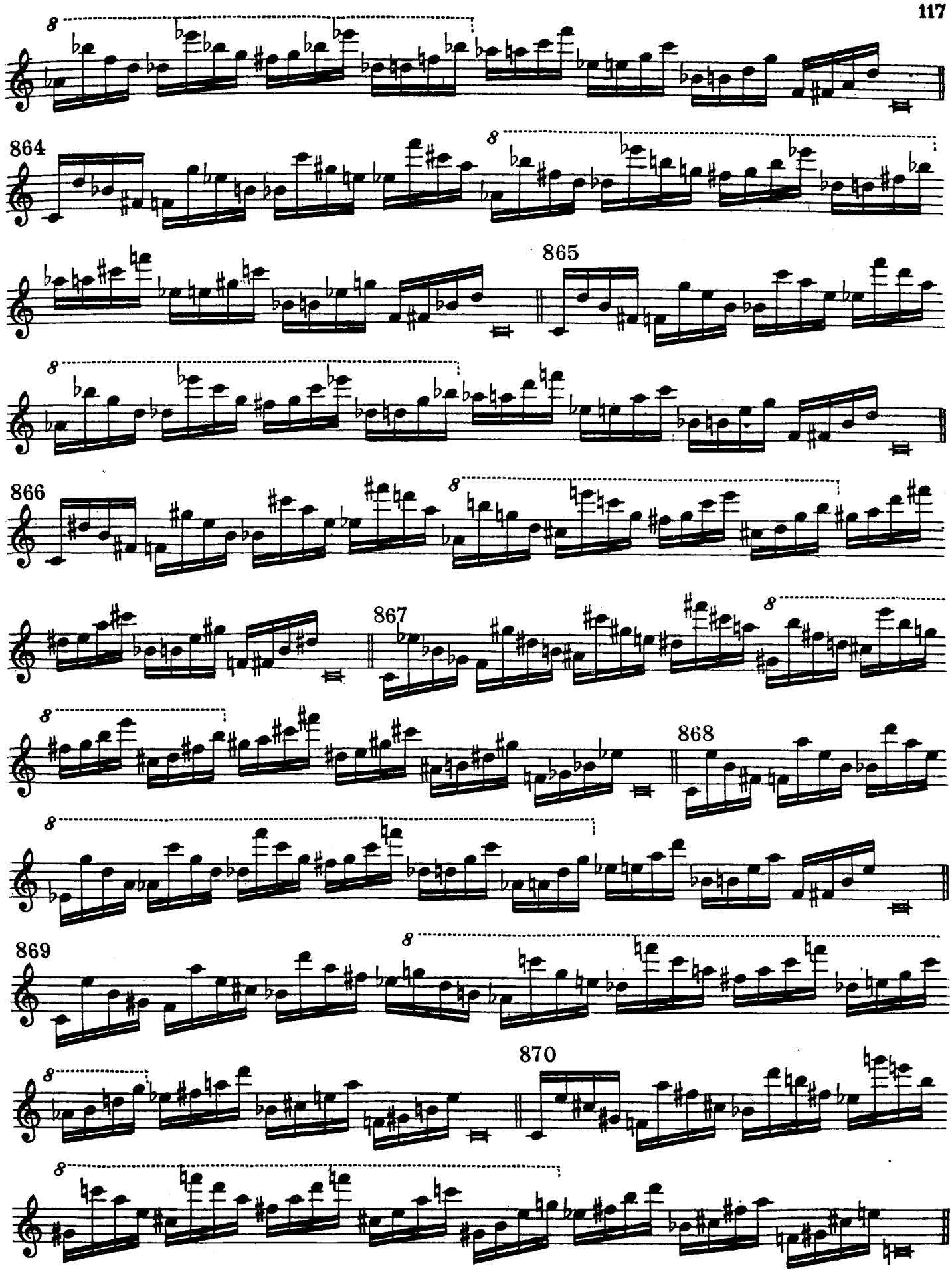
847



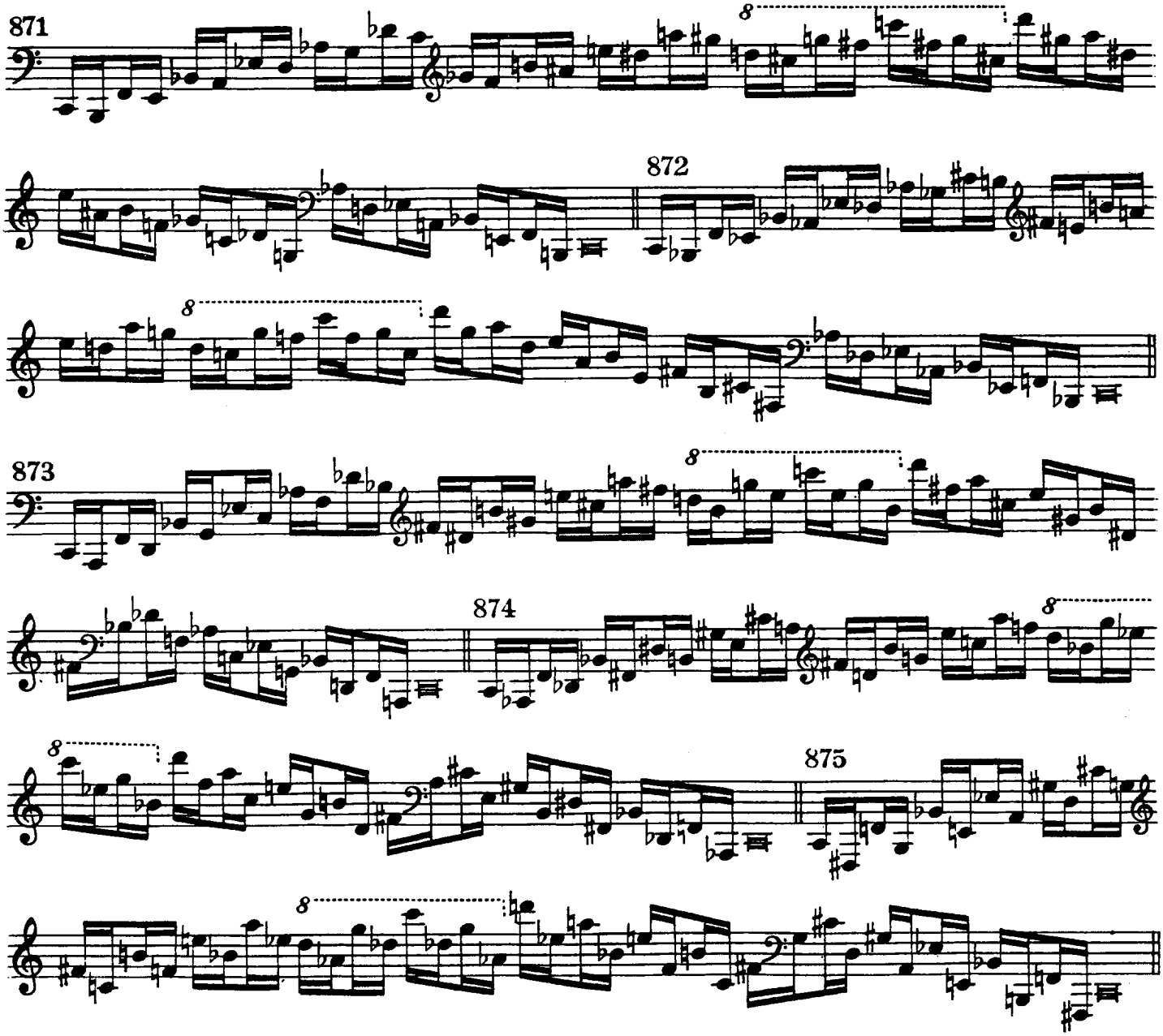
Ultrapolation of Three Notes



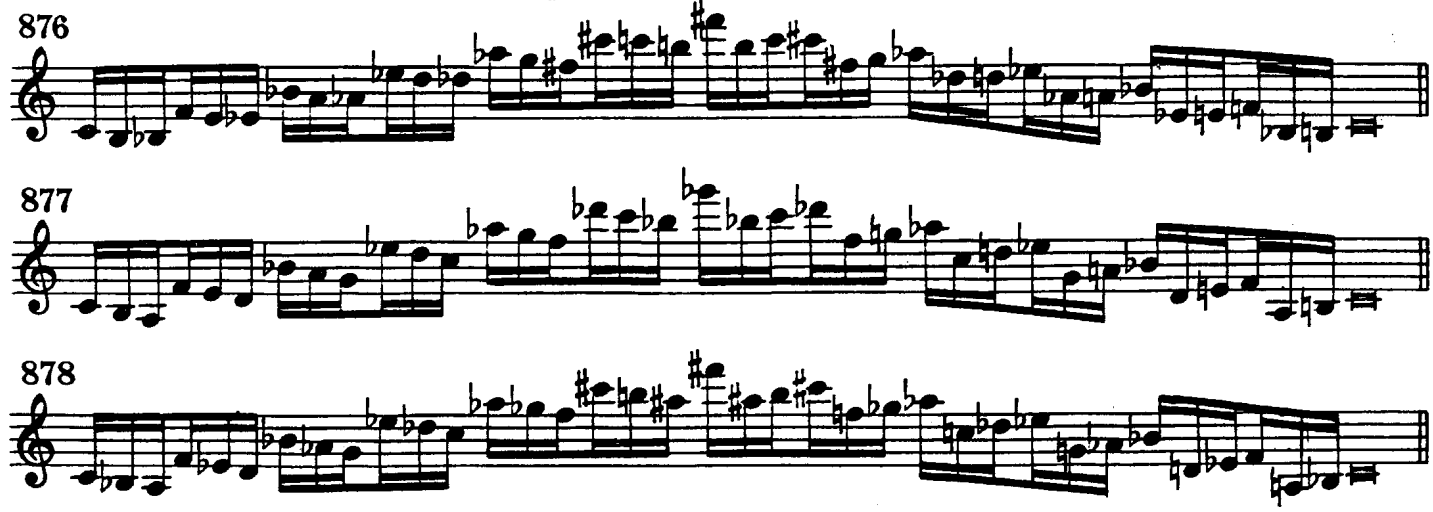

856
857
858
859
860
861
862
863


8
864
8
865
8
866
8
867
8
8
868
8
869
8
870
8
8

Infrapolation of One Note



Infrapolation of Two Notes



879

880

Infrapolation of Three Notes

881

882

883

884

885

886

887

888

889

Infra-Interpolation

890

891

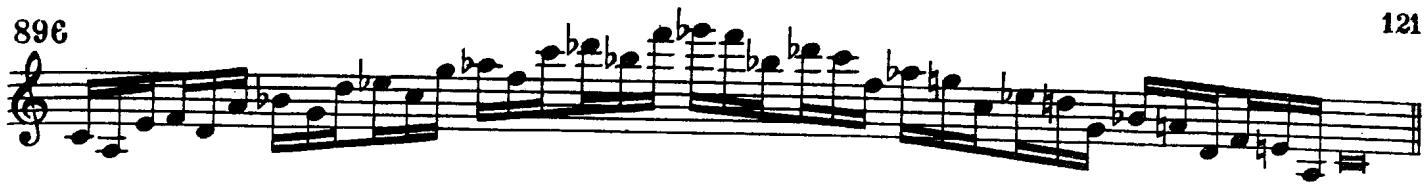
892

893

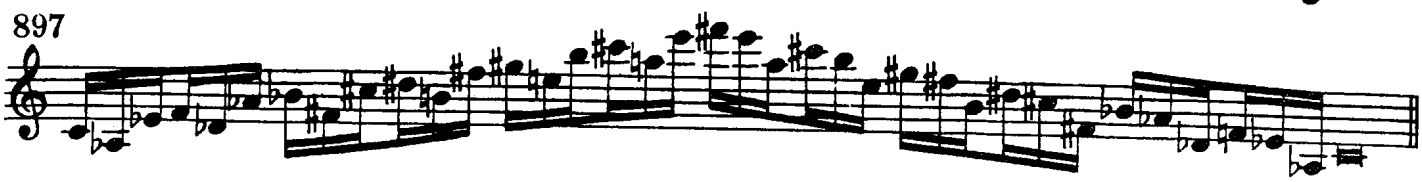
894

895

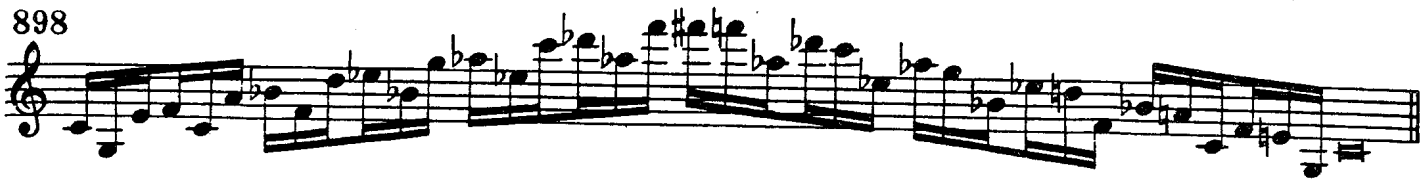
896



897

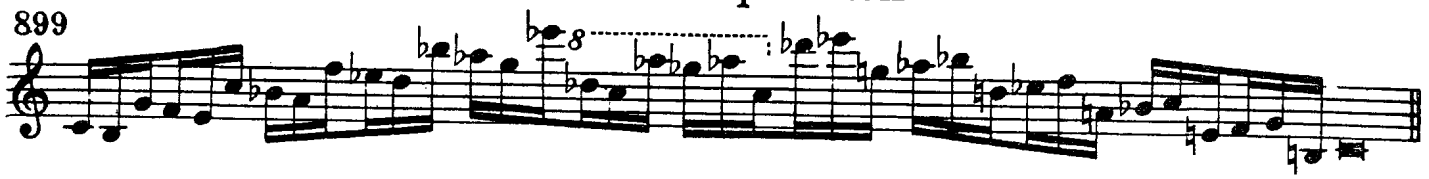


898

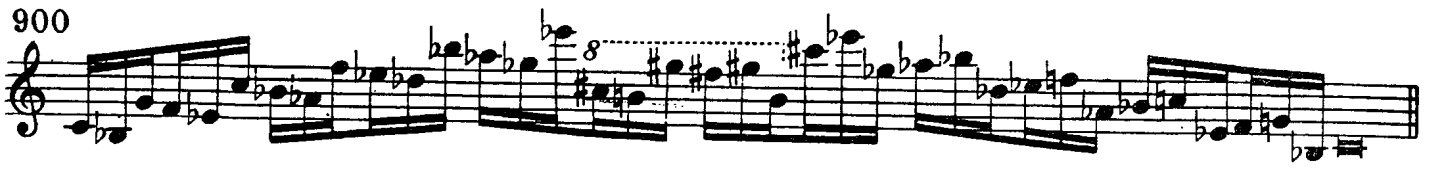


Infra-Ultrapolation

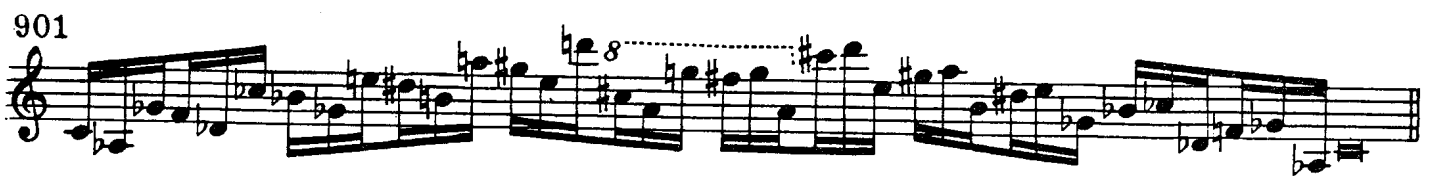
899



900

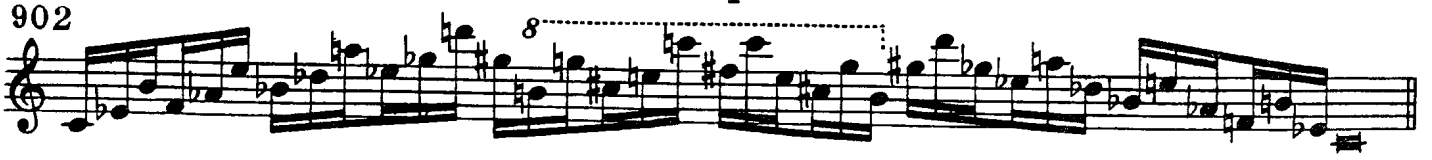


901

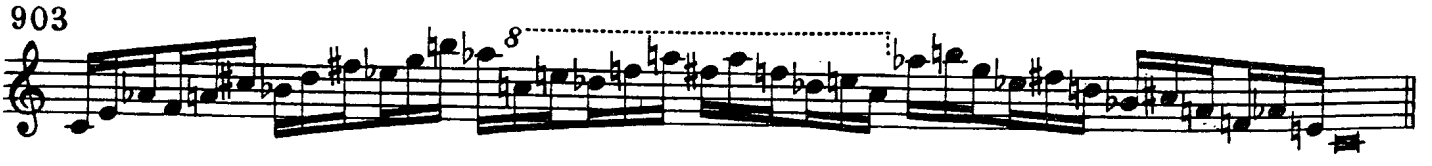


Inter-Ultrapolation

902

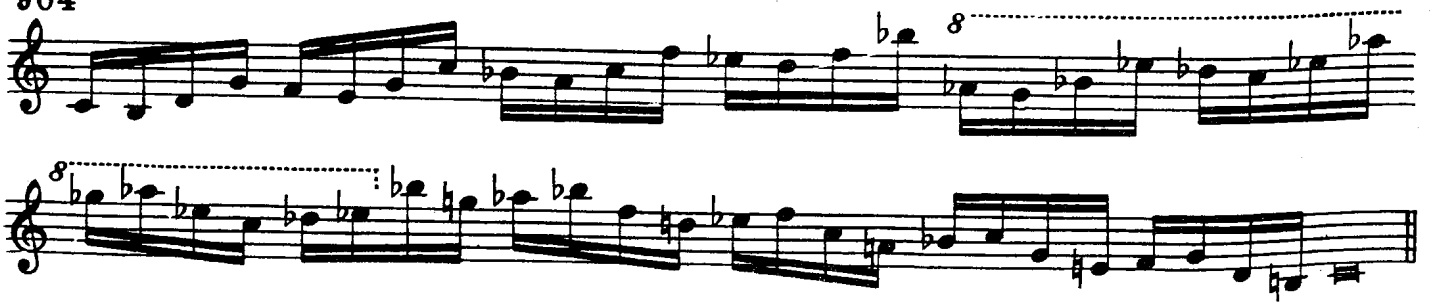


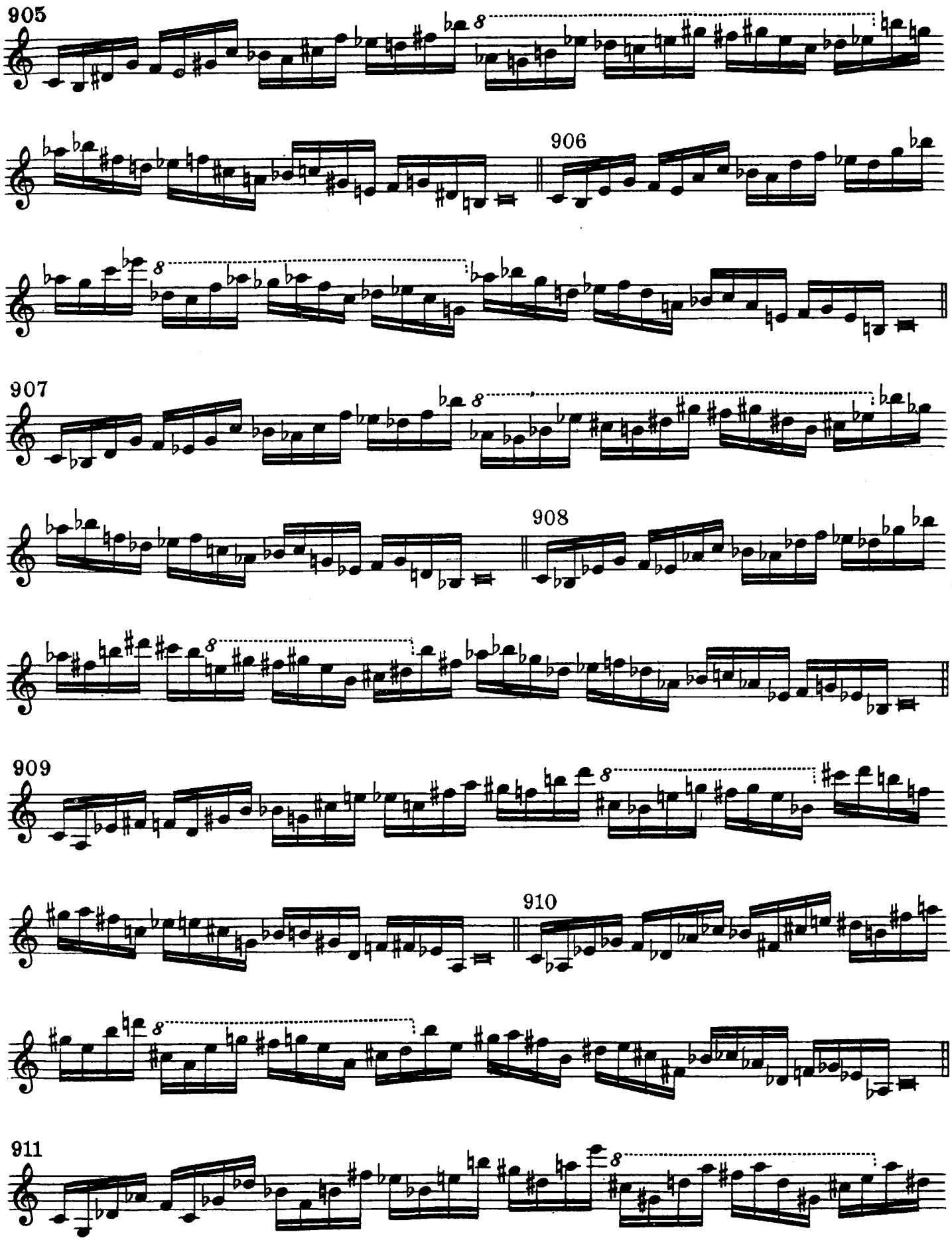
903



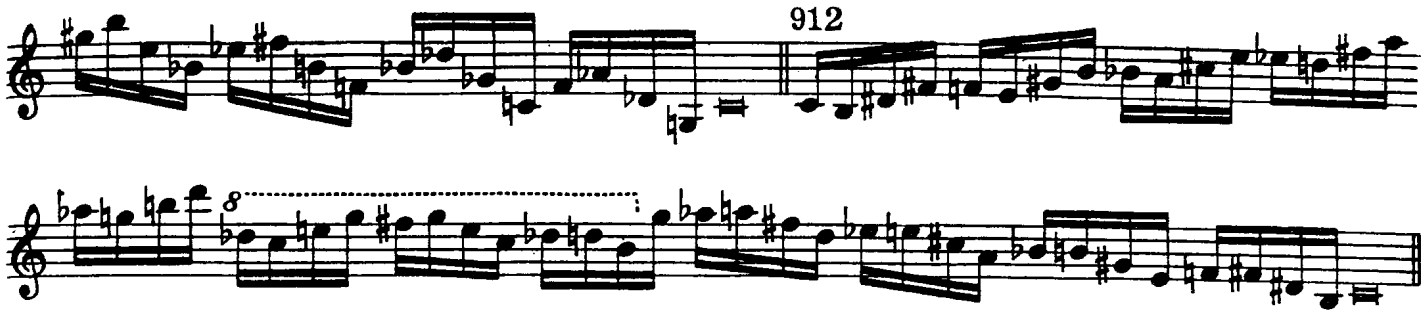
Infra-Inter-Ultrapolation

904



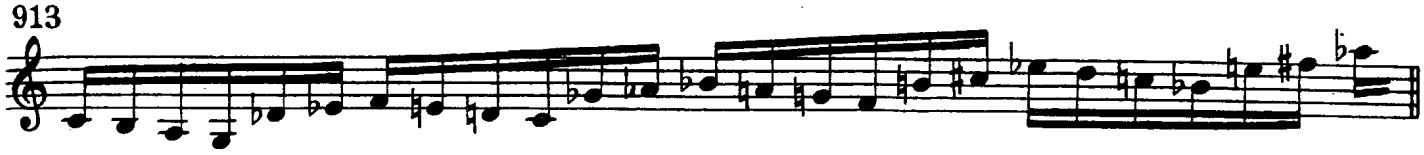

905
906
907
908
909
910
911

912

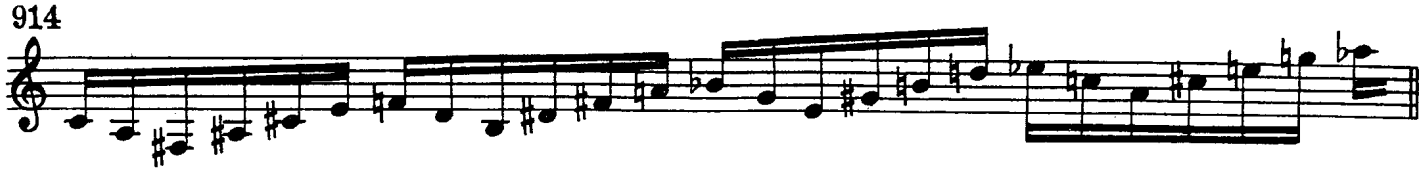


Miscellaneous Patterns

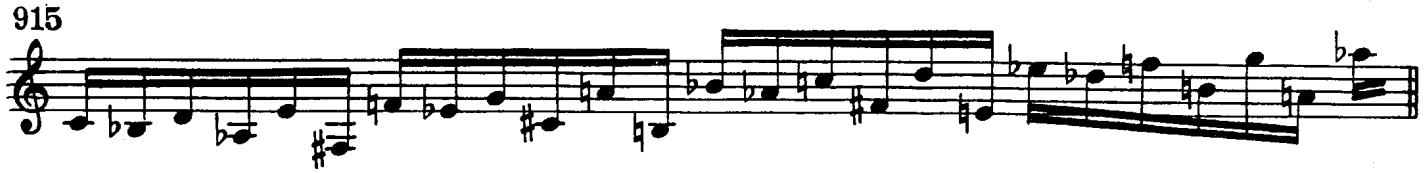
913



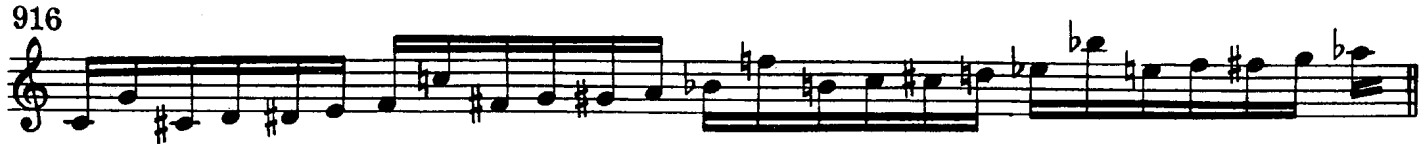
914



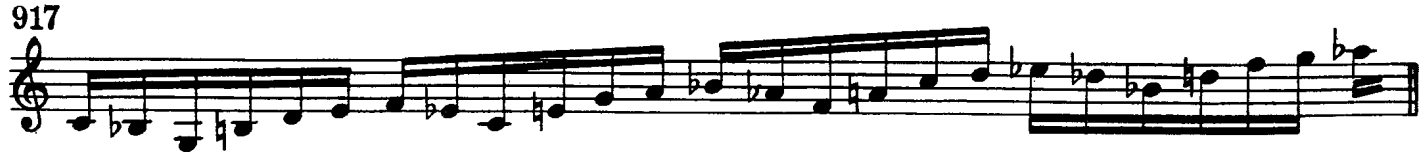
915



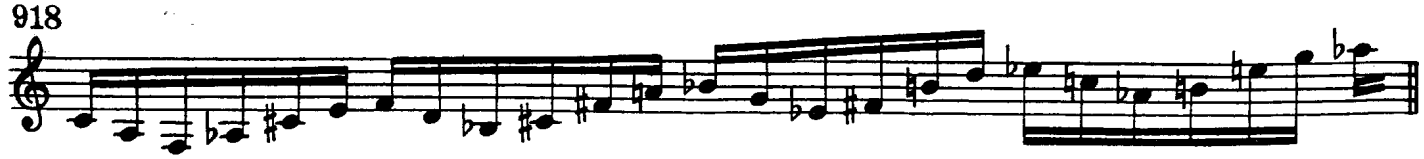
916



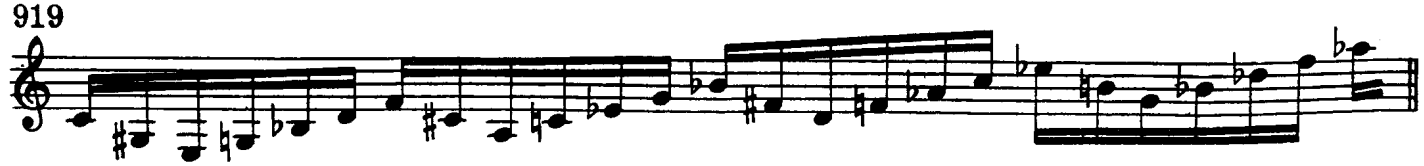
917



918



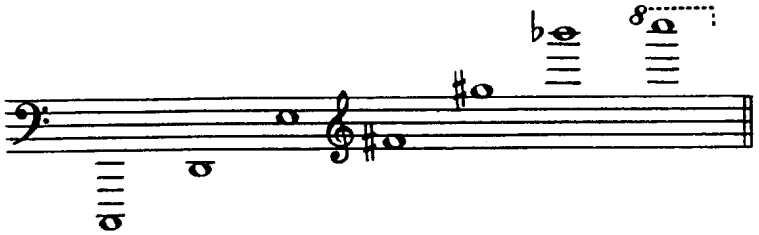
919



920

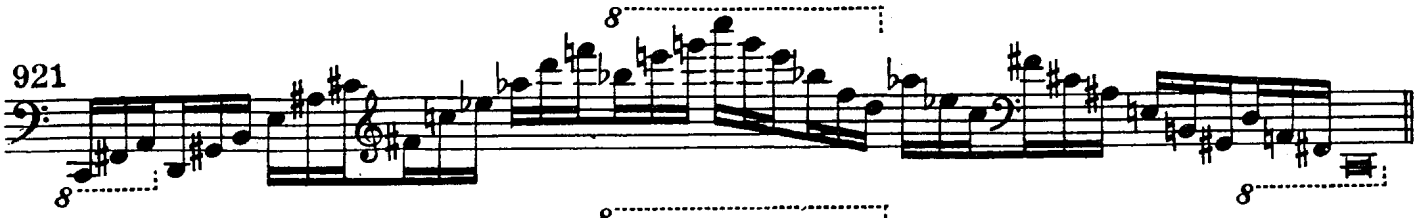
Septitone Progression

Equal Division of Seven Octaves into Six Parts

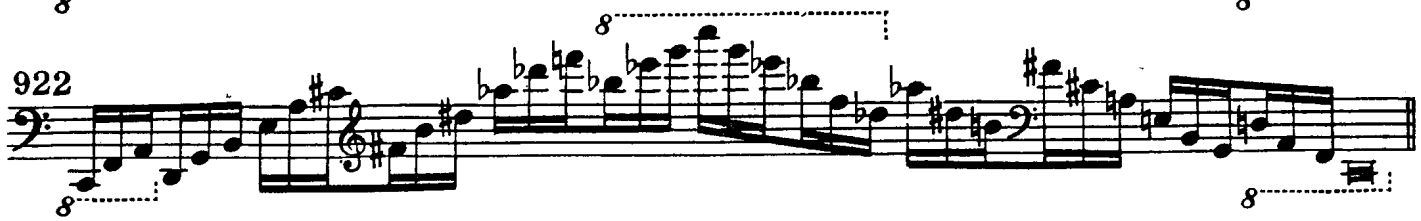


Interpolation of Two Notes

921

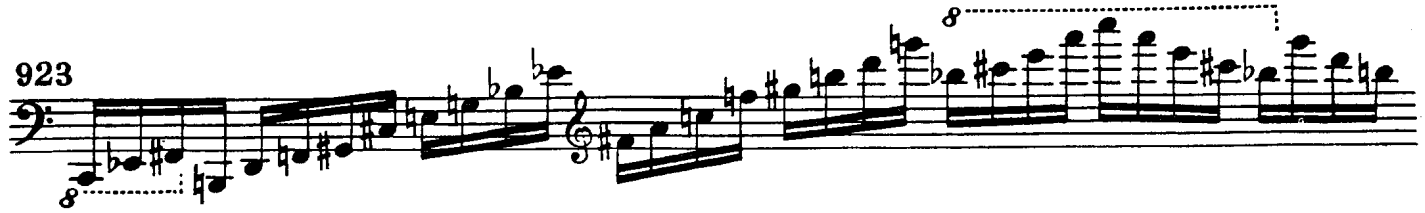


922

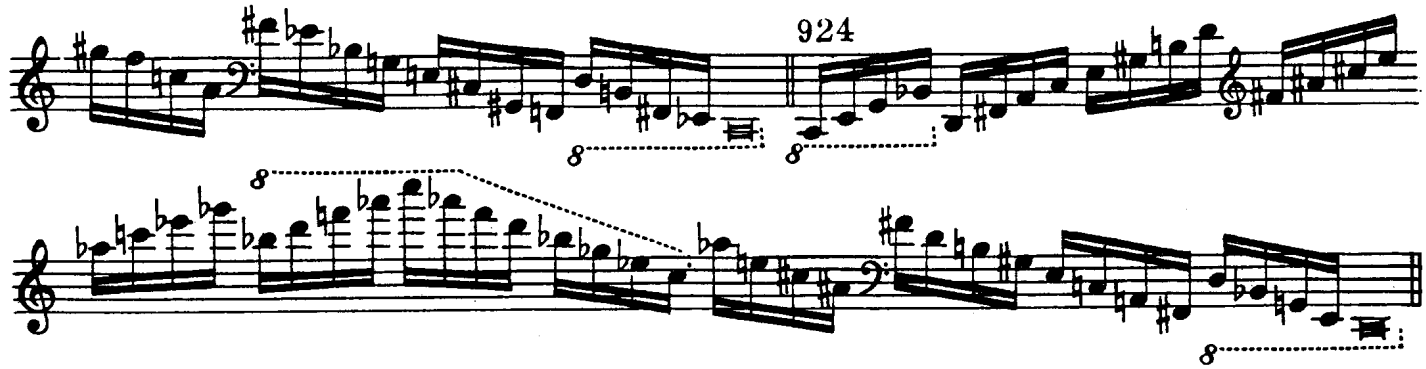


Interpolation of Three Notes

923

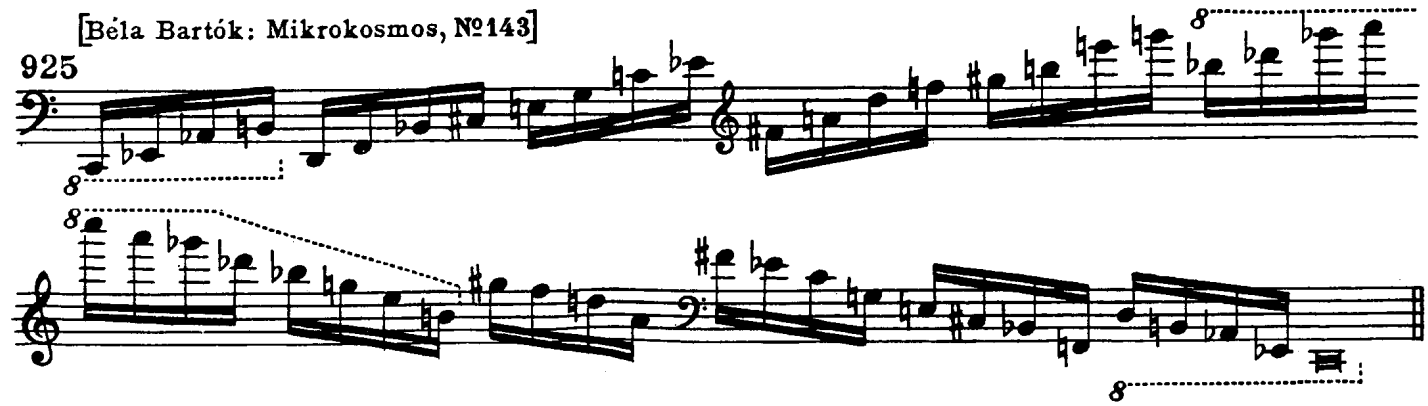


924



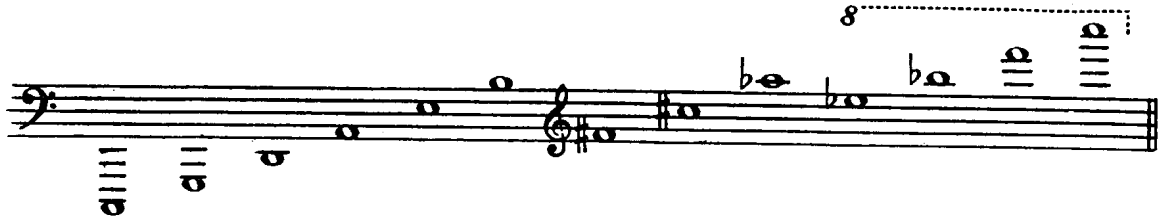
[Béla Bartók: Mikrokosmos, №143]

925



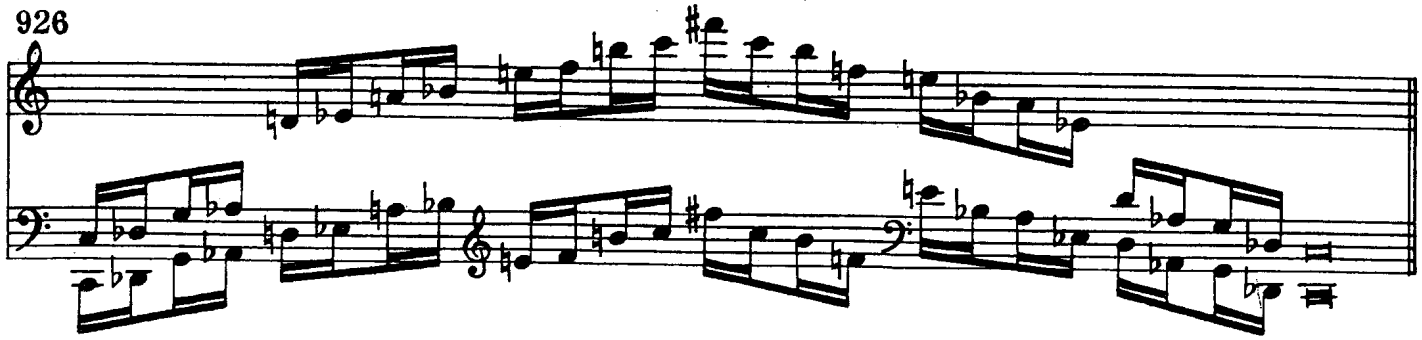
Diapente Progression

Equal Division of Seven Octaves into Twelve Parts

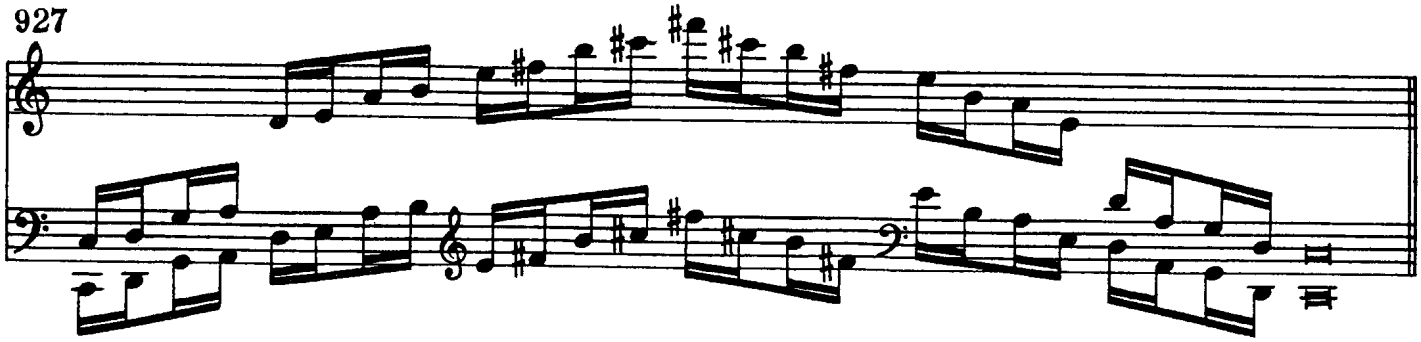


Interpolation of One Note

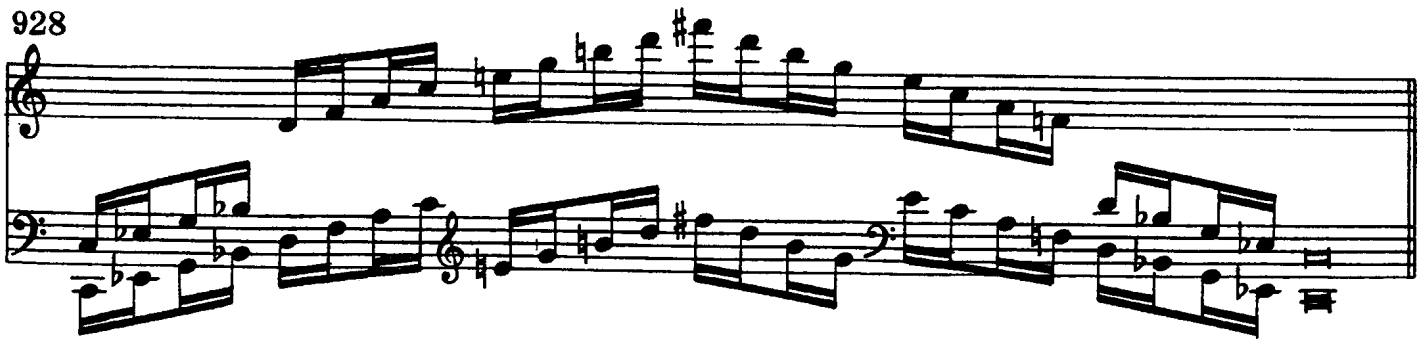
926



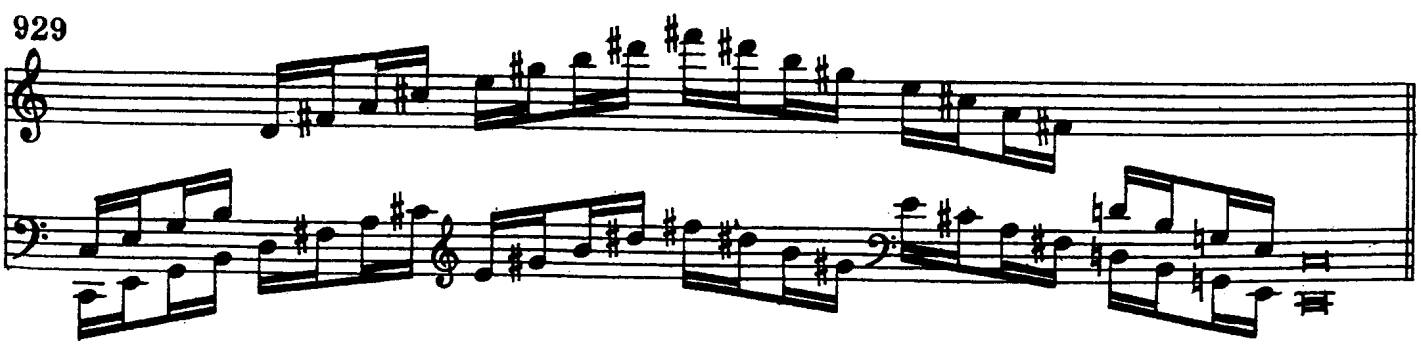
927



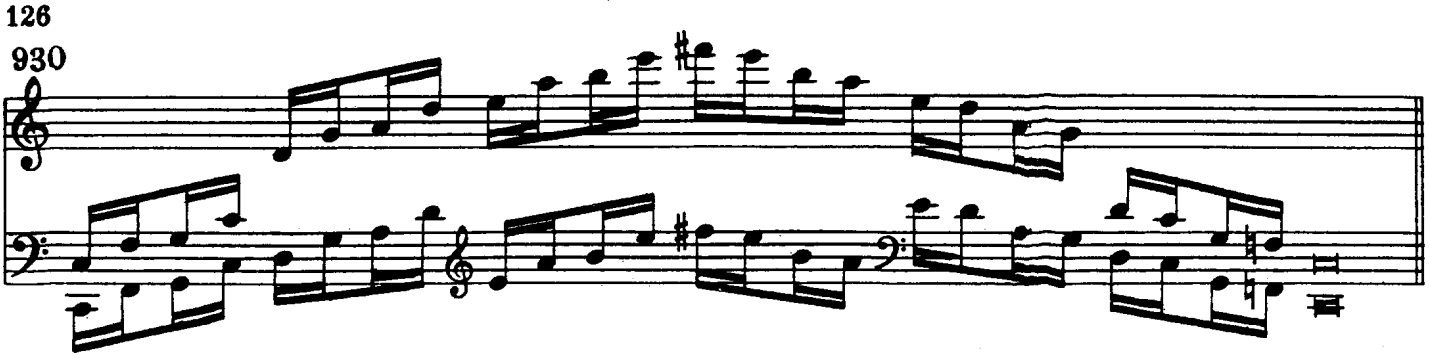
928



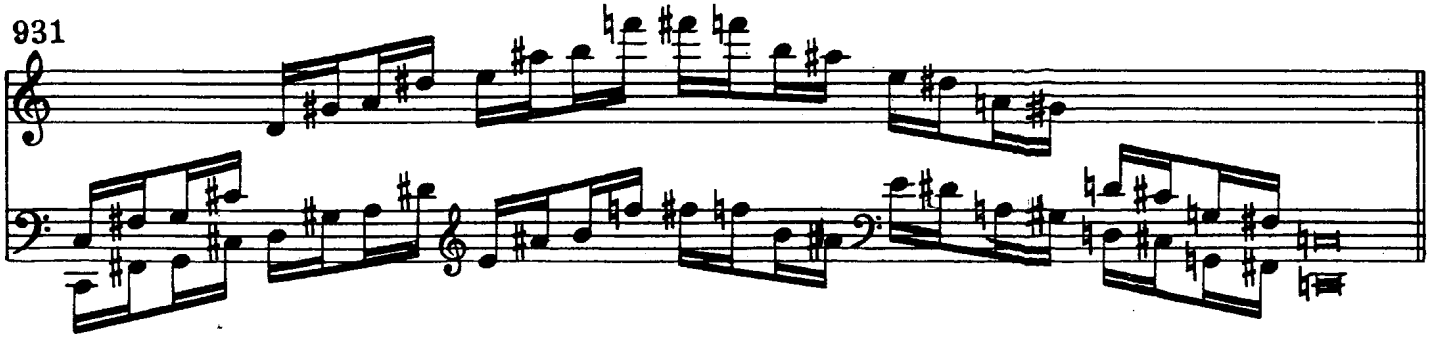
929



930

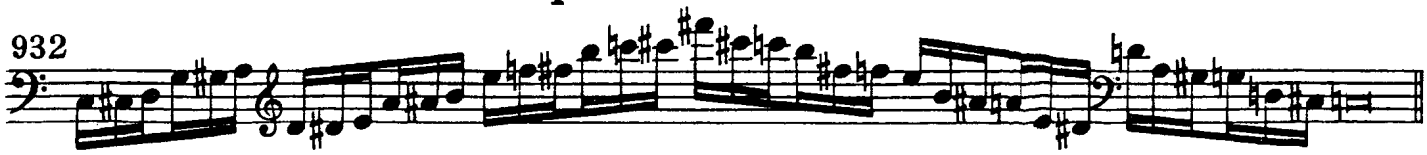


931



Interpolation of Two Notes

932



933

934

935

936

937

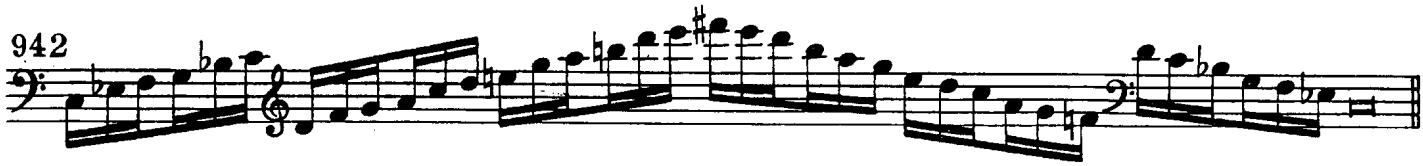
938

939

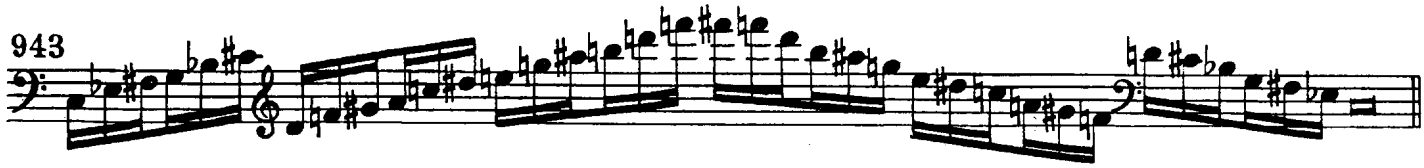
940

941

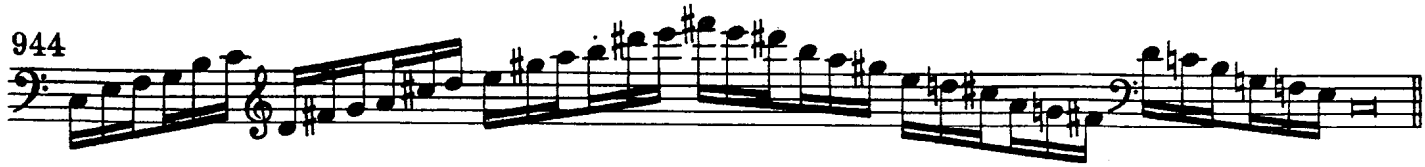
942



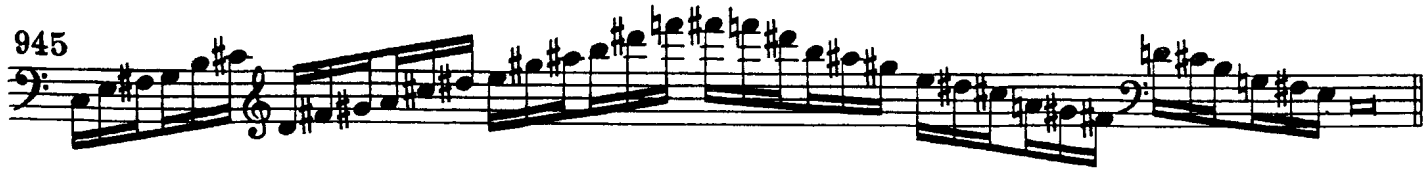
943



944

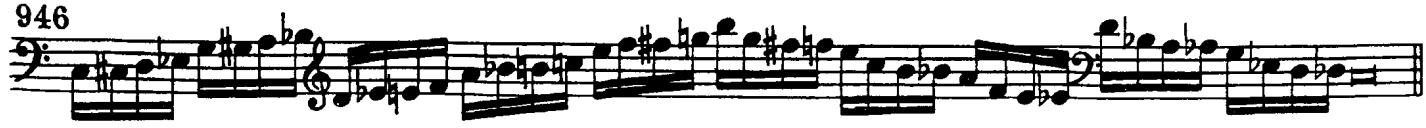


945



Interpolation of Three Notes

946

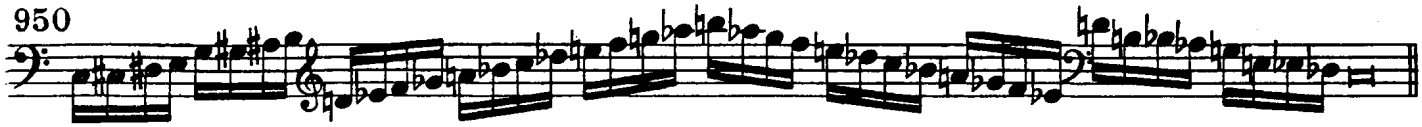


947

948

949

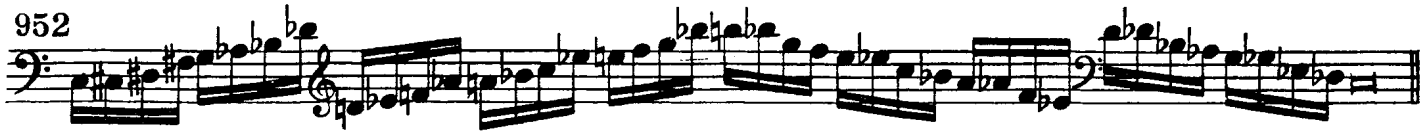
950



Disjunct Phrygian Polytetrachord

951

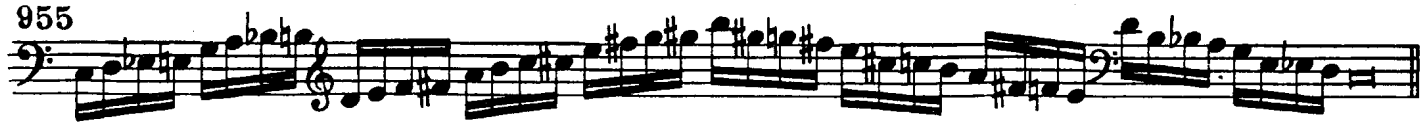
952



953

954

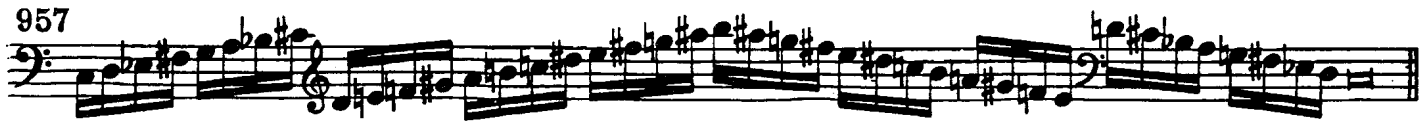
955



Disjunct Minor Polytetrachord

956

957



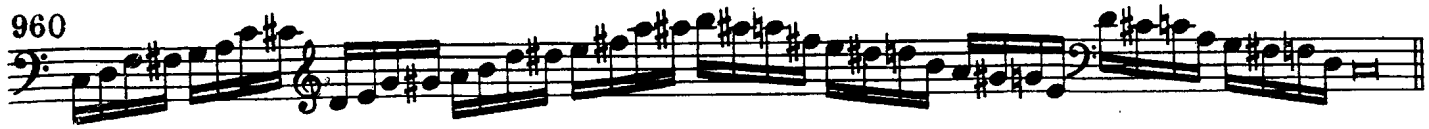
Disjunct Major Polytetrachord

958

Disjunct Lydian Polytetrachord

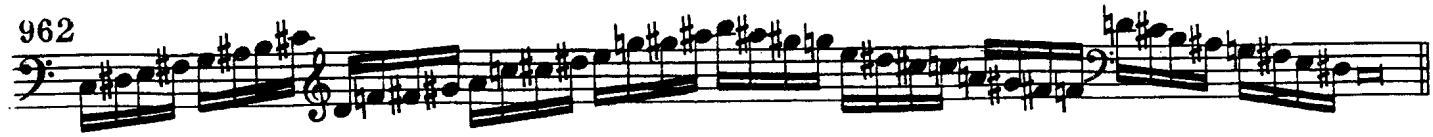
959

960

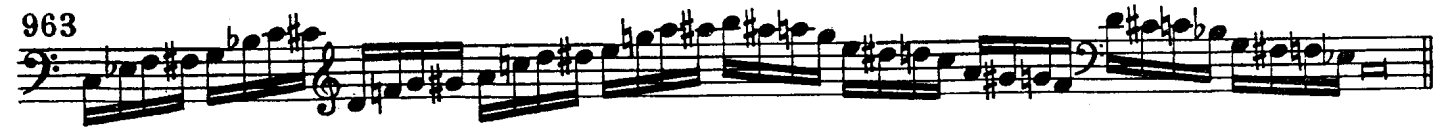


961

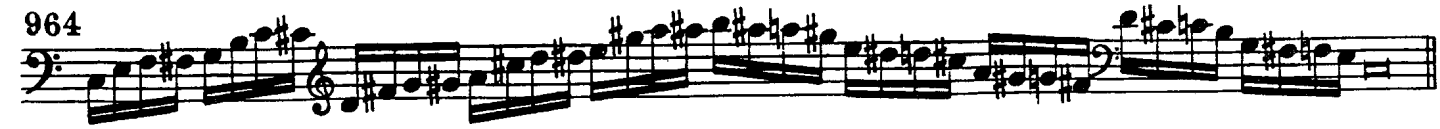
962



963

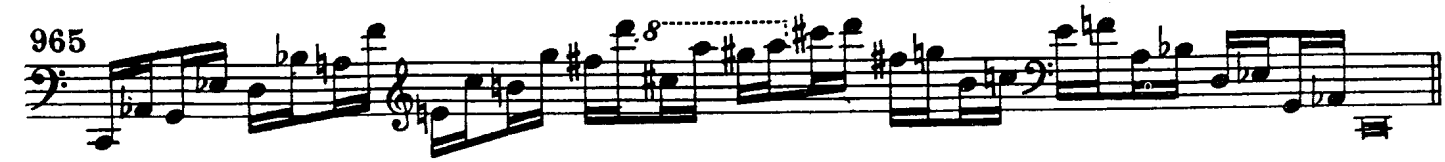


964

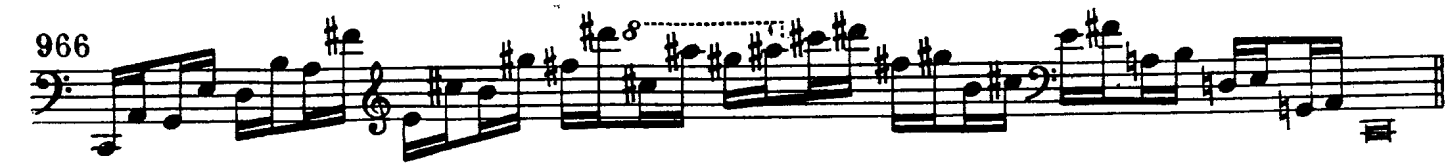


Ultrapolation of One Note

965

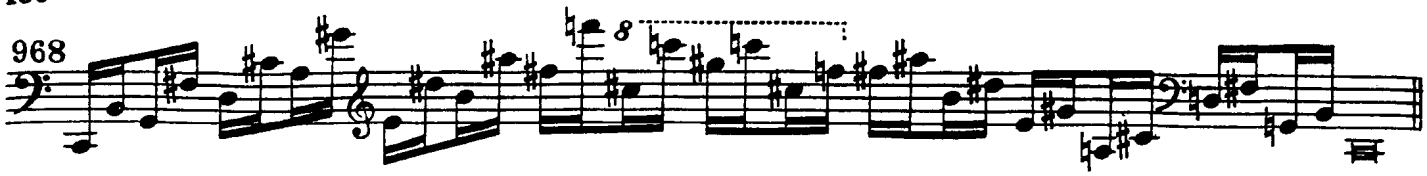


966

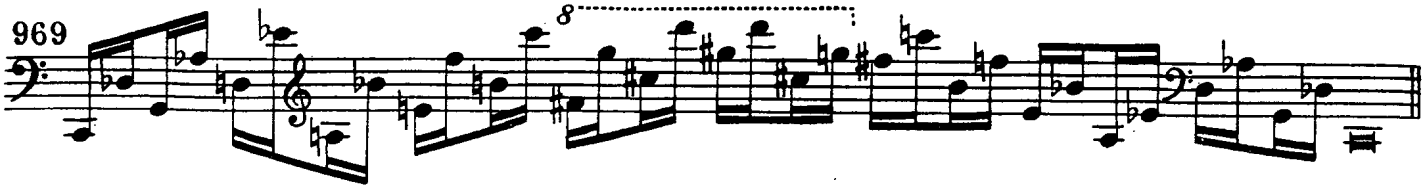


967

968

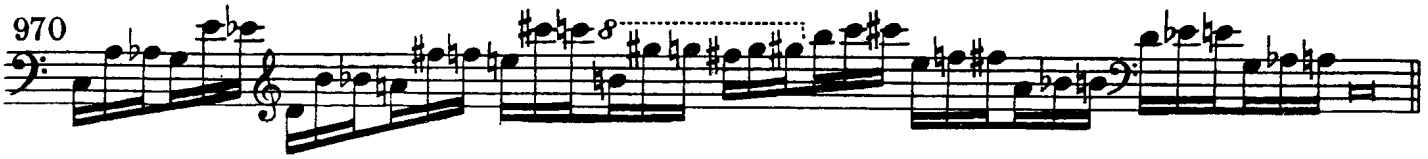


969

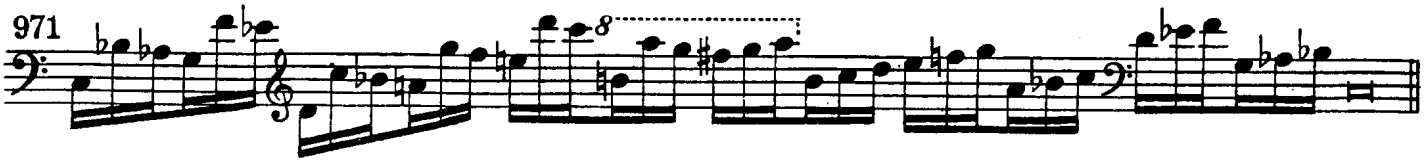


Ultrapolation of Two Notes

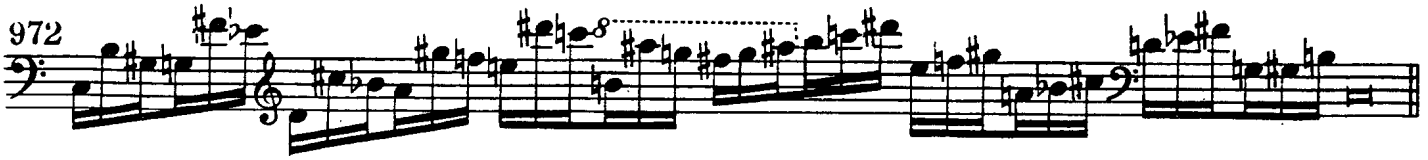
970



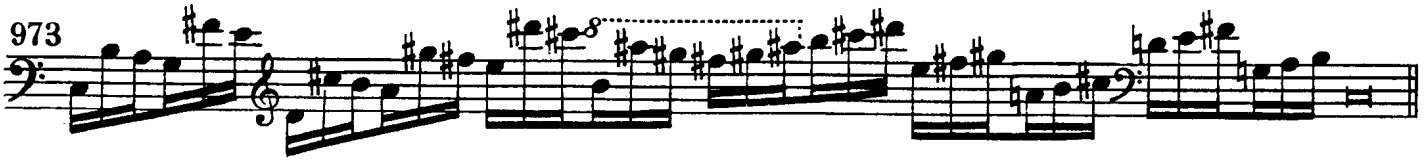
971



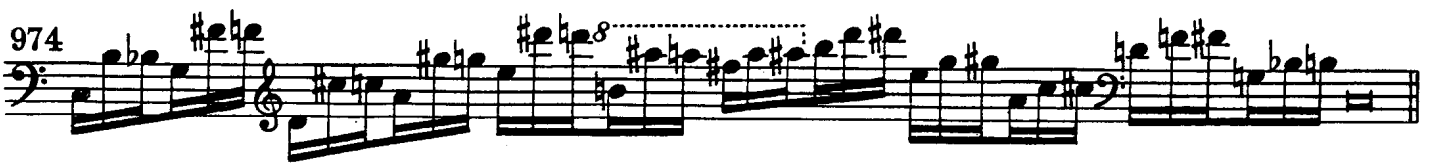
972



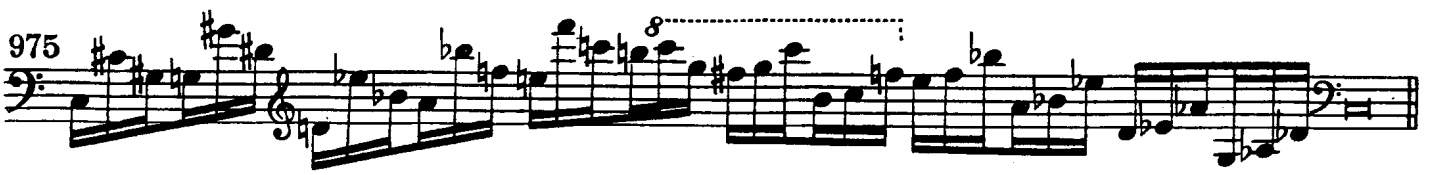
973



974

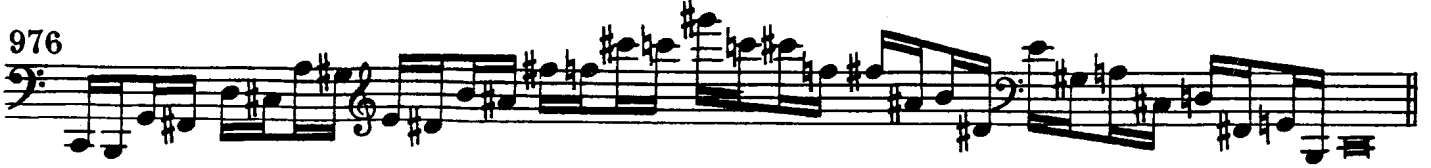


975

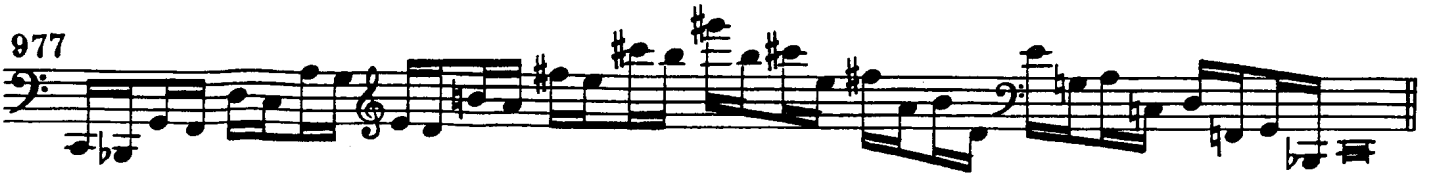


Infrapolation of One Note

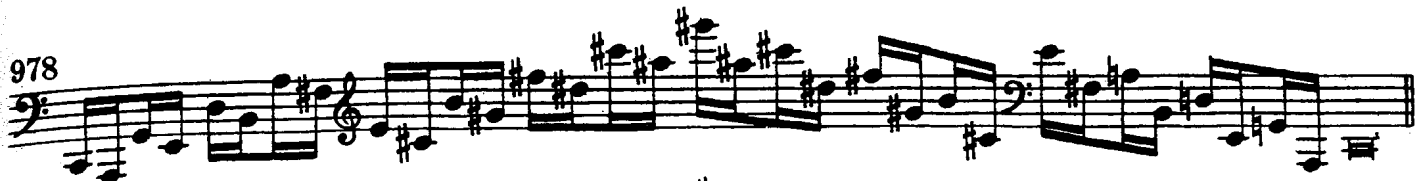
976



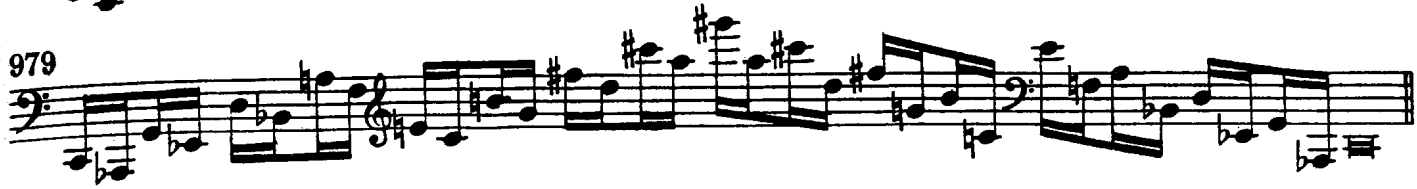
977



978

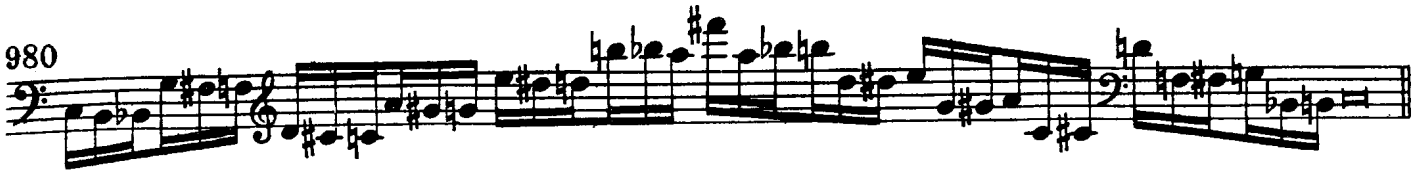


979

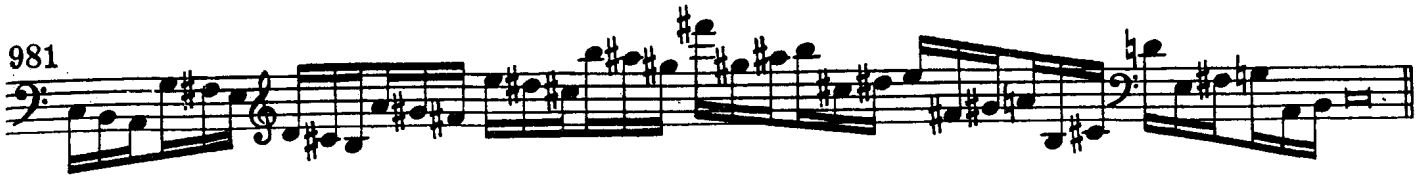


Infrapolation of Two Notes

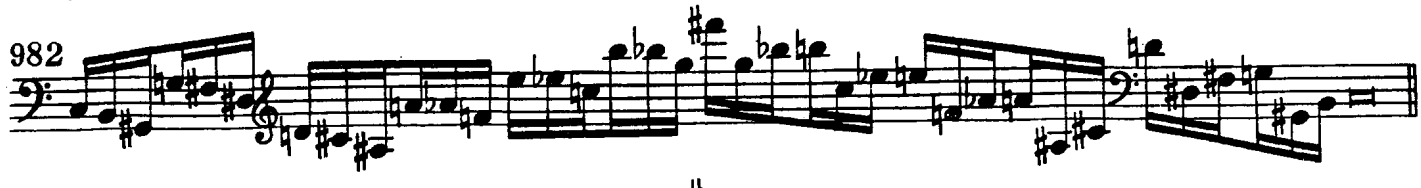
980



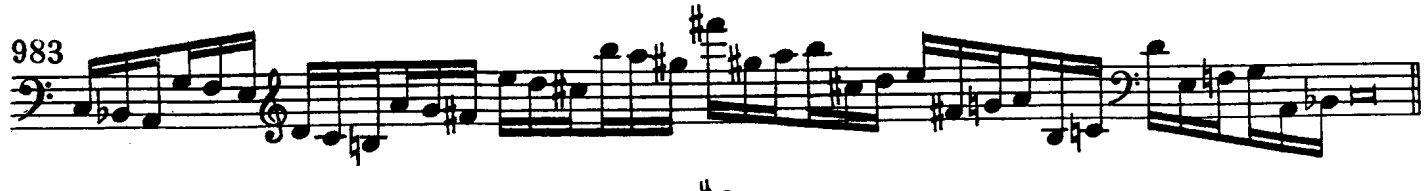
981



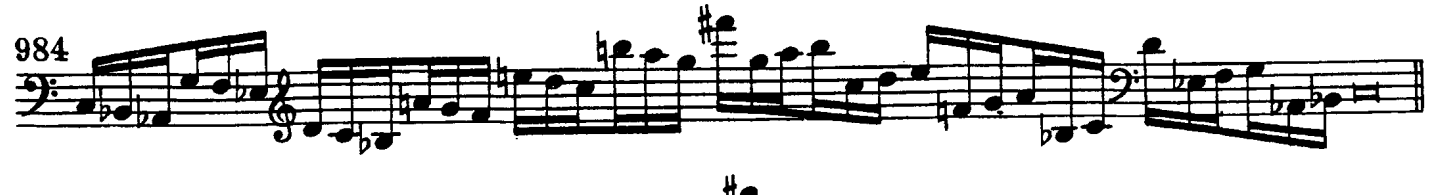
982



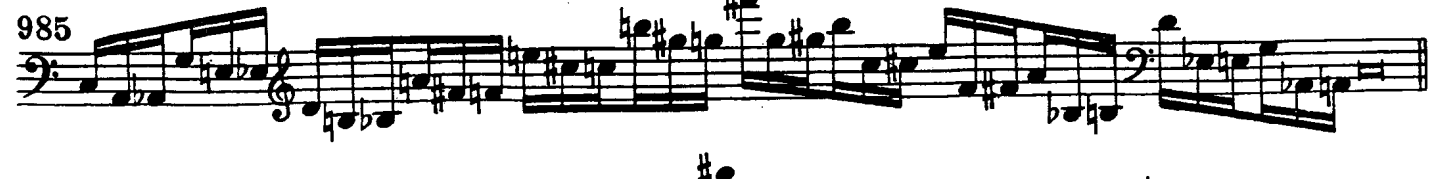
983



984



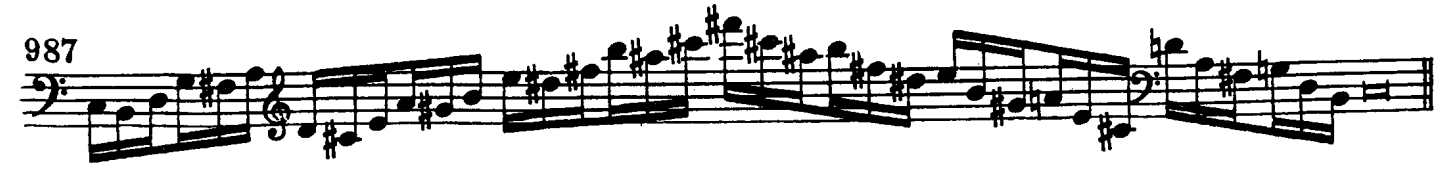
985



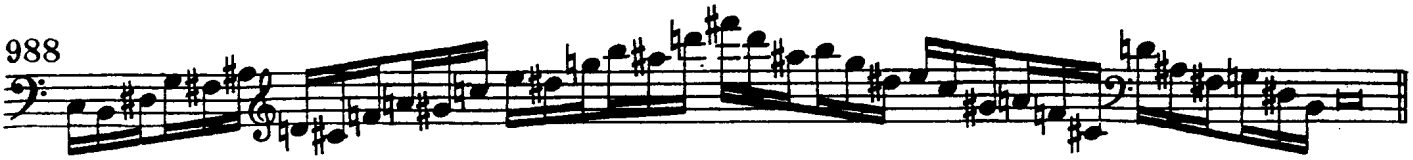
986

Infra-Interpolation

987

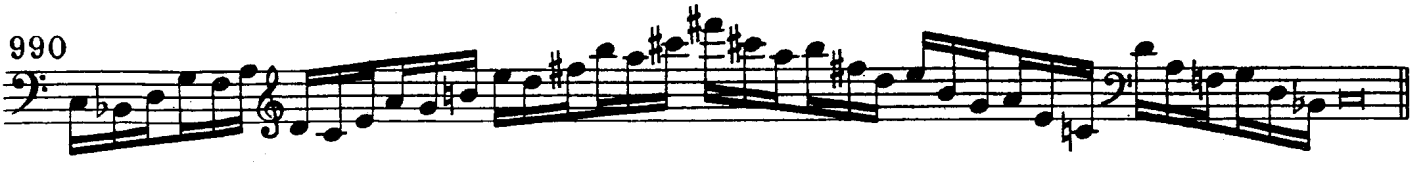


988



989

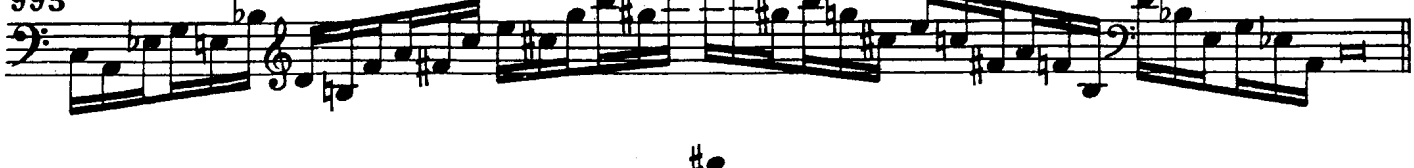
990



991

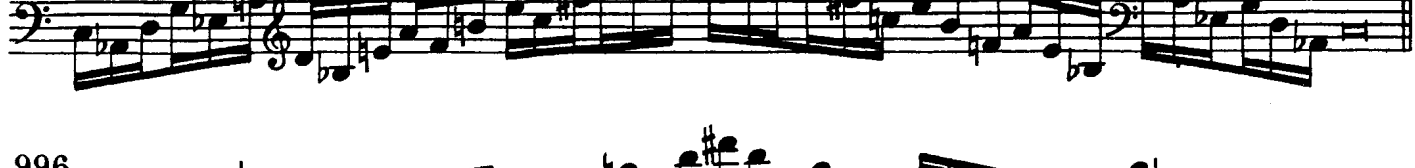
992

993

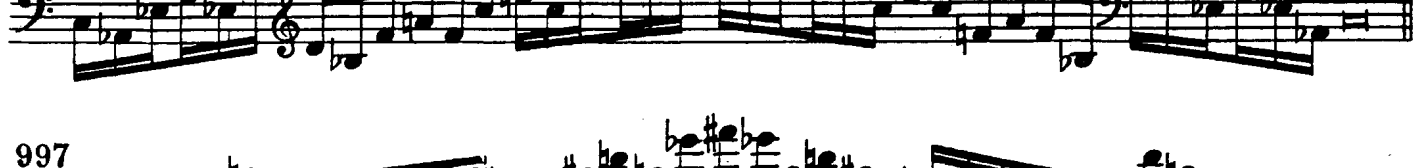


994

995



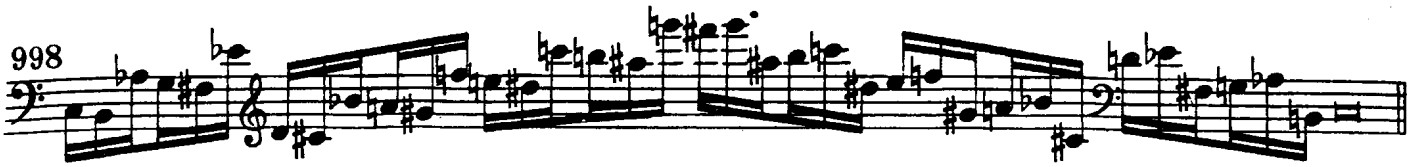
996



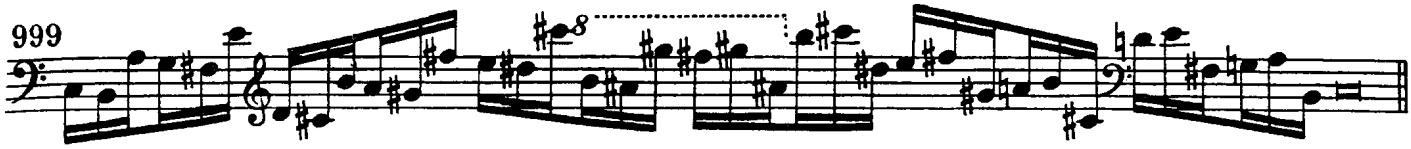
997

Infra-Ultrapolation

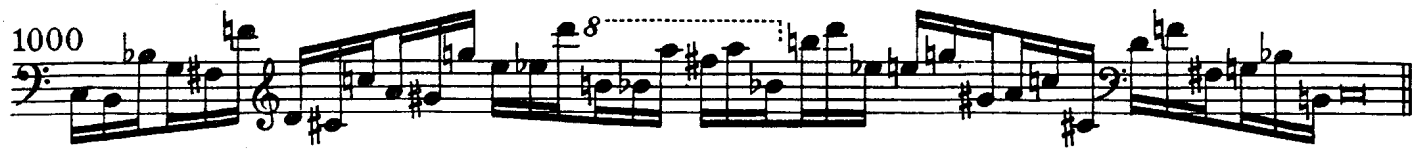
998



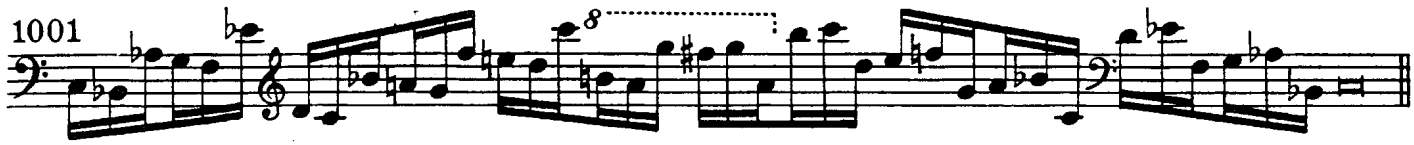
999



1000

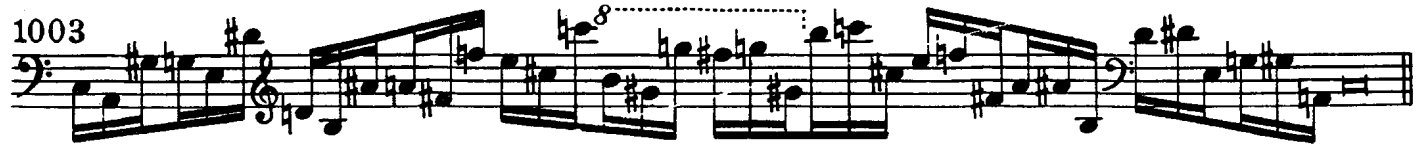


1001



1002

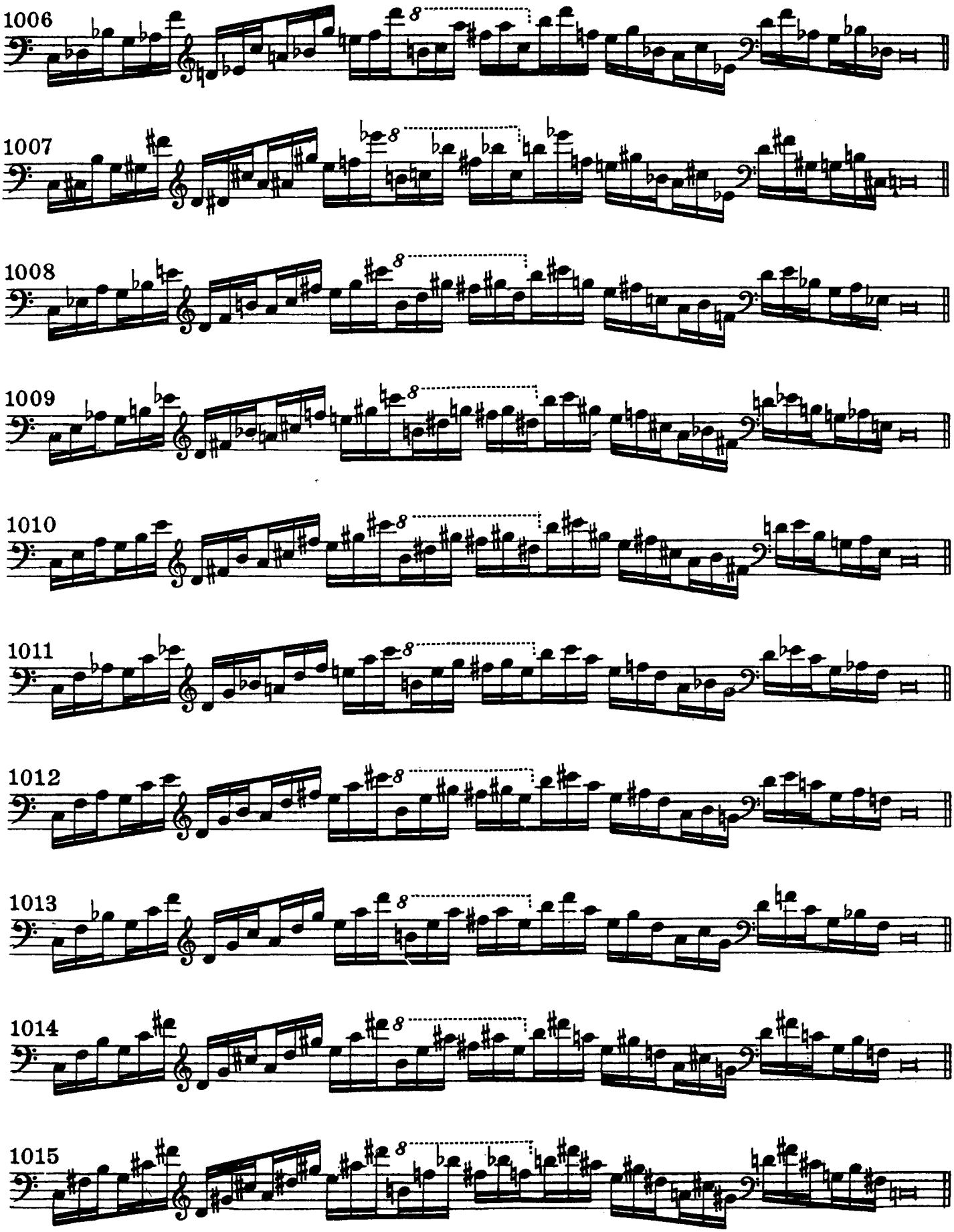
1003



Inter-Ultrapolation

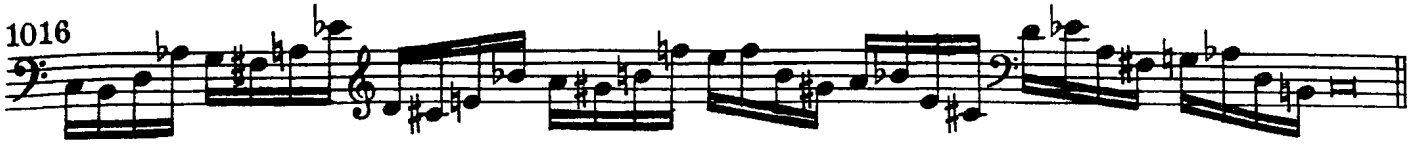
1004

1005

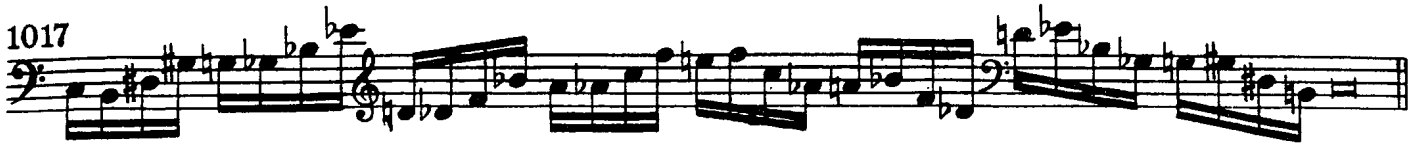

1006
1007
1008
1009
1010
1011
1012
1013
1014
1015

Infra-Inter-Ultrapolation

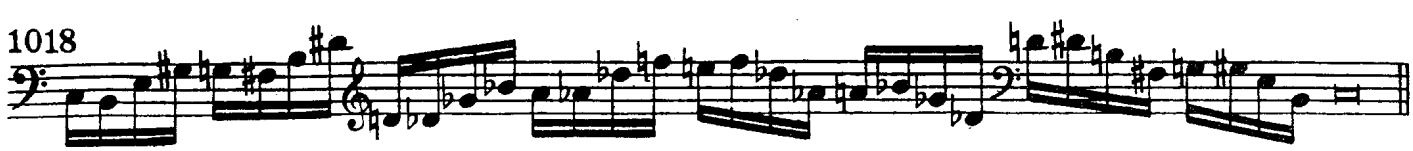
1016



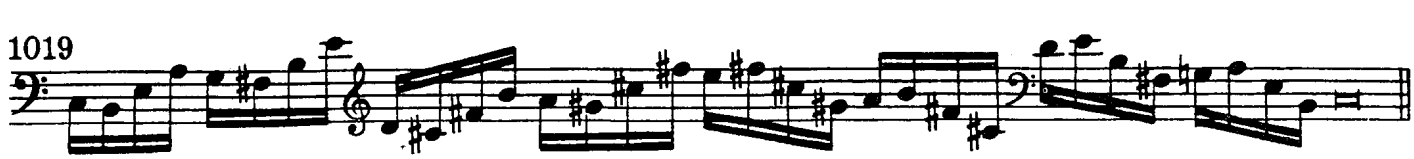
1017



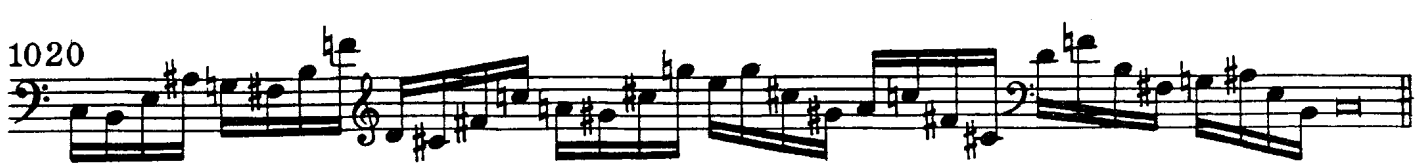
1018



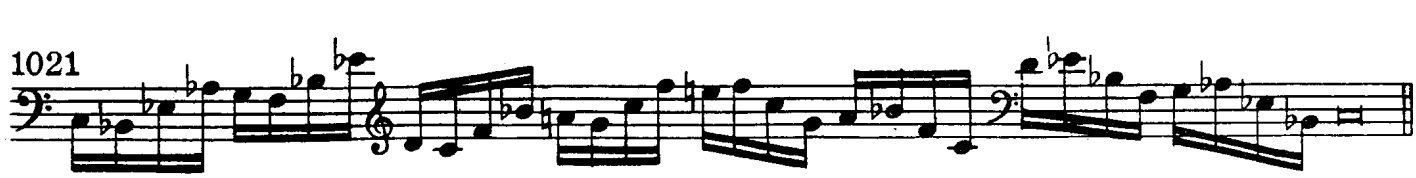
1019



1020



1021



1022

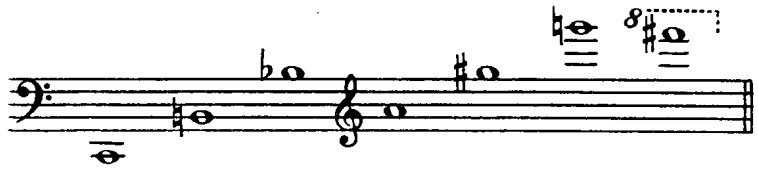
1023

1024

1025

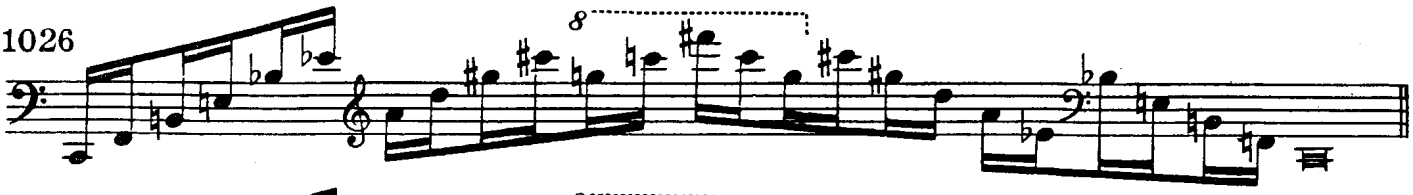
Sesquiquinquetone Progression

Equal Division of Eleven Octaves into Twelve Parts

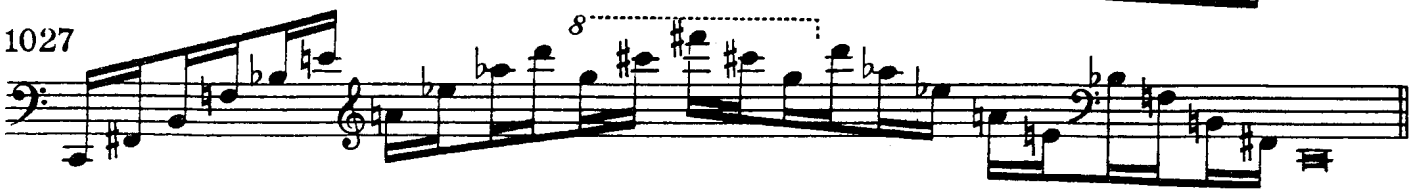


Interpolation of One Note

1026

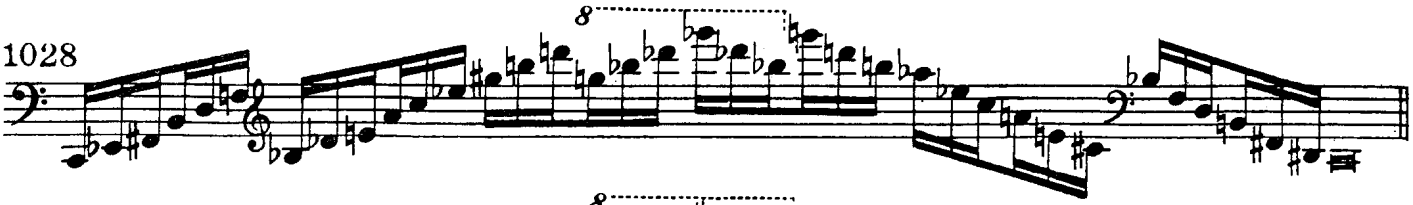


1027

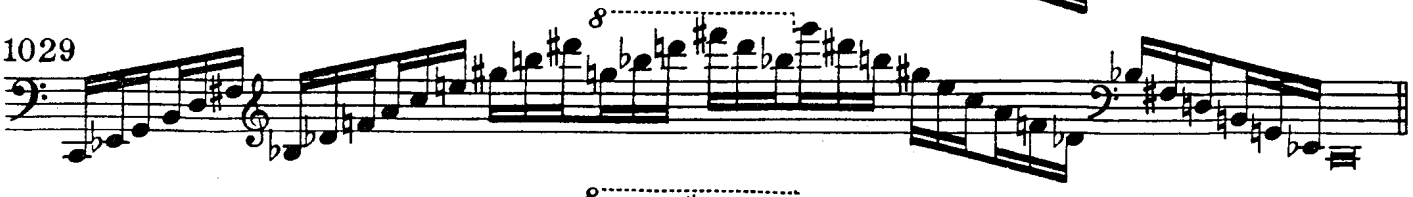


Interpolation of Two Notes

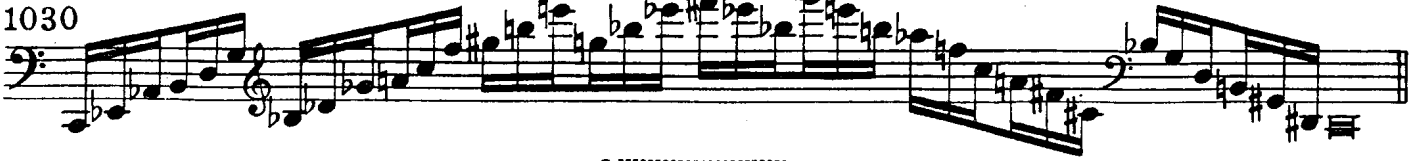
1028



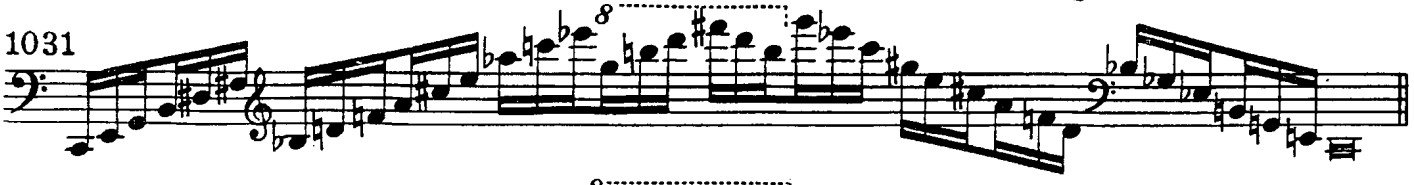
1029



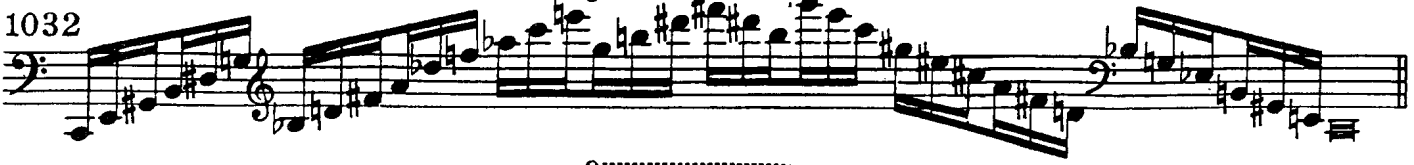
1030



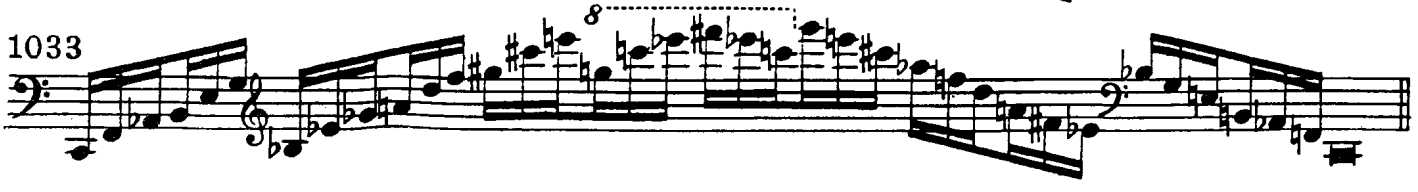
1031



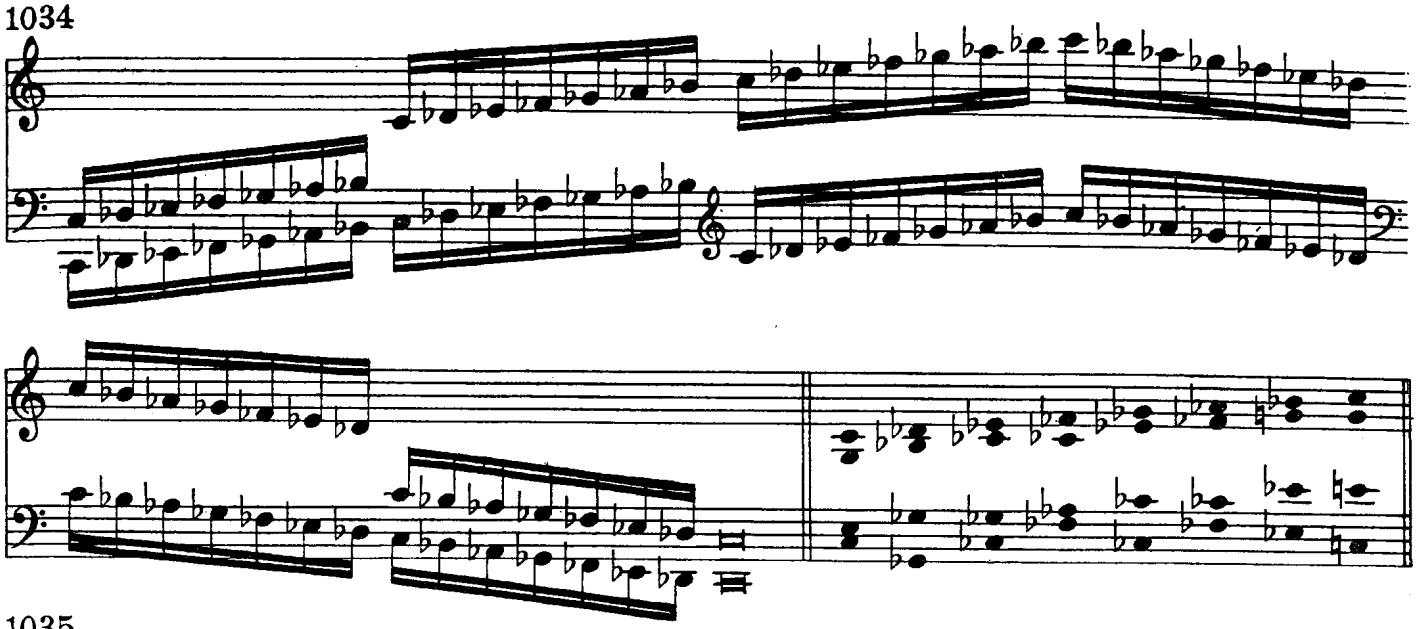
1032



1033

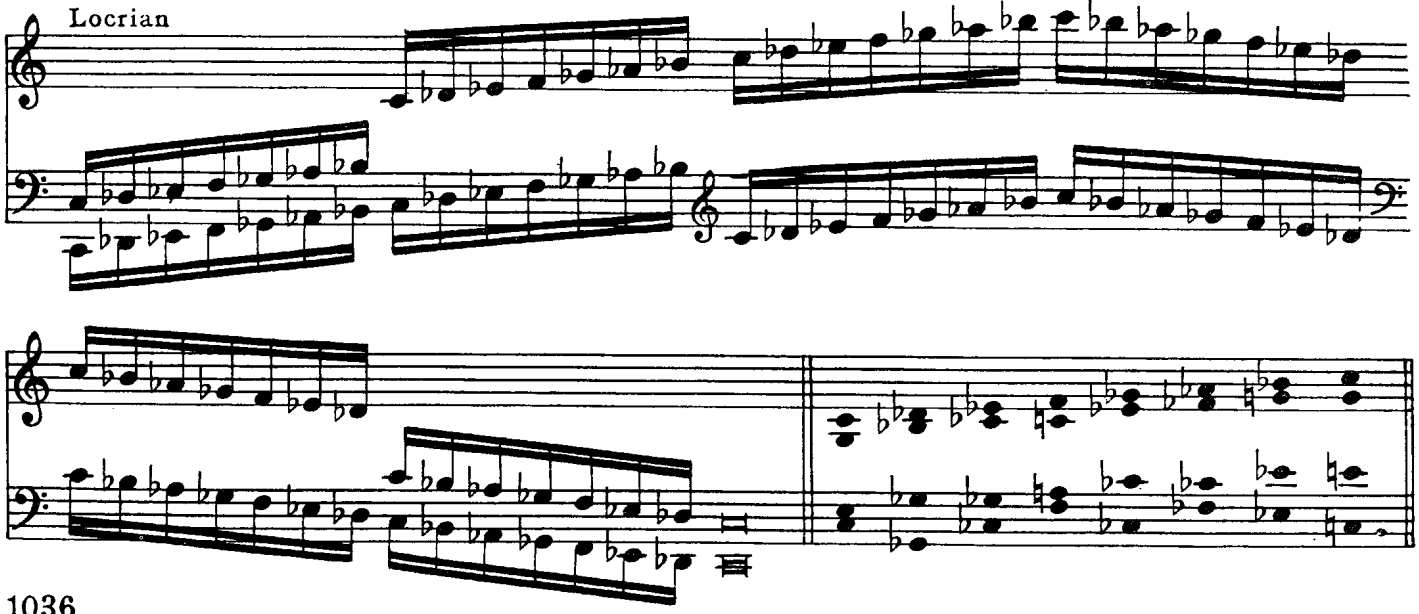


1034



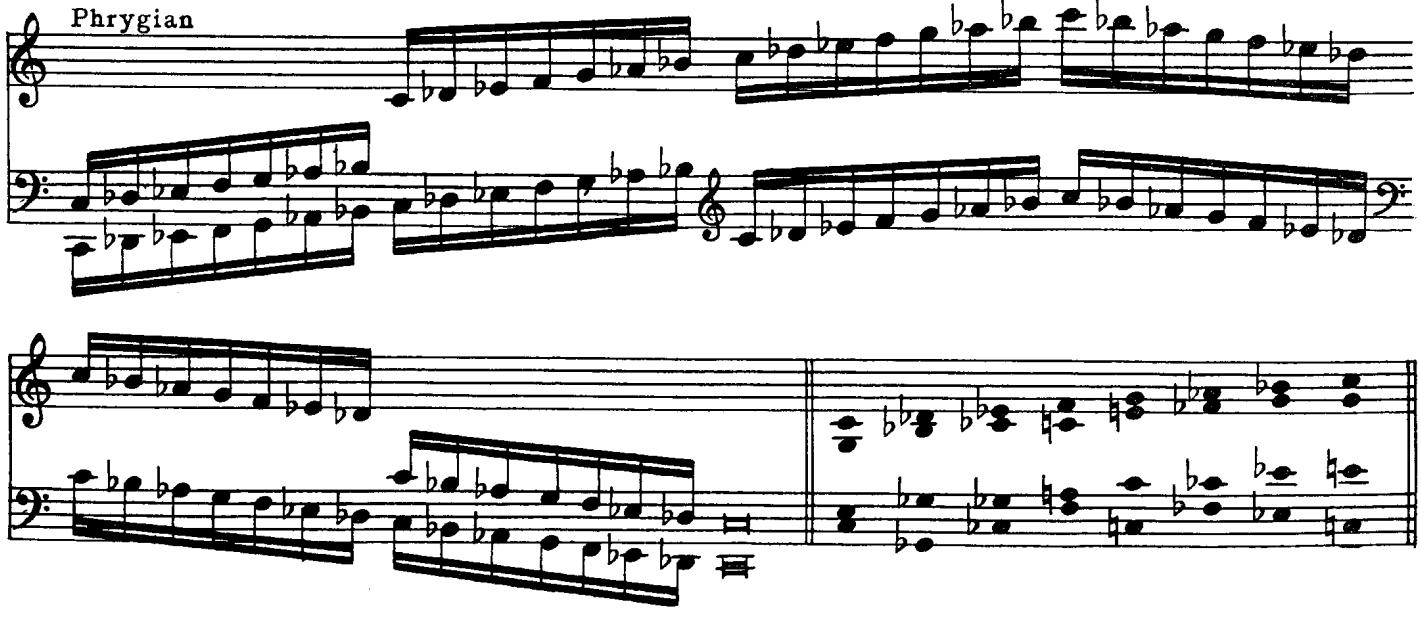
1035

Locrian

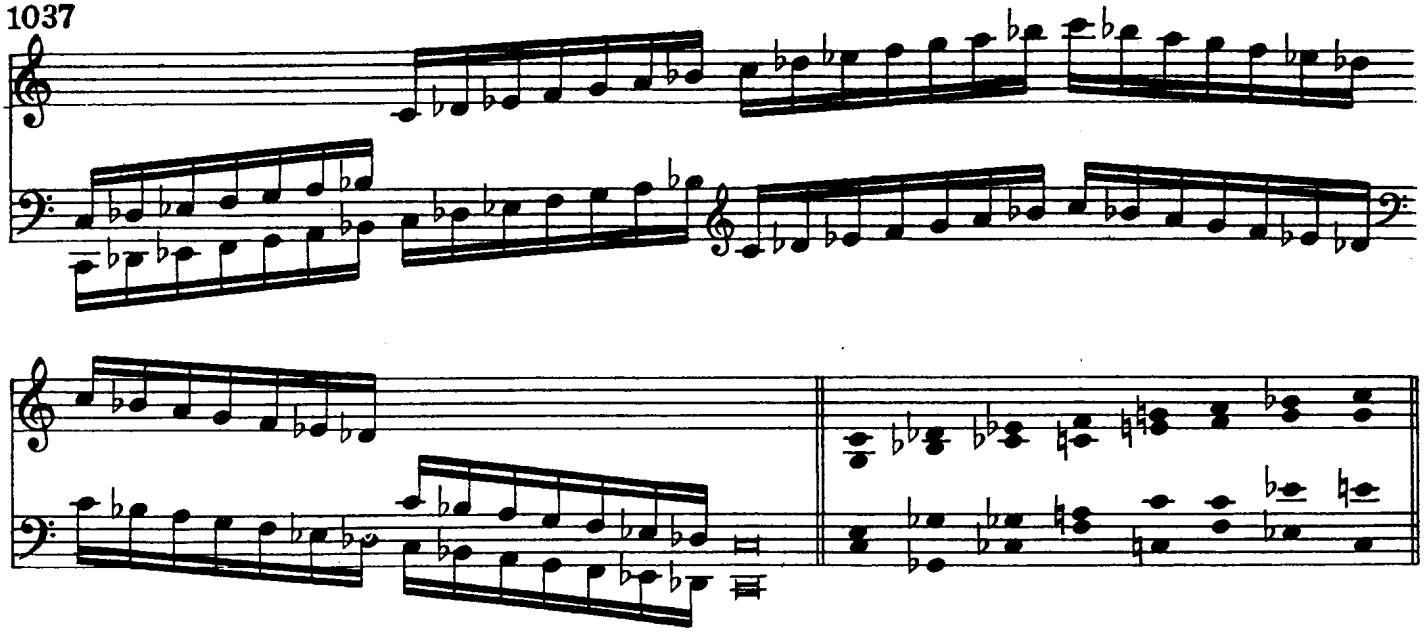


1036

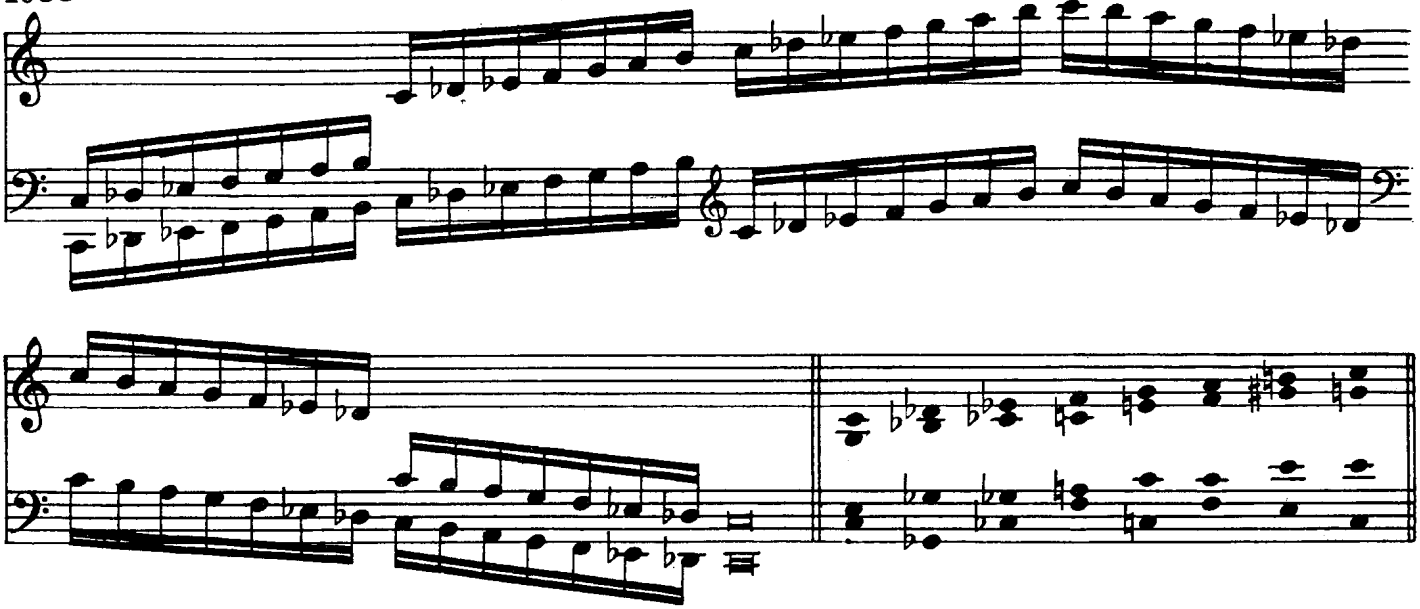
Phrygian



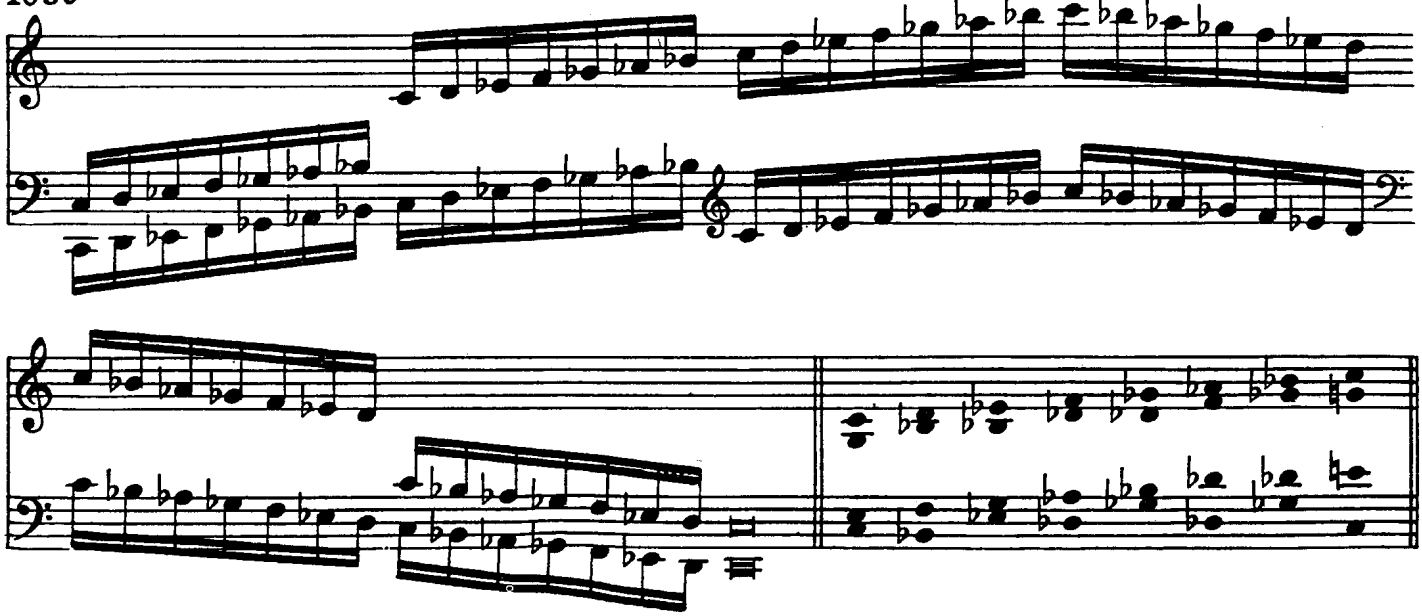
1037



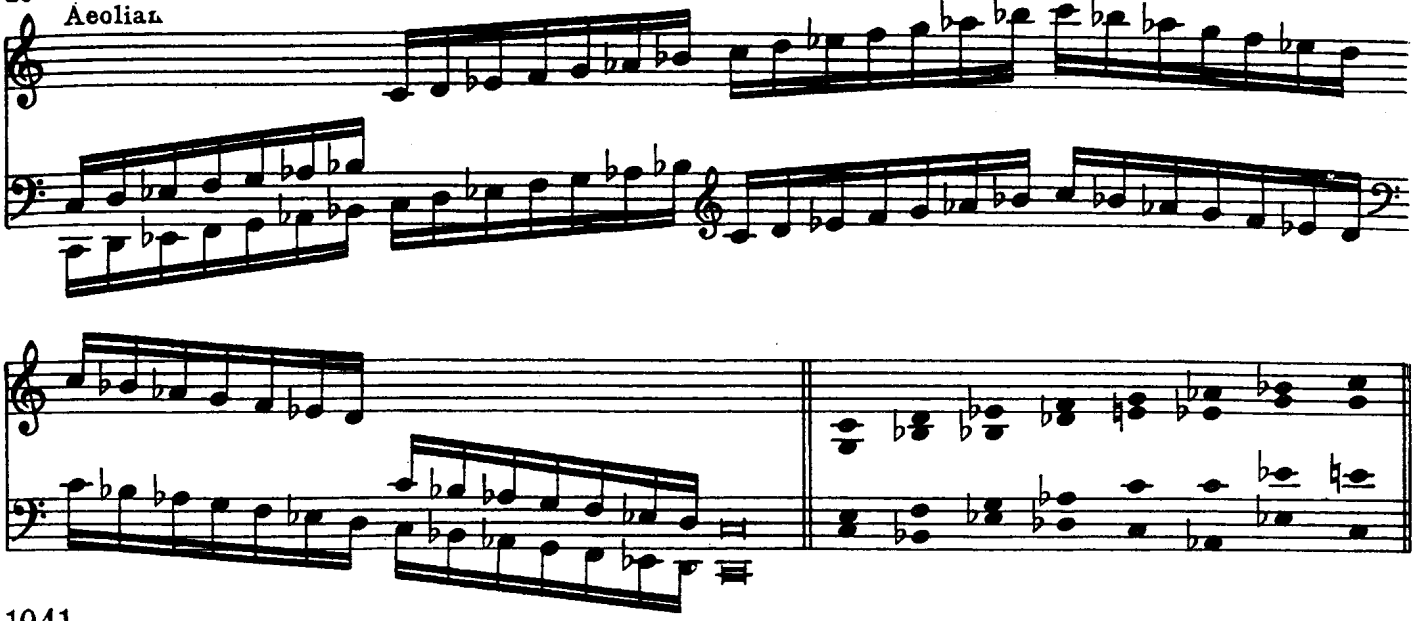
1038



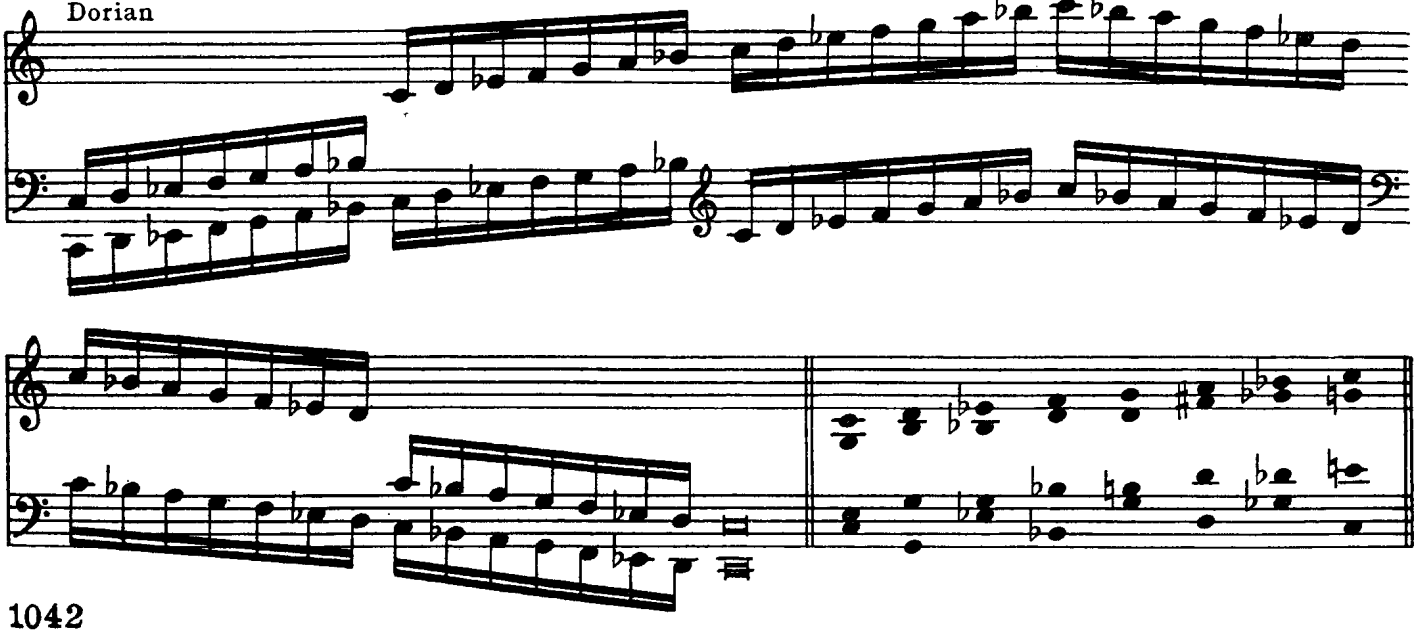
1039



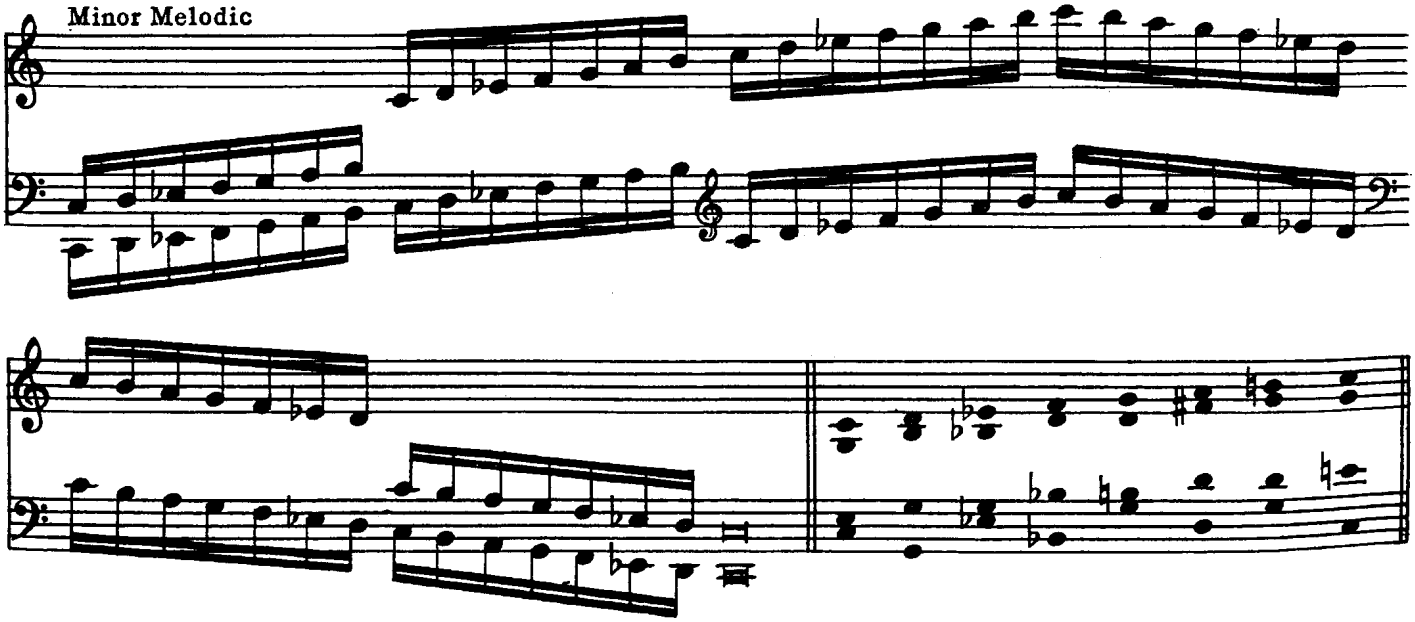
1040
Aeolian



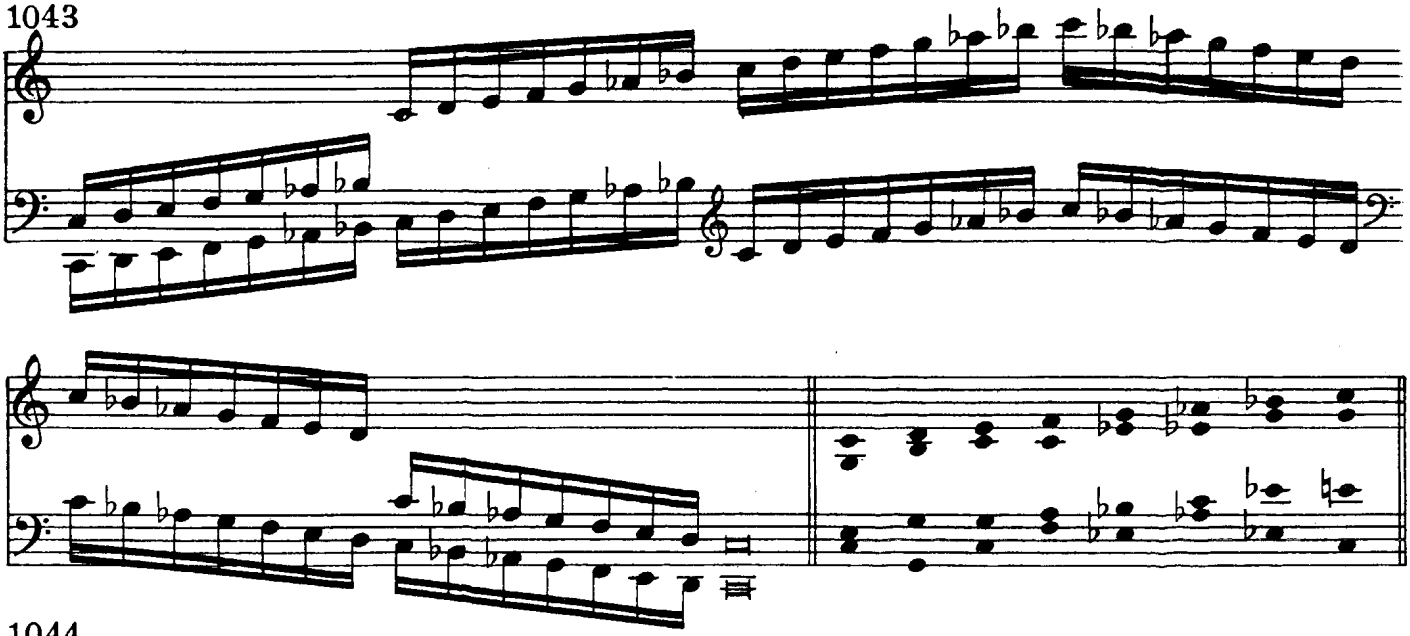
1041
Dorian



1042
Minor Melodic

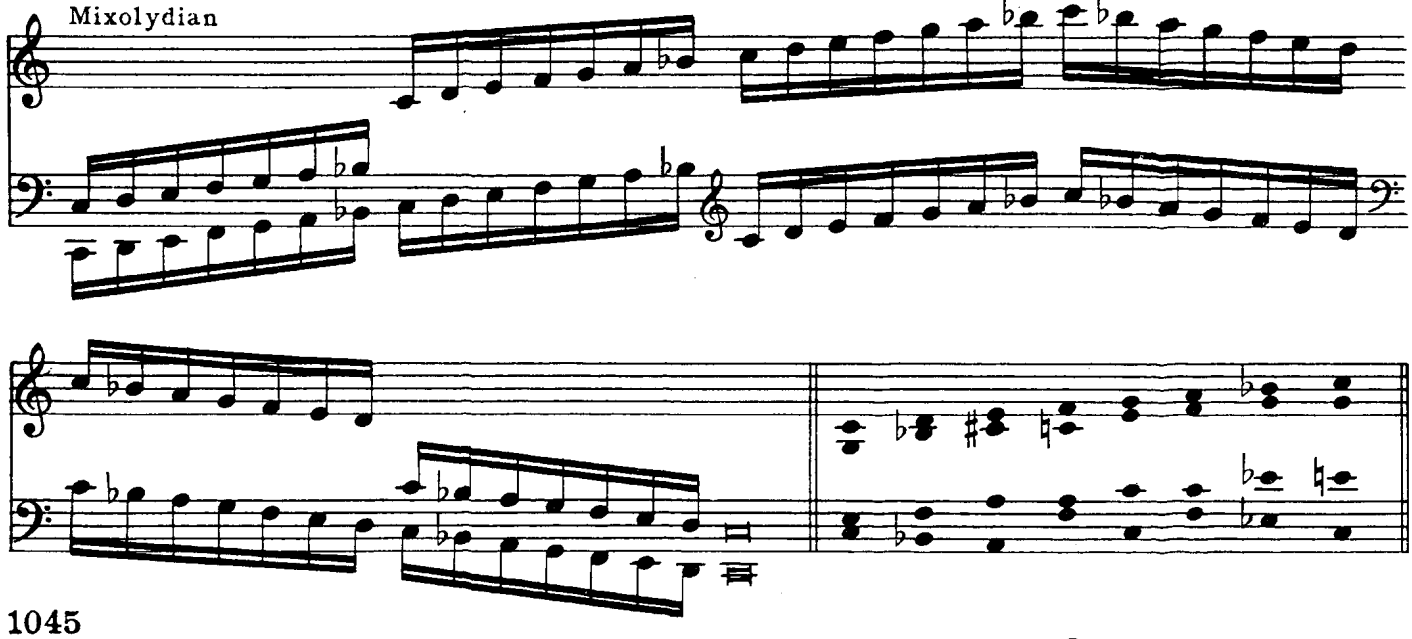


1043



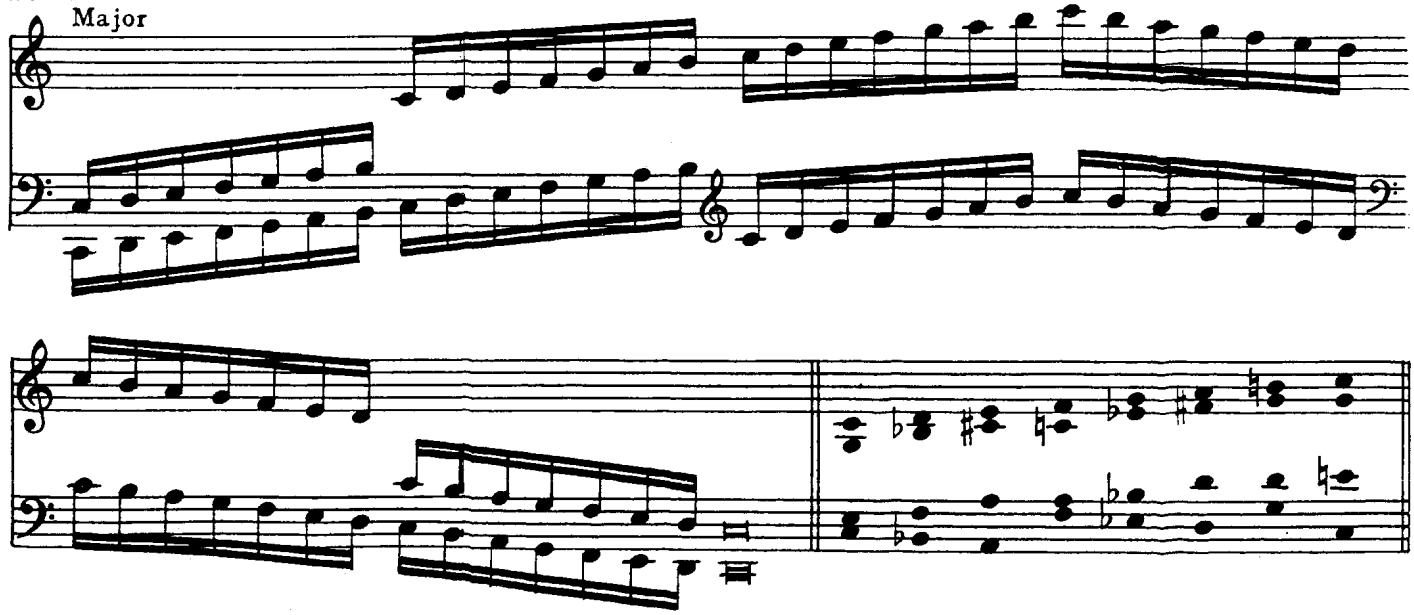
1044

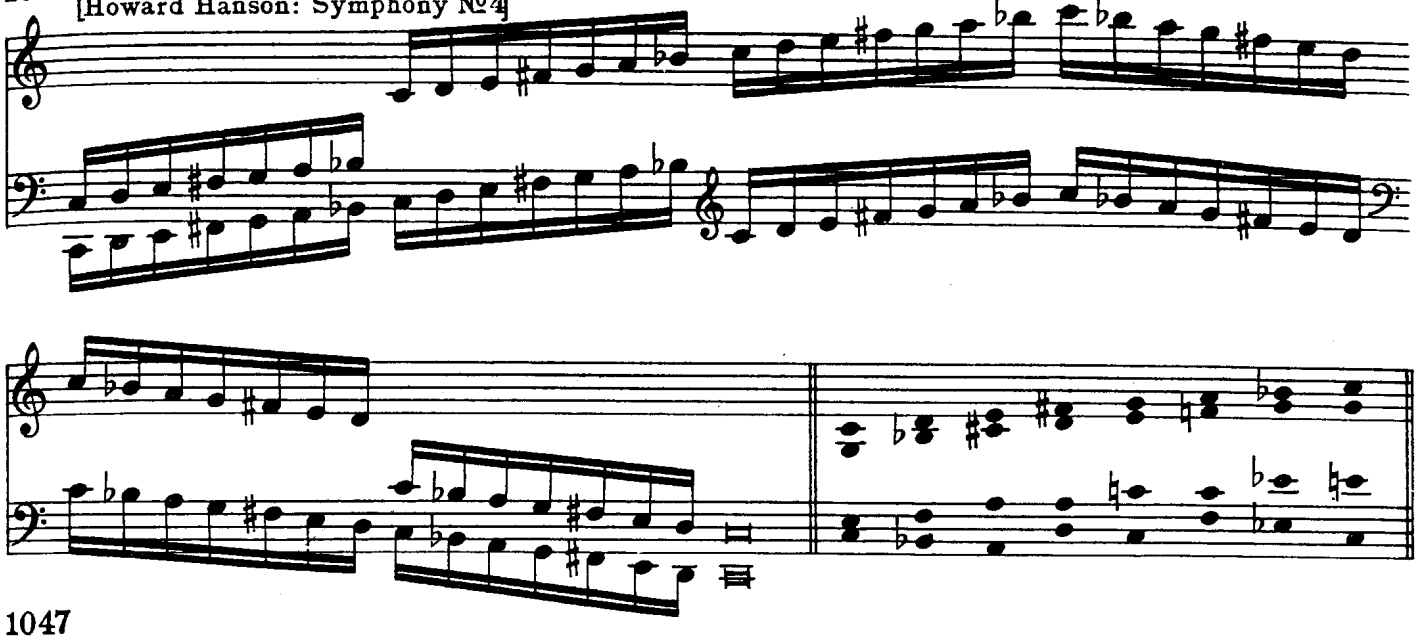
Mixolydian



1045

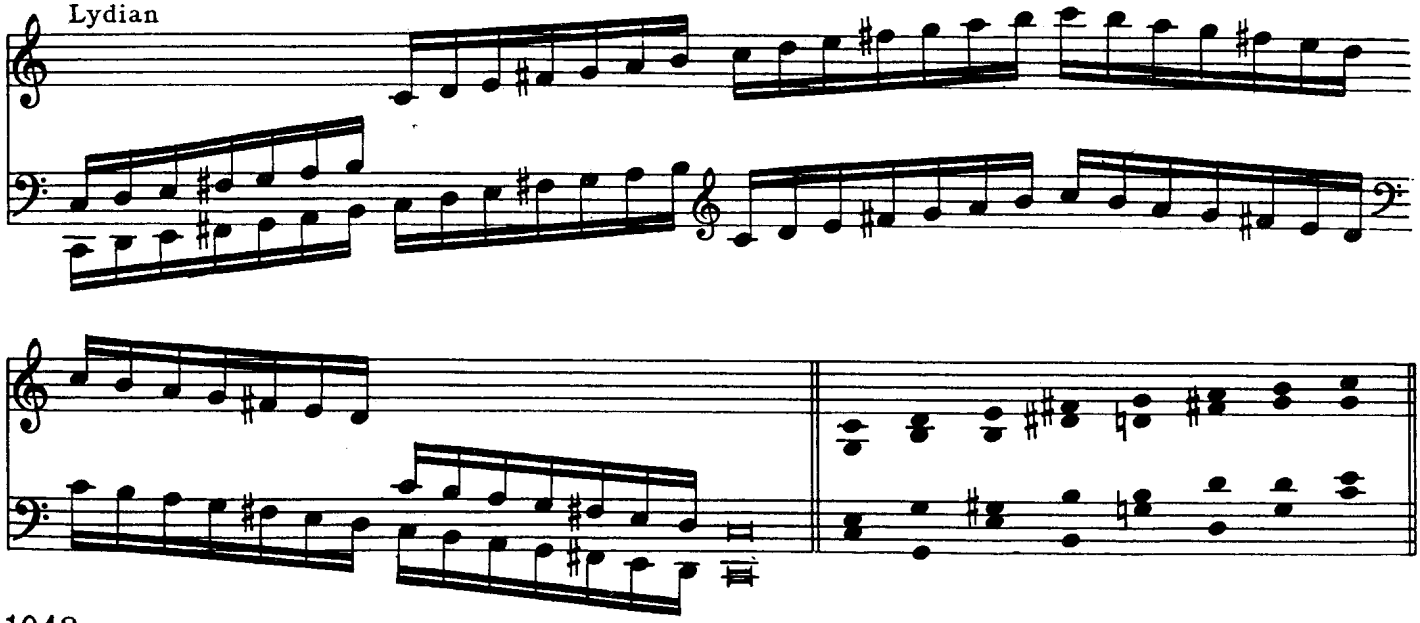
Major



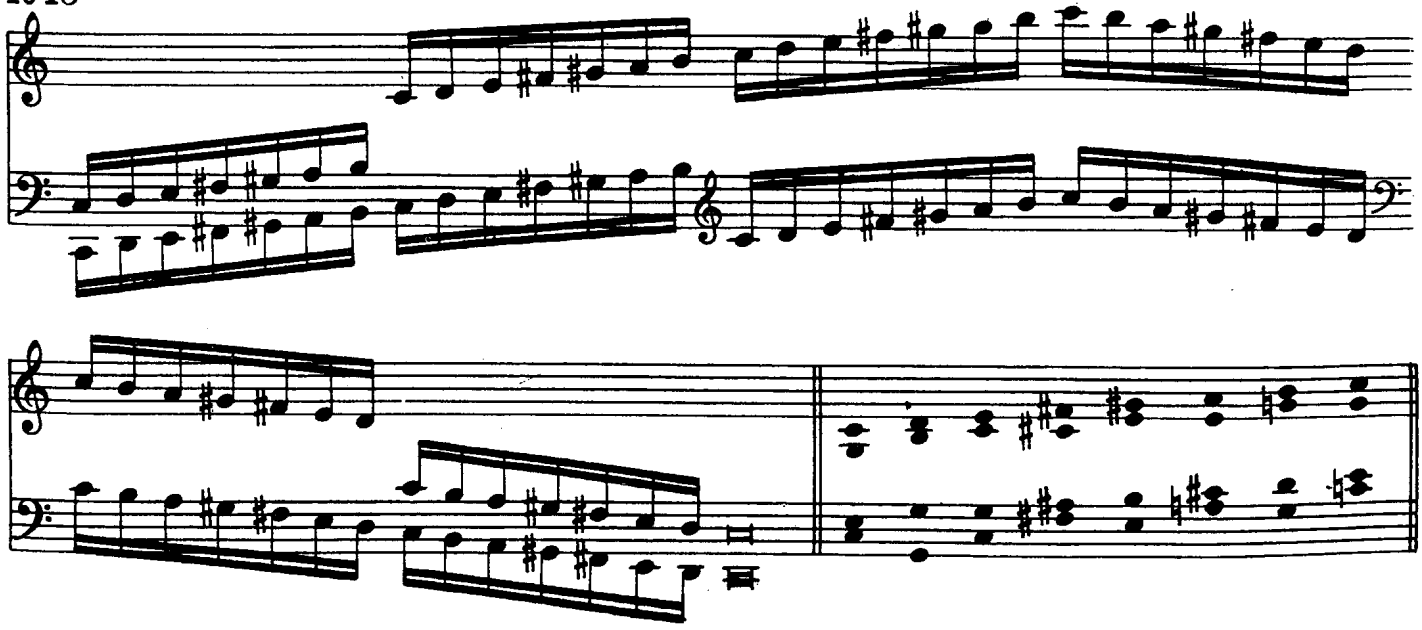


1047

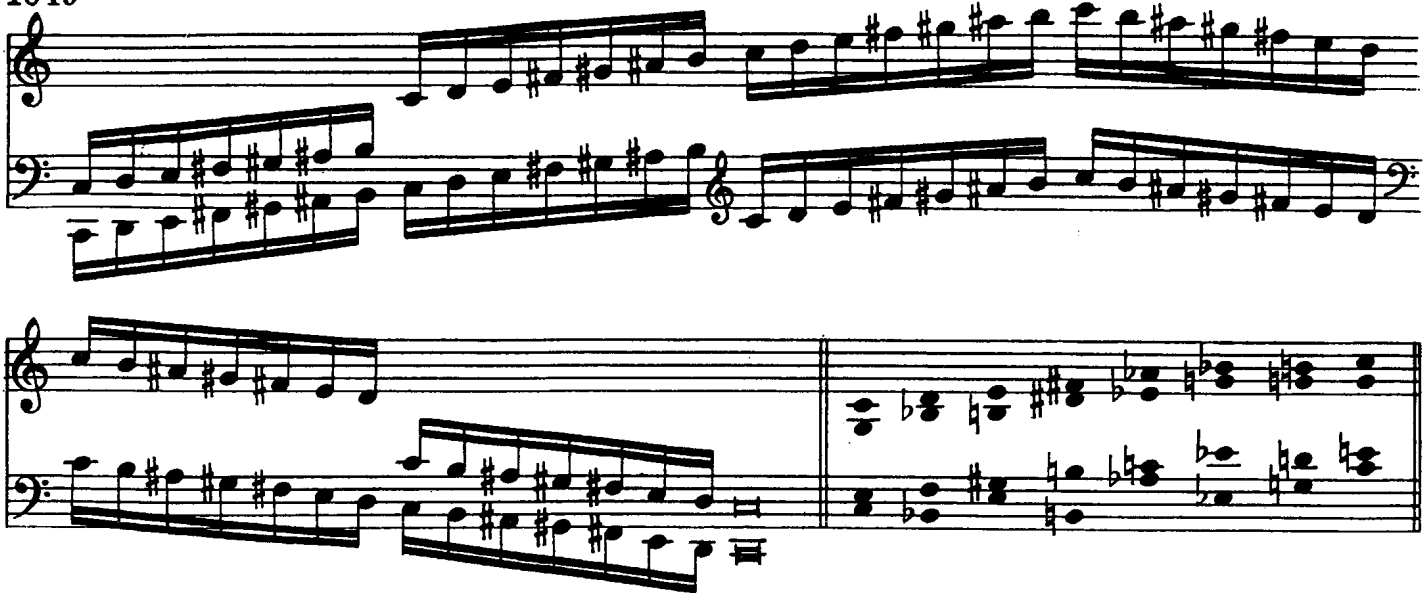
Lydian



1048

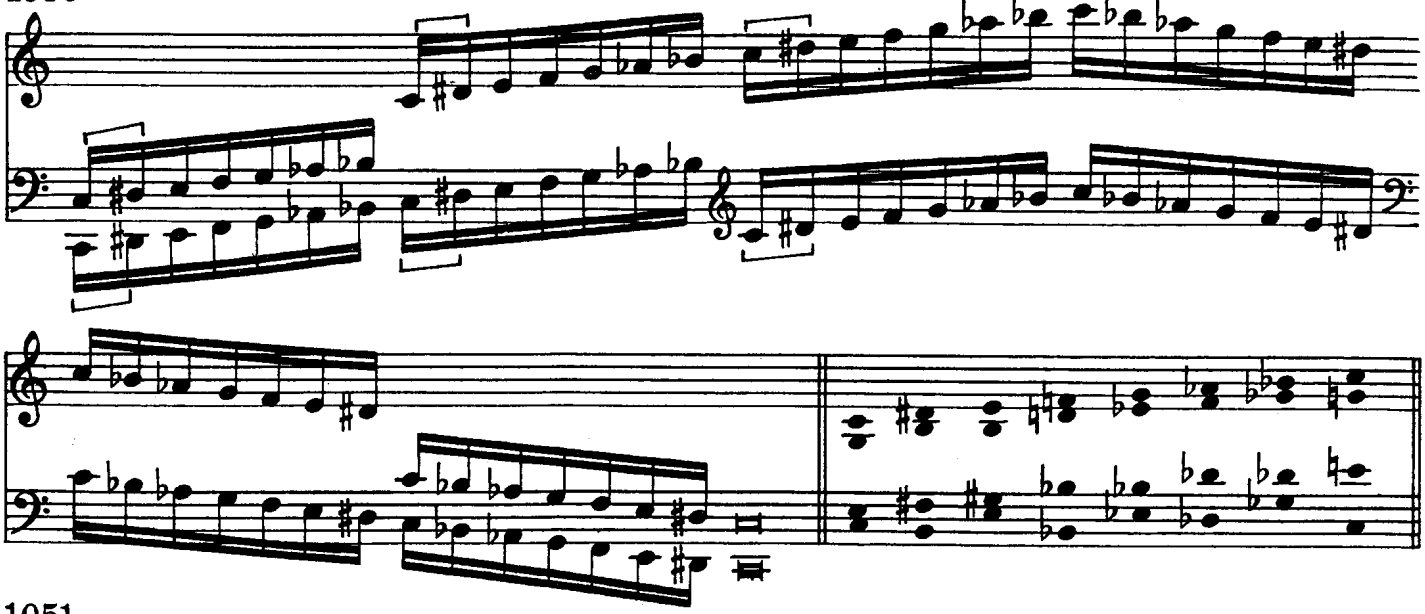


1049

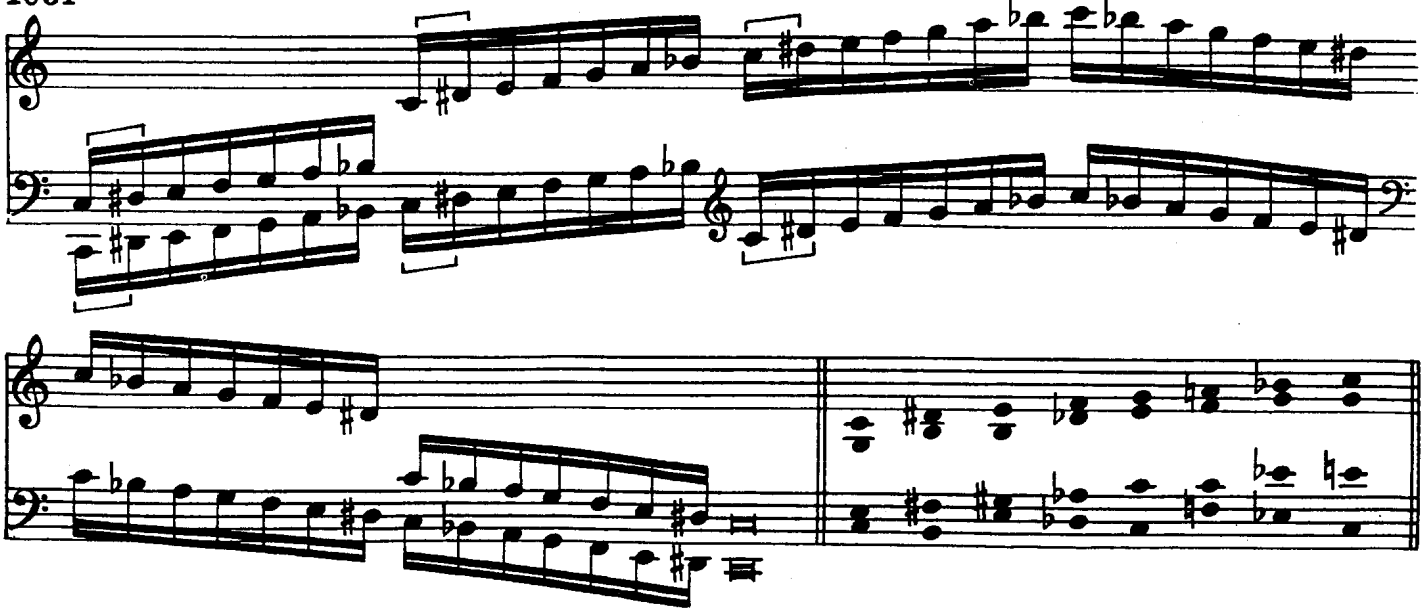


Heptatonic Scales with an Augmented Second

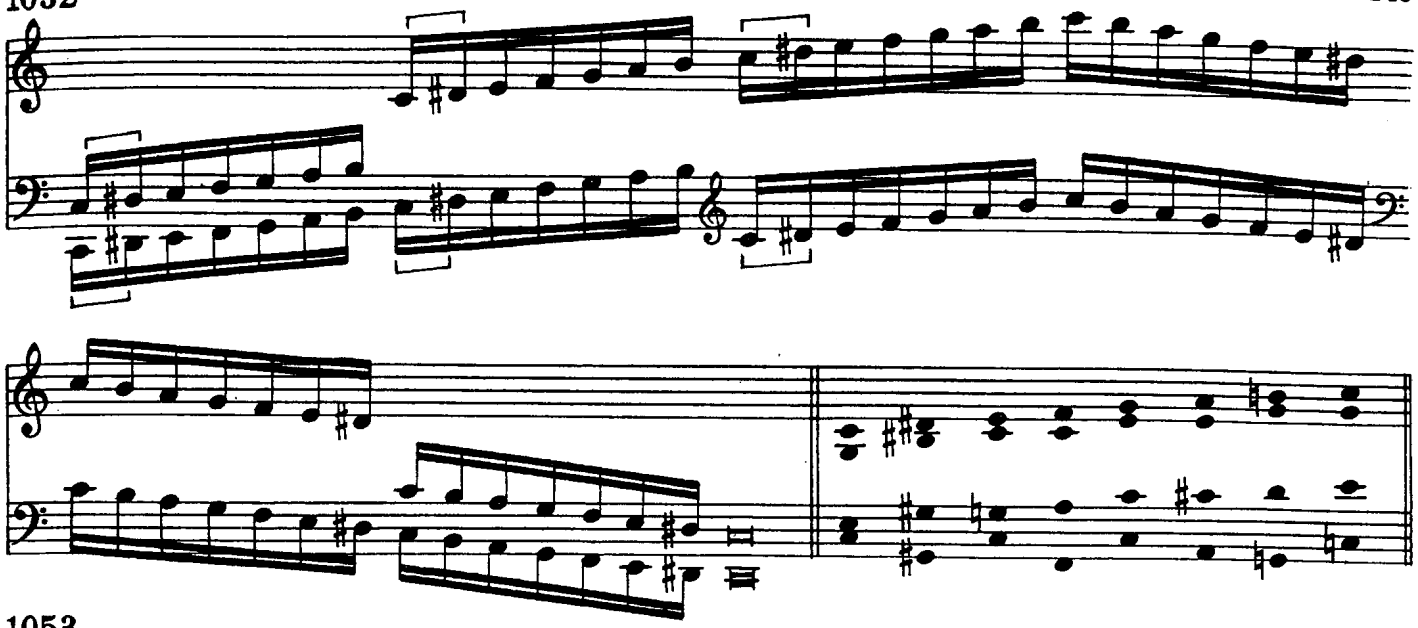
1050



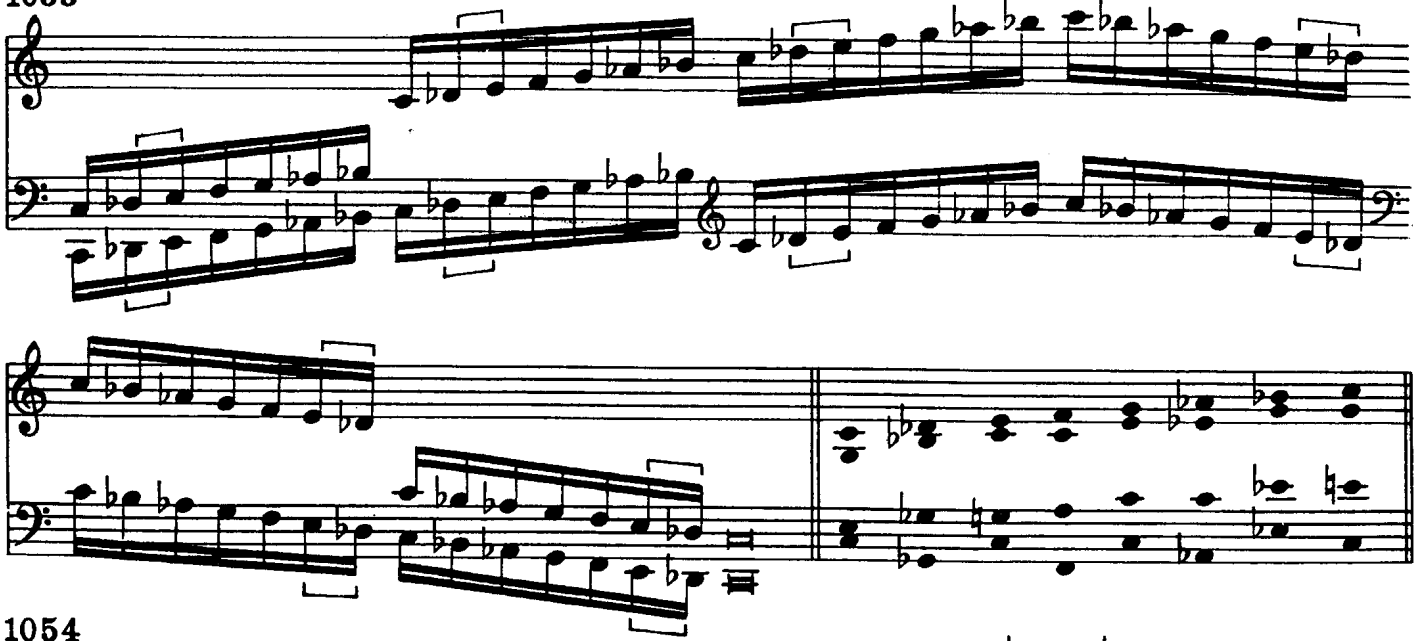
1051



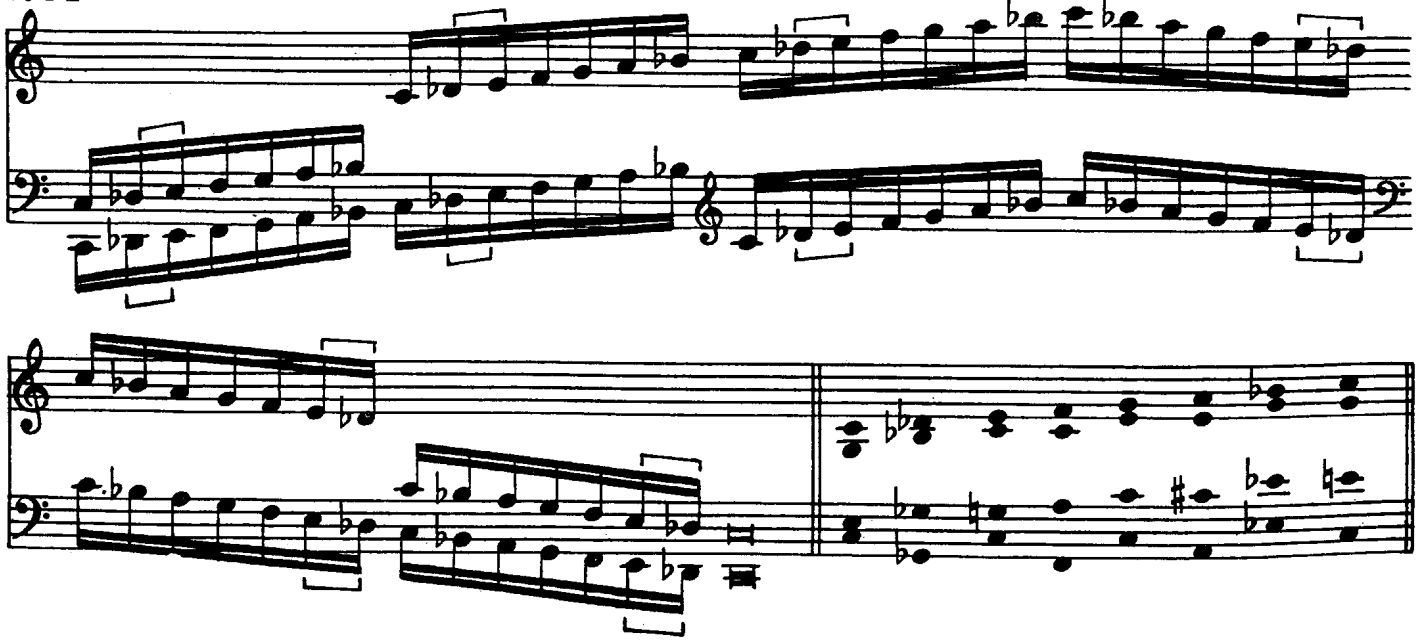
1052



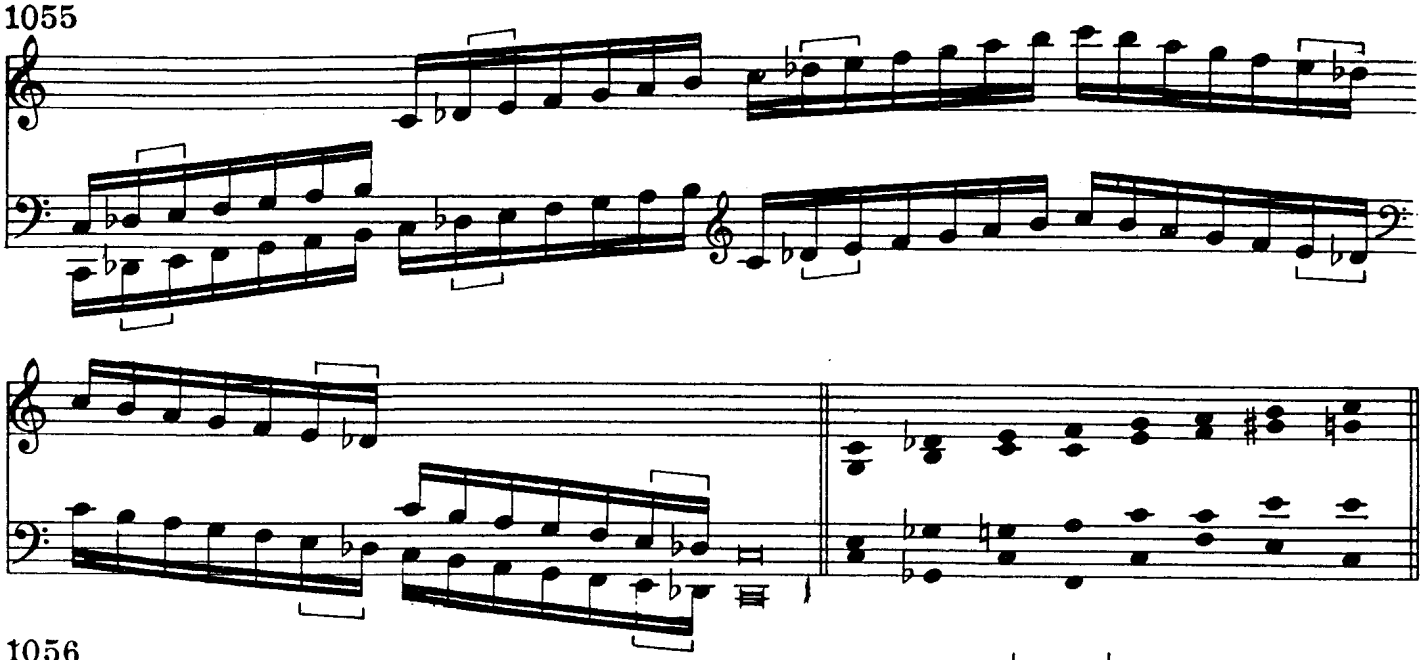
1053



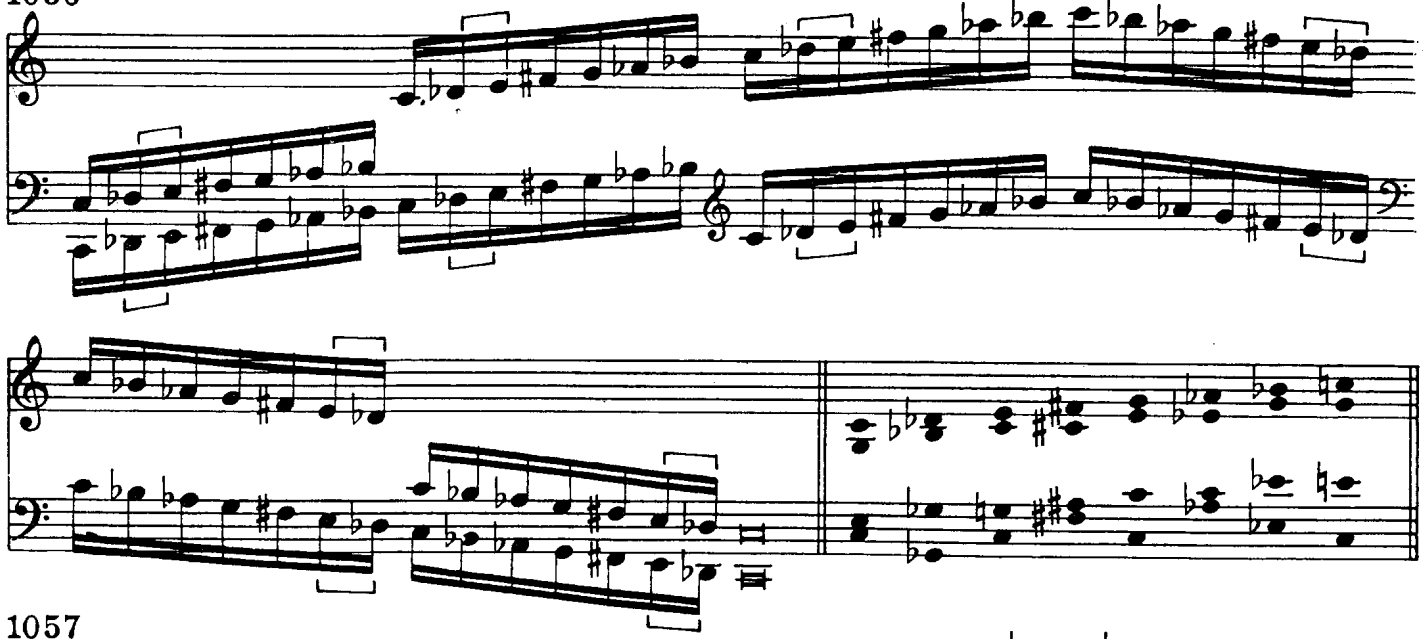
1054



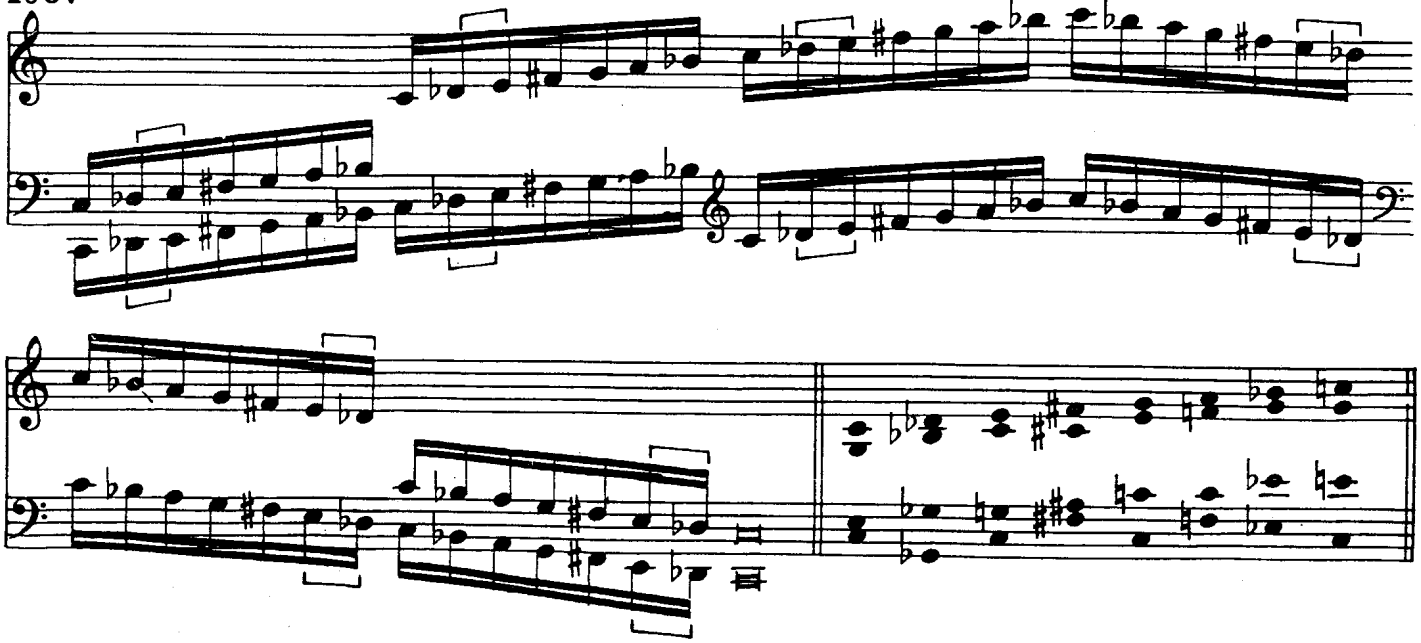
1055



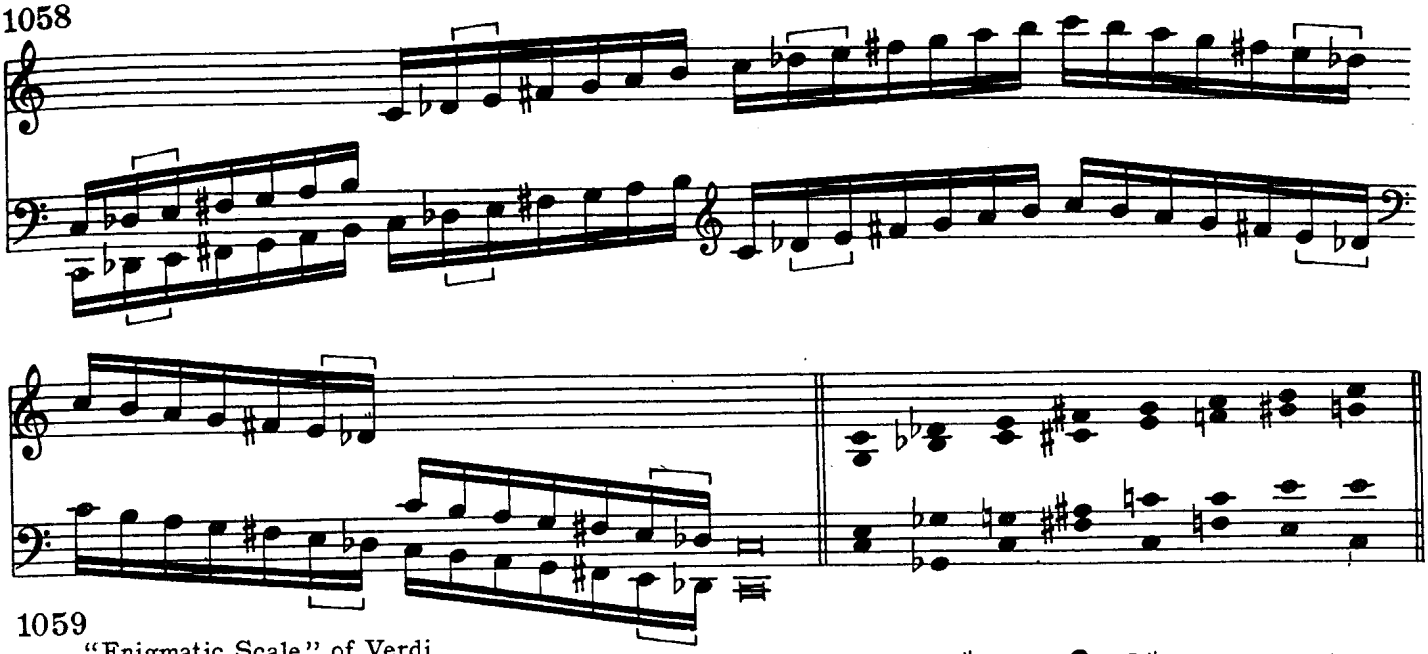
1056



1057

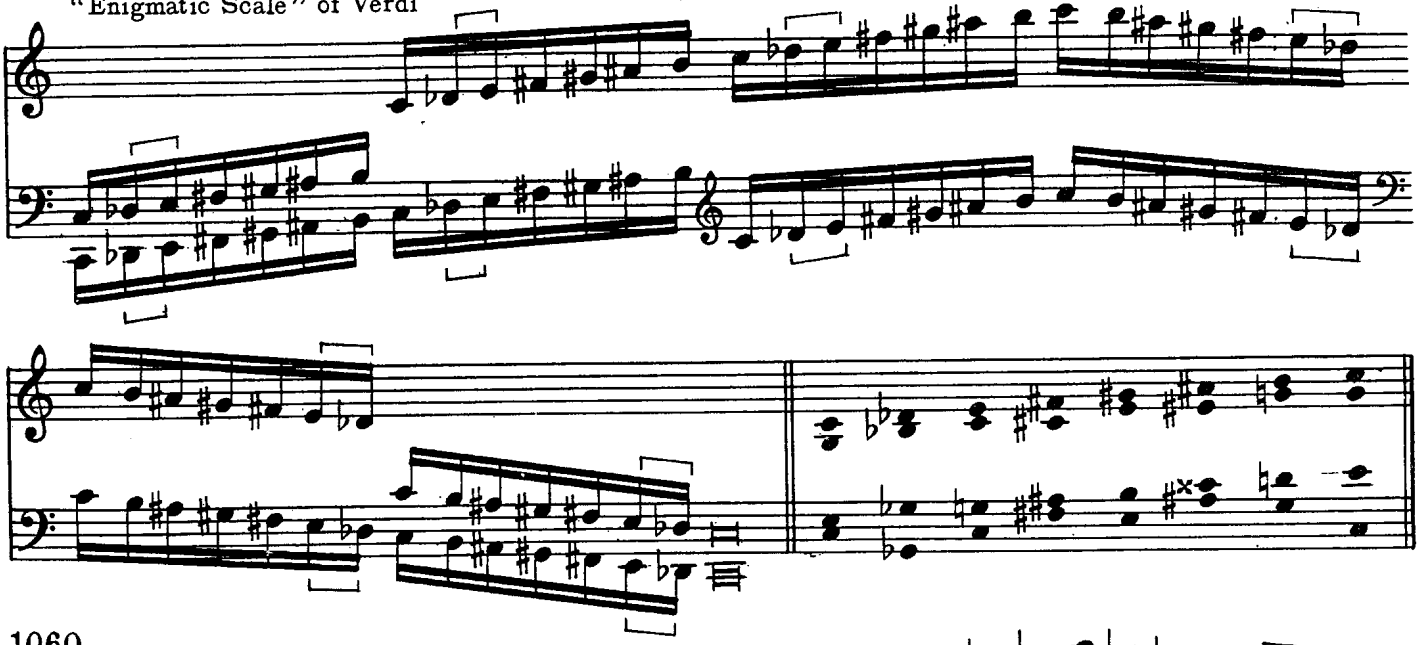


1058

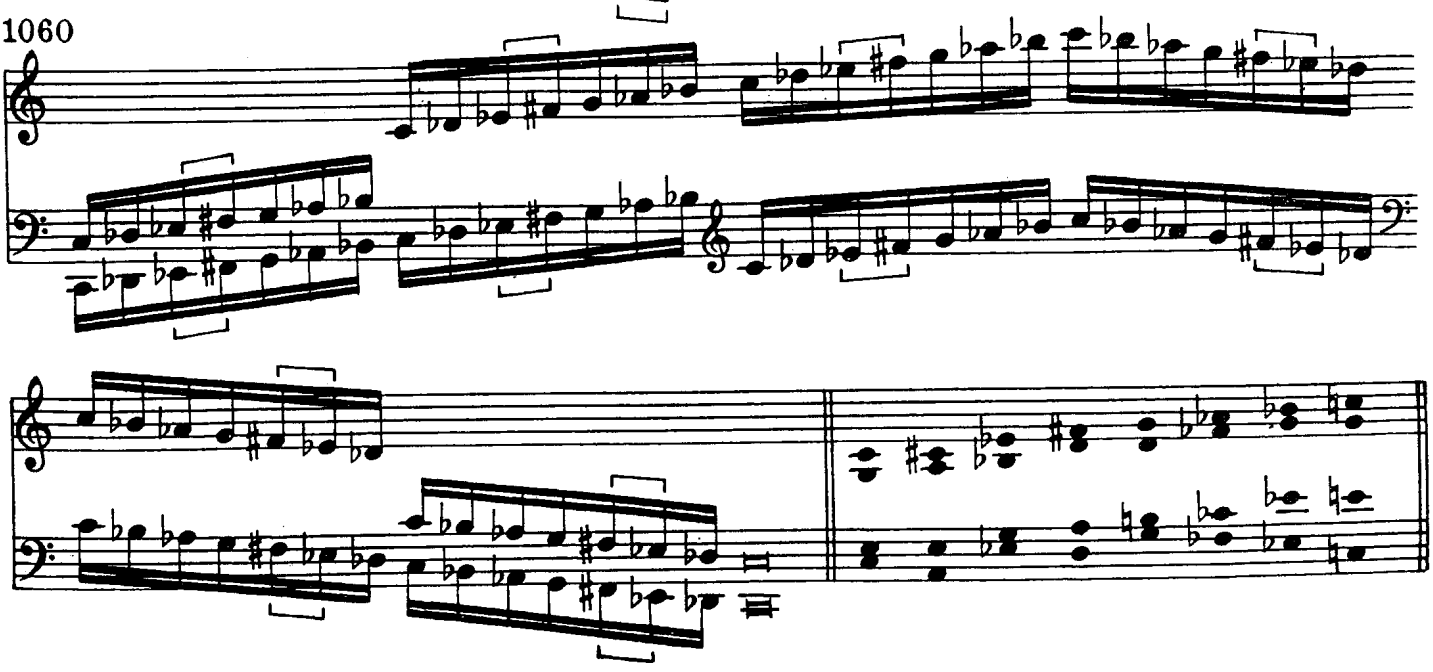


1059

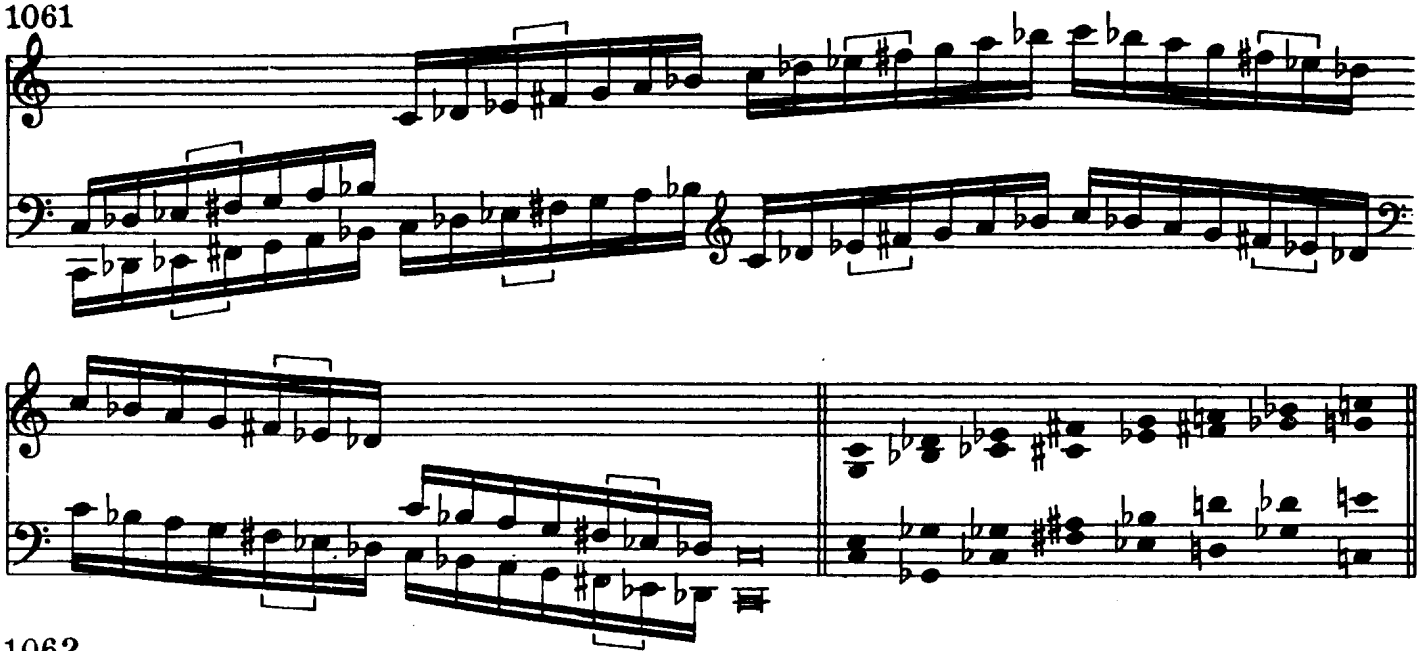
"Enigmatic Scale" of Verdi



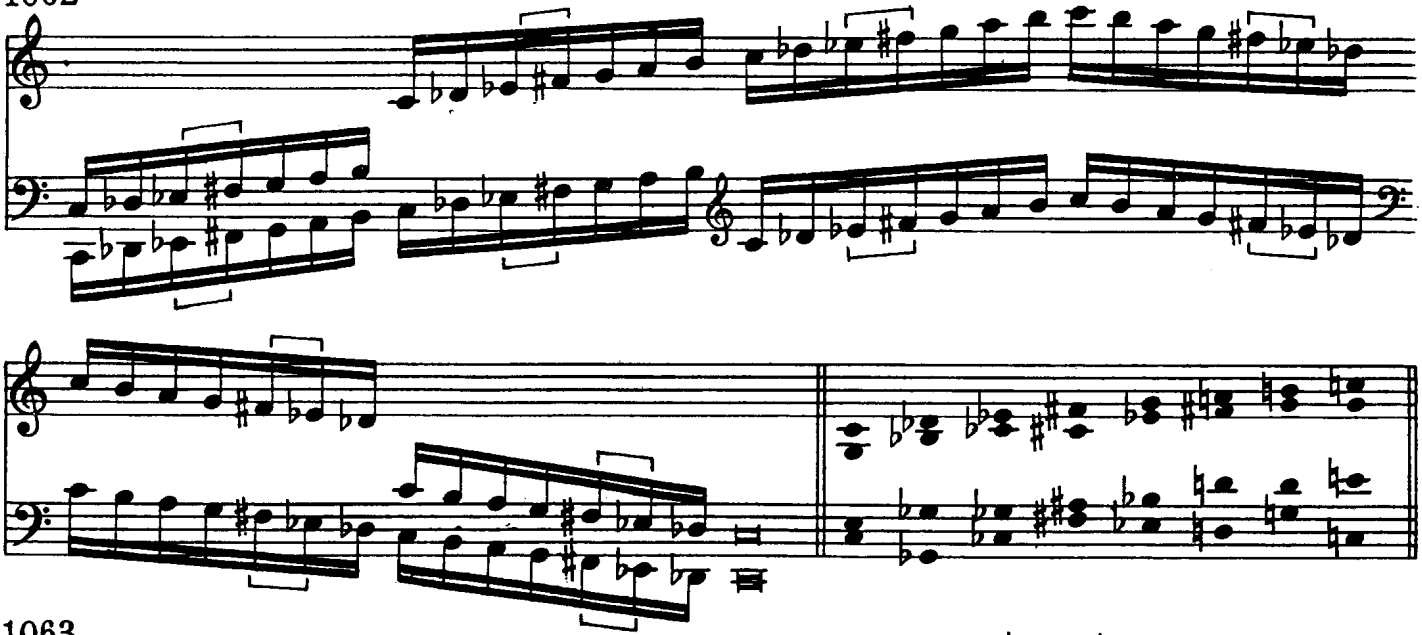
1060



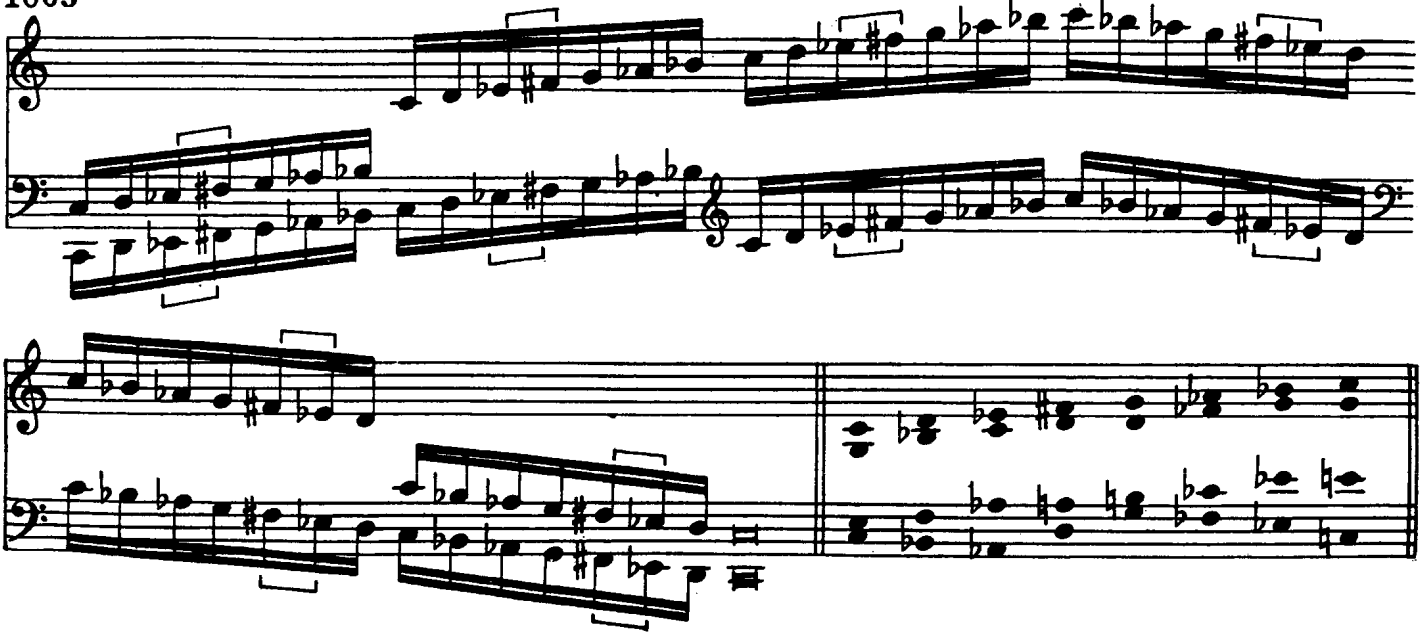
1061



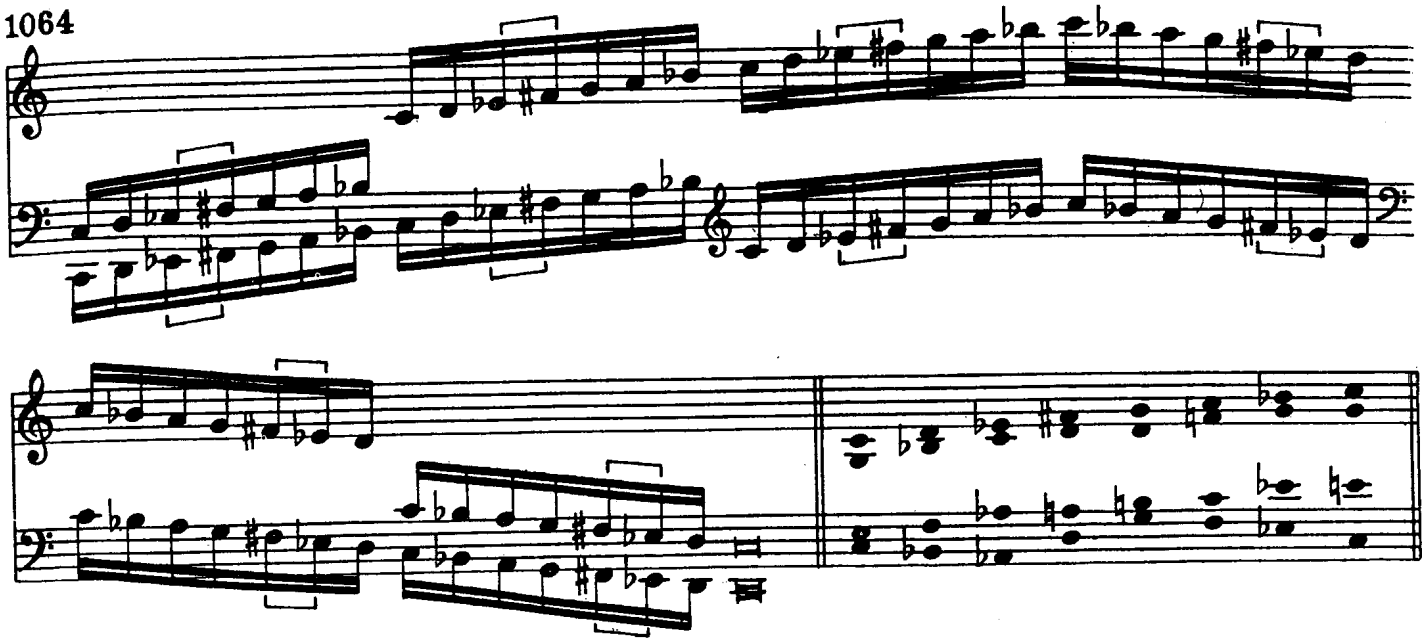
1062



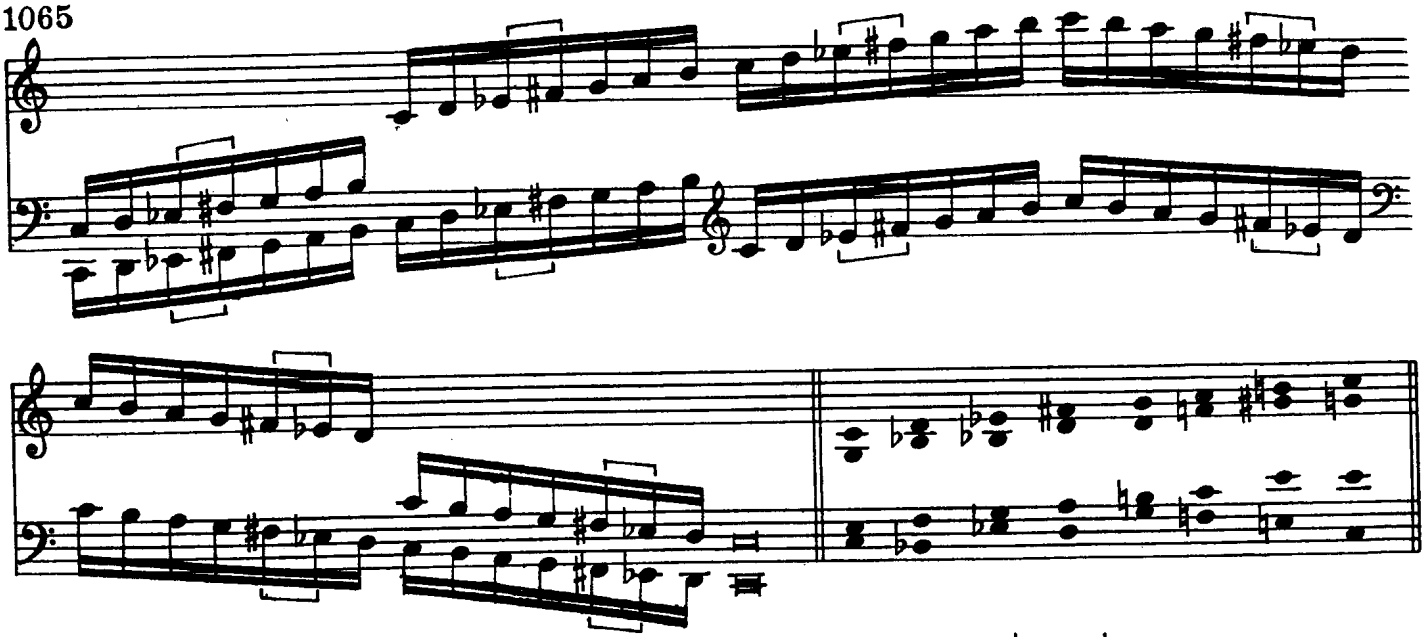
1063



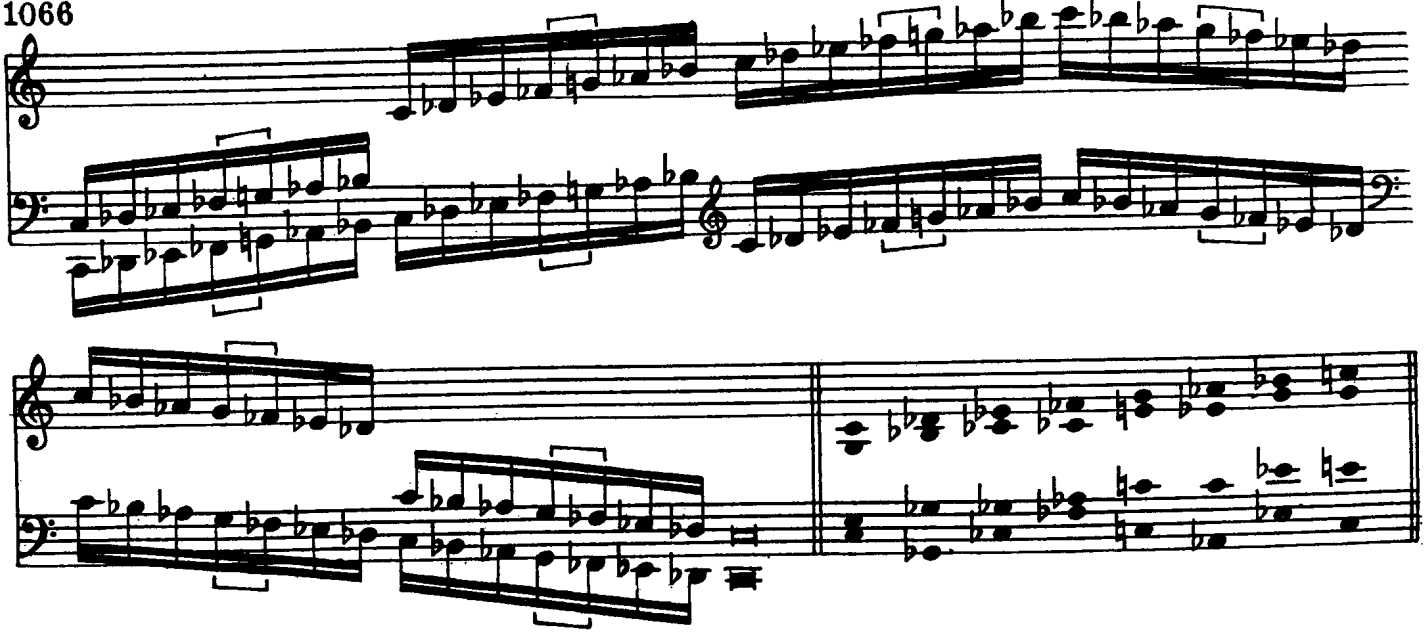
1064



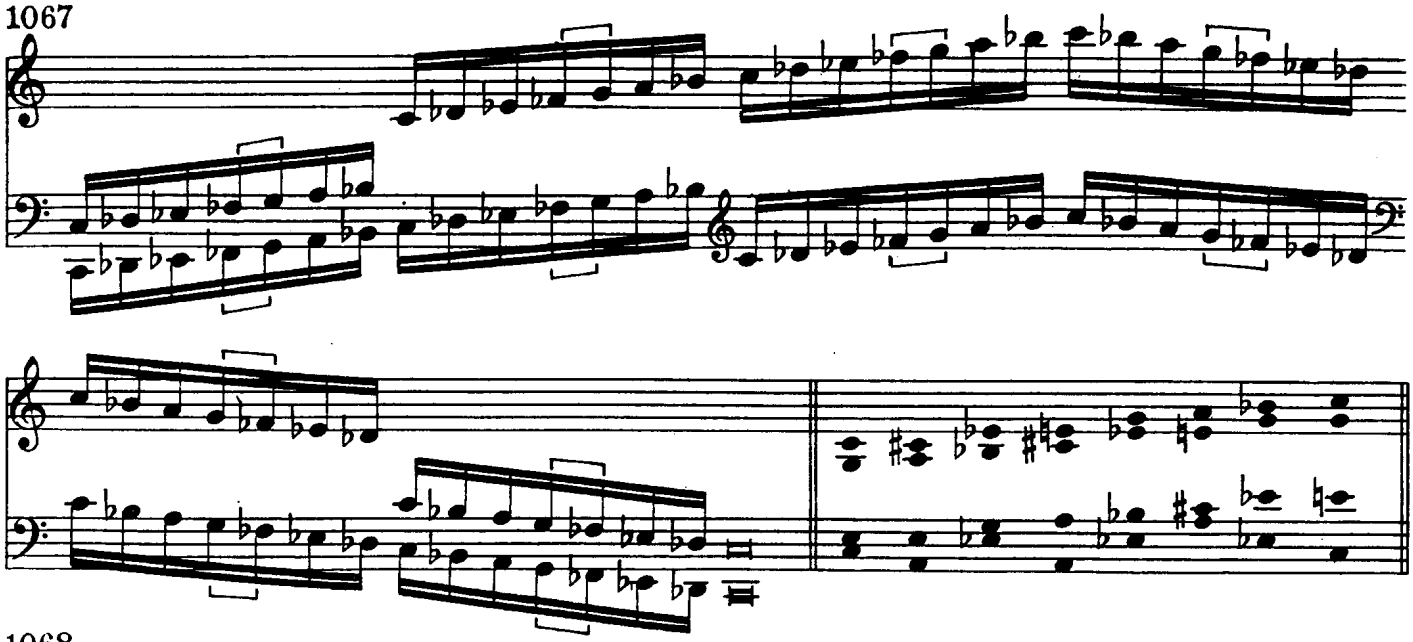
1065



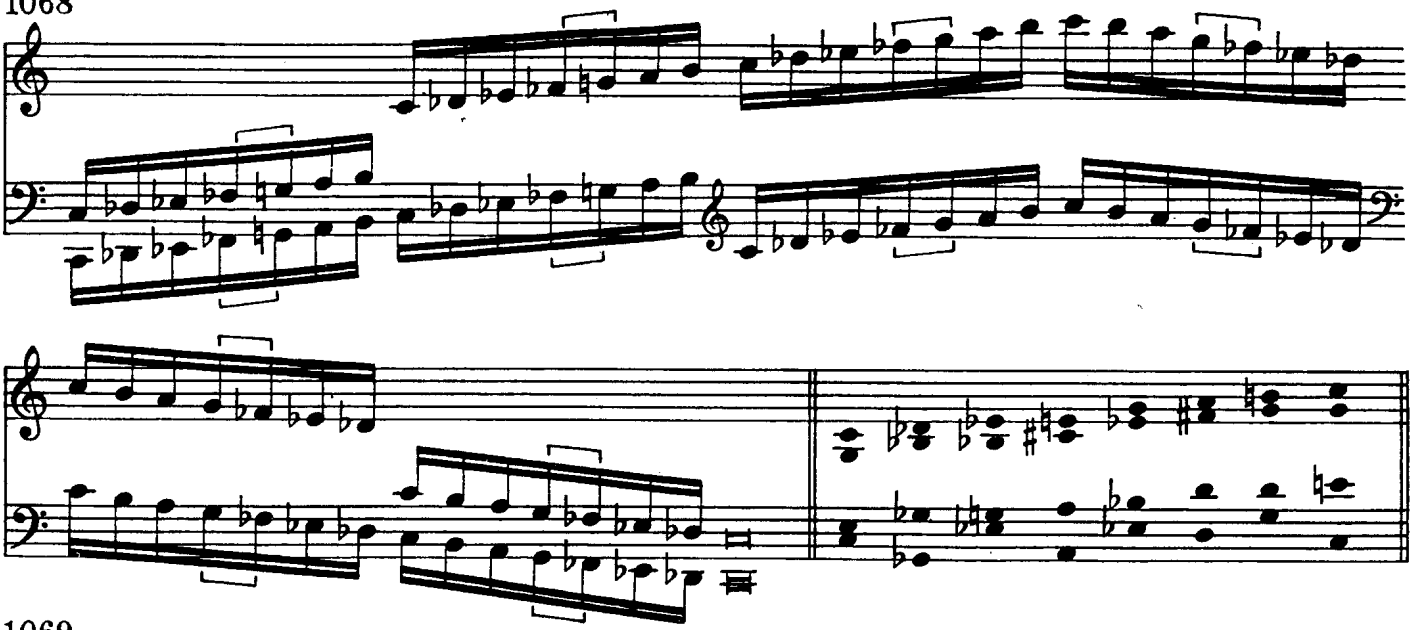
1066



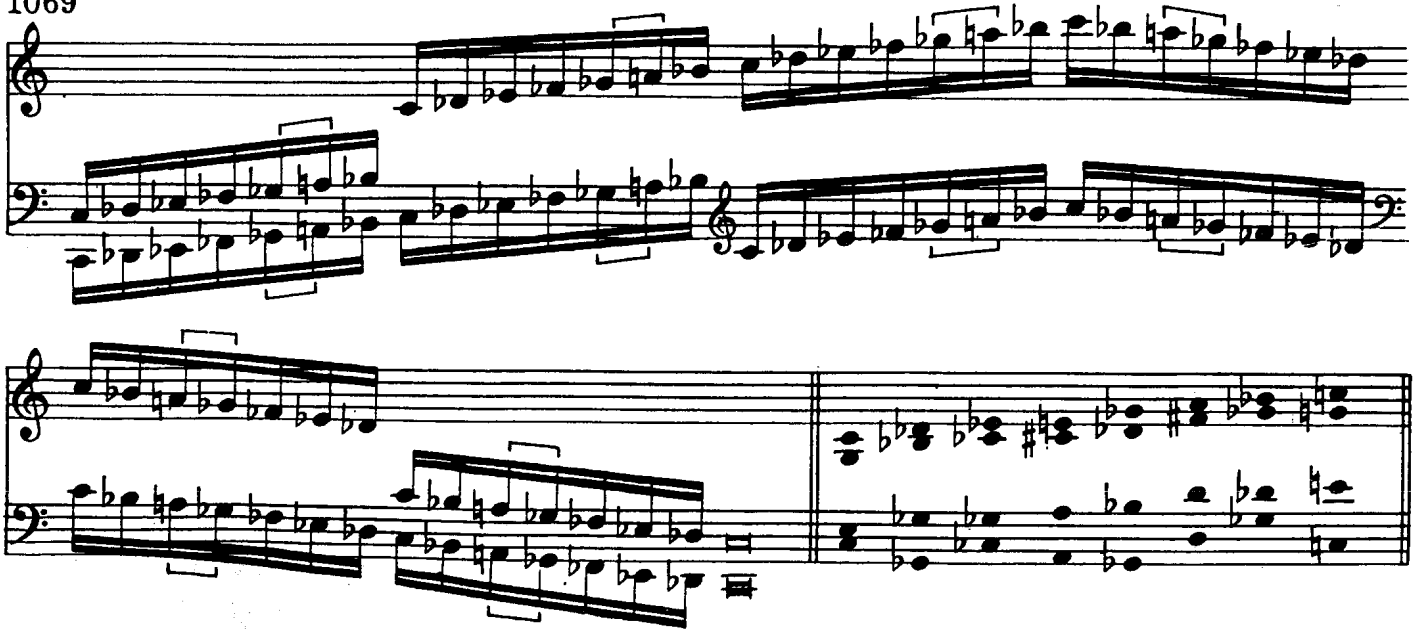
1067



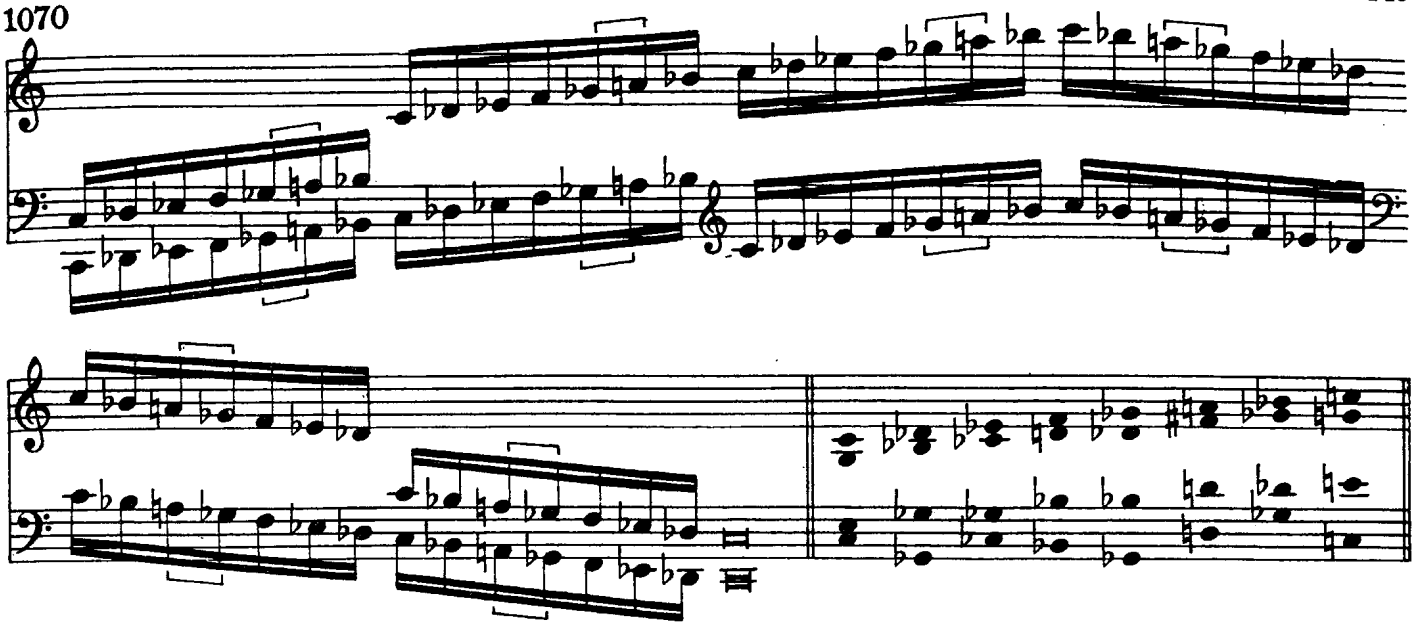
1068



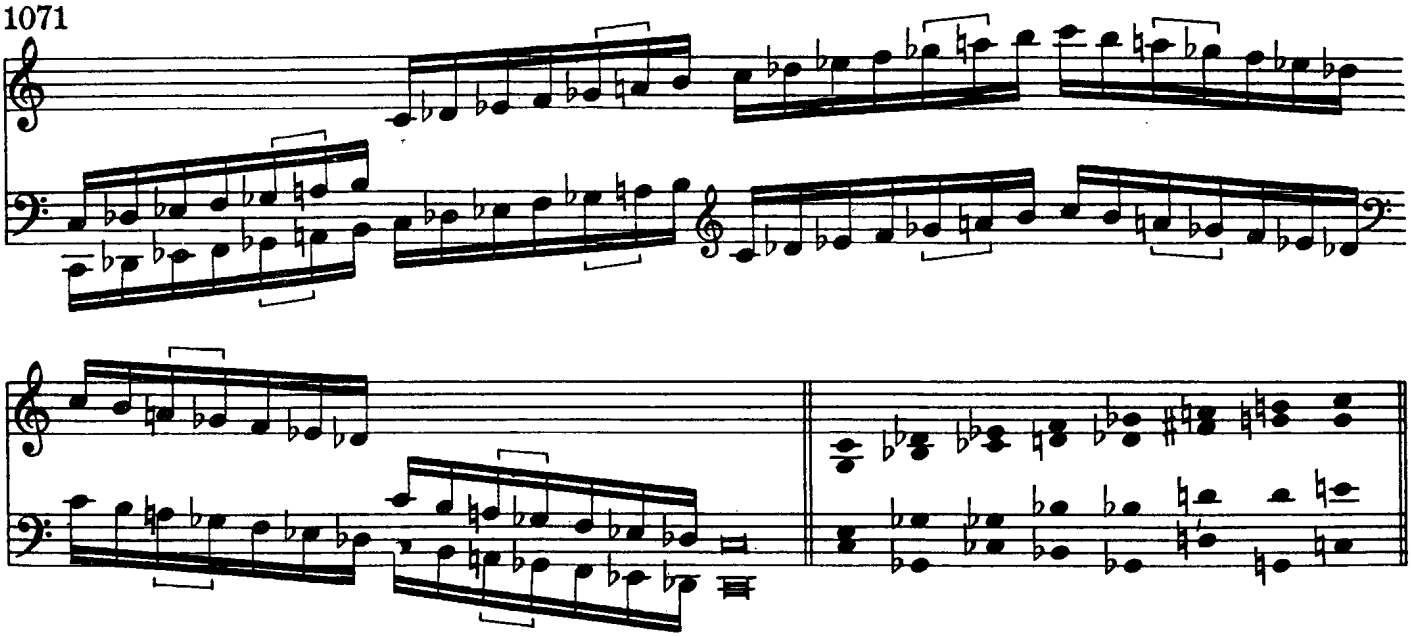
1069



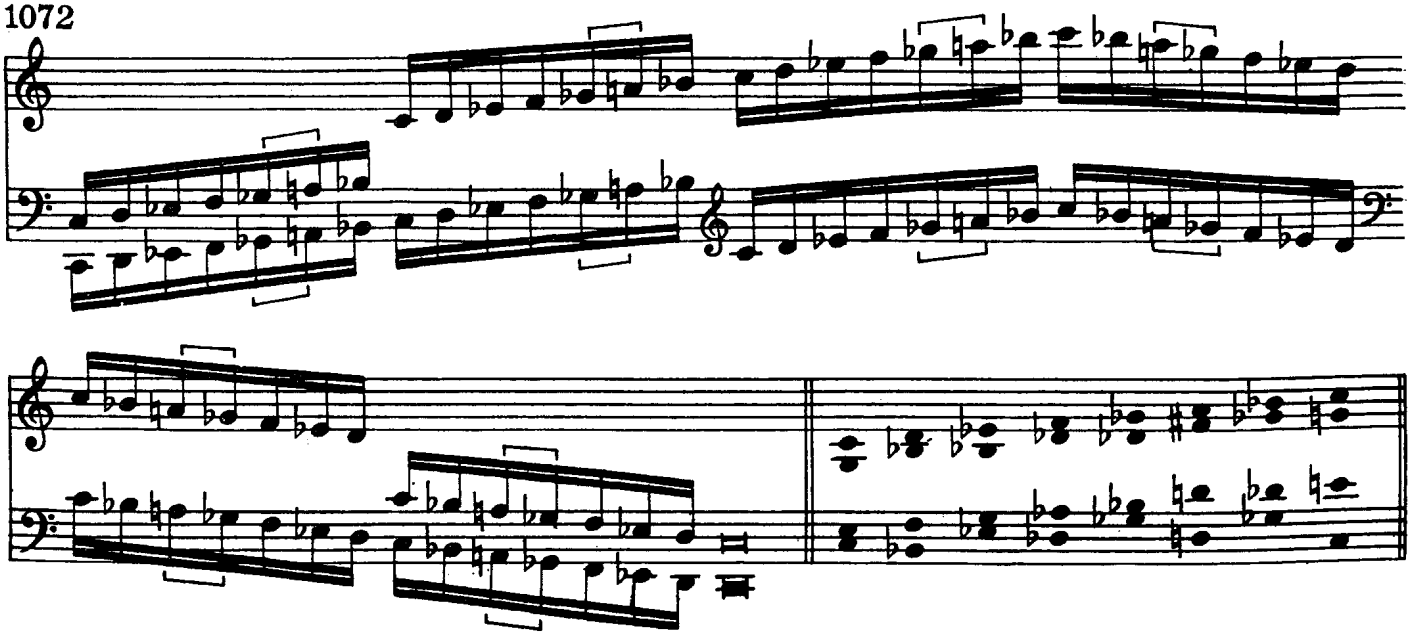
1070



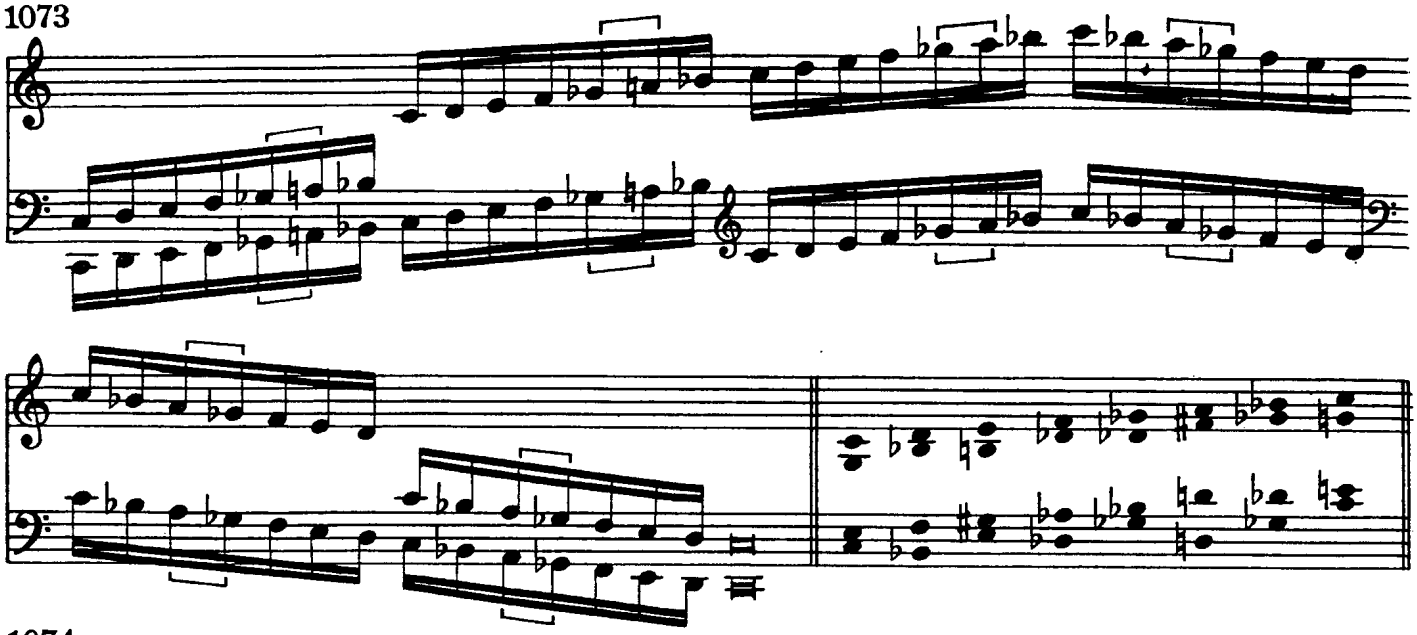
1071



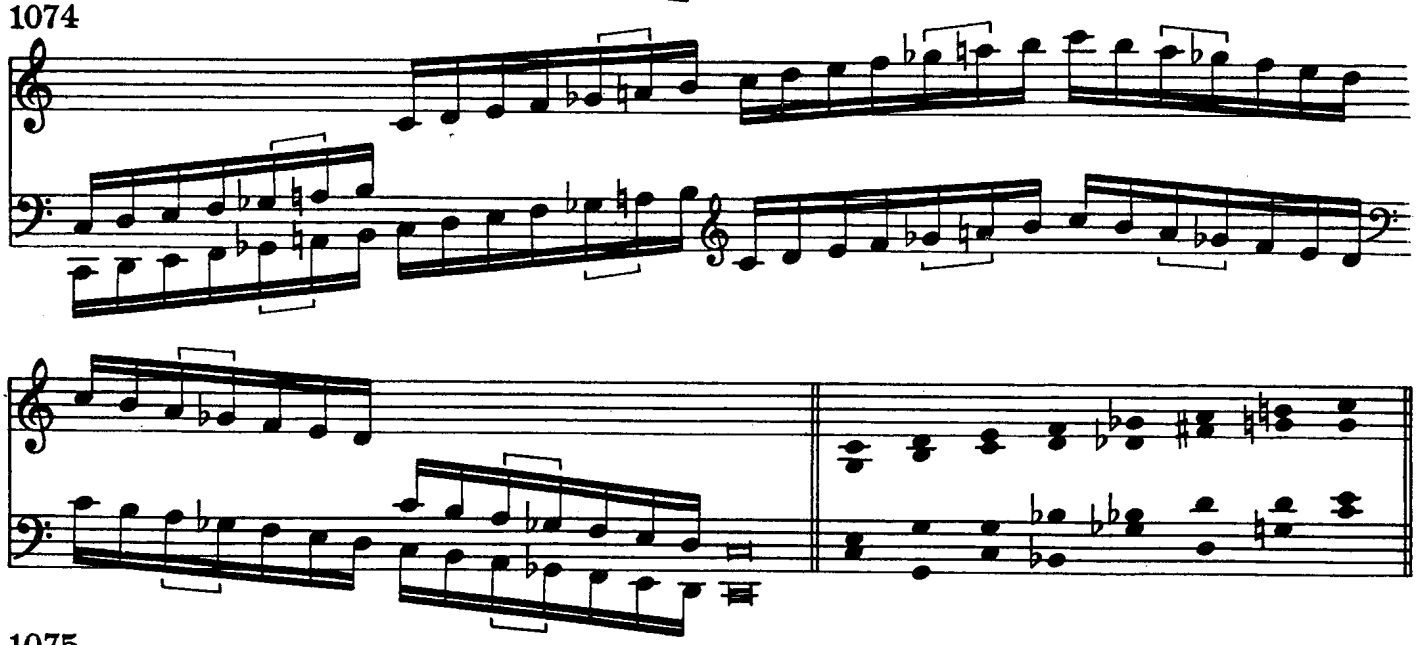
1072



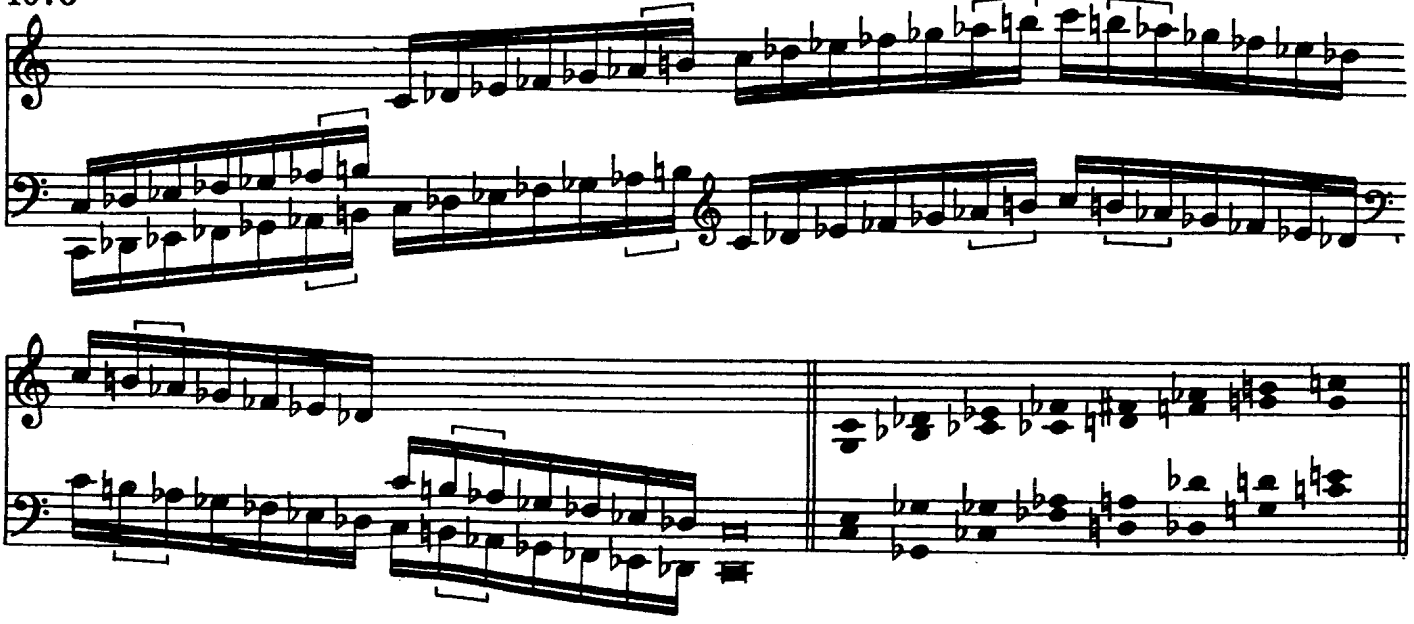
1073



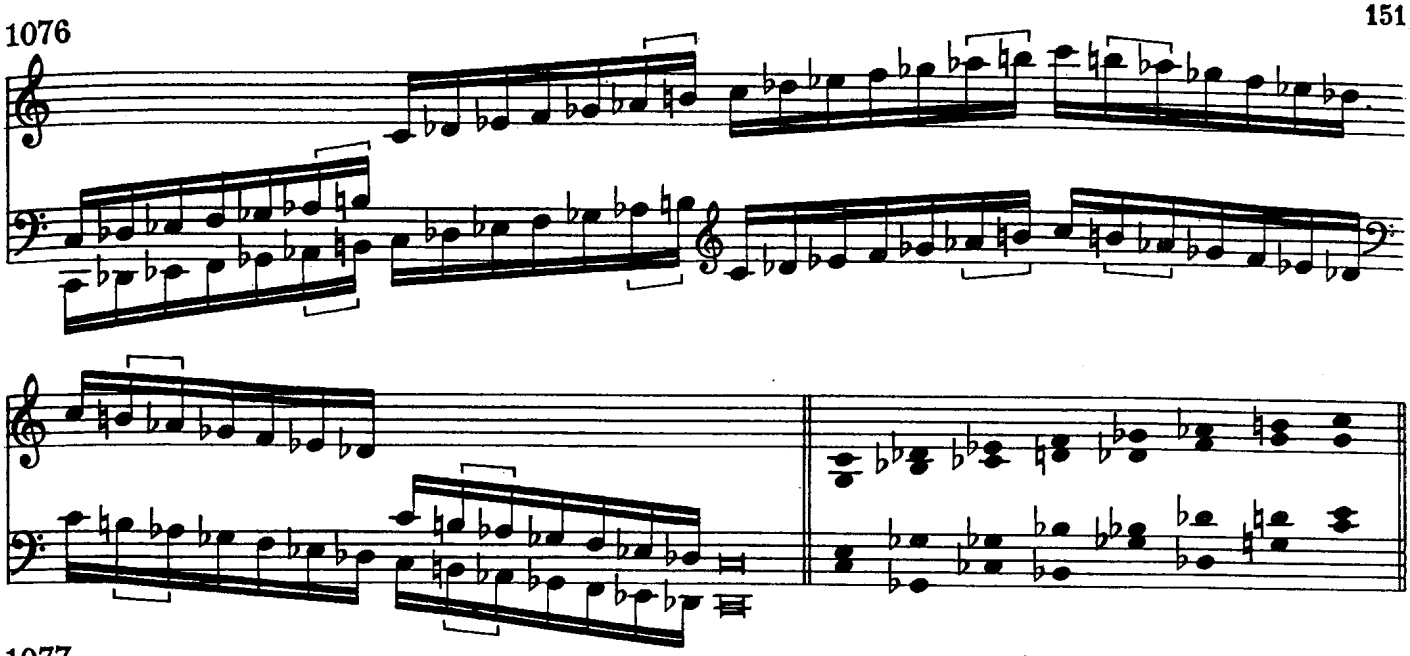
1074



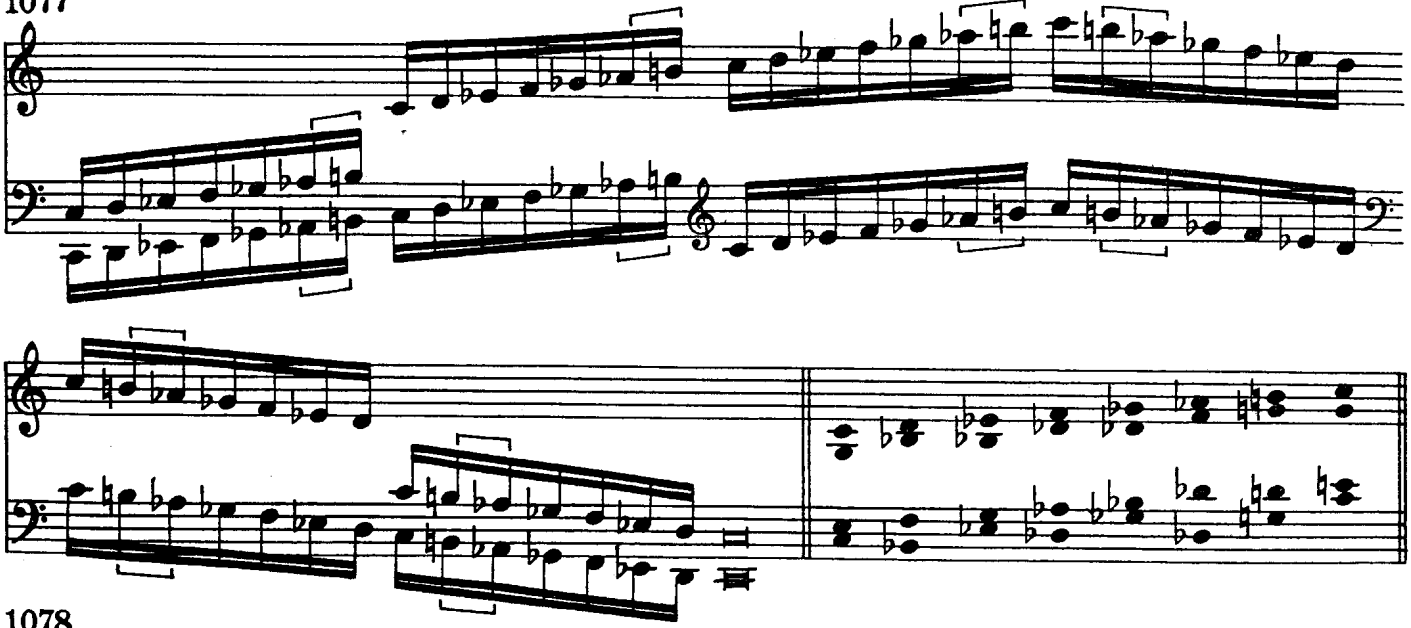
1075



1076

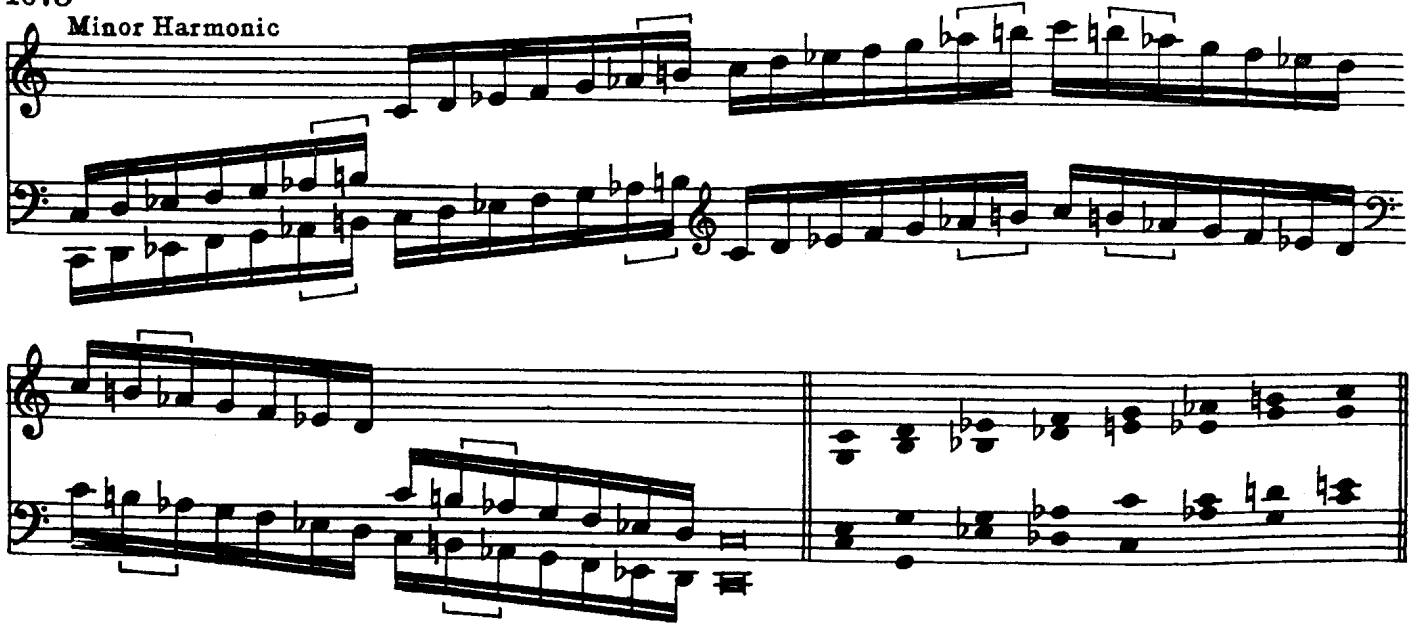


1077

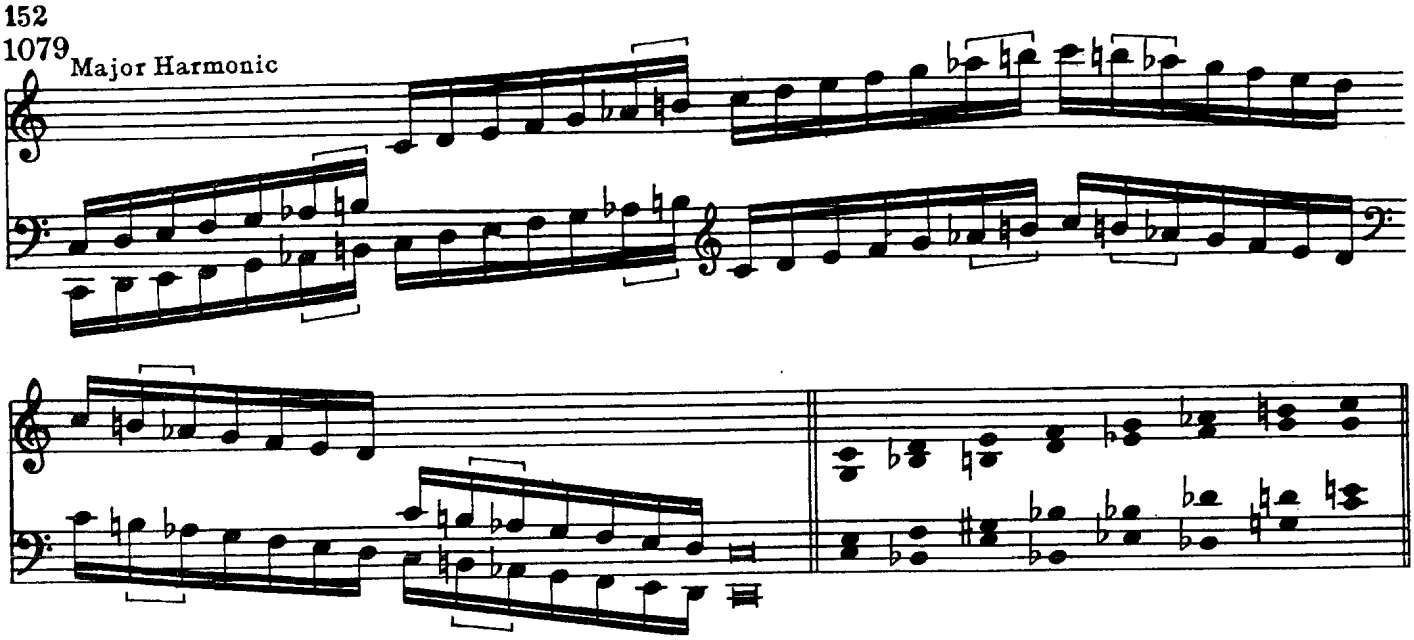


1078

Minor Harmonic

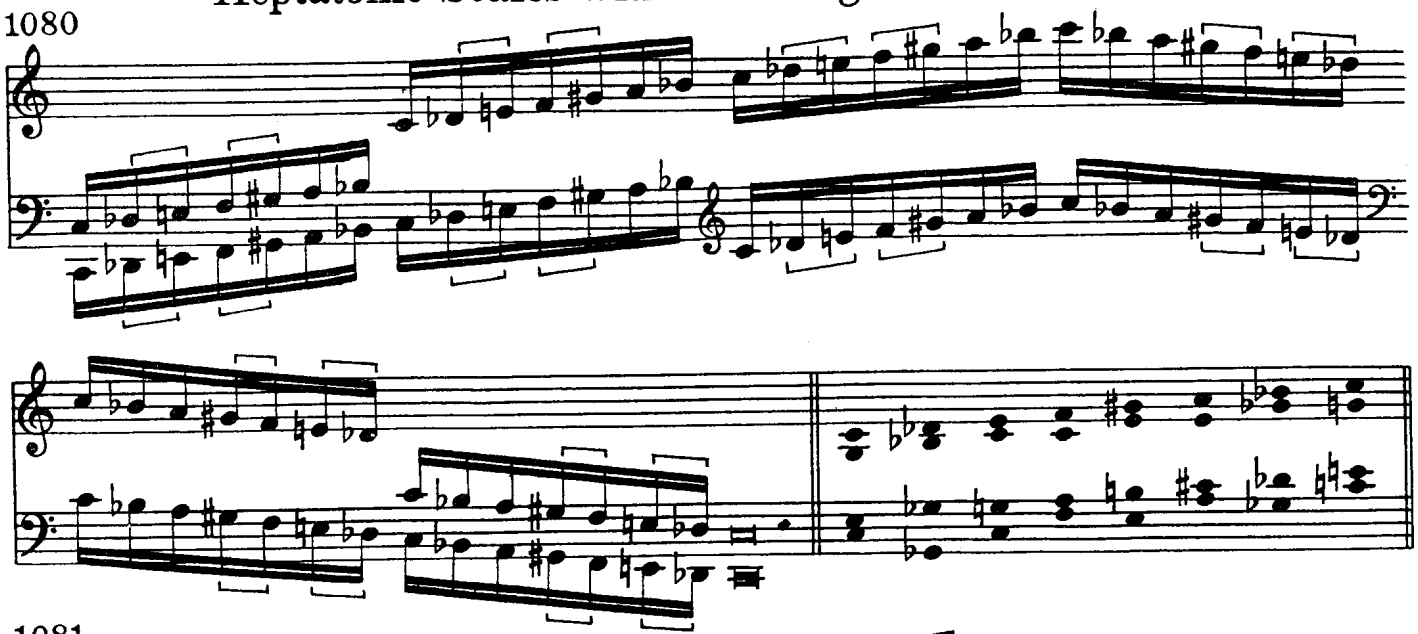


1079 Major Harmonic

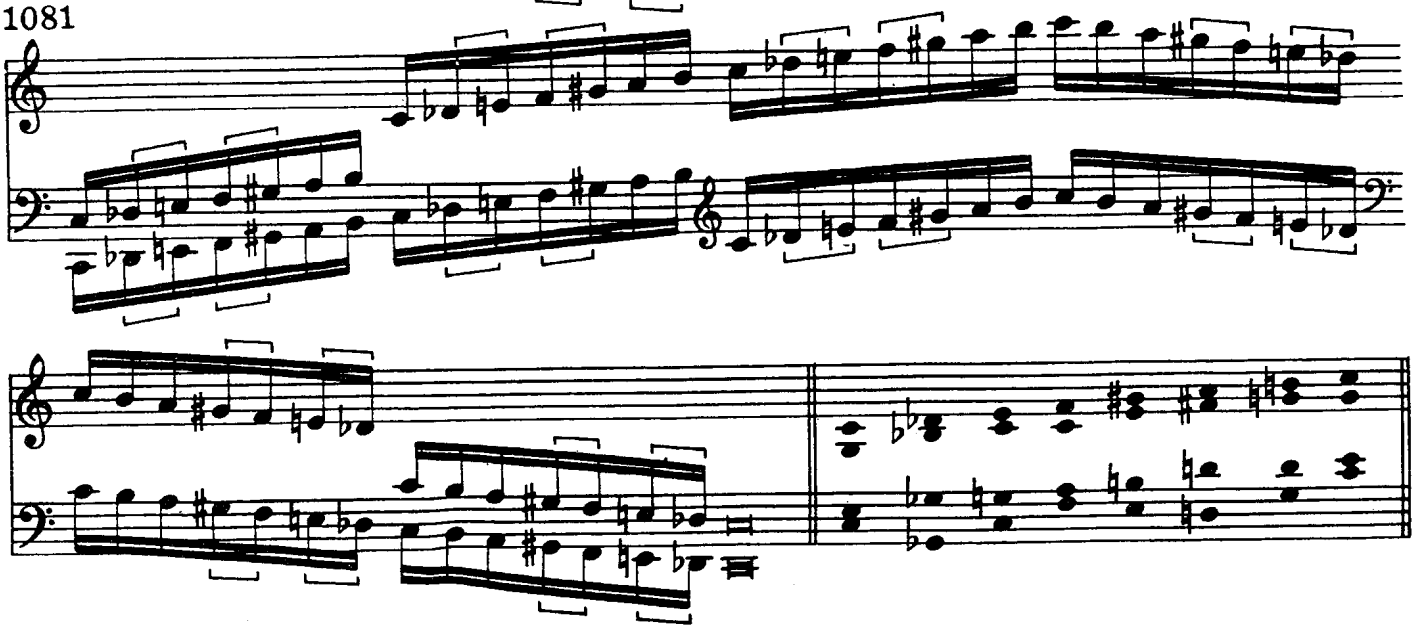


Heptatonic Scales with Two Augmented Seconds

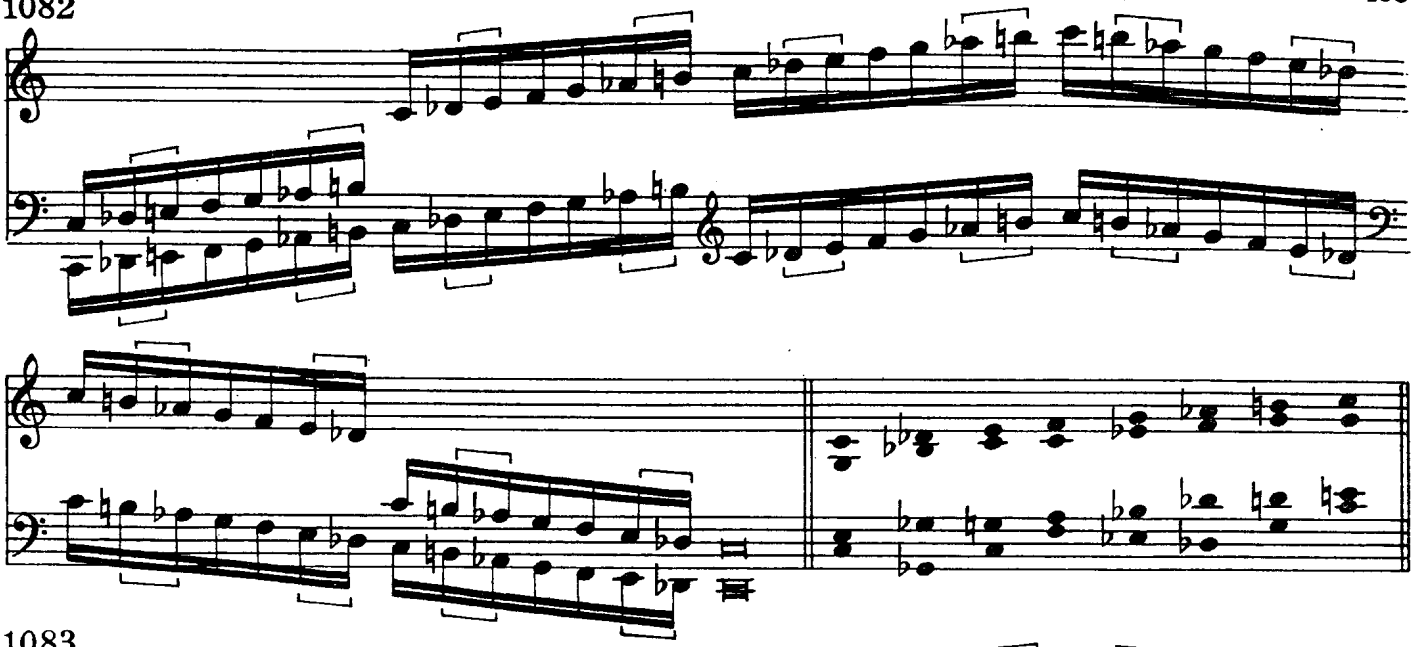
1080



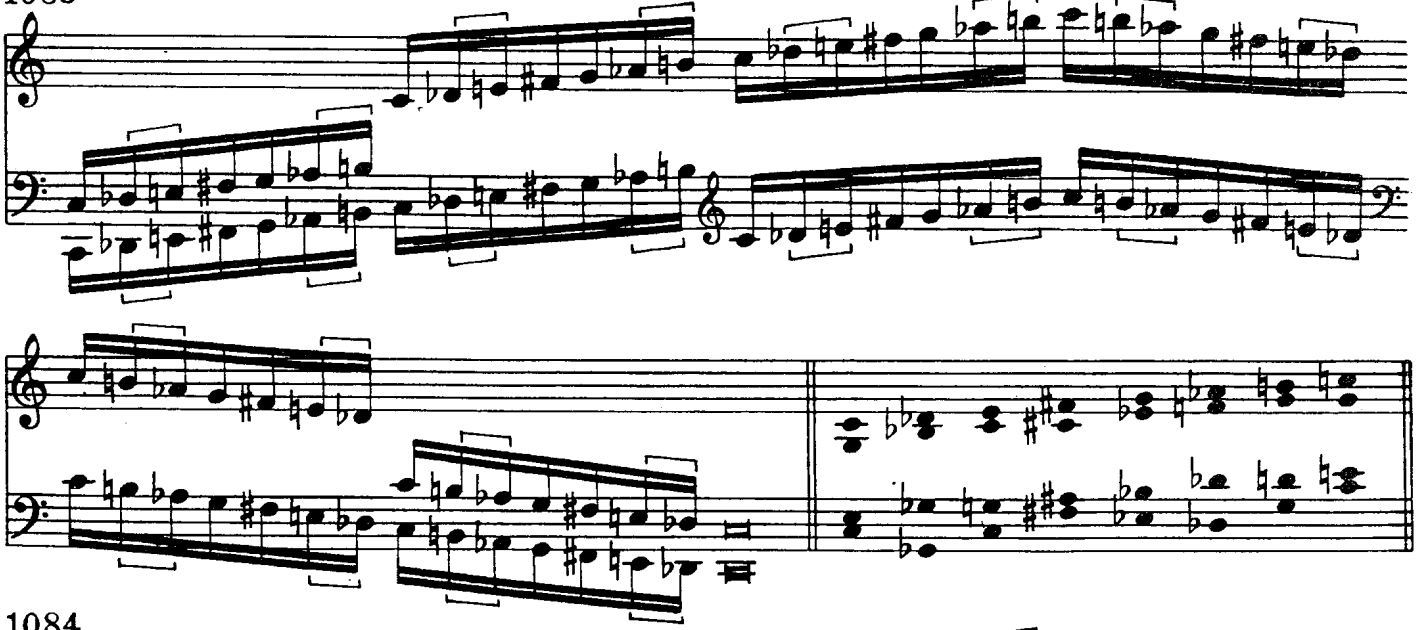
1081



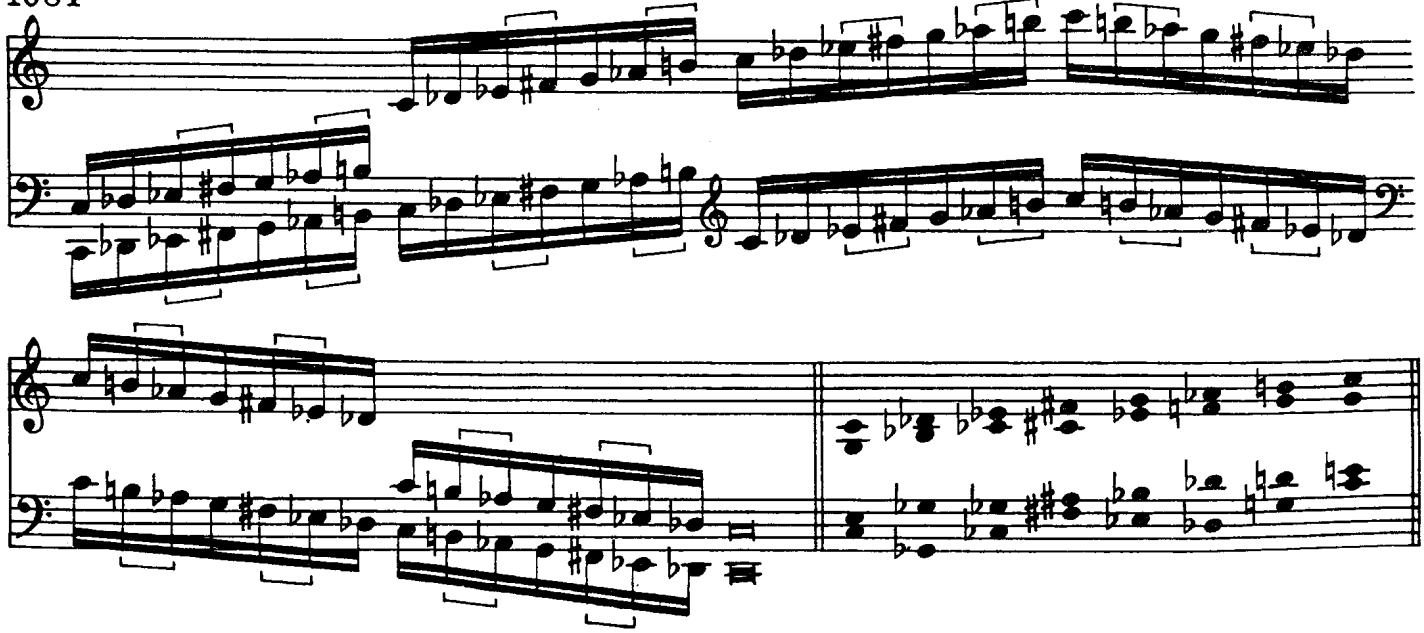
1082



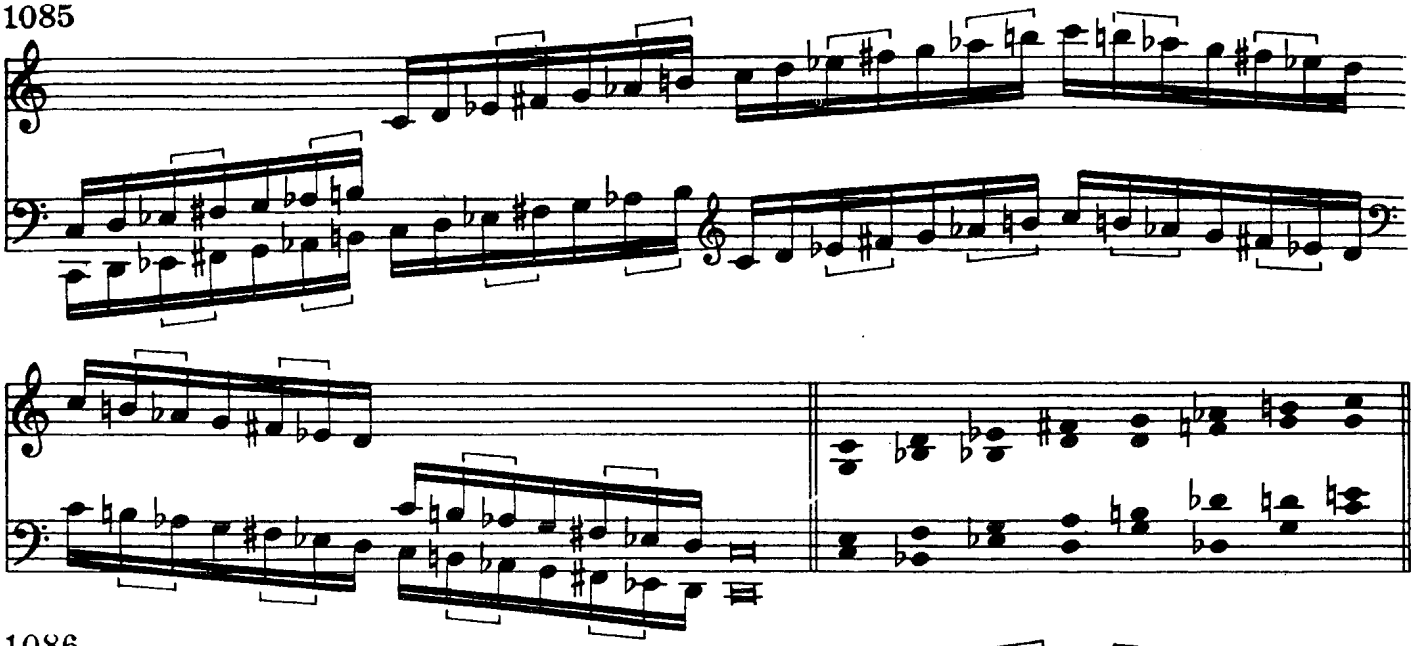
1083



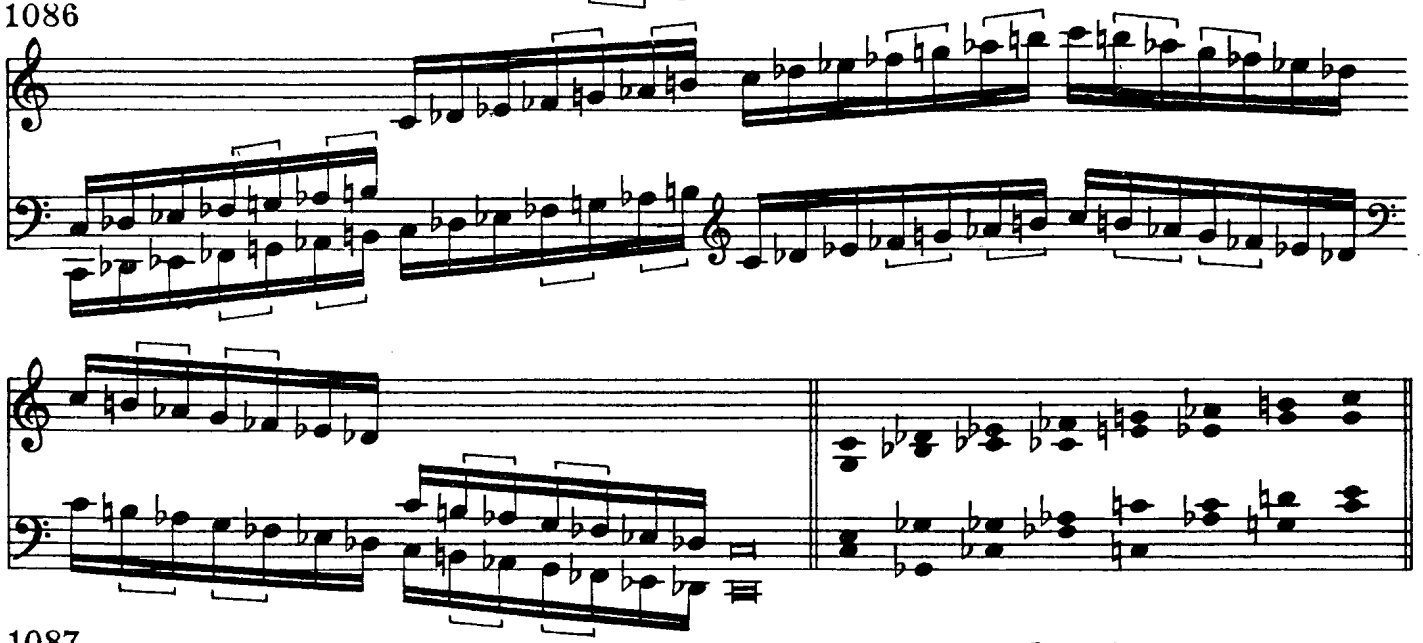
1084



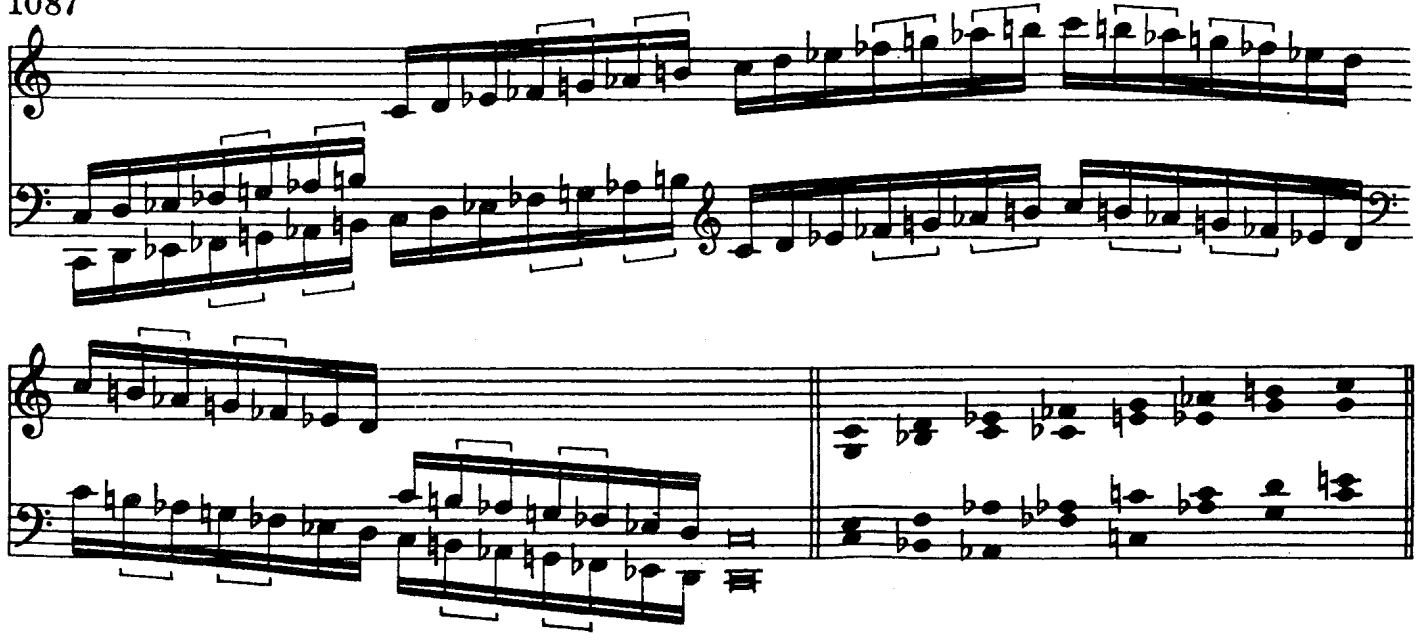
1085



1086



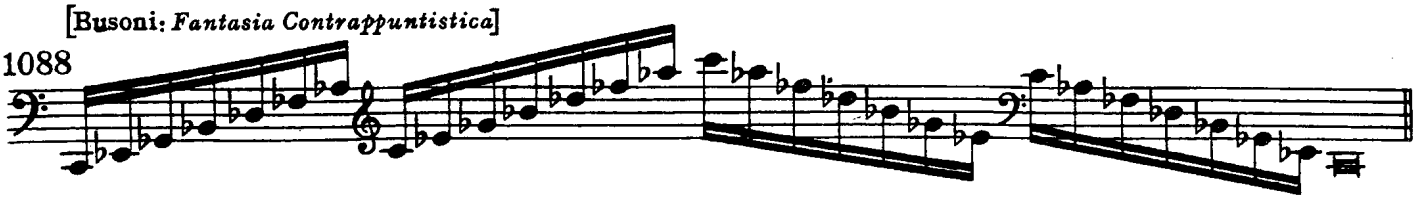
1087



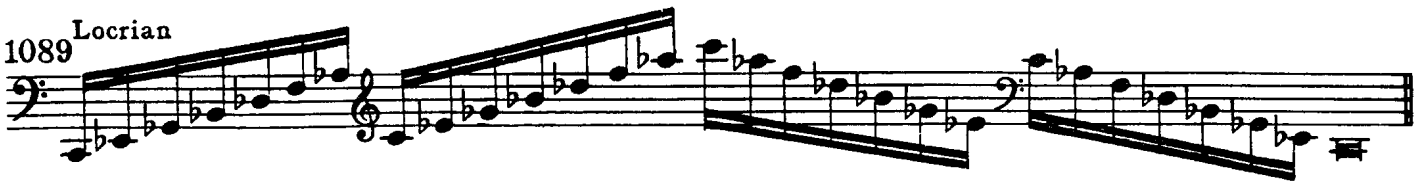
Heptatonic Arpeggios

[Busoni: *Fantasia Contrappuntistica*]

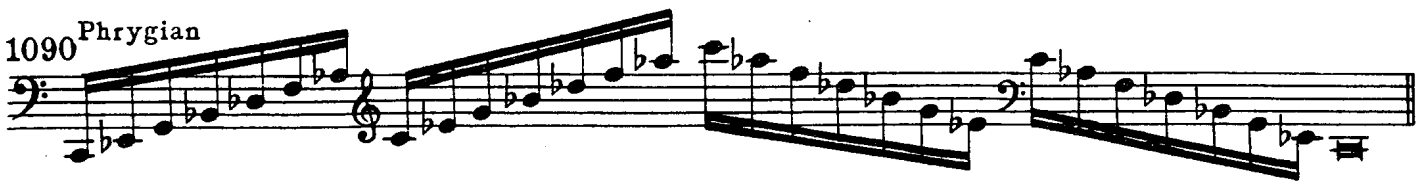
1088



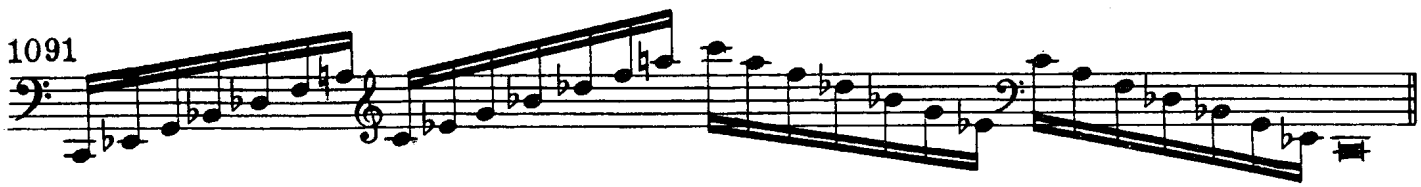
1089 Locrian



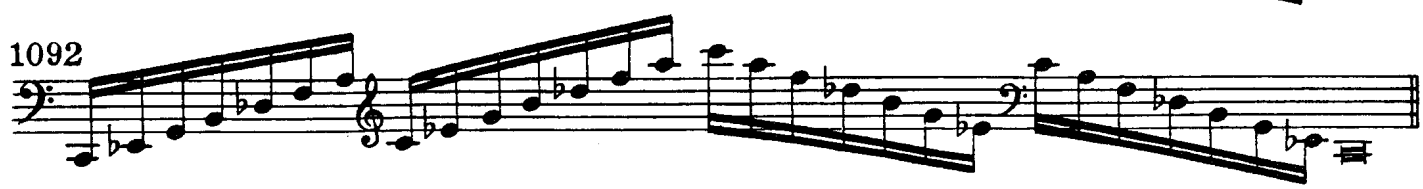
1090 Phrygian



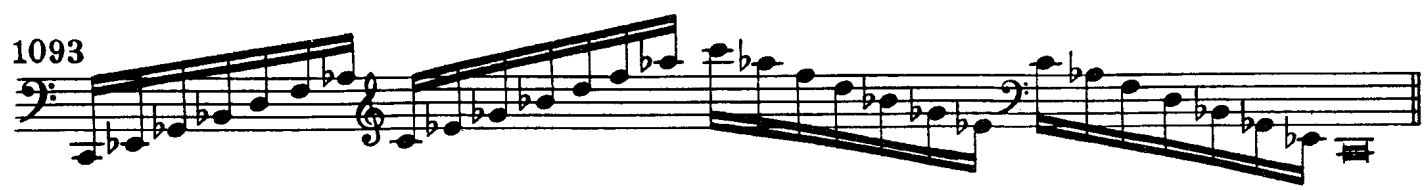
1091



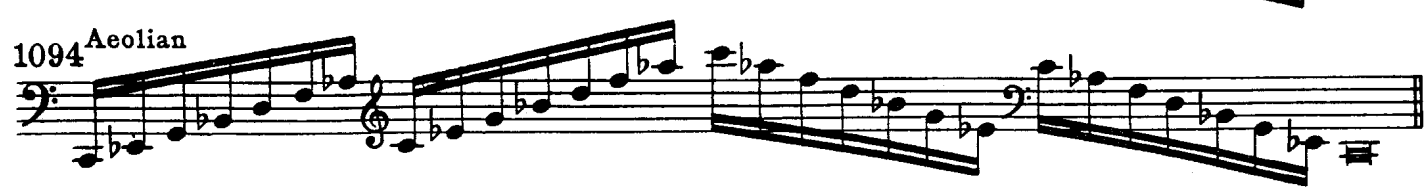
1092



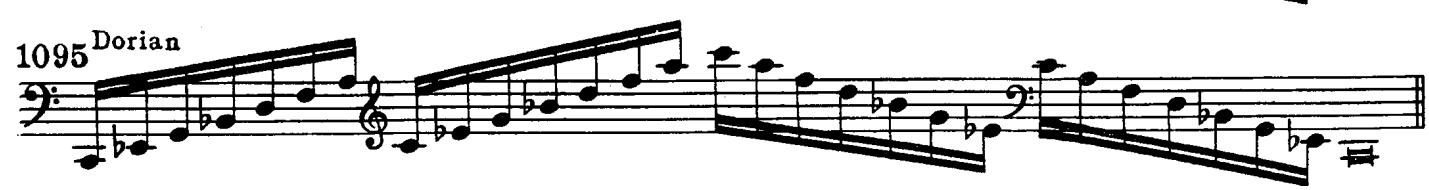
1093



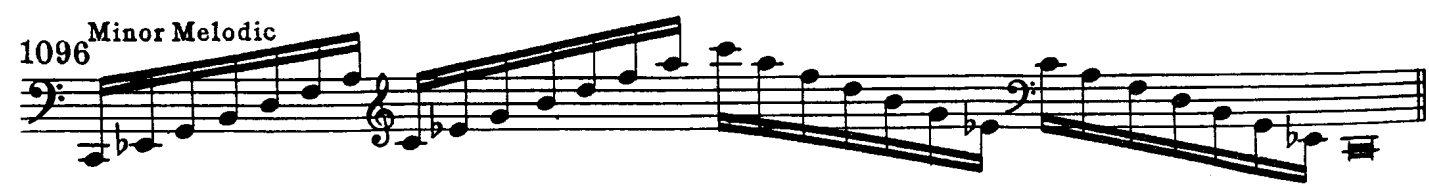
1094 Aeolian



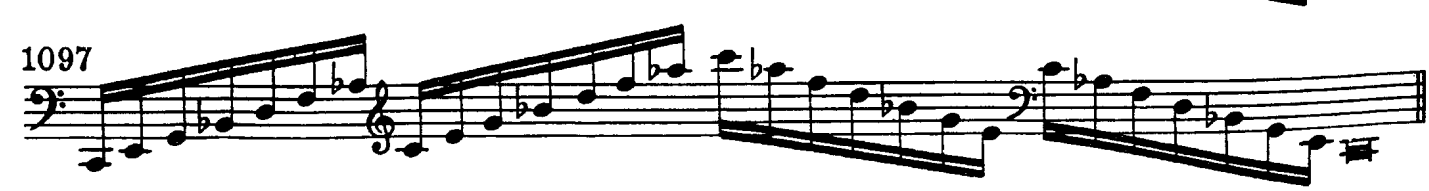
1095 Dorian



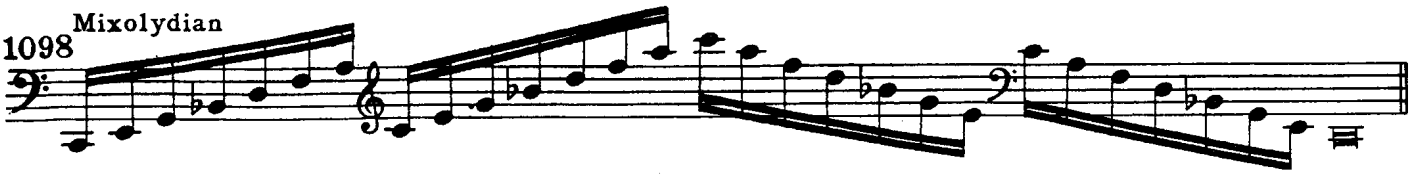
1096 Minor Melodic



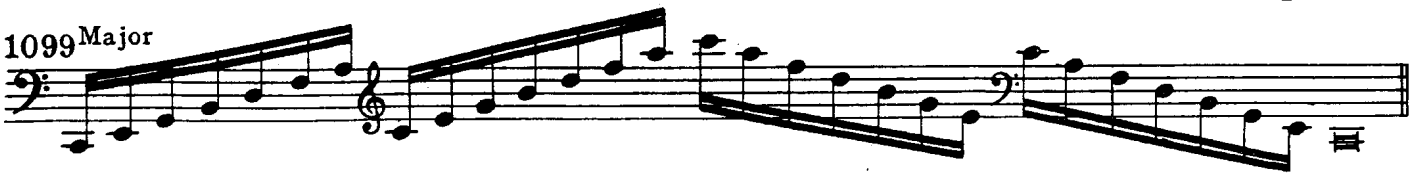
1097



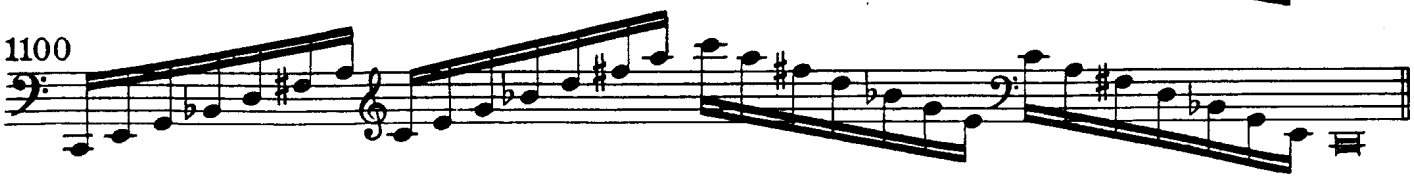
1098 Mixolydian



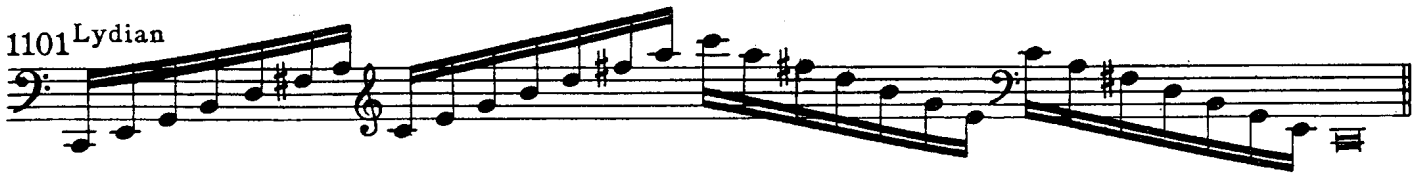
1099 Major



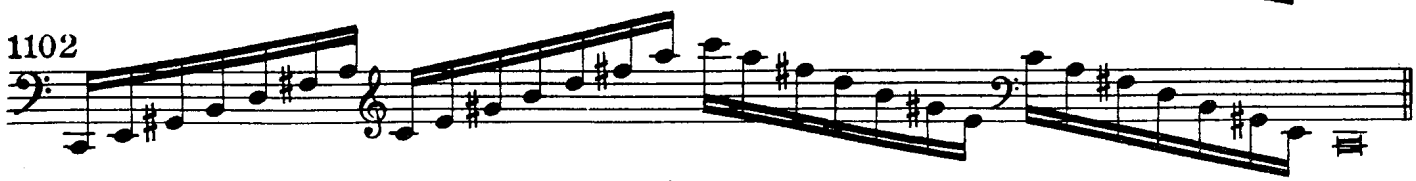
1100



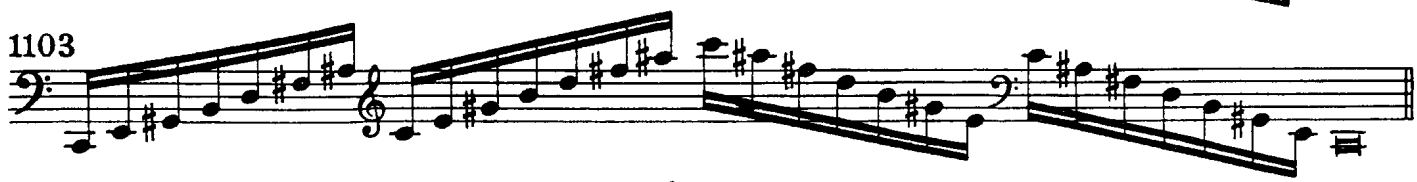
1101 Lydian



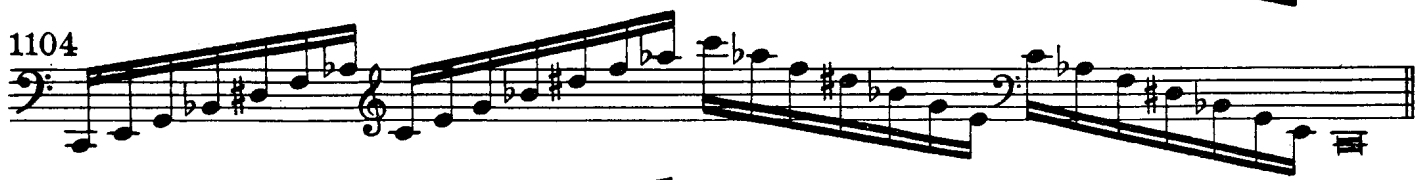
1102



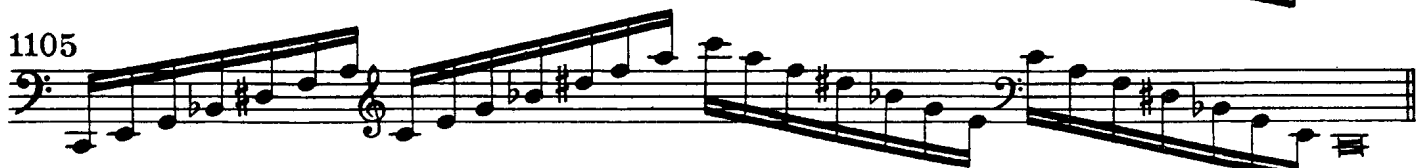
1103



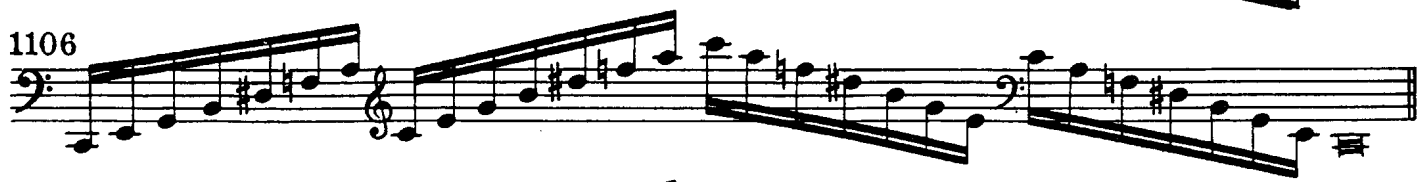
1104



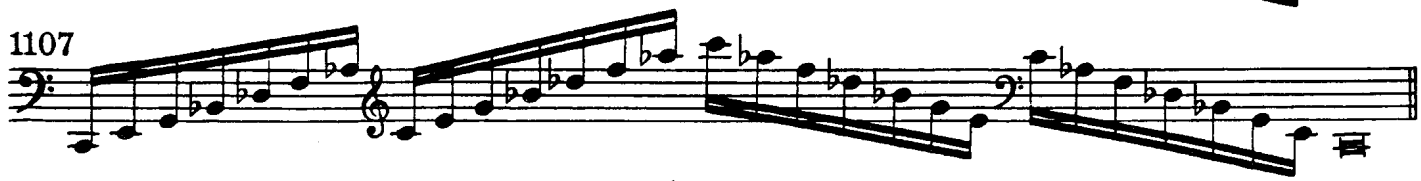
1105



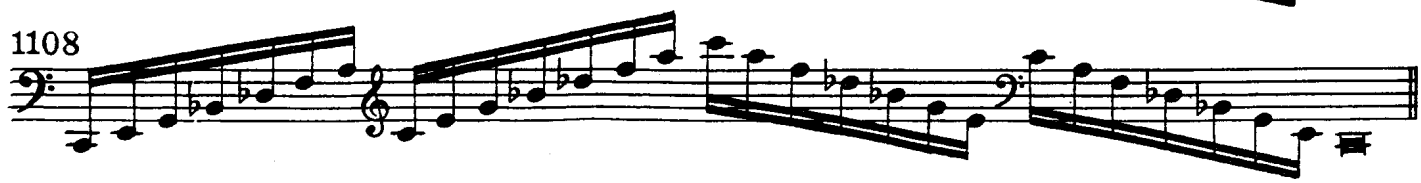
1106



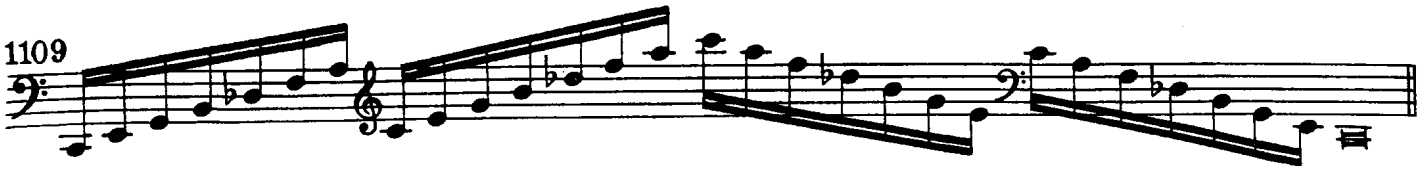
1107



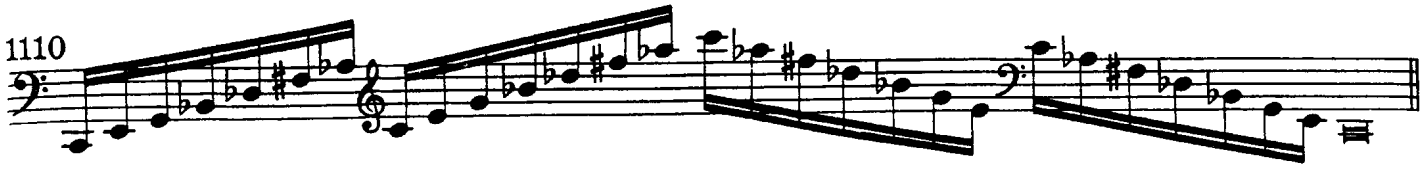
1108



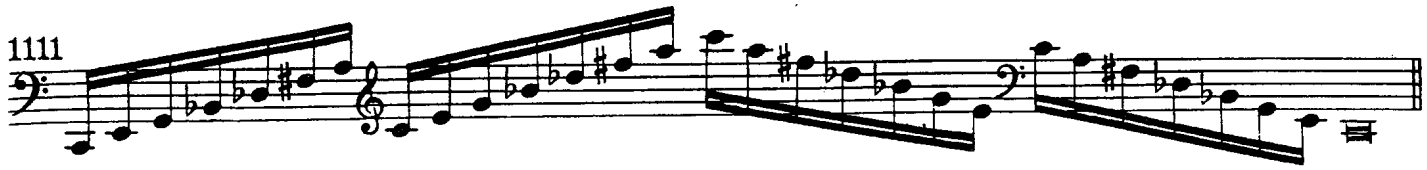
1109



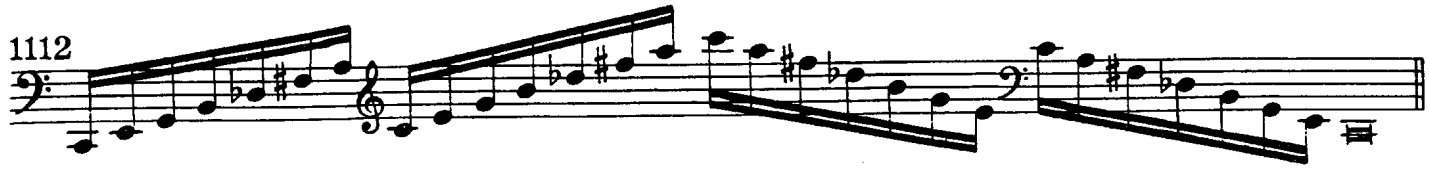
1110



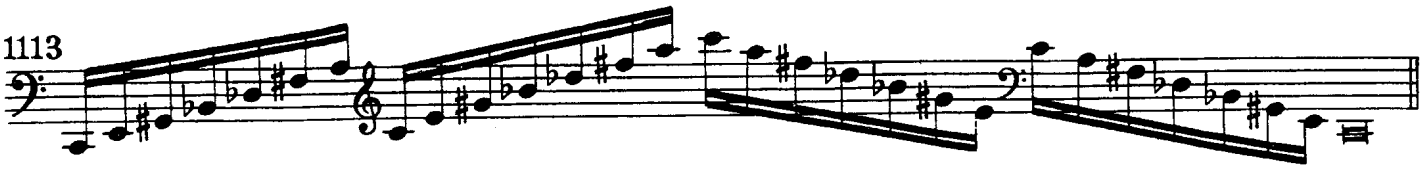
1111



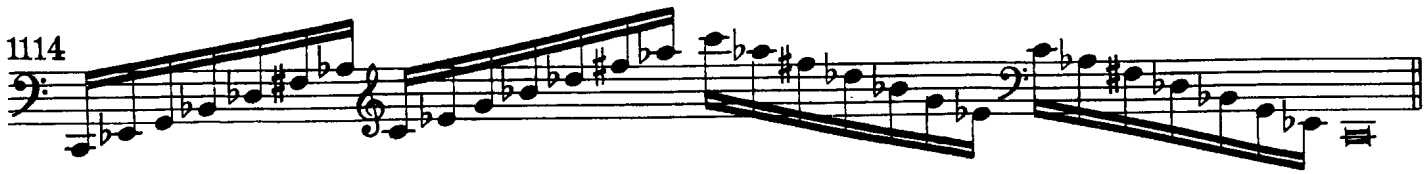
1112



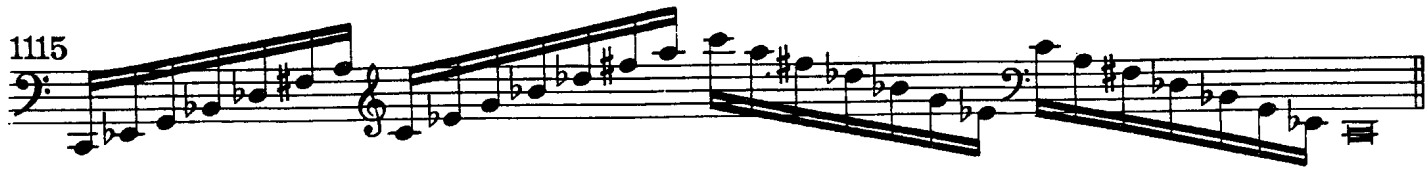
1113



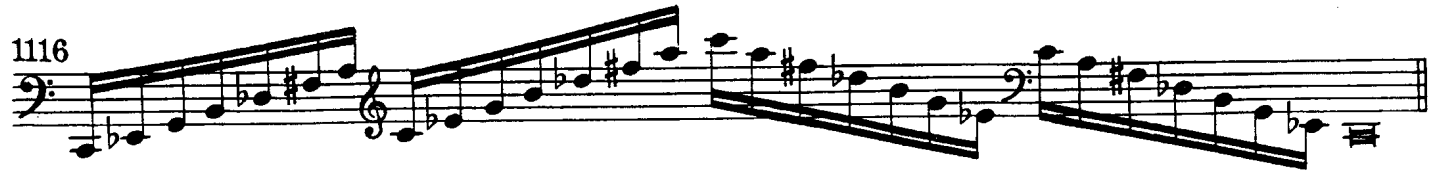
1114



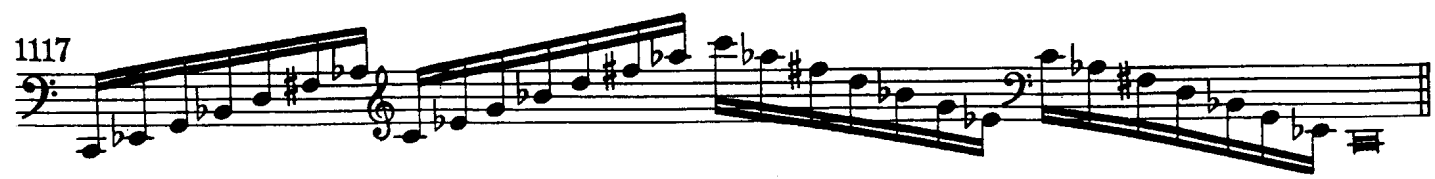
1115



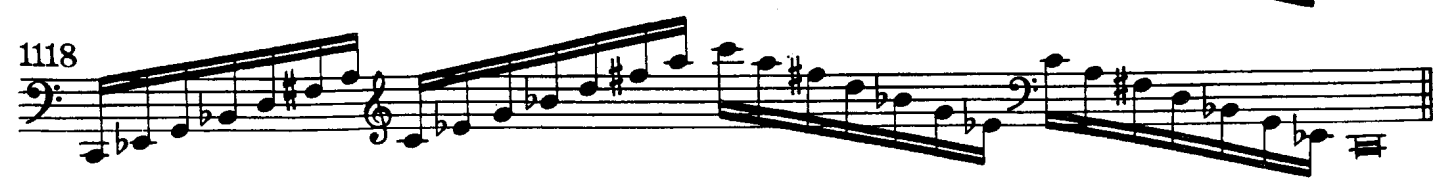
1116



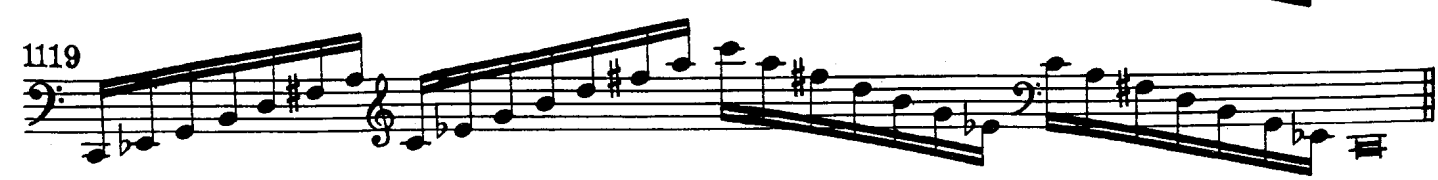
1117



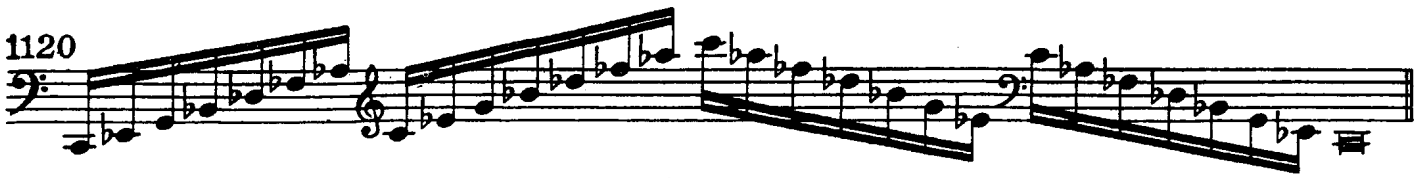
1118



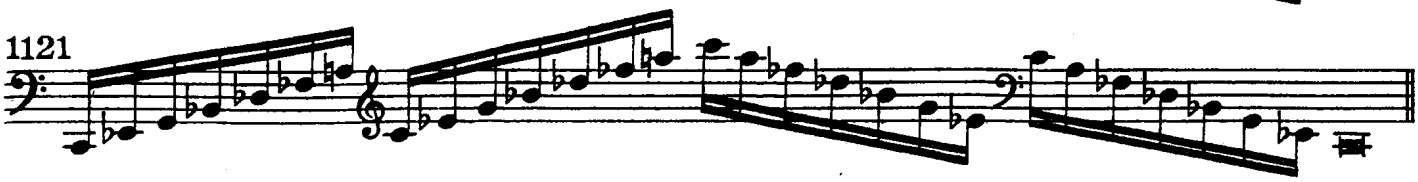
1119



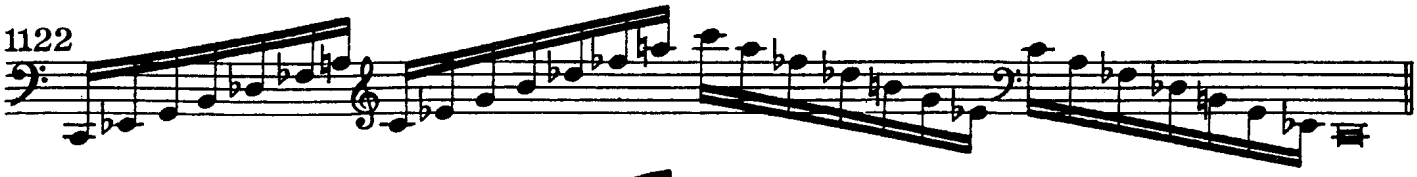
1120



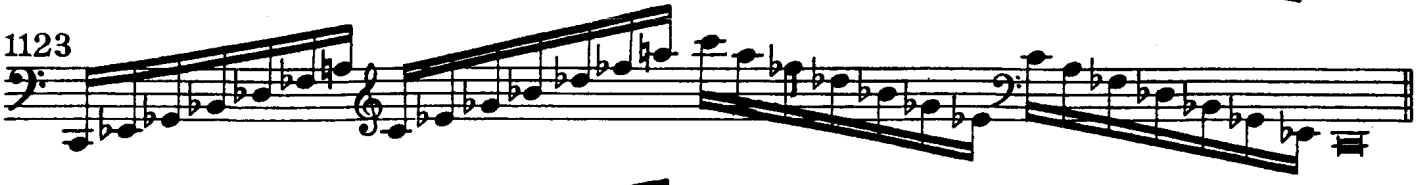
1121



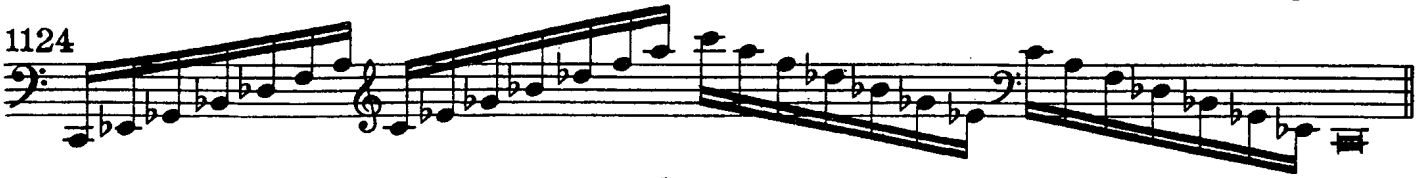
1122



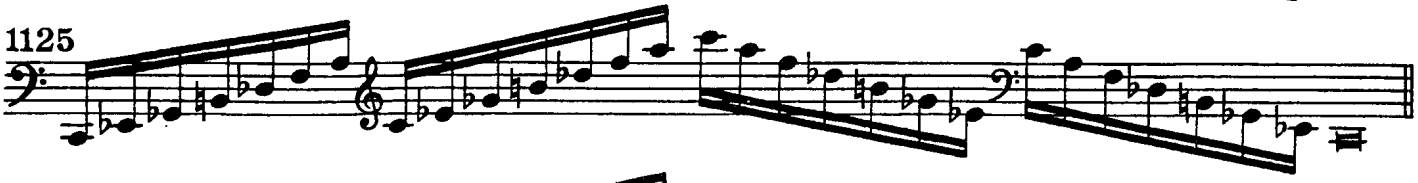
1123



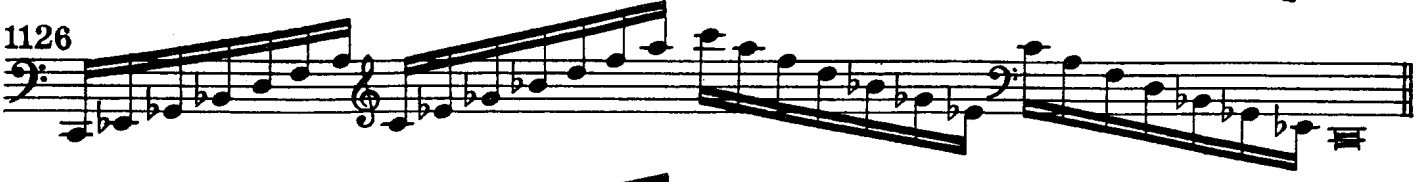
1124



1125



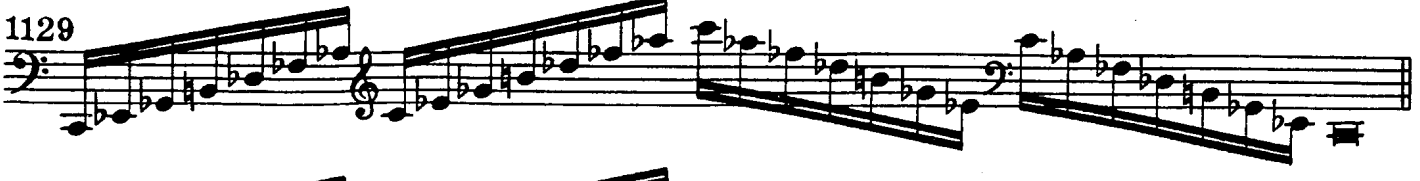
1126



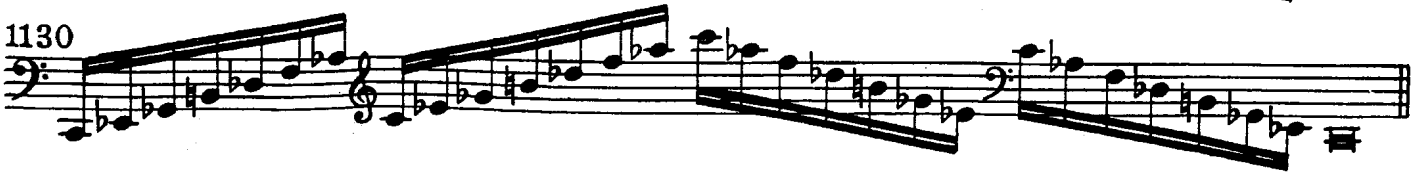
1127

1128

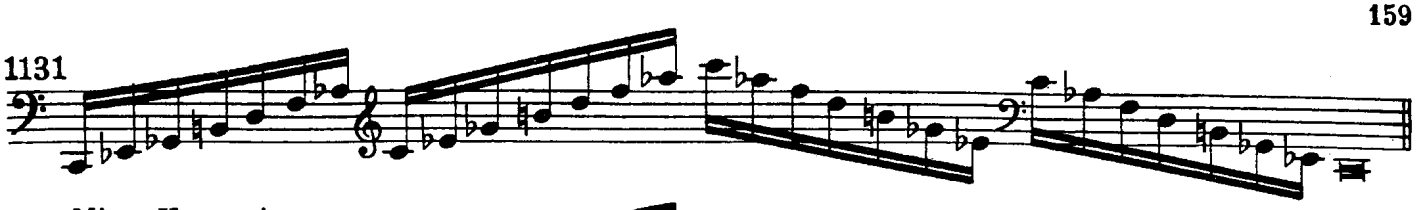
1129



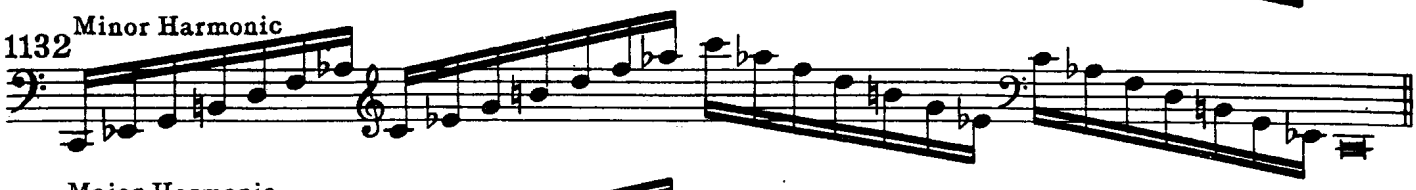
1130



1131

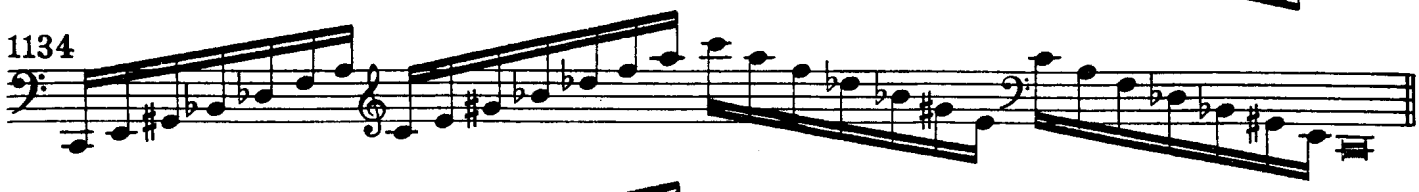


1132 Minor Harmonic

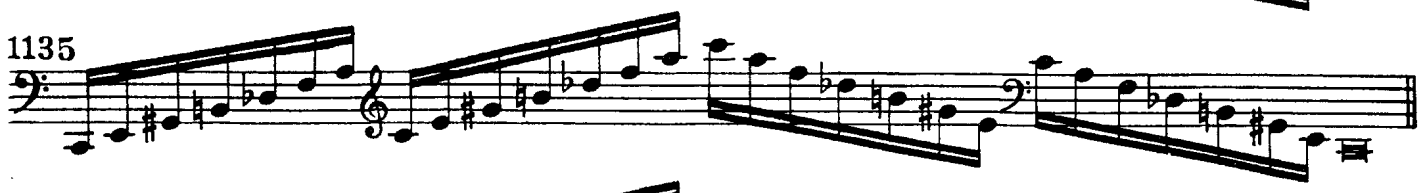


1133 Major Harmonic

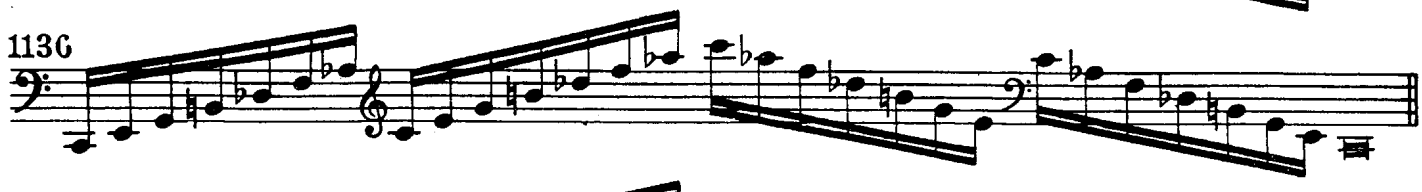
1134



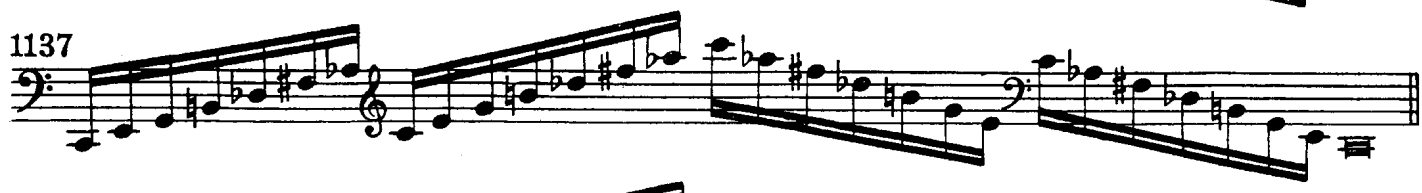
1135



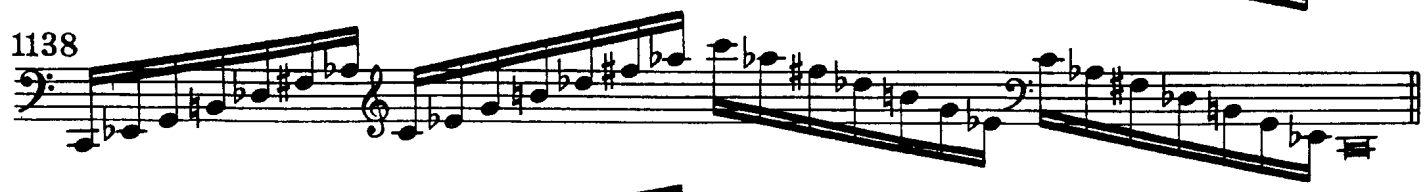
1136



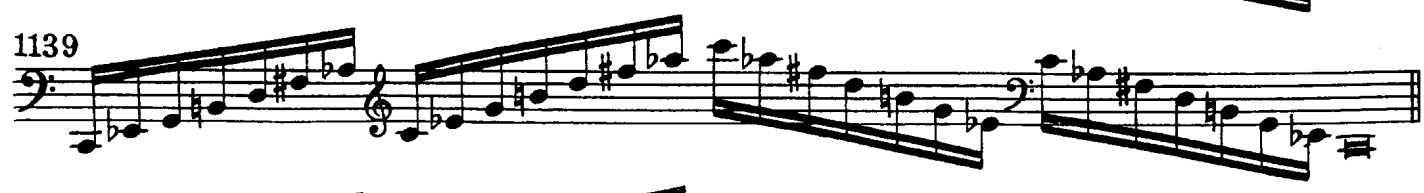
1137



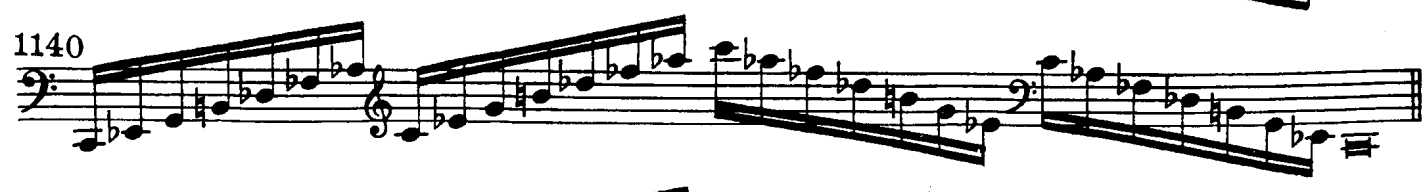
1138



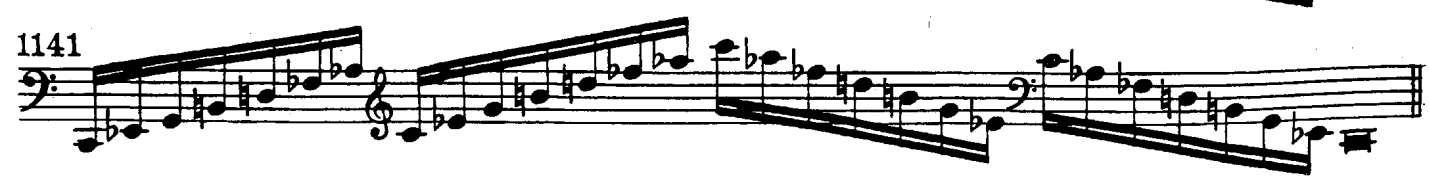
1139



1140

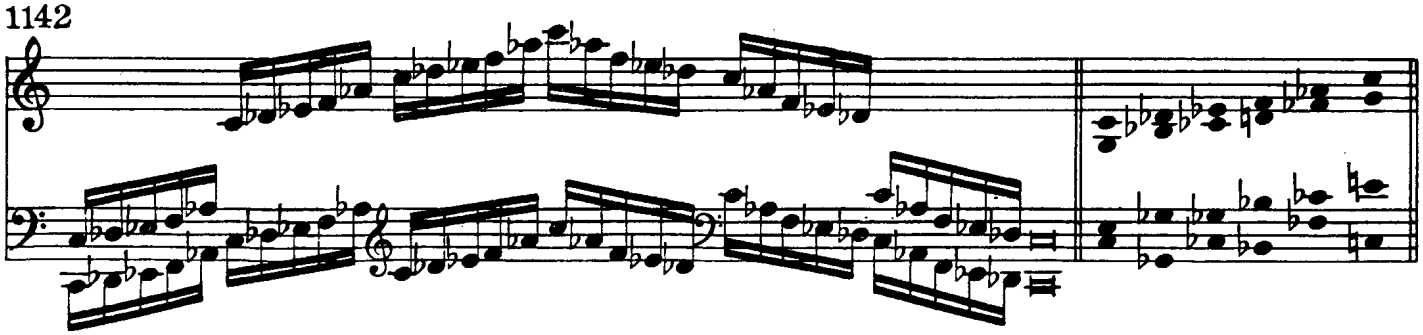


1141

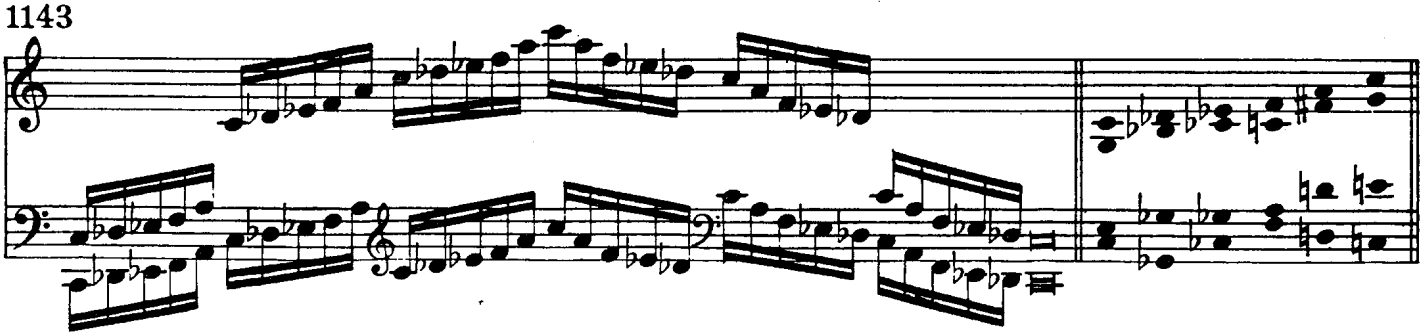


Pentatonic Scales

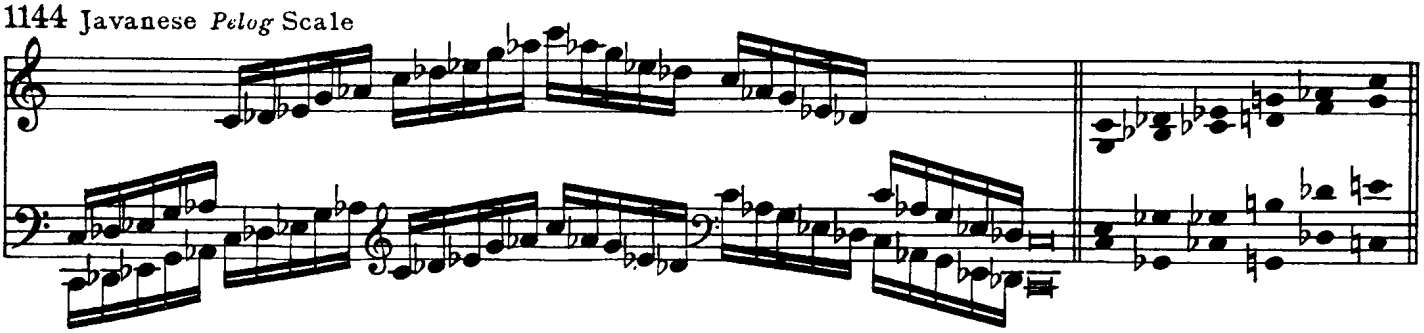
1142



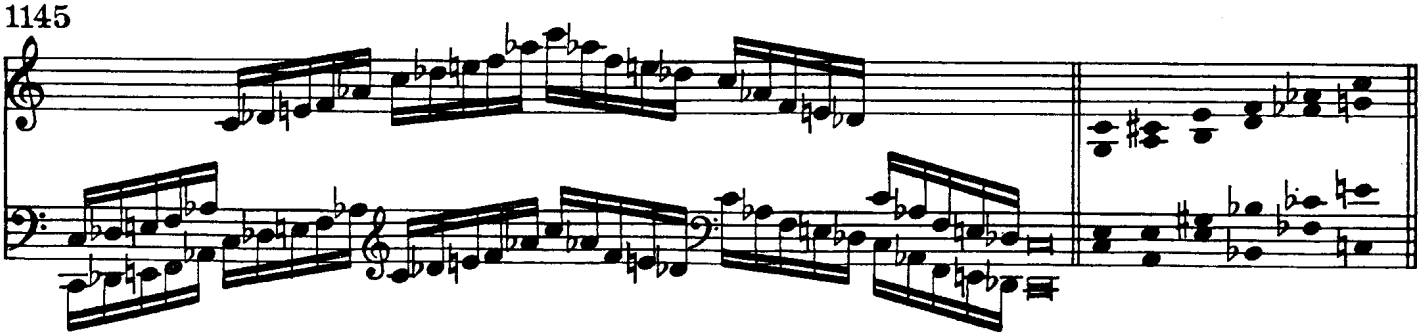
1143



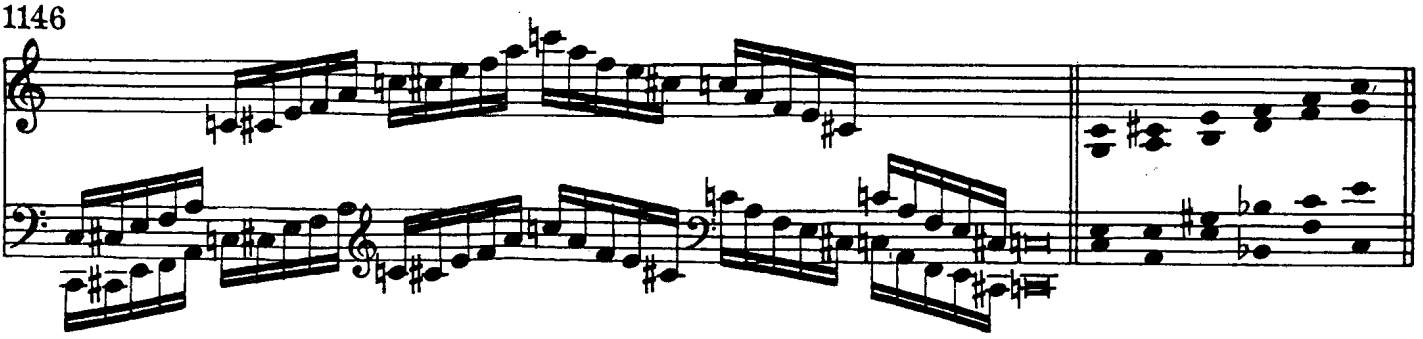
1144 Javanese *Pelog* Scale



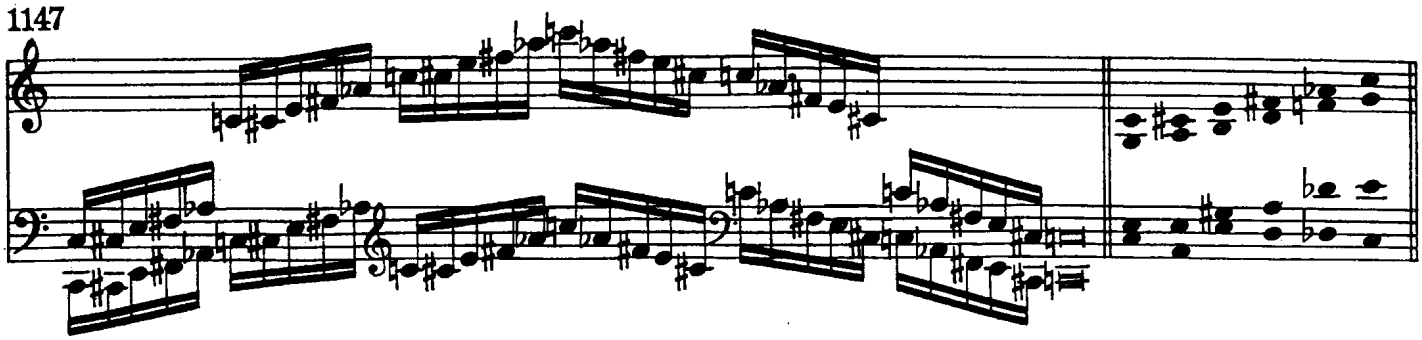
1145



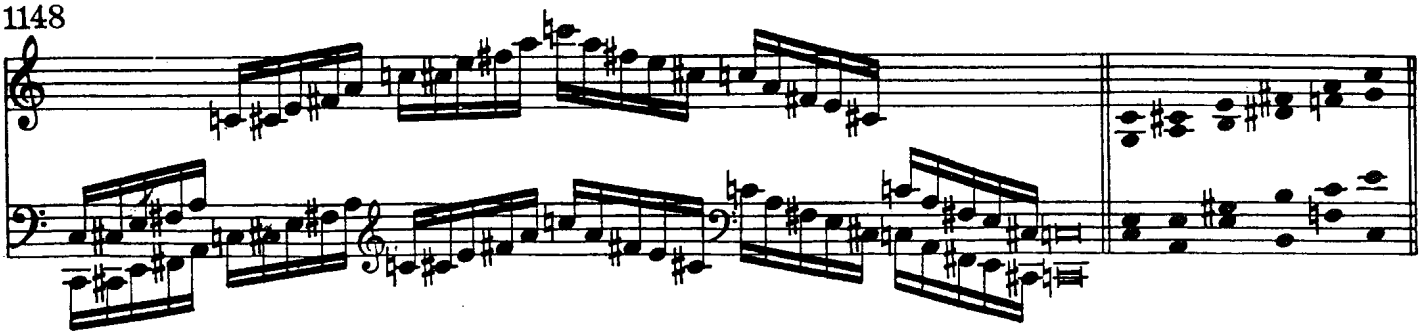
1146



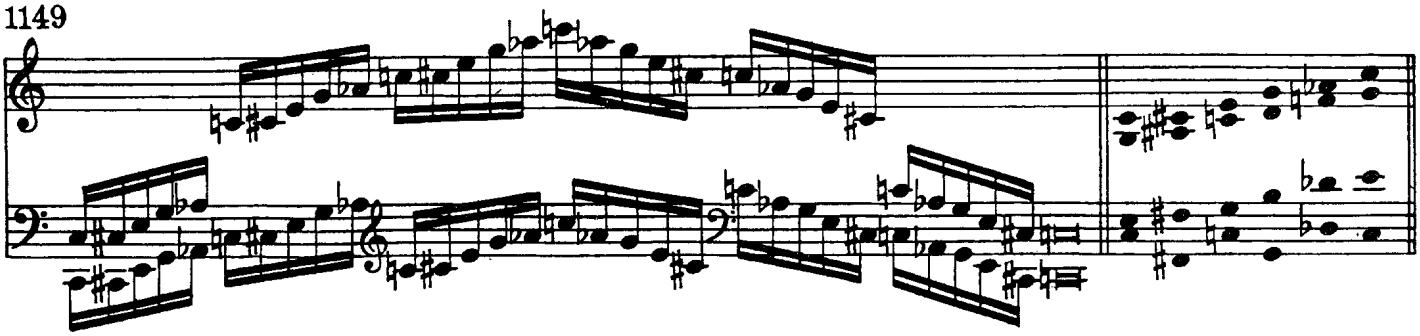
1147



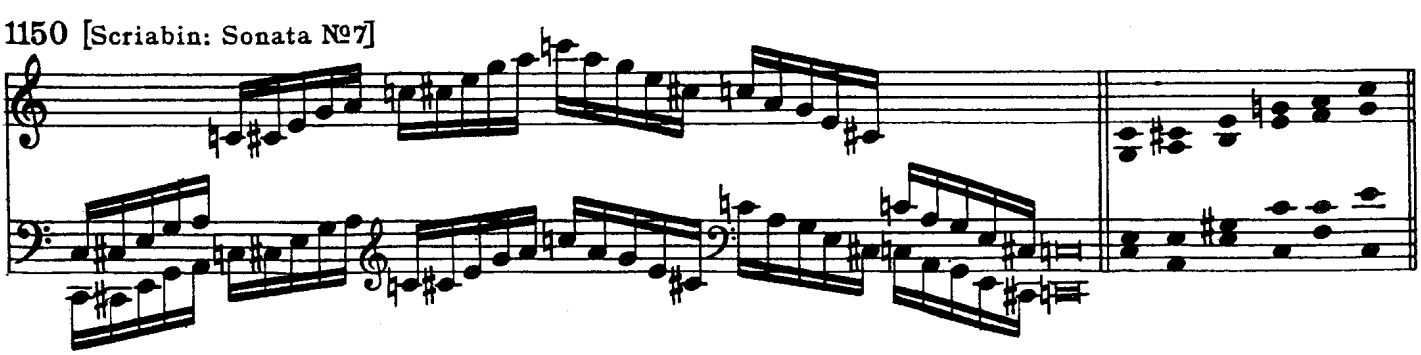
1148



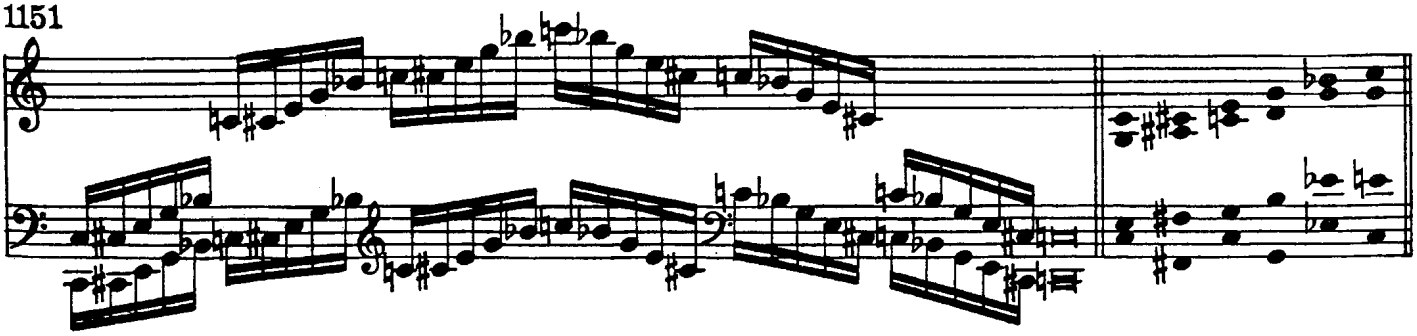
1149



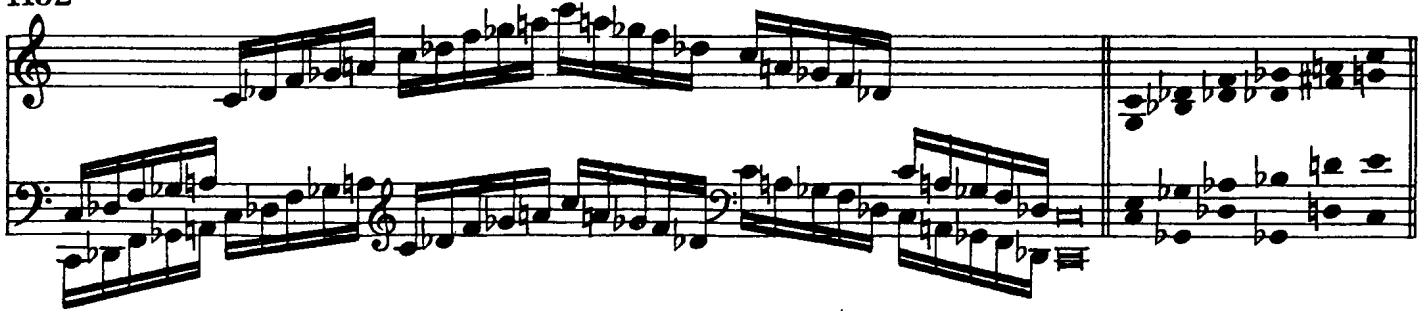
1150 [Scriabin: Sonata №7]



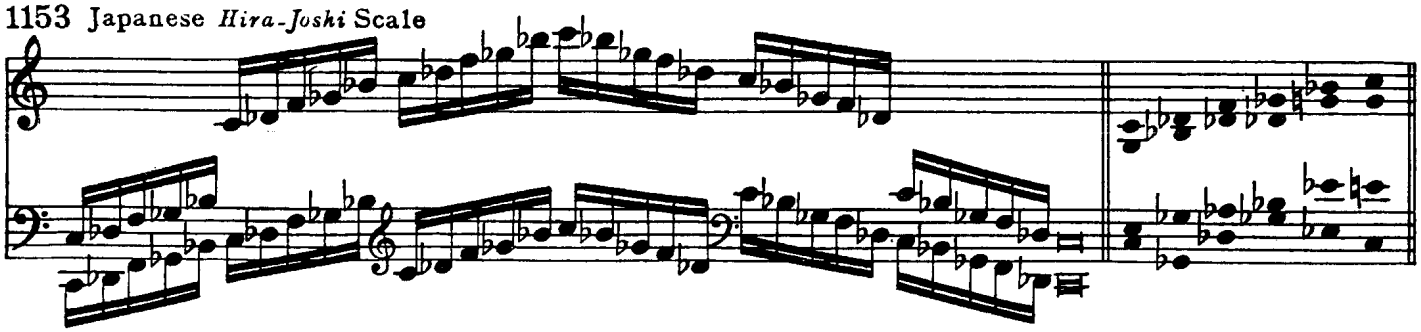
1151



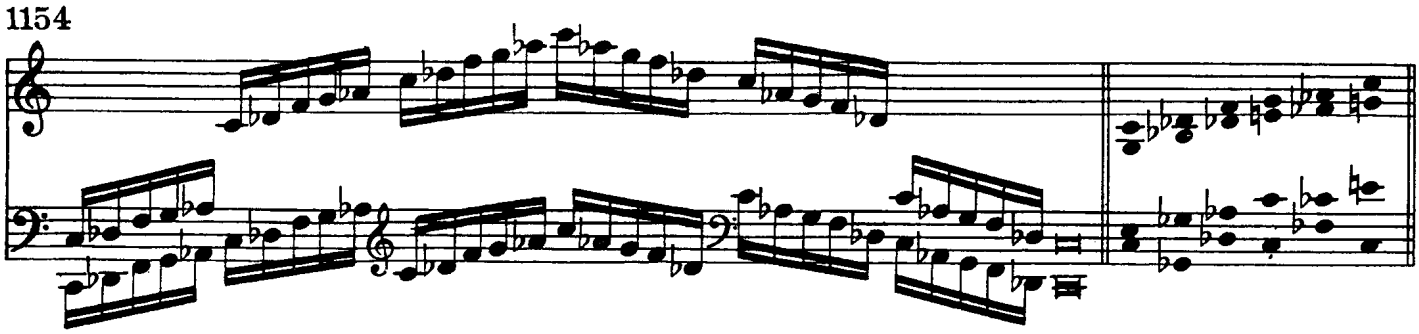
1152



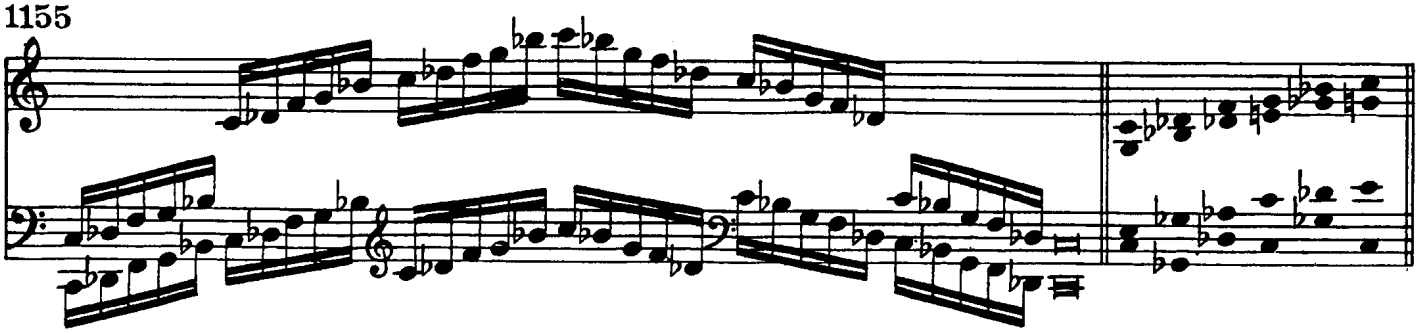
1153 Japanese *Hira-Joshi* Scale



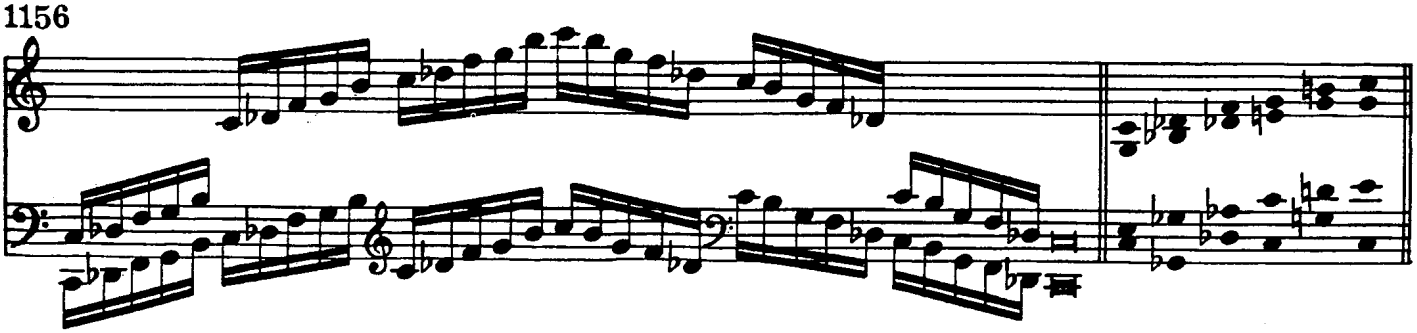
1154



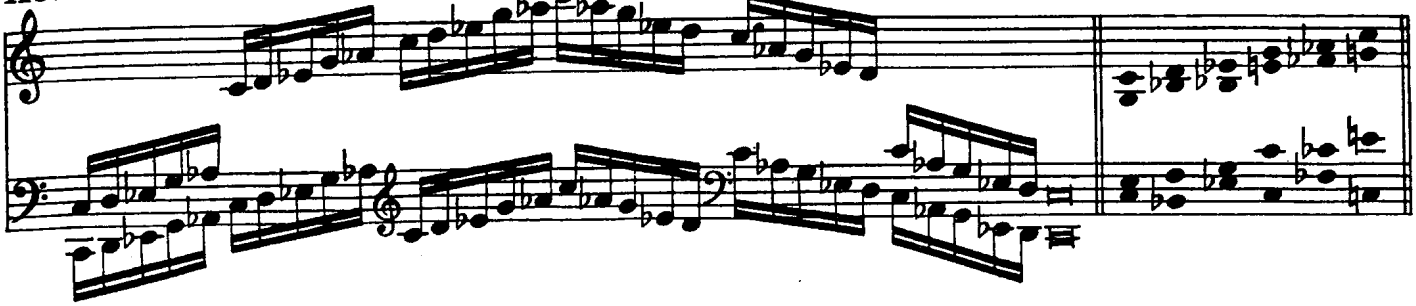
1155



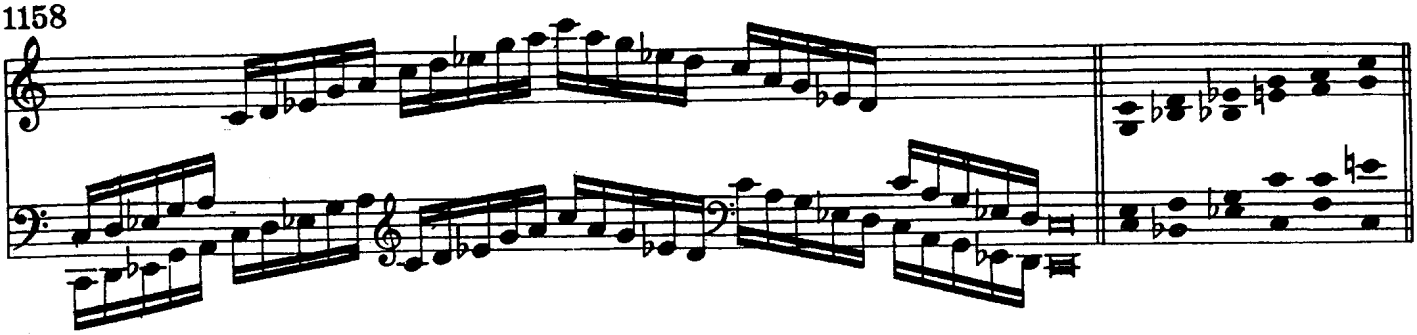
1156



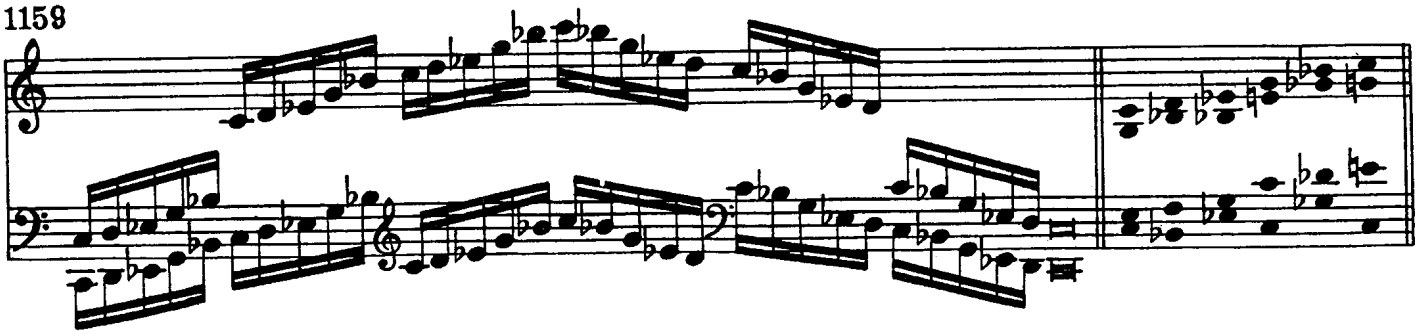
1157



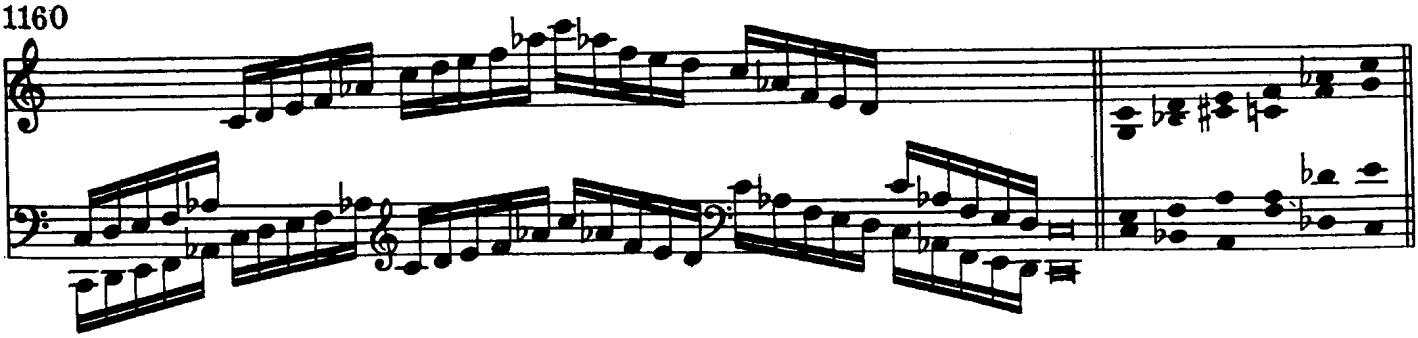
1158



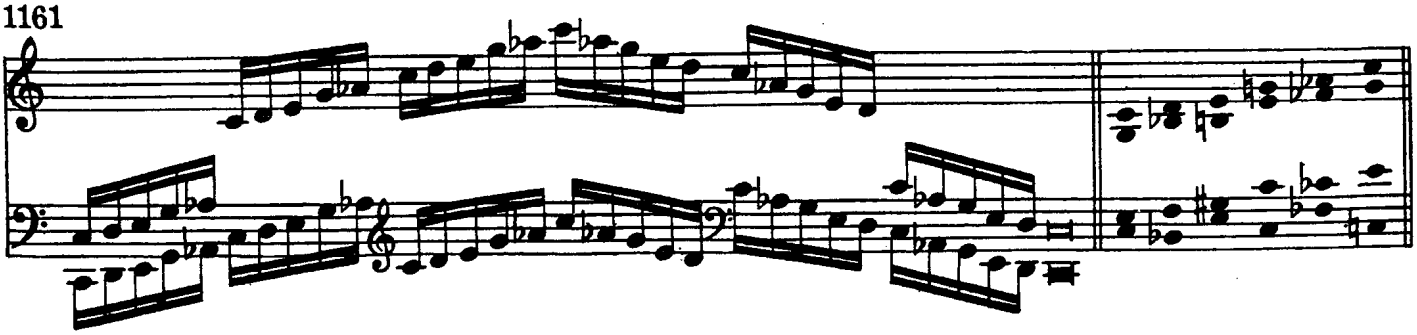
1159



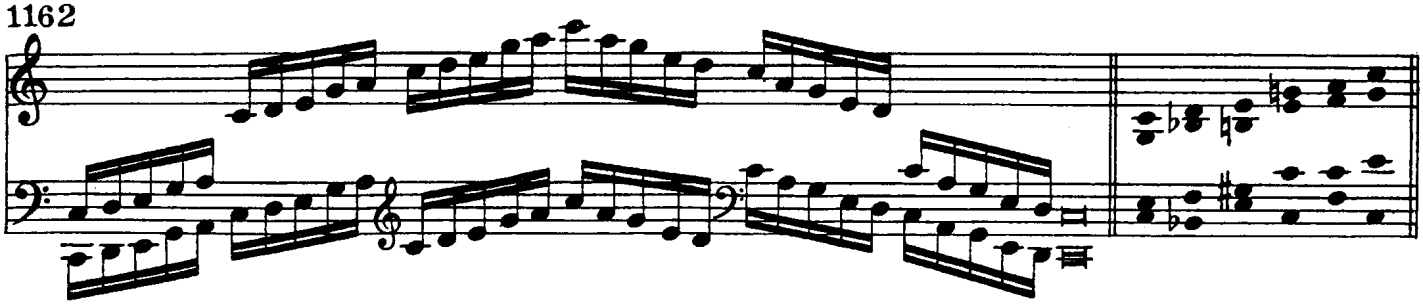
1160



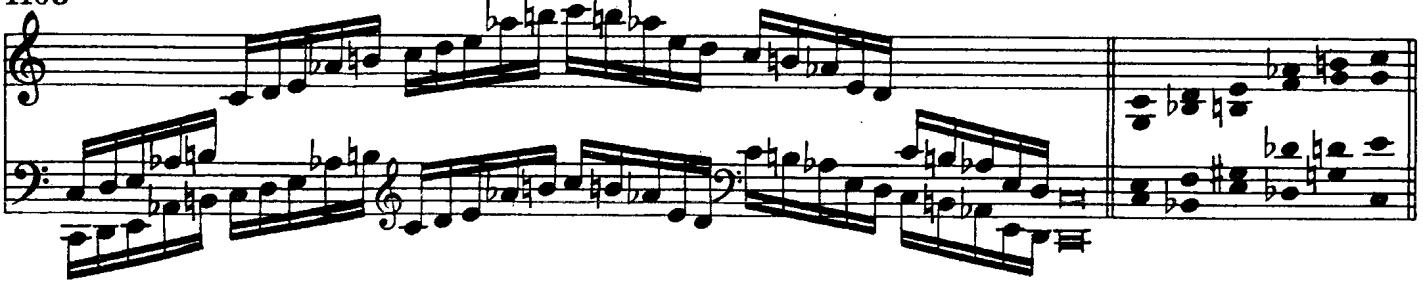
1161



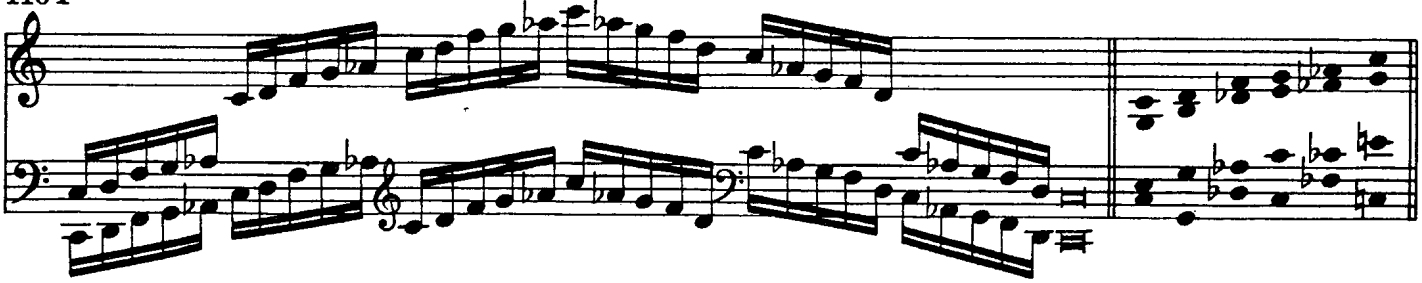
1162



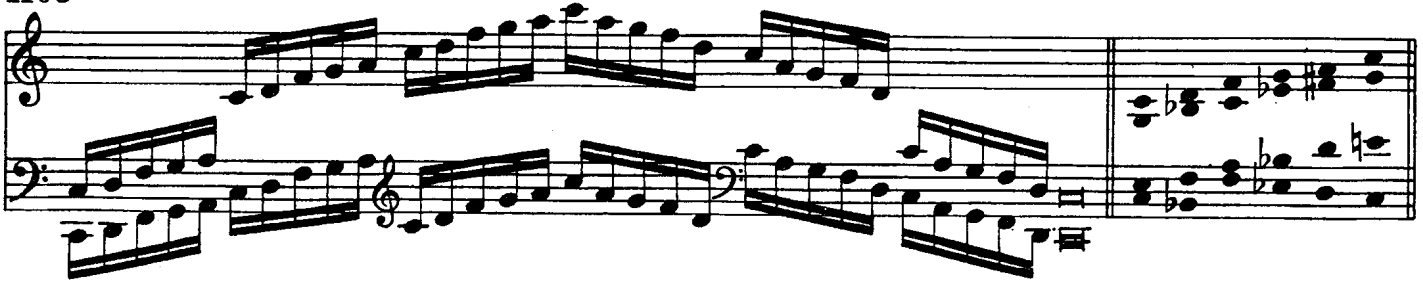
1163



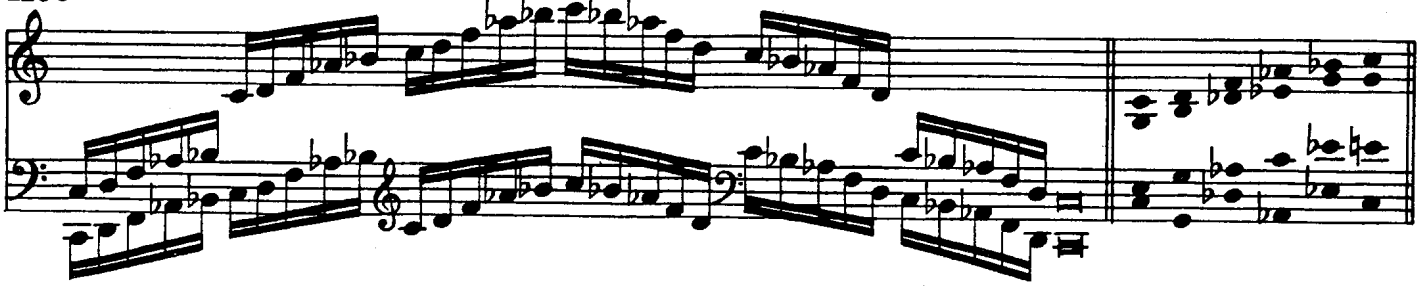
1164



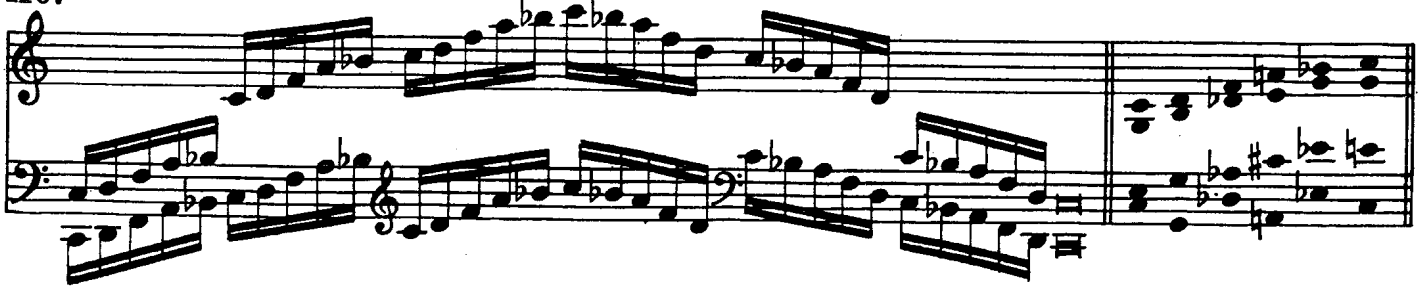
1165



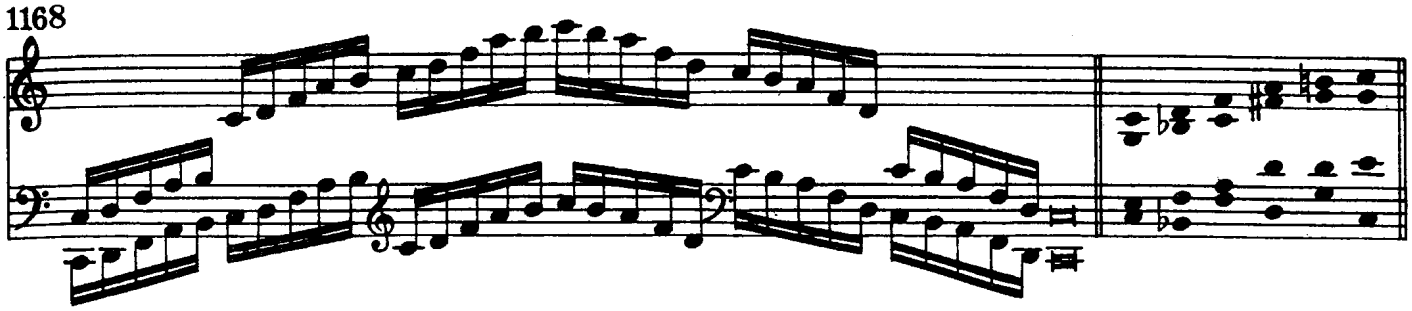
1166



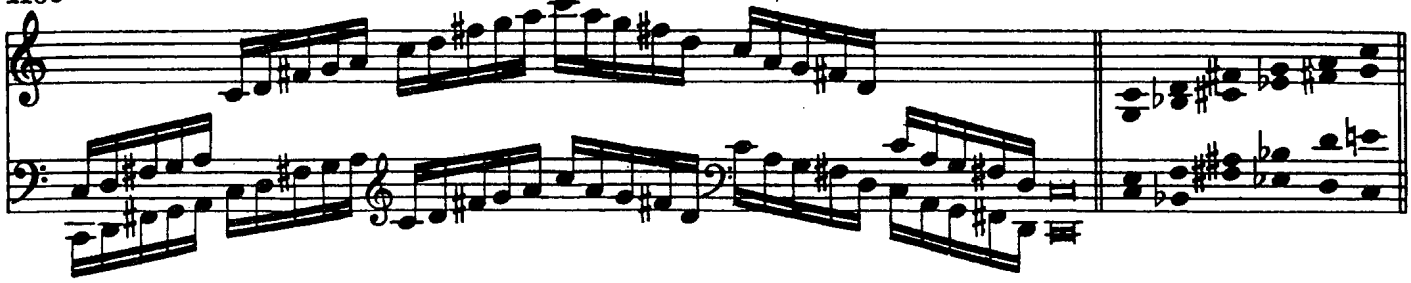
1167



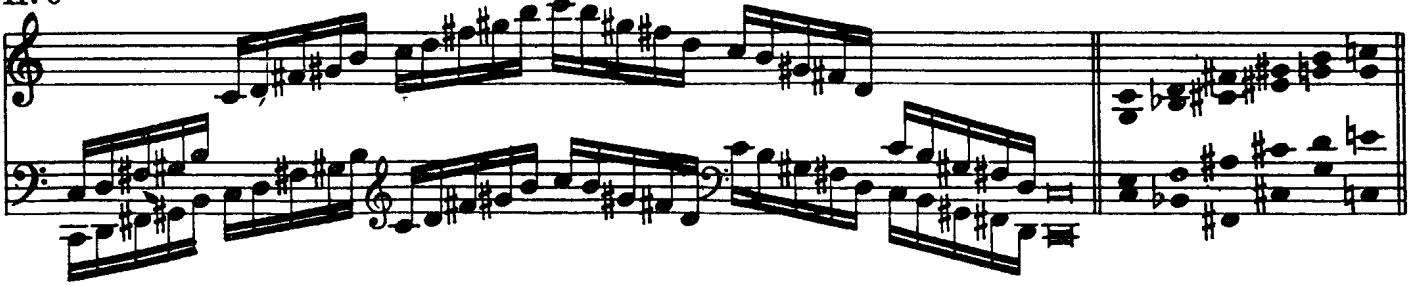
1168



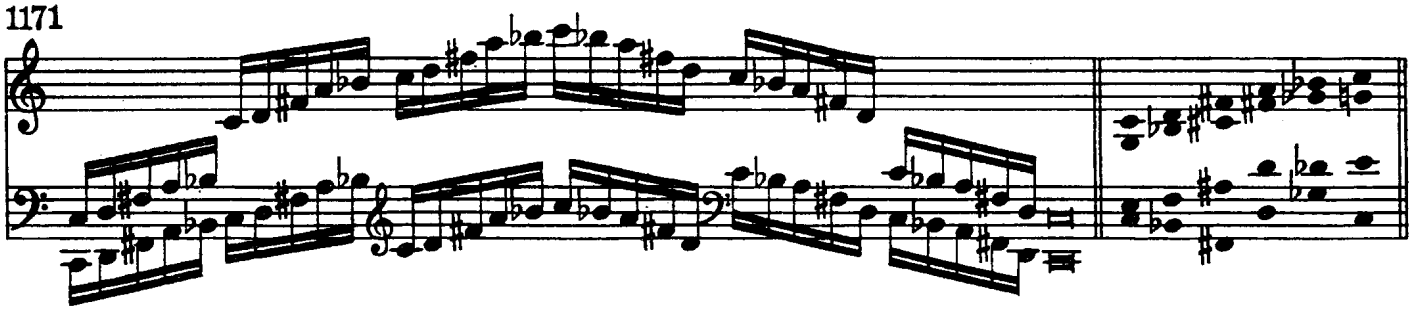
1169



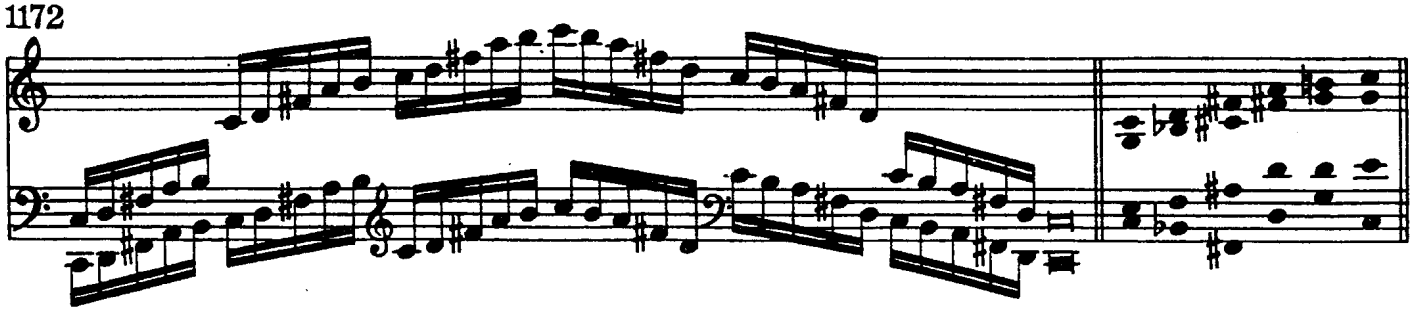
1170



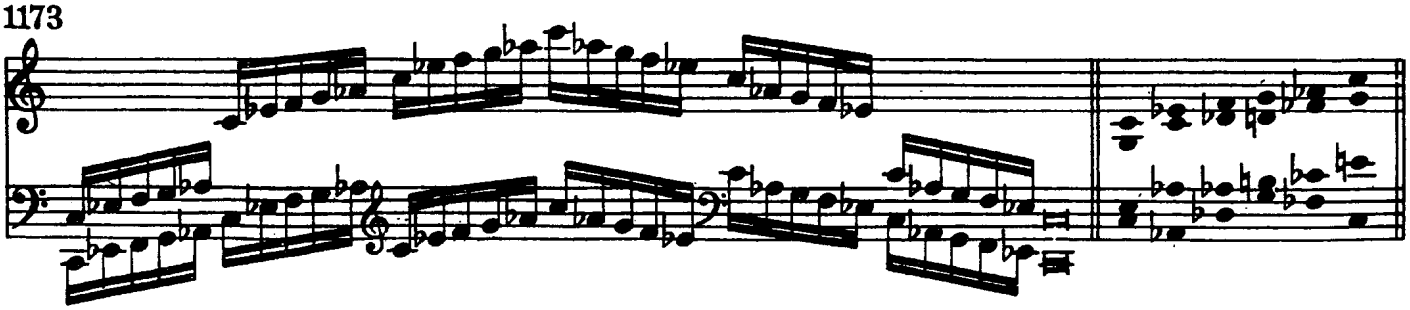
1171



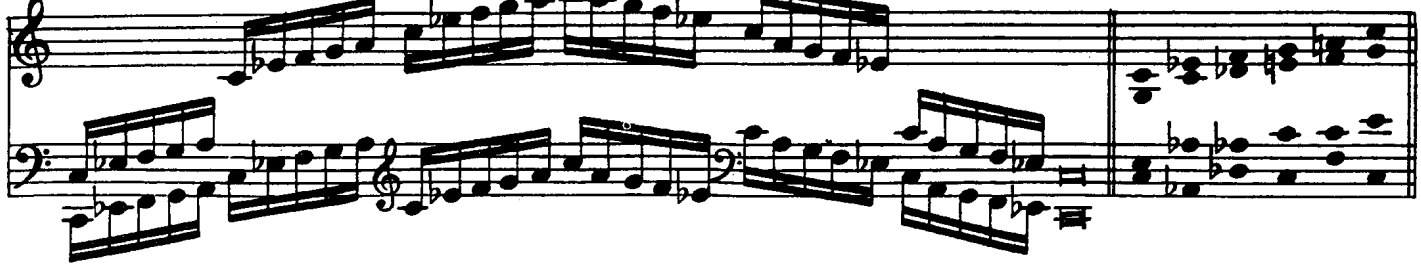
1172



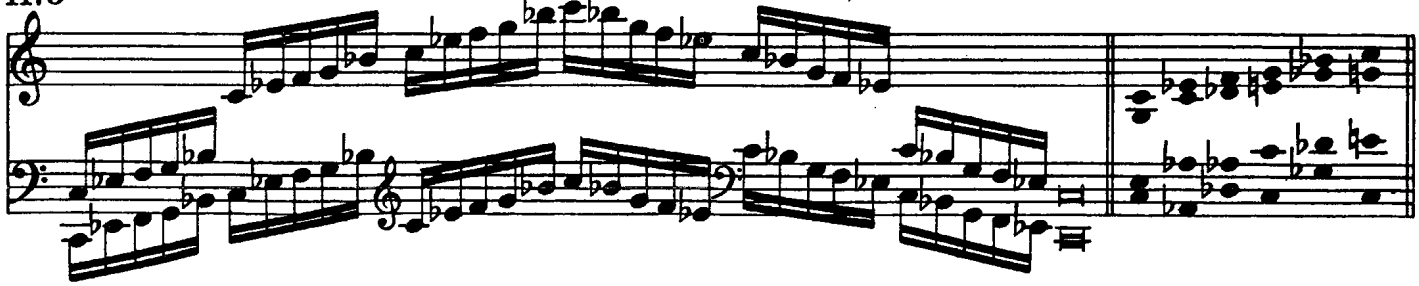
1173



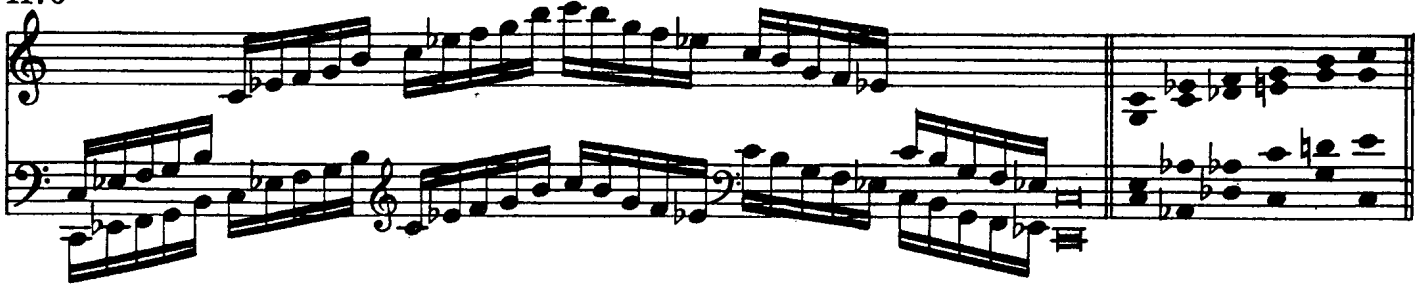
1174



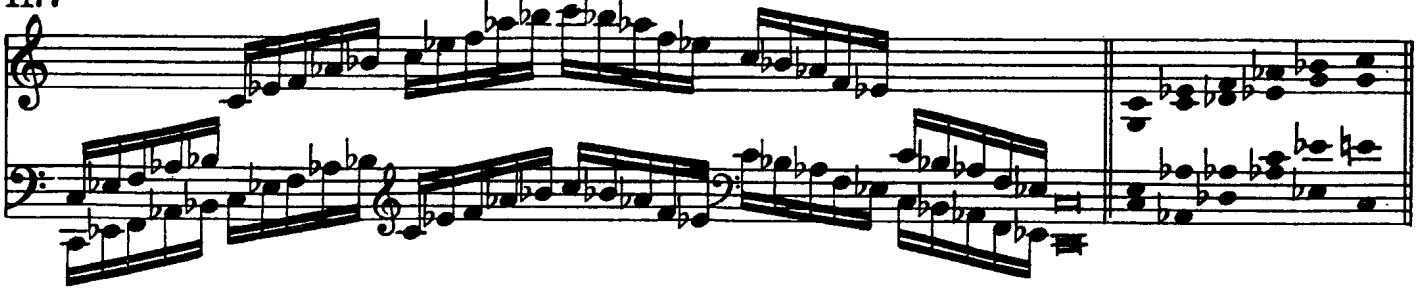
1175



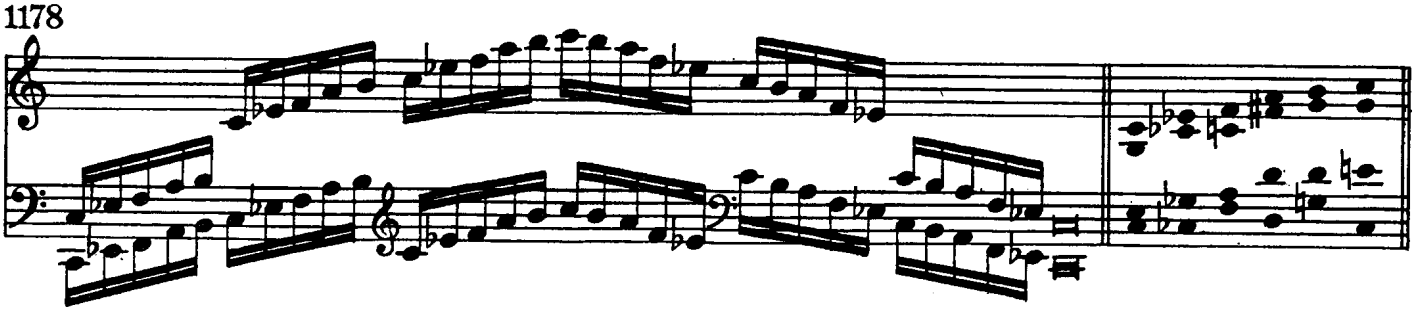
1176



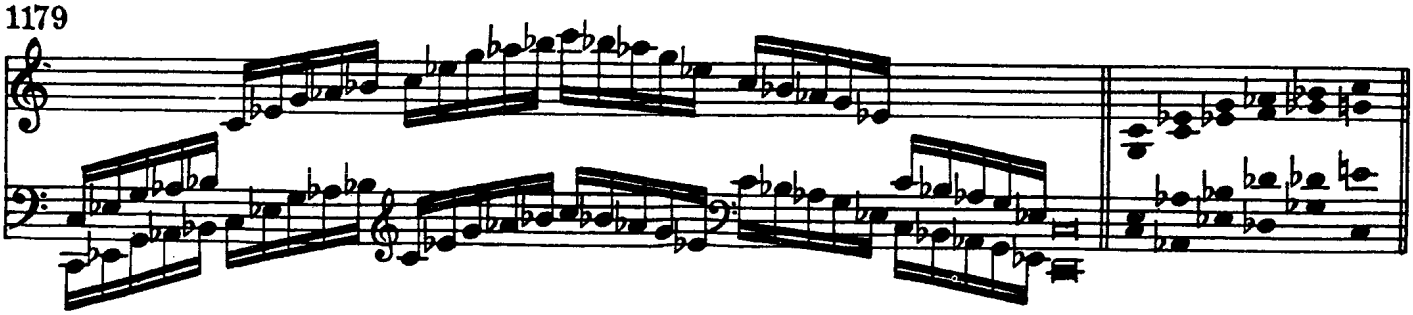
1177



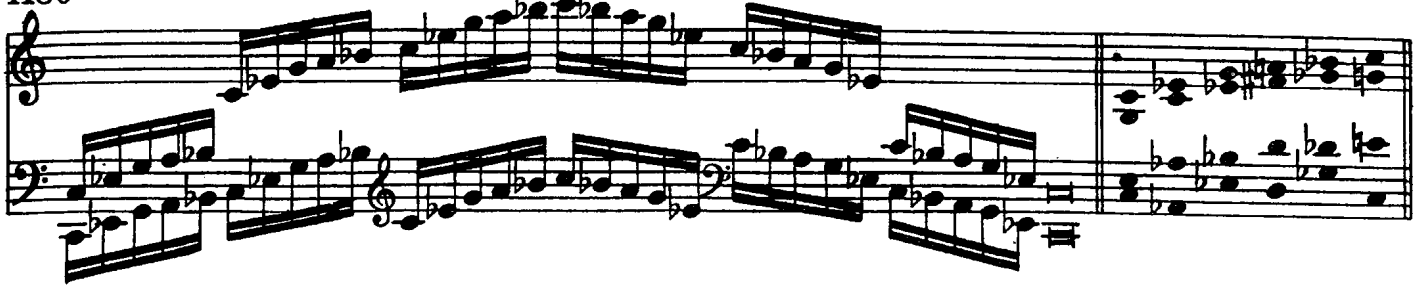
1178



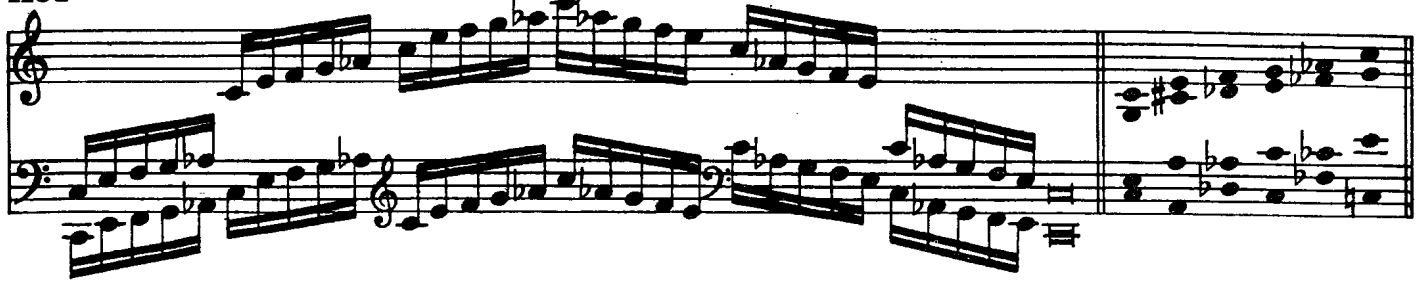
1179



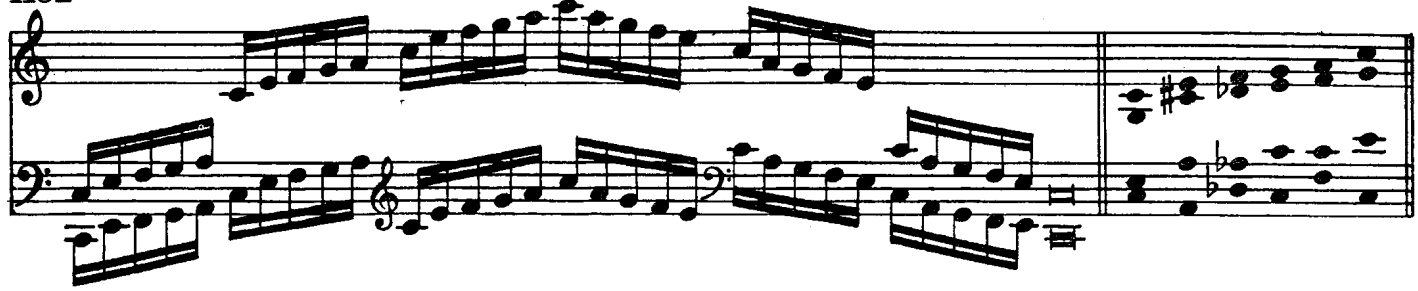
1180



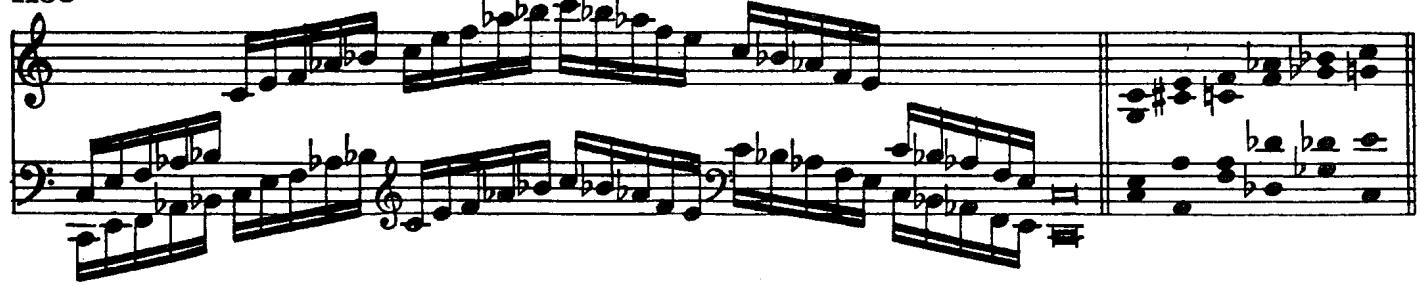
1181



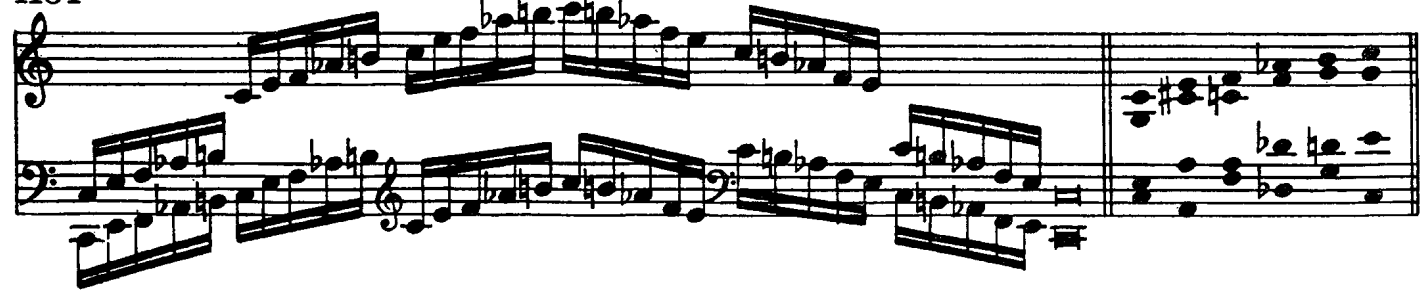
1182



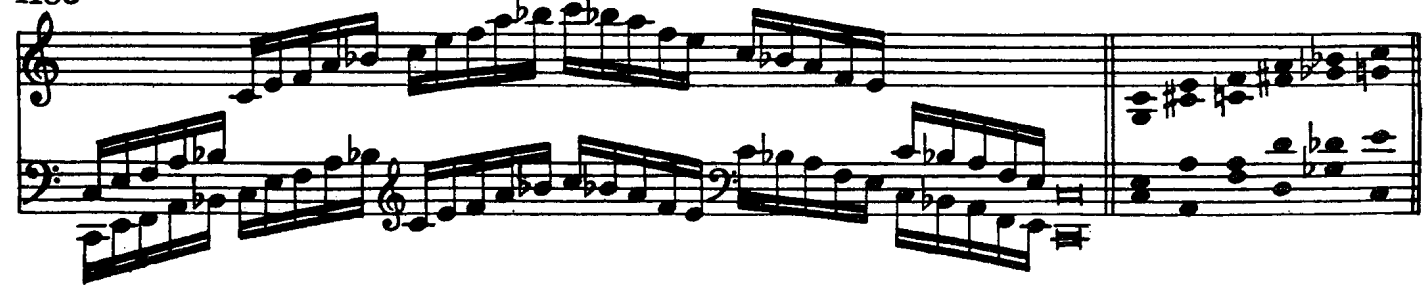
1183



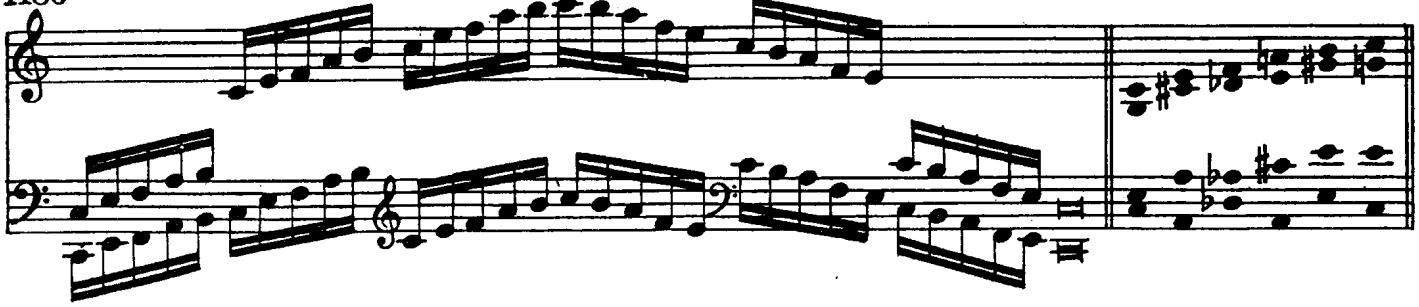
1184



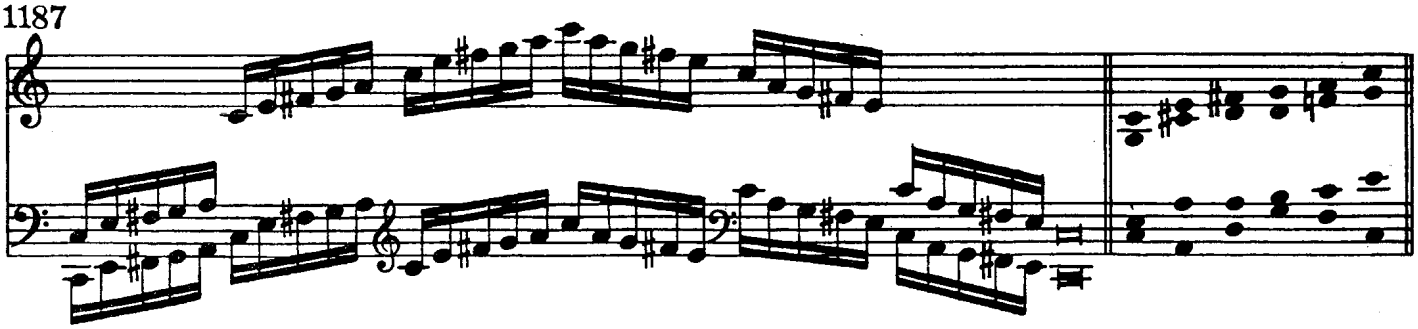
1185



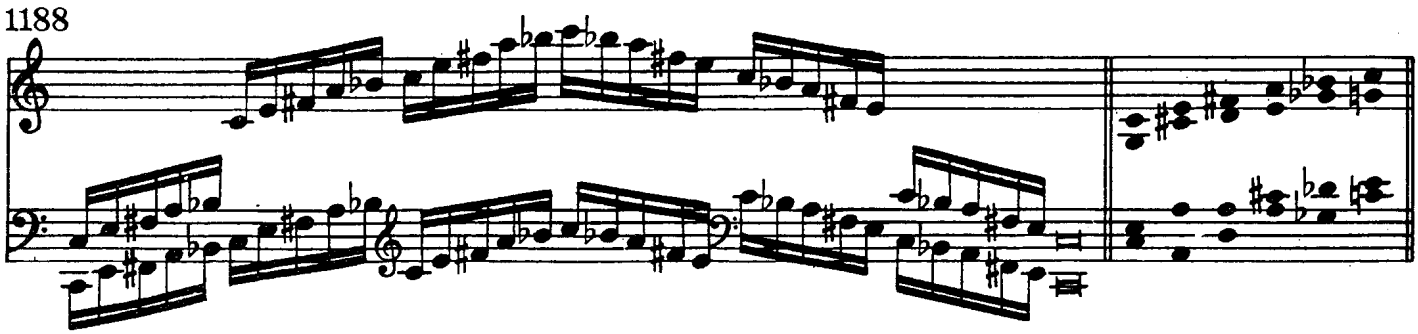
1186



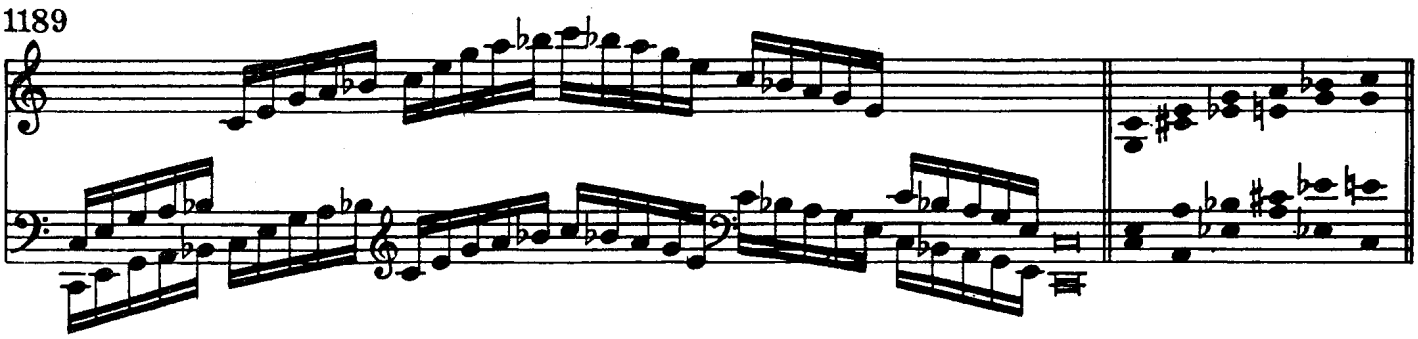
1187



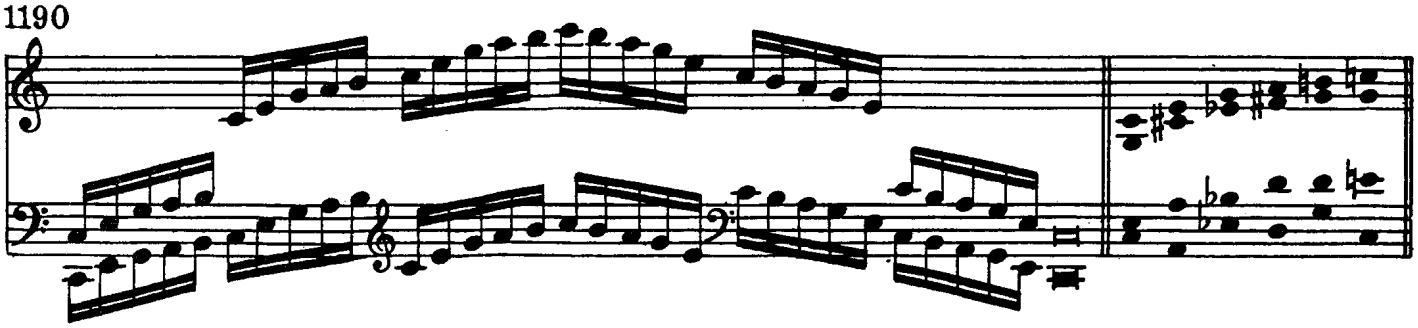
1188



1189

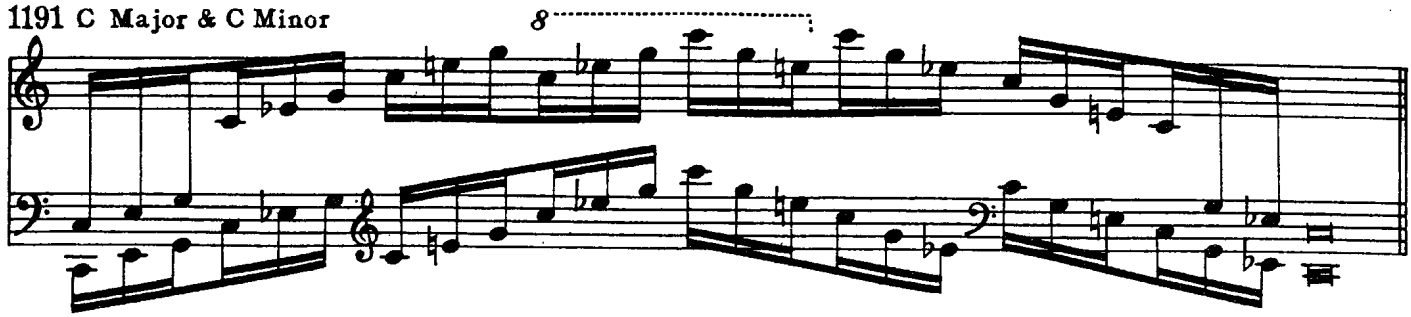


1190

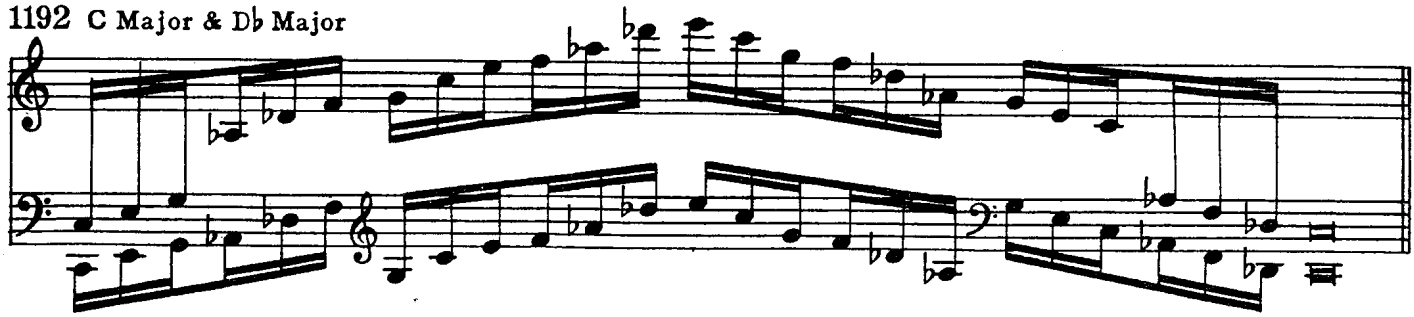


Bitonal Arpeggios

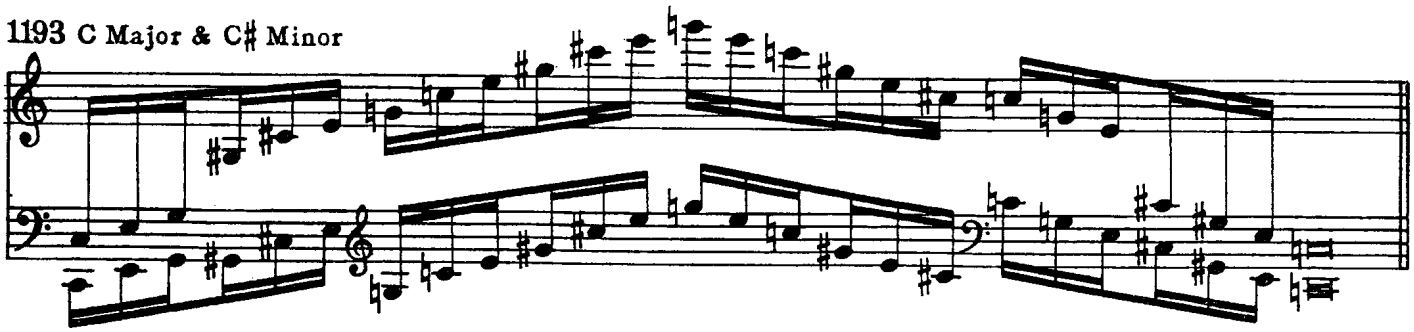
1191 C Major & C Minor



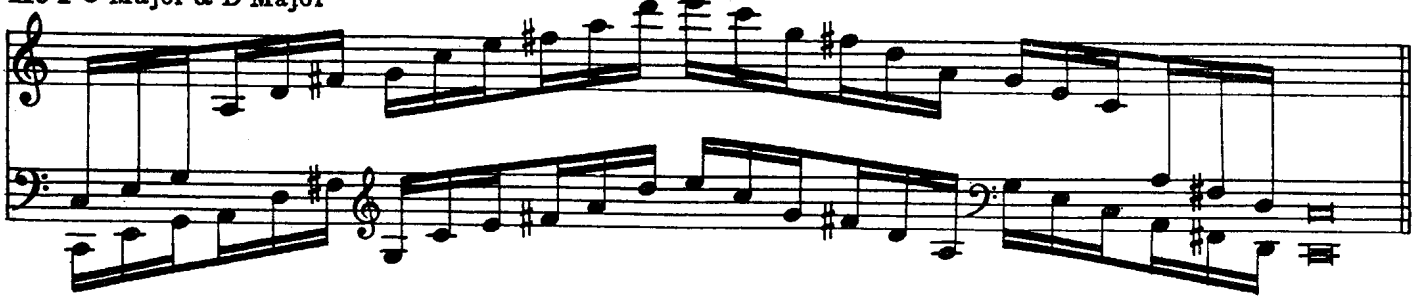
1192 C Major & D♭ Major



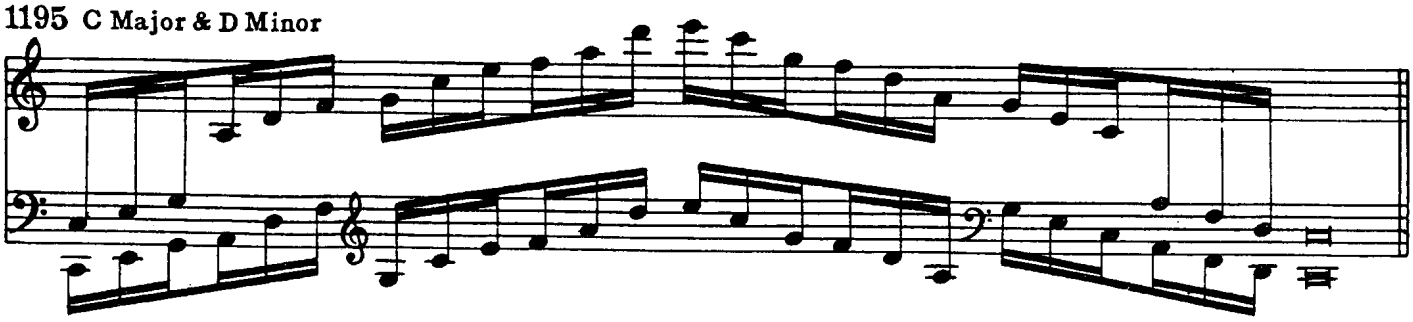
1193 C Major & C♯ Minor



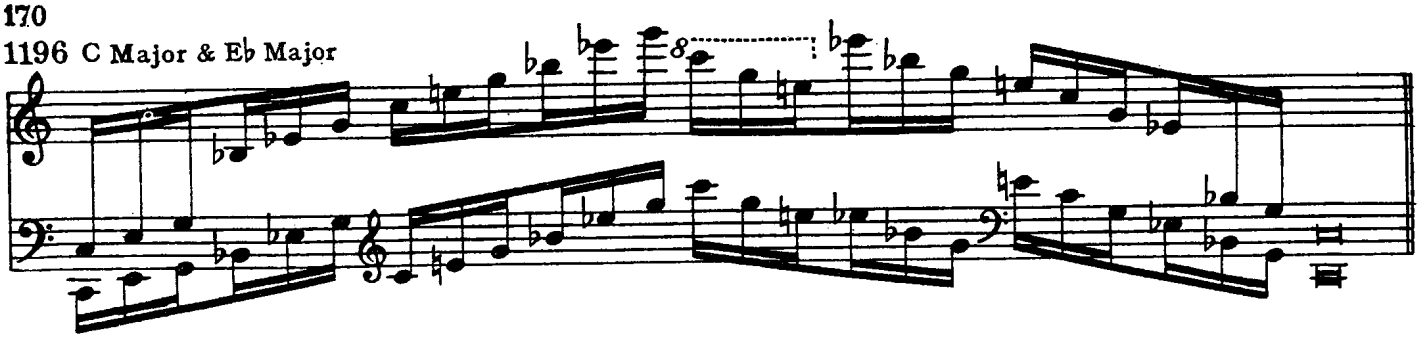
1194 C Major & D Major



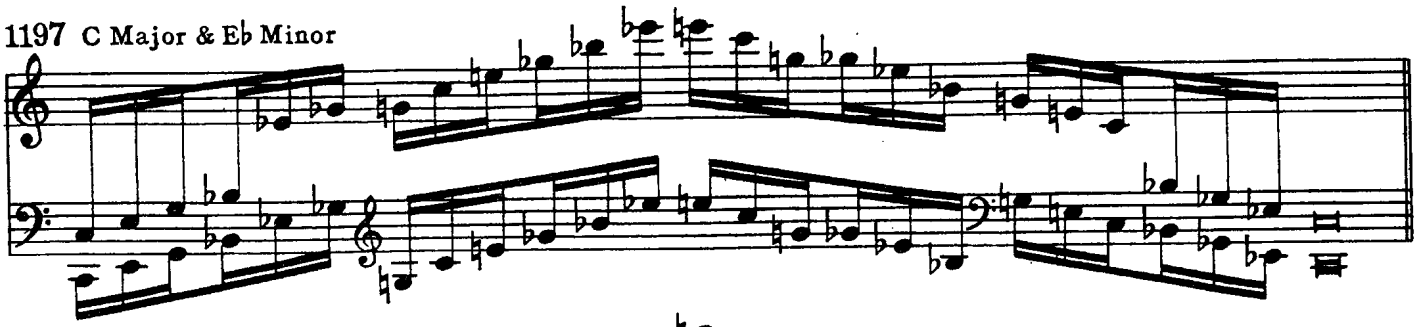
1195 C Major & D Minor



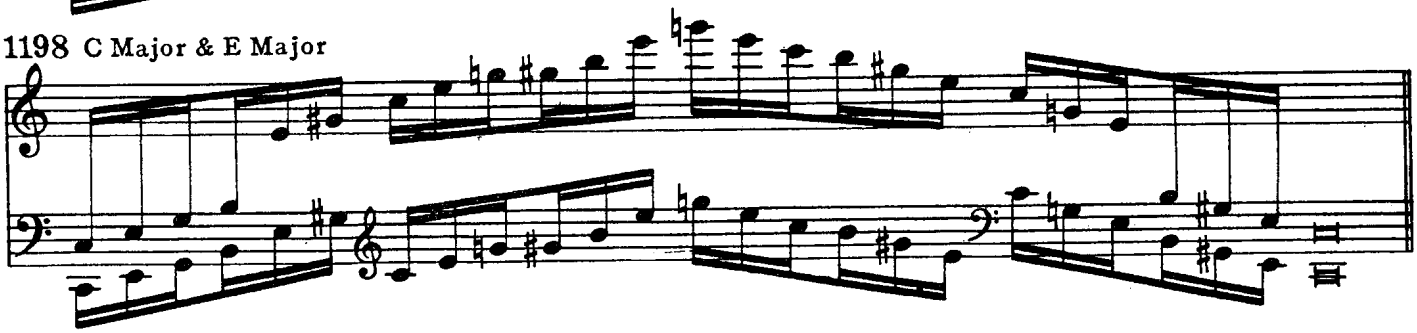
1196 C Major & E♭ Major



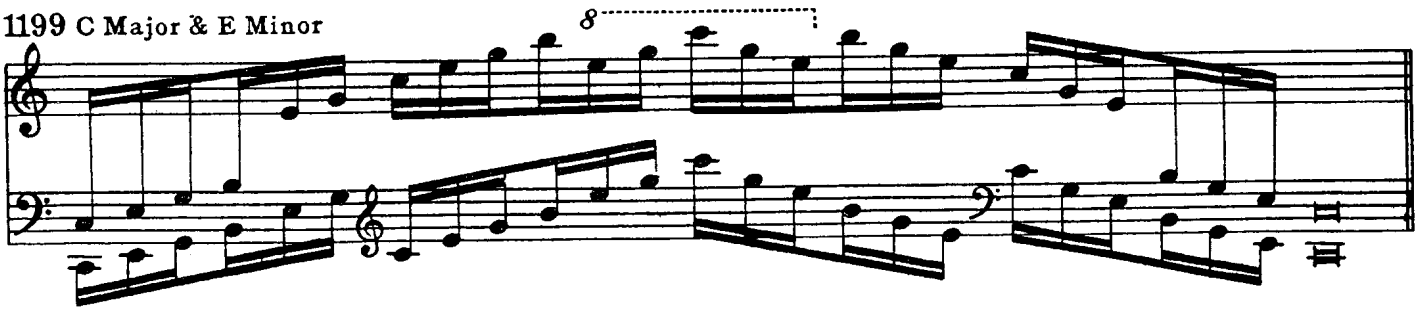
1197 C Major & E♭ Minor



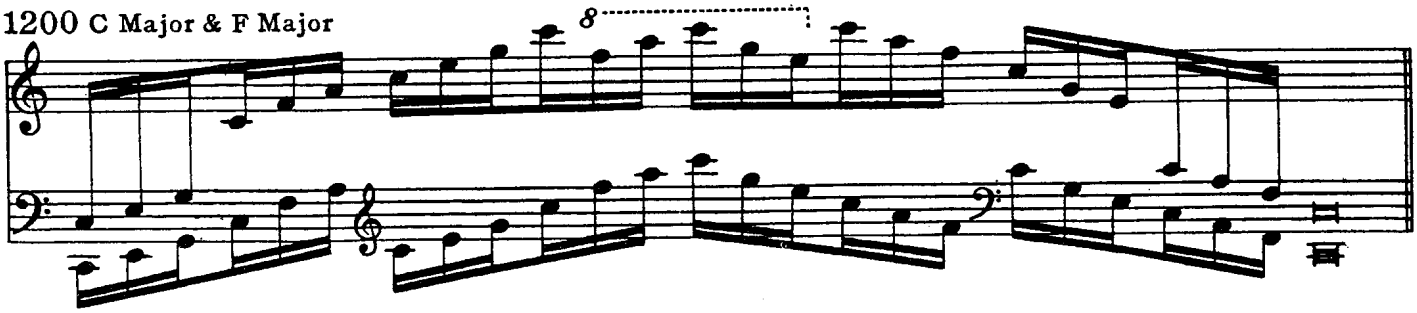
1198 C Major & E Major



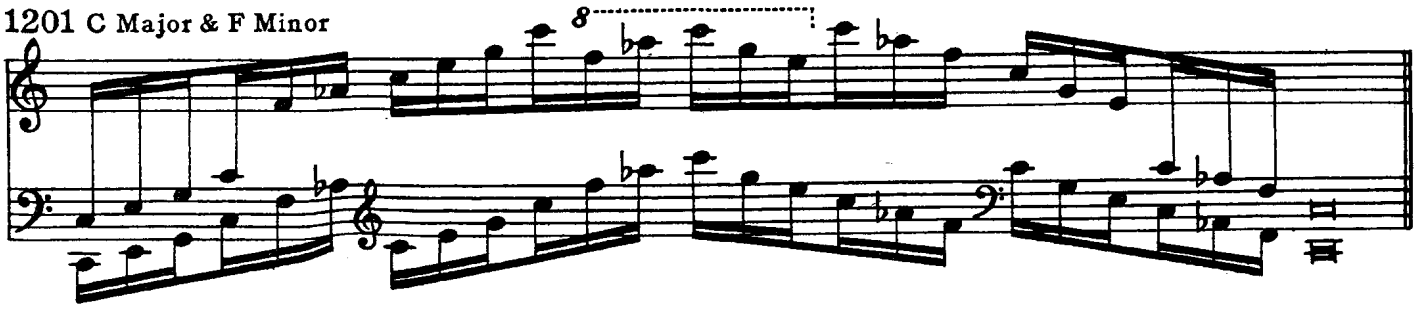
1199 C Major & E Minor



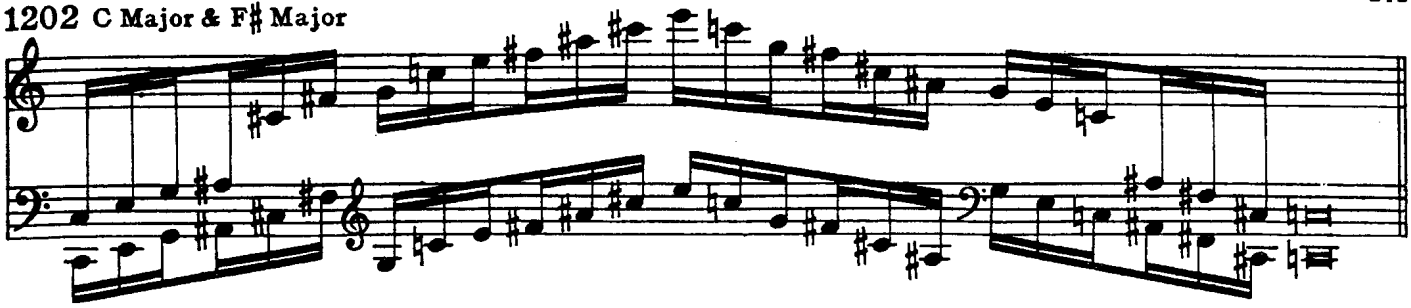
1200 C Major & F Major



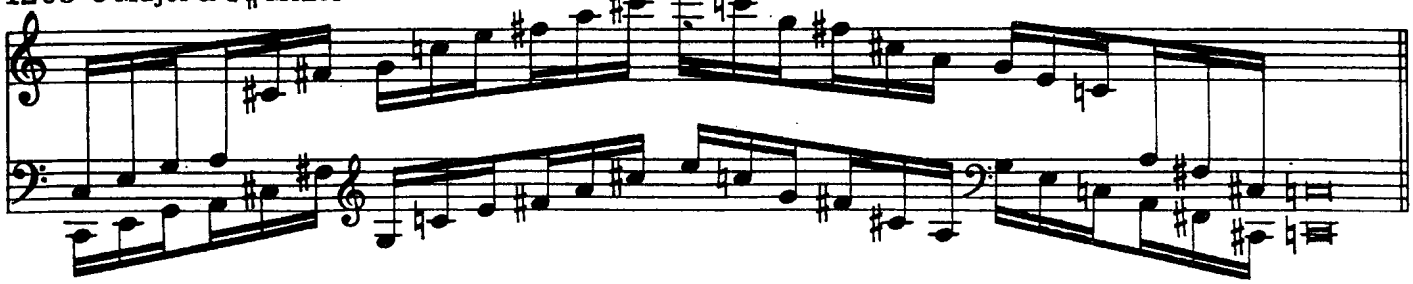
1201 C Major & F Minor



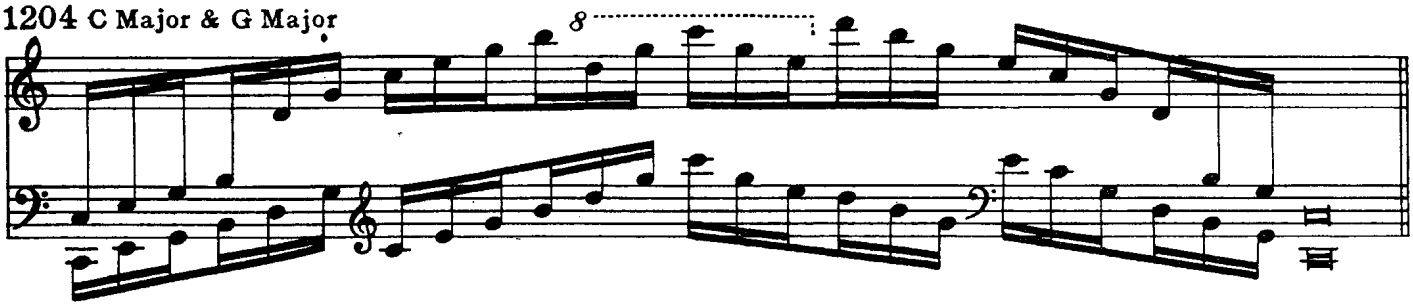
1202 C Major & F♯ Major



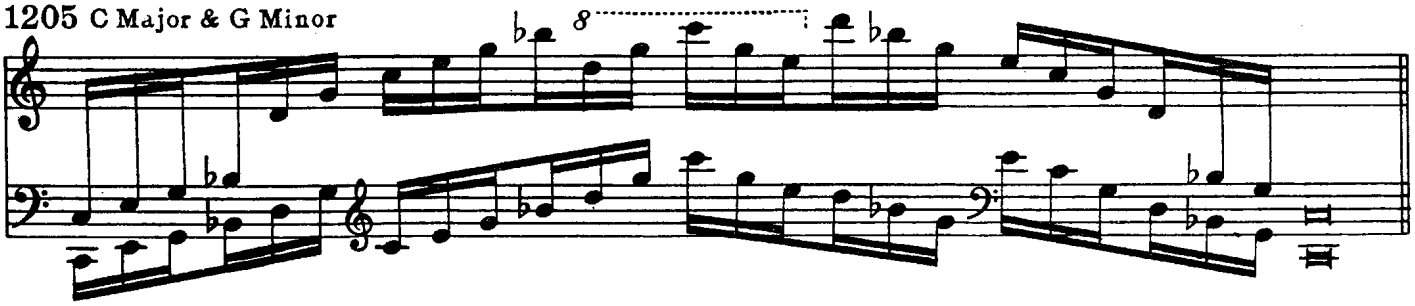
1203 C Major & F♯ Minor



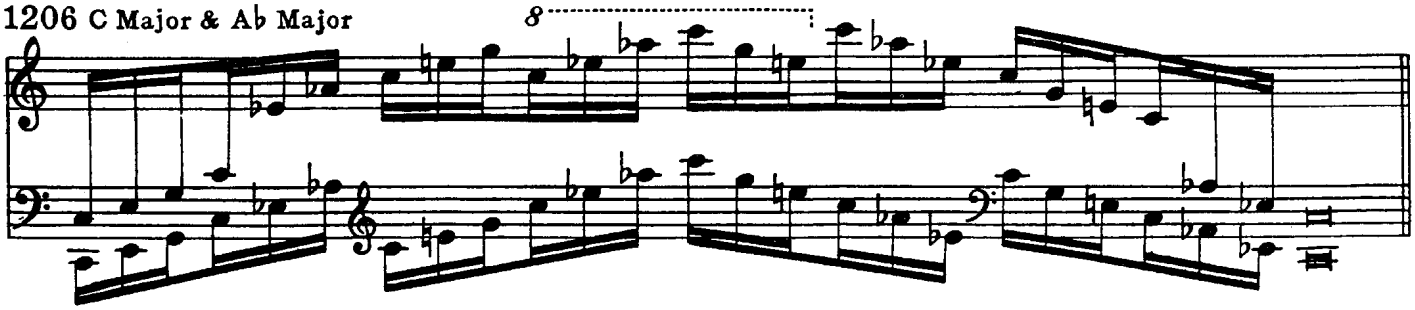
1204 C Major & G Major



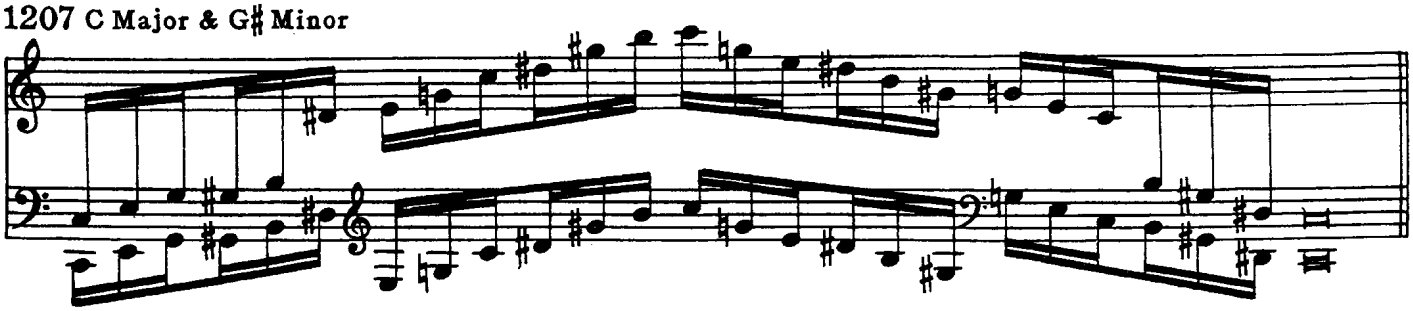
1205 C Major & G Minor



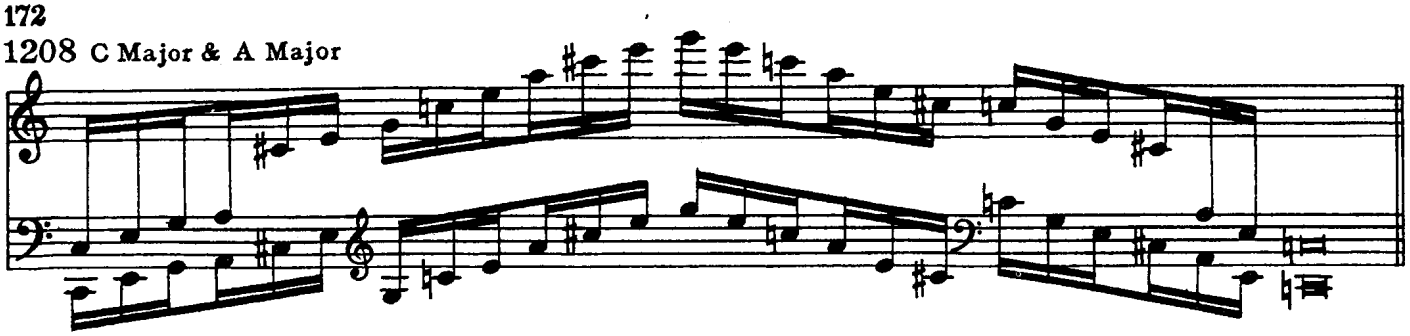
1206 C Major & Ab Major



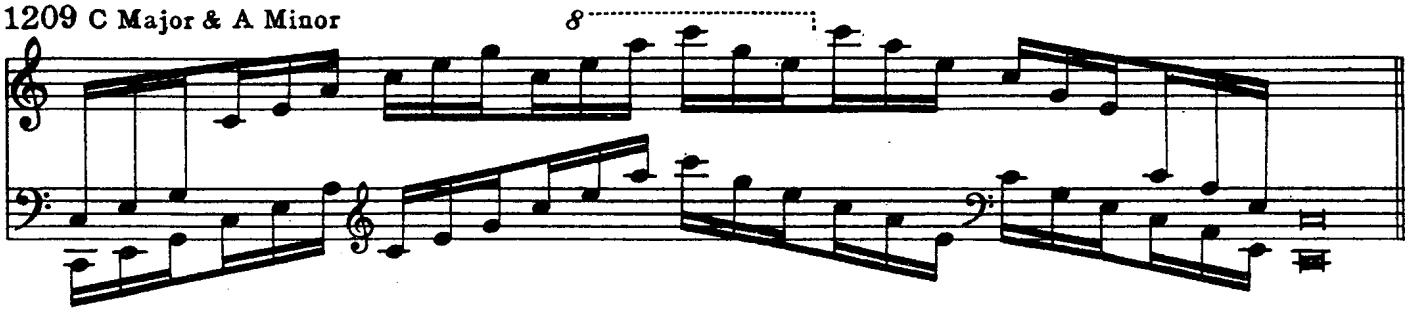
1207 C Major & G♯ Minor



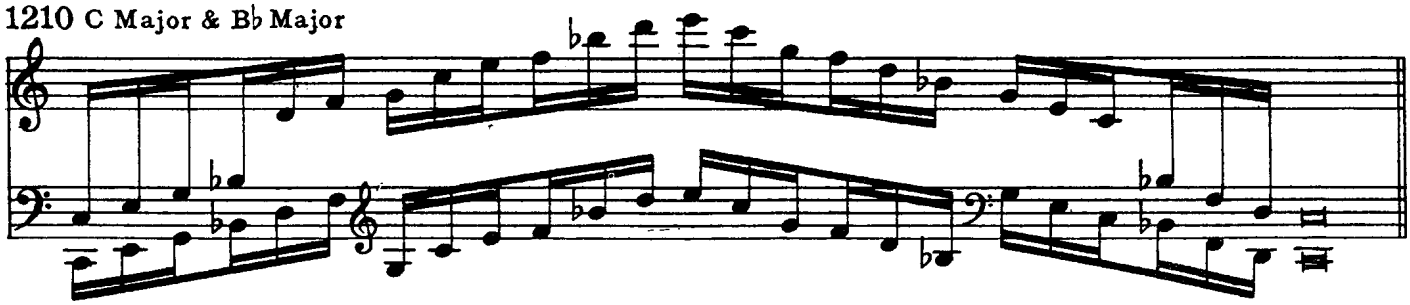
1208 C Major & A Major



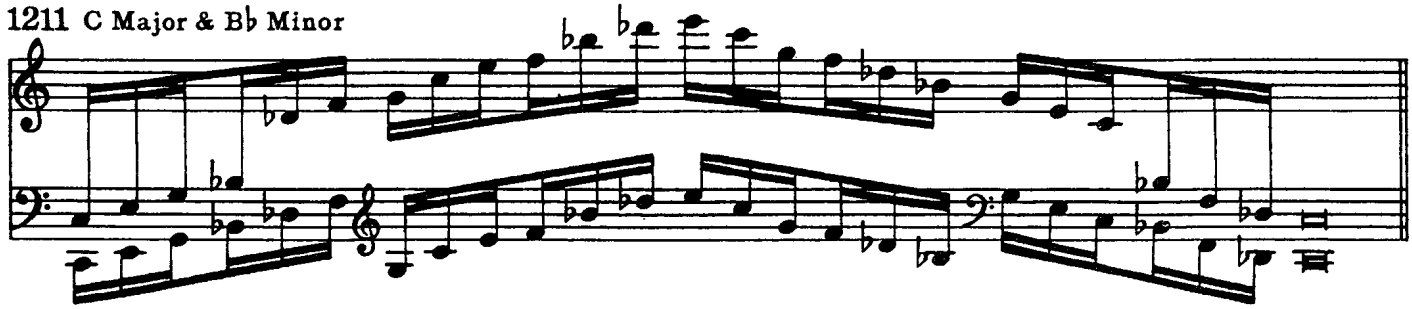
1209 C Major & A Minor



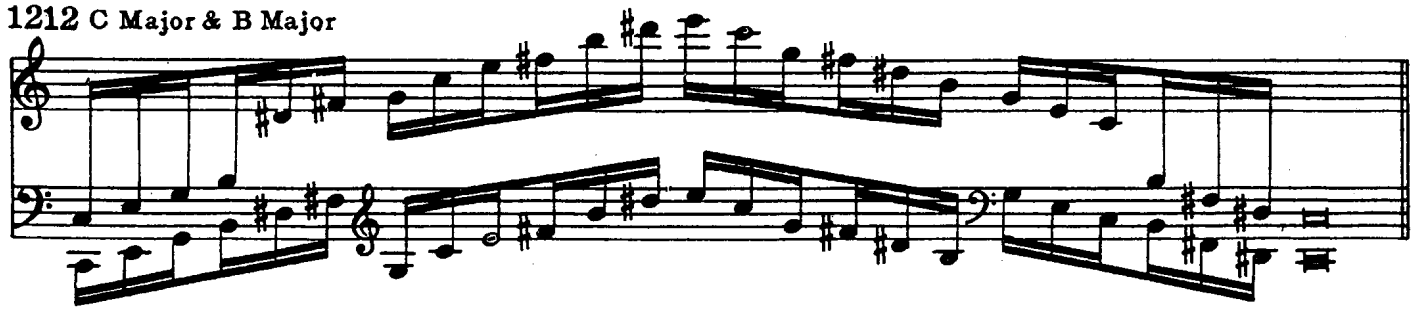
1210 C Major & B♭ Major



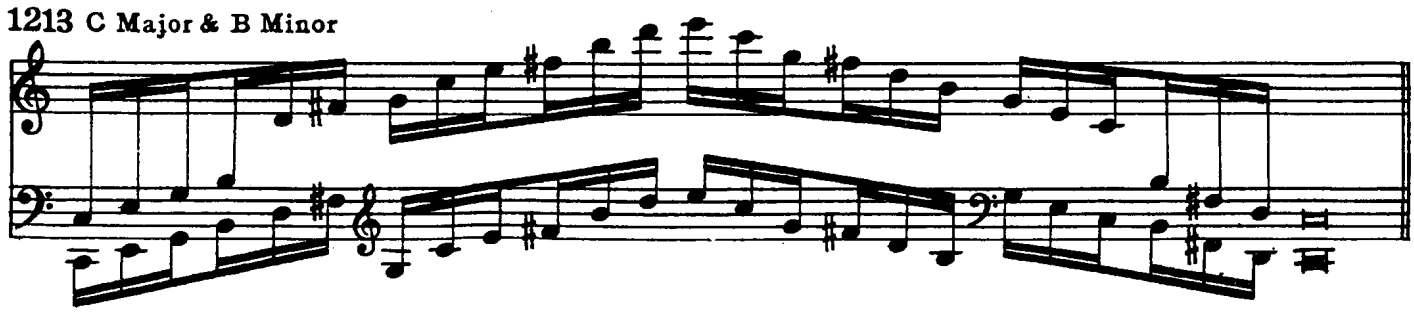
1211 C Major & B♭ Minor



1212 C Major & B Major



1213 C Major & B Minor

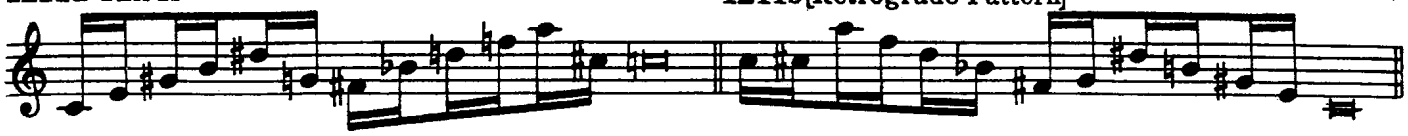


Twelve-Tone Patterns

Dodecaphonic

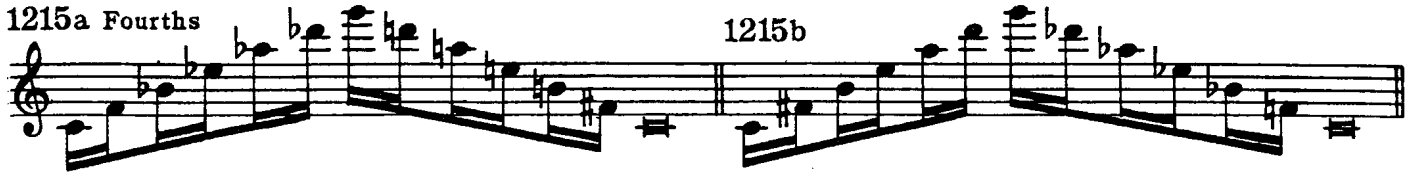
1214a Thirds

1214b [Retrograde Pattern]



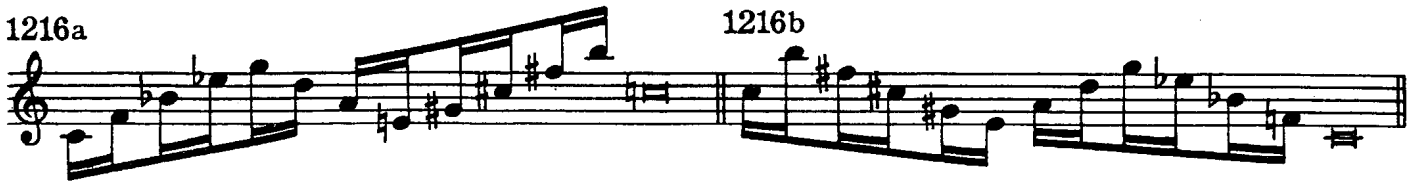
1215a Fourths

1215b



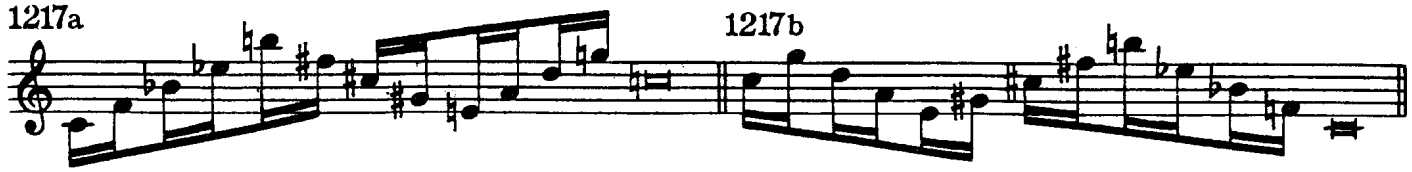
1216a

1216b



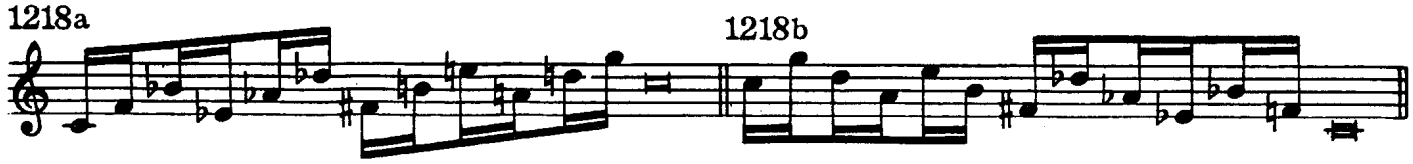
1217a

1217b



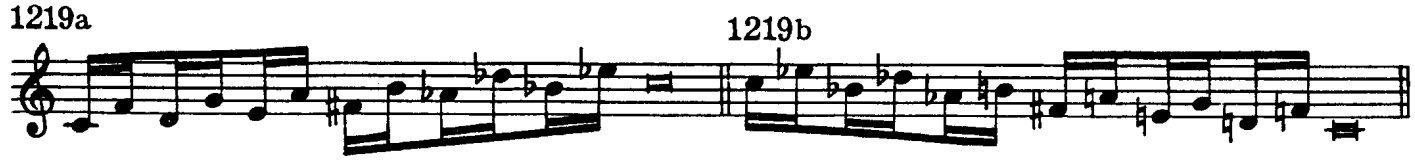
1218a

1218b



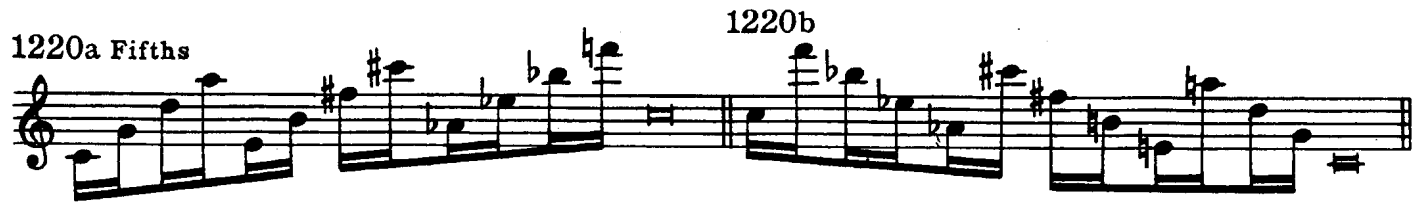
1219a

1219b



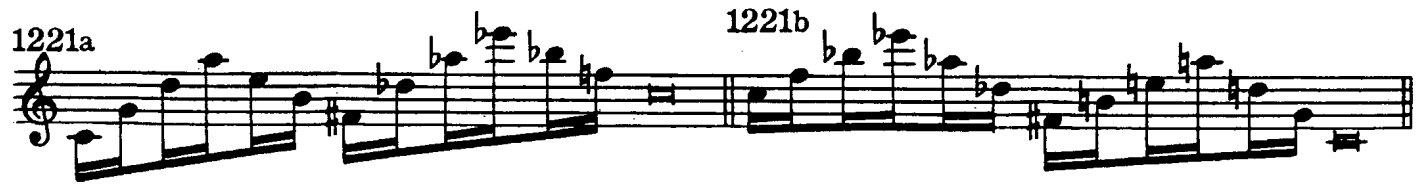
1220a Fifths

1220b



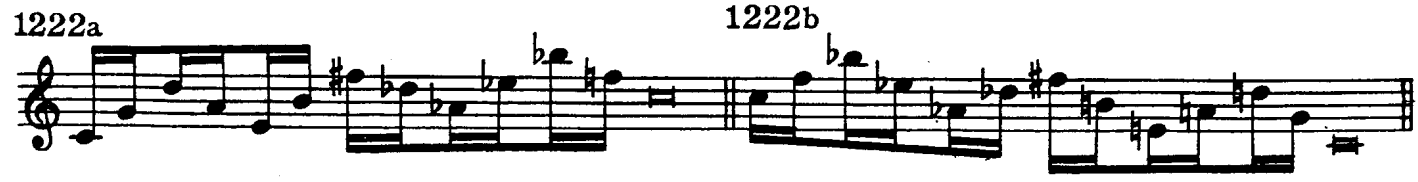
1221a

1221b

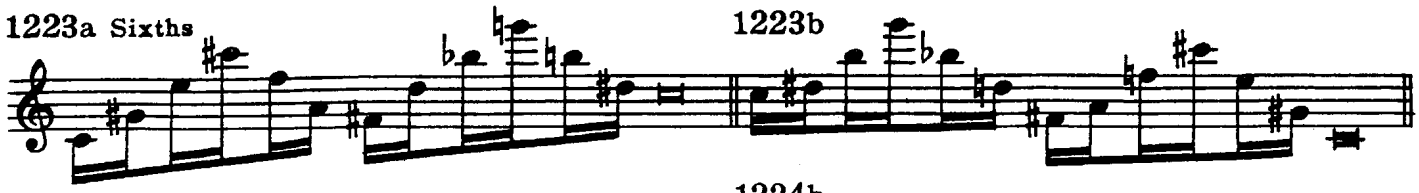


1222a

1222b

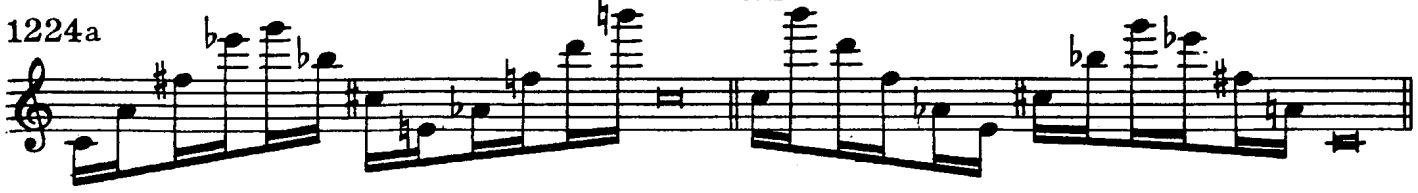


1223a Sixths



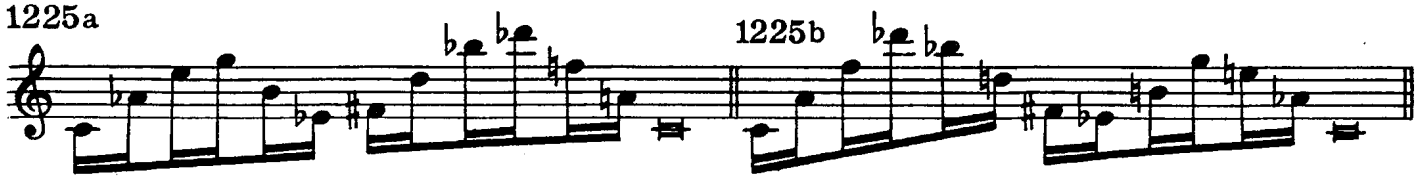
1223b

1224a



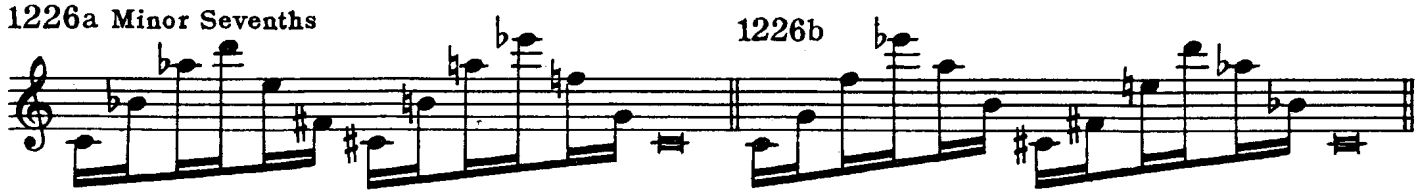
1224b

1225a



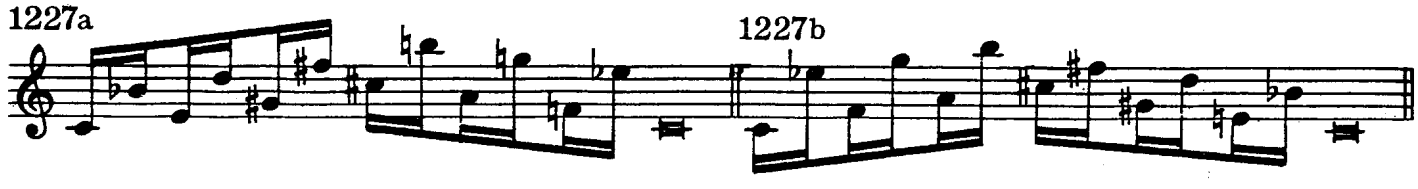
1225b

1226a Minor Sevenths



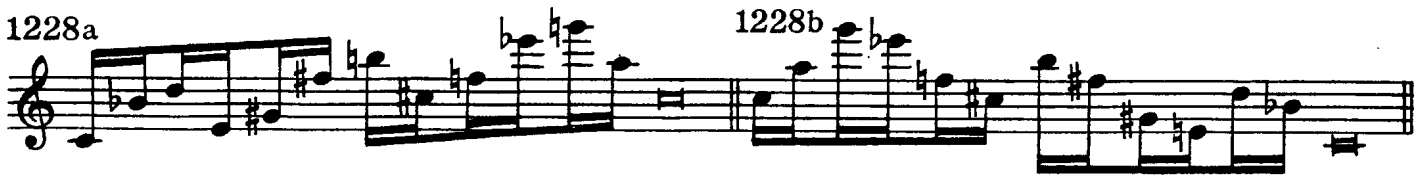
1226b

1227a



1227b

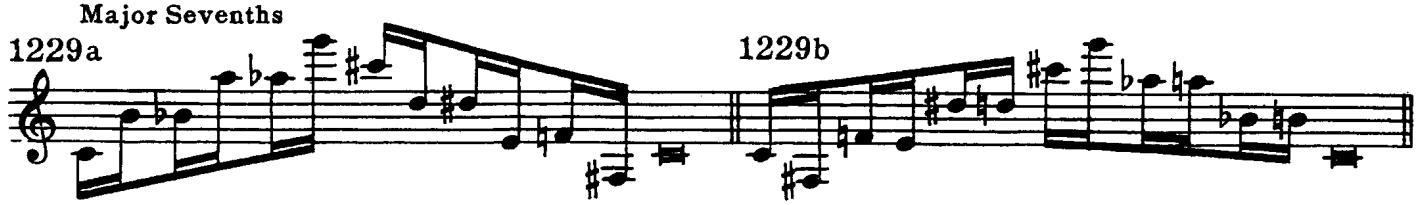
1228a



1228b

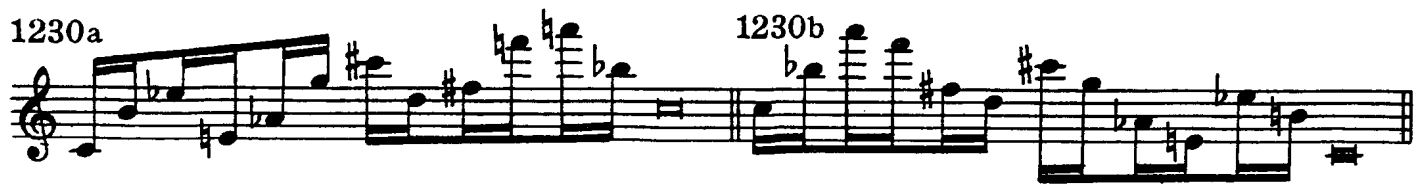
Major Sevenths

1229a



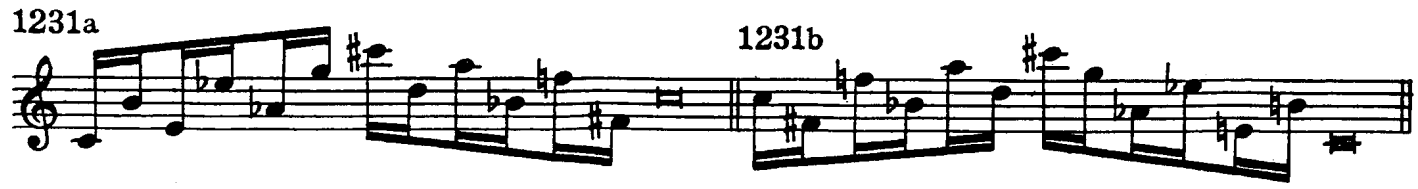
1229b

1230a



1230b

1231a

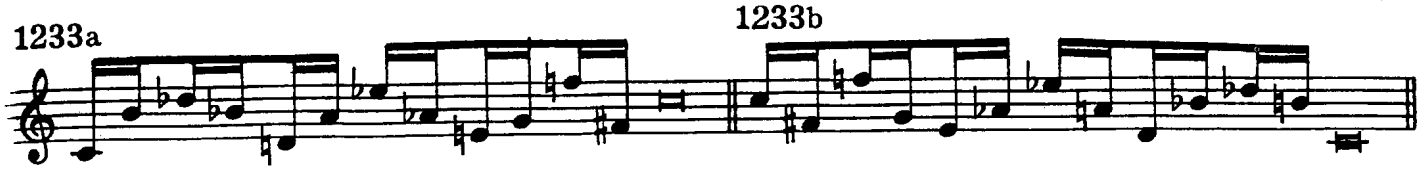


1231b

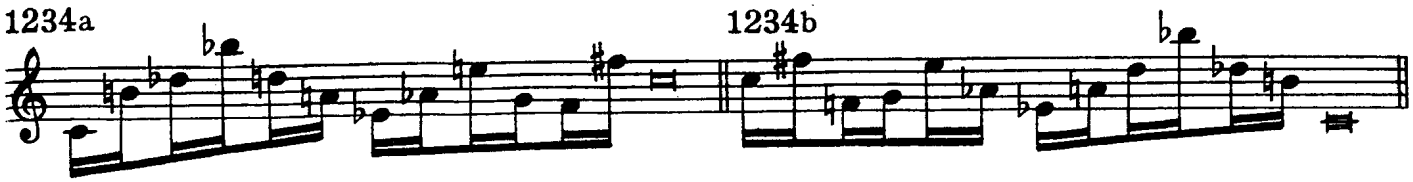
Twelve-Tone Spirals

1232a 1232b

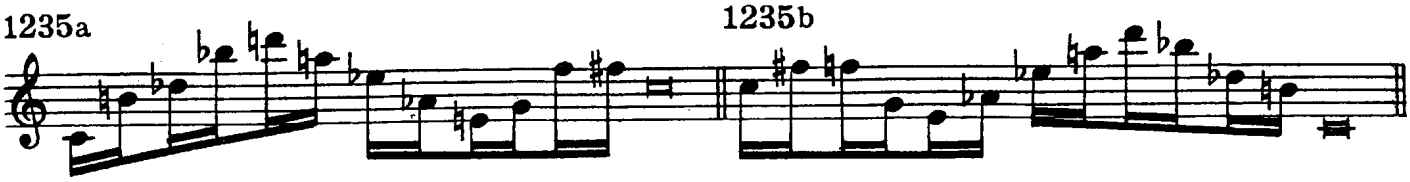
1233a 1233b



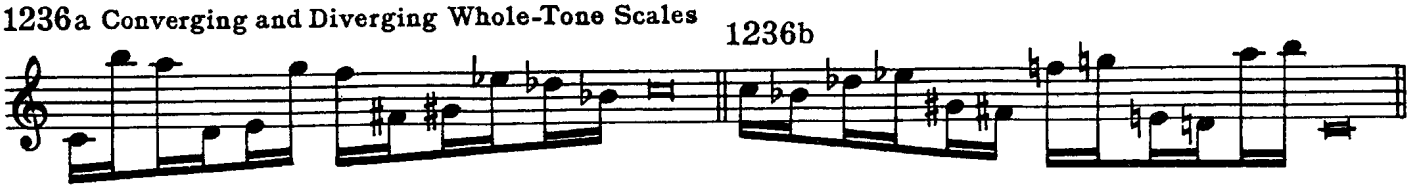
1234a 1234b



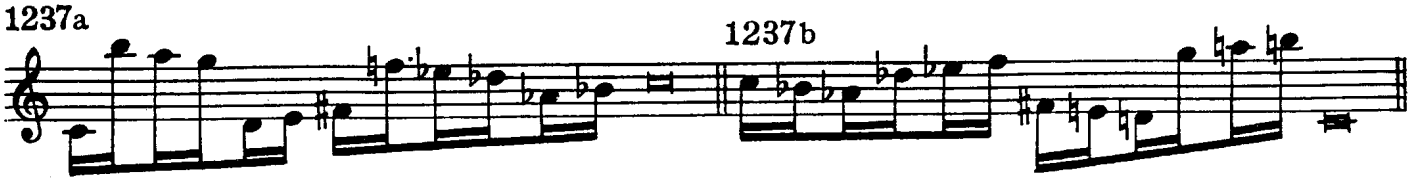
1235a 1235b



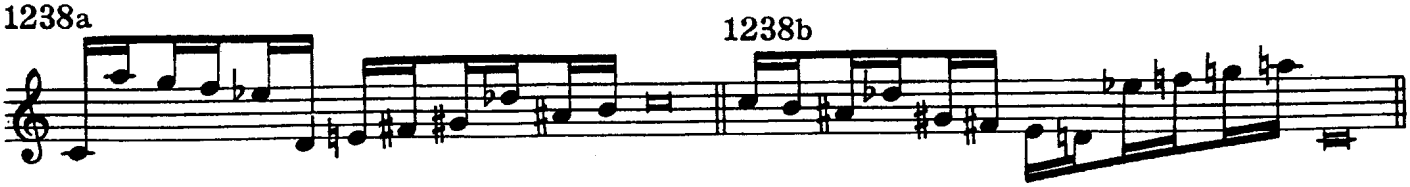
1236a Converging and Diverging Whole-Tone Scales 1236b



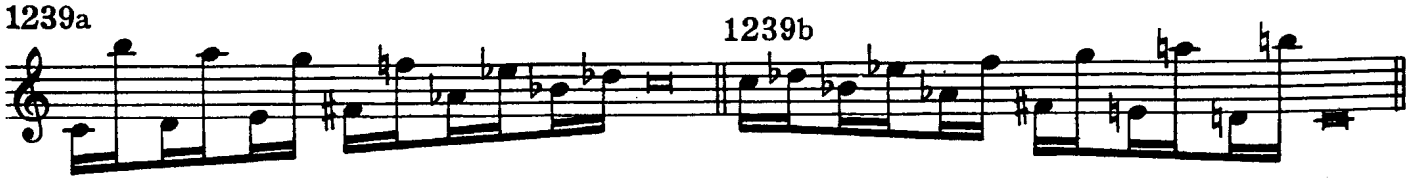
1237a 1237b



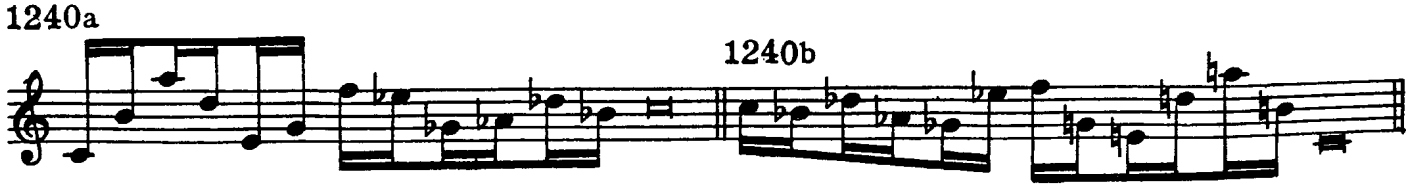
1238a 1238b



1239a 1239b

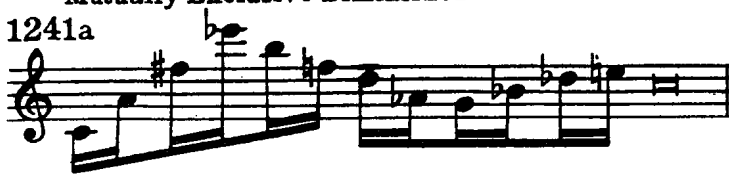


1240a 1240b

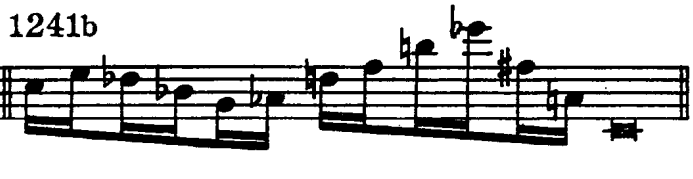


Mutually Exclusive Diminished-Seventh Chords

1241a

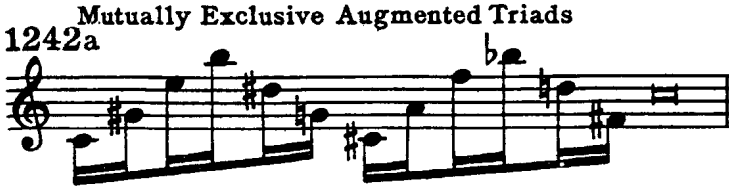


1241b

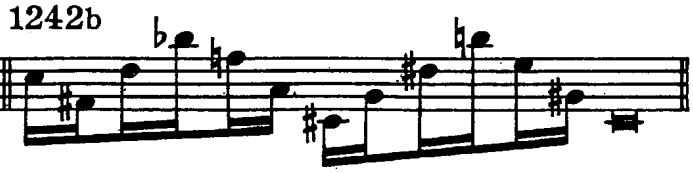


Mutually Exclusive Augmented Triads

1242a



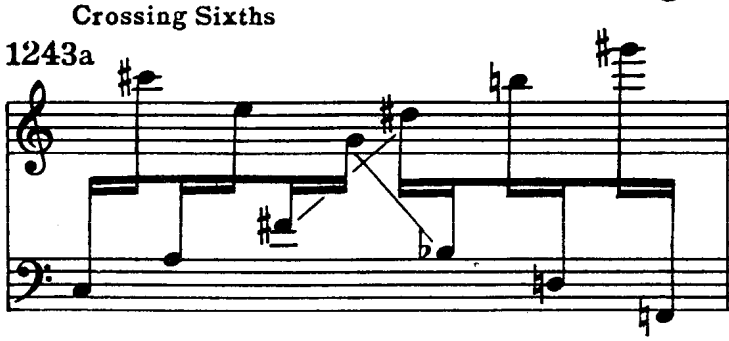
1242b



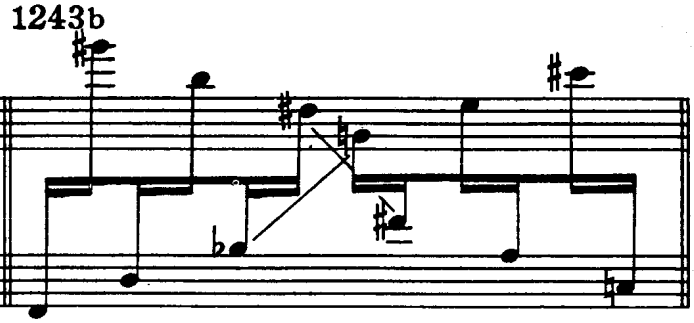
Crossing Intervals

Crossing Sixths

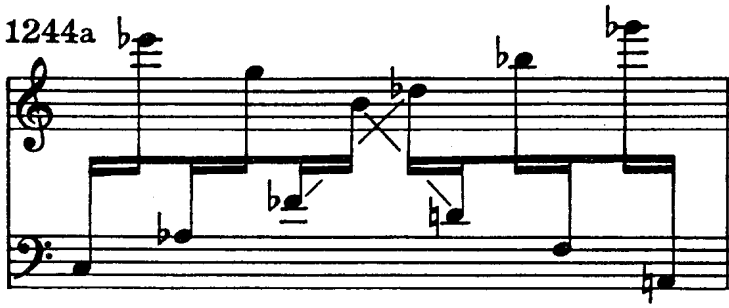
1243a



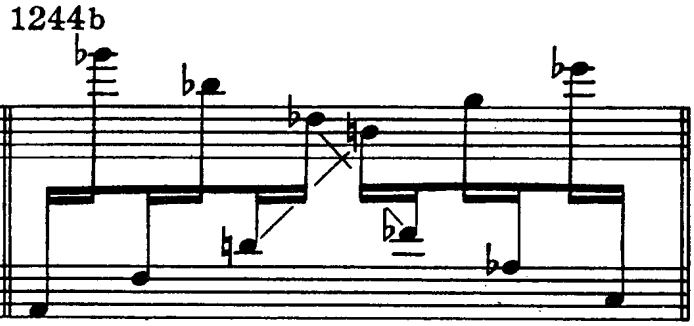
1243b



1244a

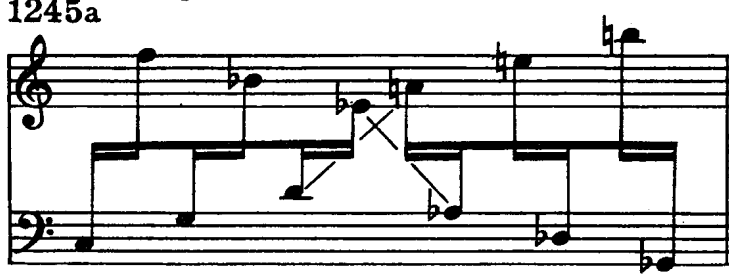


1244b

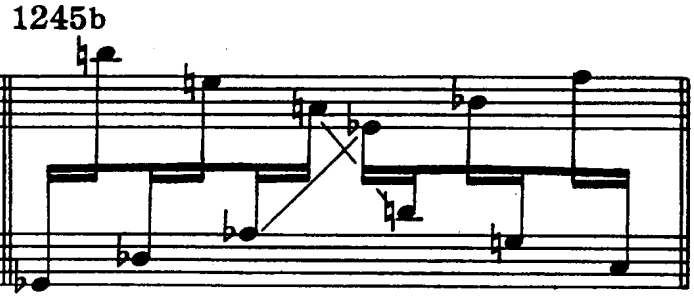


Crossing Fifths

1245a

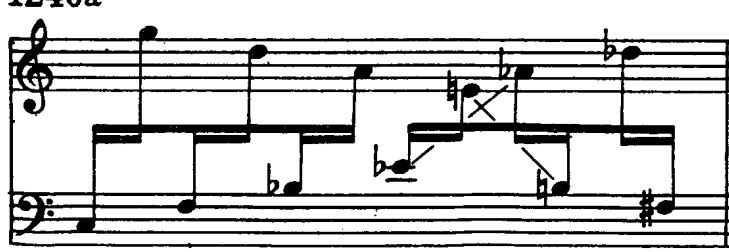


1245b

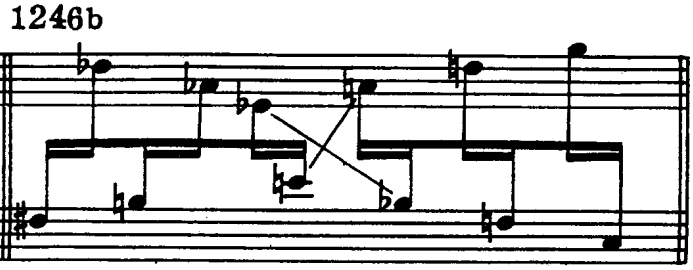


Crossing Fourths

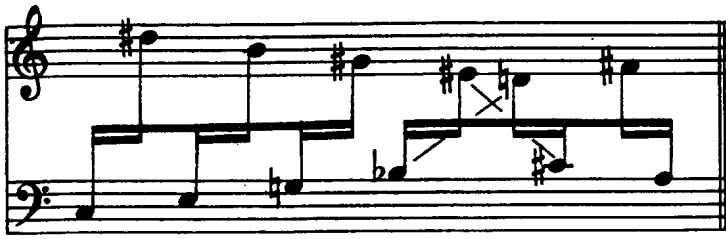
1246a



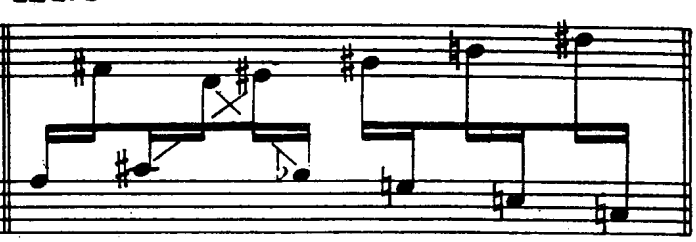
1246b



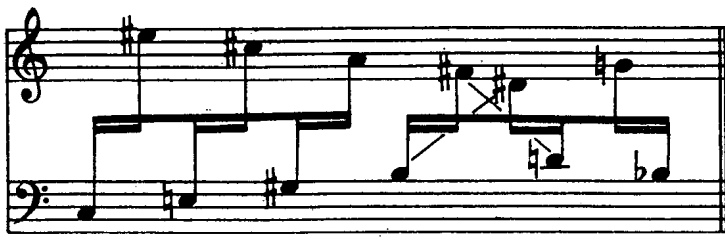
1247a Crossing Thirds



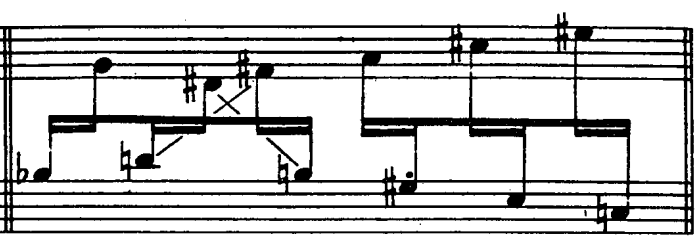
1247b



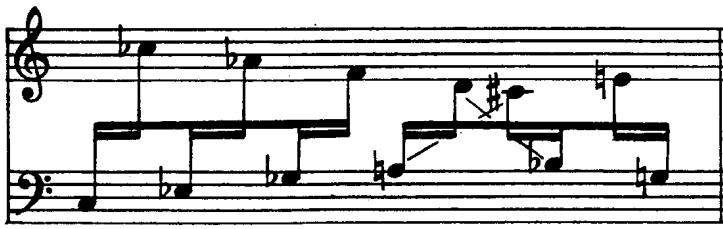
1248a



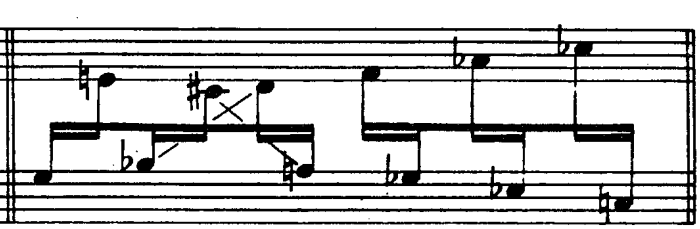
1248b



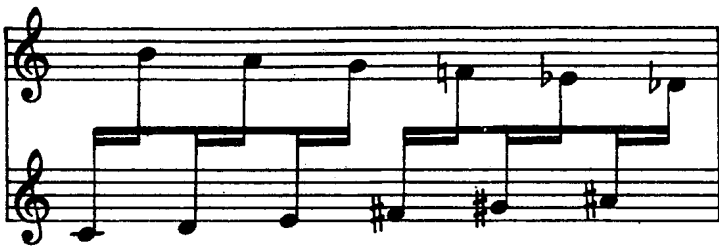
1249a



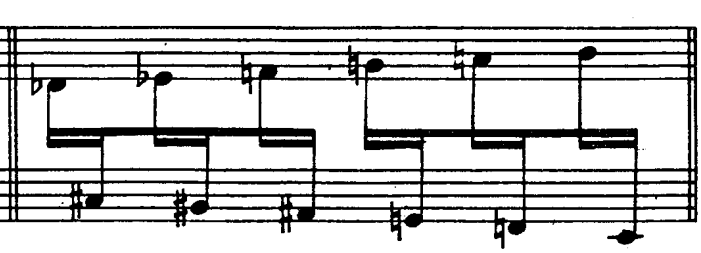
1249b



1250a Crossing Seconds

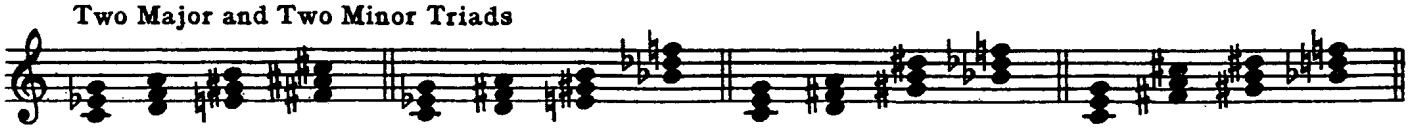


1250b

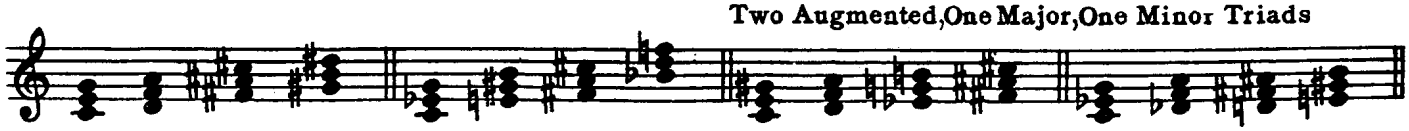


Division of Twelve Tones into Four Mutually Exclusive Triads

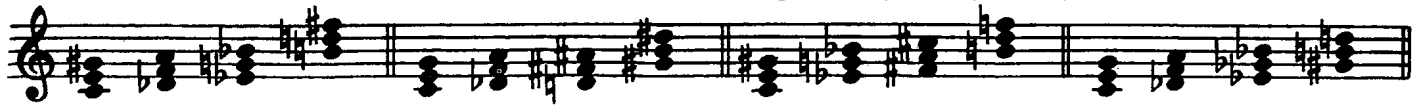
Two Major and Two Minor Triads



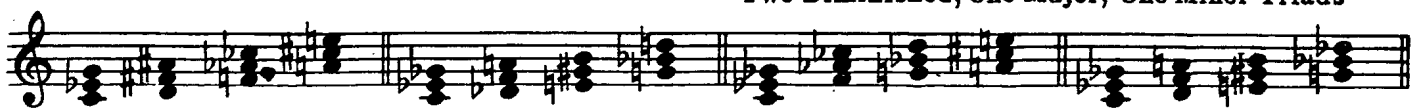
Two Augmented,One Major,One Minor Triads



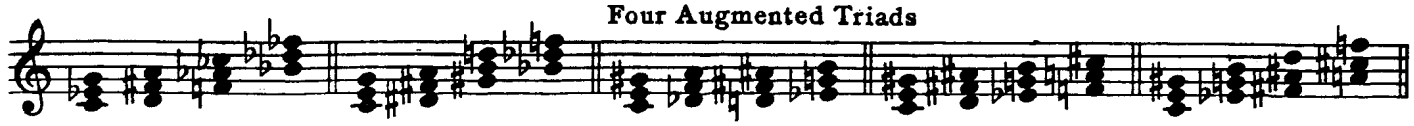
Augmented, Major, Minor, Diminished Triads



Two Diminished, One Major, One Minor Triads

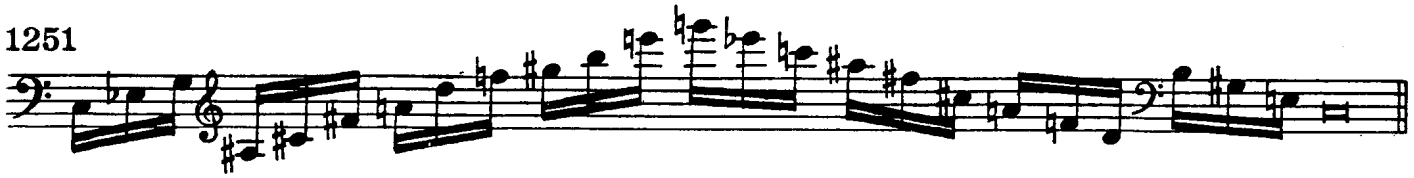


Four Augmented Triads

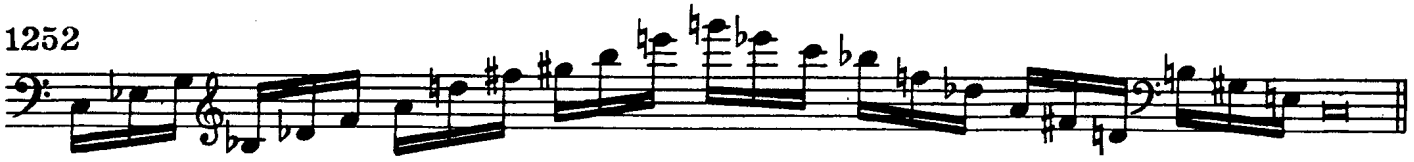


Quadritonal Arpeggios

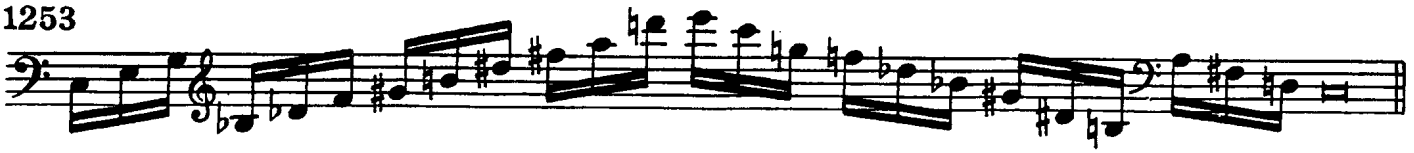
1251



1252

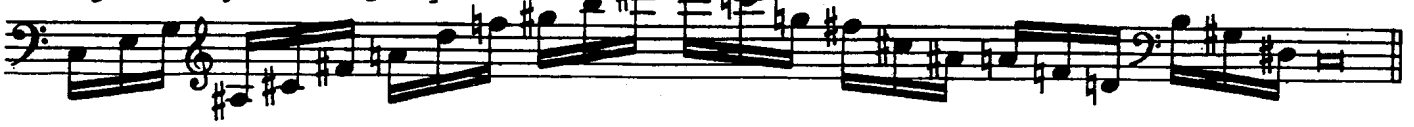


1253



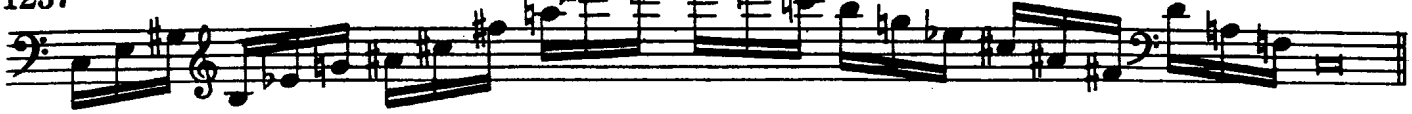
1254

1255 [Slonimsky: *Moto Perpetuo*]



1256

1257

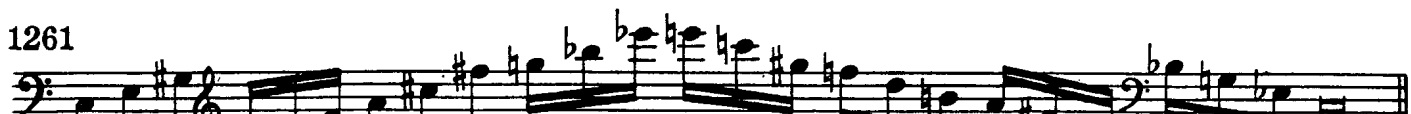


1258

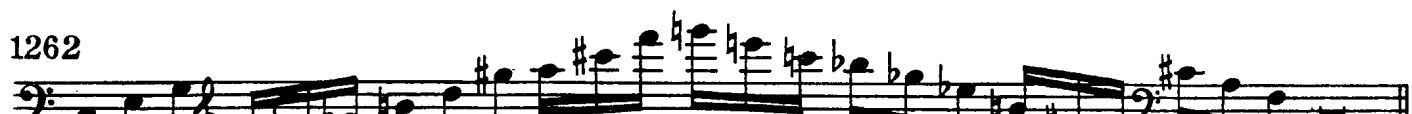
1259

1260

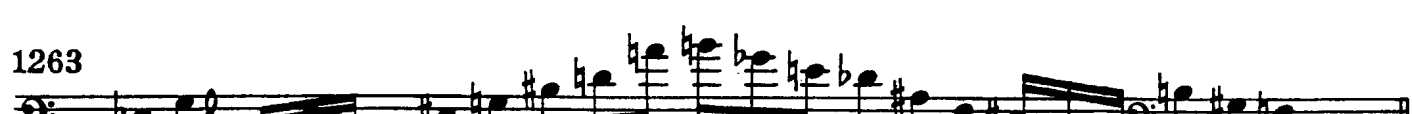
1261



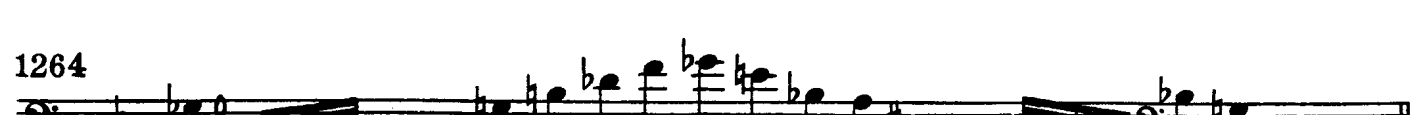
1262



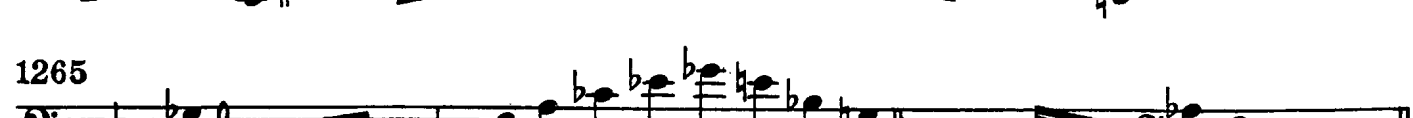
1263



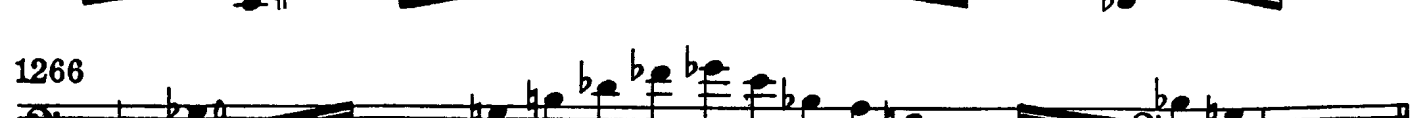
1264



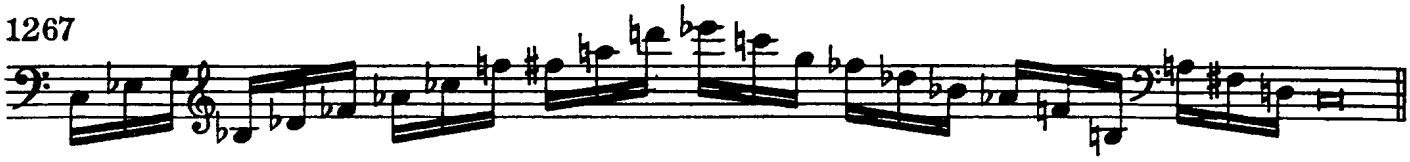
1265



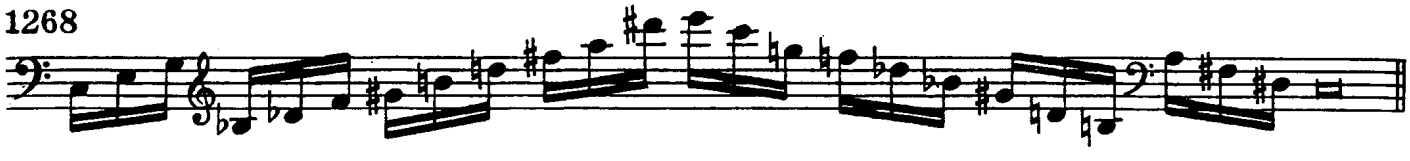
1266



1267

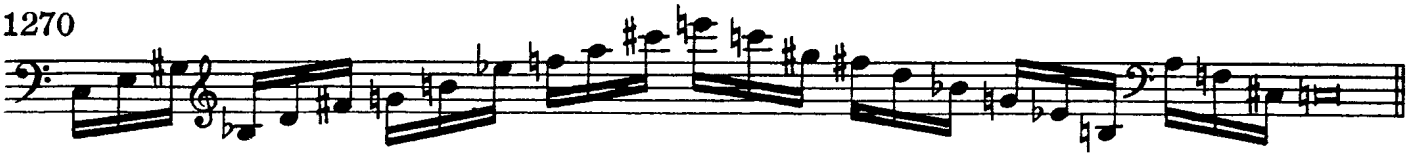


1268

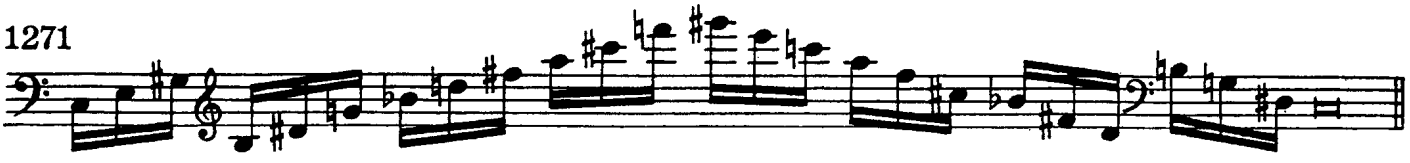


1269

1270



1271

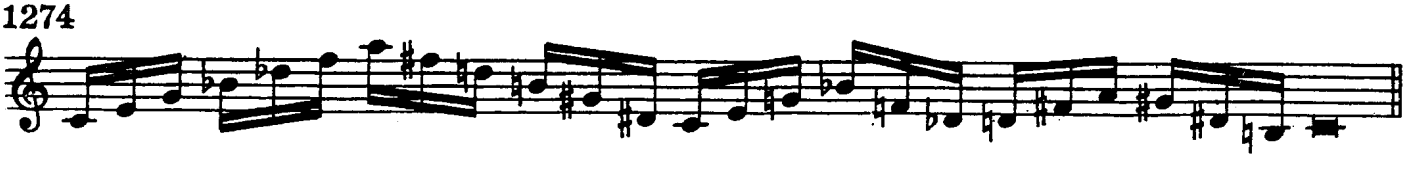


Inversions

1272

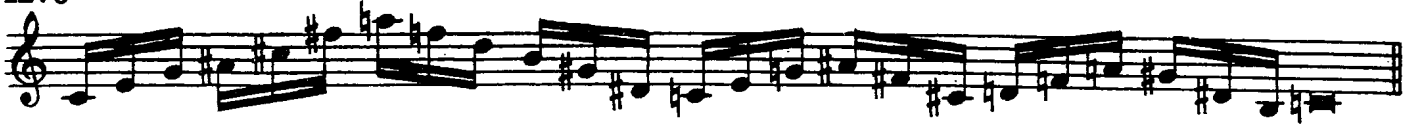
1273

1274

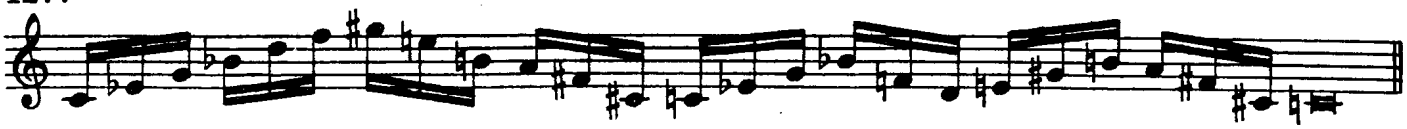


1275

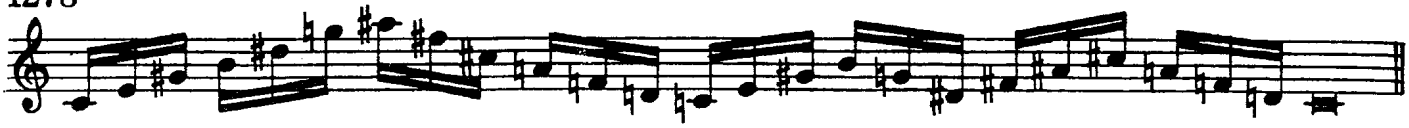
1276



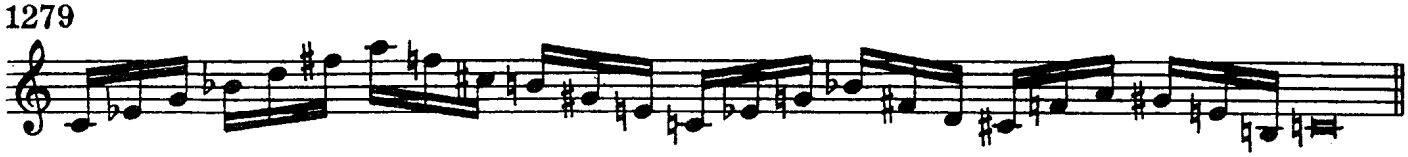
1277



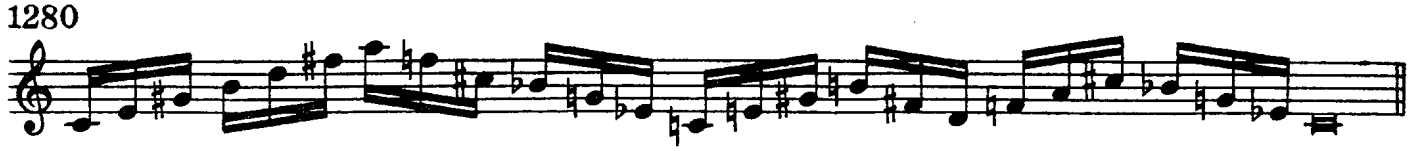
1278



1279

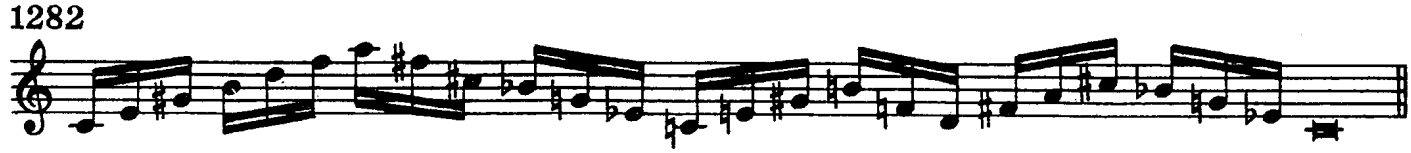


1280

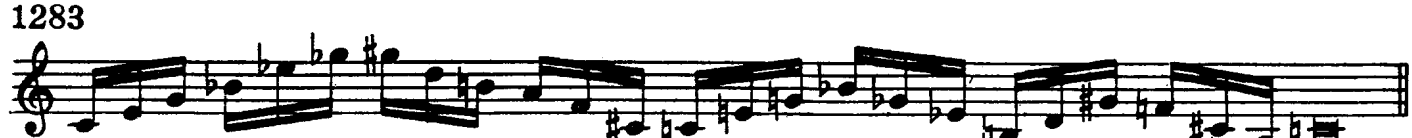


1281

1282



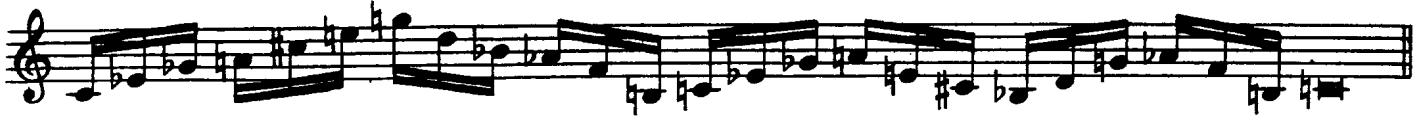
1283



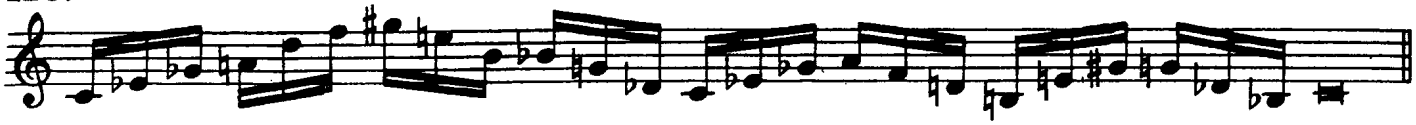
1284

1285

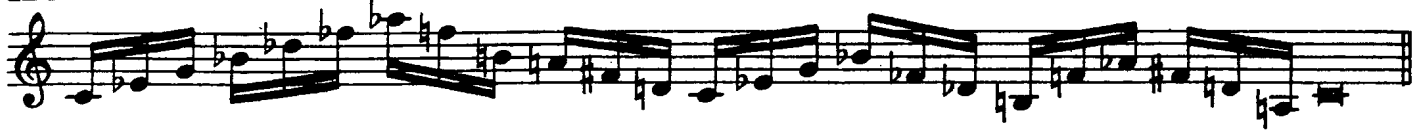
1286



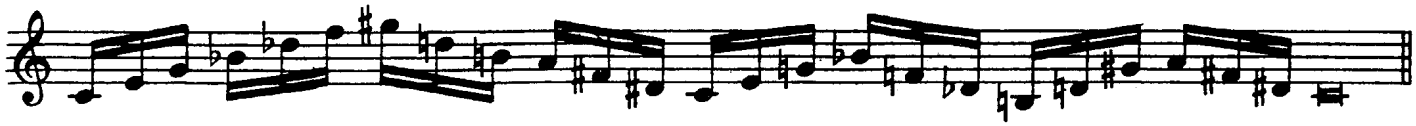
1287



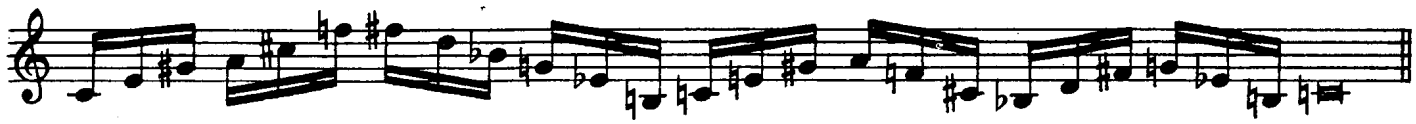
1288



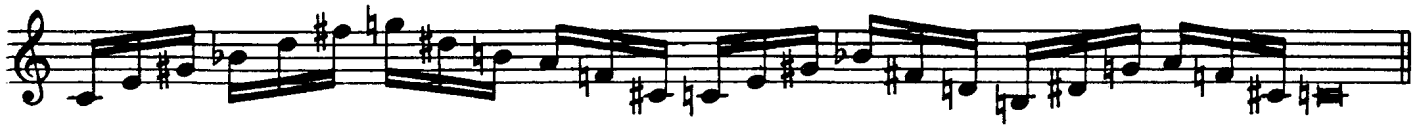
1289



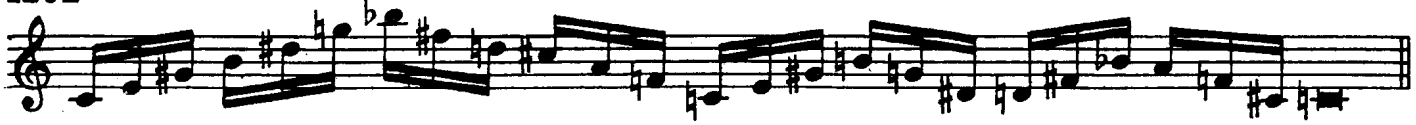
1290



1291

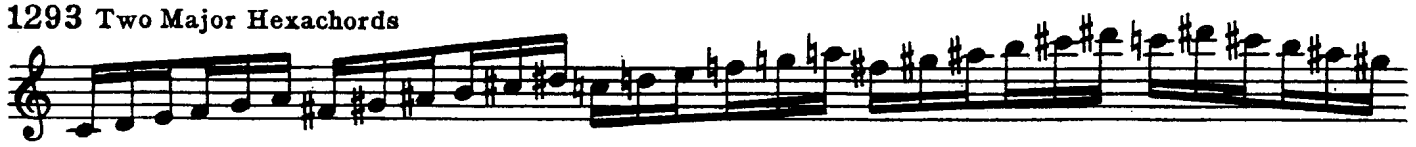


1292

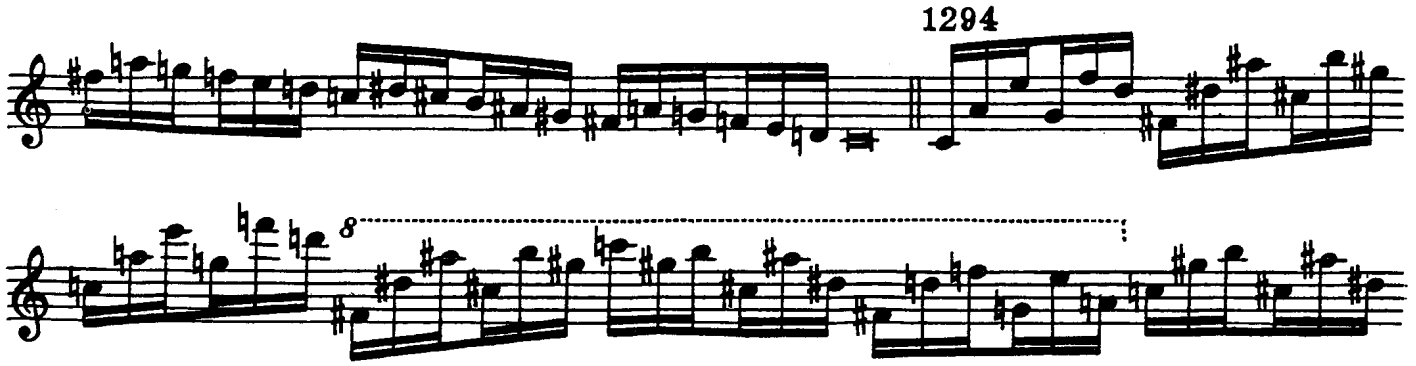


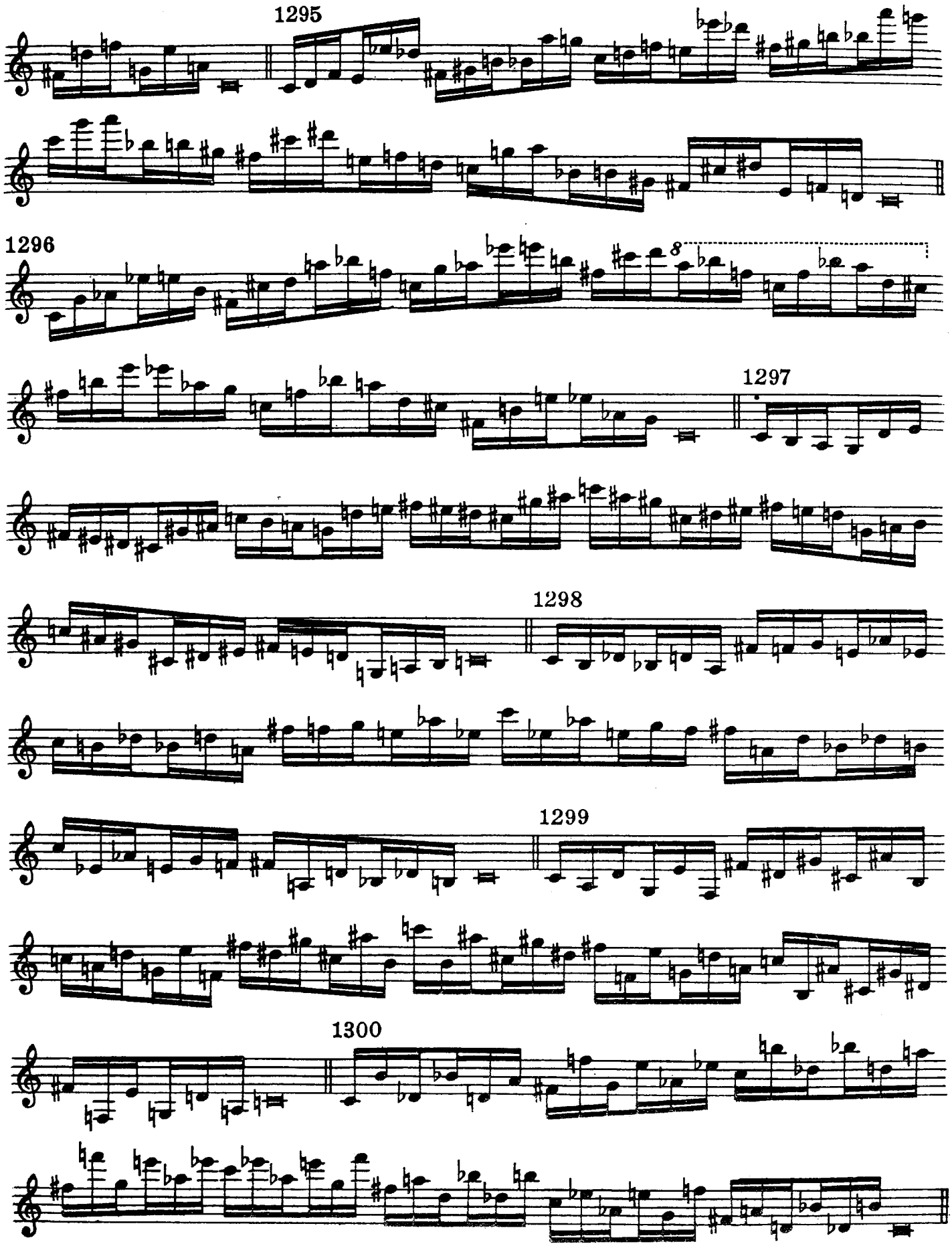
Miscellaneous Dodecaphonic Patterns

1293 **Two Major Hexachords**



1294



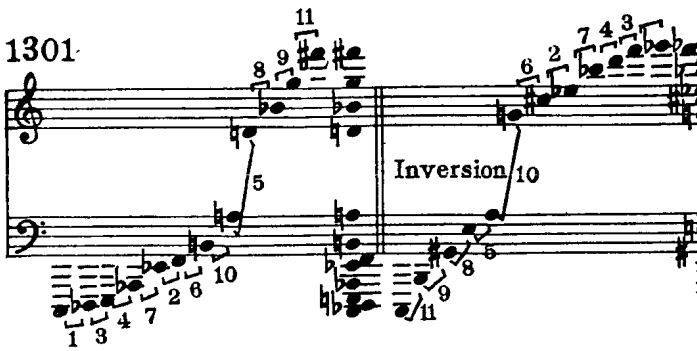

1295
1296
8
1297
1298
1299
1300

Invertible Dodecaphonic Progressions

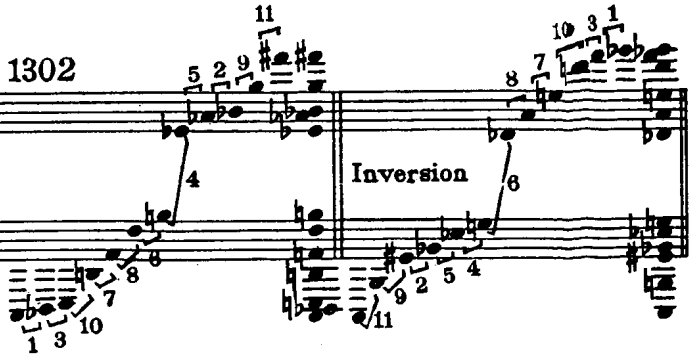
With All Different Intervals

(Figures indicate number of semitones)

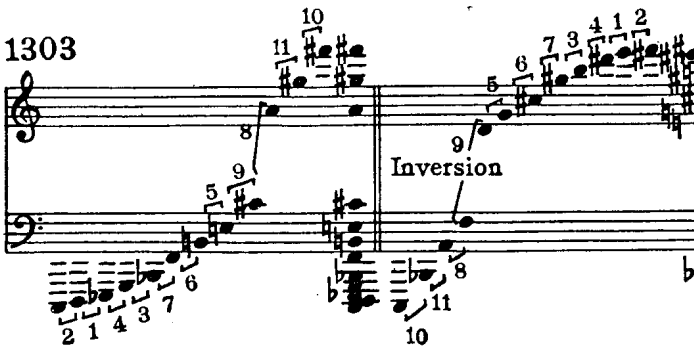
1301



1302

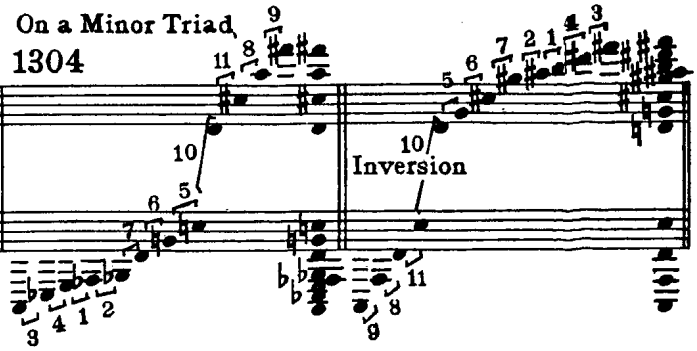


1303



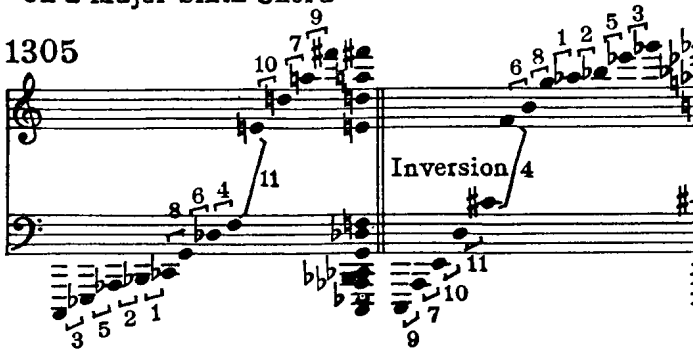
On a Minor Triad

1304



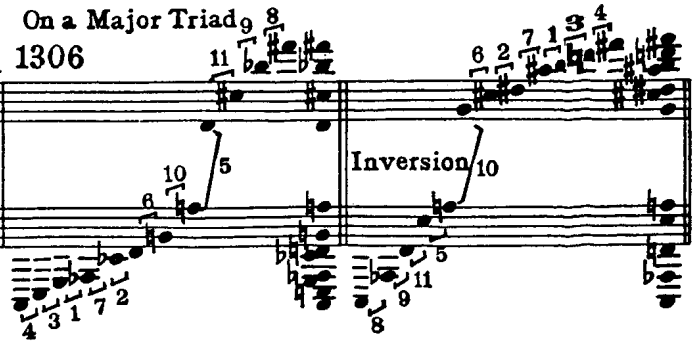
On a Major Sixth-Chord

1305



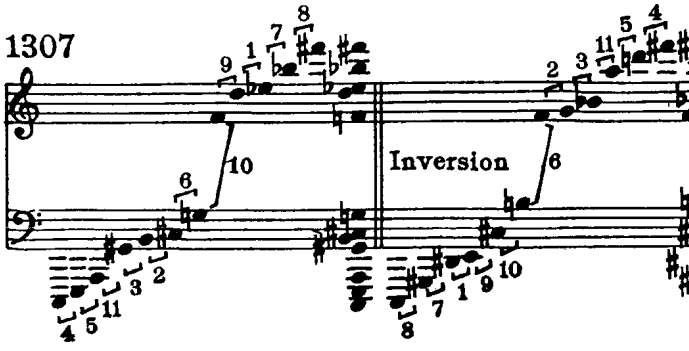
On a Major Triad

1306



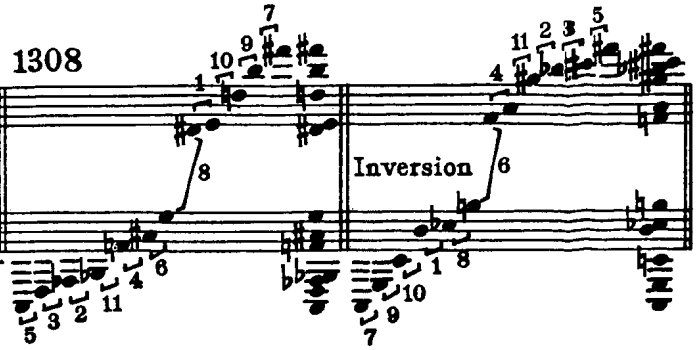
On a Minor Sixth-Chord

1307



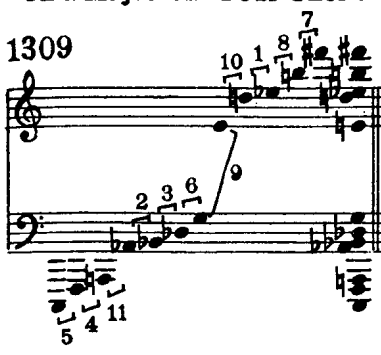
On a Minor Six-Four Chord

1308

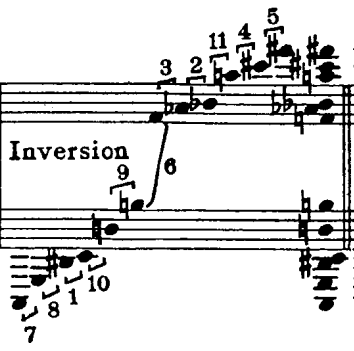


On a Major Six-Four Chord

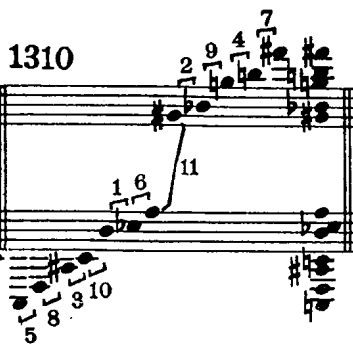
1309



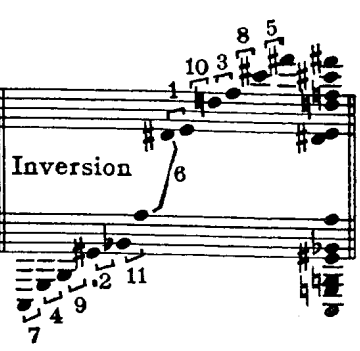
Inversion



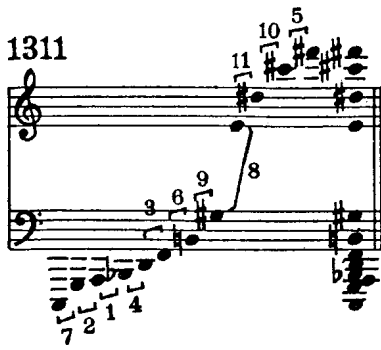
1310



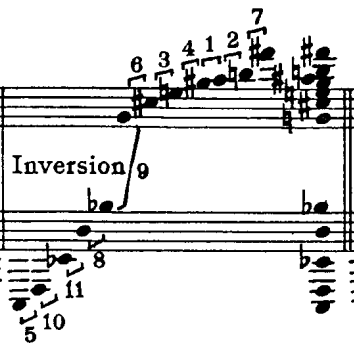
Inversion



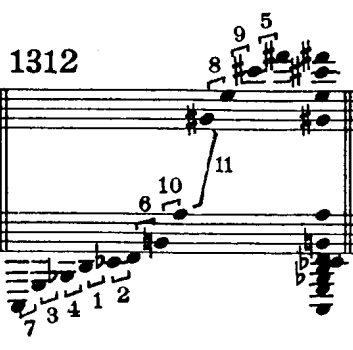
1311



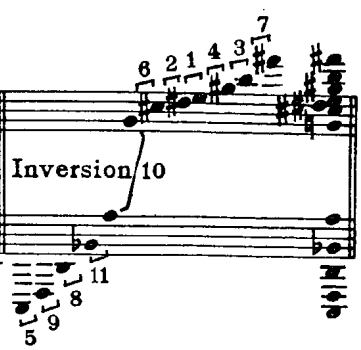
Inversion



1312

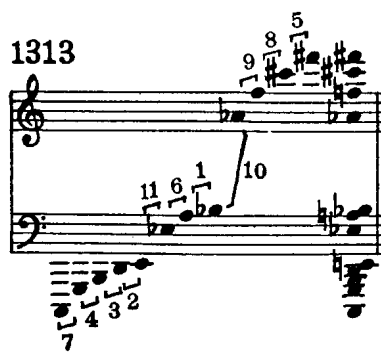


Inversion

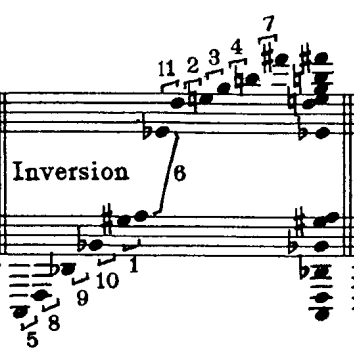


White-Key Row of Six Notes

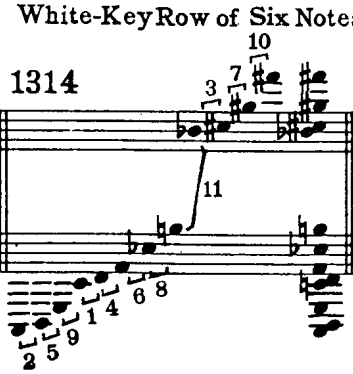
1313



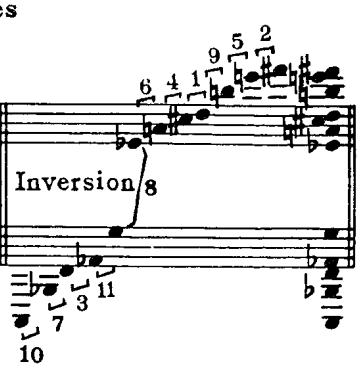
Inversion



1314

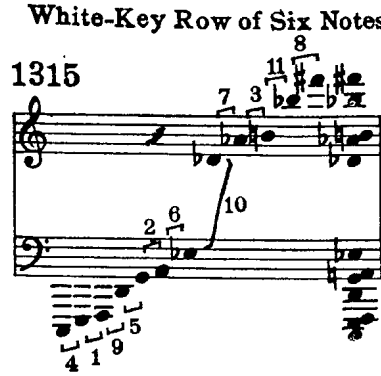


Inversion

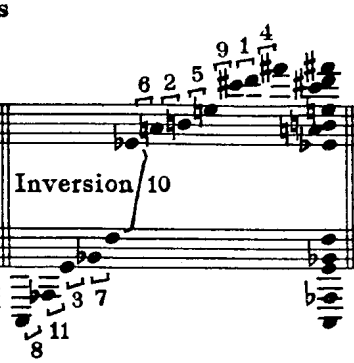


White-Key Row of Six Notes

1315

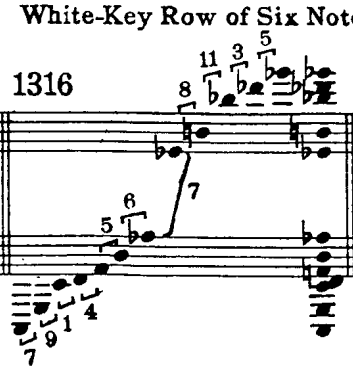


Inversion

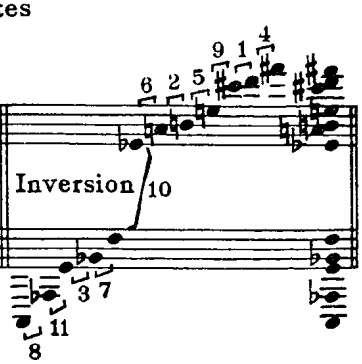


White-Key Row of Six Notes

1316

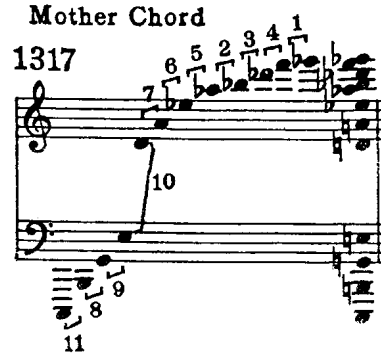


Inversion

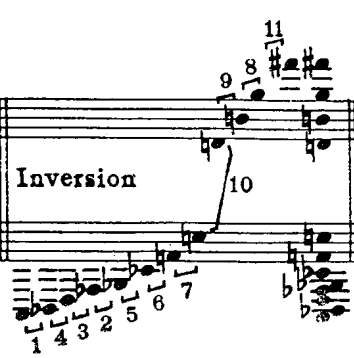


Mother Chord

1317

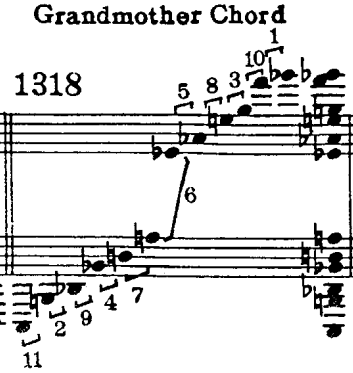


Inversion

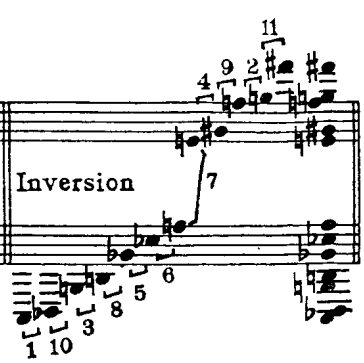


Grandmother Chord

1318



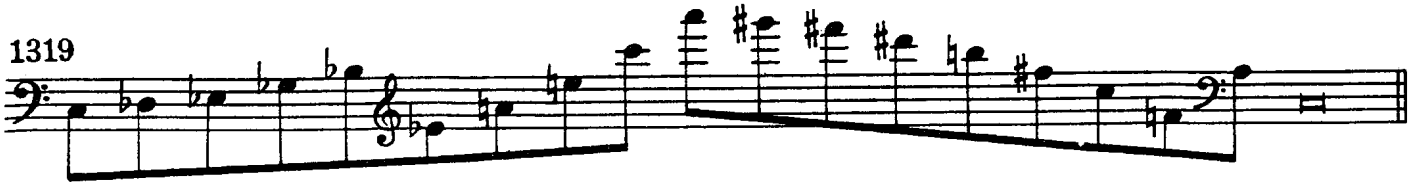
Inversion



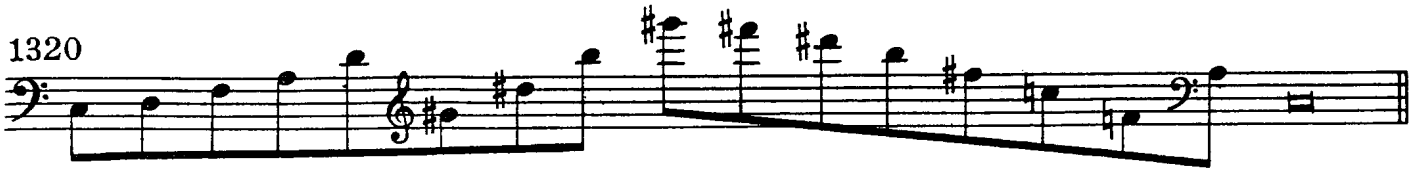
Intervallic Series

Increasing and Diminishing Intervals

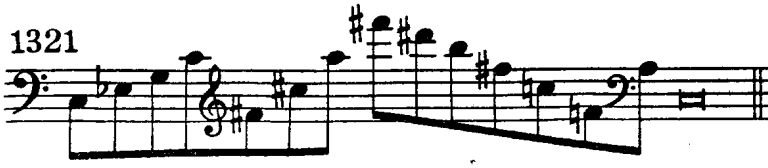
1319



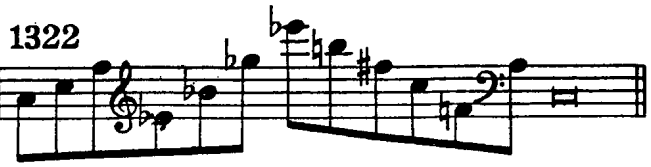
1320



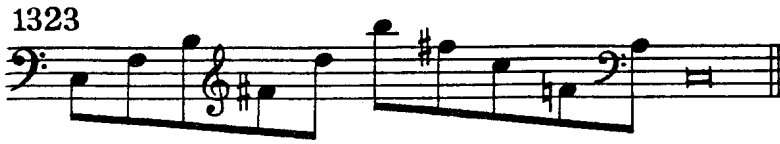
1321



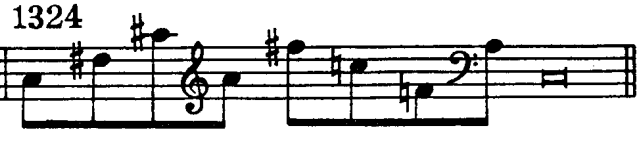
1322



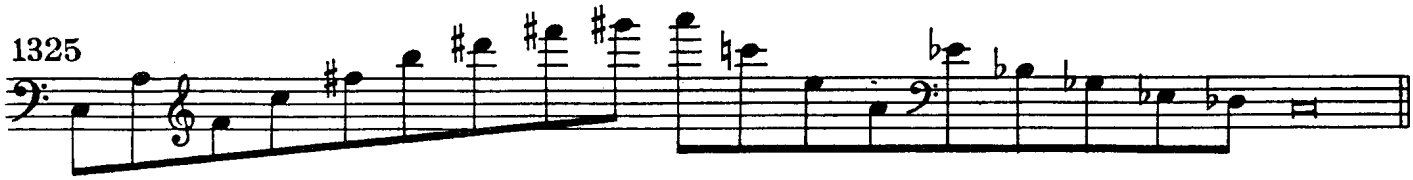
1323



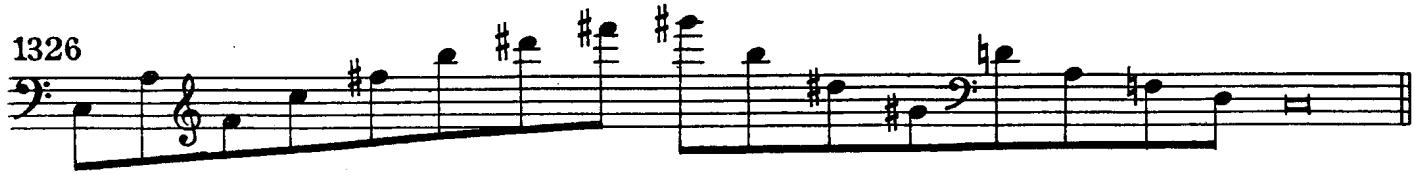
1324



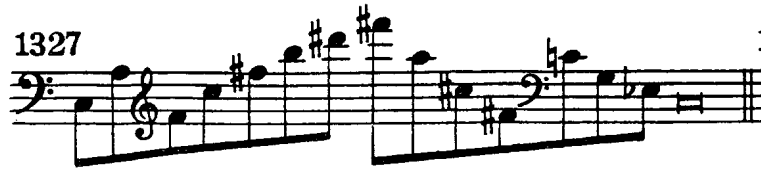
1325



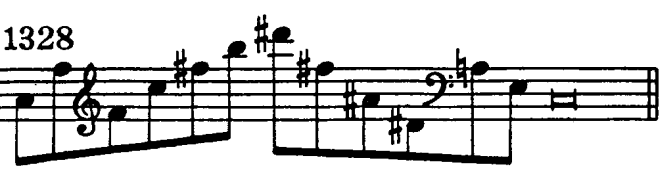
1326



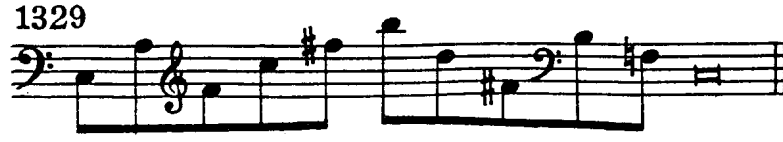
1327



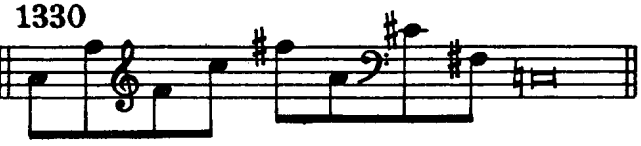
1328



1329

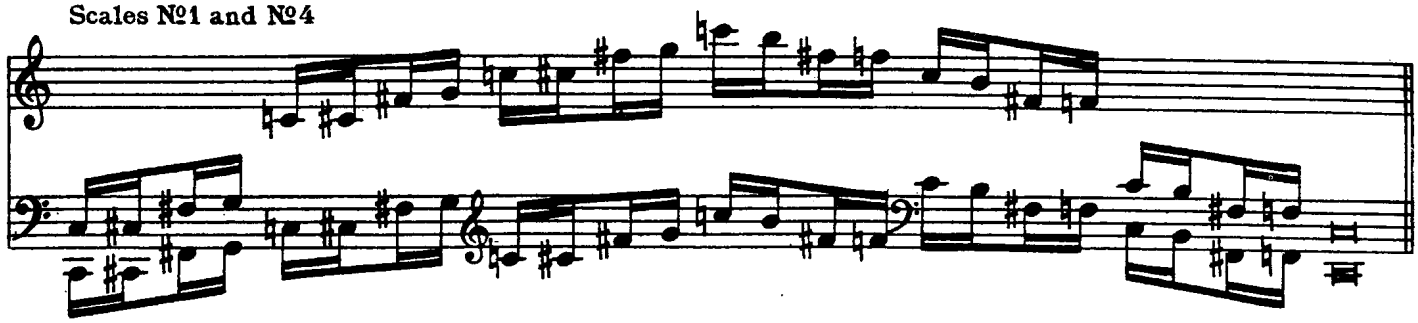


1330

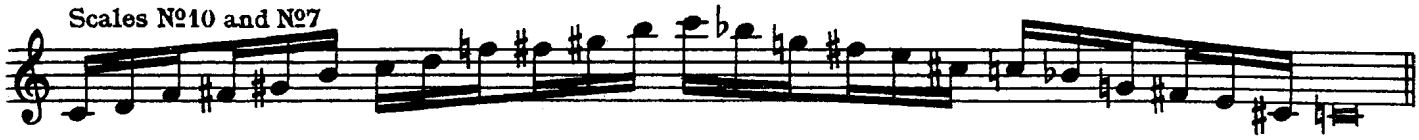


Mirror Interval Progressions

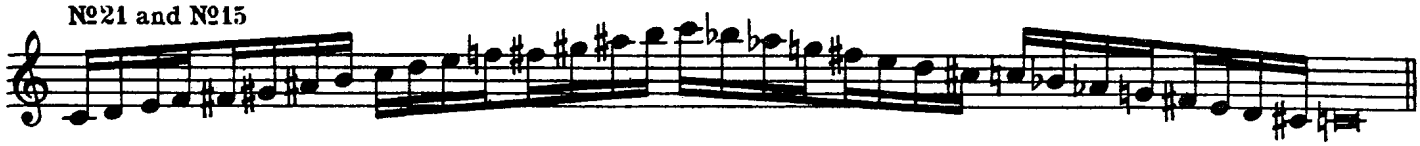
Scales №1 and №4



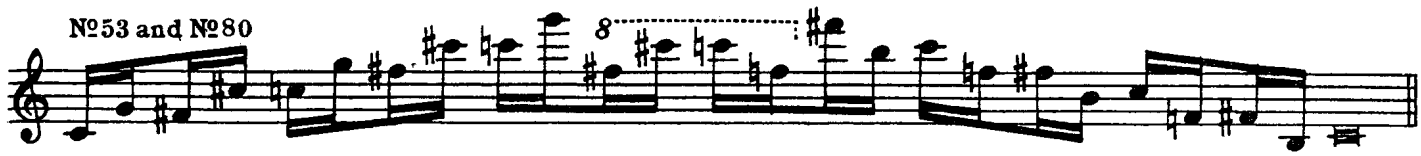
Scales №10 and №7



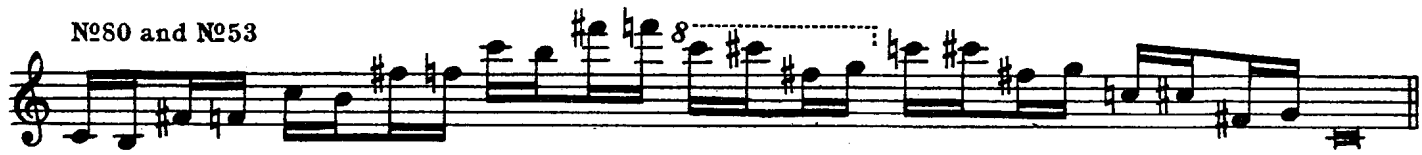
№21 and №15



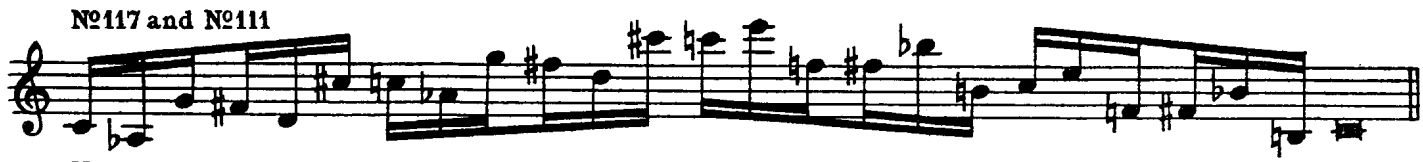
№53 and №80



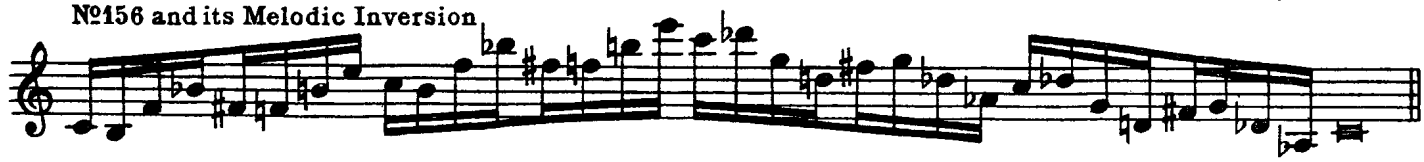
№80 and №53



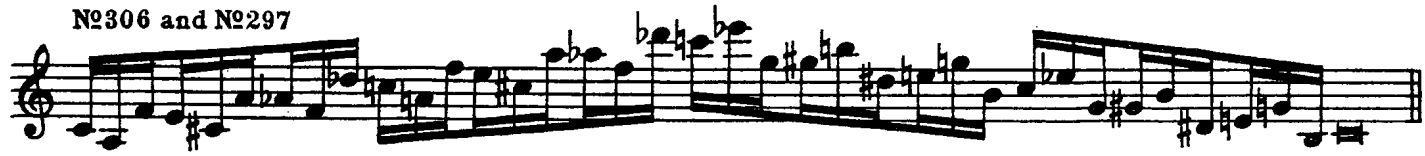
№117 and №111



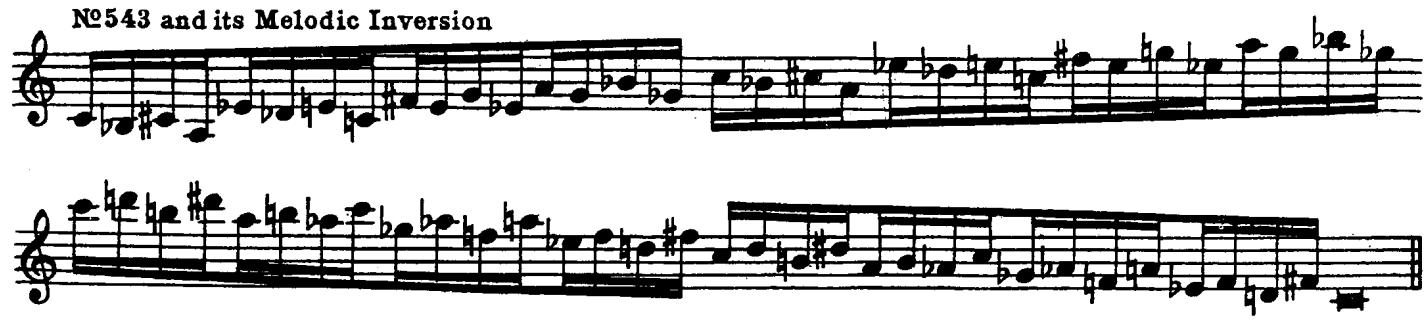
№156 and its Melodic Inversion



№306 and №297

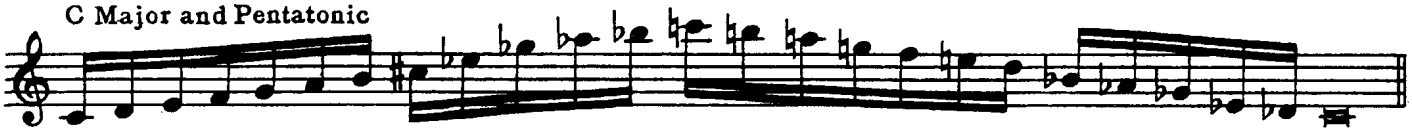


№543 and its Melodic Inversion

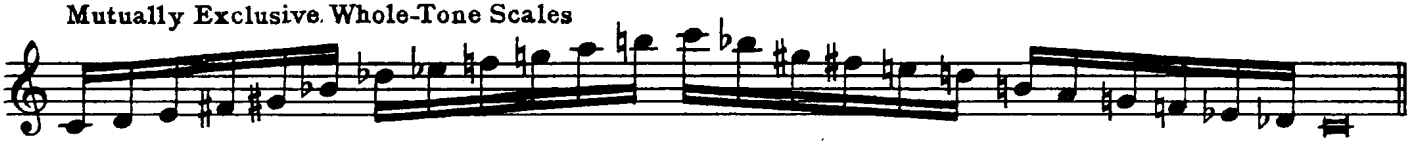


Complementary Scales

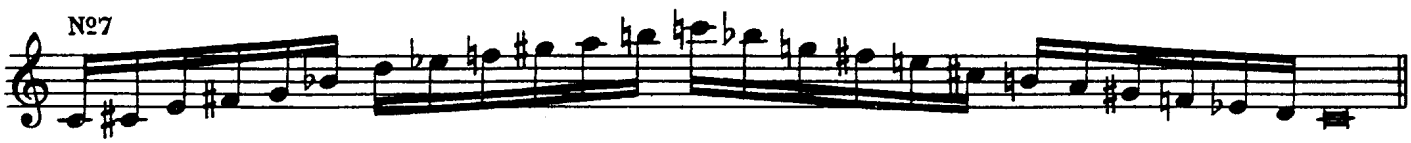
C Major and Pentatonic



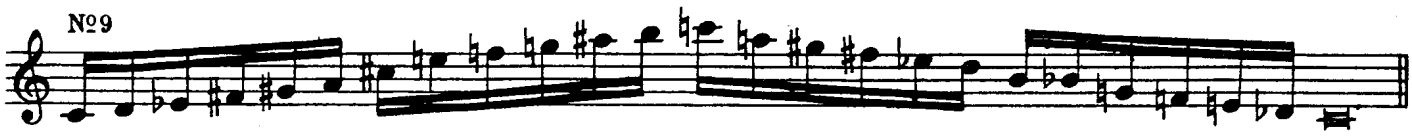
Mutually Exclusive Whole-Tone Scales



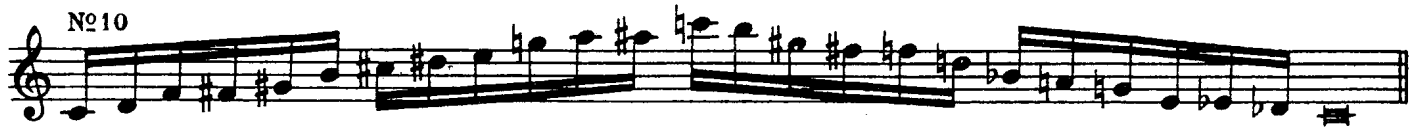
№7



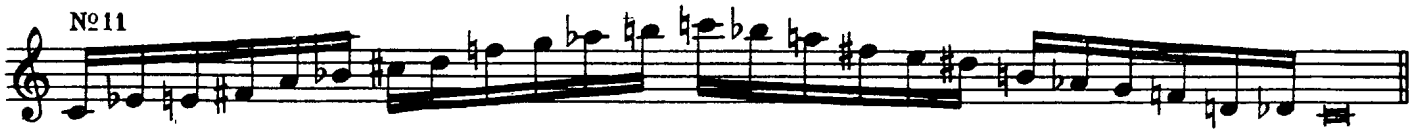
№9



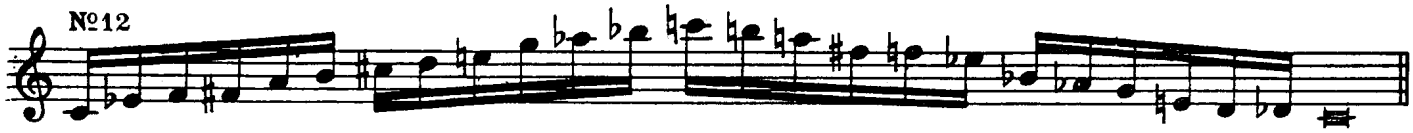
№10



№11

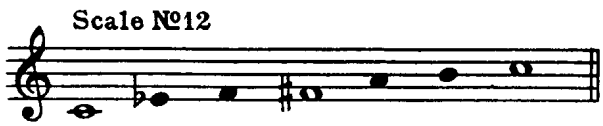


№12

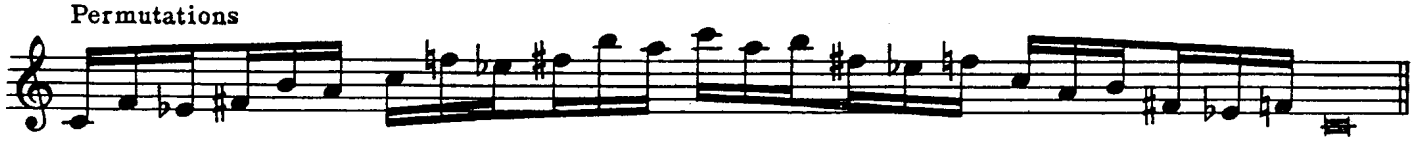


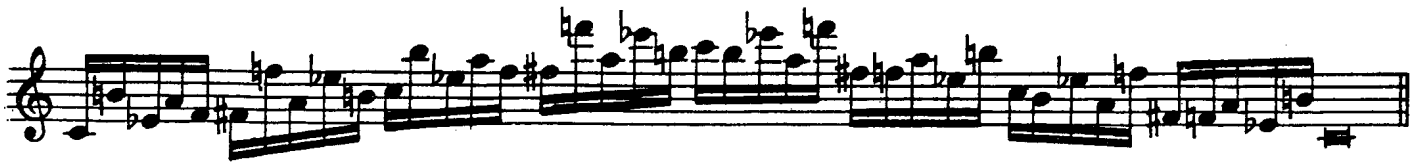
Permutations

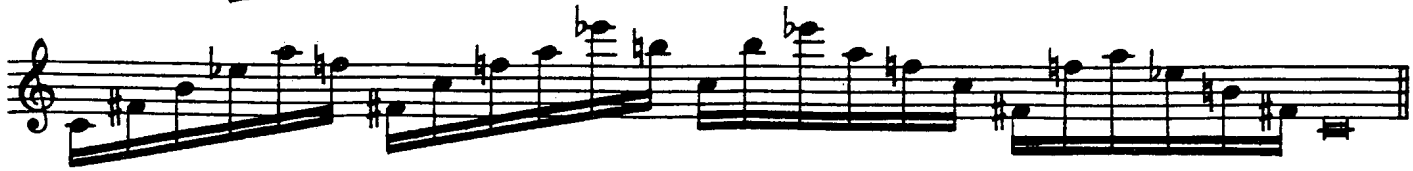
Scale №12

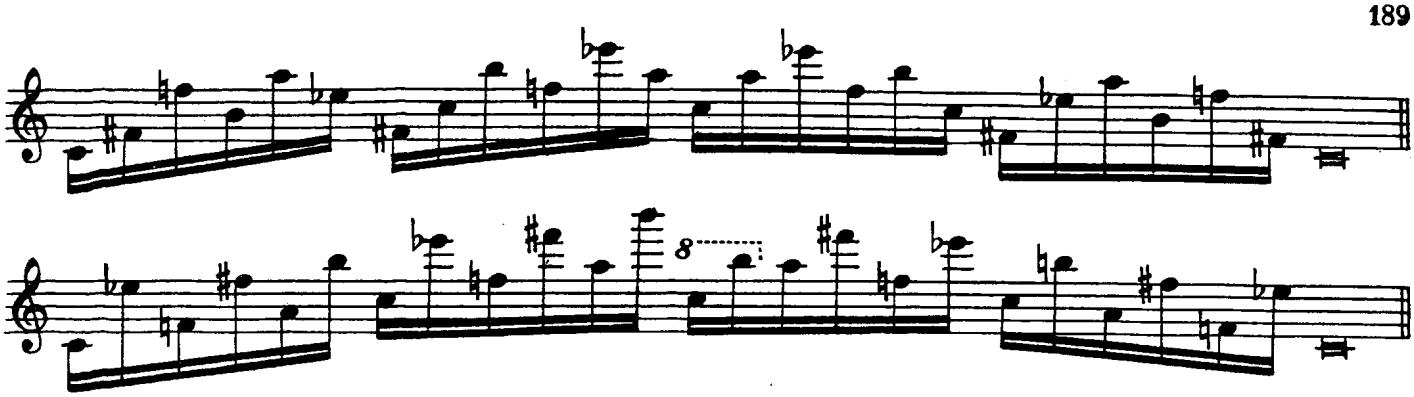


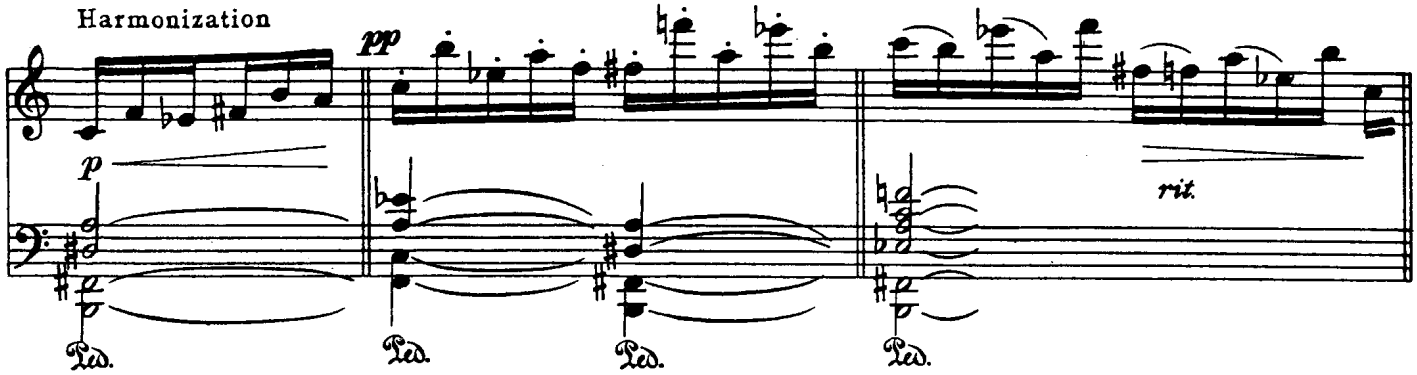
Permutations

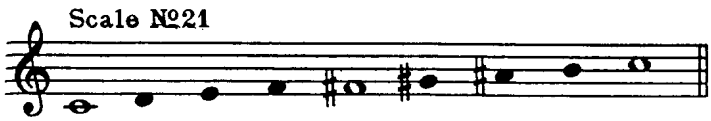


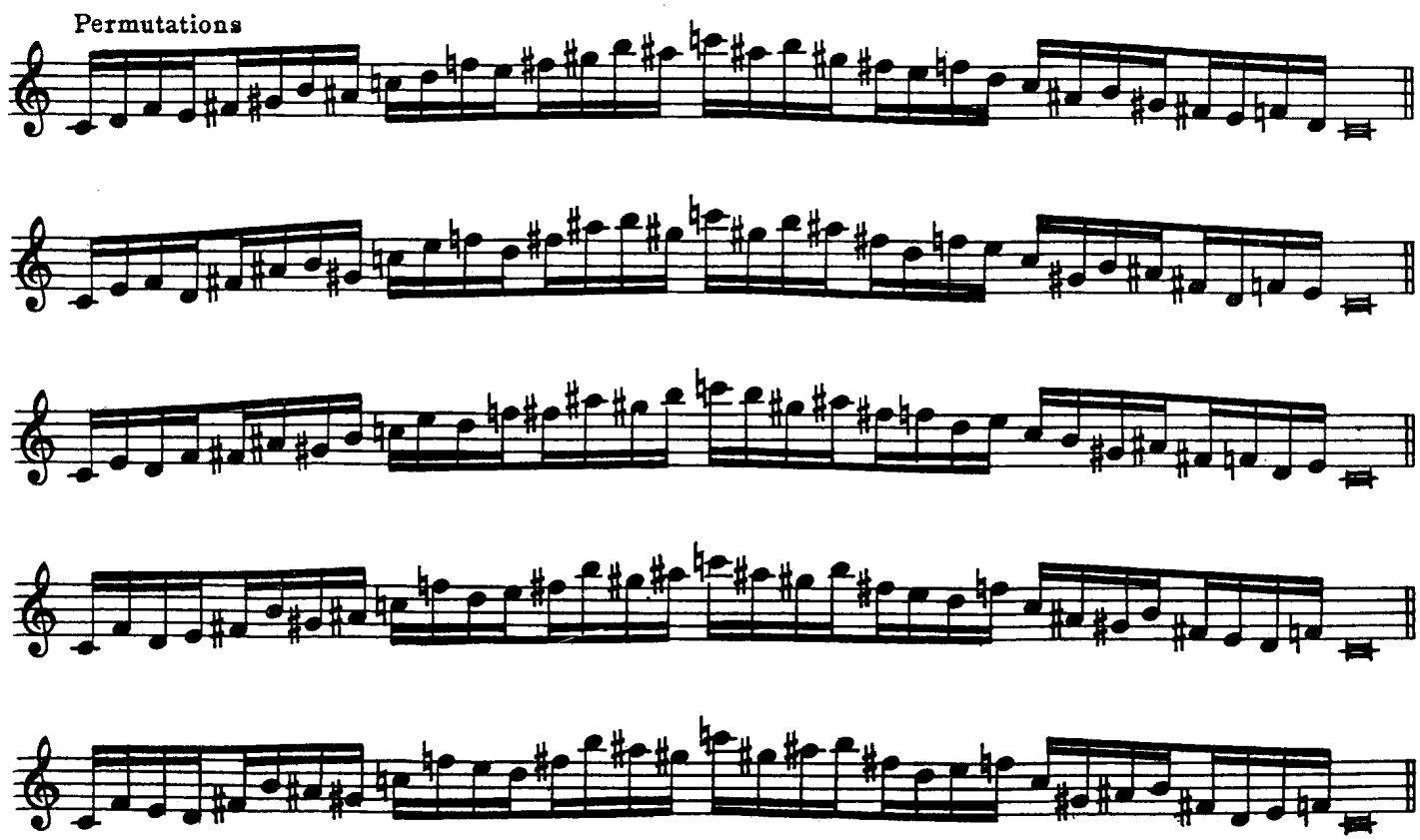




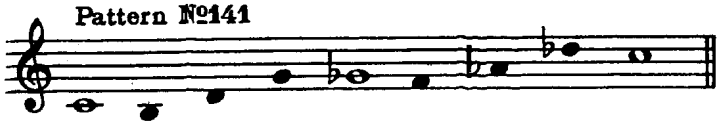



Harmonization
pp
p
rit.
Ped.
Ped.
Ped.
Ped.

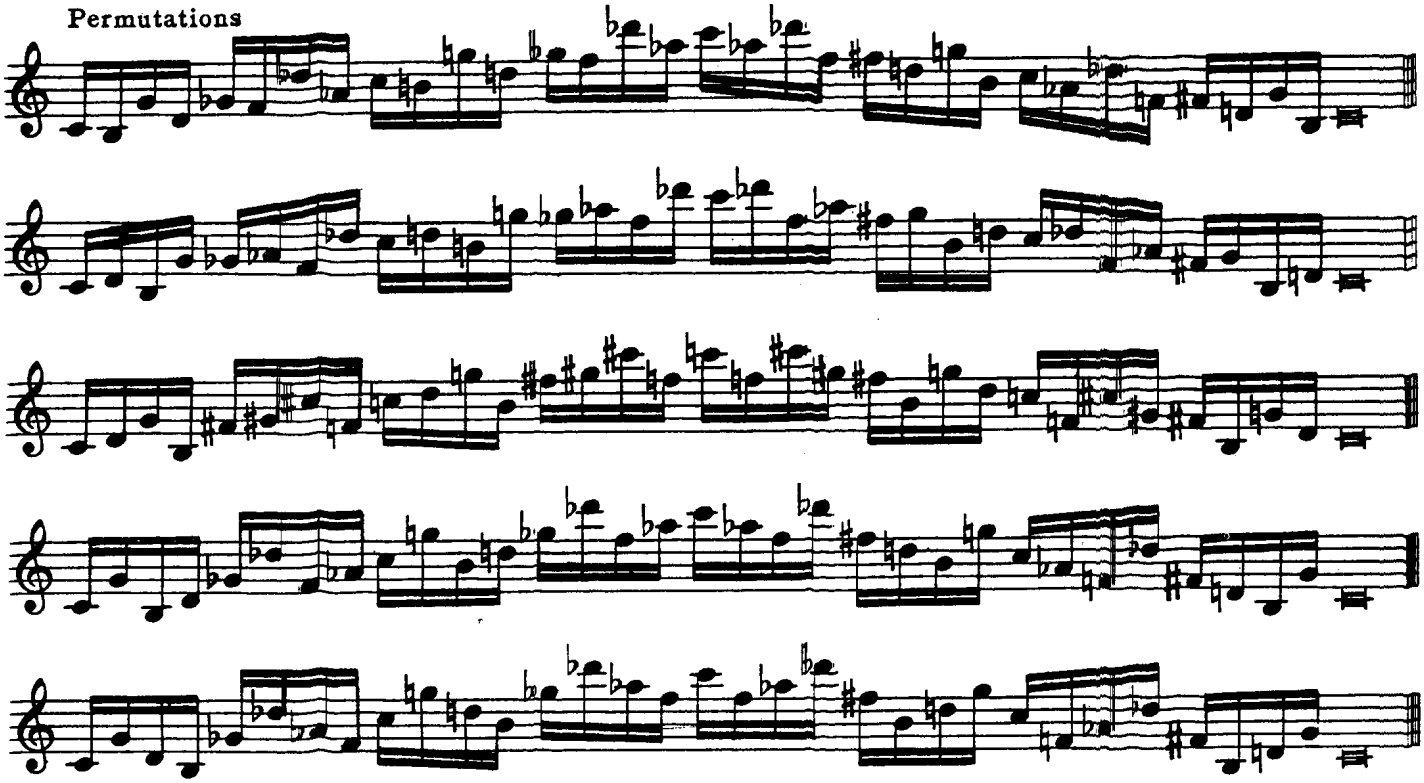

Scale №21


Permutations

Pattern №141



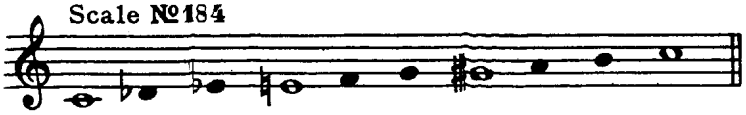
Permutations



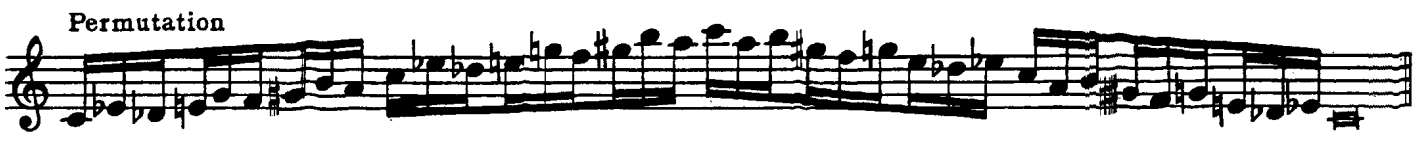
Scale №183

Permutation

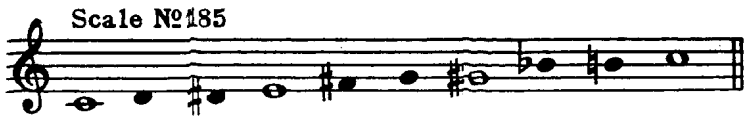
Scale №184



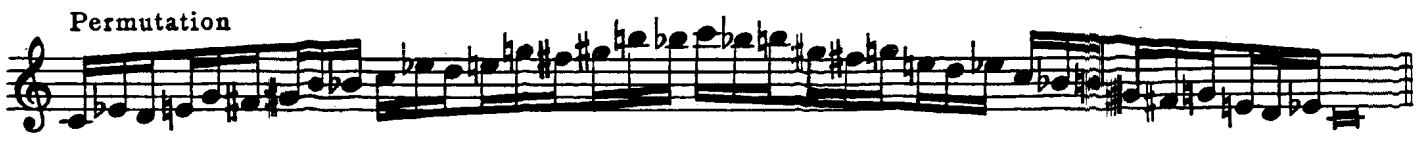
Permutation



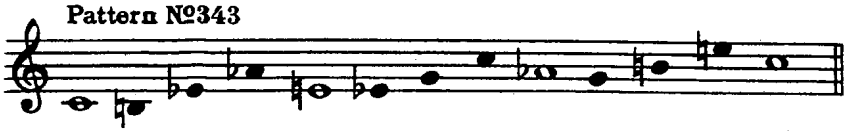
Scale №185



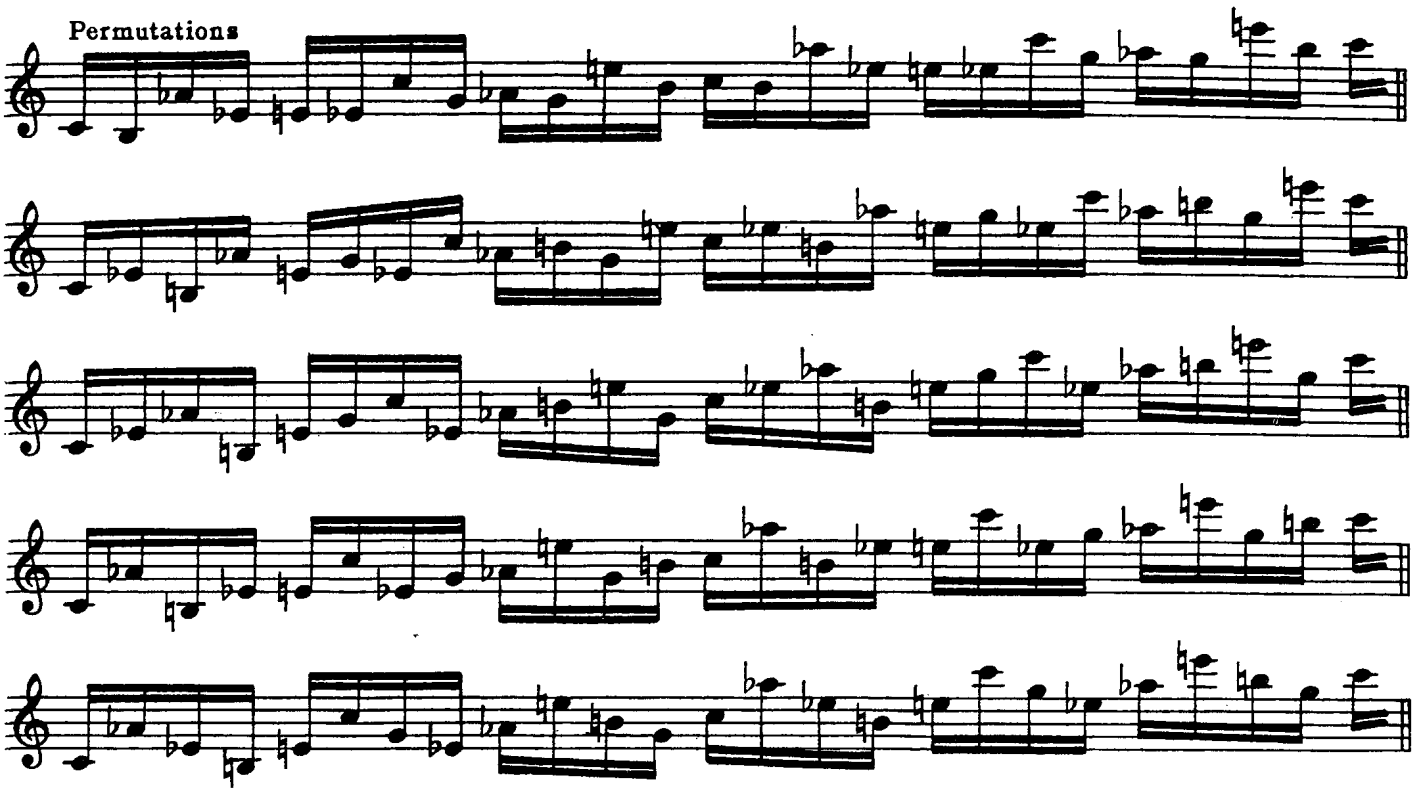
Permutation



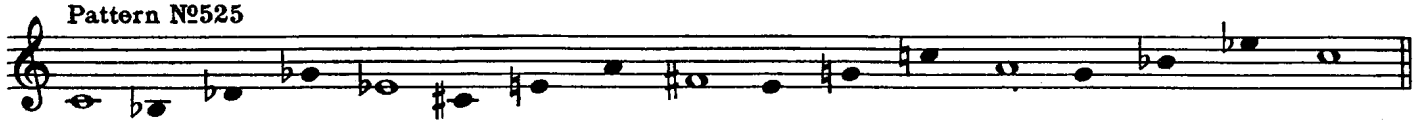
Pattern №343



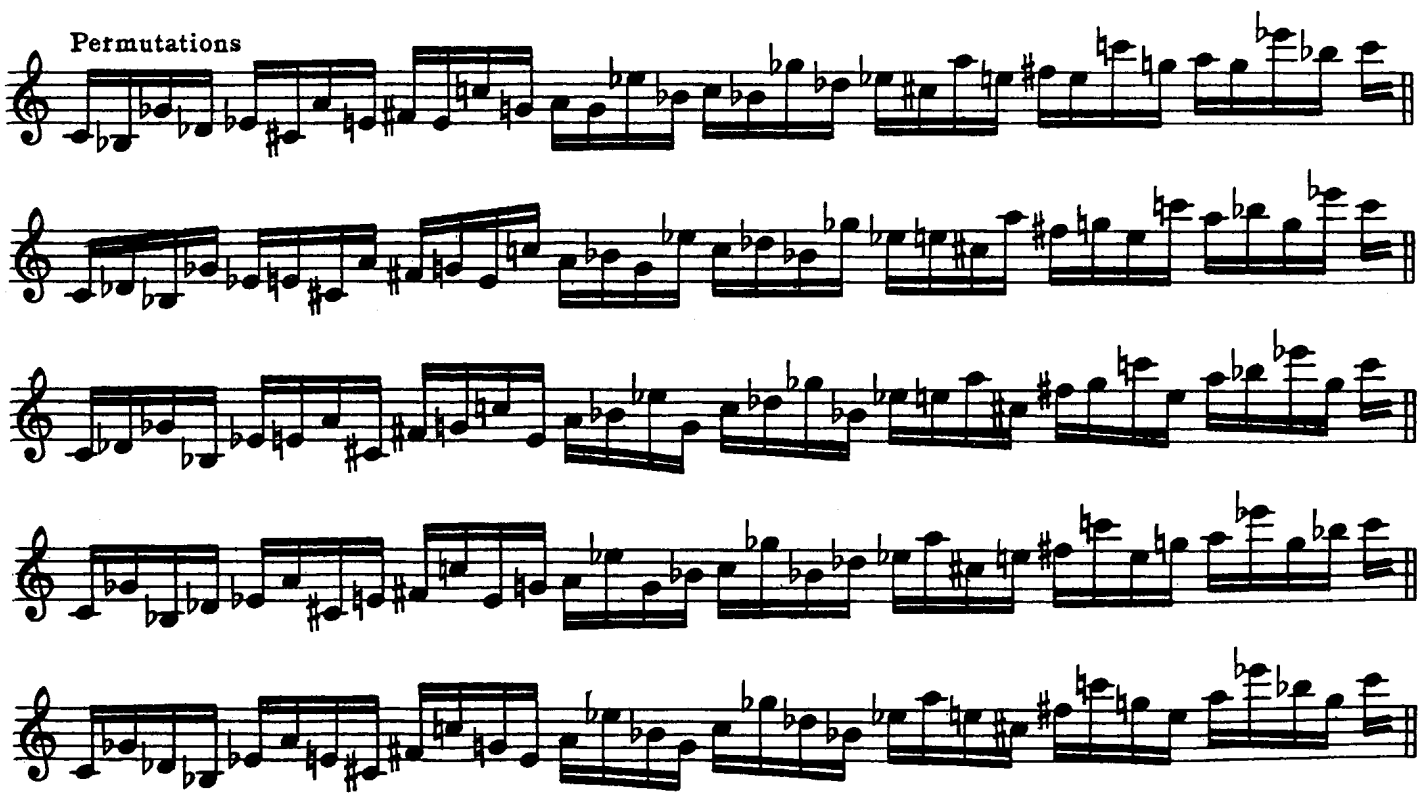
Permutations



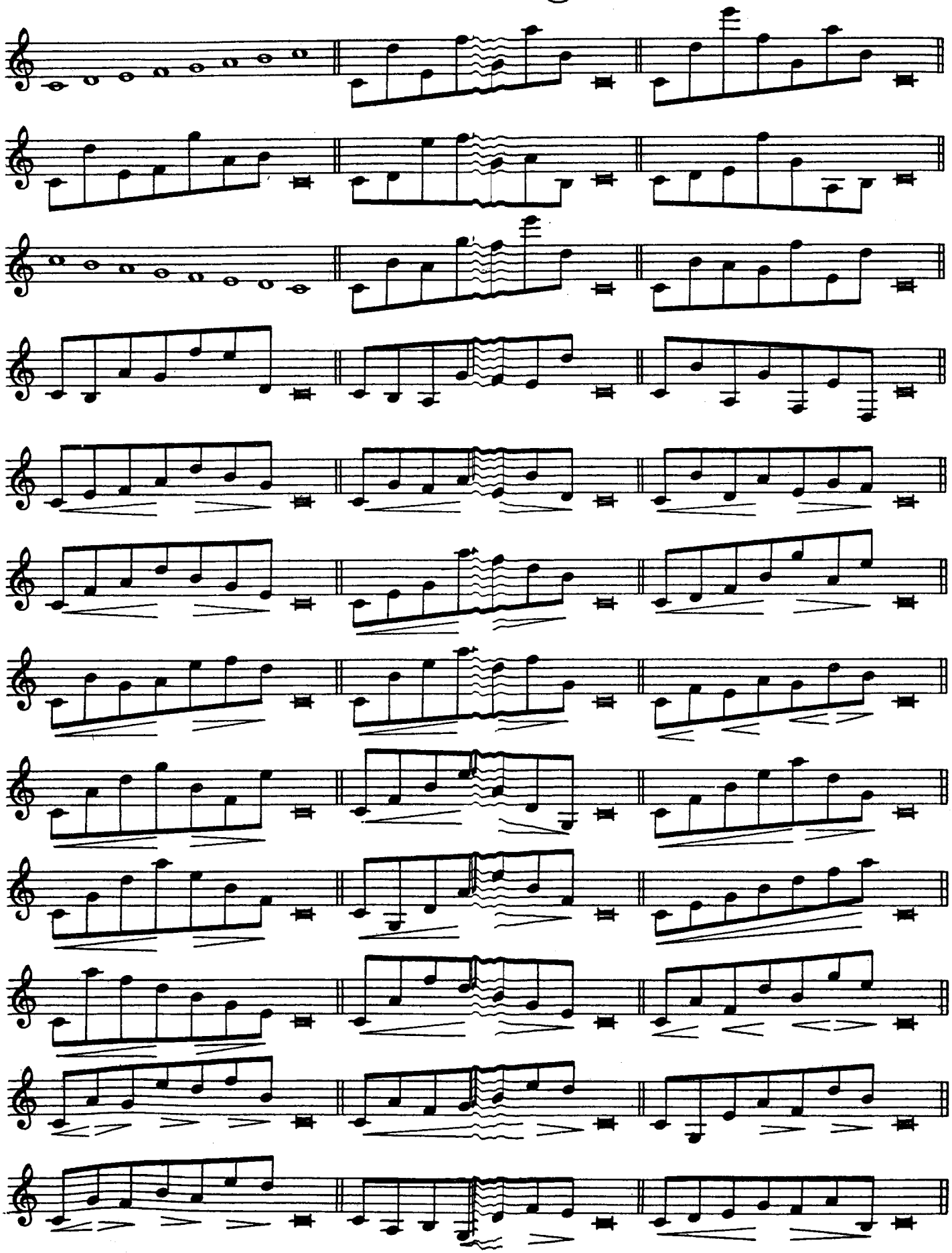
Pattern №525

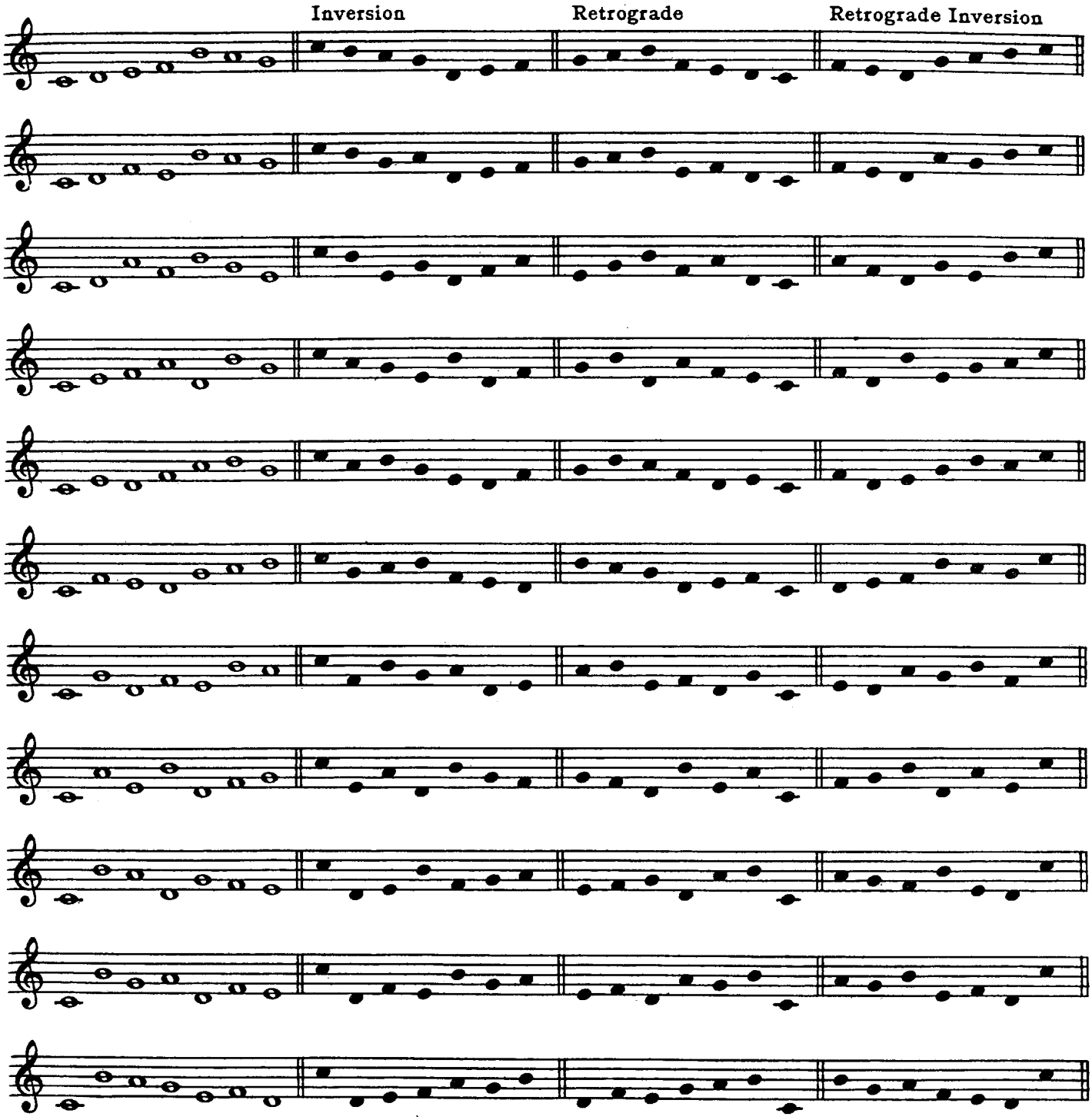


Permutations

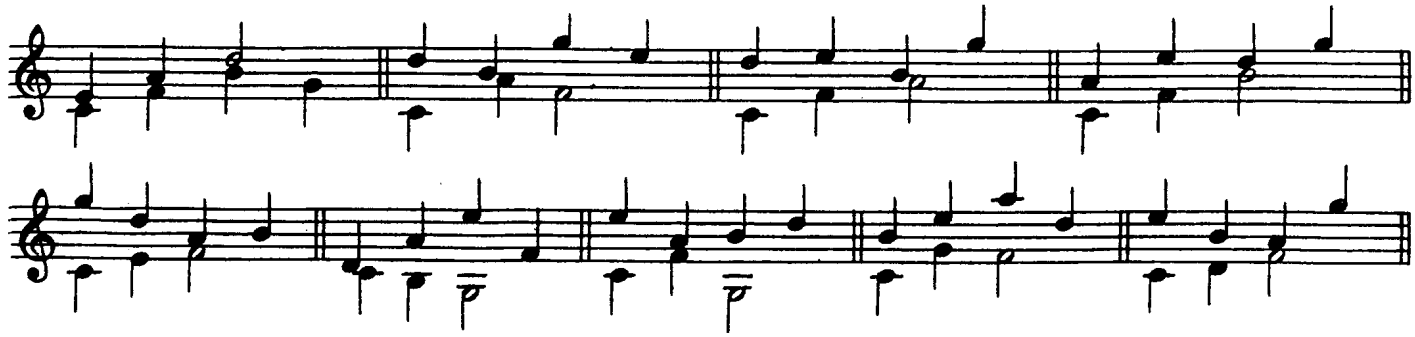


Pandiatonic Progressions

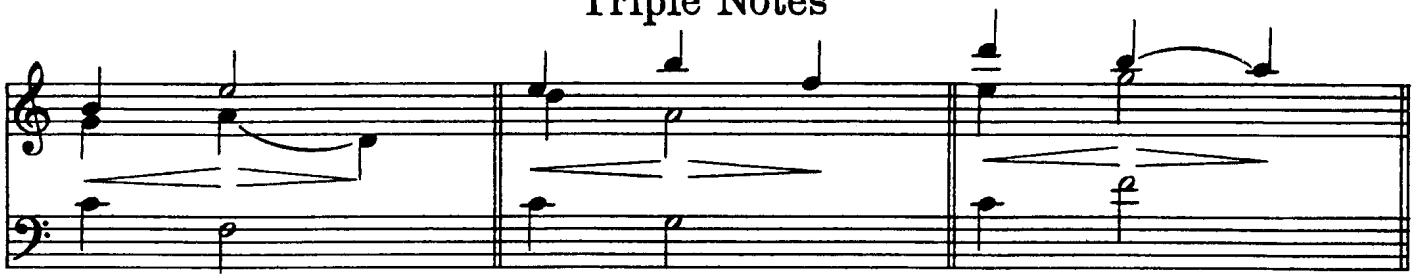




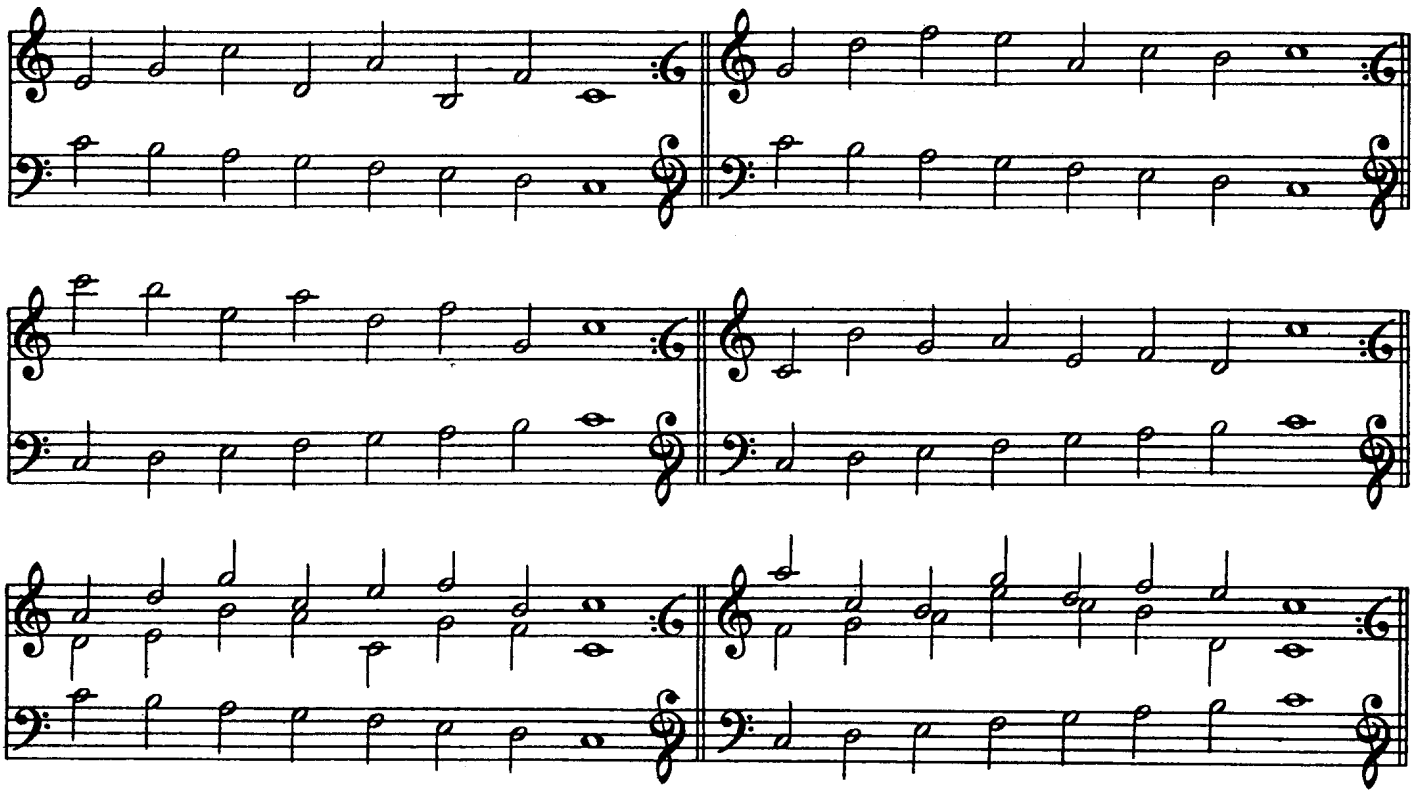
Double Notes



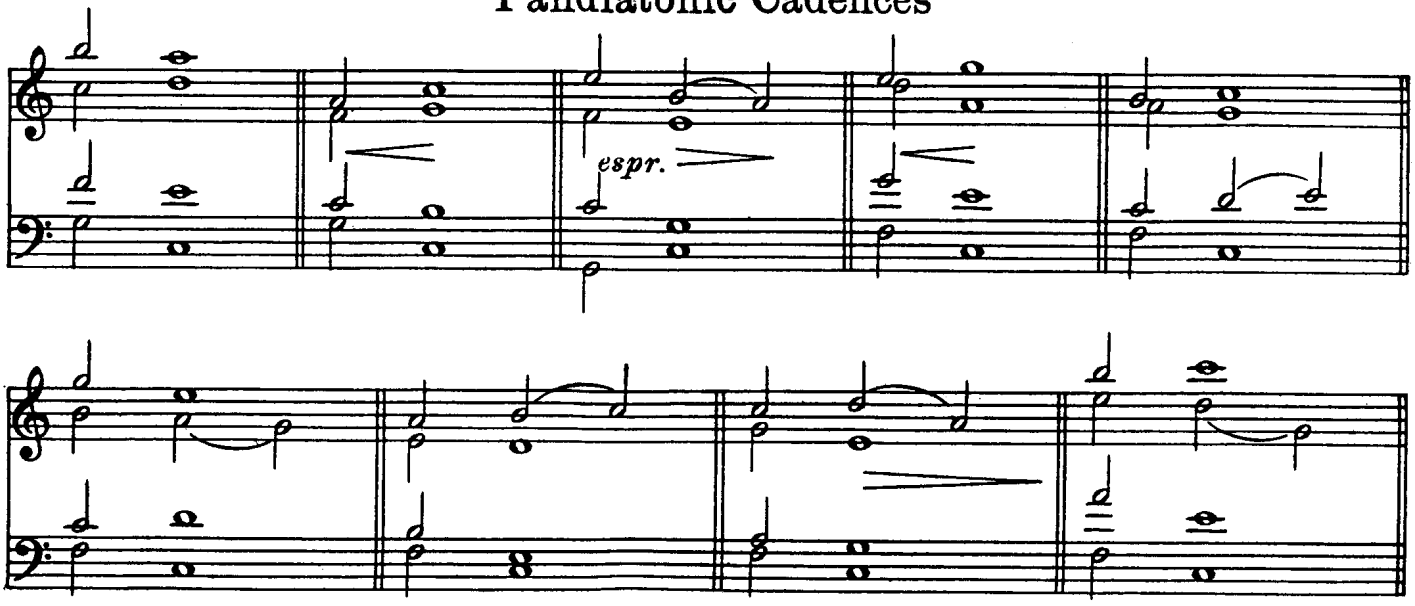
Triple Notes



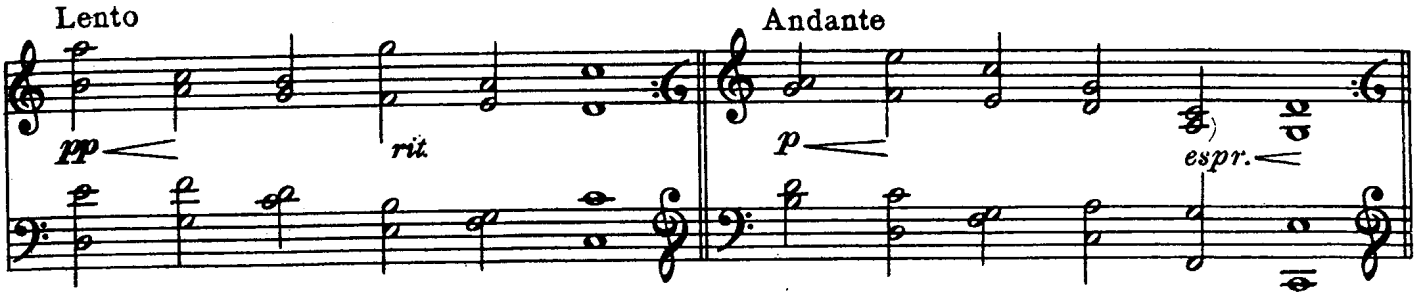
Pandiatonic Counterpoint

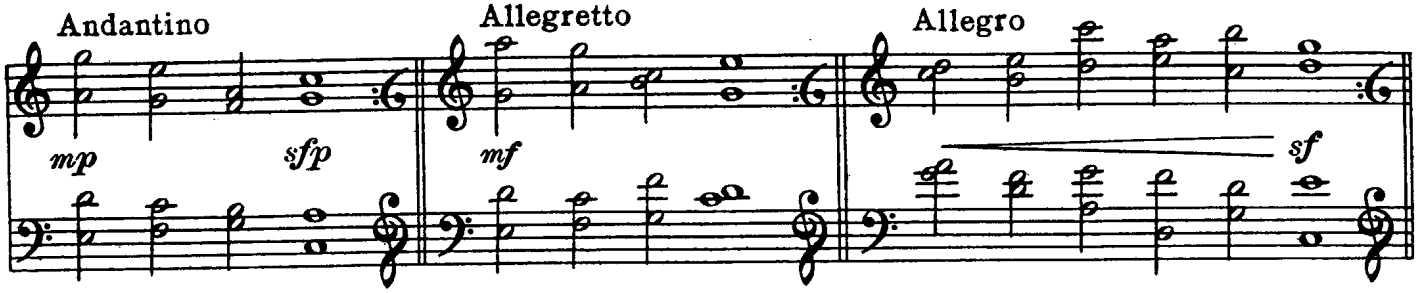


Pandiatonic Cadences

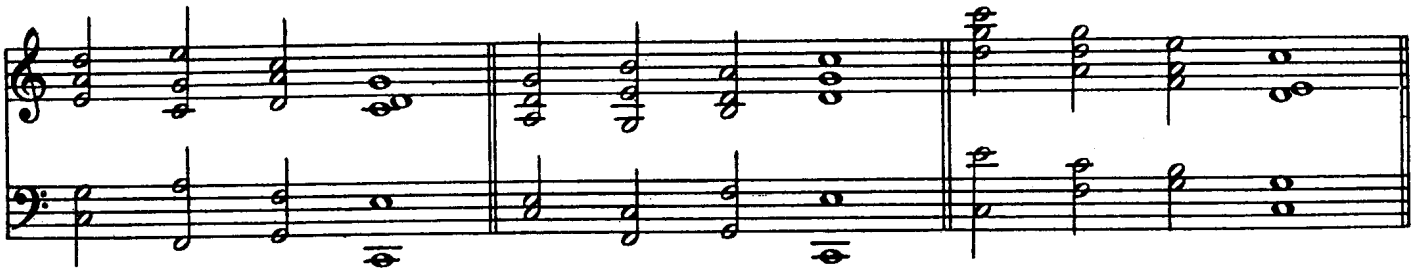


Pandiatonic Harmony in Four Parts

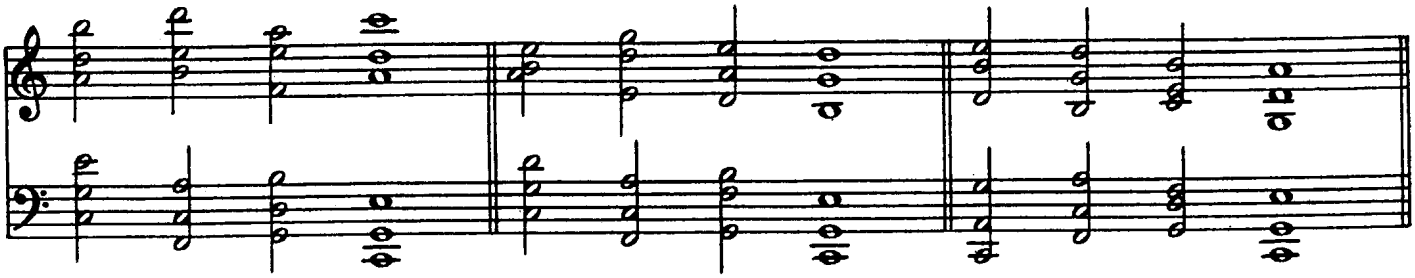




Pandiatonic Harmony in Five Parts

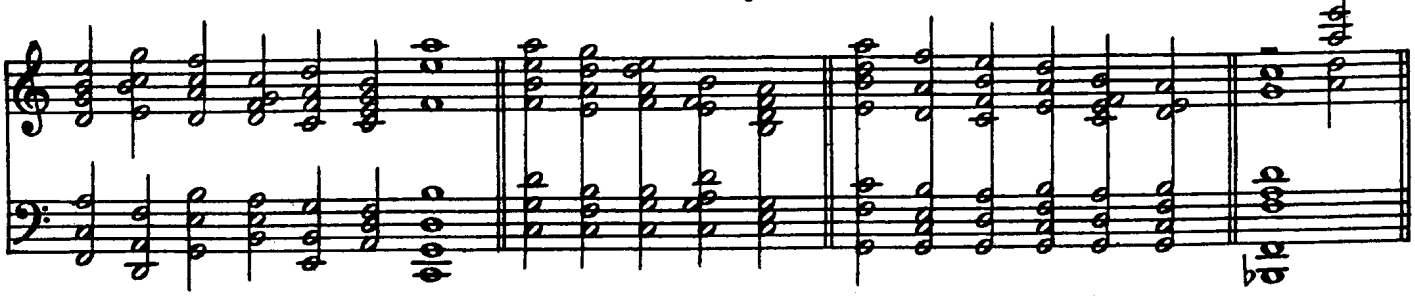


Pandiatonic Harmony in Six Parts



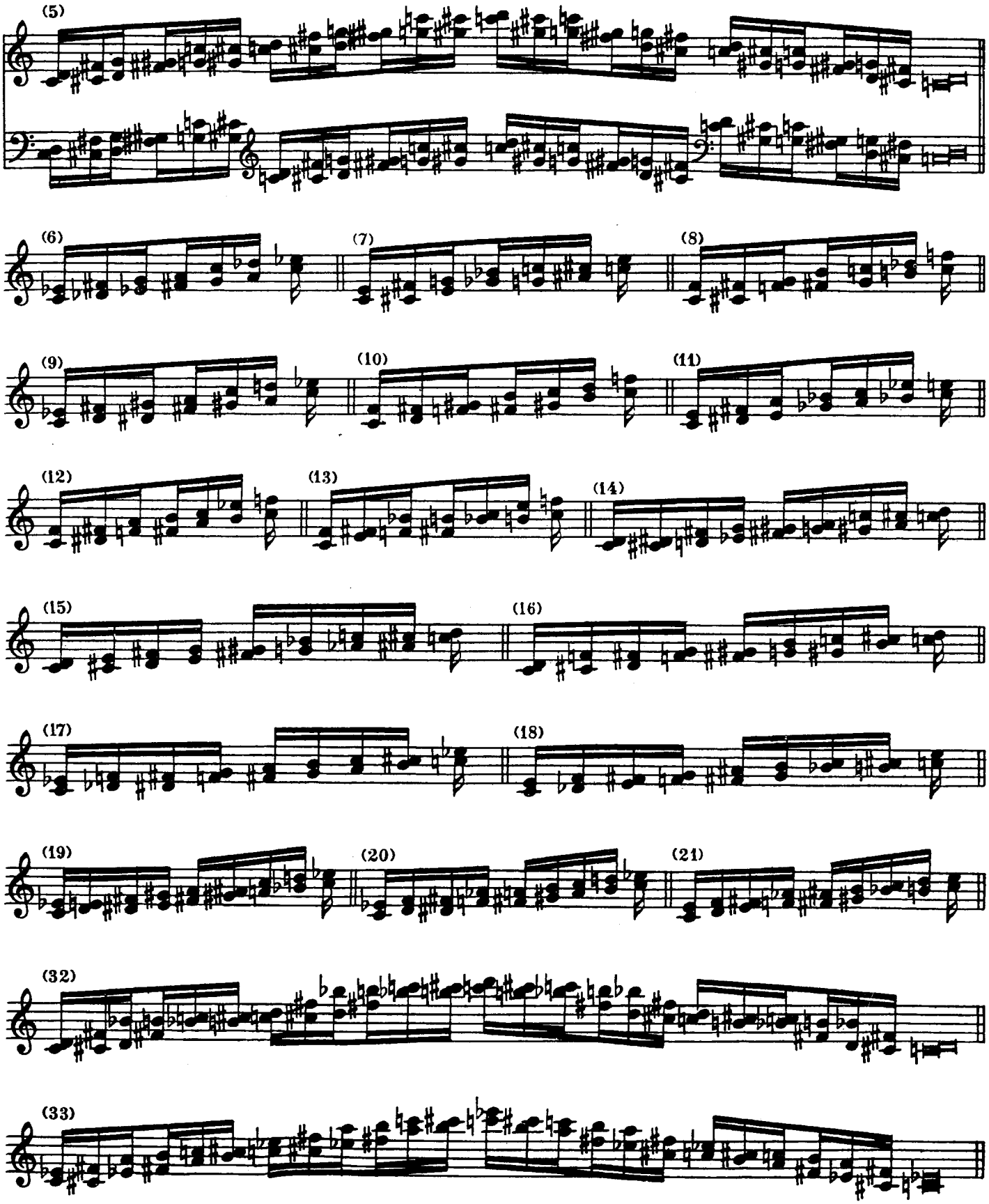
Pandiatonic Harmony in Seven Parts

[Roy Harris: *Slumber*]

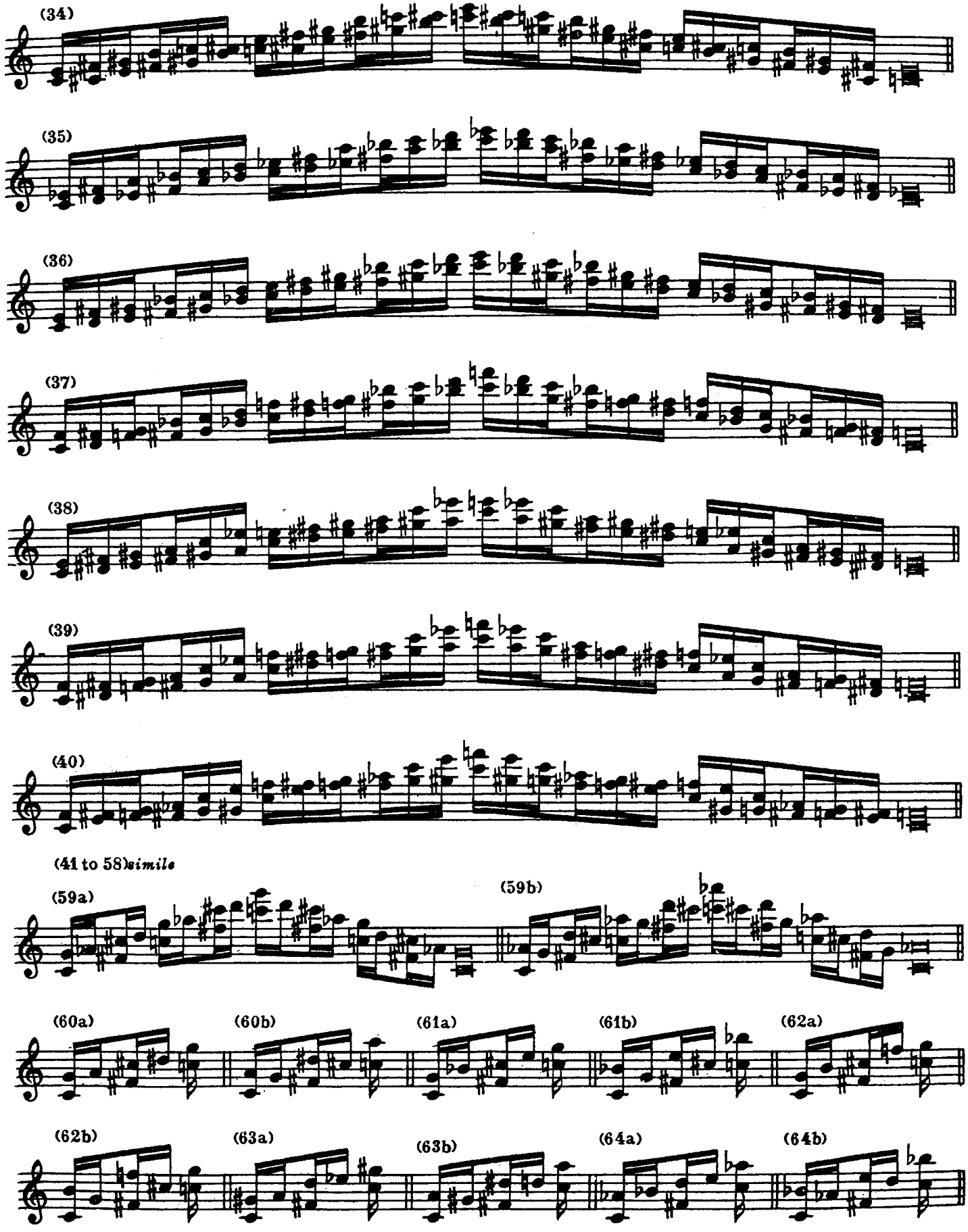


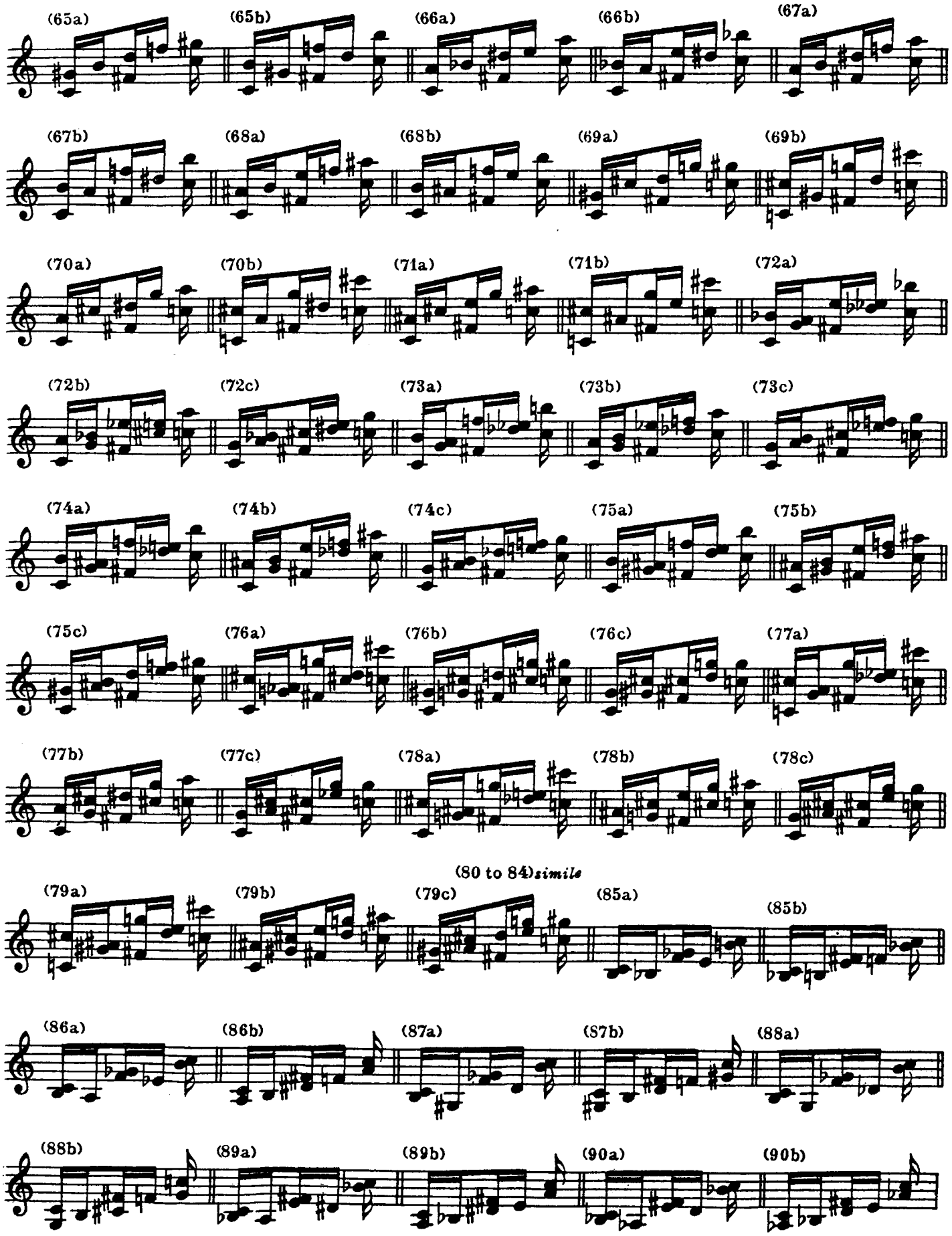
Double Notes

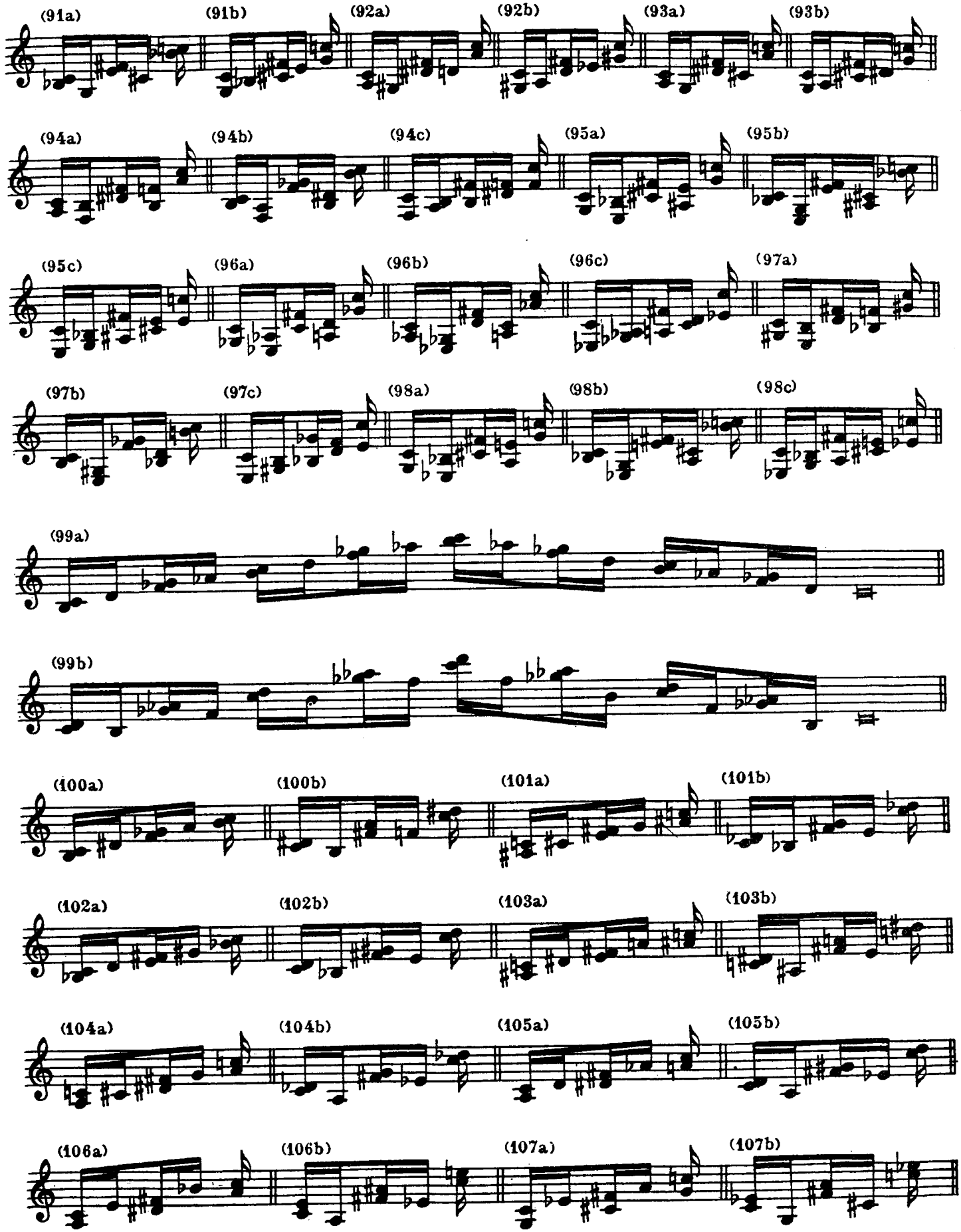
Tritone Progression

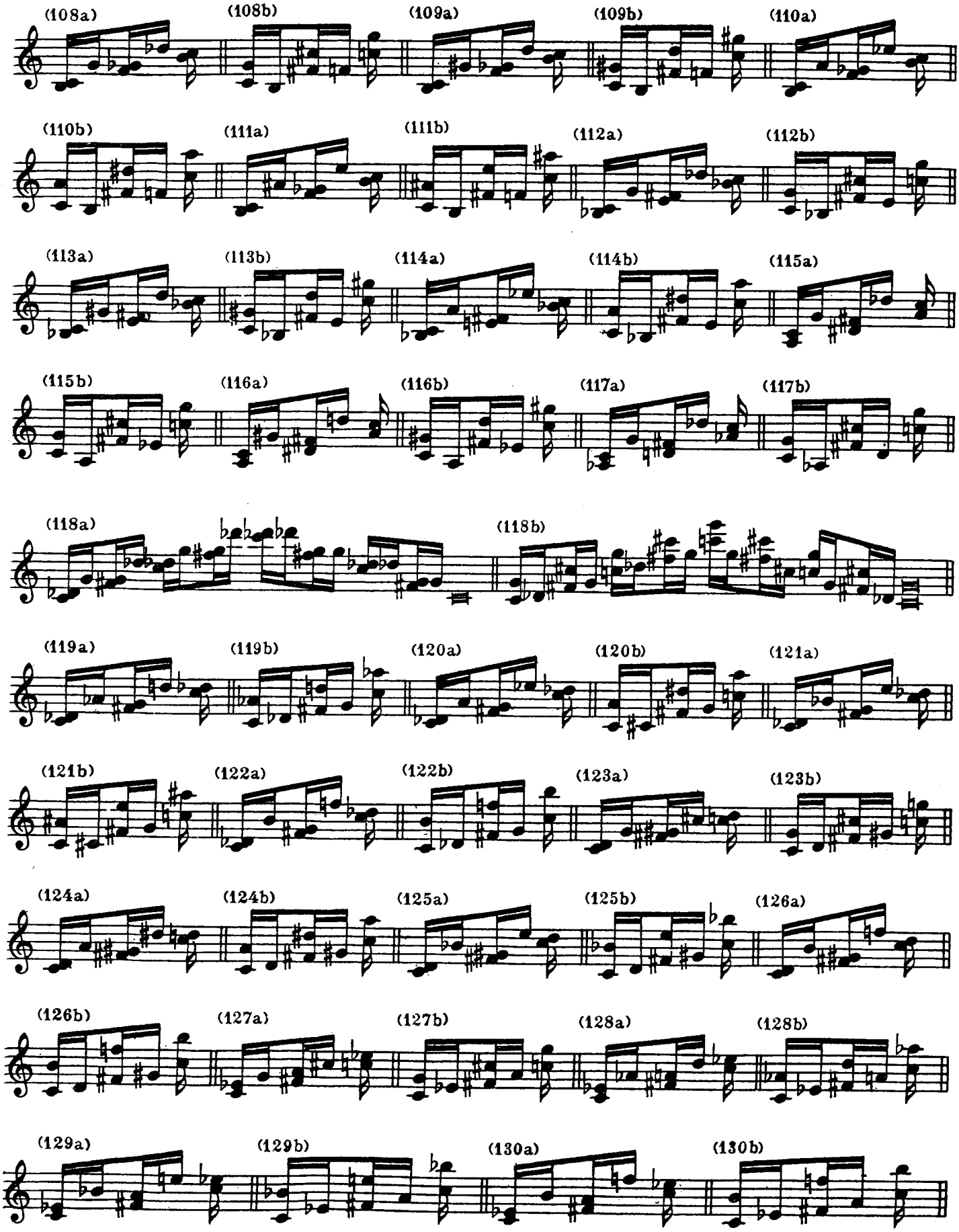


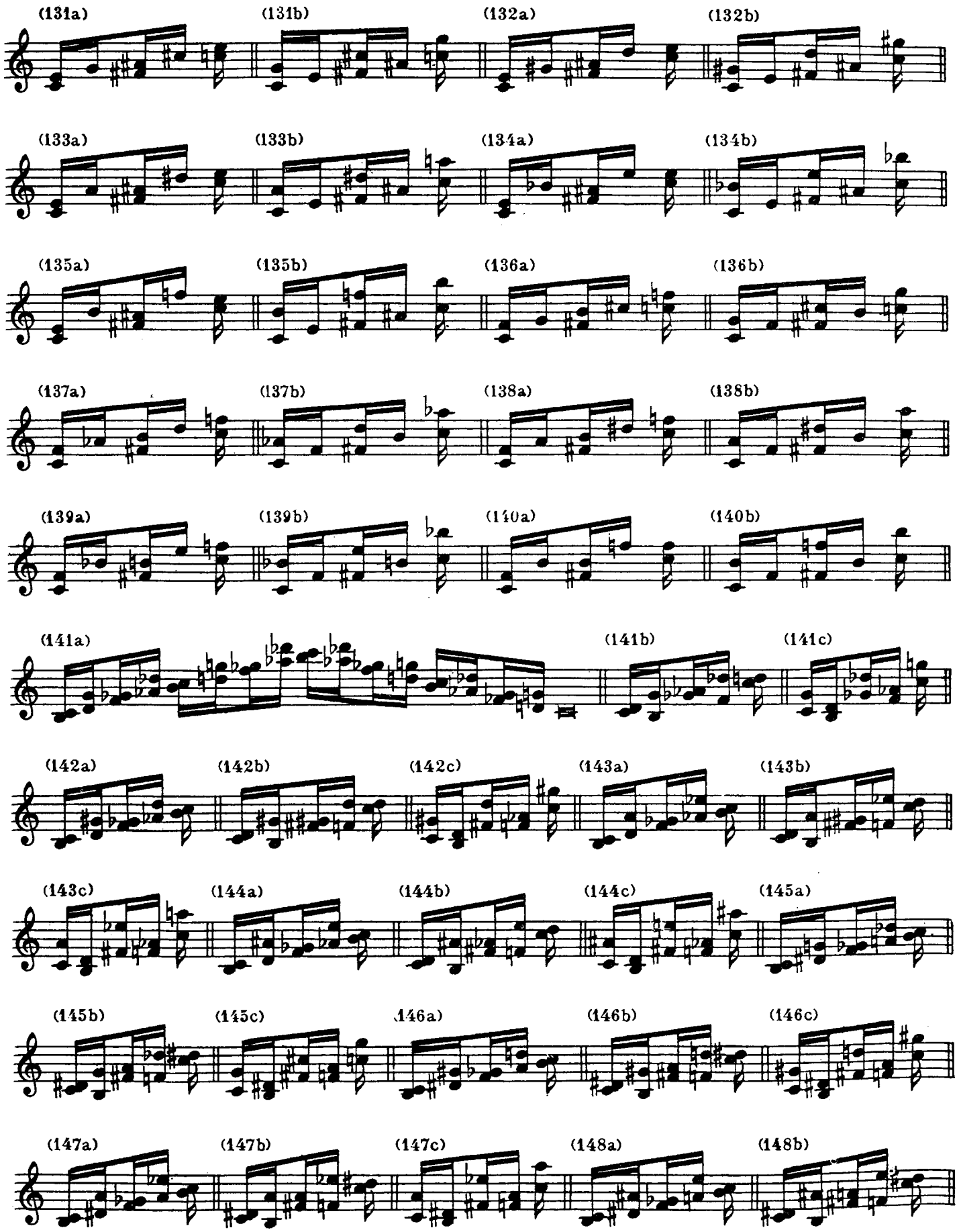
Numbers in parentheses refer to patterns from which the double notes are derived.

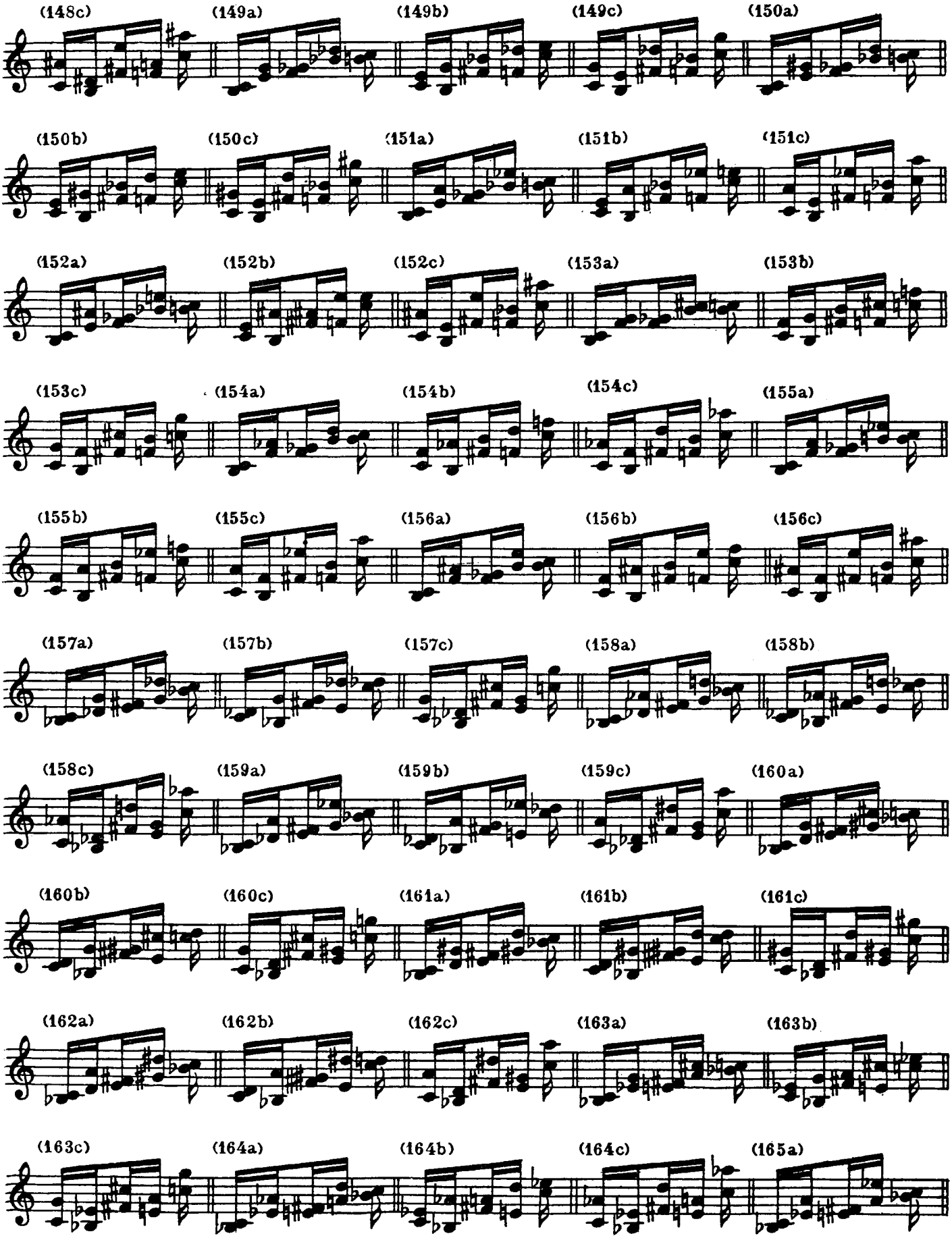

(34)
(35)
(36)
(37)
(38)
(39)
(40)
(41 to 58) *simile*
(59a)
(59b)
(60a)
(60b)
(61a)
(61b)
(62a)
(62b)
(63a)
(63b)
(64a)
(64b)

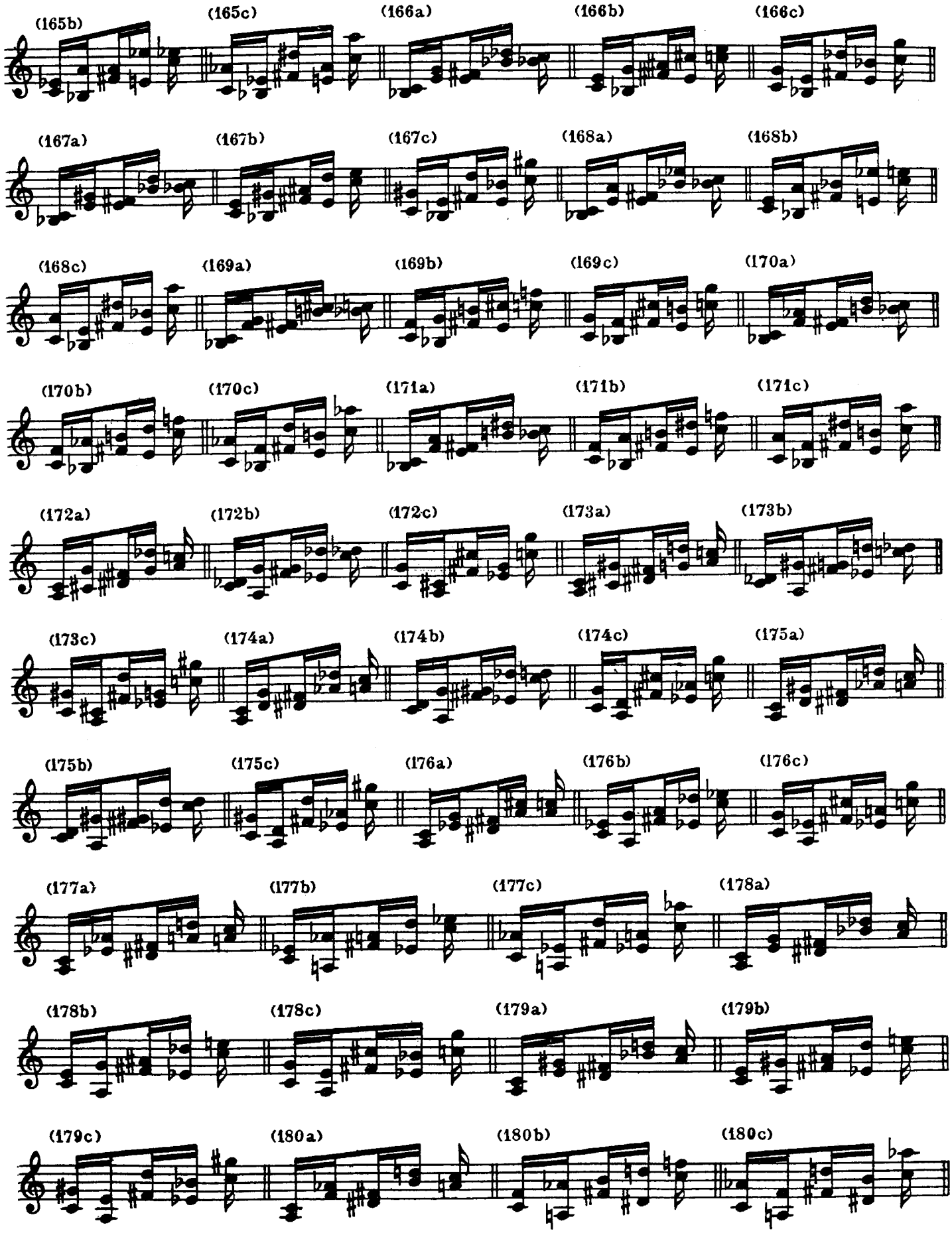

(65a)
(65b)
(66a)
(66b)
(67a)
(67b)
(68a)
(68b)
(69a)
(69b)
(70a)
(70b)
(71a)
(71b)
(72a)
(72b)
(72c)
(73a)
(73b)
(73c)
(74a)
(74b)
(74c)
(75a)
(75b)
(75c)
(76a)
(76b)
(76c)
(77a)
(77b)
(77c)
(78a)
(78b)
(78c)
(80 to 84) simile
(79a)
(79b)
(79c)
(85a)
(85b)
(86a)
(86b)
(87a)
(87b)
(88a)
(88b)
(89a)
(89b)
(90a)
(90b)


(91a)
(91b)
(92a)
(92b)
(93a)
(93b)
(94a)
(94b)
(94c)
(95a)
(95b)
(95c)
(96a)
(96b)
(96c)
(97a)
(97b)
(97c)
(98a)
(98b)
(98c)
(99a)
(99b)
(100a)
(100b)
(101a)
(101b)
(102a)
(102b)
(103a)
(103b)
(104a)
(104b)
(105a)
(105b)
(106a)
(106b)
(107a)
(107b)


(108a)
(108b)
(109a)
(109b)
(110a)
(110b)
(111a)
(111b)
(112a)
(112b)
(113a)
(113b)
(114a)
(114b)
(115a)
(115b)
(116a)
(116b)
(117a)
(117b)
(118a)
(118b)
(119a)
(119b)
(120a)
(120b)
(121a)
(121b)
(122a)
(122b)
(123a)
(123b)
(124a)
(124b)
(125a)
(125b)
(126a)
(126b)
(127a)
(127b)
(128a)
(128b)
(129a)
(129b)
(130a)
(130b)

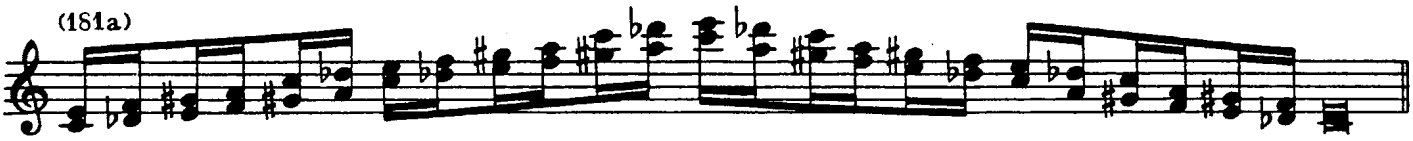

(131a)
(131b)
(132a)
(132b)
(133a)
(133b)
(134a)
(134b)
(135a)
(135b)
(136a)
(136b)
(137a)
(137b)
(138a)
(138b)
(139a)
(139b)
(140a)
(140b)
(141a)
(141b)
(141c)
(142a)
(142b)
(142c)
(143a)
(143b)
(143c)
(144a)
(144b)
(144c)
(145a)
(145b)
(145c)
(146a)
(146b)
(146c)
(147a)
(147b)
(147c)
(148a)
(148b)


(148c)
(149a)
(149b)
(149c)
(150a)
(150b)
(150c)
(151a)
(151b)
(151c)
(152a)
(152b)
(152c)
(153a)
(153b)
(153c)
(154a)
(154b)
(154c)
(155a)
(155b)
(155c)
(156a)
(156b)
(156c)
(157a)
(157b)
(157c)
(158a)
(158b)
(158c)
(159a)
(159b)
(159c)
(160a)
(160b)
(160c)
(161a)
(161b)
(161c)
(162a)
(162b)
(162c)
(163a)
(163b)
(163c)
(164a)
(164b)
(164c)
(165a)

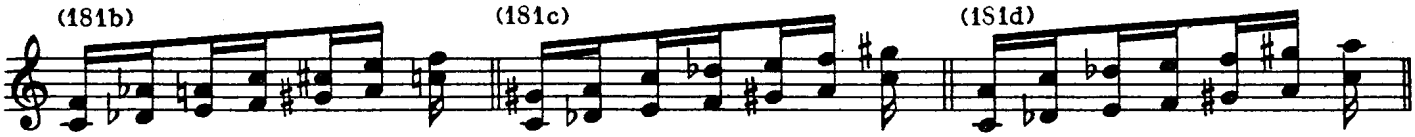

(165b)
(165c)
(166a)
(166b)
(166c)
(167a)
(167b)
(167c)
(168a)
(168b)
(168c)
(169a)
(169b)
(169c)
(170a)
(170b)
(170c)
(171a)
(171b)
(171c)
(172a)
(172b)
(172c)
(173a)
(173b)
(173c)
(174a)
(174b)
(174c)
(175a)
(175b)
(175c)
(176a)
(176b)
(176c)
(177a)
(177b)
(177c)
(178a)
(178b)
(178c)
(179a)
(179b)
(179c)
(180a)
(180b)
(180c)

Ditone Progression

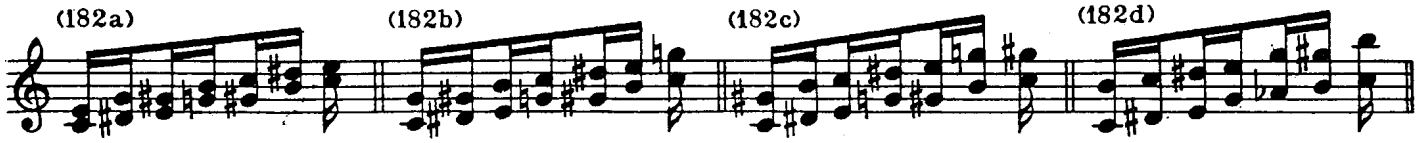
(181a)



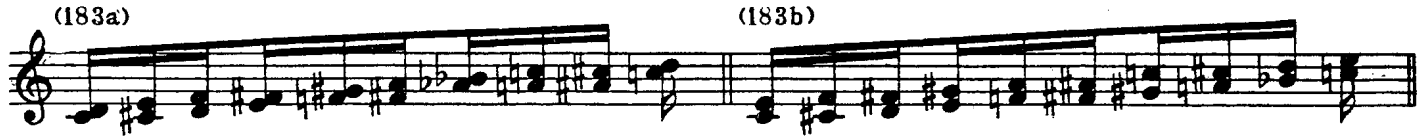
(181b) (181c) (181d)



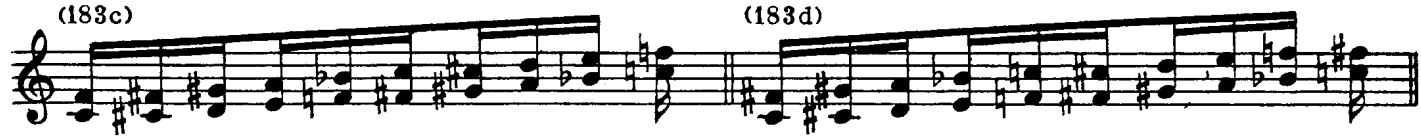
(182a) (182b) (182c) (182d)



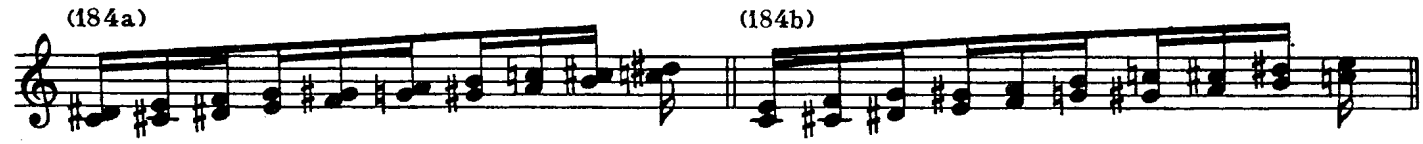
(183a) (183b)



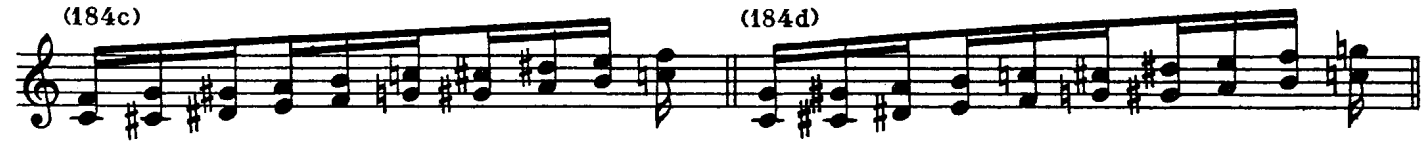
(183c) (183d)



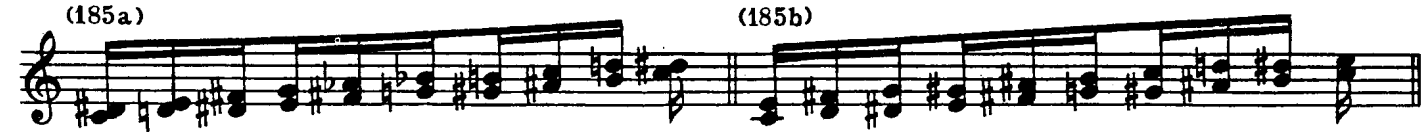
(184a) (184b)



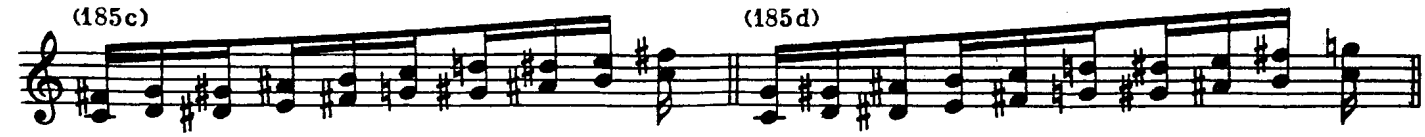
(184c) (184d)

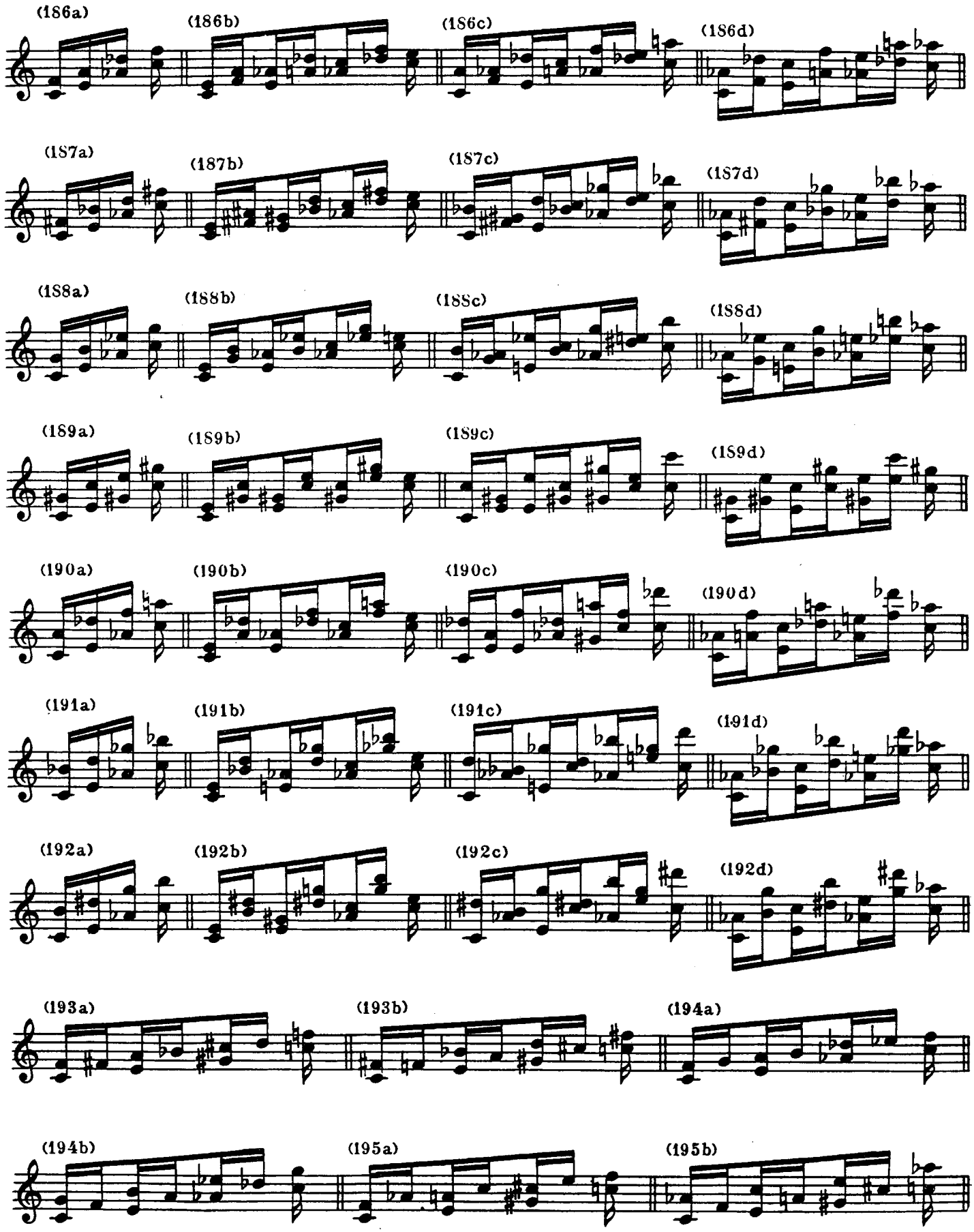


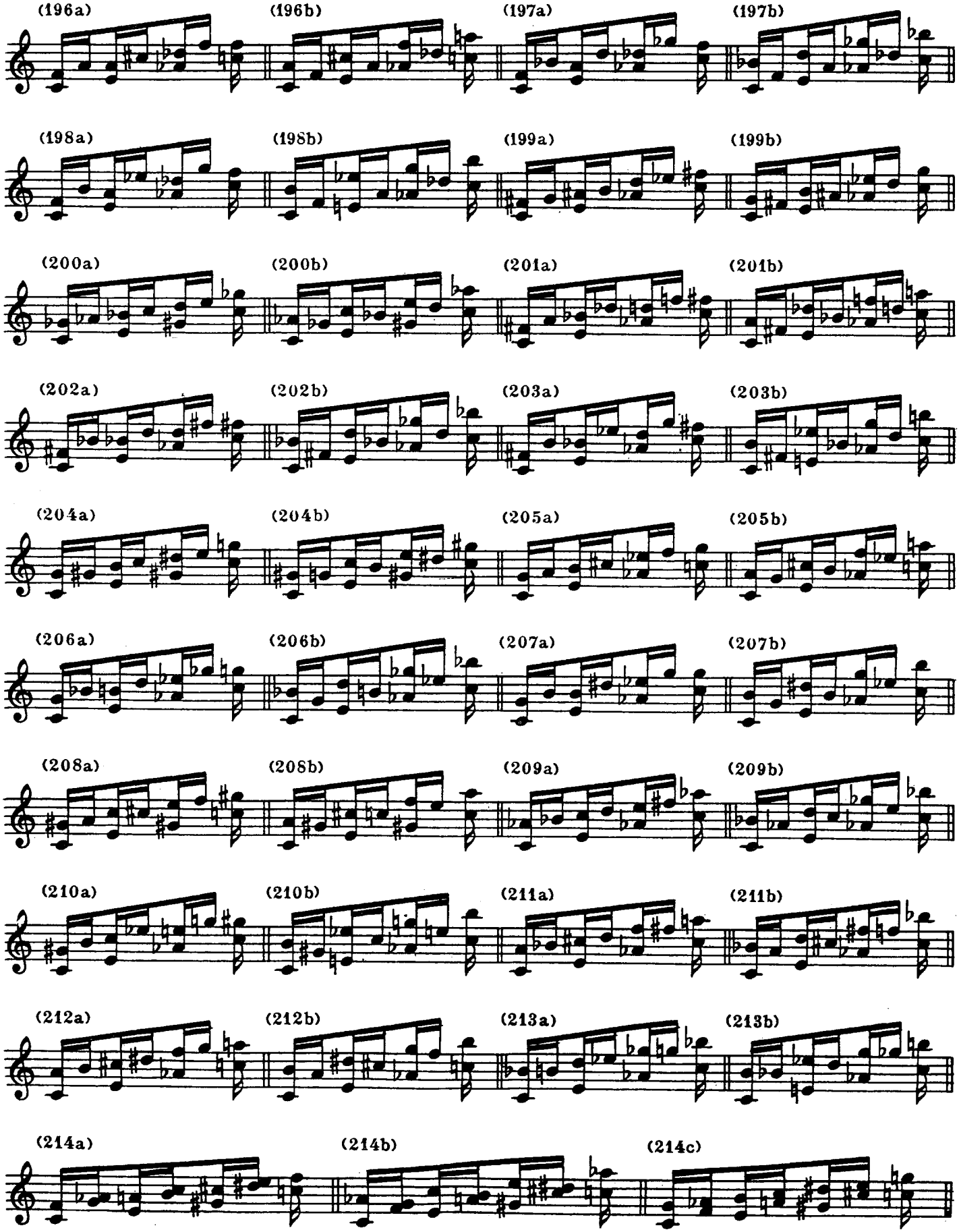
(185a) (185b)

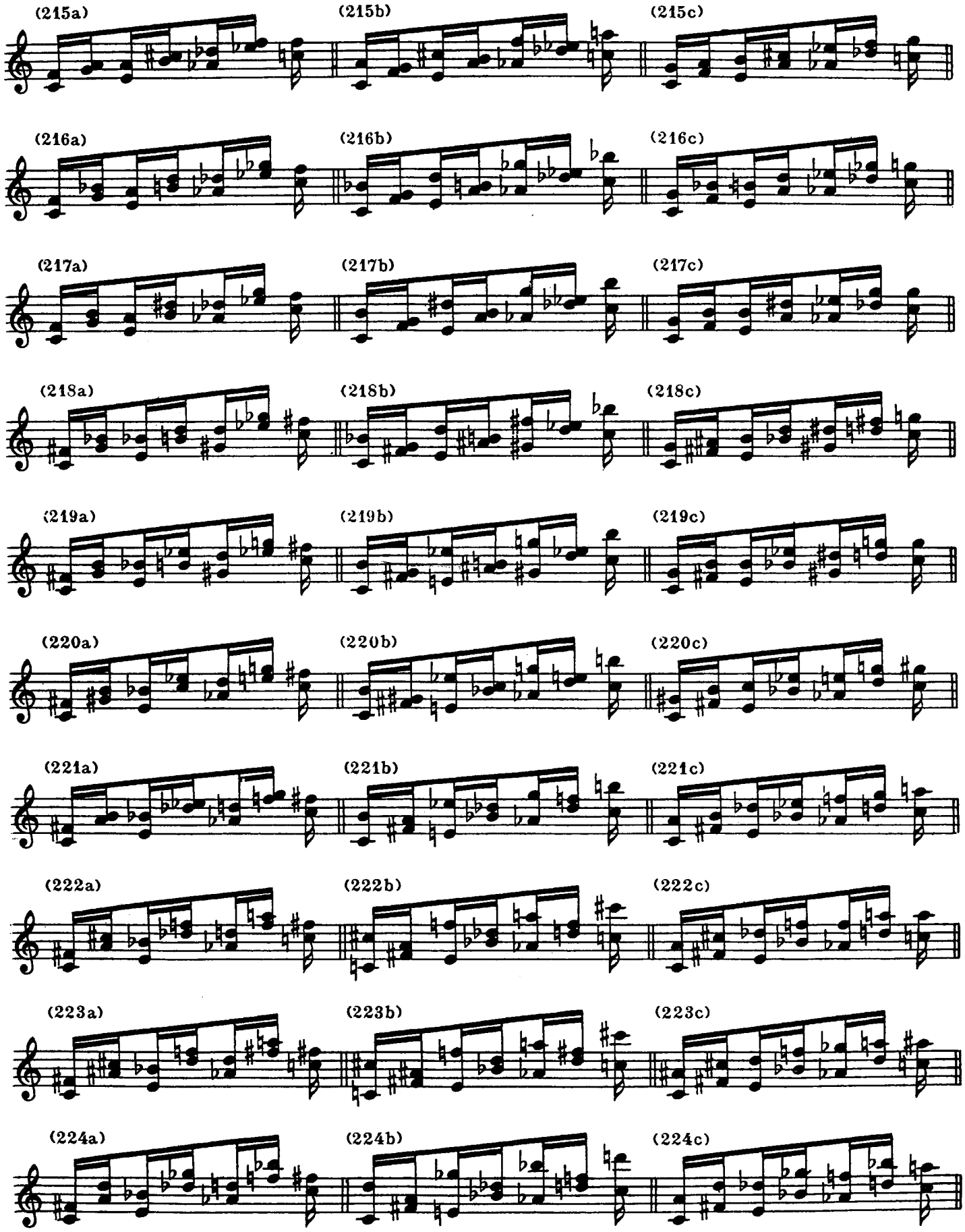


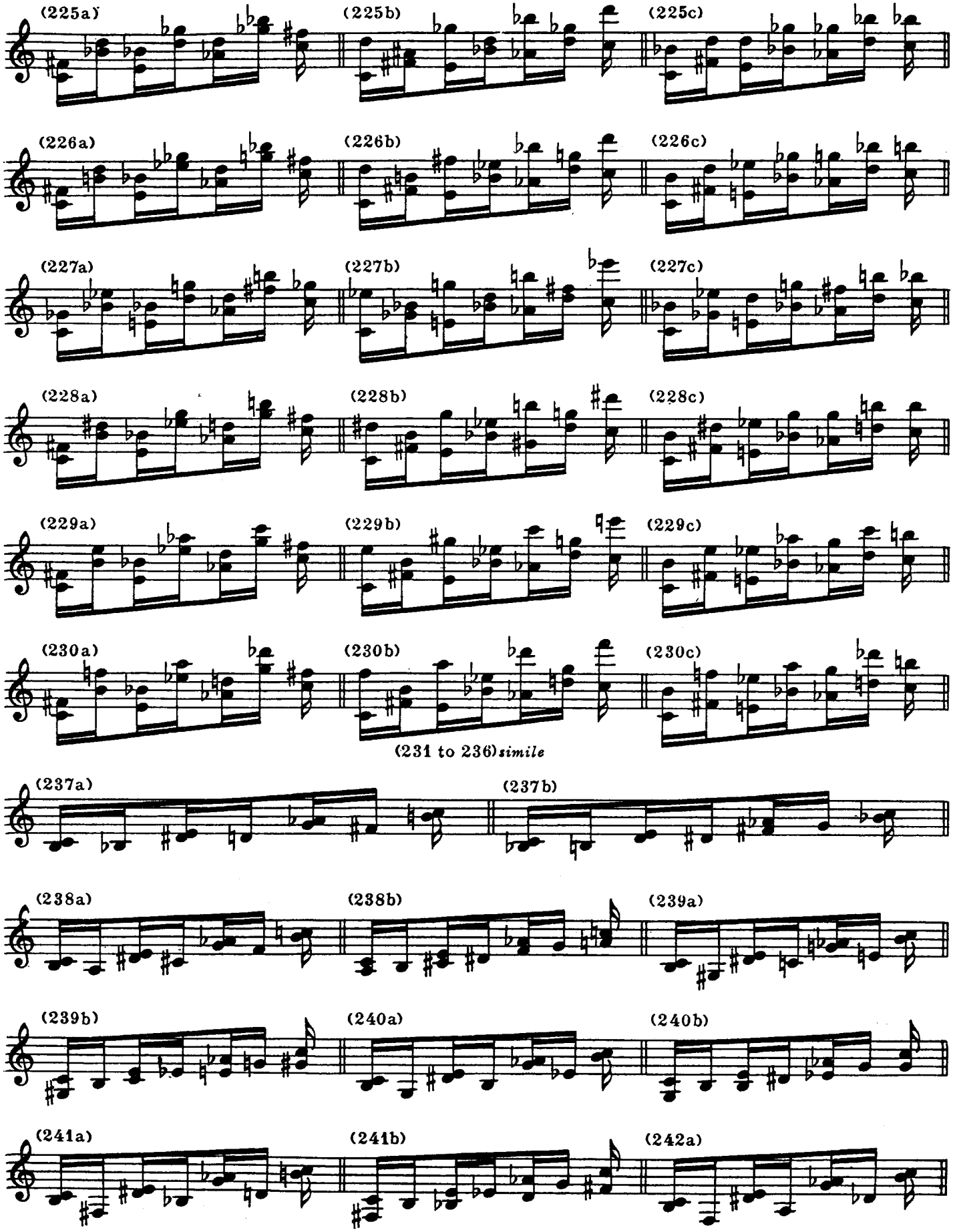
(185c) (185d)

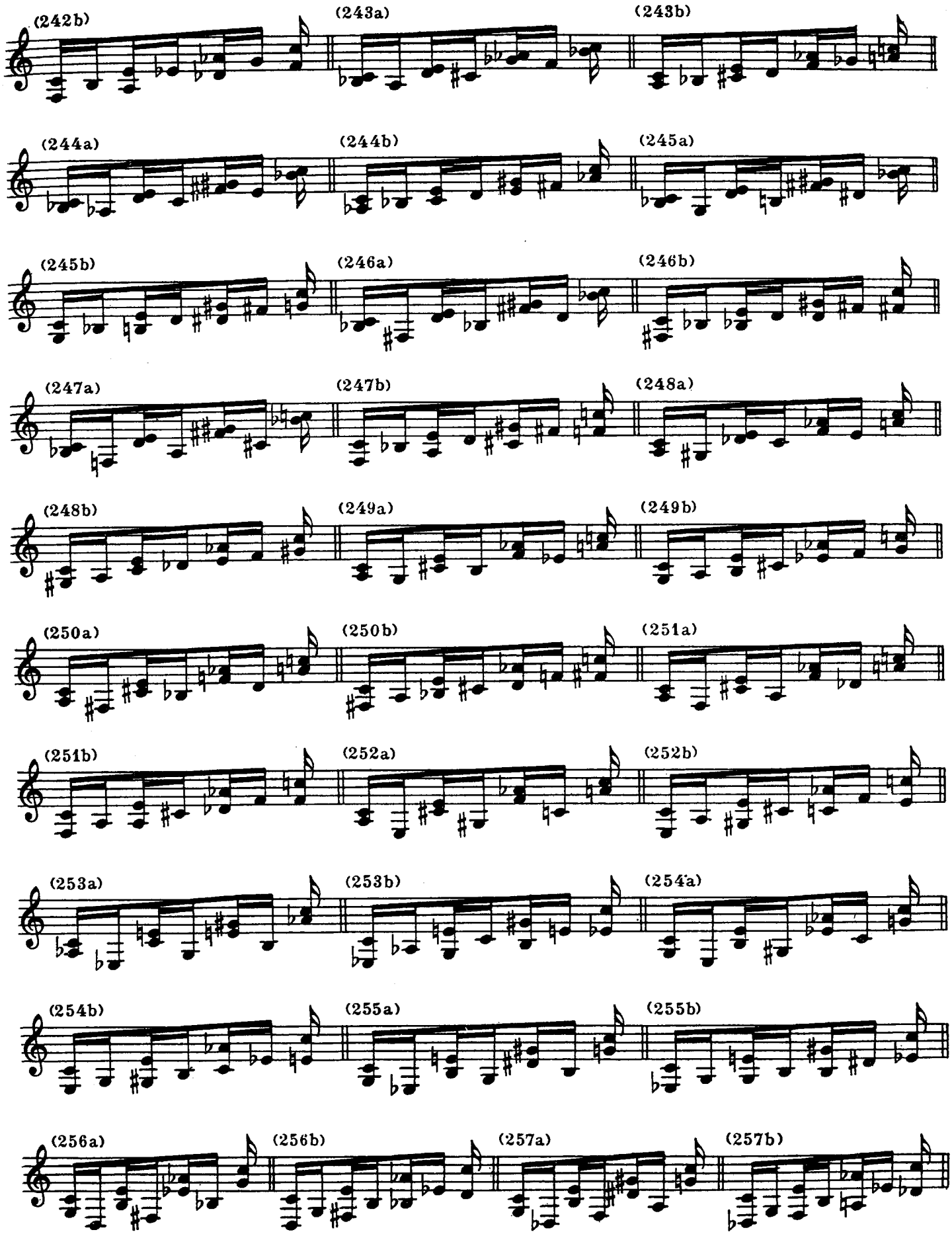



(186a)
(186b)
(186c)
(186d)
(187a)
(187b)
(187c)
(187d)
(188a)
(188b)
(188c)
(188d)
(189a)
(189b)
(189c)
(189d)
(190a)
(190b)
(190c)
(190d)
(191a)
(191b)
(191c)
(191d)
(192a)
(192b)
(192c)
(192d)
(193a)
(193b)
(194a)
(194b)
(195a)
(195b)


(196a)
(196b)
(197a)
(197b)
(198a)
(198b)
(199a)
(199b)
(200a)
(200b)
(201a)
(201b)
(202a)
(202b)
(203a)
(203b)
(204a)
(204b)
(205a)
(205b)
(206a)
(206b)
(207a)
(207b)
(208a)
(208b)
(209a)
(209b)
(210a)
(210b)
(211a)
(211b)
(212a)
(212b)
(213a)
(213b)
(214a)
(214b)
(214c)

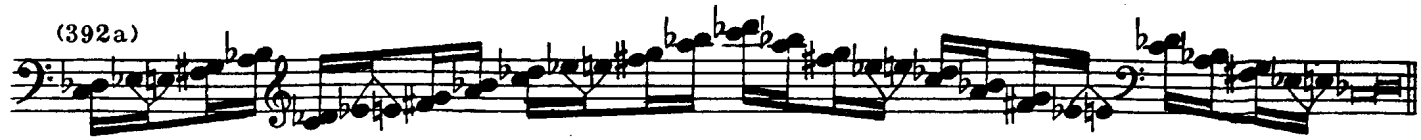

(215a)
(215b)
(215c)
(216a)
(216b)
(216c)
(217a)
(217b)
(217c)
(218a)
(218b)
(218c)
(219a)
(219b)
(219c)
(220a)
(220b)
(220c)
(221a)
(221b)
(221c)
(222a)
(222b)
(222c)
(223a)
(223b)
(223c)
(224a)
(224b)
(224c)


(225a)
(225b)
(225c)
(226a)
(226b)
(226c)
(227a)
(227b)
(227c)
(228a)
(228b)
(228c)
(229a)
(229b)
(229c)
(230a)
(230b)
(230c)
(231 to 236) simile
(237a)
(237b)
(238a)
(238b)
(239a)
(239b)
(240a)
(240b)
(241a)
(241b)
(242a)

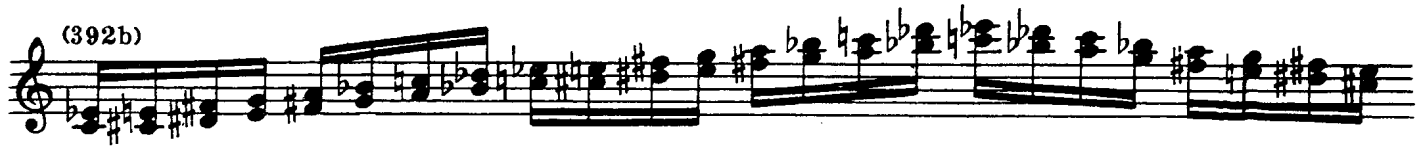

(242b)
(243a)
(243b)
(244a)
(244b)
(245a)
(245b)
(246a)
(246b)
(247a)
(247b)
(248a)
(248b)
(249a)
(249b)
(250a)
(250b)
(251a)
(251b)
(252a)
(252b)
(253a)
(253b)
(254a)
(254b)
(255a)
(255b)
(256a)
(256b)
(257a)
(257b)

Sesquitone Progression

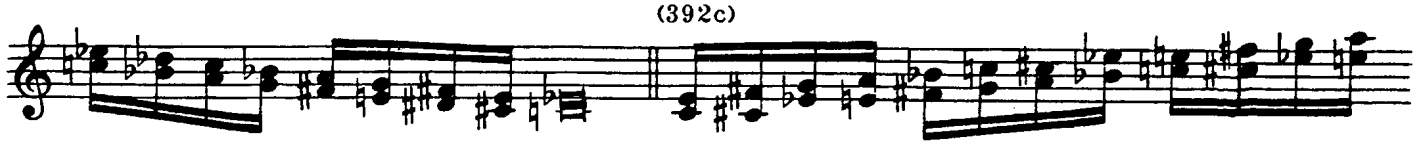
(392a)

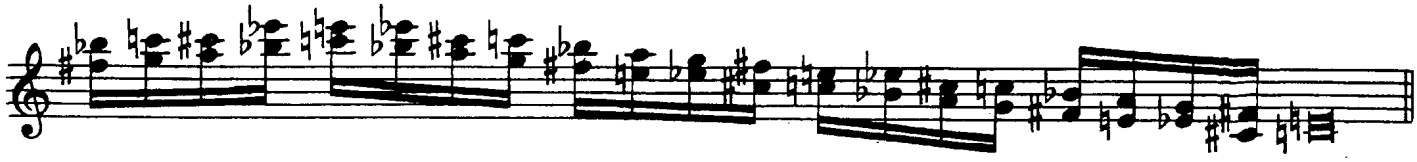


(392b)



(392c)

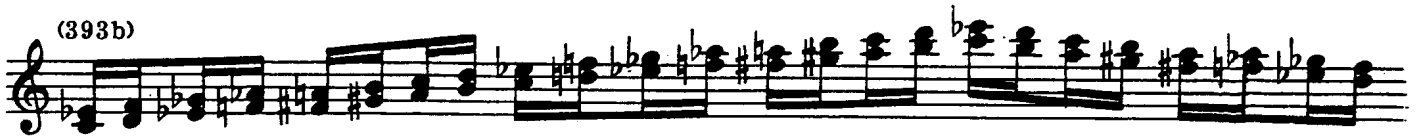




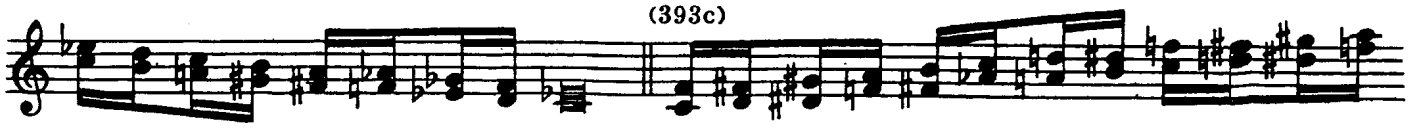
(392d) (392e) (392f)

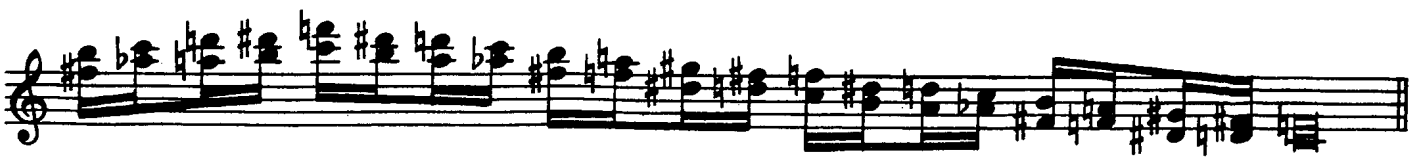
(393a)

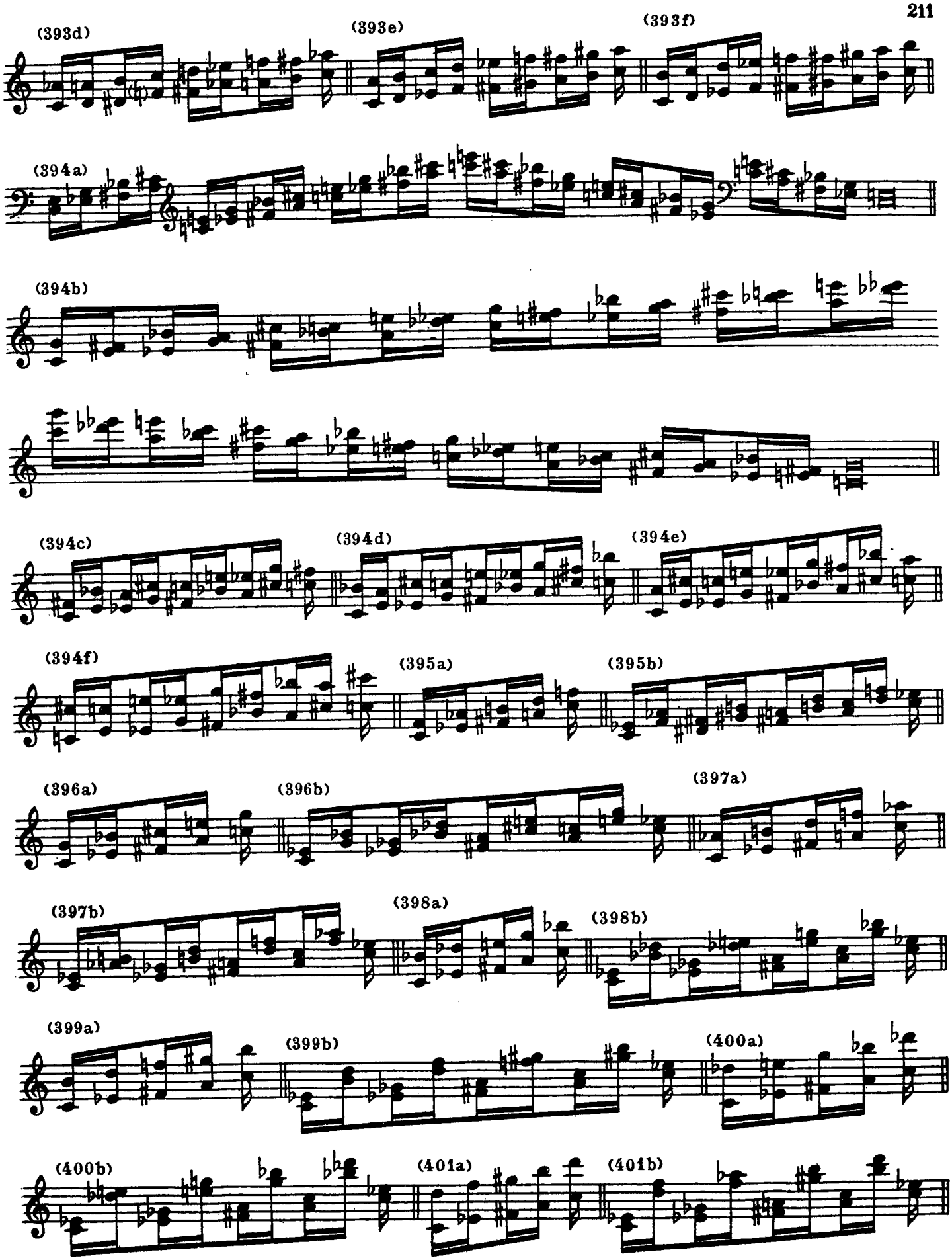
(393b)

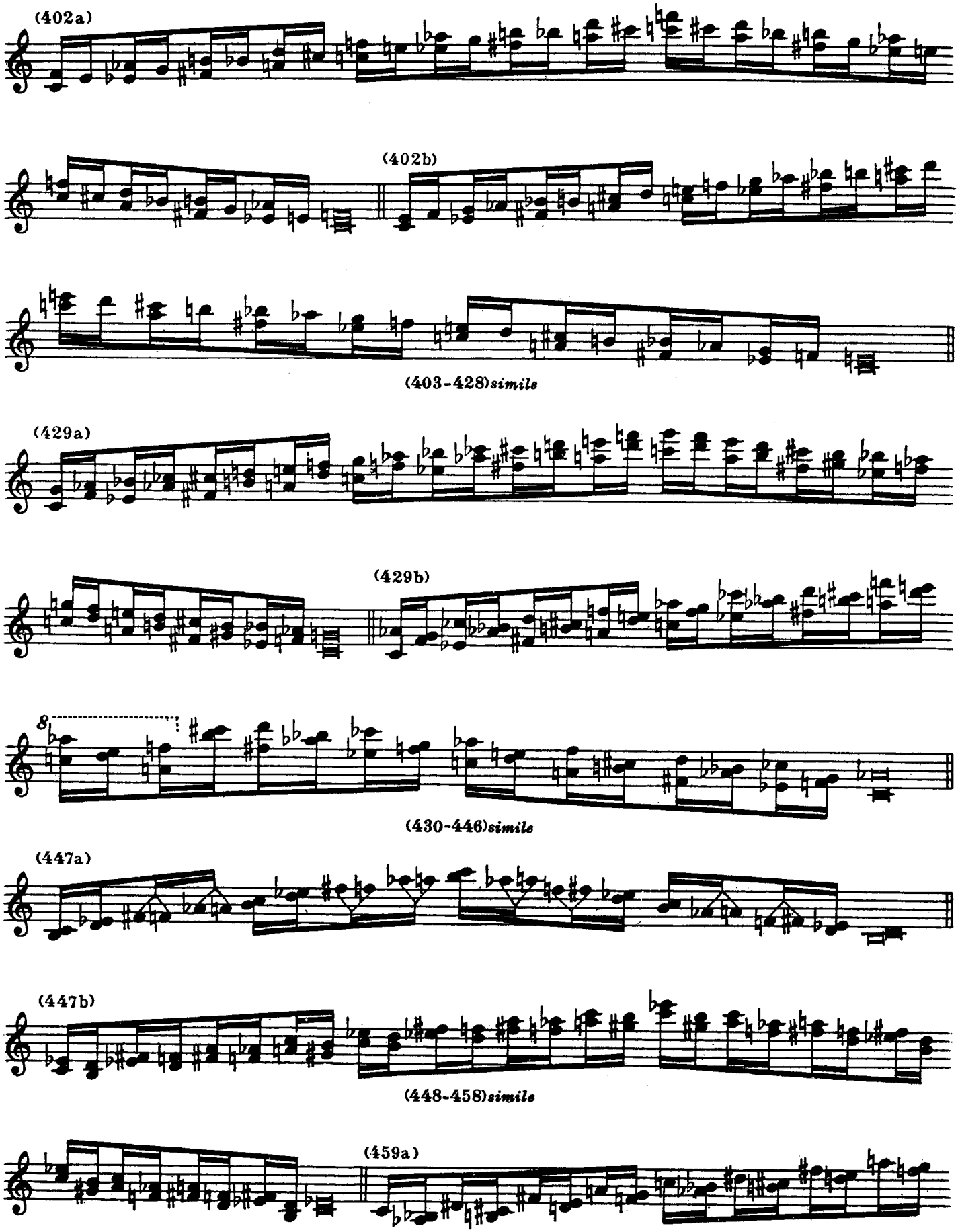


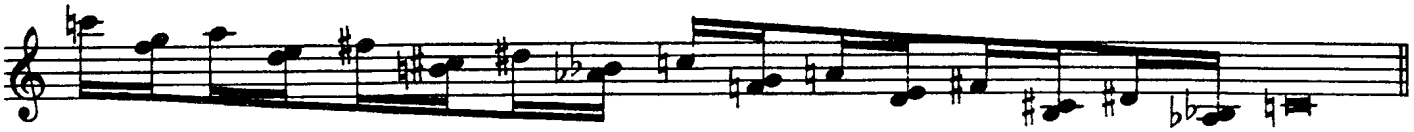
(393c)



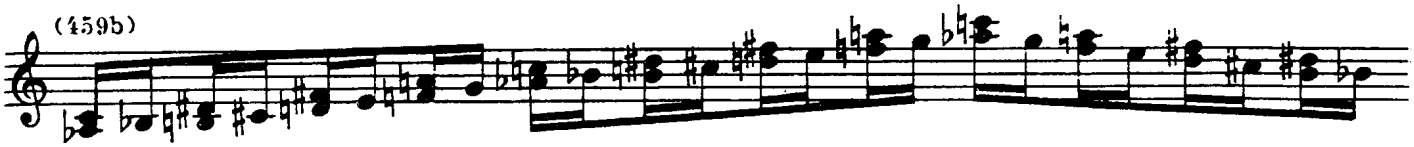



(393d)
(393e)
(393f)
(394a)
(394b)
(394c)
(394d)
(394e)
(394f)
(395a)
(395b)
(396a)
(396b)
(397a)
(397b)
(398a)
(398b)
(399a)
(399b)
(400a)
(400b)
(401a)
(401b)

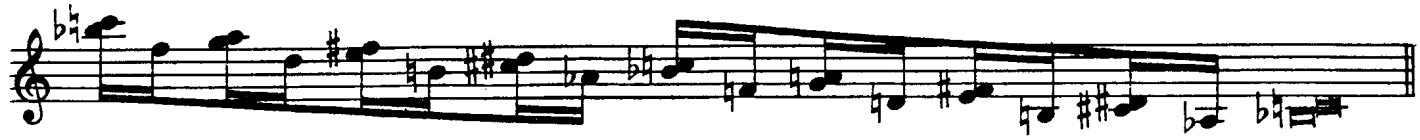

(402a)
(402b)
(403-428)simile
(429a)
(429b)
8
(430-446)simile
(447a)
(447b)
(448-458)simile
(459a)



(459b)

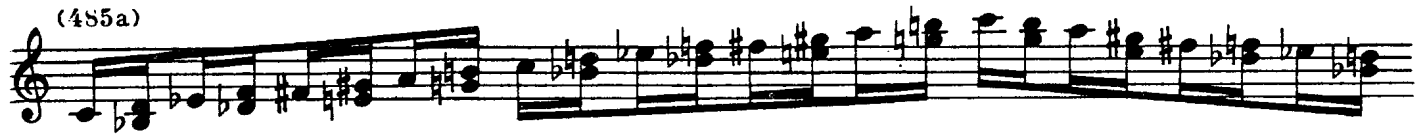


(459c)

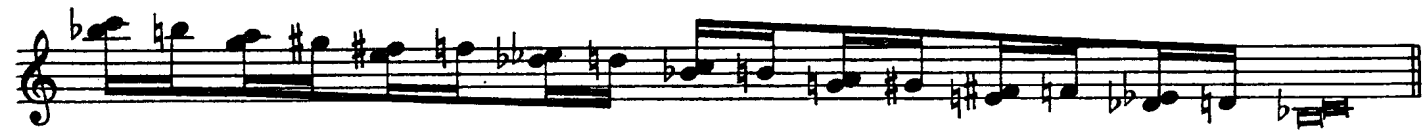


(460-484) *simile*

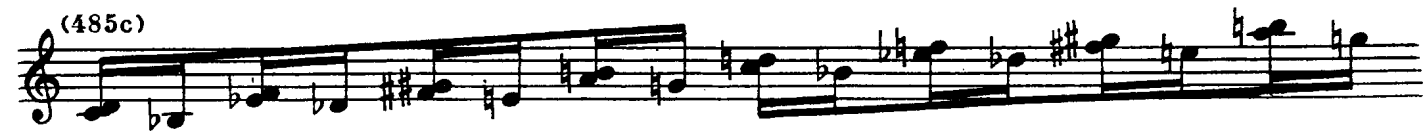
(485a)

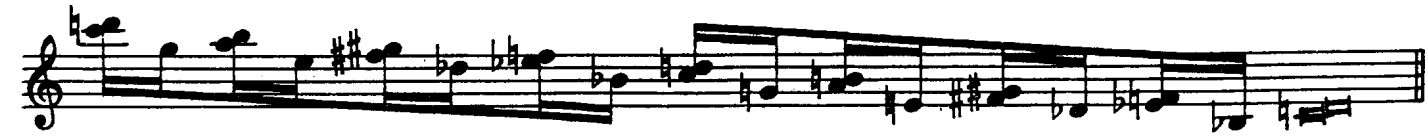


(485b)



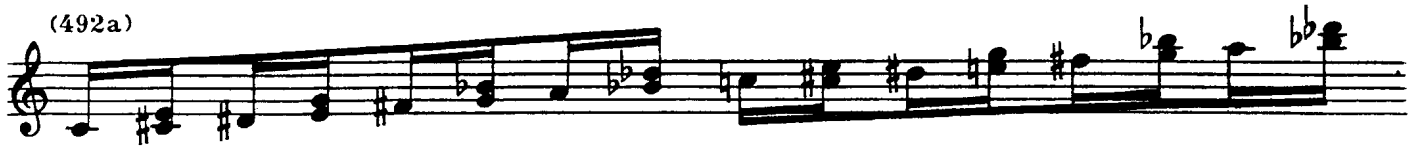
(485c)

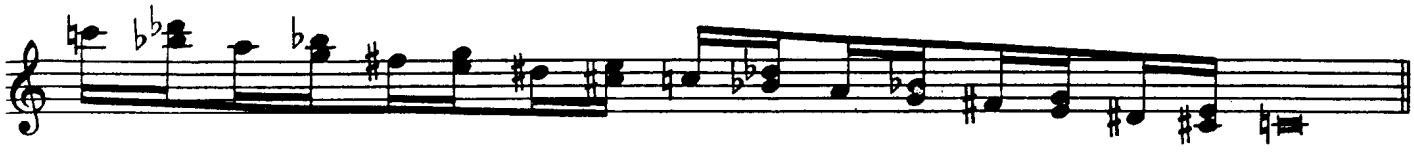




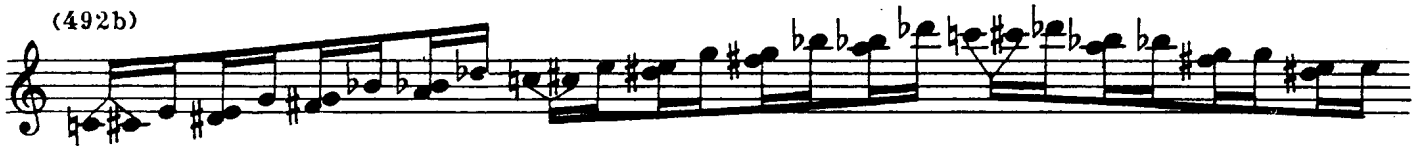
(486-491) *simile*

(492a)

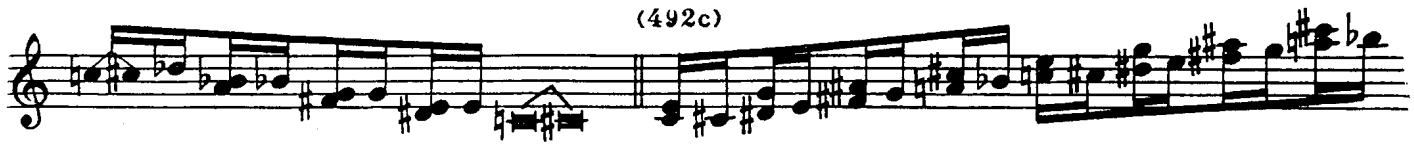


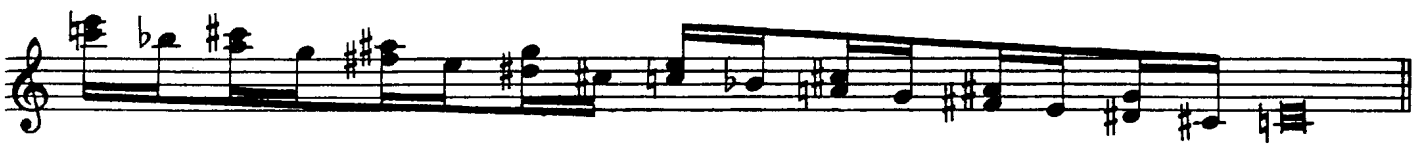


(492b)



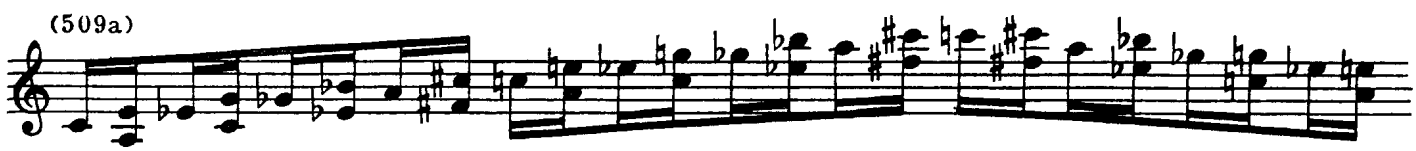
(492c)



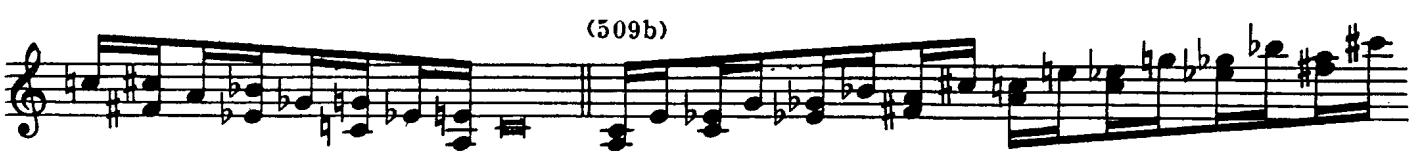


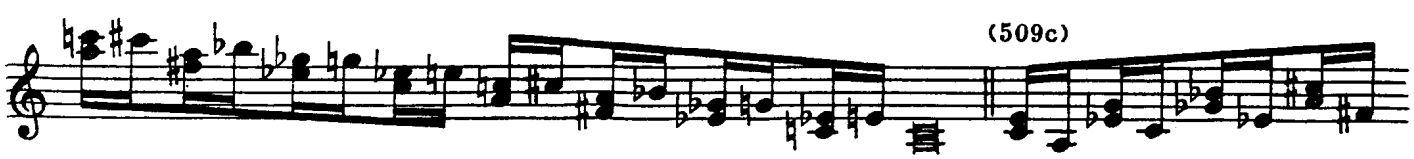
(493-508) *simile*

(509a)

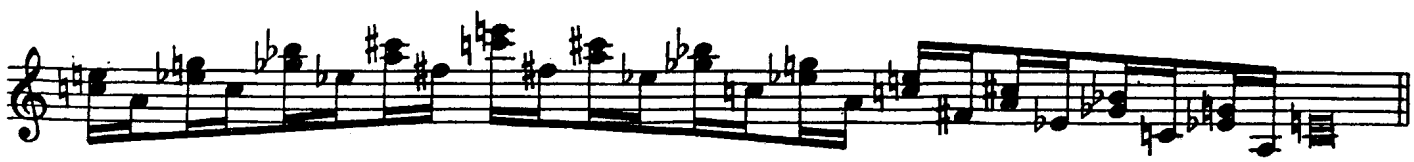


(509b)

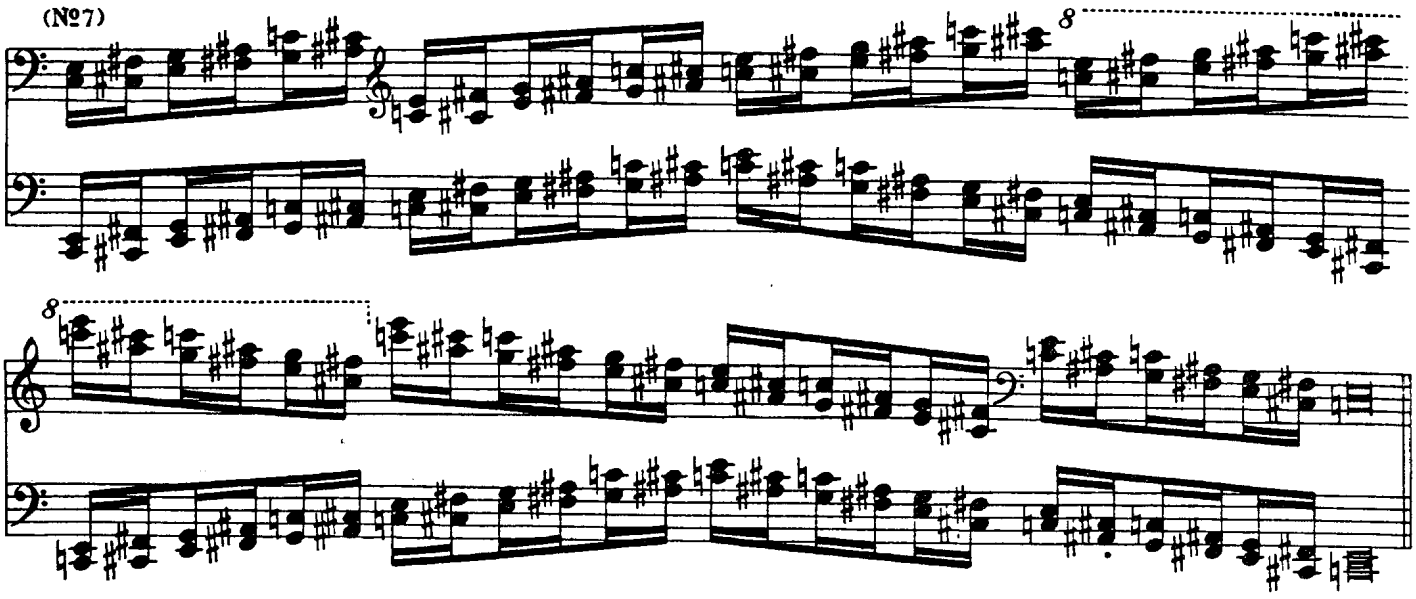




(509c)

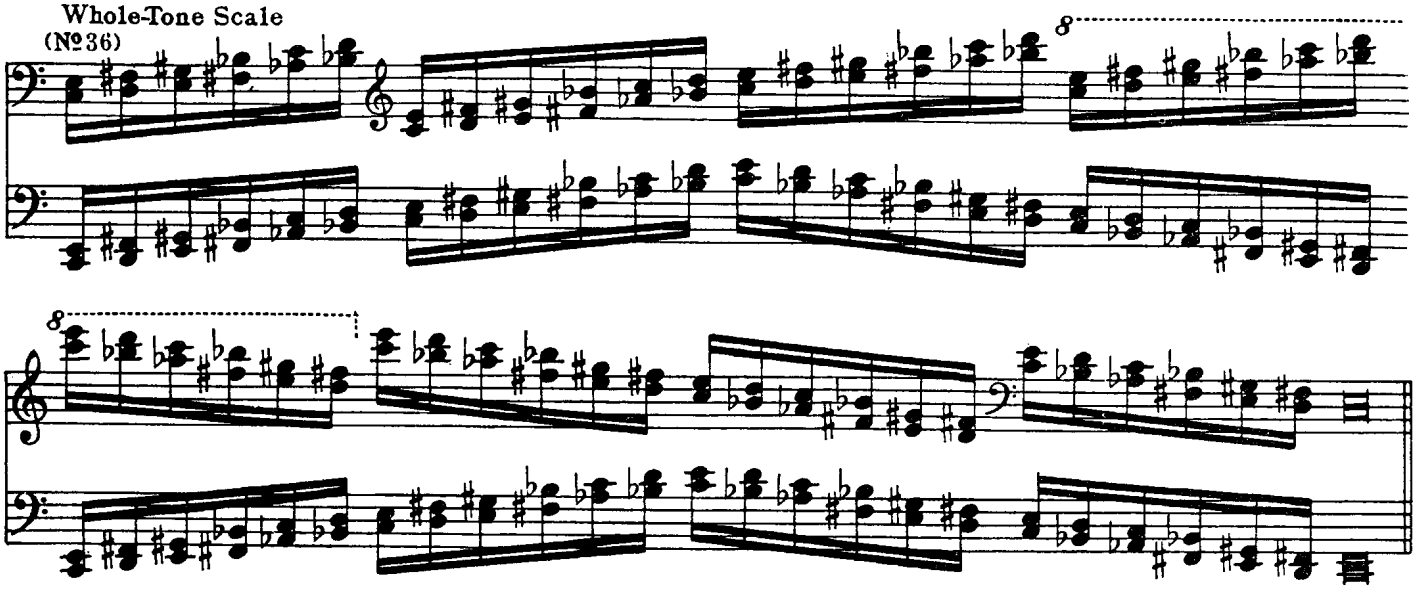


(№7)

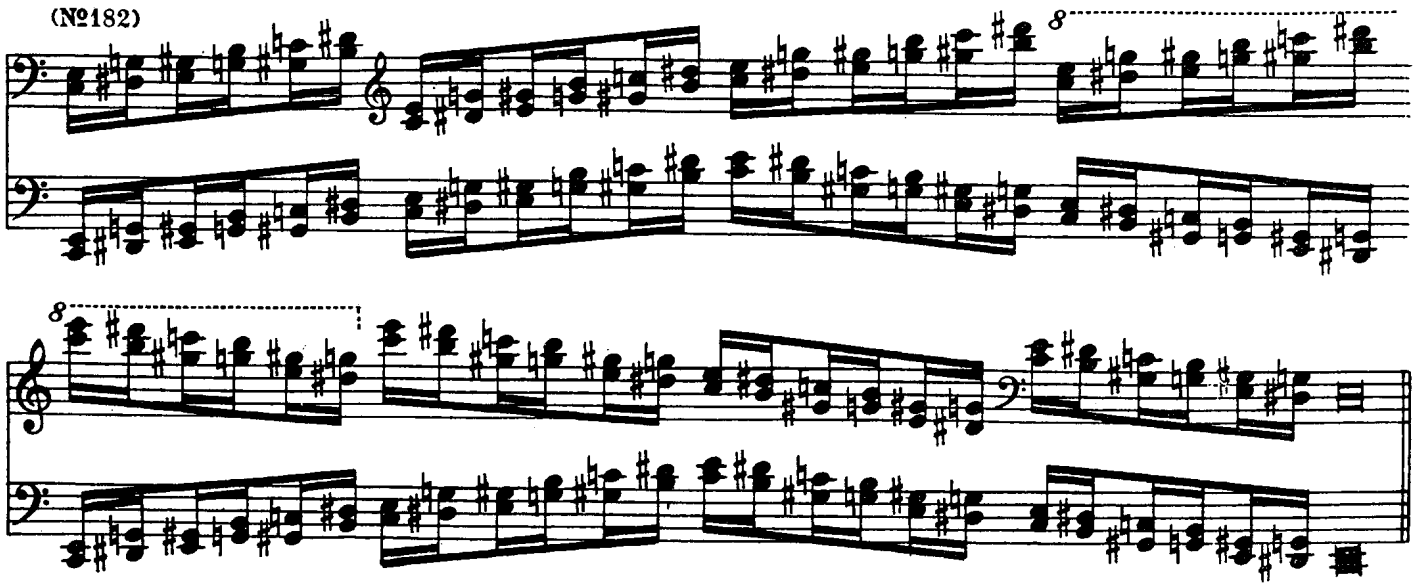


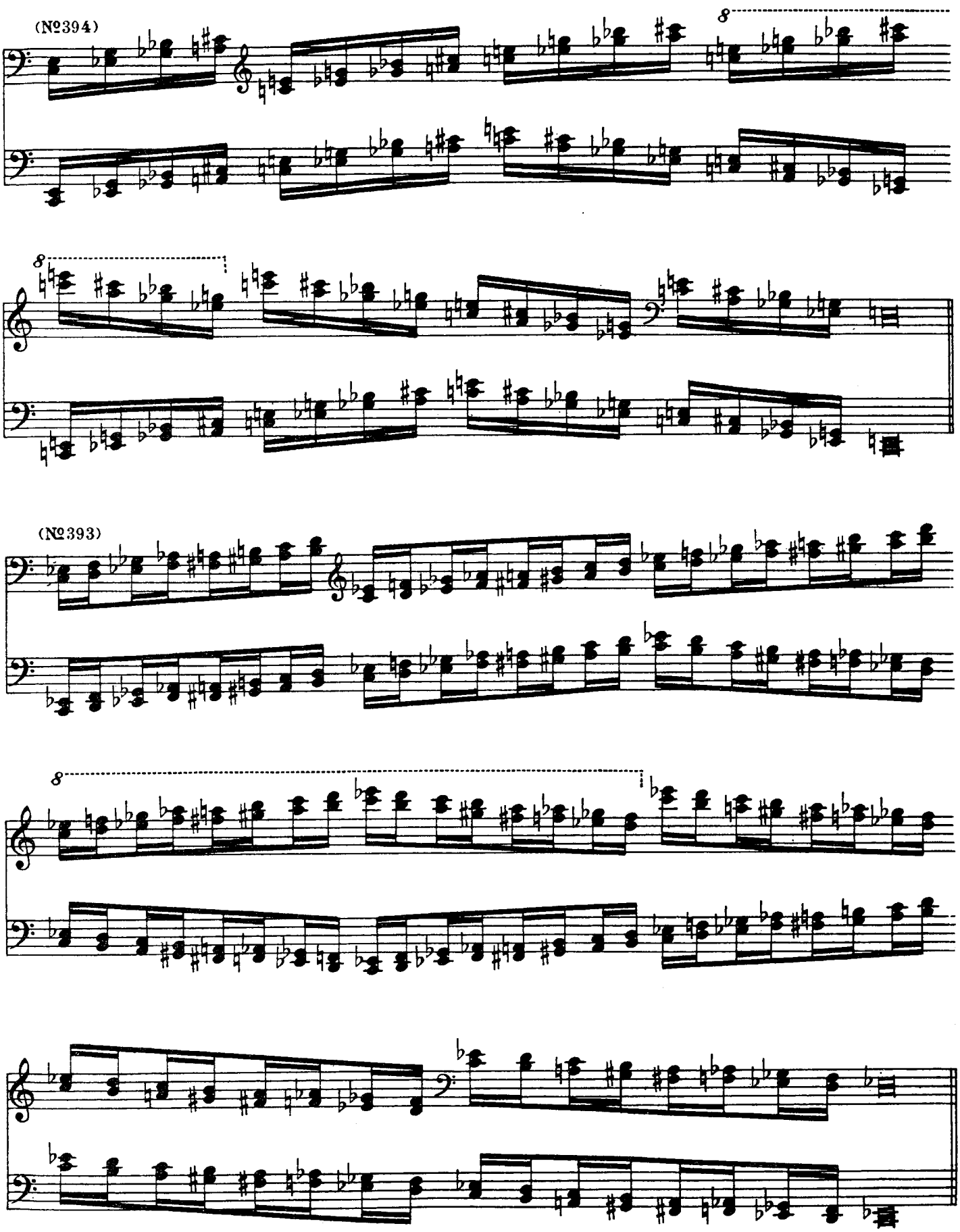
Whole-Tone Scale

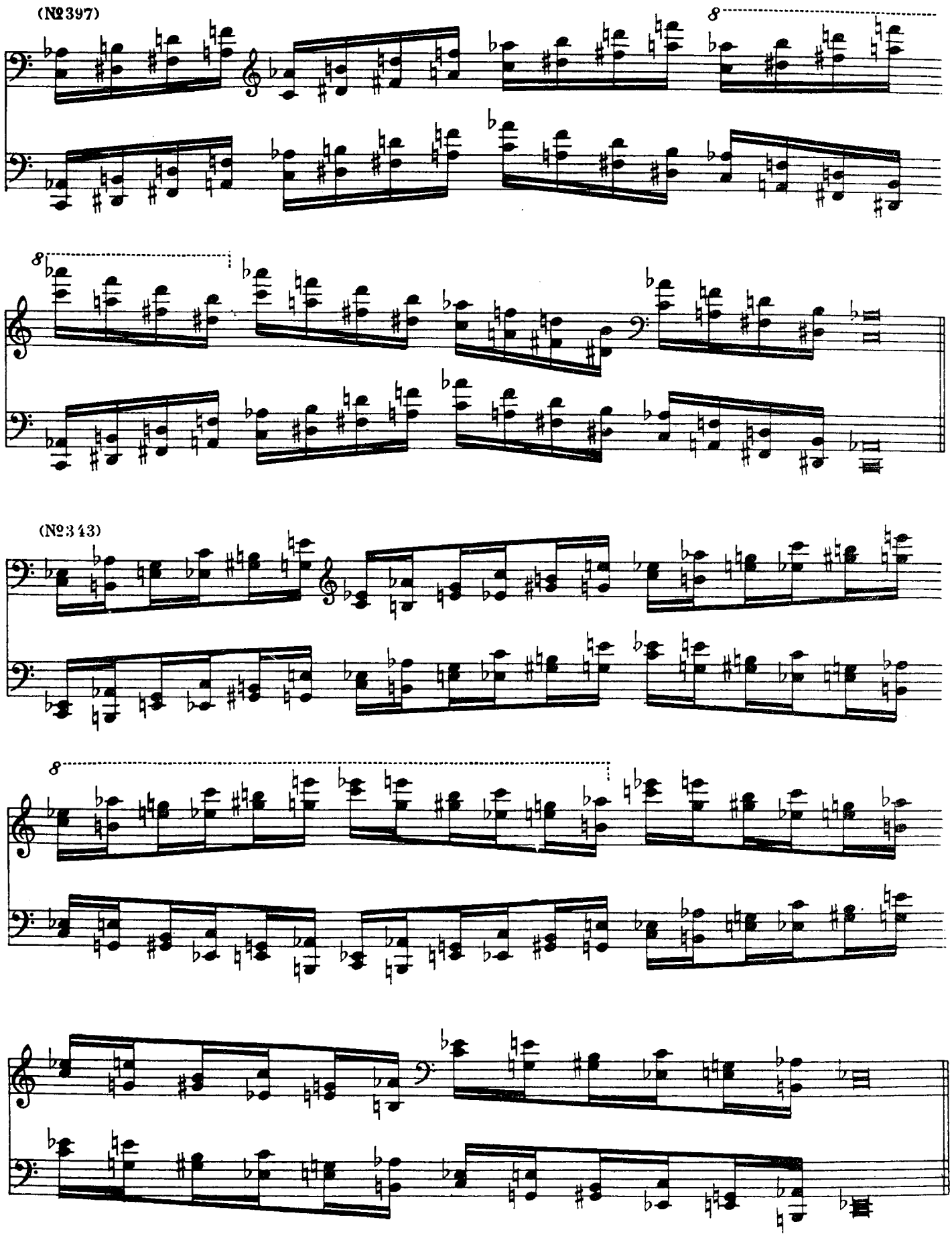
(№36)



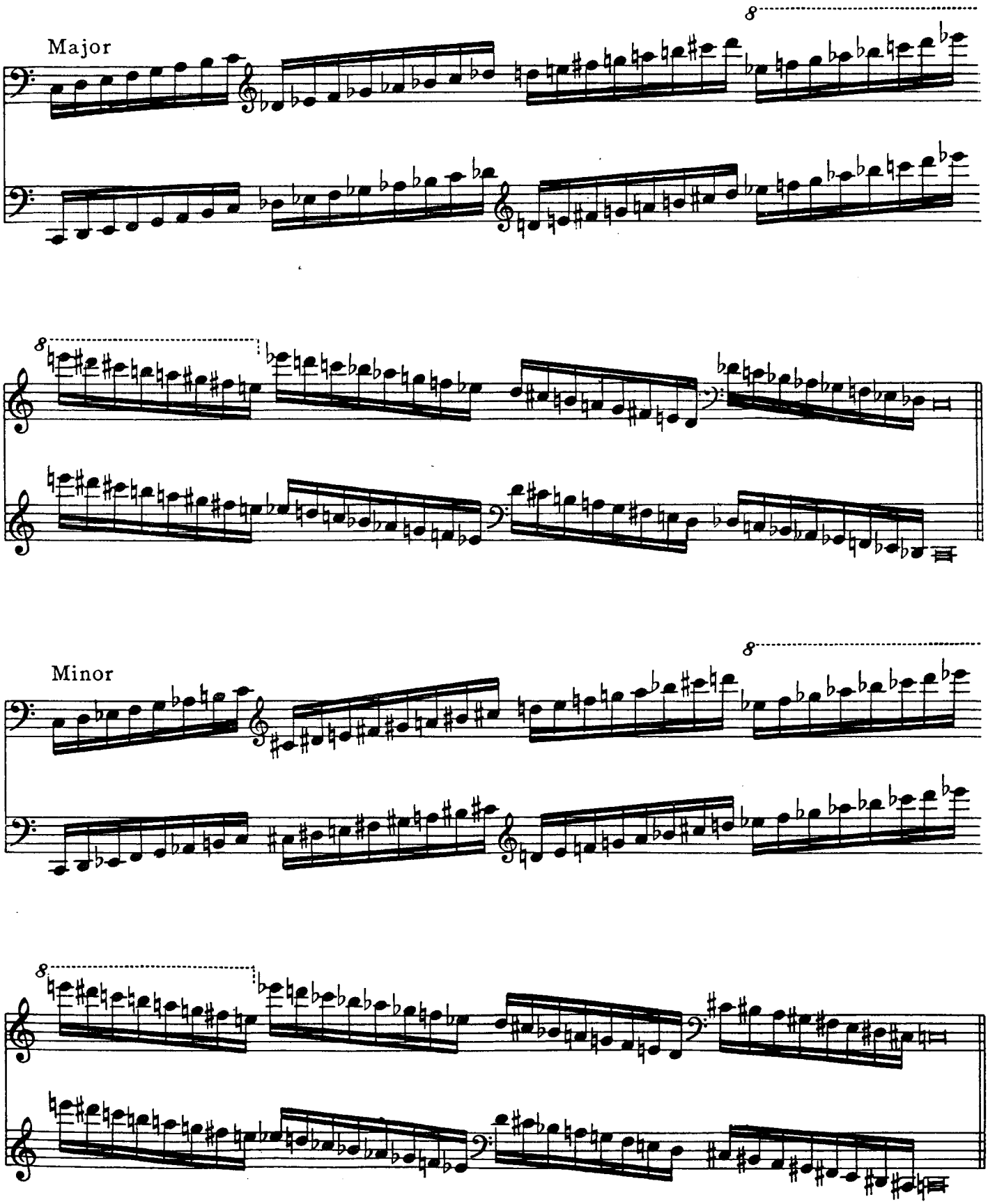
(№182)



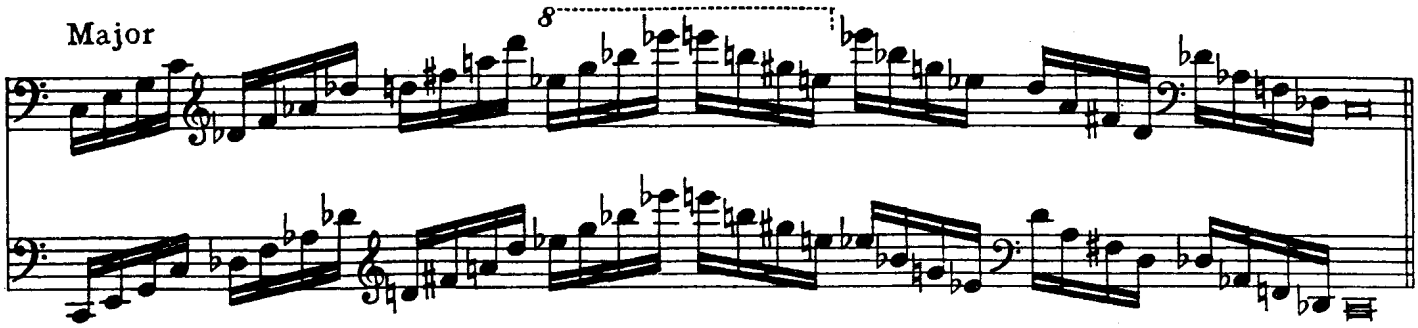

(№394)
8
8
(№393)
8


(№397)
8
8
(№343)
8

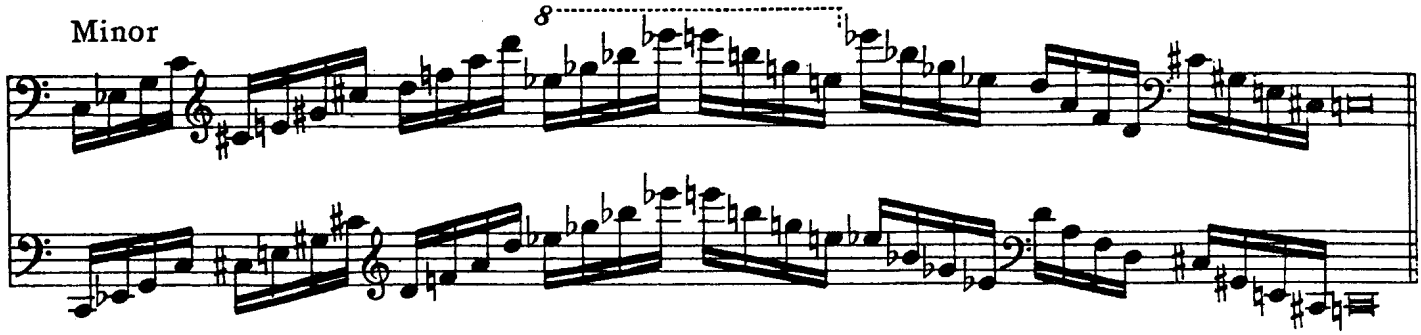
Plural Scales and Arpeggios



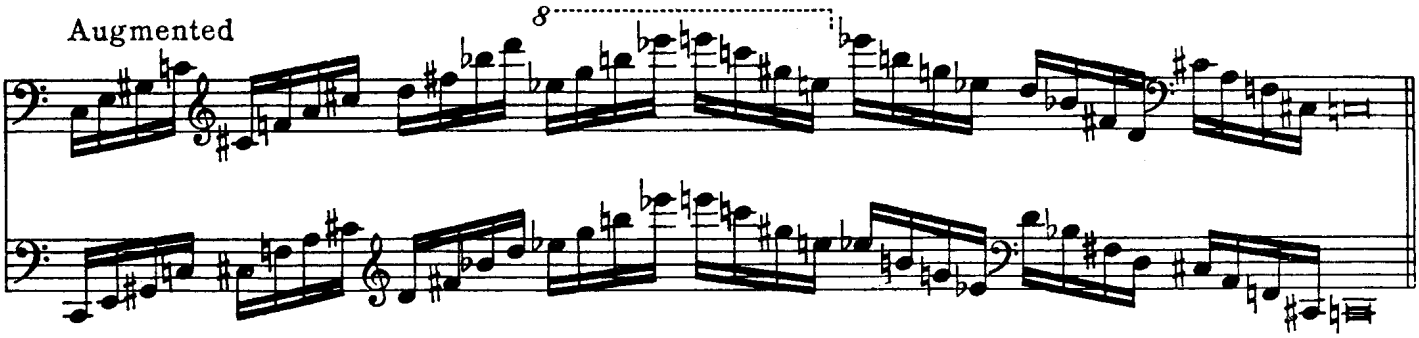
Major



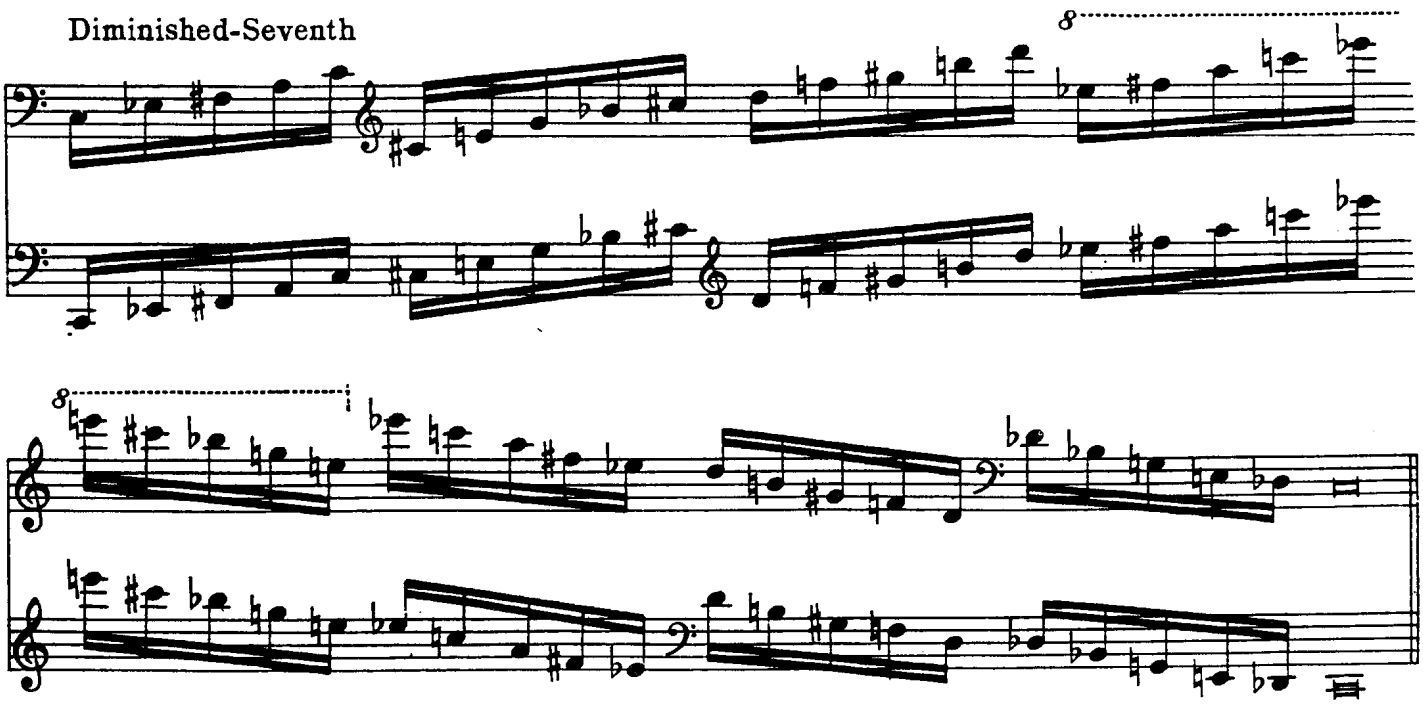
Minor



Augmented

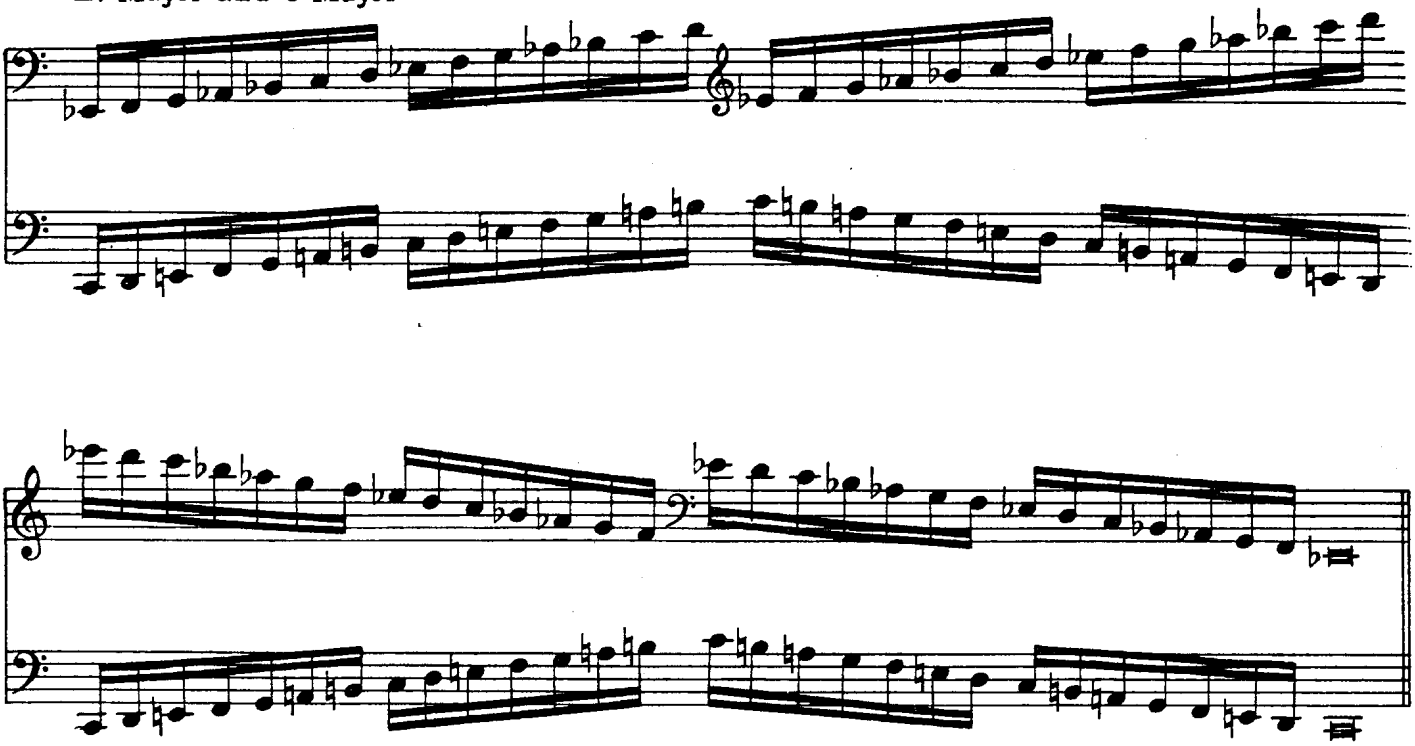


Diminished-Seventh

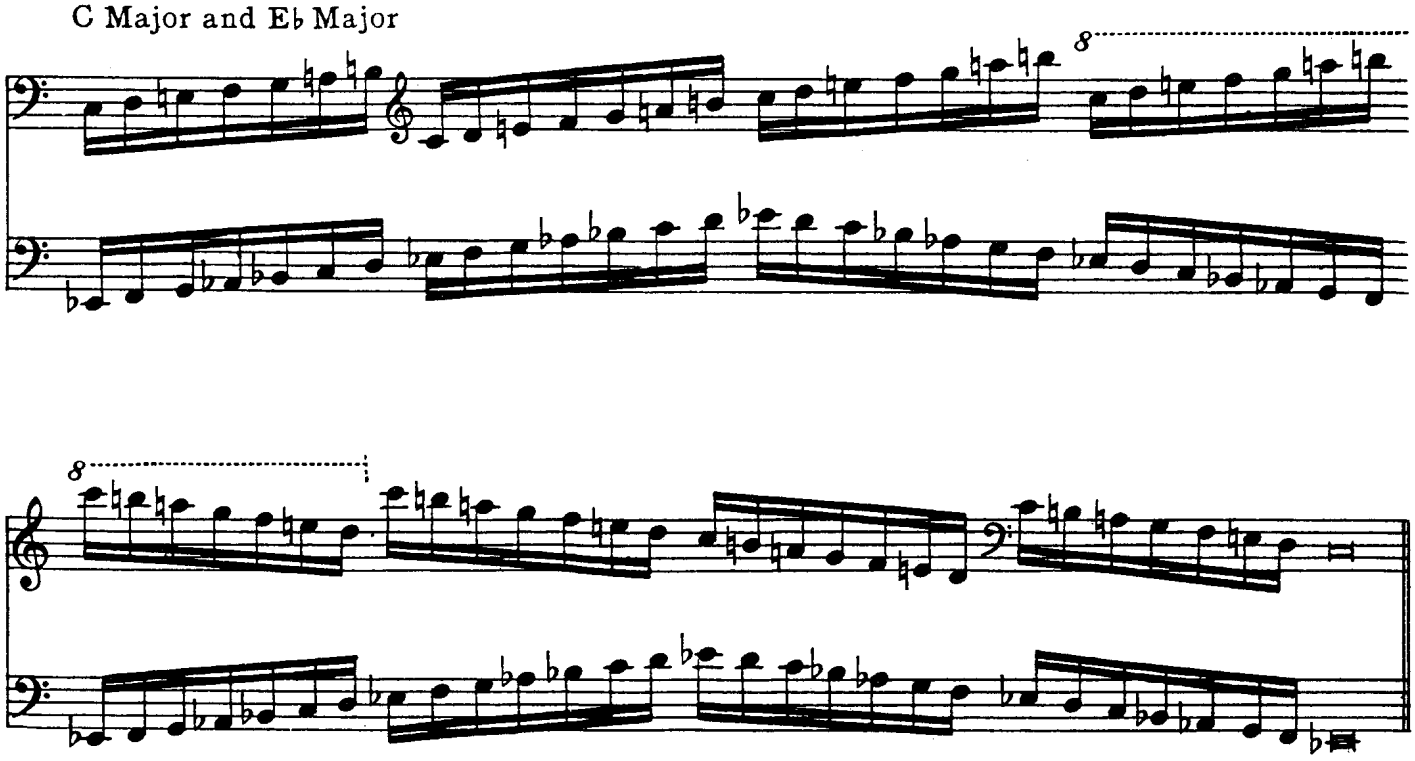


Polytonal Scales

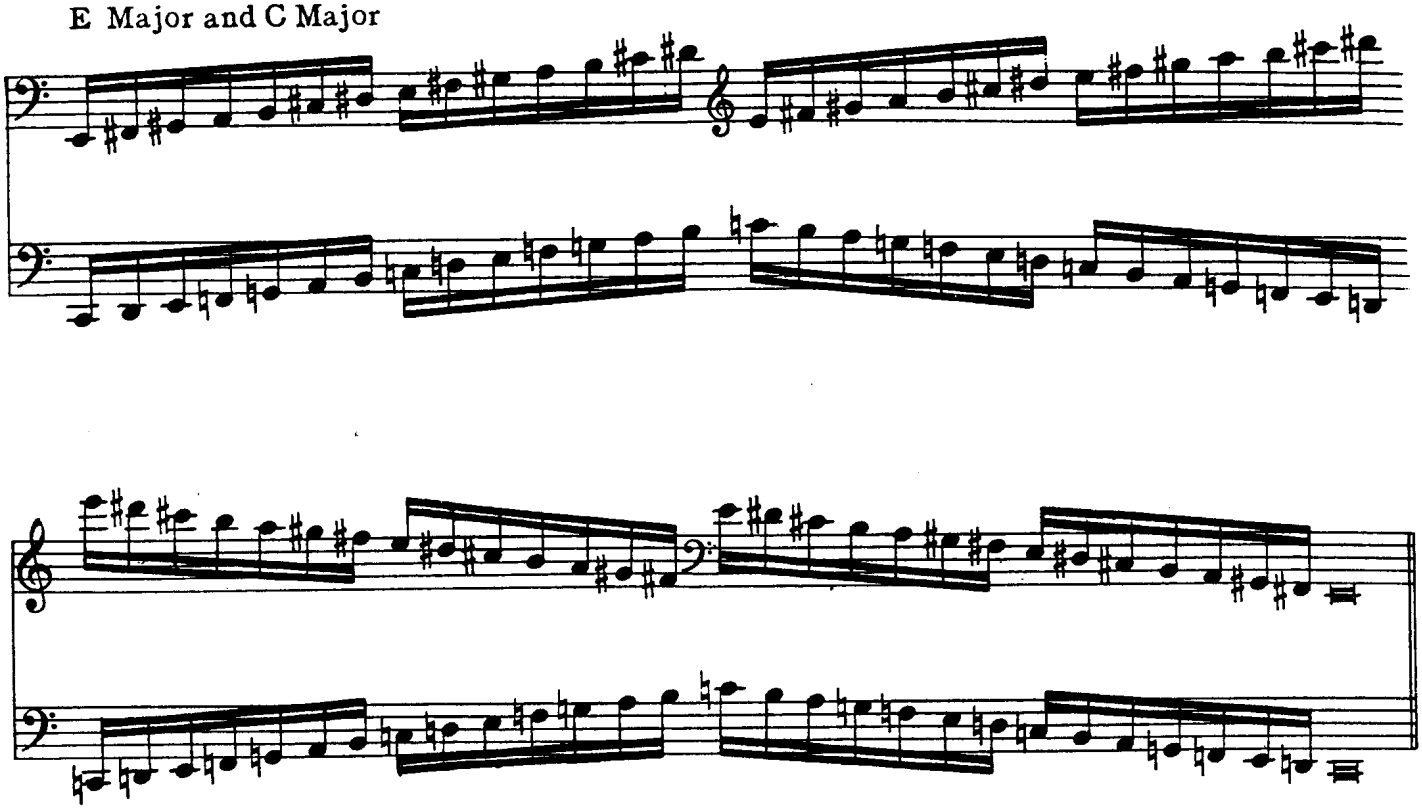
E♭ Major and C Major



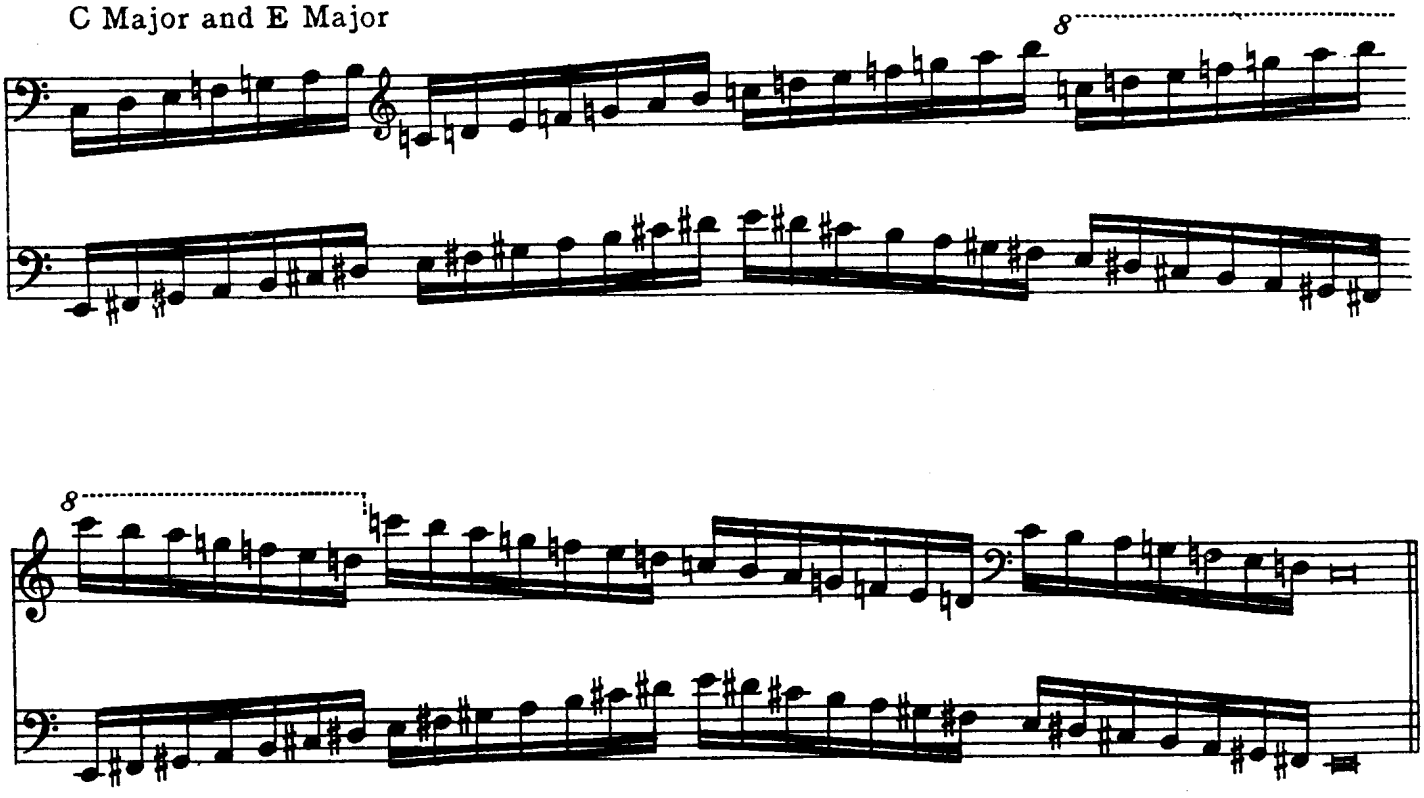
C Major and E♭ Major



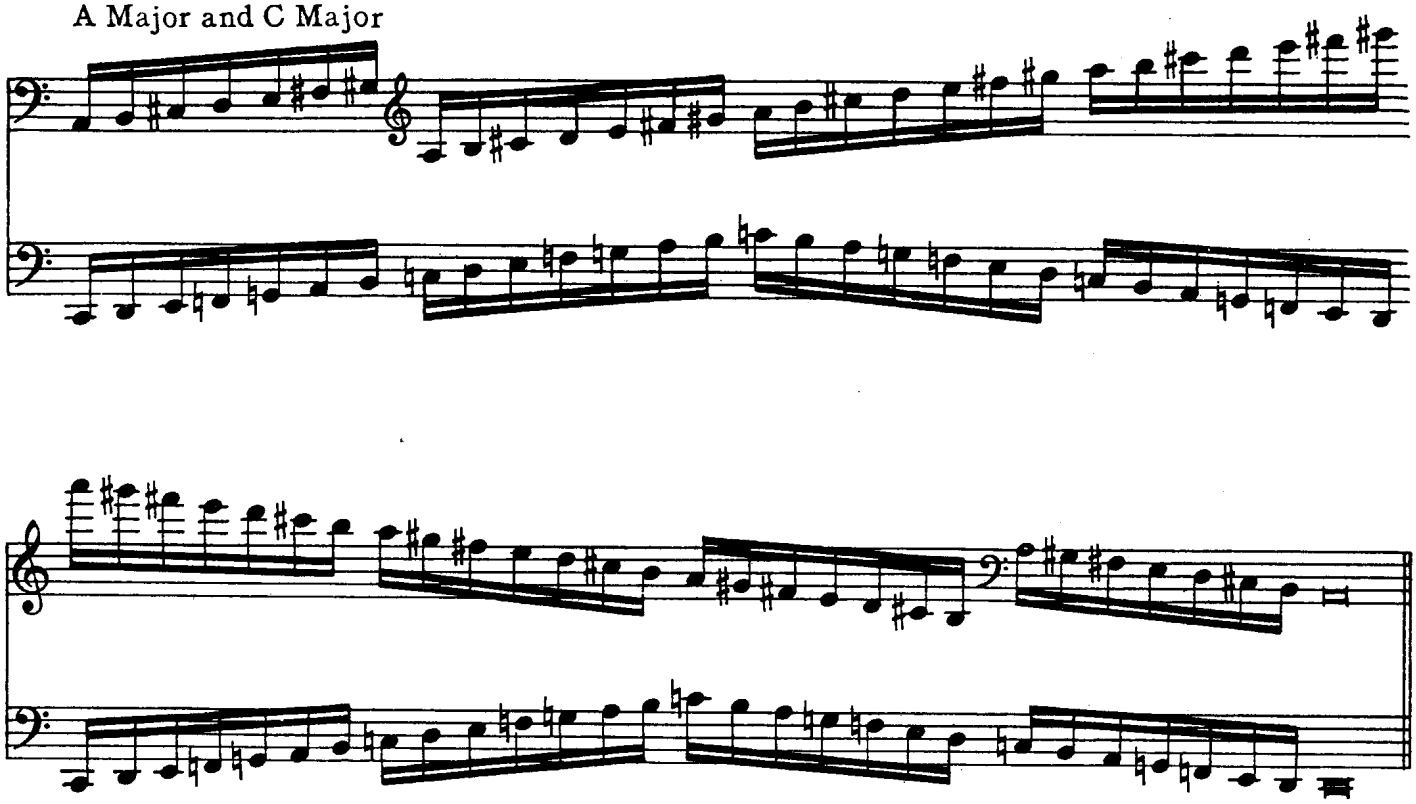
E Major and C Major



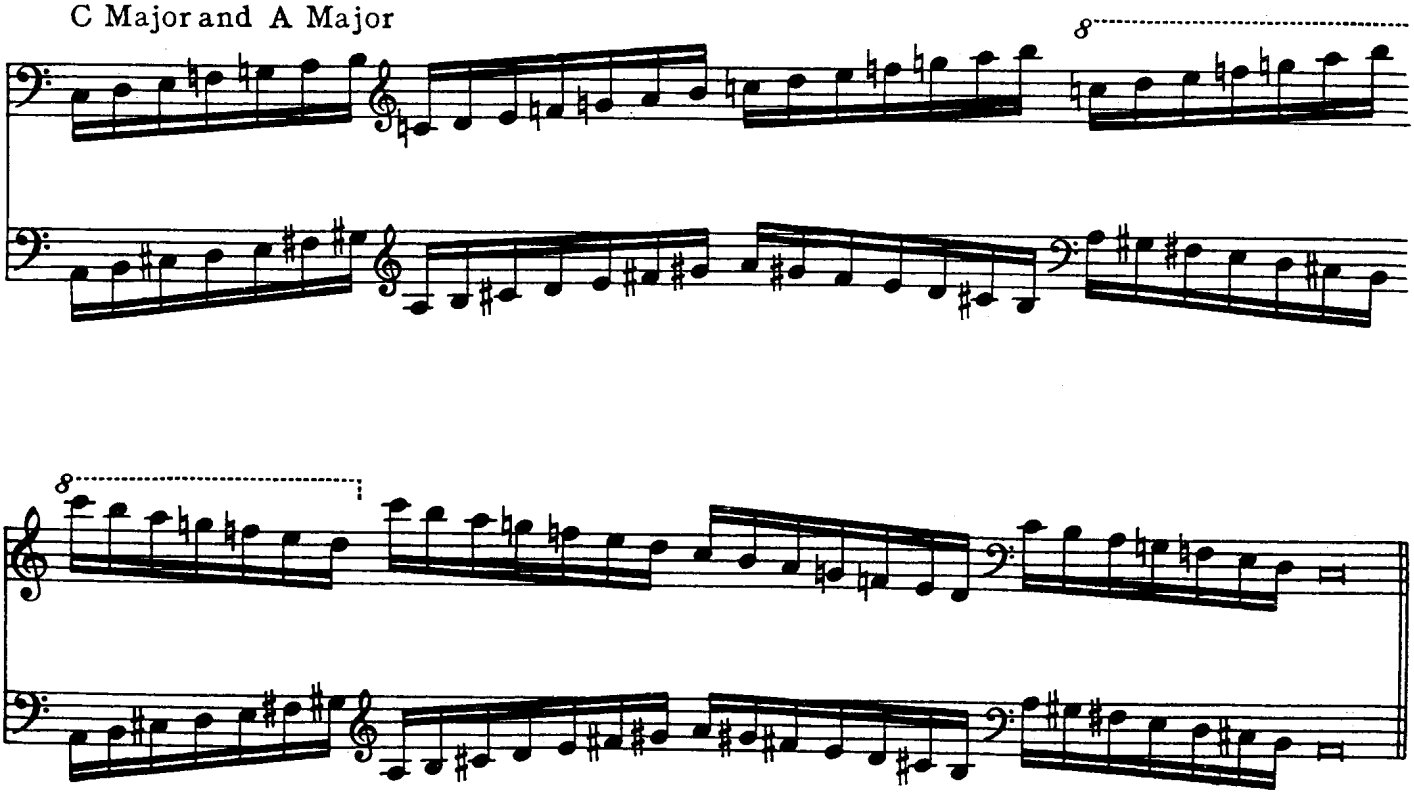
C Major and E Major



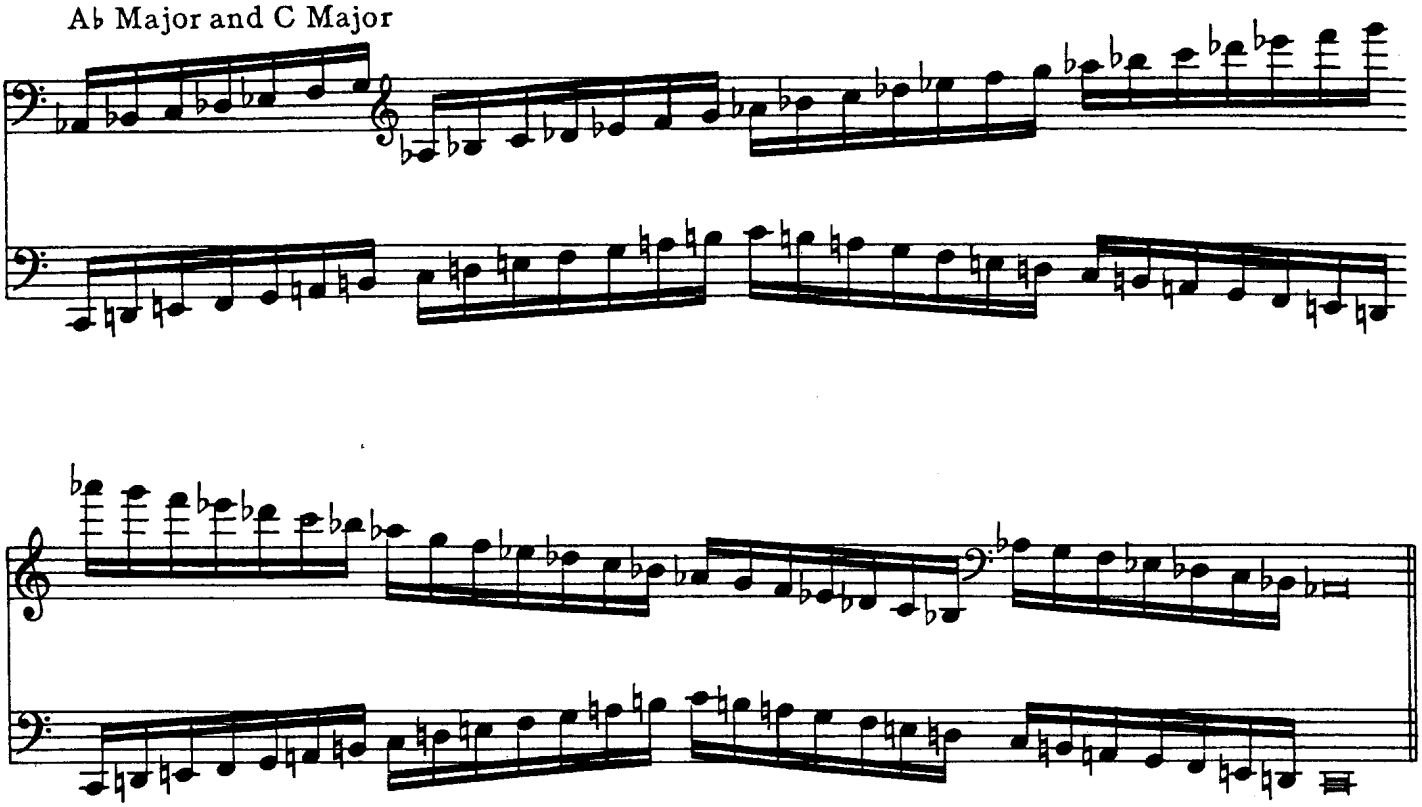
A Major and C Major



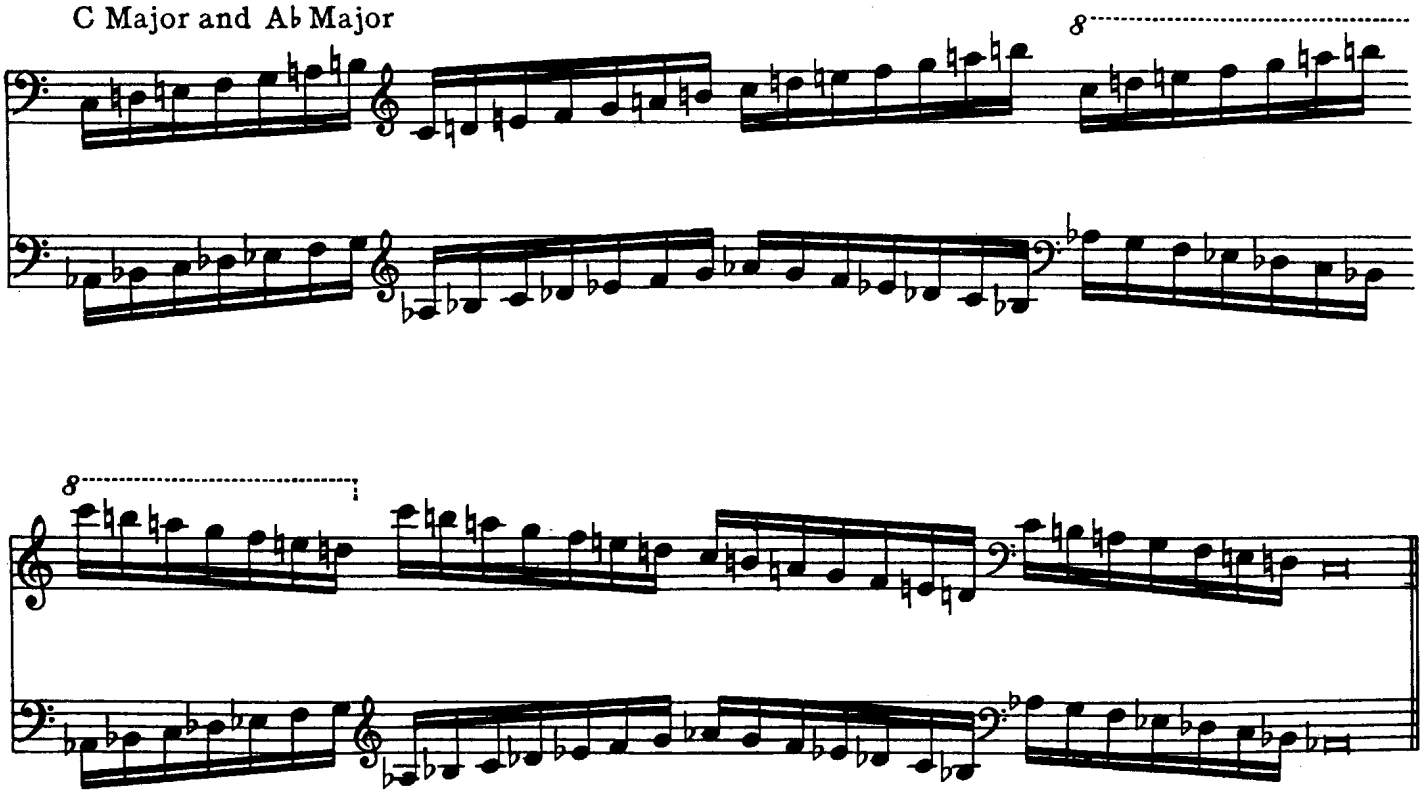
C Major and A Major



A♭ Major and C Major

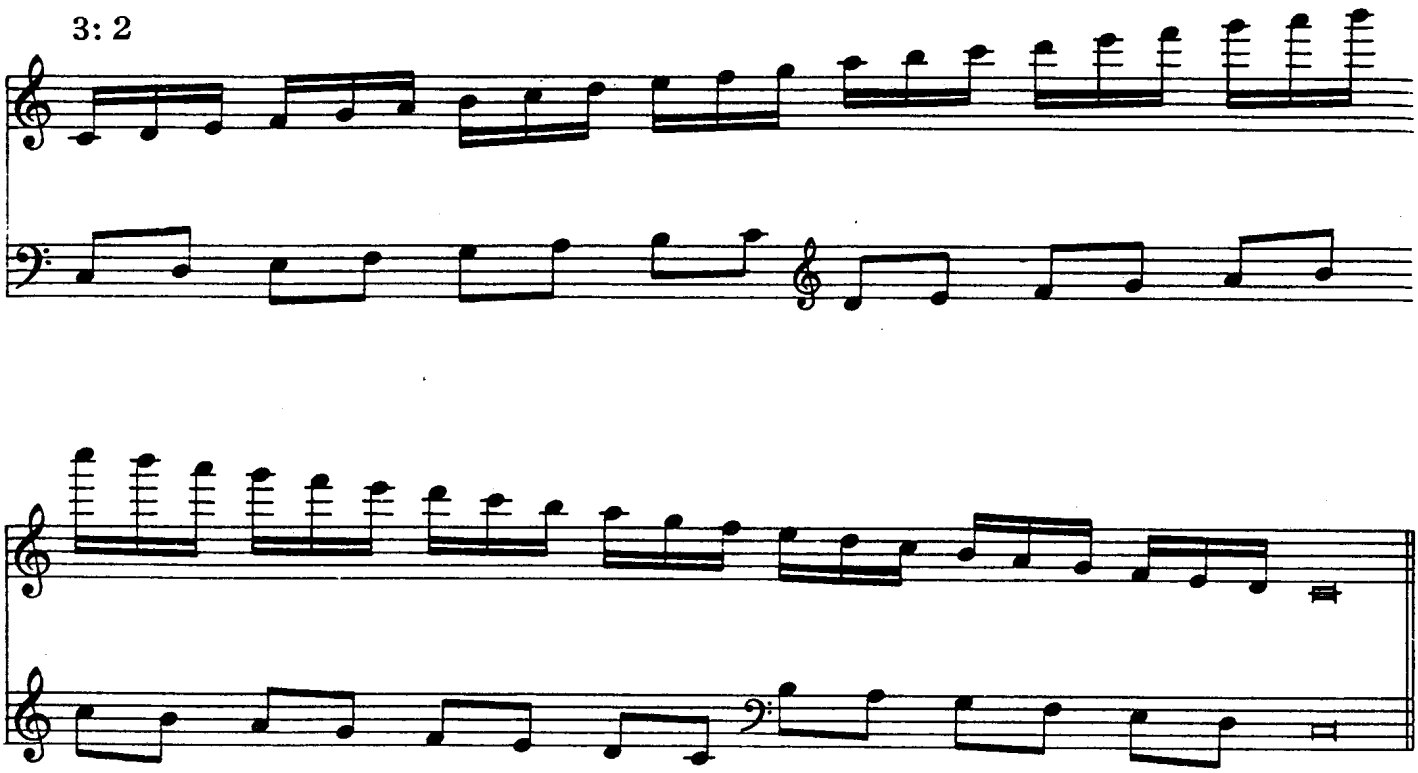


C Major and A♭ Major

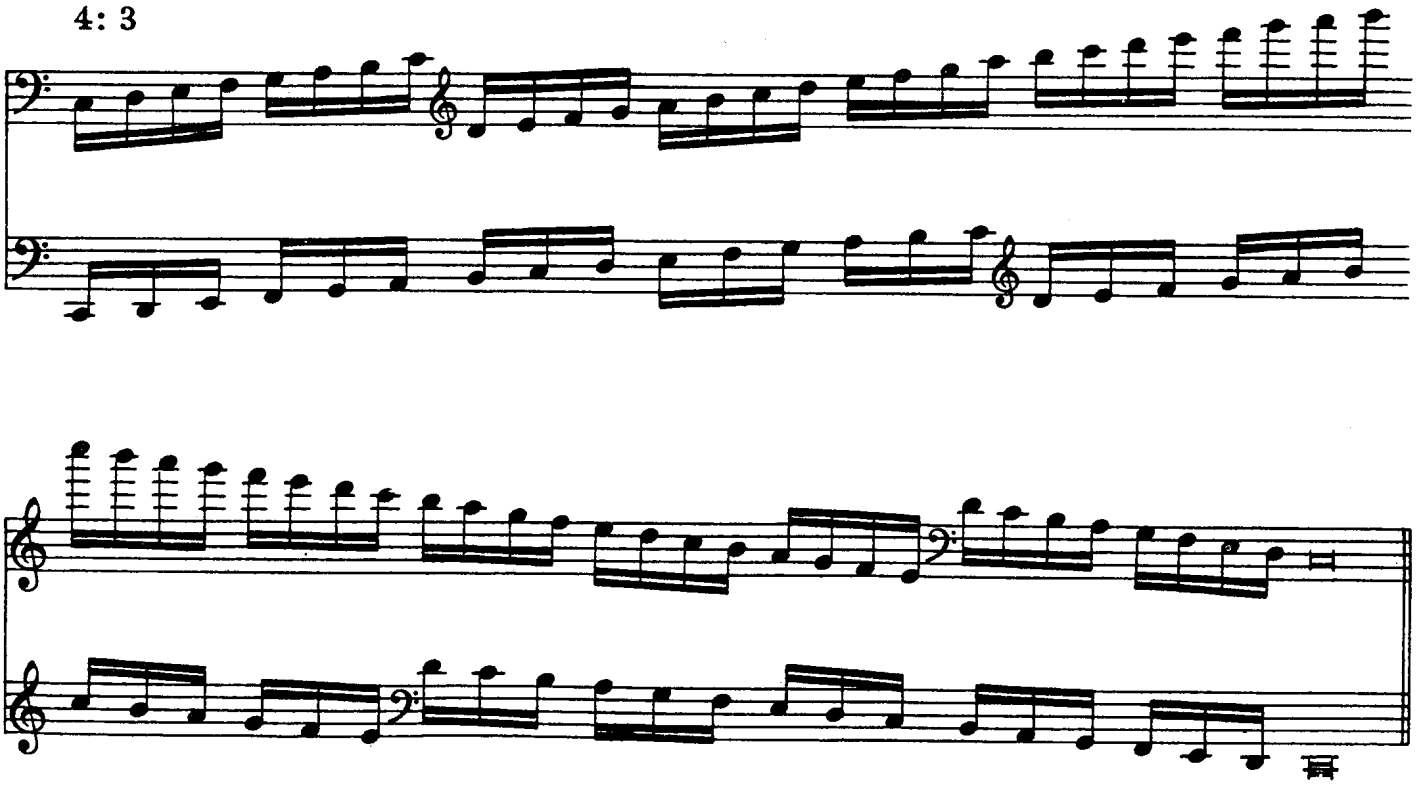


Polyrhythmic Scales

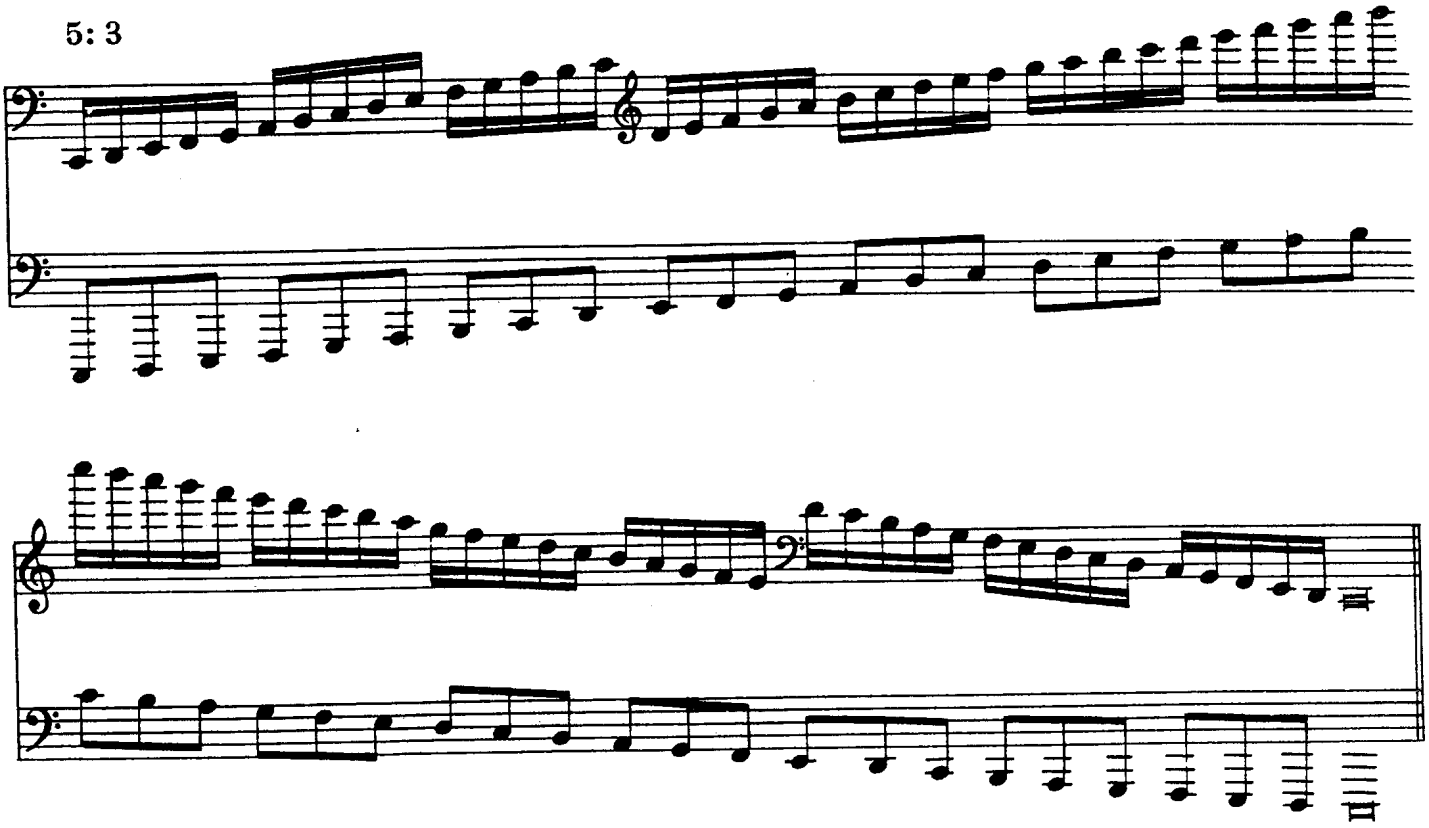
3: 2



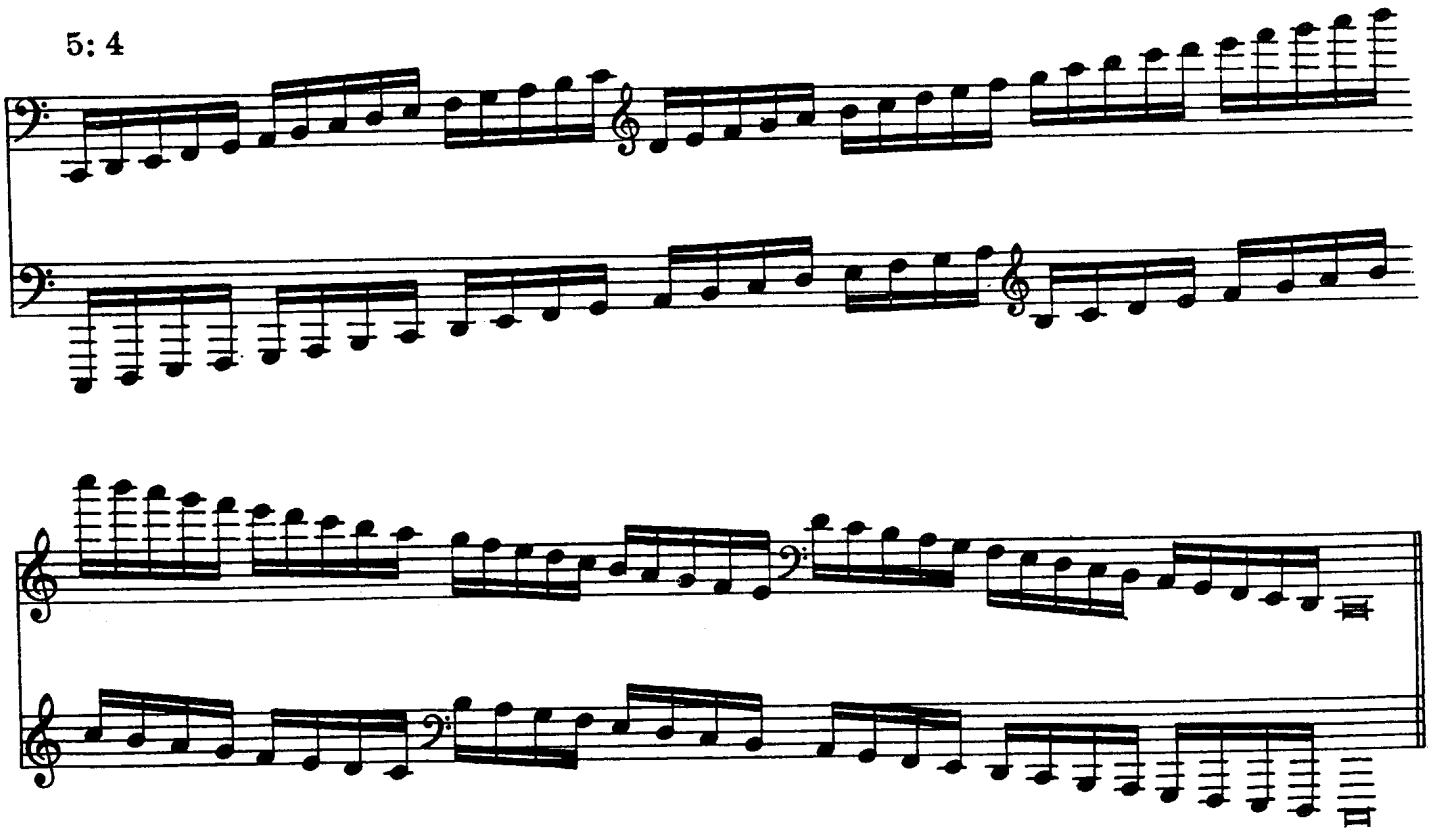
4: 3



5: 3

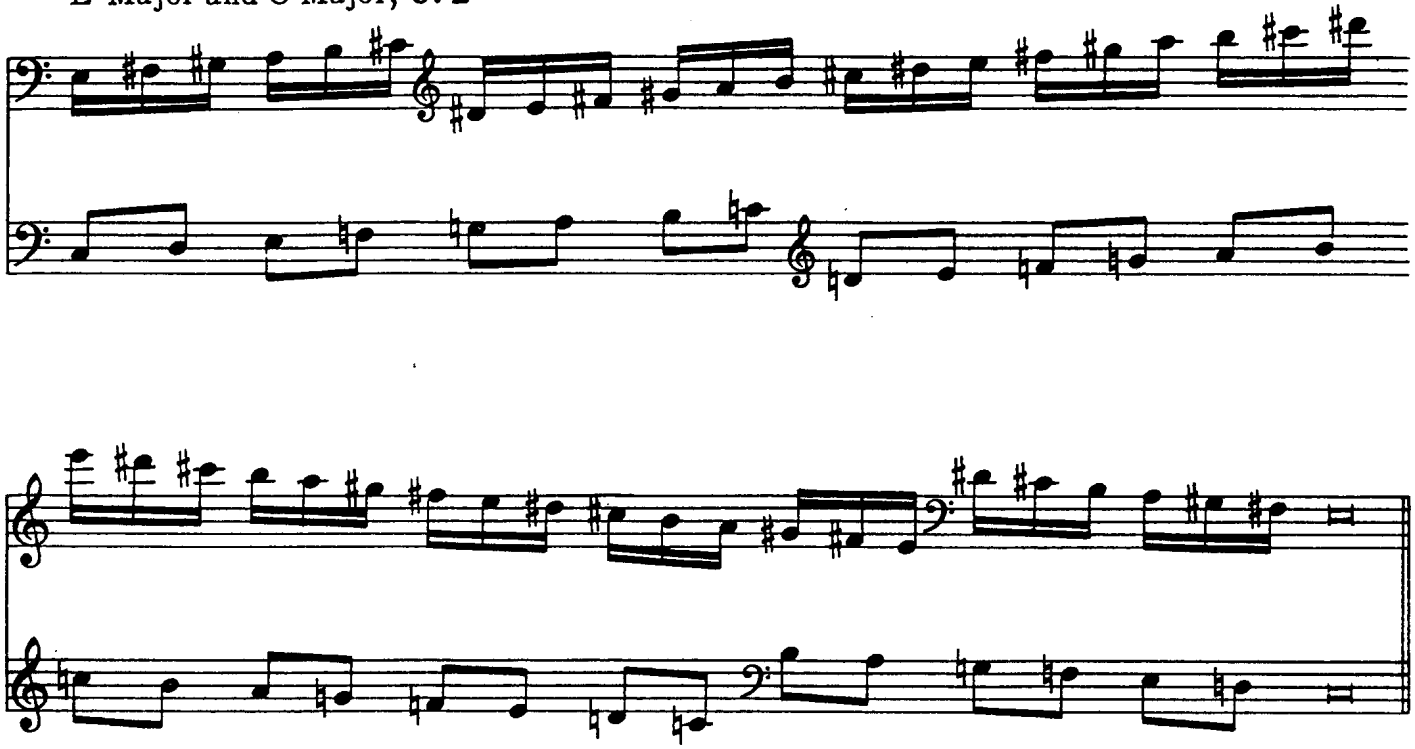


5: 4

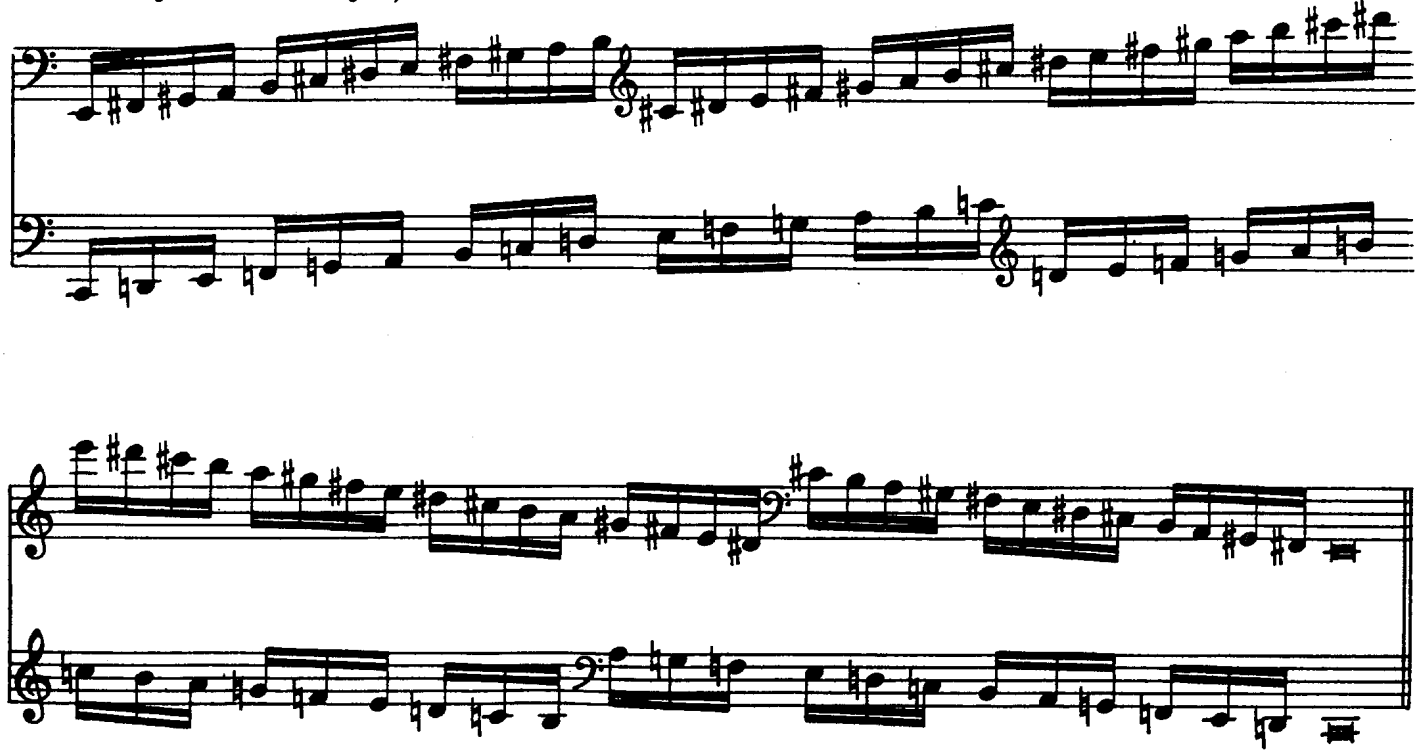


Polytonal Polyrhythmic Scales

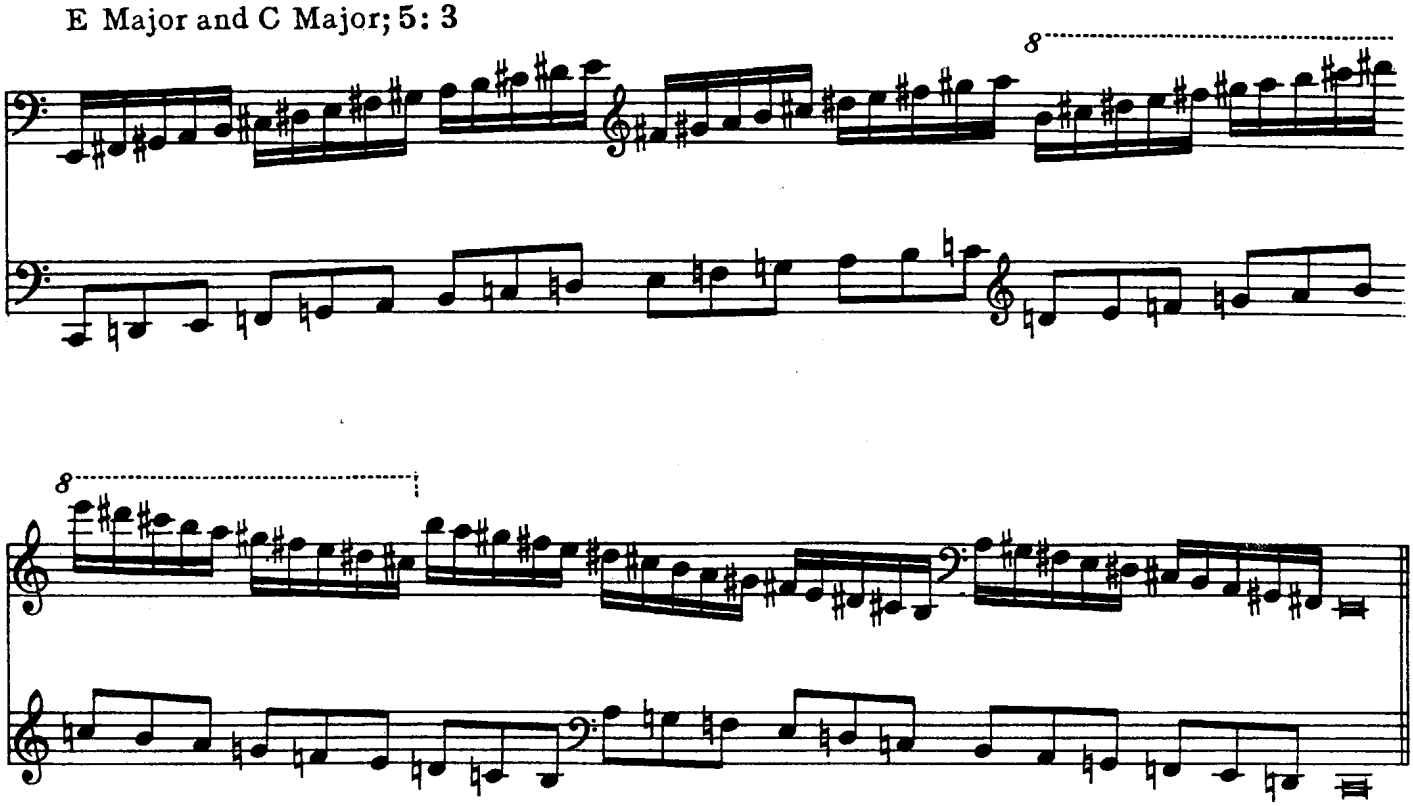
E Major and C Major; 3: 2



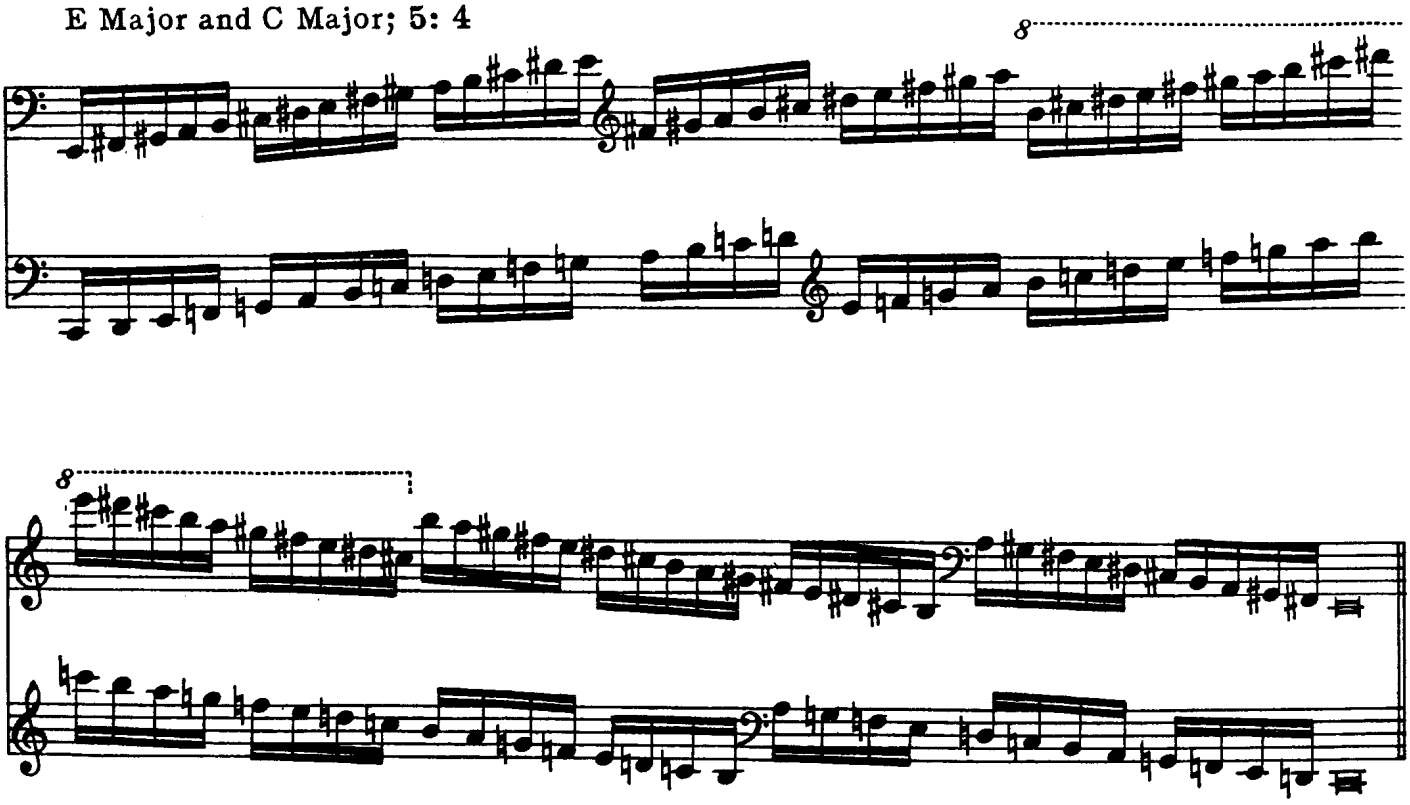
E Major and C Major; 4: 3



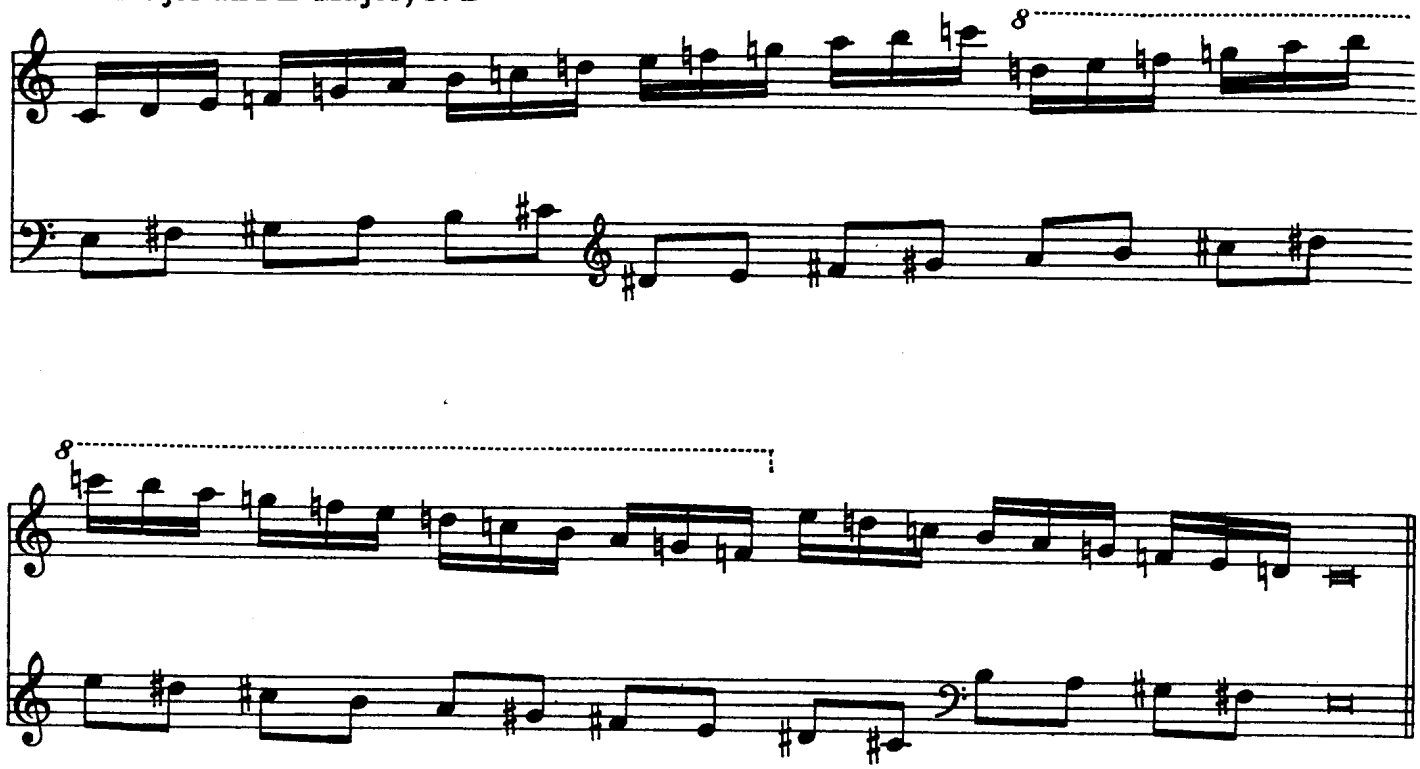
E Major and C Major; 5: 3



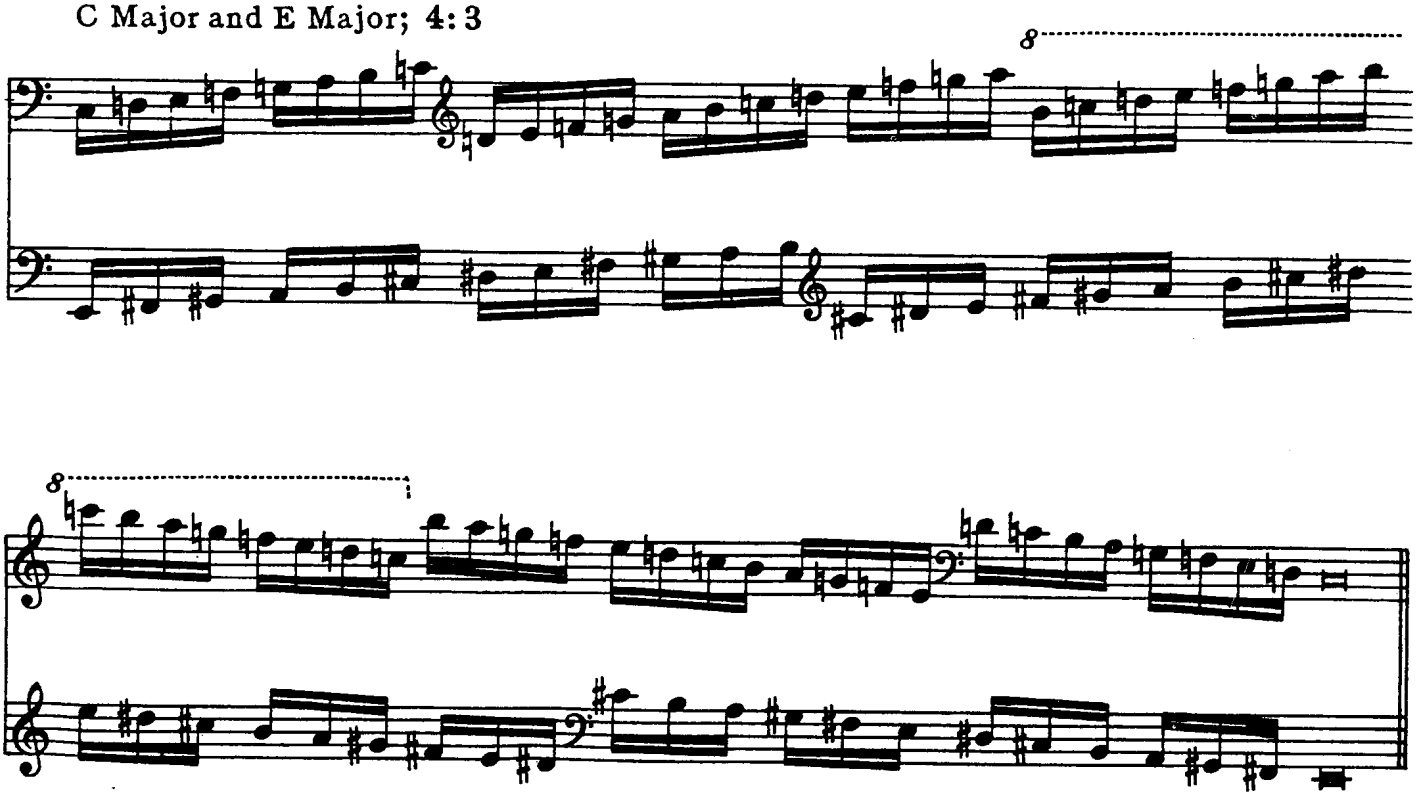
E Major and C Major; 5: 4



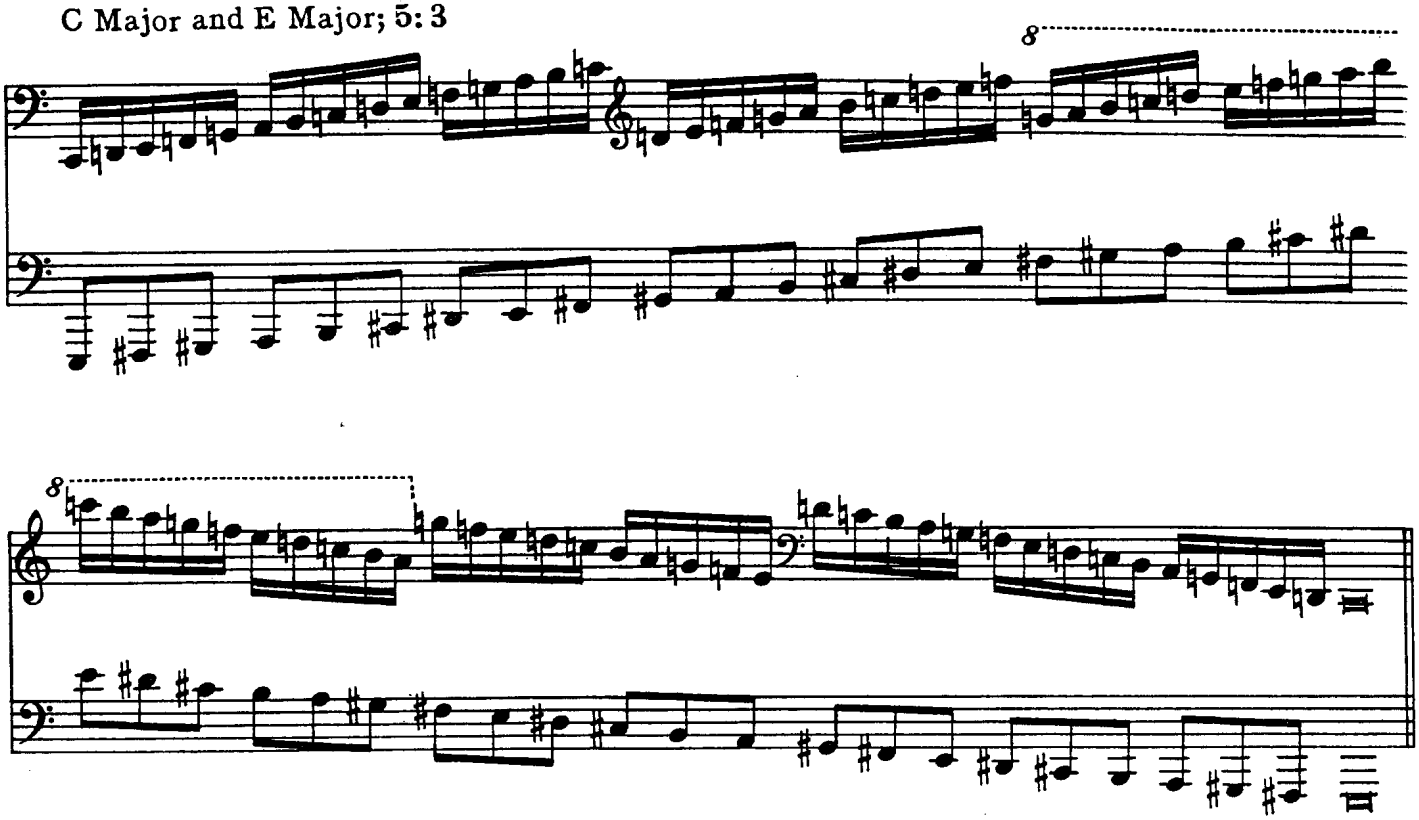
C Major and E Major; 3: 2



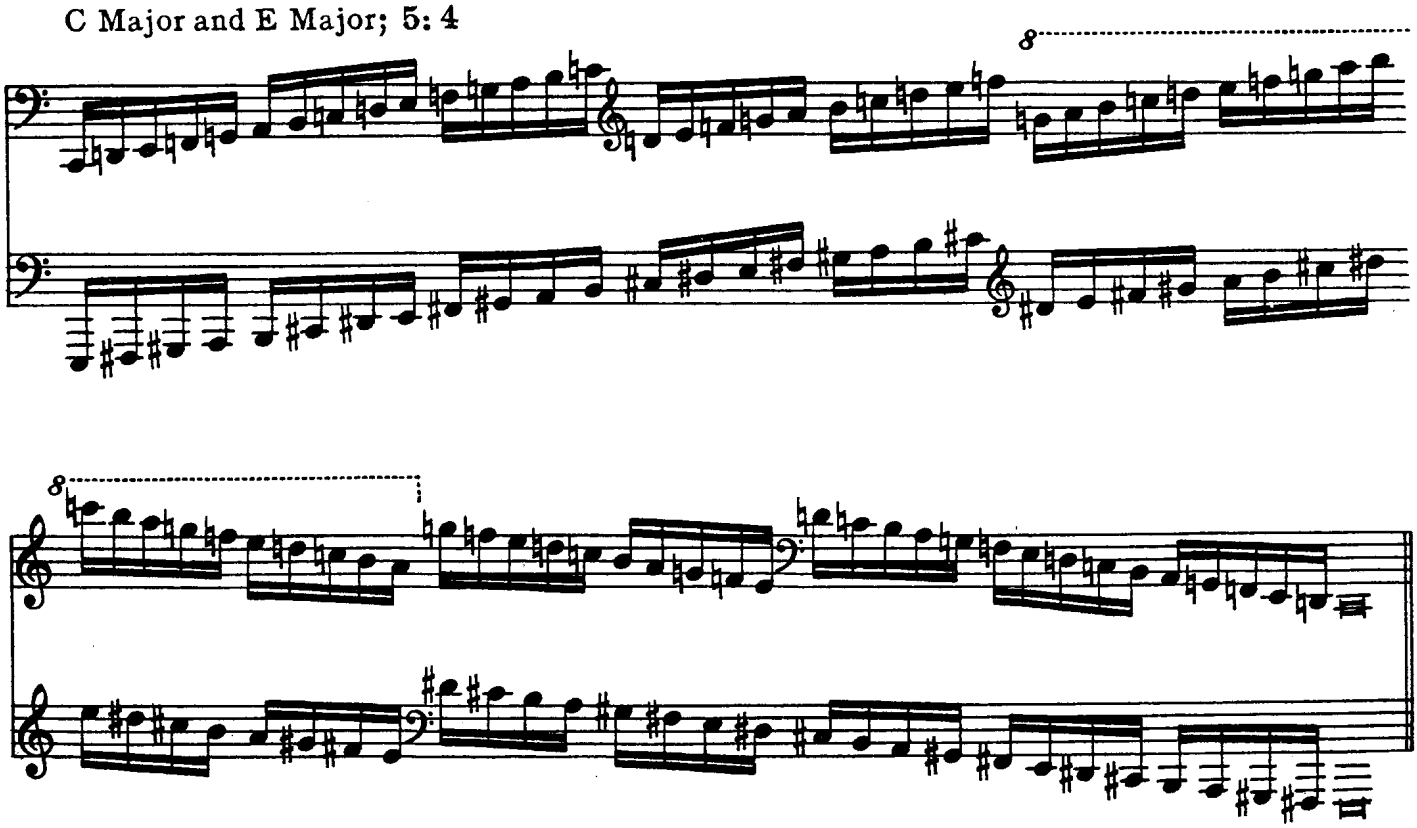
C Major and E Major; 4: 3



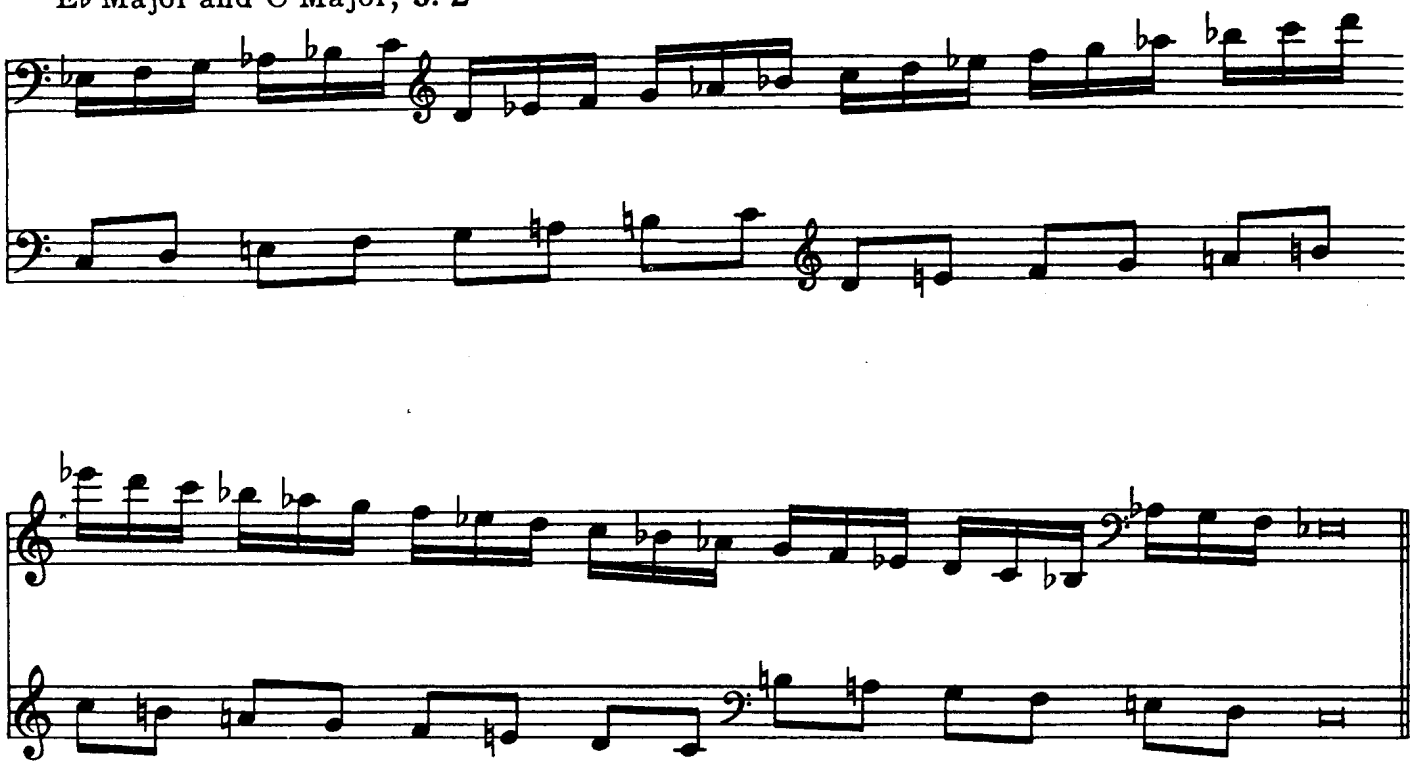
C Major and E Major; 5: 3



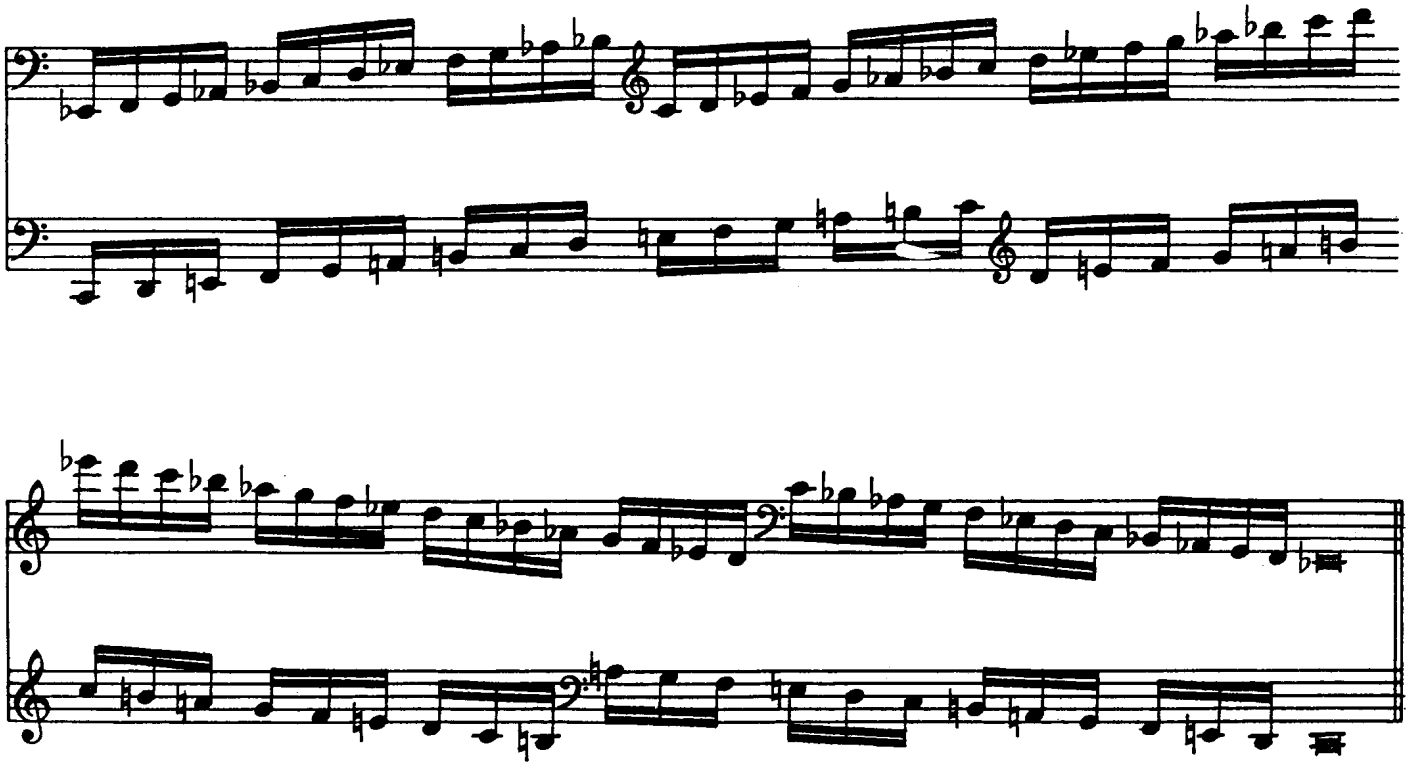
C Major and E Major; 5: 4



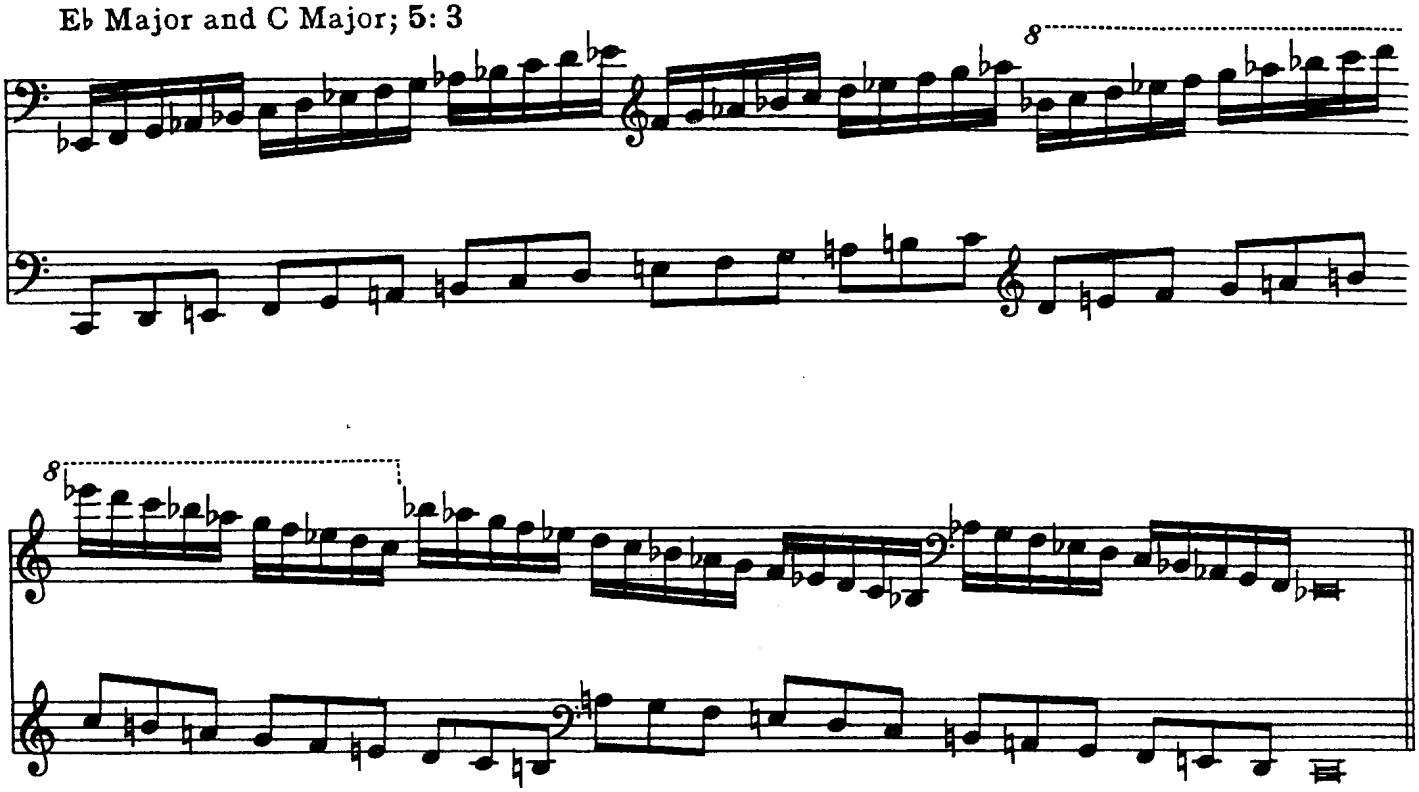
E♭ Major and C Major; 3: 2



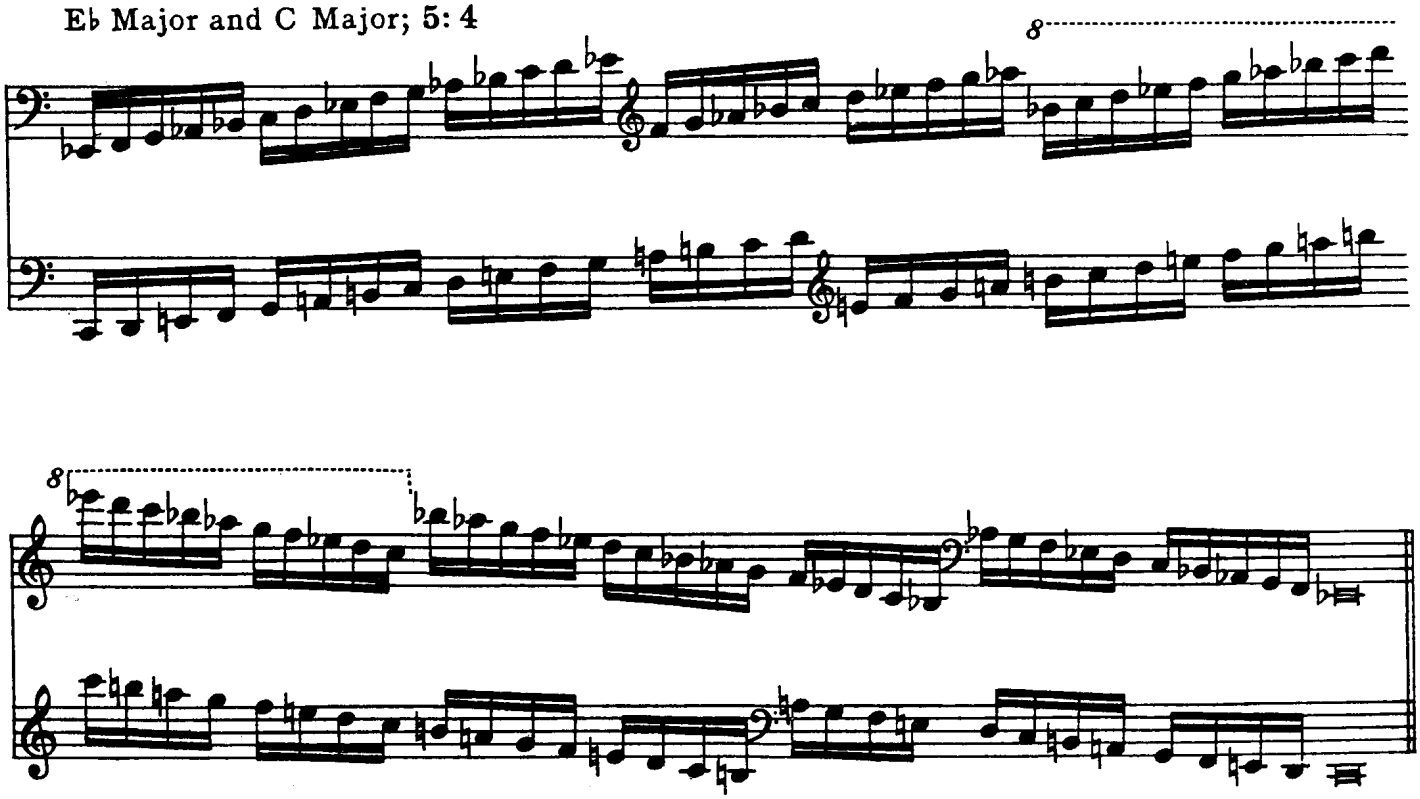
E♭ Major and C Major; 4: 3



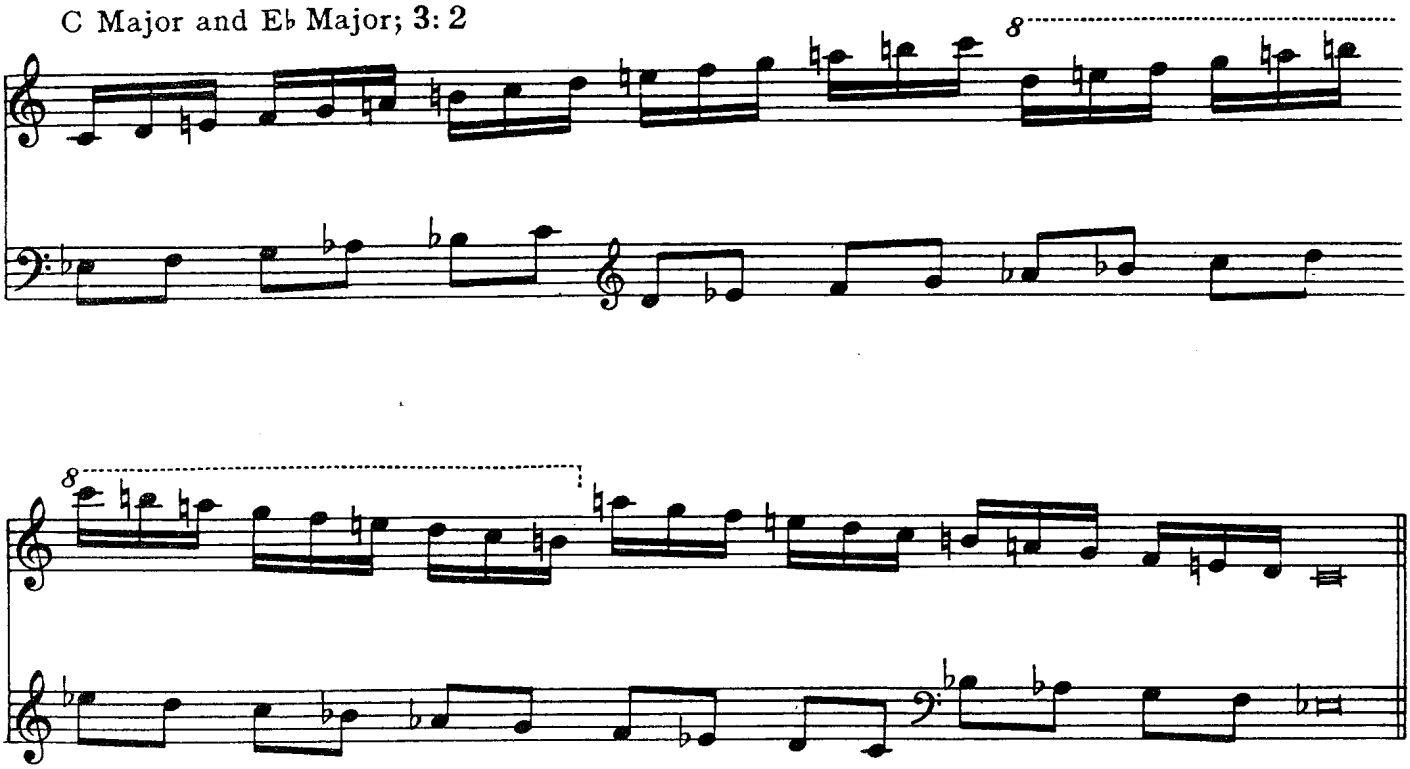
E♭ Major and C Major; 5: 3



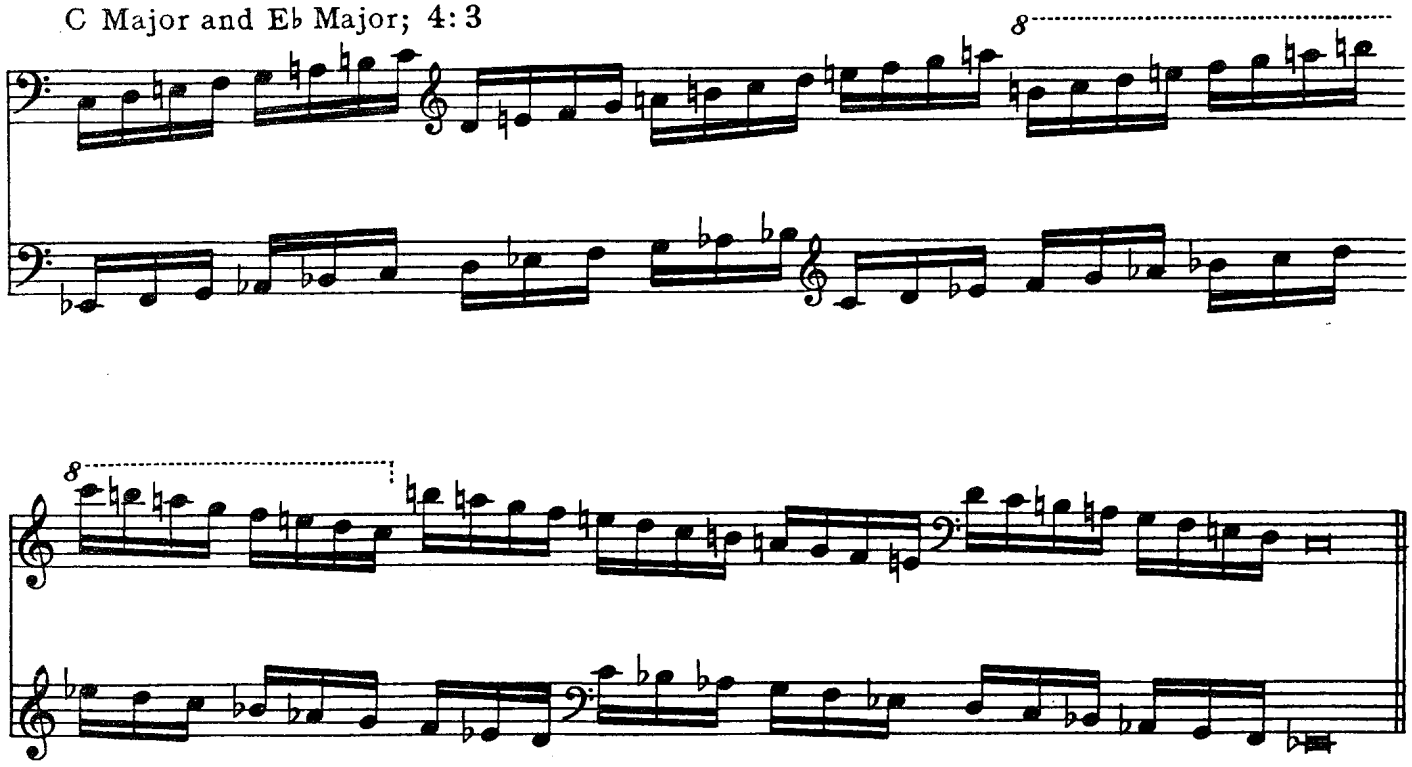
E♭ Major and C Major; 5: 4



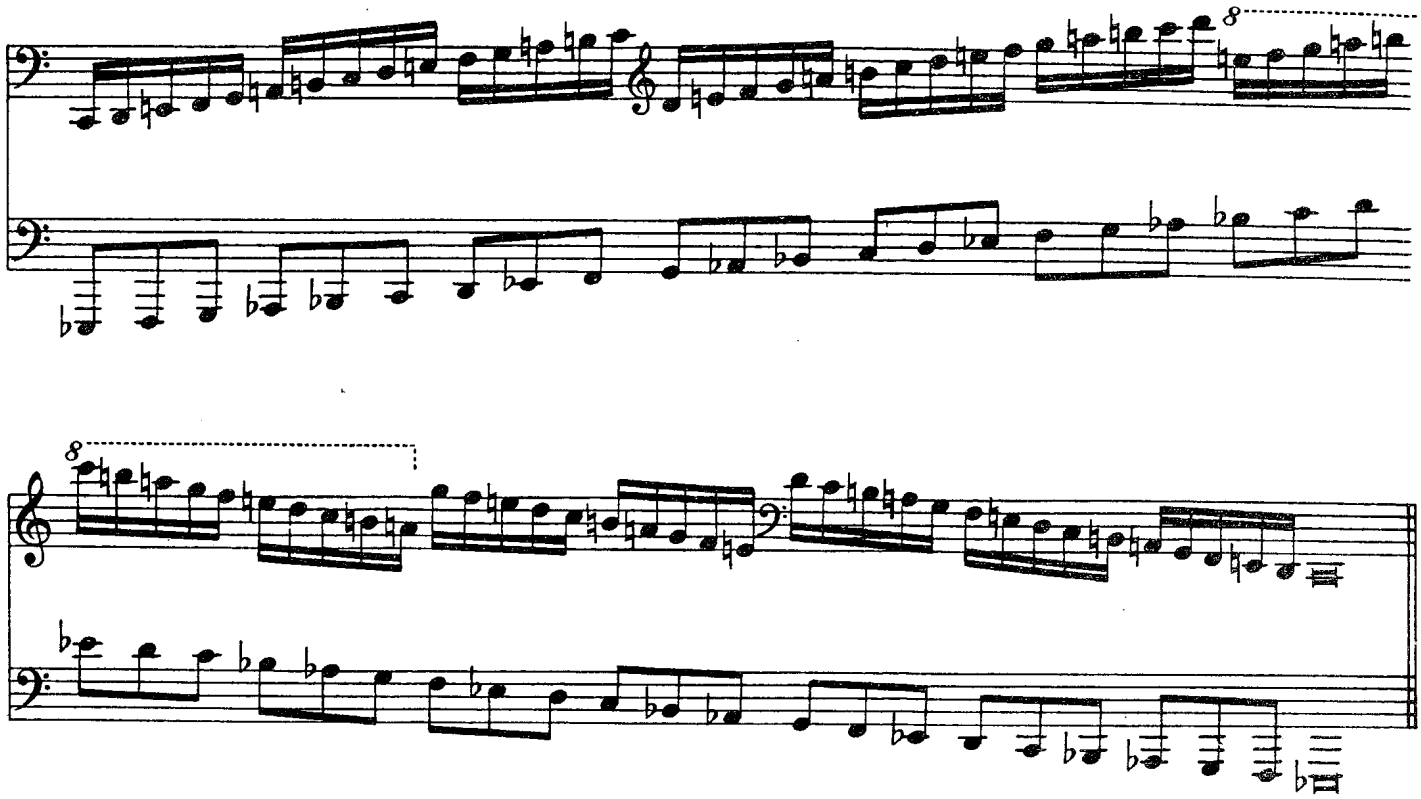
C Major and E♭ Major; 3: 2



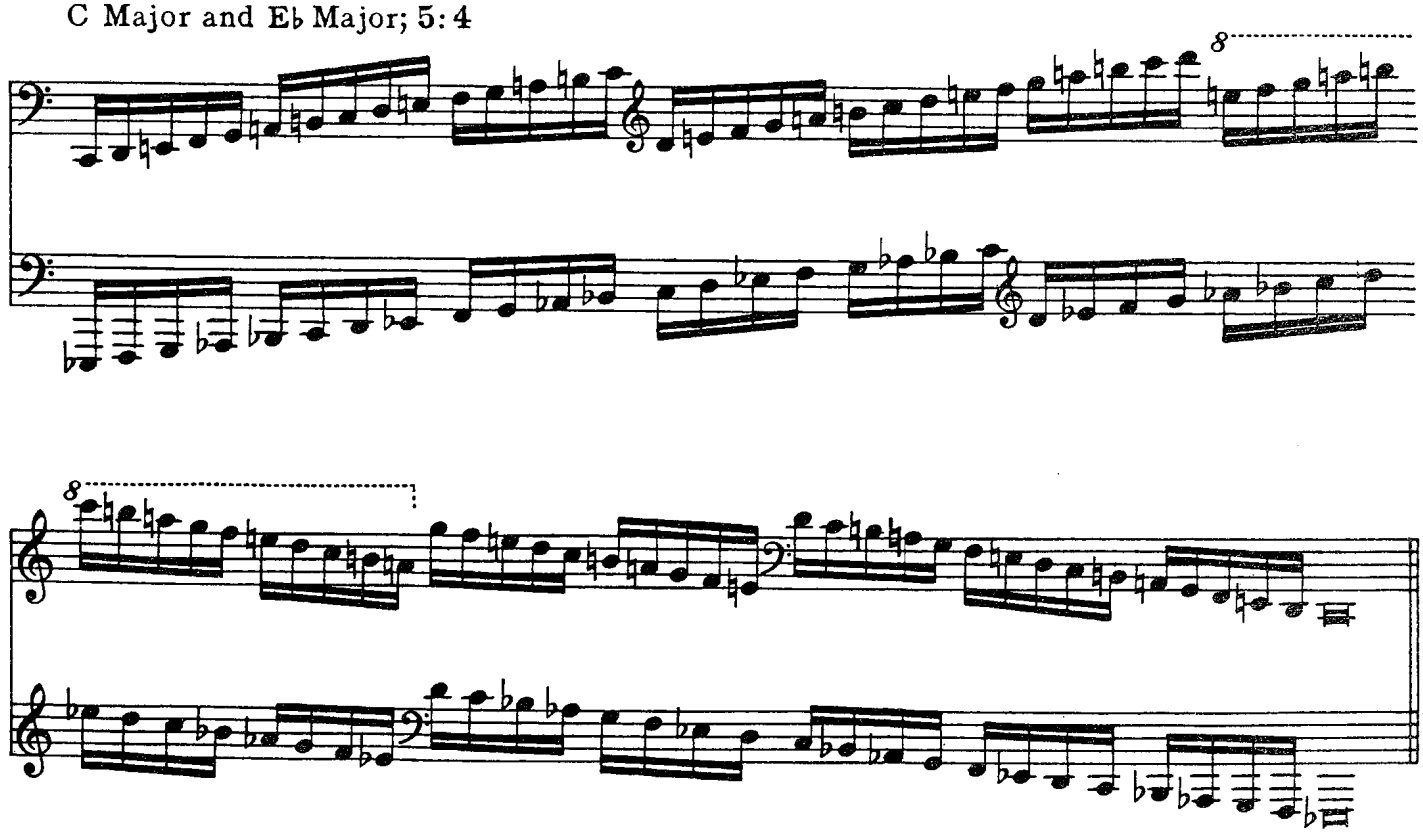
C Major and E♭ Major; 4: 3



C Major and E♭ Major; 5: 3



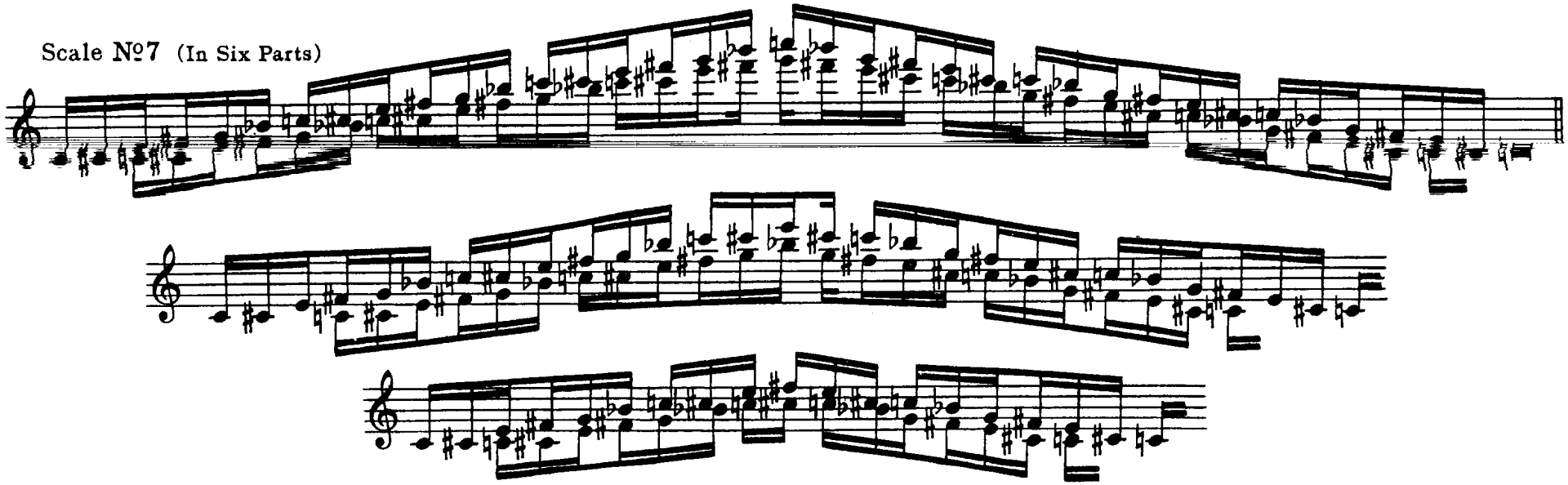
C Major and E♭ Major; 5: 4



Palindromic Canons

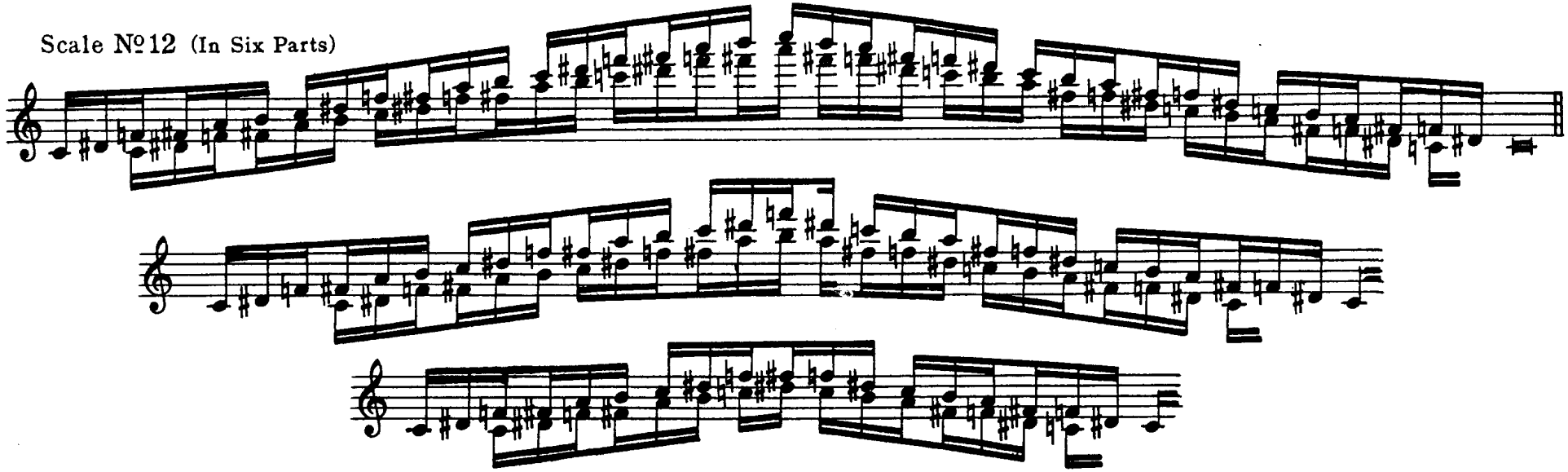
Bitonal Palindromic Canon: C Major and F♯ Major

Scale №7 (In Six Parts)



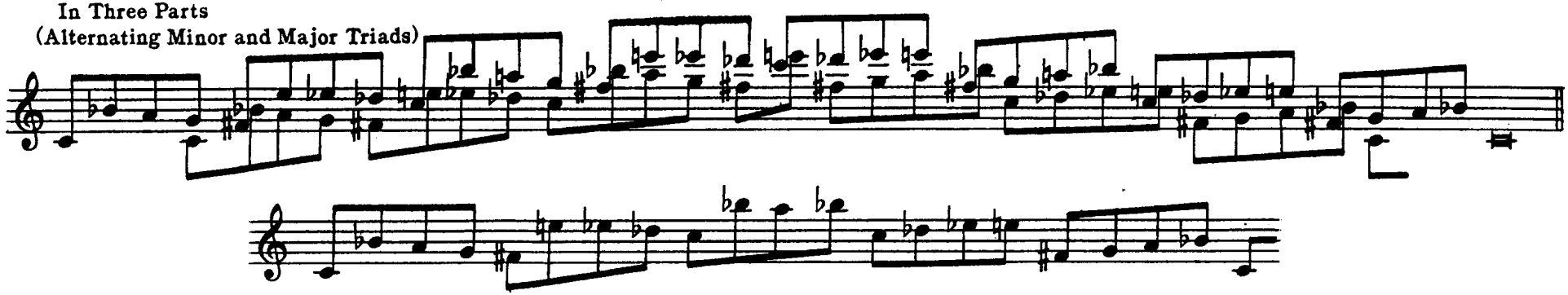
Bitonal Palindromic Canon: F Major and B Major

Scale №12 (In Six Parts)

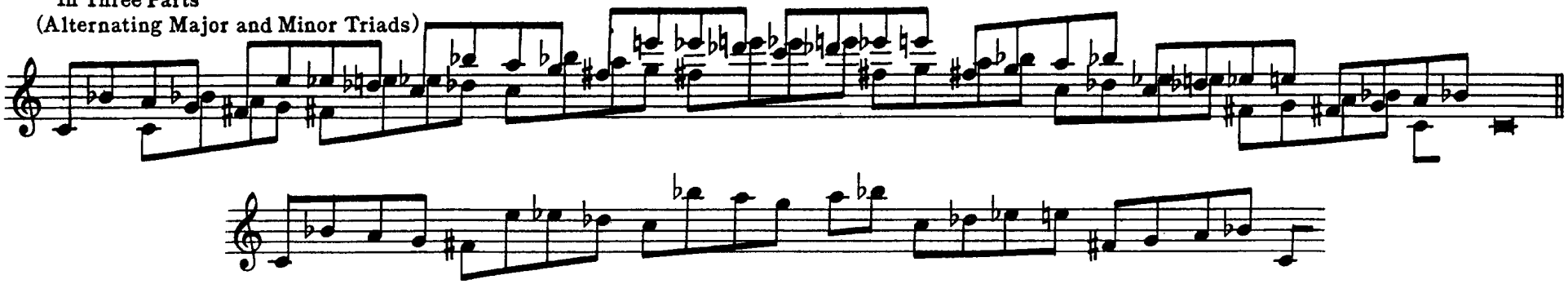


Two Palindromic Canons on Pattern 72

In Three Parts
(Alternating Minor and Major Triads)

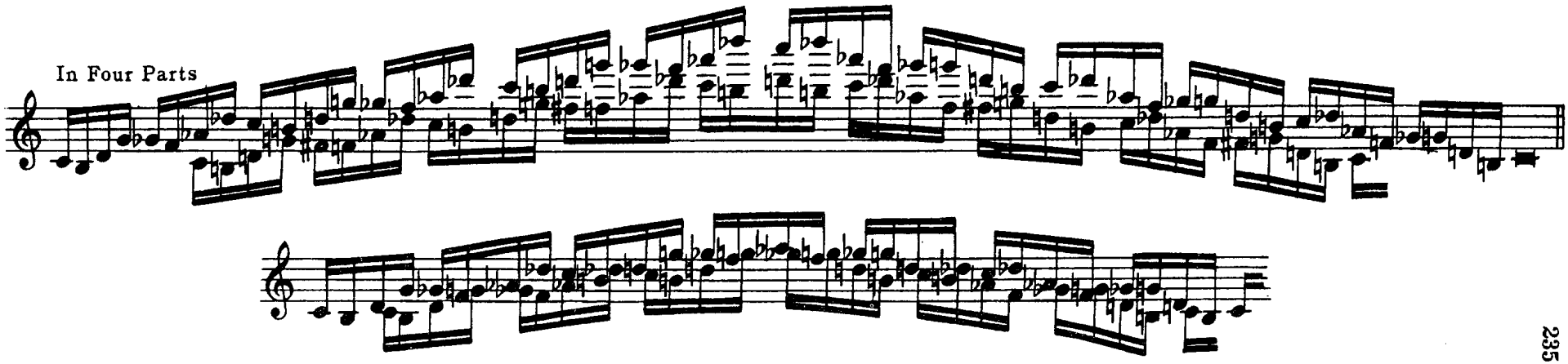


In Three Parts
(Alternating Major and Minor Triads)



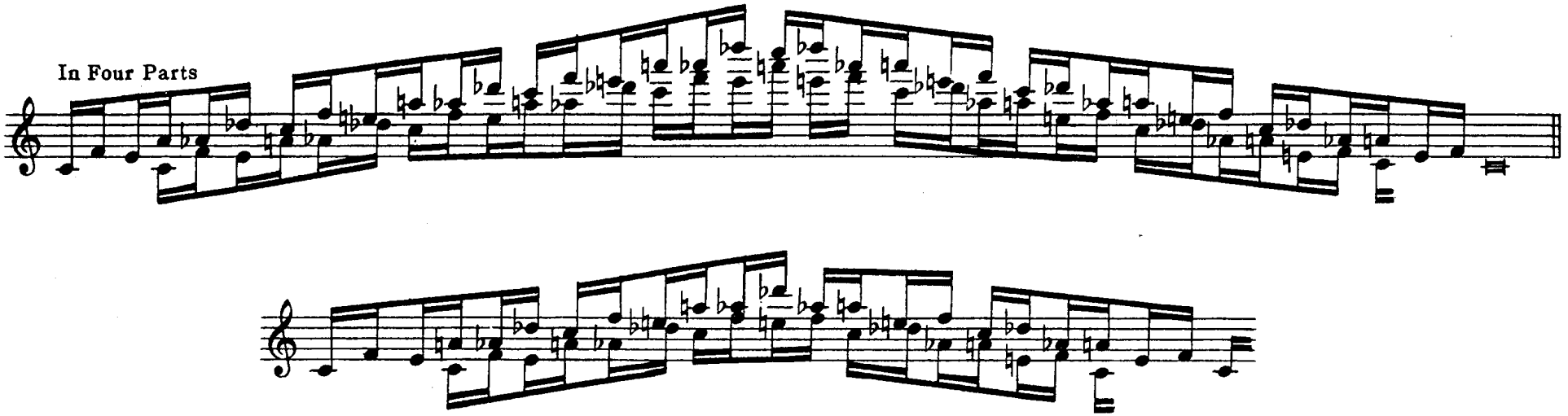
Palindromic Canon on Pattern 141

In Four Parts



Palindromic Canon on Pattern 186

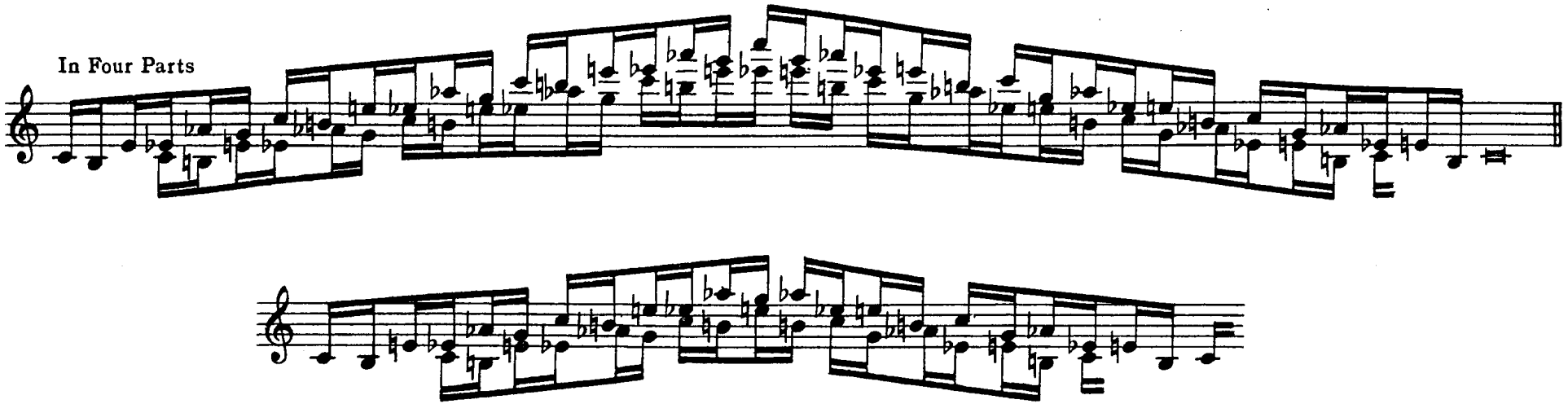
In Four Parts



Palindromic Canon on Pattern 231

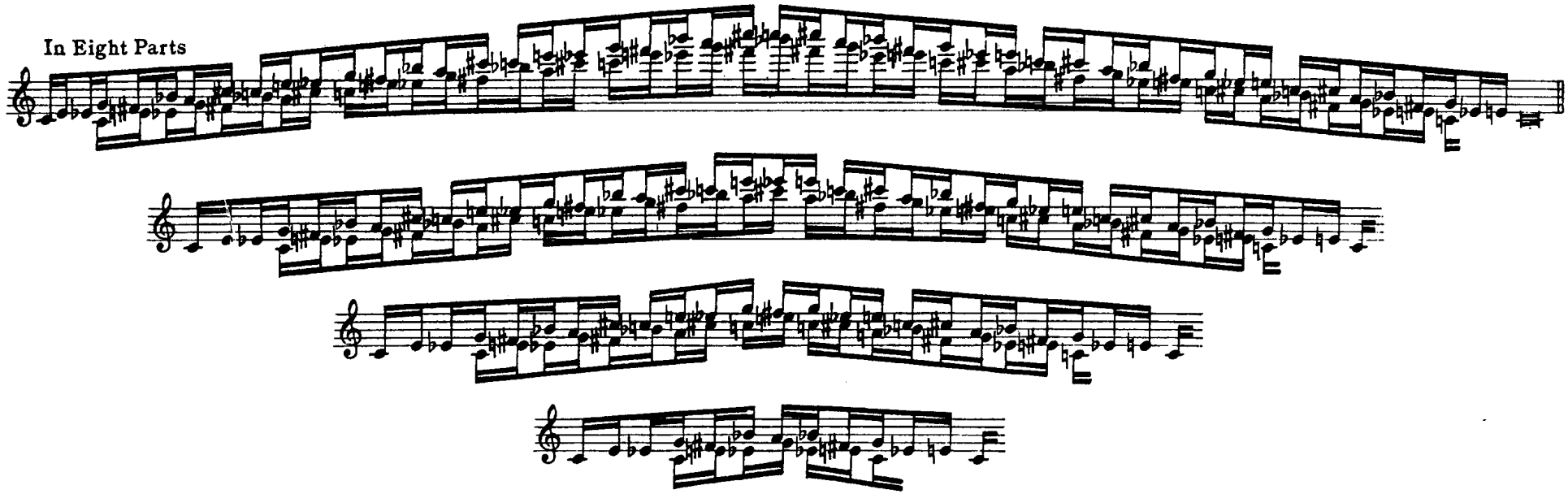
(Theme from Schoenberg: *Ode to Napoleon*)

In Four Parts



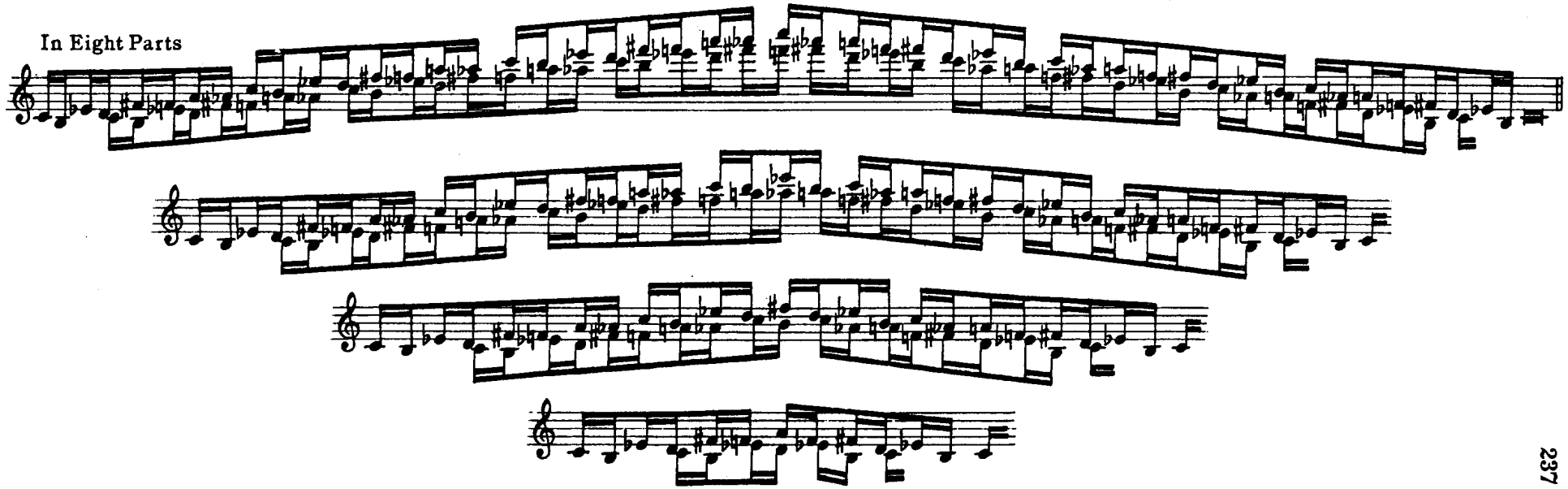
Palindromic Canon on Pattern 394

In Eight Parts

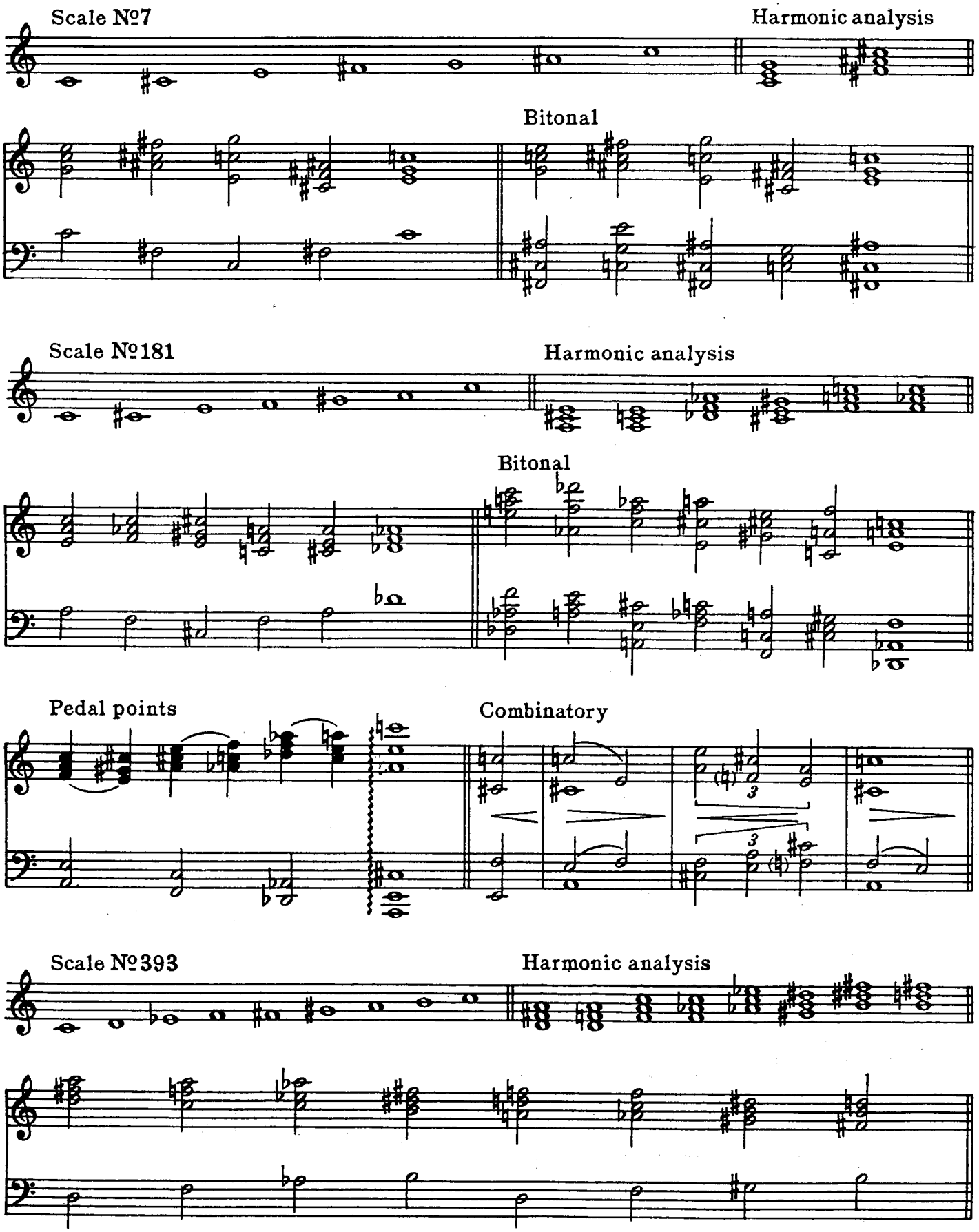


Palindromic Canon on Pattern 447

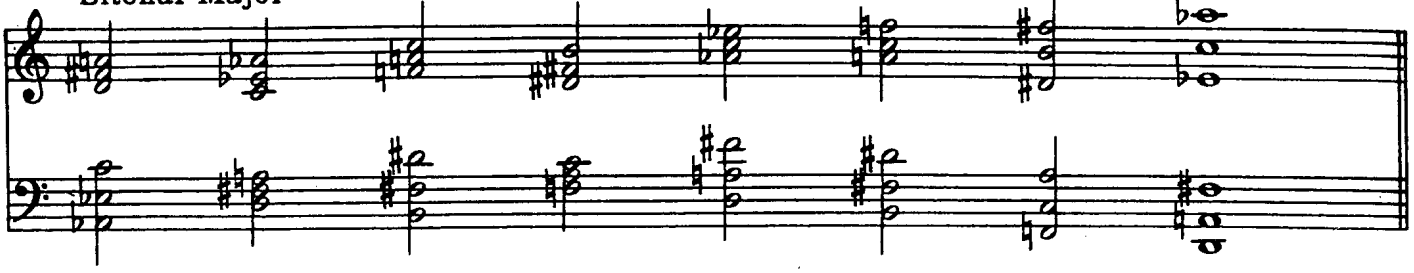
In Eight Parts



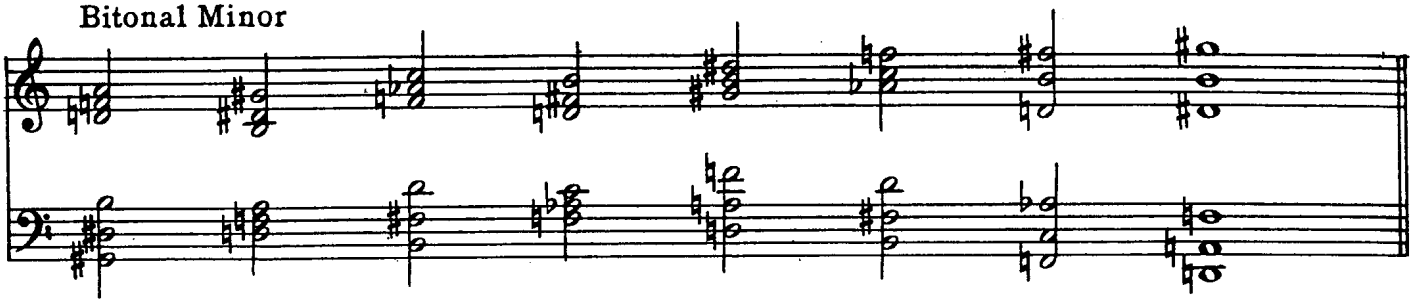
Autochordal Harmonization



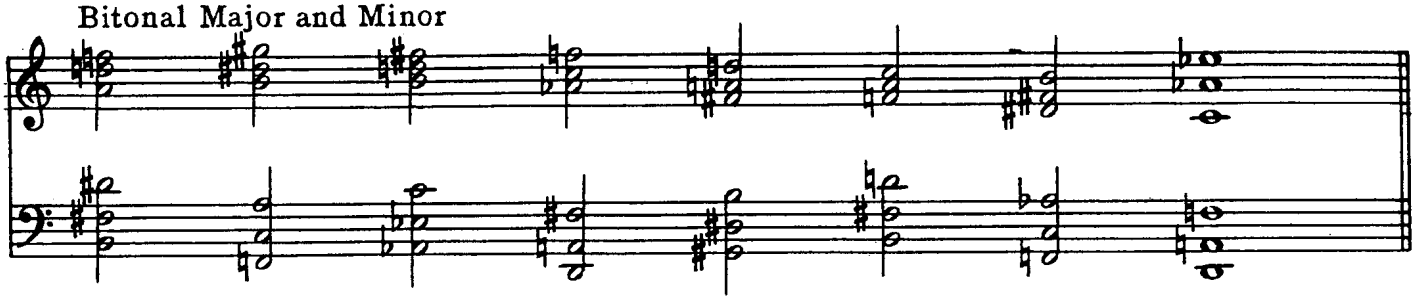
Bitonal Major



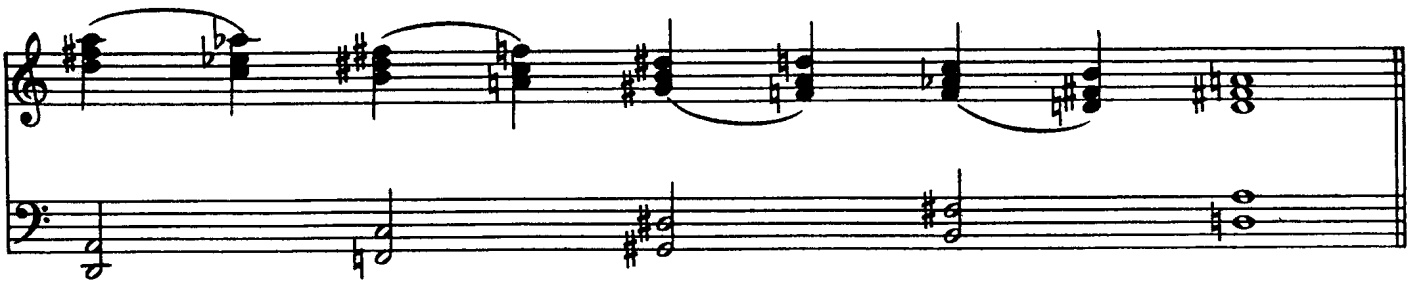
Bitonal Minor



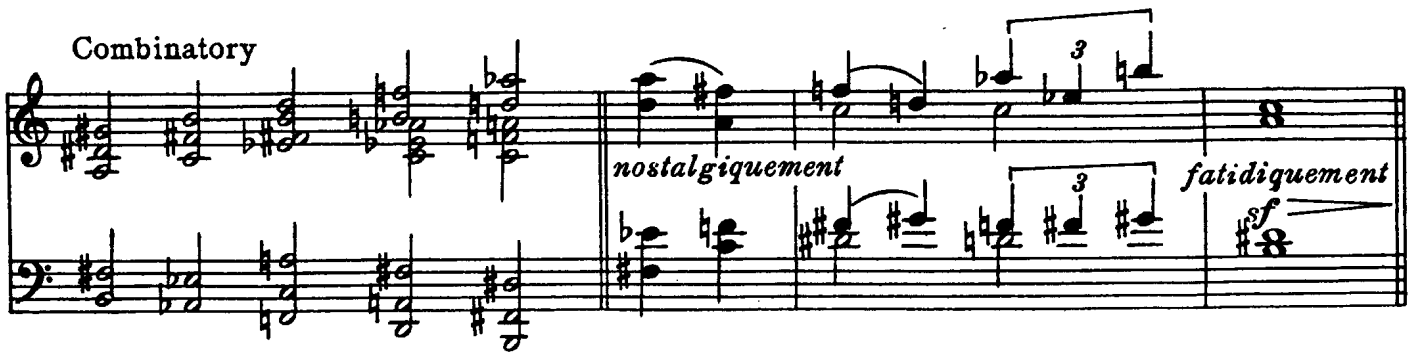
Bitonal Major and Minor



Pedal Points



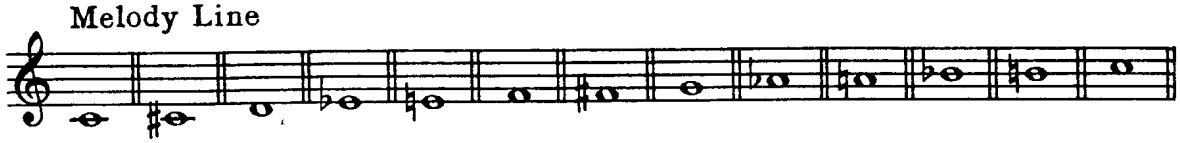
Combinatory



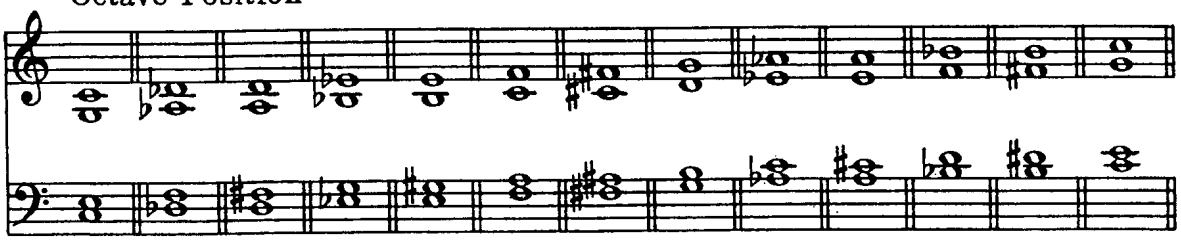
Harmonization in Major Triads

by Alternation of Octave, Tertian
and Quintan Positions

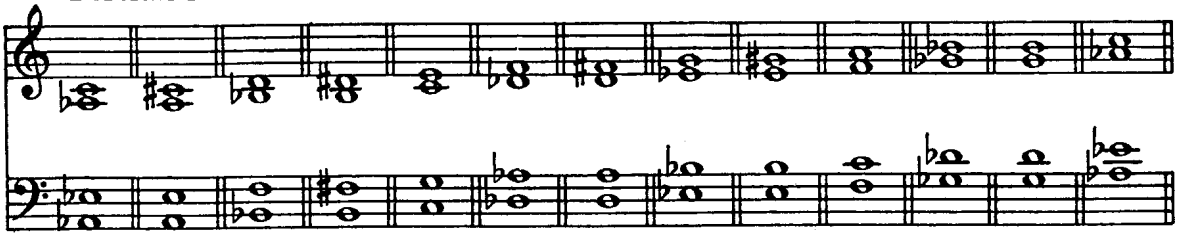
Melody Line



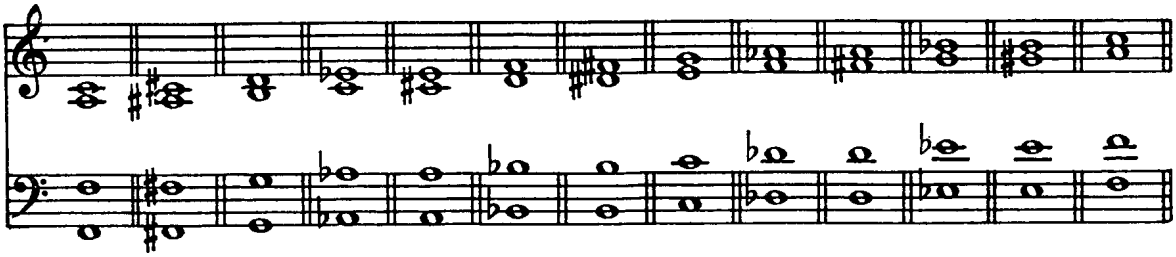
Octave Position



Tertian Position

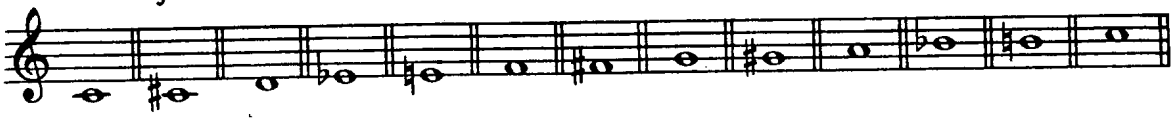


Quintan Position

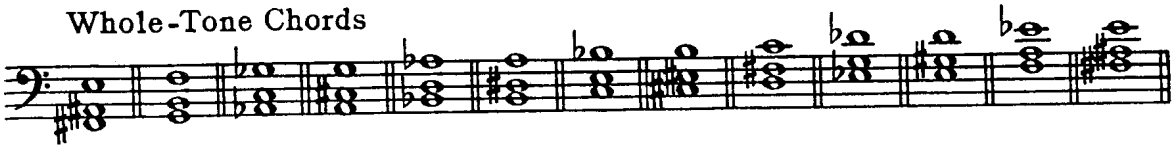


Harmonization in Seventh-Chords, Ninth-Chords and Whole-Tone Chords

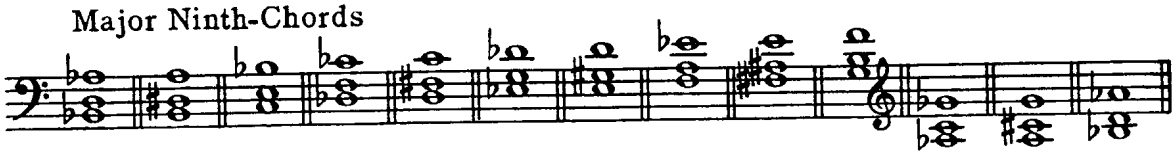
Melody Line



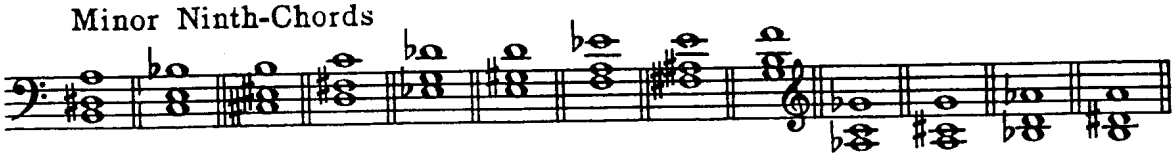
Whole-Tone Chords



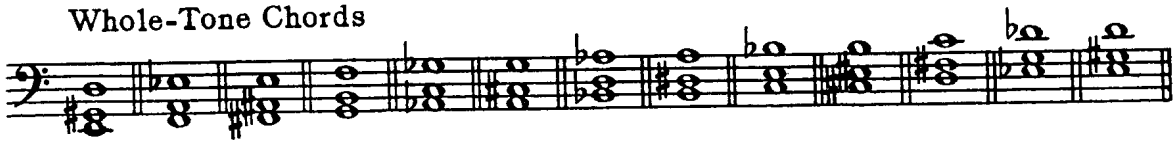
Major Ninth-Chords



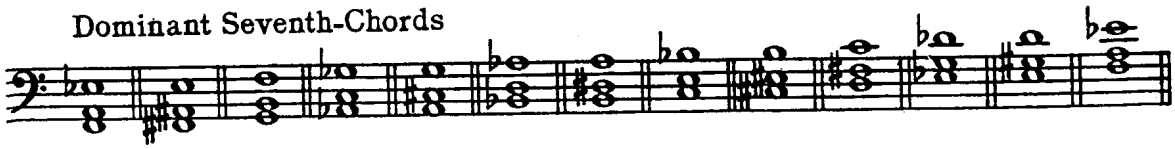
Minor Ninth-Chords



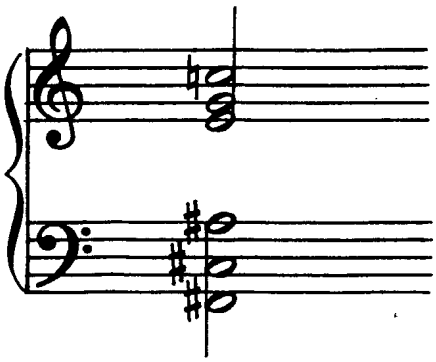
Whole-Tone Chords



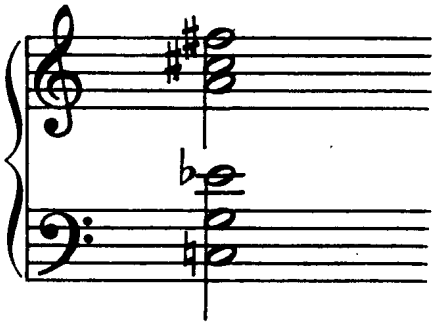
Dominant Seventh-Chords



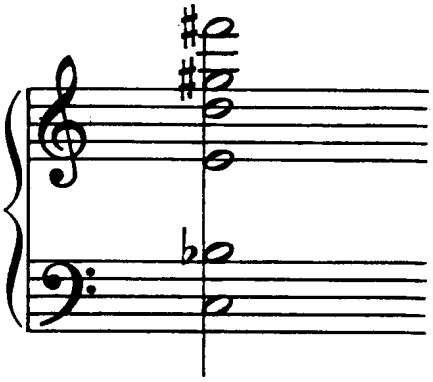
Synopsis of Chords



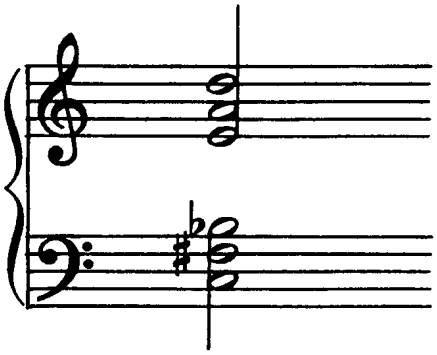
Major
Bitonal Chord



Minor
Bitonal Chord

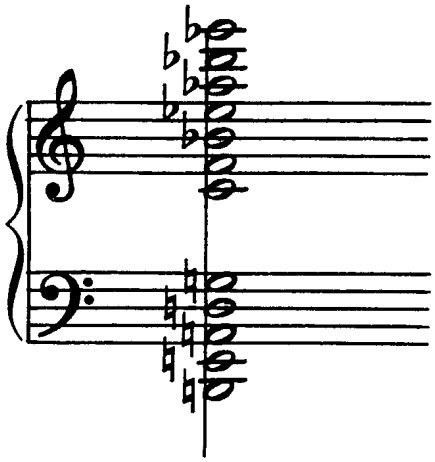


Whole-Tone
Chord



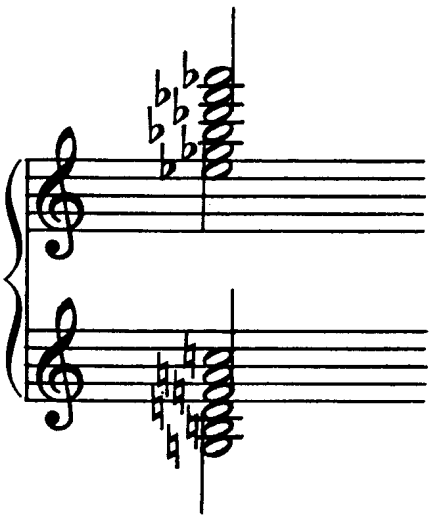
Prometheus
Chord

(Scriabin)



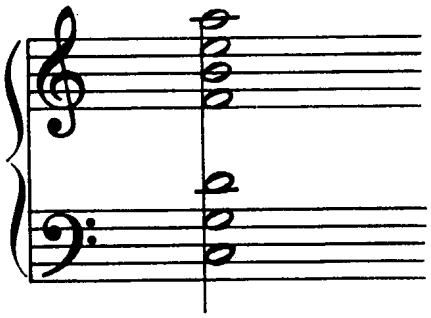
Quartal
Chord

Containing All Twelve Chromatic Tones Arranged in Fourths



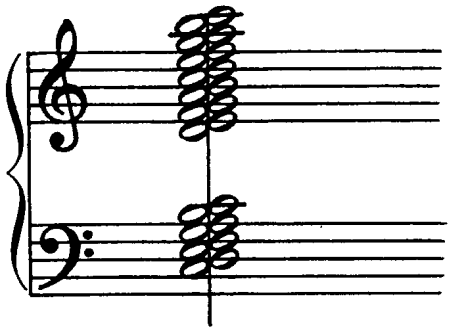
Chord
of the Minor 23rd

Containing All Twelve Chromatic Tones and Four Mutually Exclusive Triads

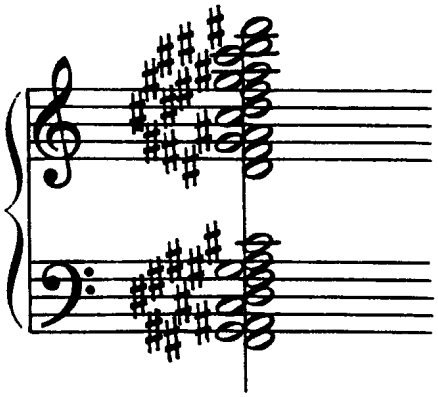


Pandiatonic Chord

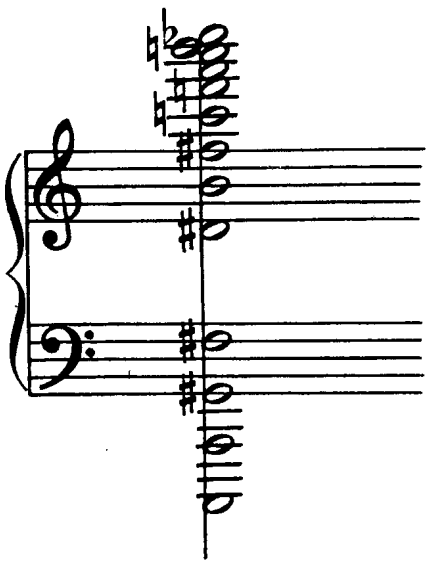
Containing All Seven Diatonic Tones



Pandiatonic Tone-Cluster

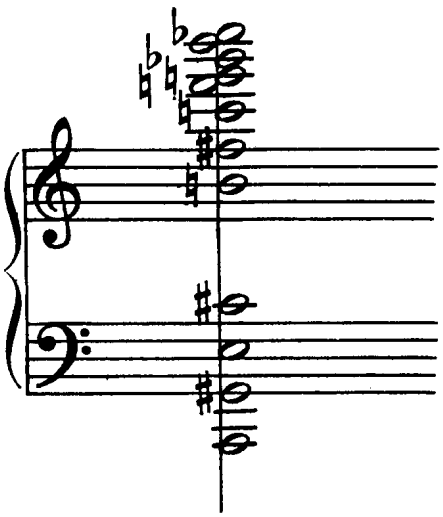


Pentatonic Tone-Cluster



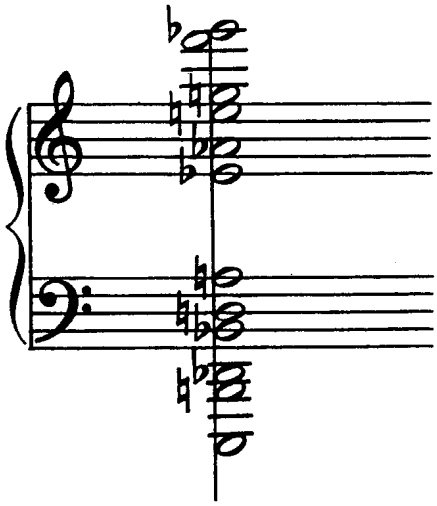
Pyramid Chord

Containing All Twelve Intervals From an Octave to a Semitone



Mother Chord

Containing All Twelve Chromatic Tones and Eleven Different Intervals



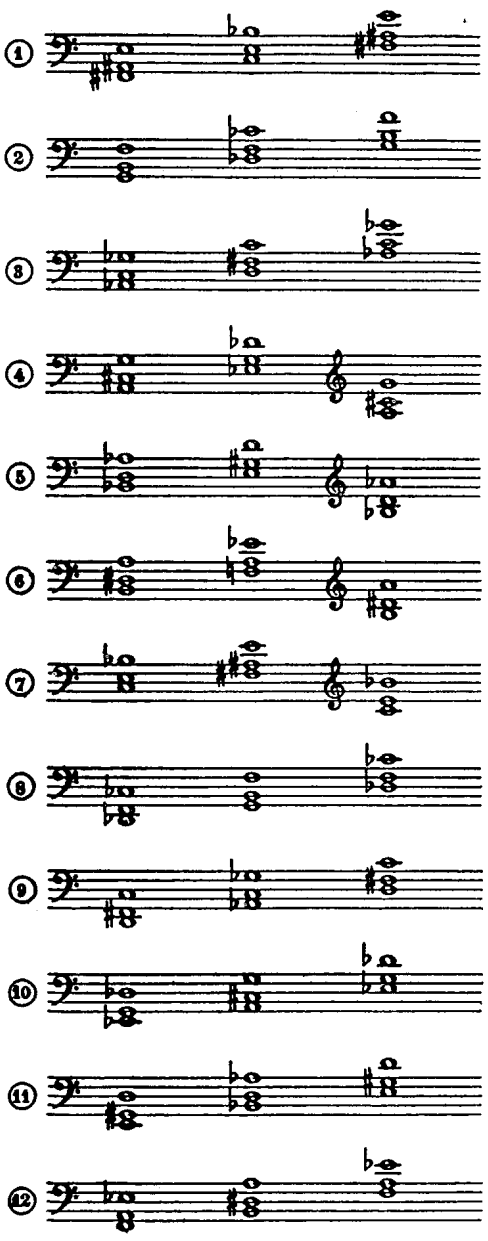
Grandmother Chord

Containing All Twelve Chromatic Tones and Eleven Symmetrically Invertible Intervals

Master Chords

Tritone Progression

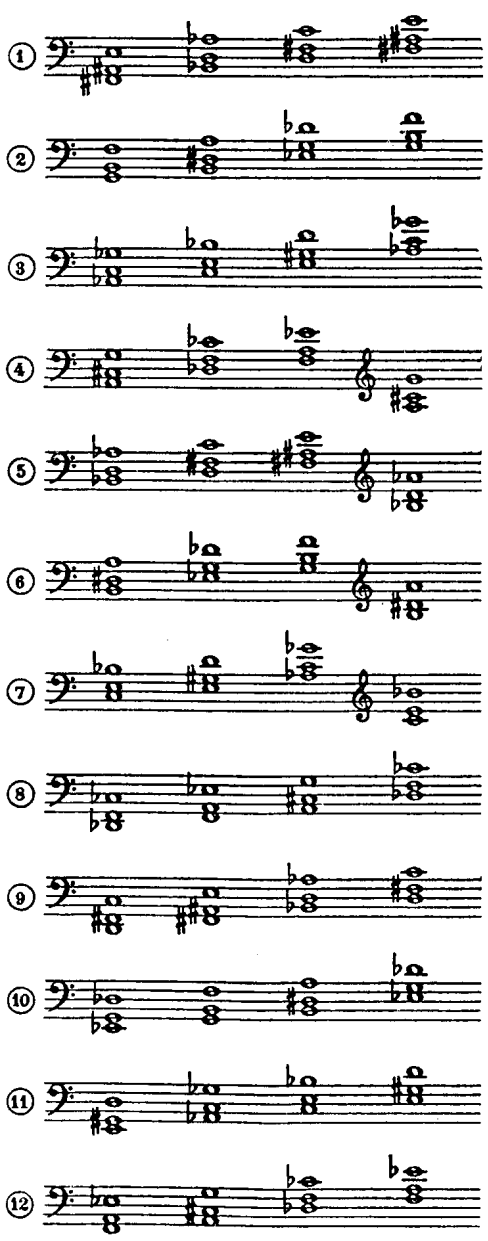
Scales and Patterns 1-180



Master Chords

Ditone Progression

Scales and Patterns 181-391



Master Chords

Sesquitone Progression

Scales and Patterns 392-568