Music Theory III

Lon W. Chaffin, Ph.D.

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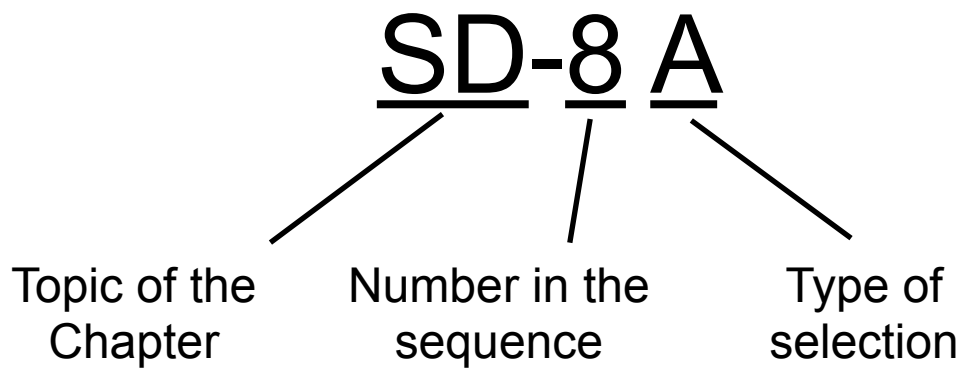
Explanation of worksheet labels



NHT = Non-harmonic Tones

MOD = Modulation

CNT = Counterpoint

SD = Secondary Dominants

BC = Borrowed Chord

NC = Neapolitan Chord

A6 = Augmented 6th Chord

CM = Church Modes

FE = Final Exam Review

A = Analysis

C = Composition

E = Example

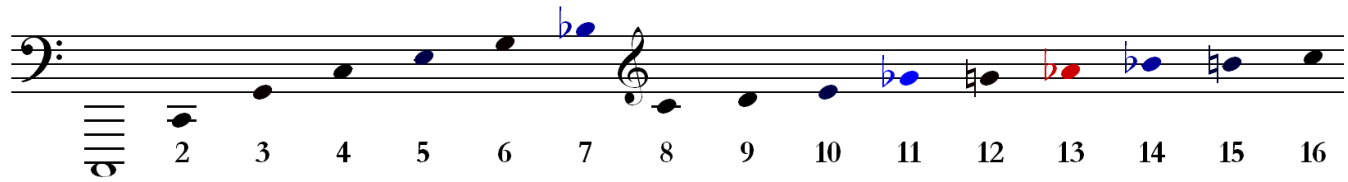
The Overtone Series

Let's consider the physics of sound for just a bit. As a starting point, let's talk about an octave. An octave consists of two pitches whose frequencies (the number of vibrations per second) are in the ratio of 1:2.

For example, if A_3 = 220 (the A below middle C) then A_4 = 440 (the A above middle C). The upper pitch, being a perfect multiple of the lower, acoustically reinforces it, resulting in what we call a consonance.

The original pitch on the bottom is called the fundamental. If we continue to add new pitches that are multiples of the fundamental, we call these overtones, partials, or harmonics. These all occur naturally for any and every pitch.

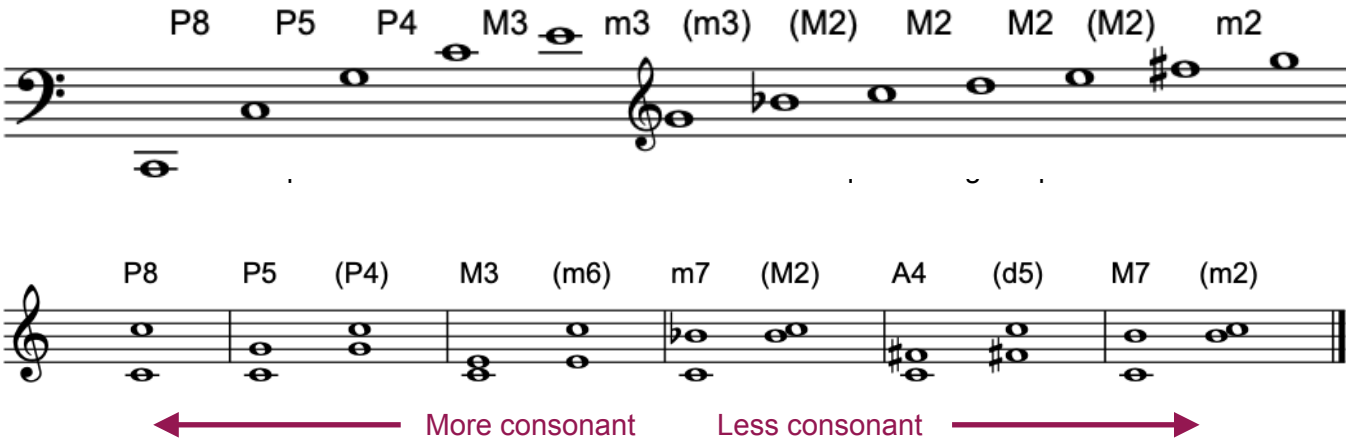
The following chart shows the first 16 in the series.



Fundamental

Note: The pitches in blue are very flat and the one in red is very sharp.

The overtone series forms the basis for tonal music of the common practice period. The pitches that are lower in the series are more consonant. The higher a pitch is in the series (except for those that are octave doublings) the more dissonant it is to the fundamental. Notice in the chart below, the intervals get smaller and smaller (closer to the previous pitch) as they get further away from the fundamental.



Oddly, the m3 (minor third) above the fundamental doesn't present itself in the series until higher than the 16th partial. Acoustically, the harmonic series favors the major keys. This might be a reason the picardy third (replacing the minor third of a chord with a major third) was often used at the end of a piece in a minor key.

Interestingly, the development of music theory follows the overtone series. Through history, composers have added more and more pitches from the overtone series to the harmony. Starting with plainsong/chant, the music was in unison. …then in octaves. They then added the fifth. The major third was eventually added to create tertian harmony (in thirds). When they added the minor 7th, the dominant 7th (V^7) chord came into play and strong tonality was established. Adding the 9th and the 11th to create extended tertian harmony is what we see in the music of Debussy and others. From there, adding the higher overtones to the harmony takes us further away from tonal music.

Modulation

Modulation, in a broad sense, is the process of going from one condition to another. In the context of tonal, functional harmony, when we speak of modulation we're typically referring to the process of going from one tonal center (key) to another.

It must be emphasized that the process is the modulation. If within a piece of music a phrase ends in one key and the next phrase begins in another, no modulation has occurred. The piece has simply shifted keys. There was no process in between, so there was no modulation, just a shift.

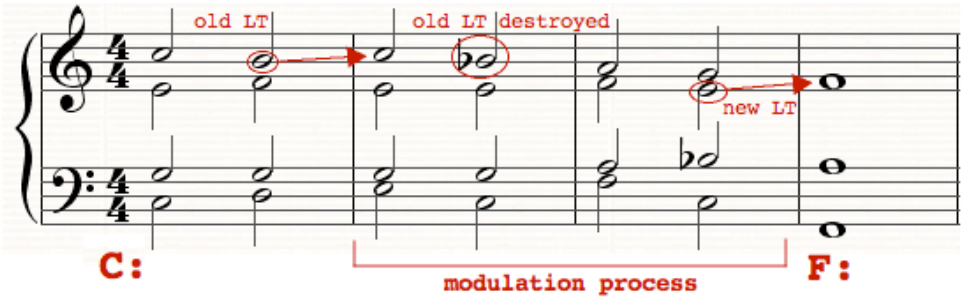
Note: Not every trained musician understands modulation in this way. Some simply refer to any key change as a modulation, whether a process exists between the two keys or not.

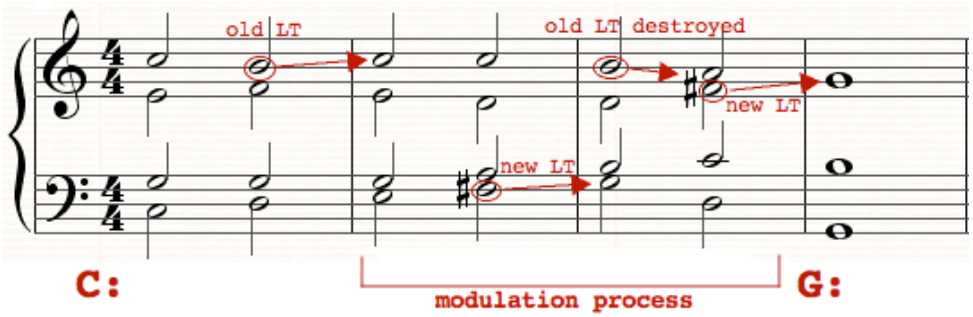
Within the process of modulation, two conditions usually occur that make it strong and effective. Very simply stated they are:

1) Destruction of the old key
2) Establishment of the new key

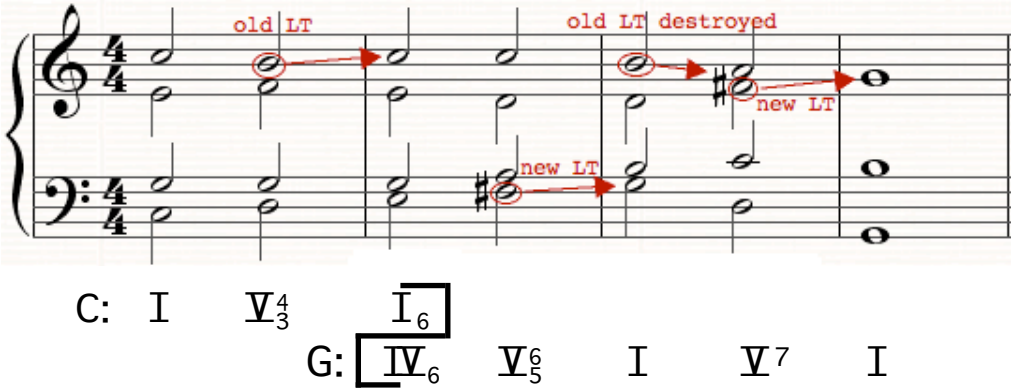
Both of these conditions usually involve the Leading Tone (LT).
To destroy the old key, take away its LT.
To establish a new key, establish a new LT.

Examples





When a new LT is established, it usually functions within a new V or vii°. A strong, effective tonal modulation will generally contain an authentic cadence, utilizing the V or vii°, leading into the new key center.



Notice in the example above, the chord on the downbeat of the second measure is labeled with two different roman numerals. This chord is called a common chord because it can function in the old key and in the new key. This Common Chord Modulation is probably the most common type of tonal modulation.

Rule of Thumb: When looking for a tonal modulation, look for two cadences in the new key. If there is only one cadence with a new V, and the music returns to the original key, chances are the new V is a Secondary Dominant (coming soon) and doesn't function as a modulation.

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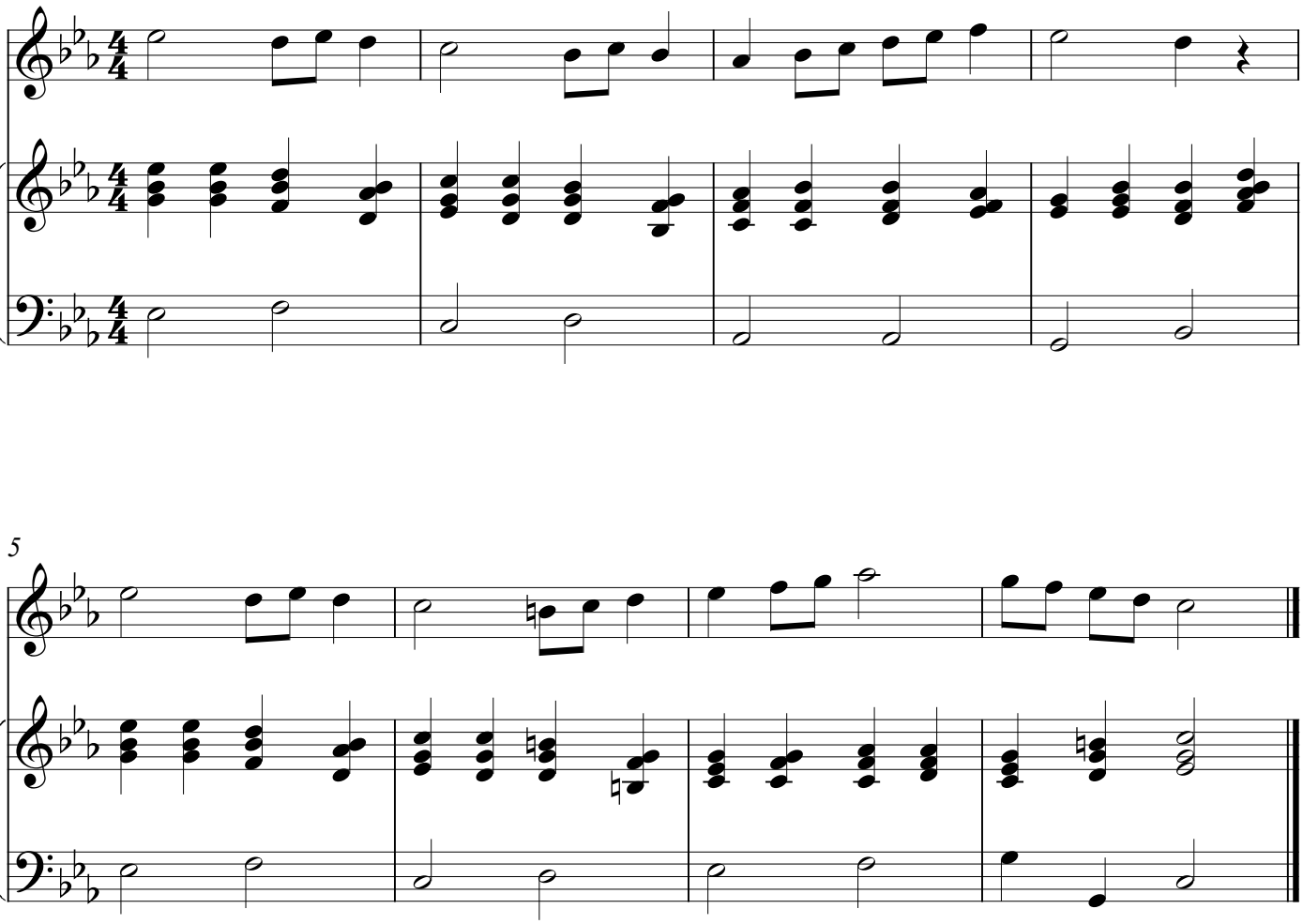
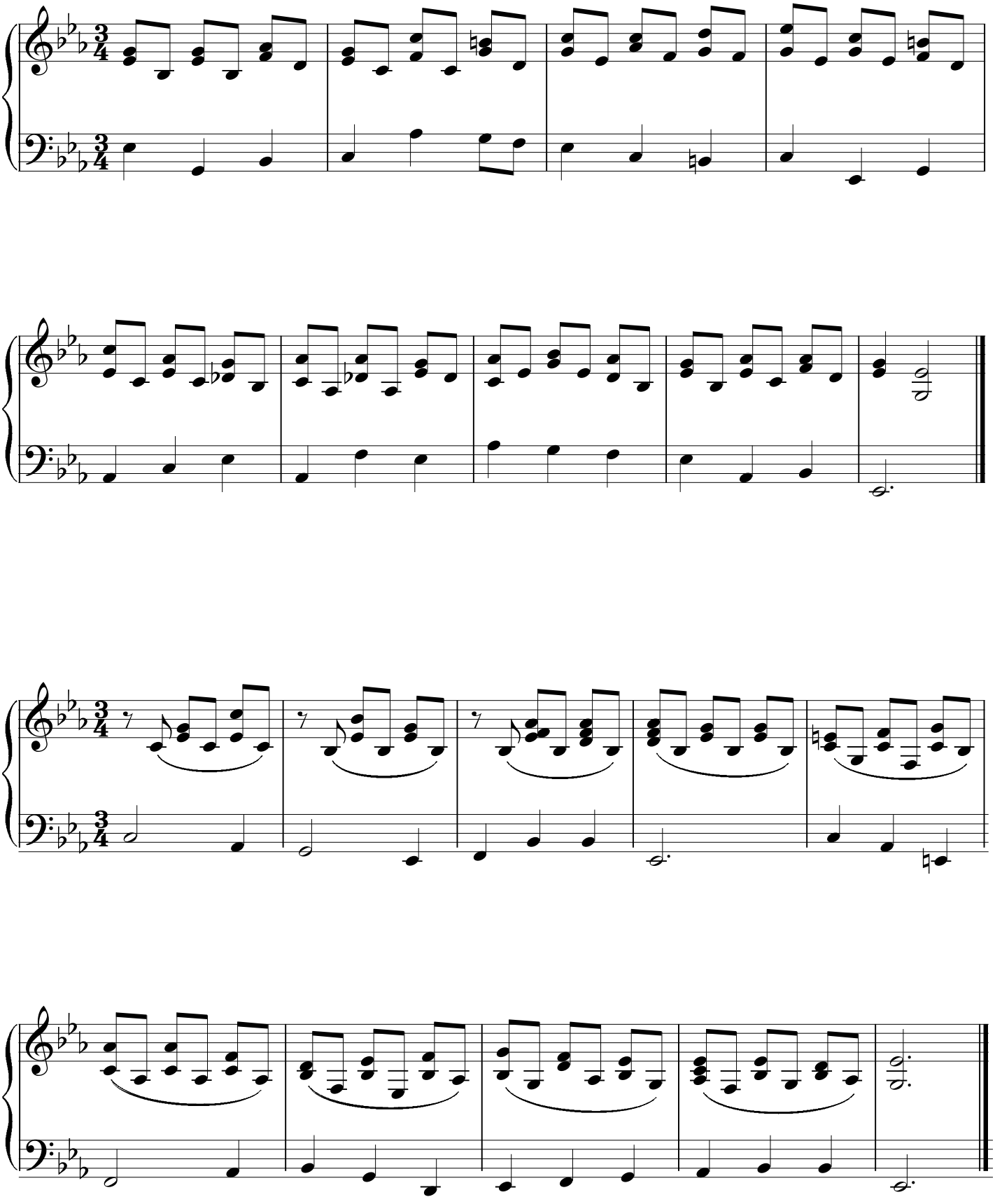
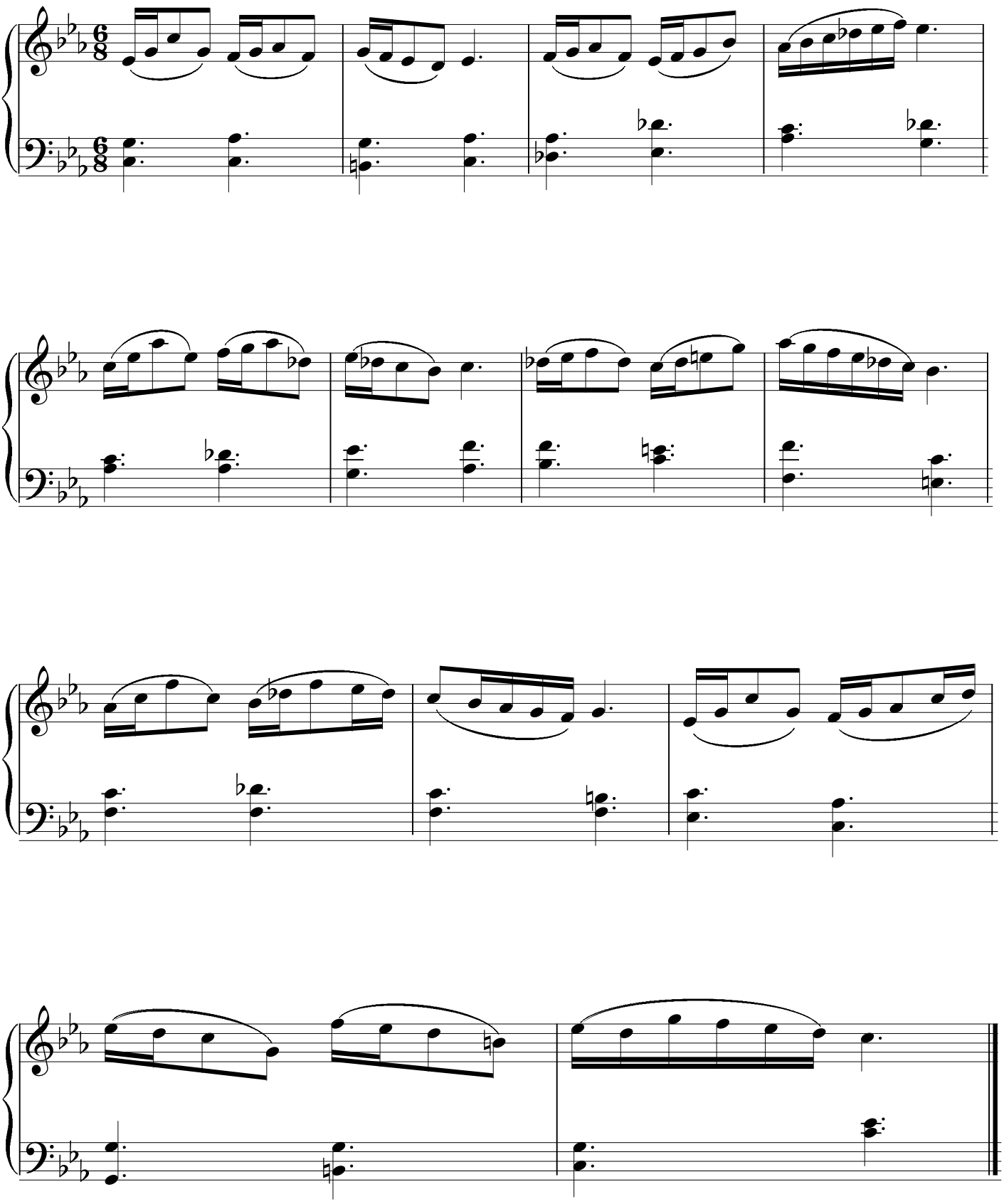
MOD-1A



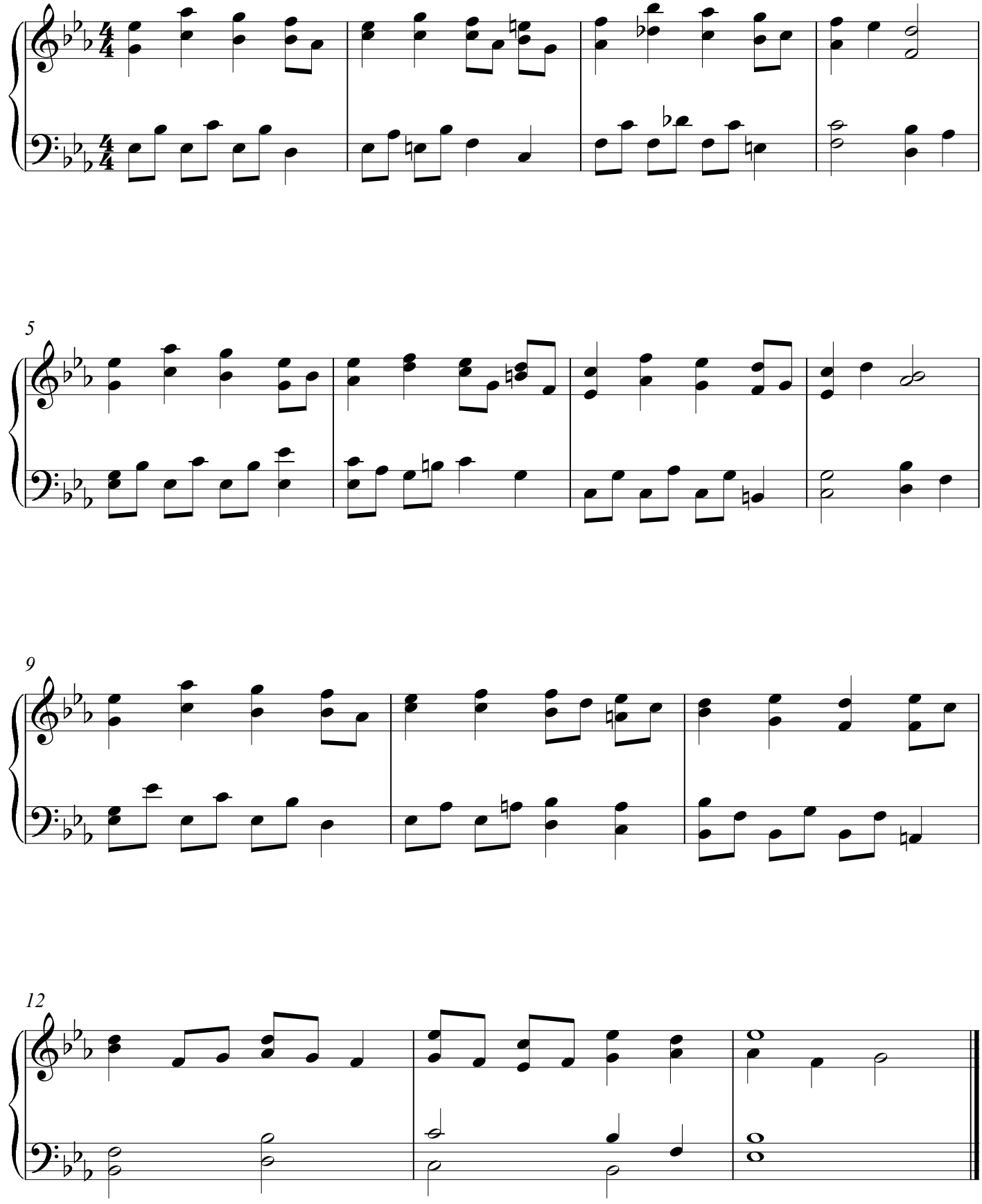
MOD-2A



MOD-3A

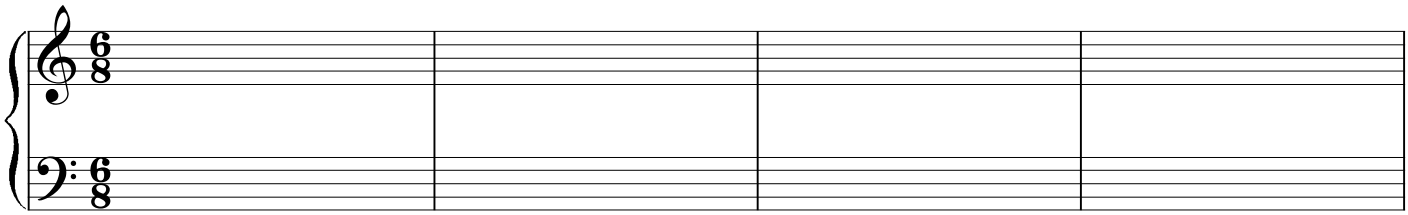


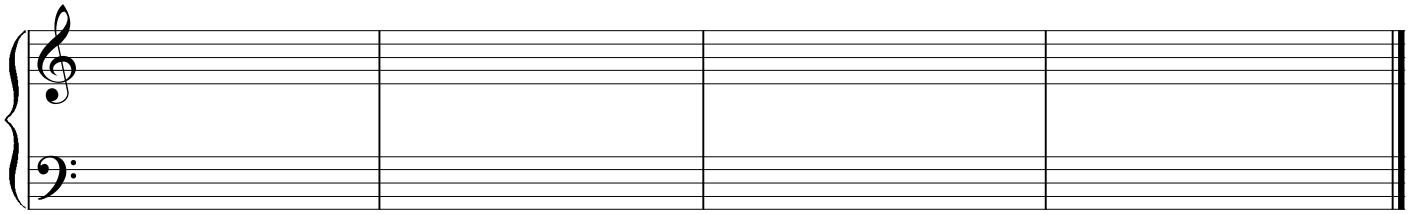
MOD-4A



MOD-5C

Compose an eight-measure piece with dotted quarters in the bass and arpeggiated eighths in the treble.
Use a minor key with at least two sharps or flats in the key signature.
Begin in the tonic. Modulate to a closely related key then back to the tonic.
Give a complete harmonic analysis.

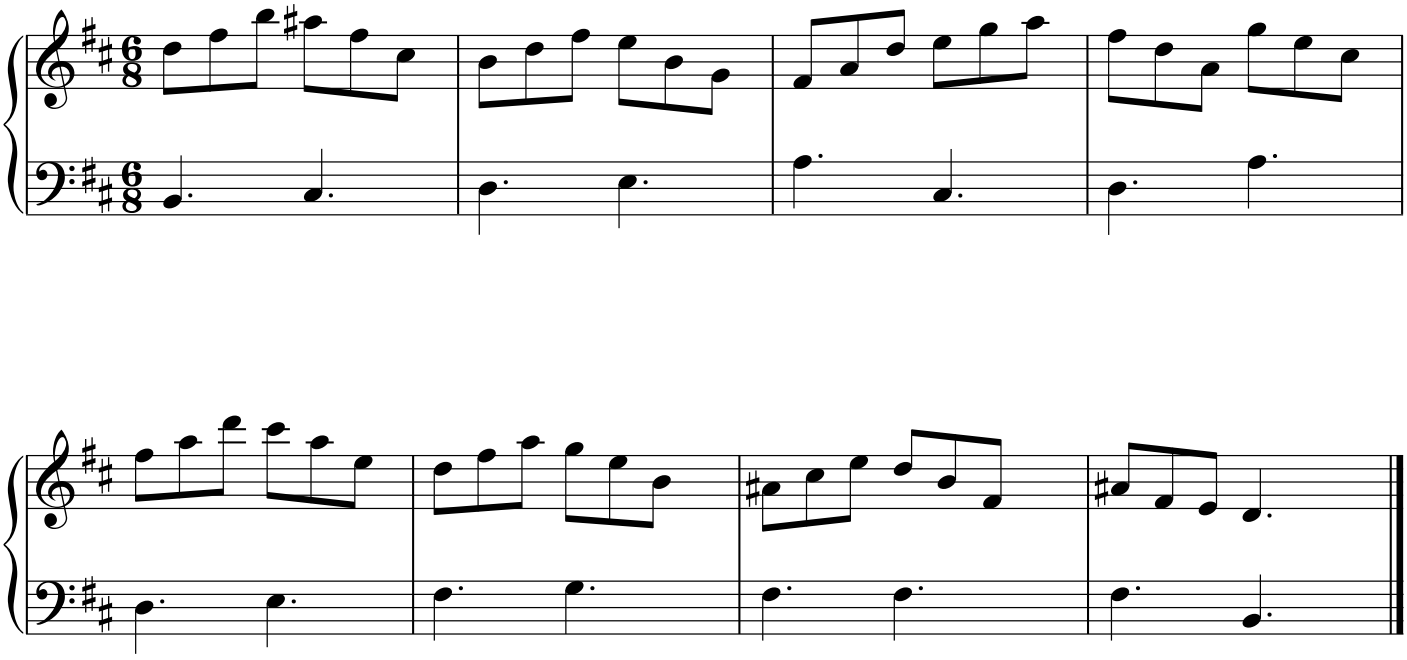




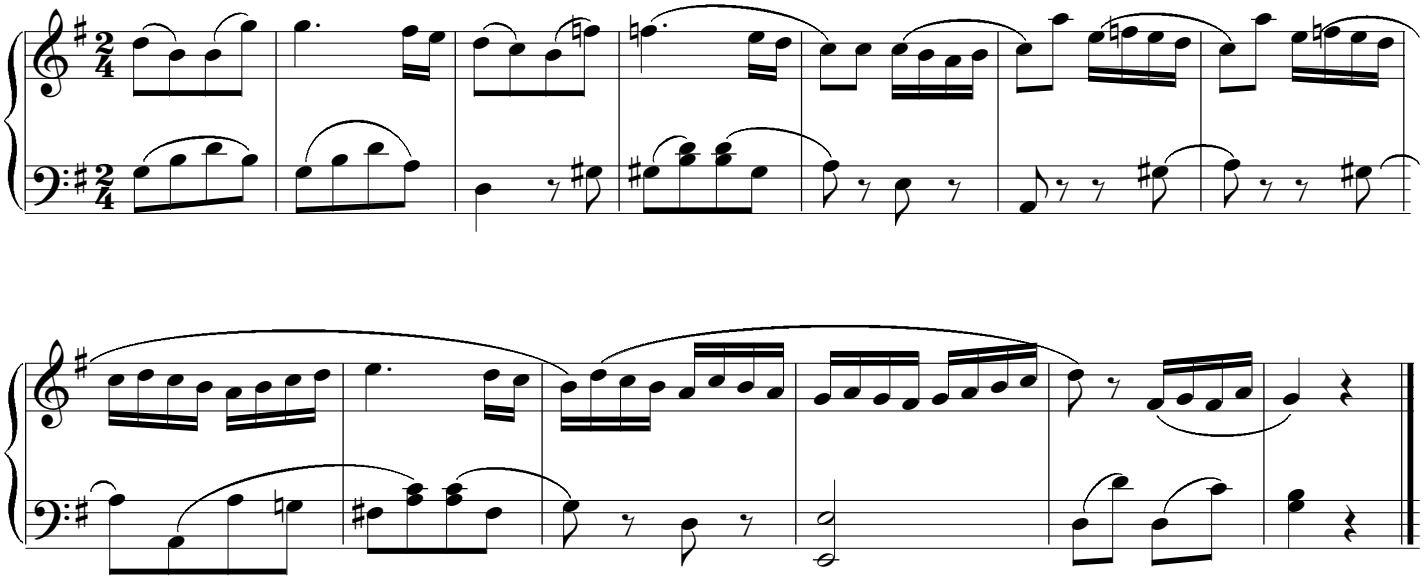
(See MOD-6A as an example)

MOD-6A

Give a complete harmonic analysis of the following selection.
Label all harmonies with Roman numerals and figured bass.



MOD-7A



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Basic Counterpoint

Counterpoint is a type of compositional technique in which an independent melodic line is juxtaposed against other independent melodic lines. This is often referred to as polyphony. There is typically an underlying, sometimes implied, harmony, but the main focus is how the melodic lines interact.

There are five basic species of 18th-century counterpoint.

First Species

Note to note polyphony - all voice lines moving in exactly the same rhythm

Second Species

One line will be moving in a 2:1 or 3:1 ratio against the other line

Third Species

One line will be moving in a 4:1 or 6:1 ratio against the other line

Fourth Species

One line is rhythmically offset from the other, in a type of syncopation

Fifth Species

This is called “florid” counterpoint - a combination of all the others

When writing in this style, all of the voice-leading guidelines are very important. Let’s review those in this context.

1. Move in step-wise motion or outline the underlying harmony
2. Avoid large skips (7ths and intervals larger than an octave)
3. When approaching a pitch by leap, leave the pitch by step in the opposite direction
4. Avoid augmented interval
5. When writing diminished intervals, resolve the movement by step in the opposite direction
6. Certain tones, referred to as “active” or “tendency” tones, usually resolve in specific ways
    - leading tones tend to resolve UP to the tonic pitch
    - 7ths of chords tend to resolve DOWN by step
    - accidentals tend to resolve (continue) in the direction they are altered
        - flats (lowered pitches) tend to resolve DOWN by step
        - sharps (raised pitches) tend to resolve UP by step

Even though we are dealing with independent melodic lines, some of the part-writing guidelines are important as well. Let's include those here.

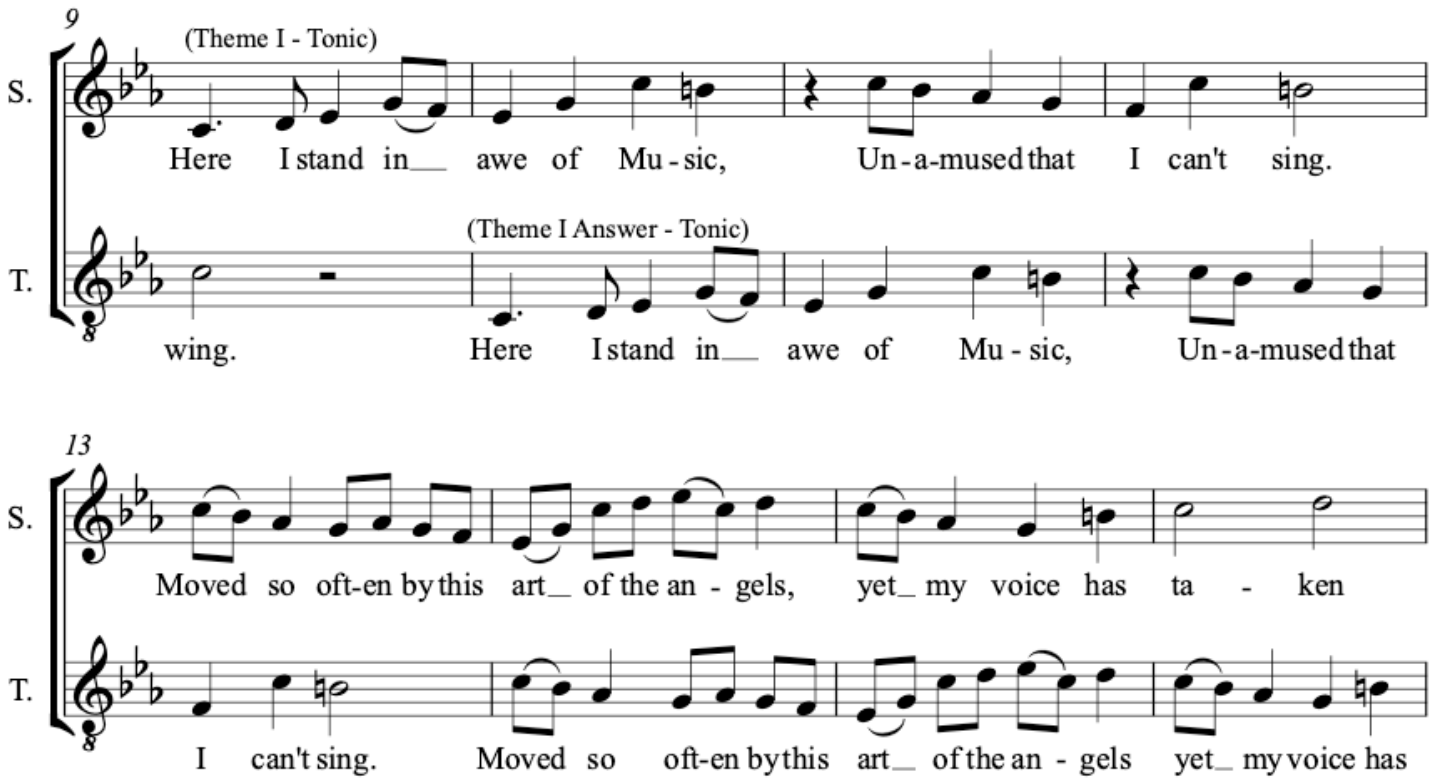
1. Avoid parallel 5ths and 8ves
2. Avoid direct 5ths and 8ves
3. The strongest movement between voices is contrary motion (going in the opposite direction)
4. An effective movement between voices is oblique motion (one stationary and one moving)
5. Similar motion is acceptable (if avoiding parallel and direct 5ths and 8ves)

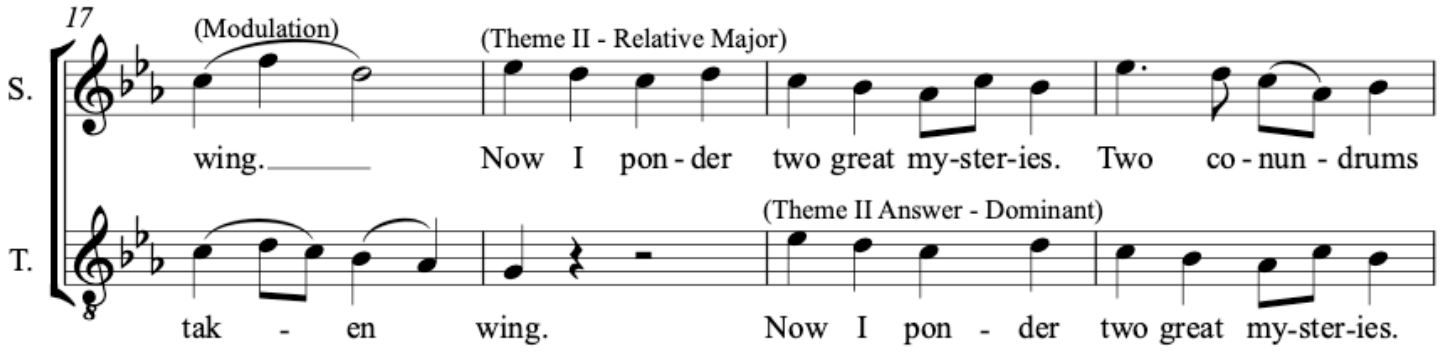
In this type of composition, octaves, fifths, thirds, and sixths between the voices are considered consonant and do not have to be resolved. Seconds, fourths, and sevenths between the voices are considered dissonant and must be resolved.

In our study here, we are going to consider three types of contrapuntal forms. They are:

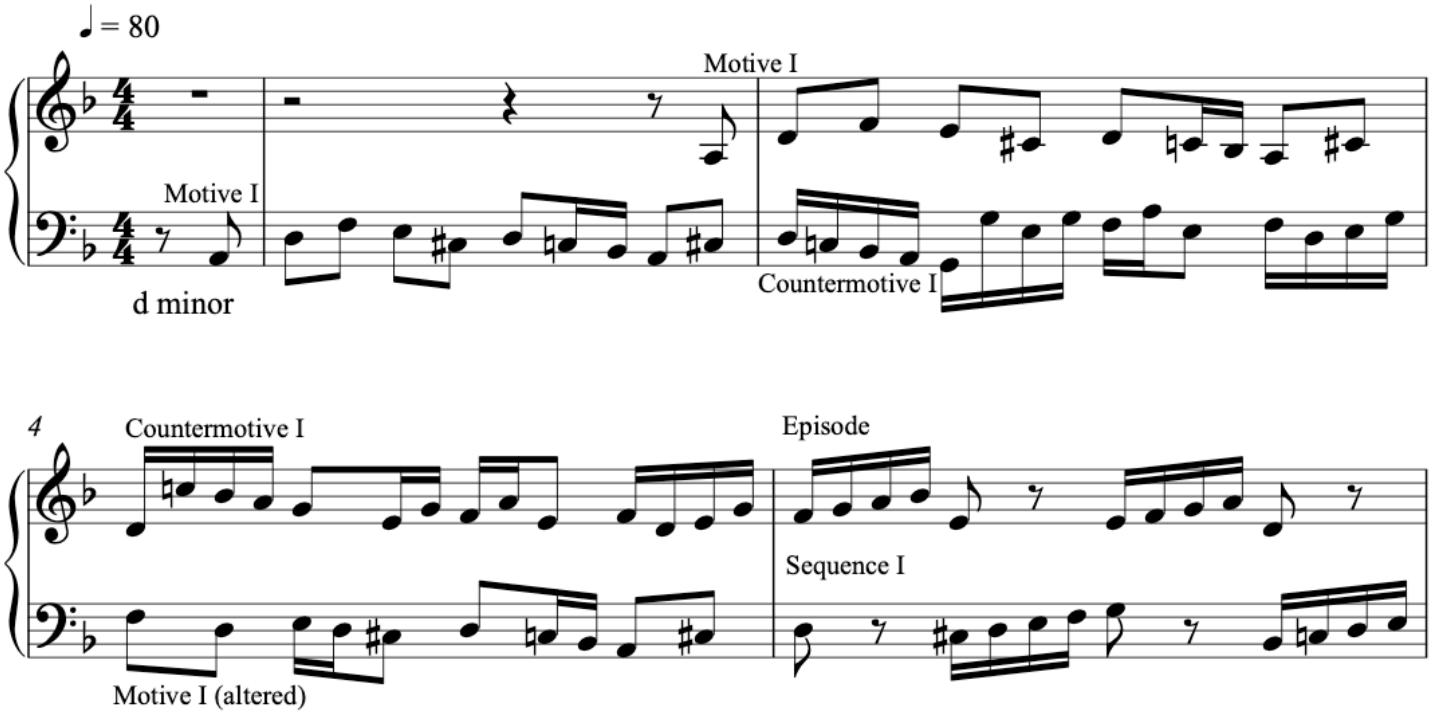
1) Two-voice Canon
2) Two-voice Invention
3) Three-voice Fugue

A Canon is musical form and compositional technique, based on the principle of imitation, in which an initial melodic line is strictly imitated (repeated) at a certain time interval by one or more parts, either at the unison or at some other pitch. Here's an excerpt from a canon, repeated at the octave after four beats.

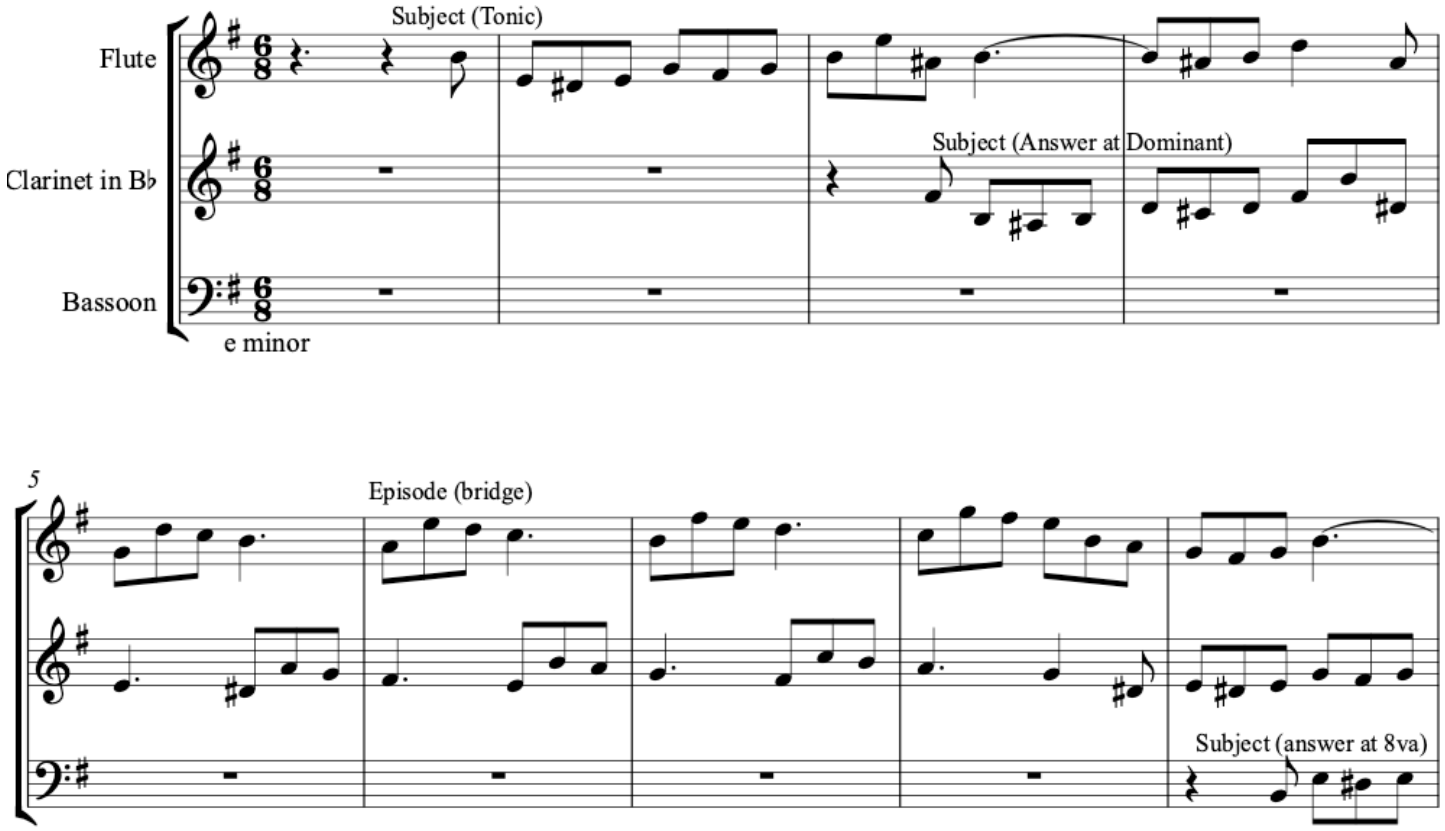




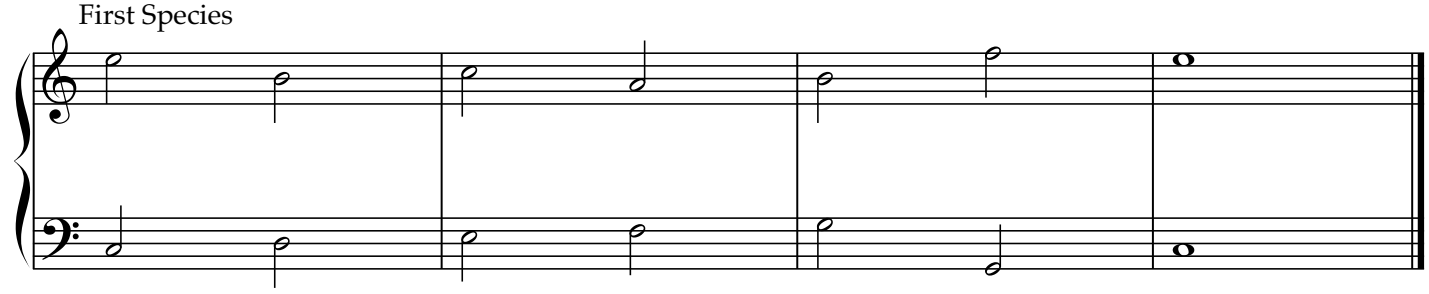
An Invention is a two-voice form, usually for keyboard, that utilizes imitative counterpoint and motivic development. Here's an excerpt from one as an example.



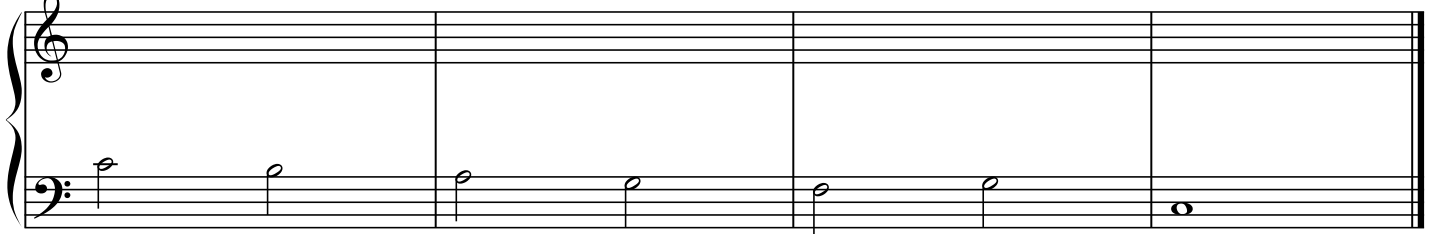
A Fugue is a contrapuntal composition in which the subject (a short melody or phrase) is introduced in one voice and successively taken up by other voices and developed by interweaving the parts and modifying the subject material. It is more formally structured than the simpler Invention. On the following page is an excerpt as an example.


Subject (Tonic)
Flute
Clarinet in B♭
Subject (Answer at Dominant)
Bassoon
e minor
5
Episode (bridge)
Subject (answer at 8va)

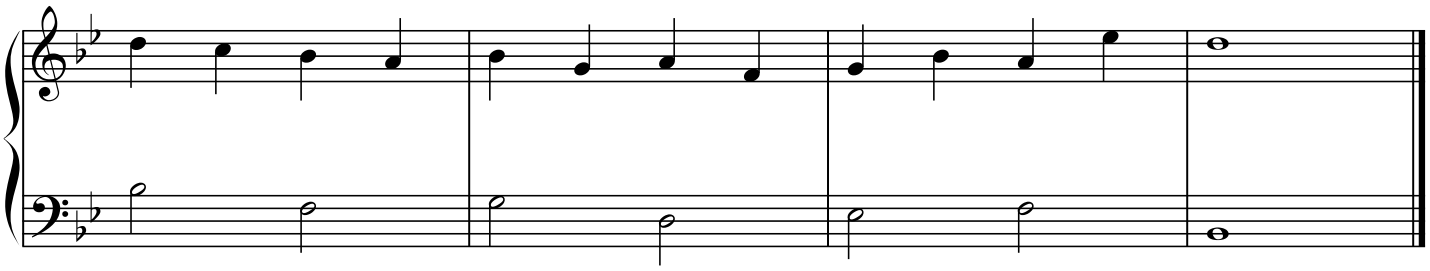
CNT-1E
First Species



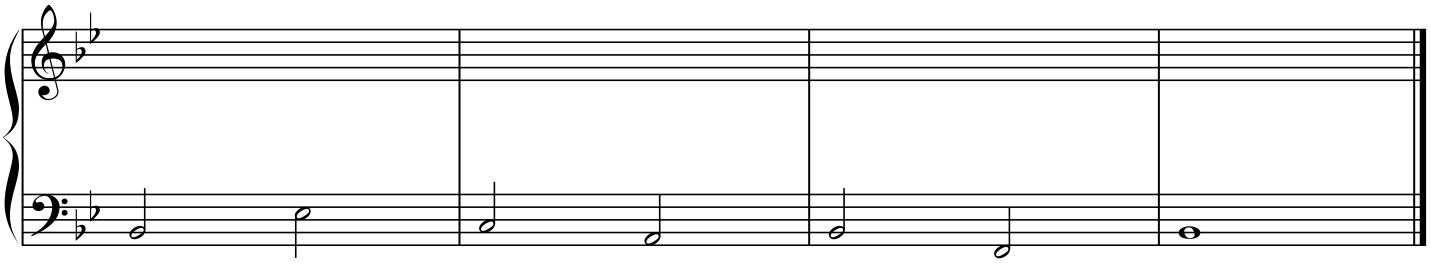
CNT-2C
First Species



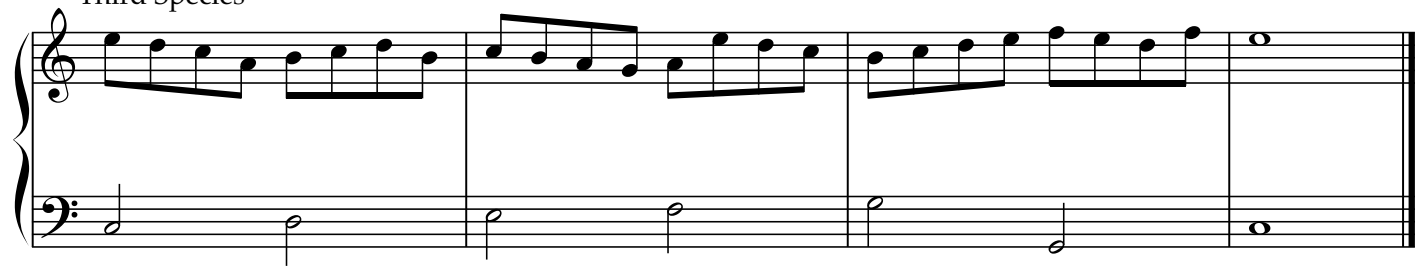
CNT-3E
Second Species



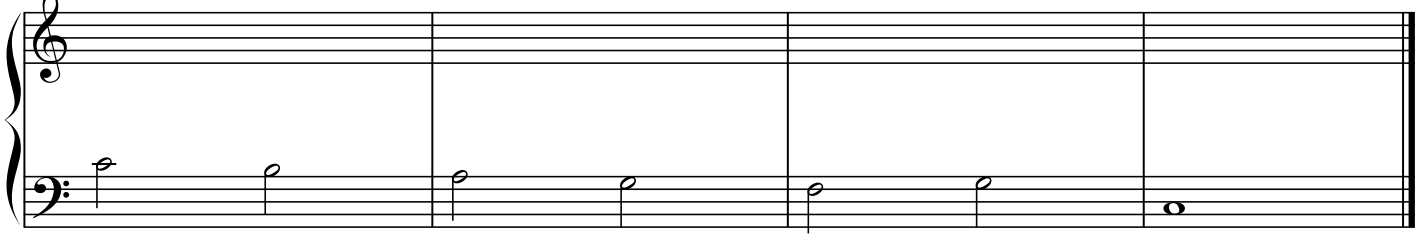
CNT-4C
Second Species



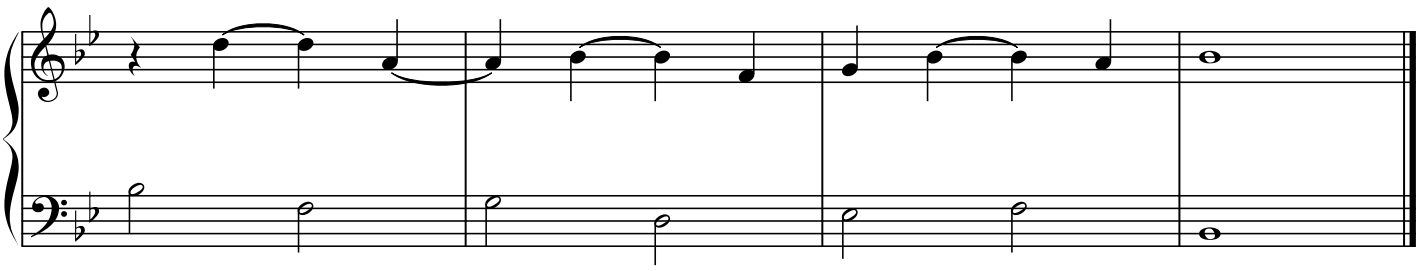
CNT-5E
Third Species



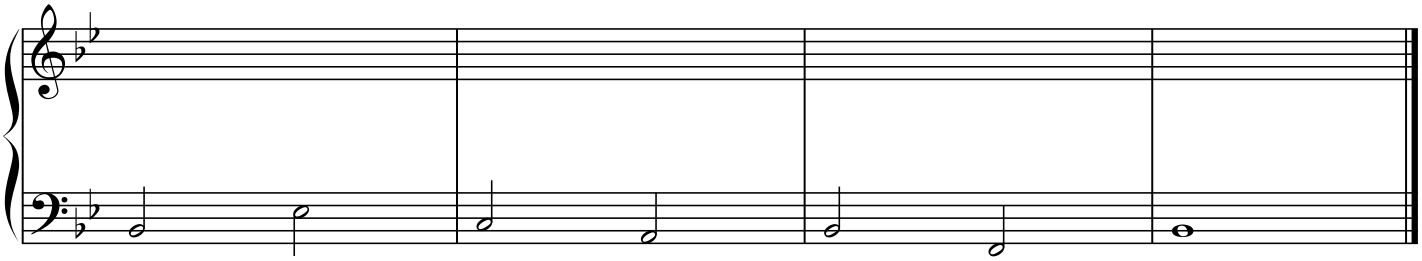
CNT-6C
Third Species



CNT-7E
Fourth Species



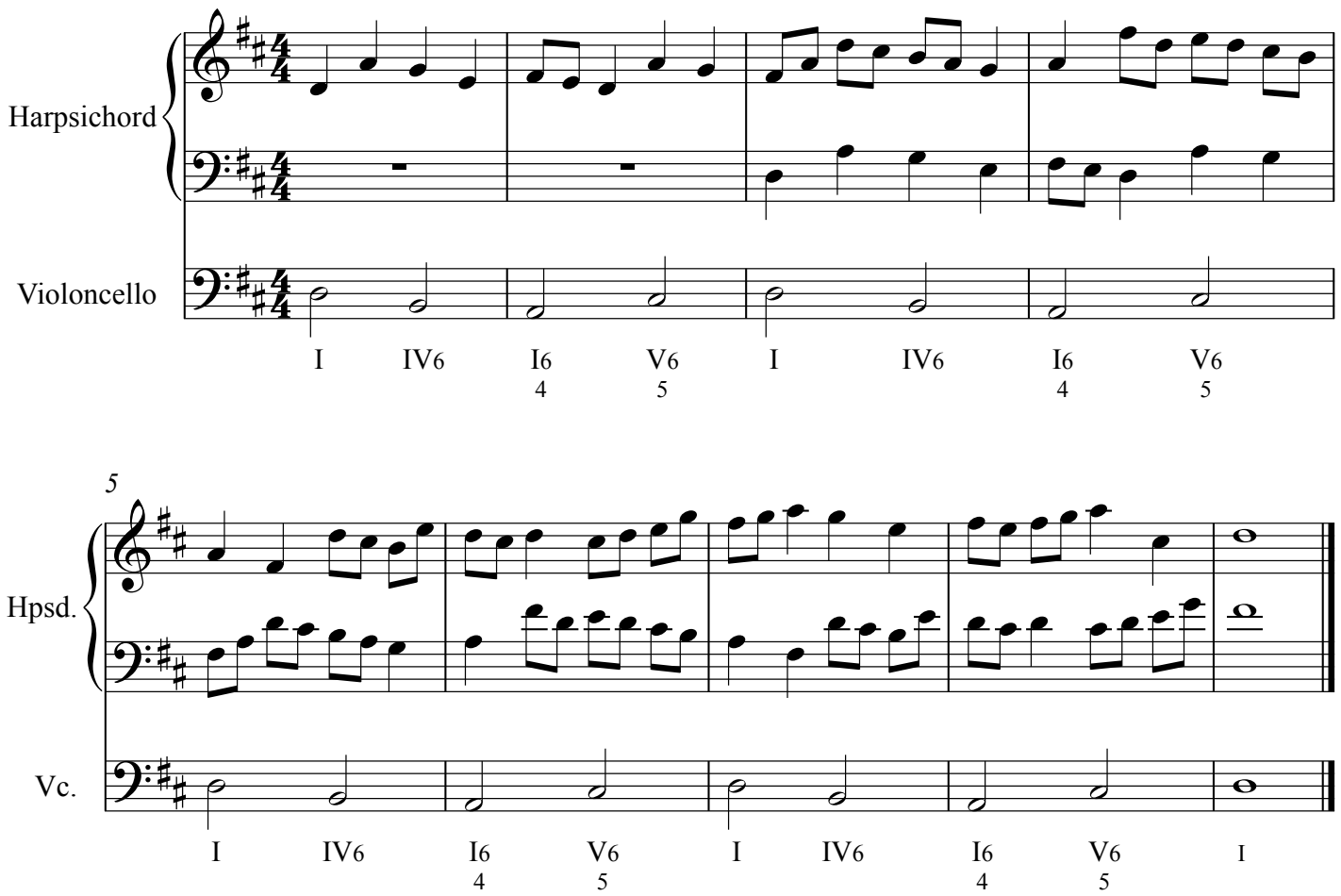
CNT-8C
Fourth Species



CNT-9E

Canon 1

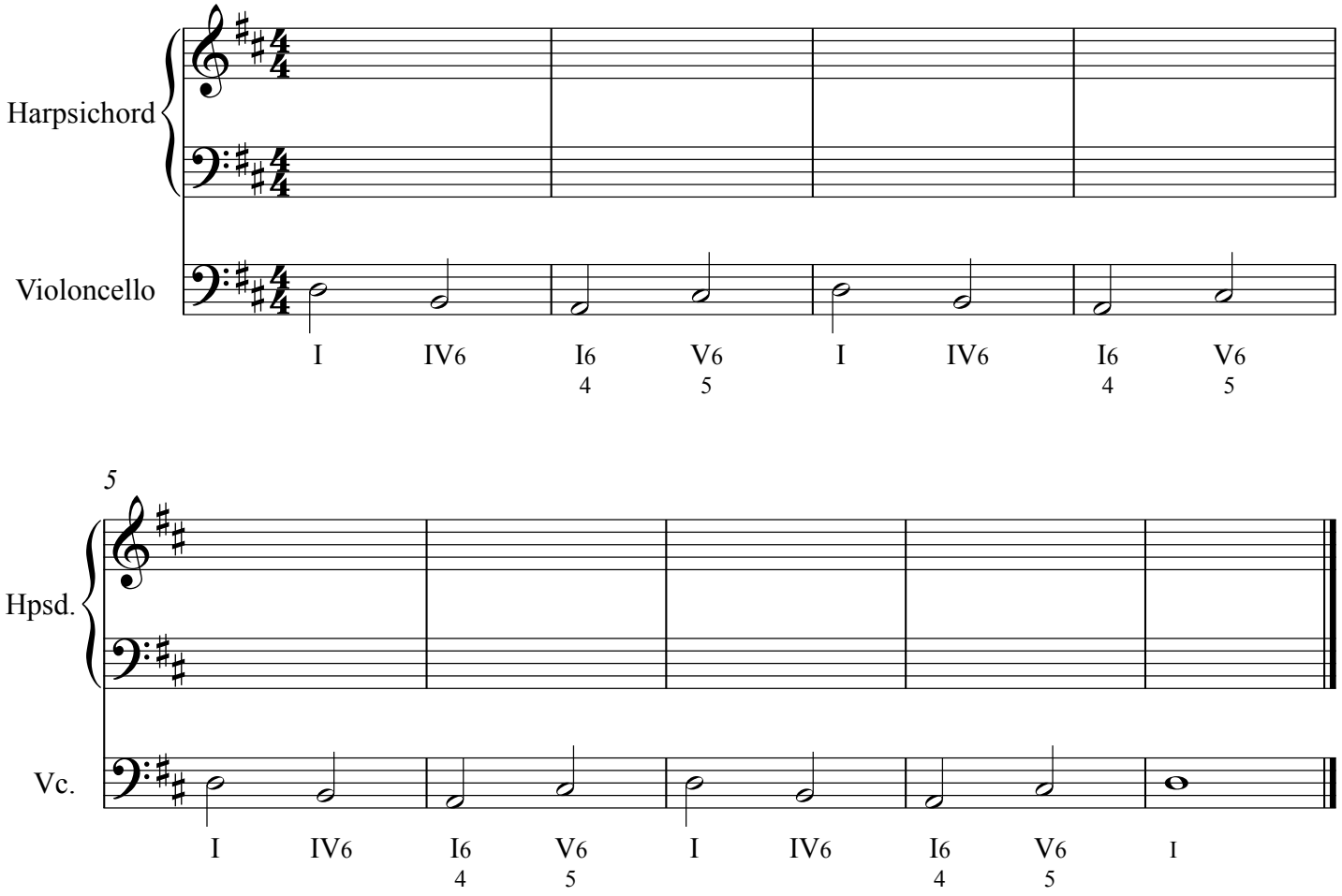
Canon at the 8va
(8 beats apart)



CNT-10C

Canon 1

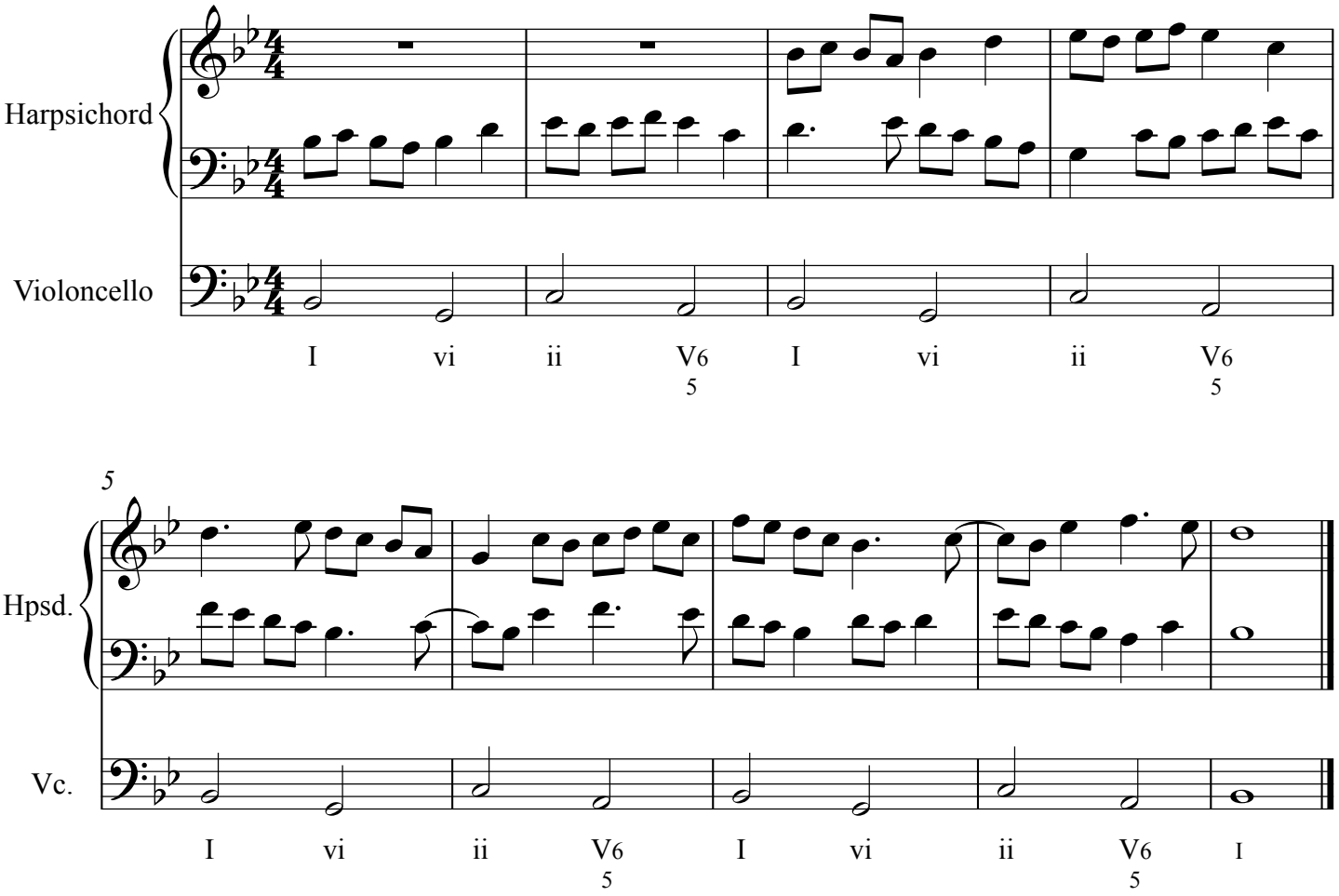
Canon at the 8va
(8 beats apart)



CNT-11E

Canon 2

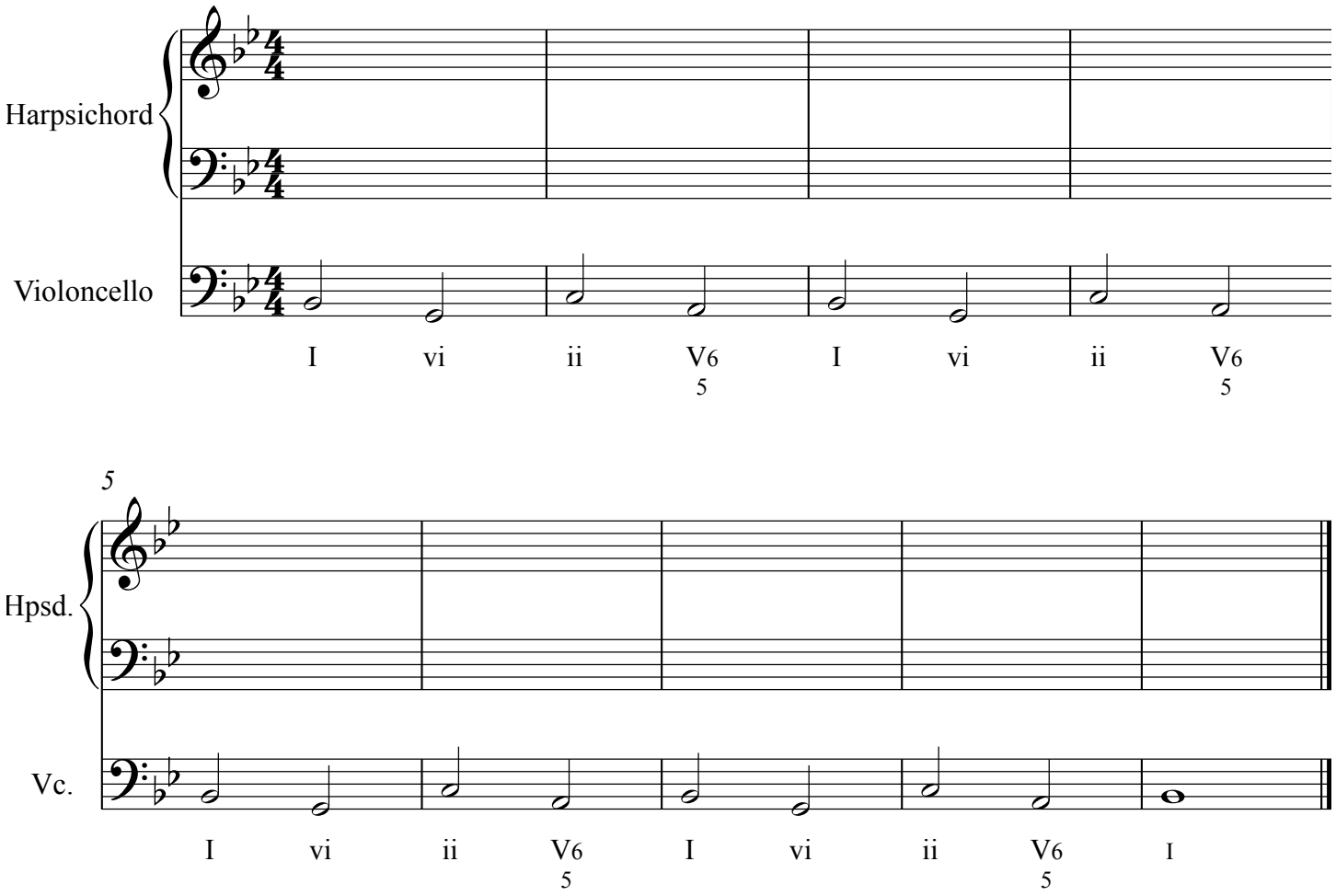
Canon at the 8va
(8 beats apart)



CNT-12C

Canon 2

Canon at the 8va
(8 beats apart)



A Recipe for a Two-voice Invention

Exposition (Tonic)

Voice 1	**Motive** (tonic) →	**Countermotive** →	**Episode** (sequences)(modulating)
Voice 2		**Motive** (tonic) →	**Episode** (sequences)(modulating)

Development (begins at the Dominant or Rel. Major)

Voice 1		**Motive** (Dom/Rel Maj) →	Free counterpoint *
Voice 2	**Motive** (Dom/Rel Maj) →	**Countermotive** →	Free counterpoint *

* utilizing the motive and countermotive (in whole or in fragments), multiple key changes, sequences

---

Closing (begins in the tonic, emphasizes the subdominant key, cadences in tonic)

Voice 1	**Motive** (tonic) →	**Closing** material →	Cadence* in Tonic
Voice 2		**Closing** material →	Cadence* in Tonic

* Performance practice generally dictates that the final cadence will ritard. So… the rhythms tend to be a bit busier at the very end.

A Recipe for a Three-voice Fugue

Exposition →

Voice 1 **Subject** (Tonic) – Free counterpoint - - - - **Episode** (sequence)-Free counterpoint - - - - **Episode***
Voice 2 **Subject** (Answer at Dominant)-**Episode** (sequence)-Free counterpoint - - - - **Episode***
Voice 3 **Subject** (Tonic at 8va)- - **Episode***

* sequential material is best

Development →

Voice 1 **Subject** (altered*) – Free - - - - **Episode -** Free counterpoint – **Subject*** - - **Episode**
Voice 2 **Subject** (not Tonic) - Free counterpoint - - -**Episode -** Free - - - **Subject*** - Free - - - - - **Episode**
Voice 3 **Subject** (altered*)-**Episode – Subject*** (not Tonic) - Free - - - - **Episode**

* augmentation, diminution, inversion, retrograde, fragmentation, stretto

---

Recapitulation →

Voice 1 **Subject** (Tonic) – Free counterpoint - - - - - **Closing** material - - - - - -Cadence* in Tonic
Voice 2 **Subject** (Answer at Dominant) **Closing** material - - - - - -Cadence* in Tonic
Voice 3 Pedal Point - - - - - - - - - Cadence* in Tonic

* Performance practice generally dictates that the final cadence will ritard. So… the rhythms tend to be a bit busier at the very end.

Secondary Dominants

Definition

A Ⅴ (or vii°) of a diatonic chord other than Ⅰ

Characteristics

Most include at least one raised diatonic pitch (accidental)

This raised pitch is usually the 3rd of the secondary Ⅴ chord or the root of the secondary vii° chord

This raised pitch is the Leading Tone to the tonicized pitch (secondary / temporary tonic)

Exceptions

The Ⅴ^7 / Ⅳ (in a major key) will not have a raised pitch

It will have a lowered 7th scale degree (the 7th of the chord)

The Ⅴ^7 / Ⅲ (in a minor key) will not have any accidentals

Occasionally there will be more than one raised pitch

Sometimes both the 3rd and 5th of a secondary will be raised in order to construct a major chord

Ⅴ of Ⅲ in a major key

Ⅴ of Ⅴ in a minor key

Resolution

Usually resolves to the tonicized chord (secondary / temporary tonic)

Functions like an authentic cadence

A Secondary Ⅴ occasionally resolves up a 2nd (root movement)

Functions like a deceptive cadence

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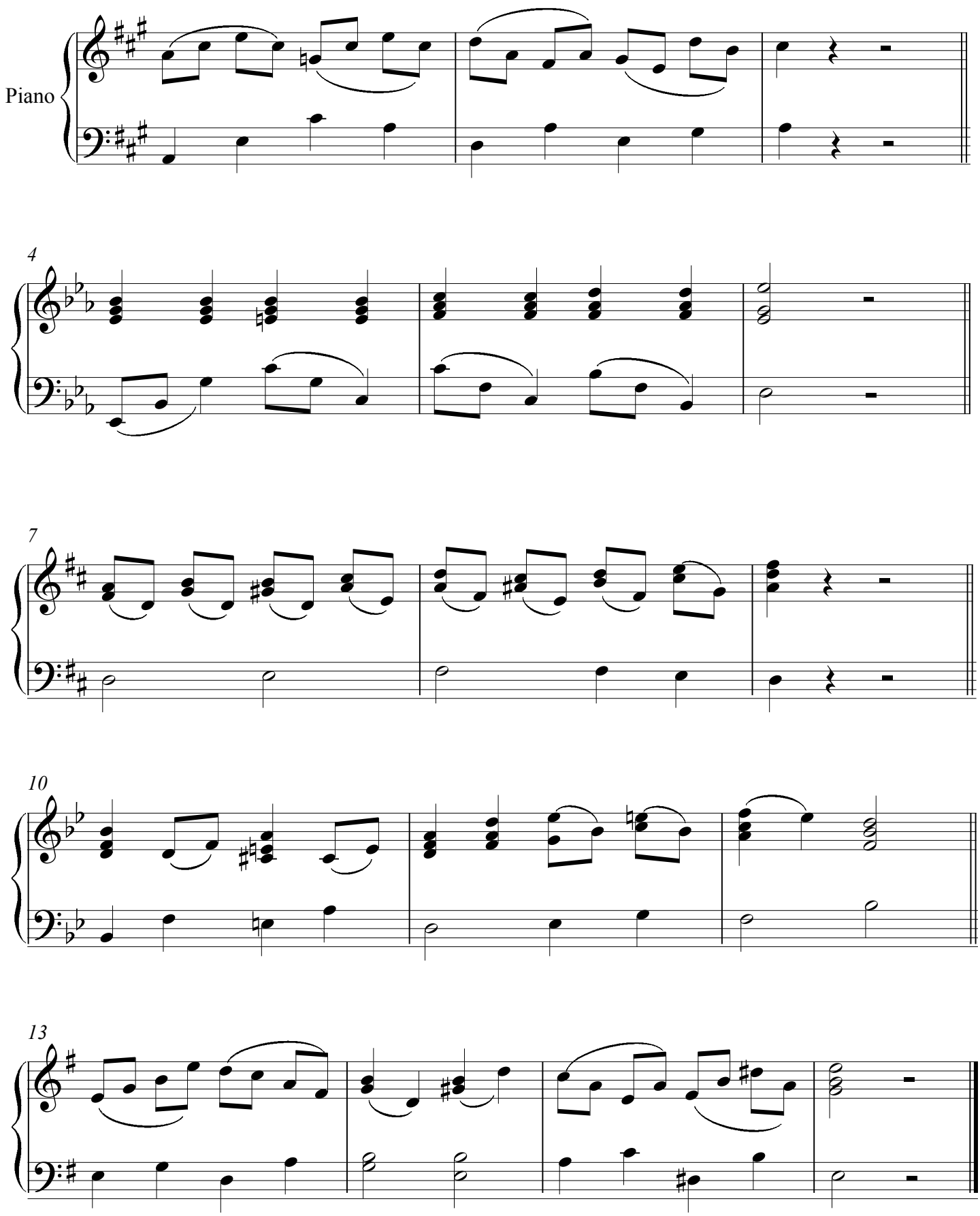
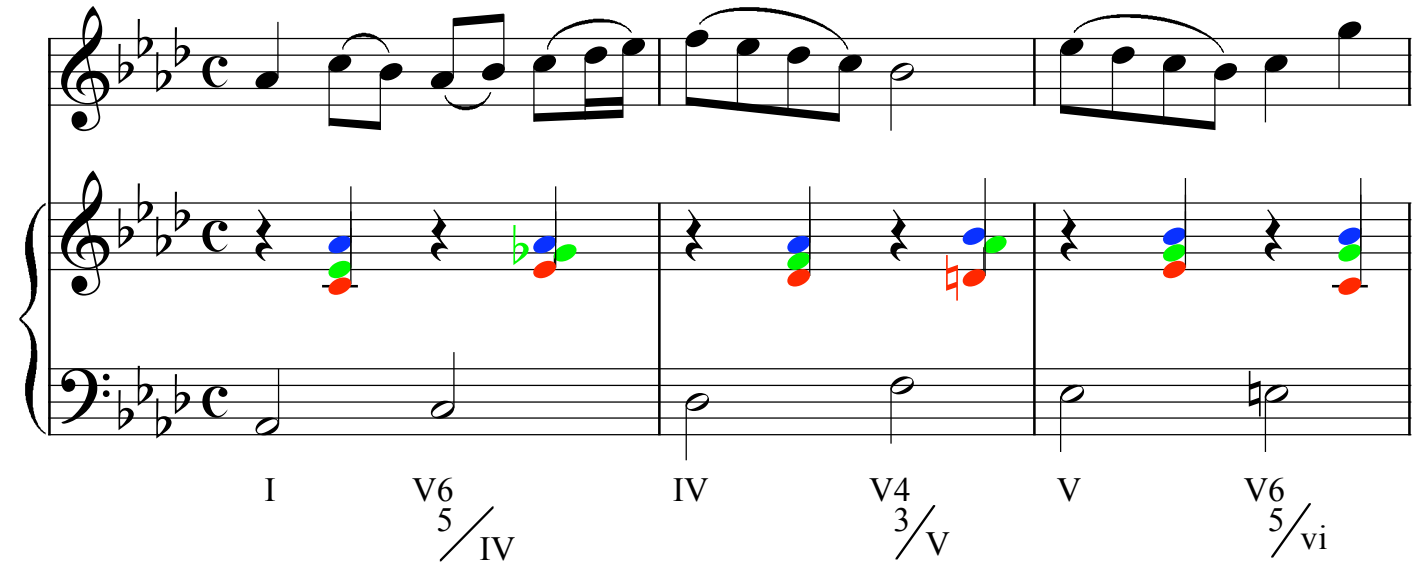
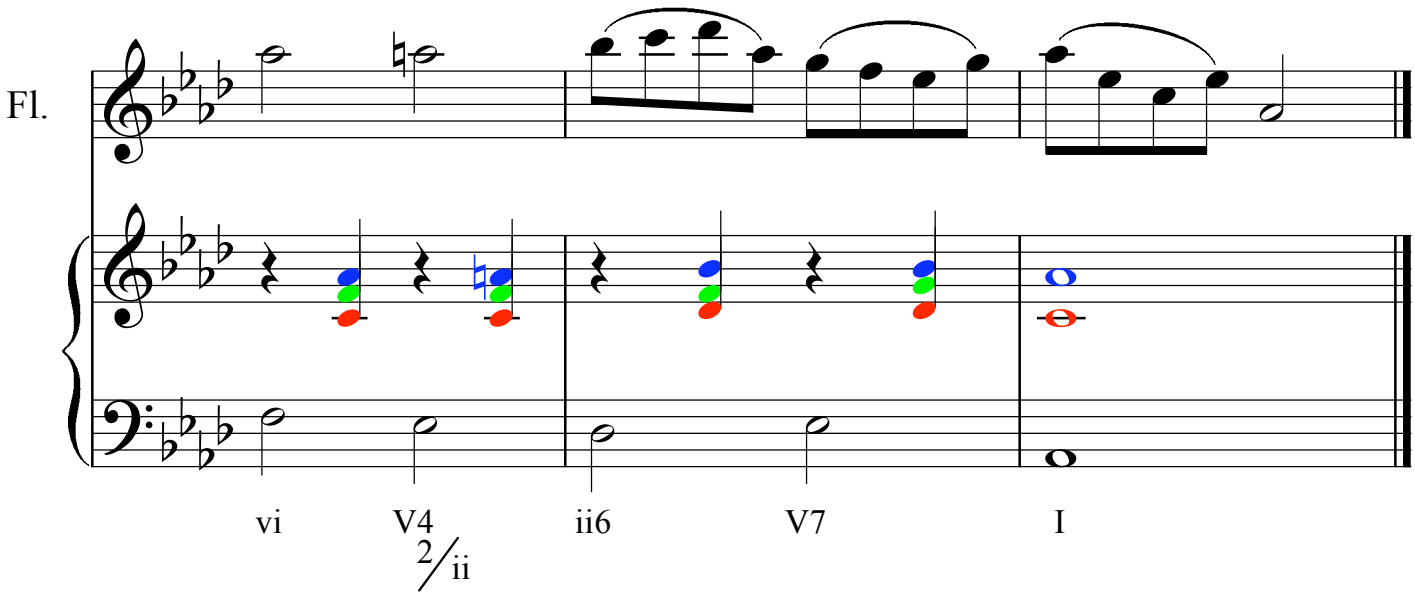
SD-1A



SD-2E

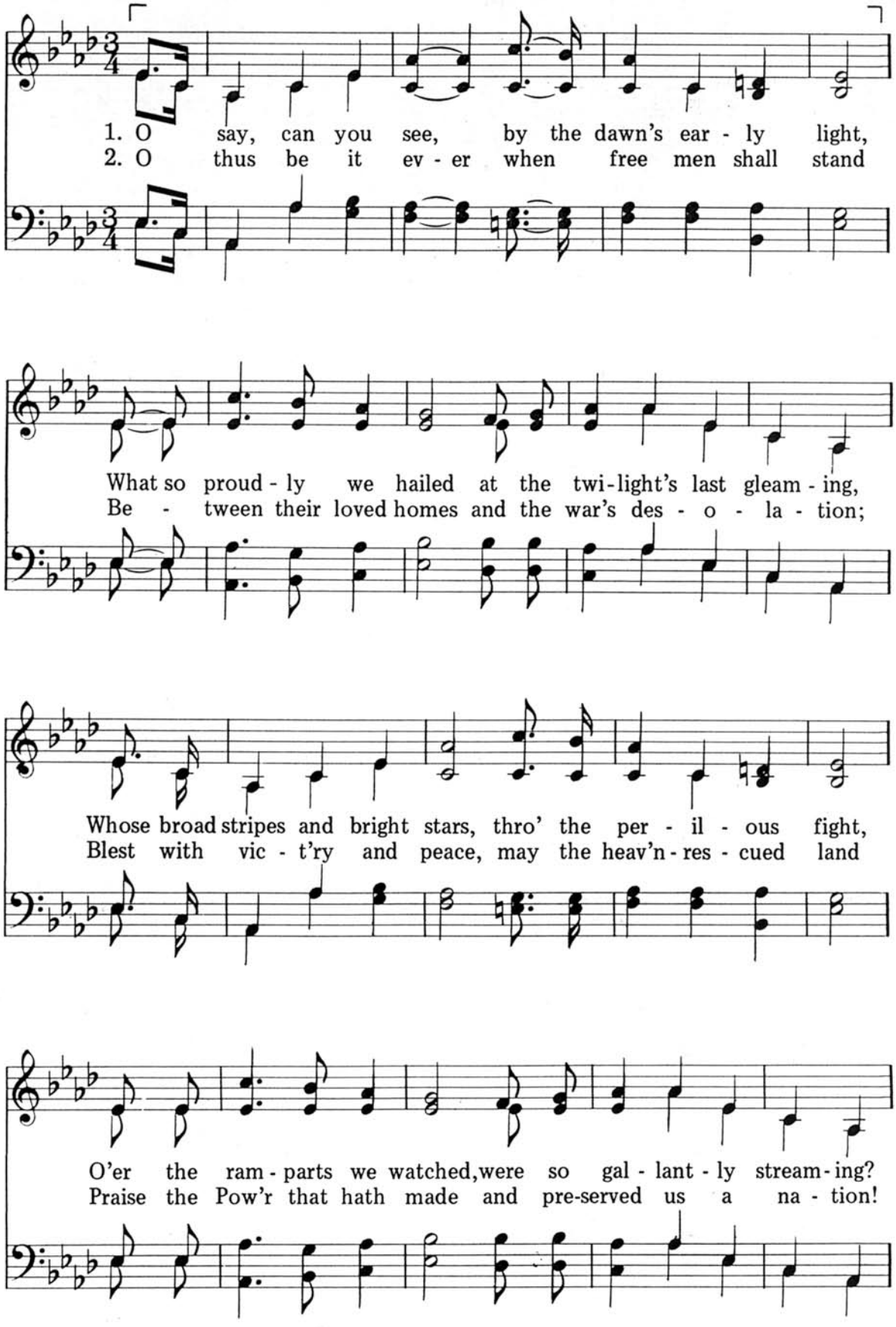
VOICE LEADING IN BLOCK CHORDS

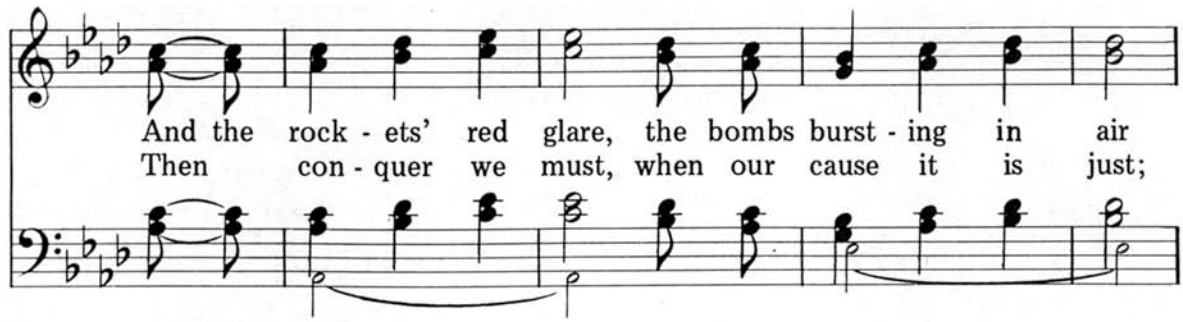


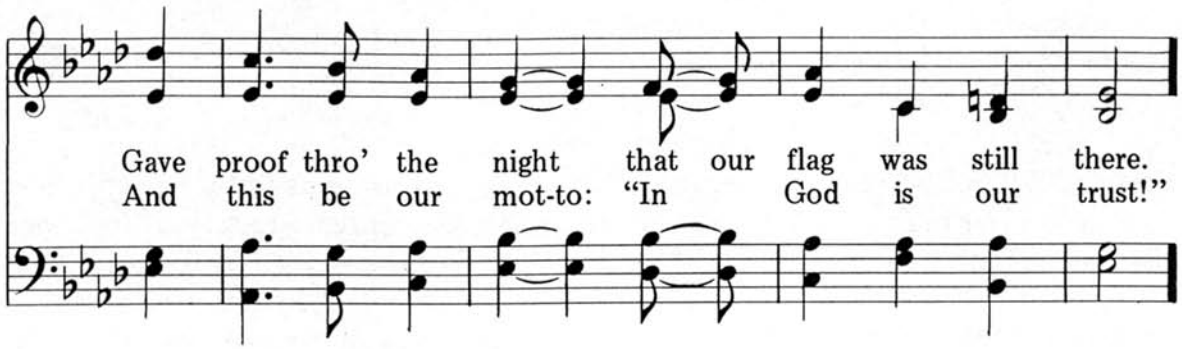


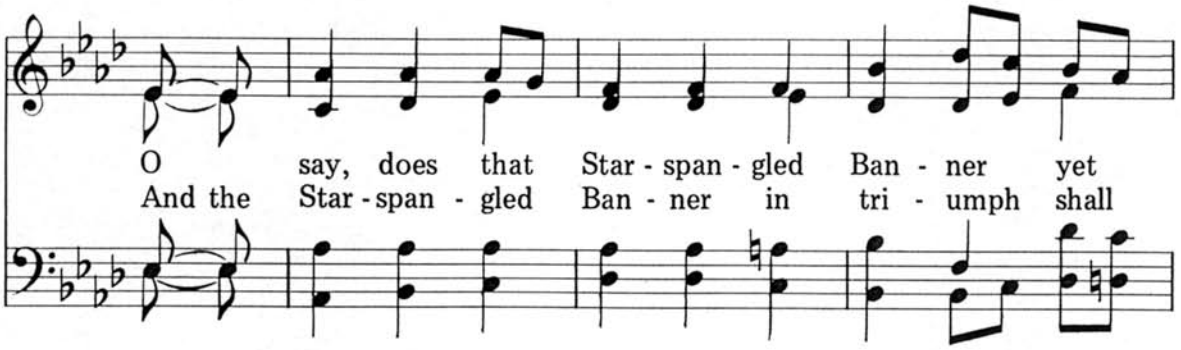
SD-3A

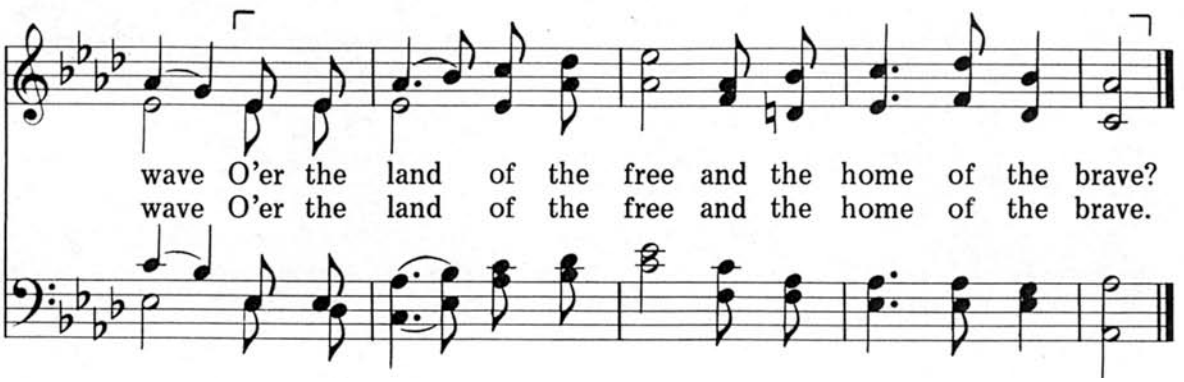
The Star-Spangled Banner



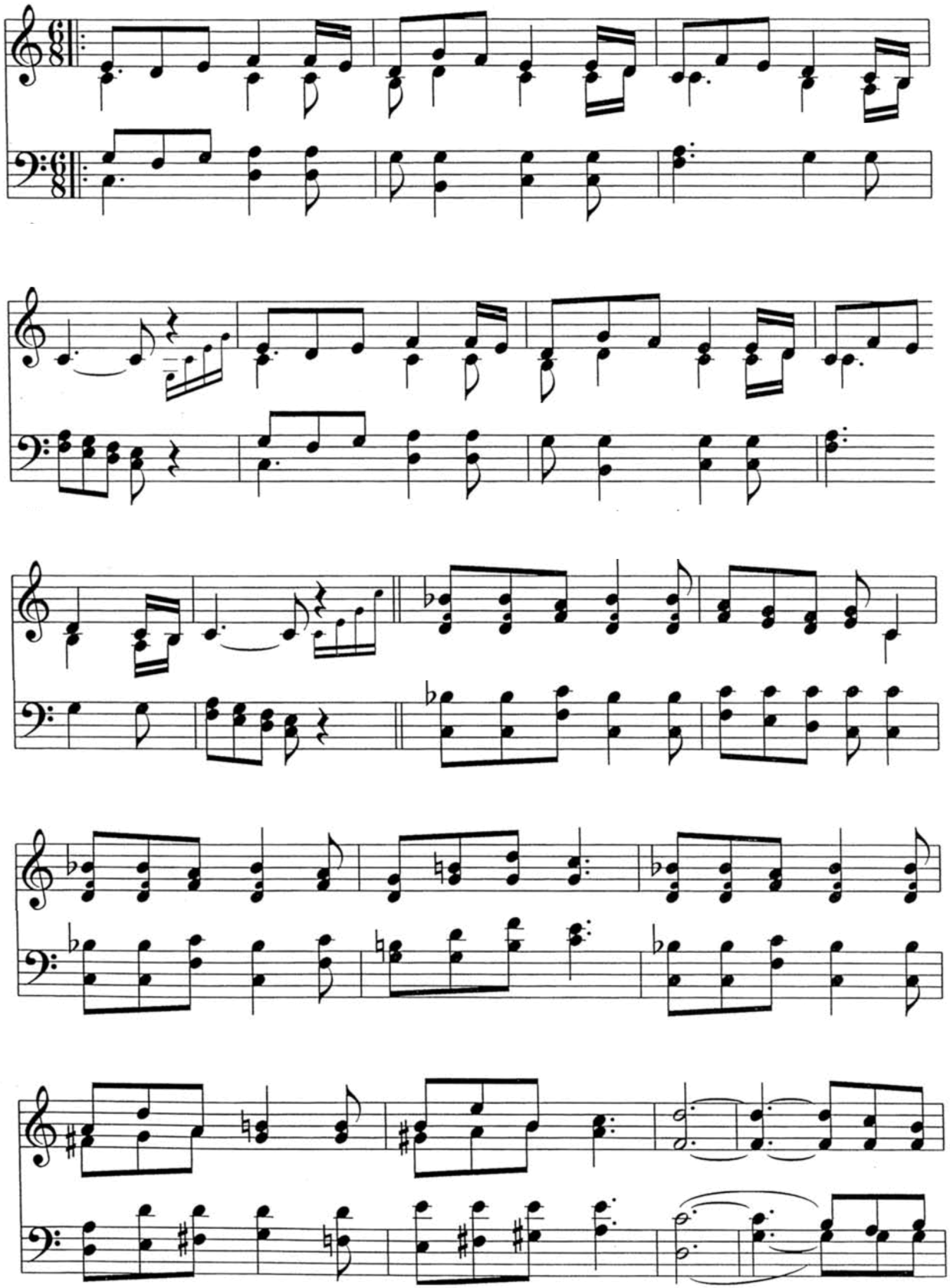

And the rock - ets' red glare, the bombs burst - ing in air
Then con - quer we must, when our cause it is just;


Gave proof thro' the night that our flag was still there.
And this be our mot-to: "In God is our trust!"


O say, does that Star - span - gled Ban - ner yet
And the Star - span - gled Ban - ner in tri - umph shall


wave O'er the land of the free and the home of the brave?
wave O'er the land of the free and the home of the brave.

SD-4A



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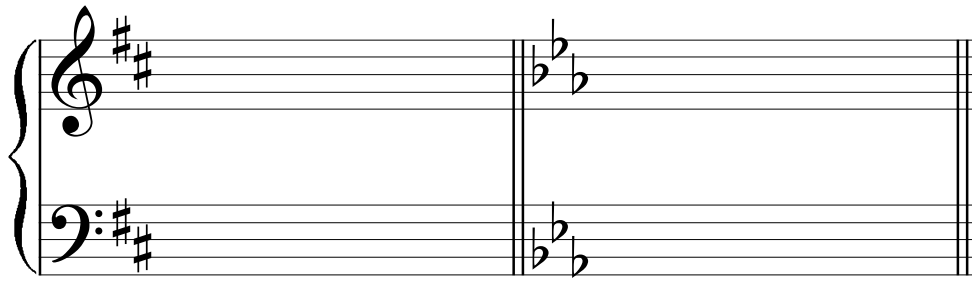
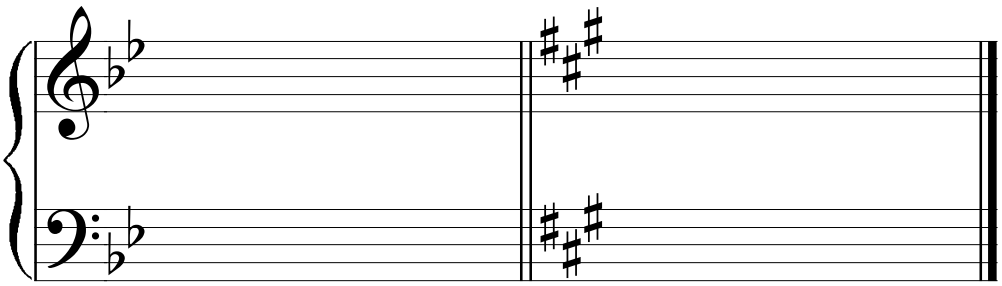
SD-5C

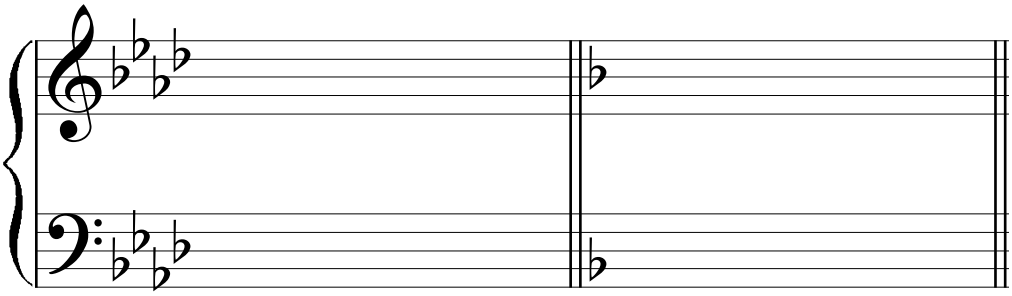
Construct each one of the following chords in appropriate 4-part chorale style



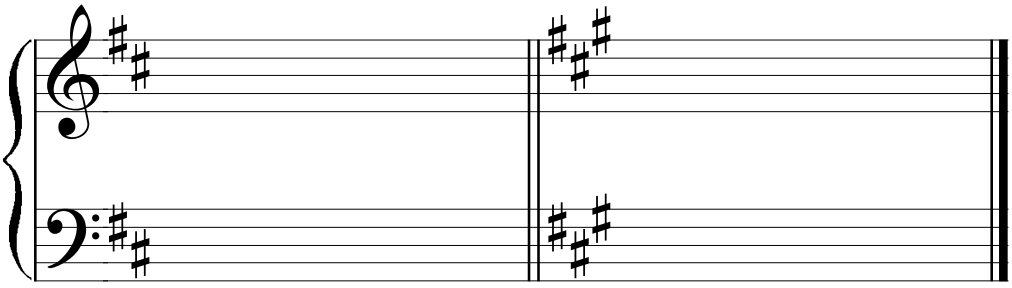
b: V7/iv iv E♭: vii°/vi vi



g: vii°/III III A: V7/ii ii

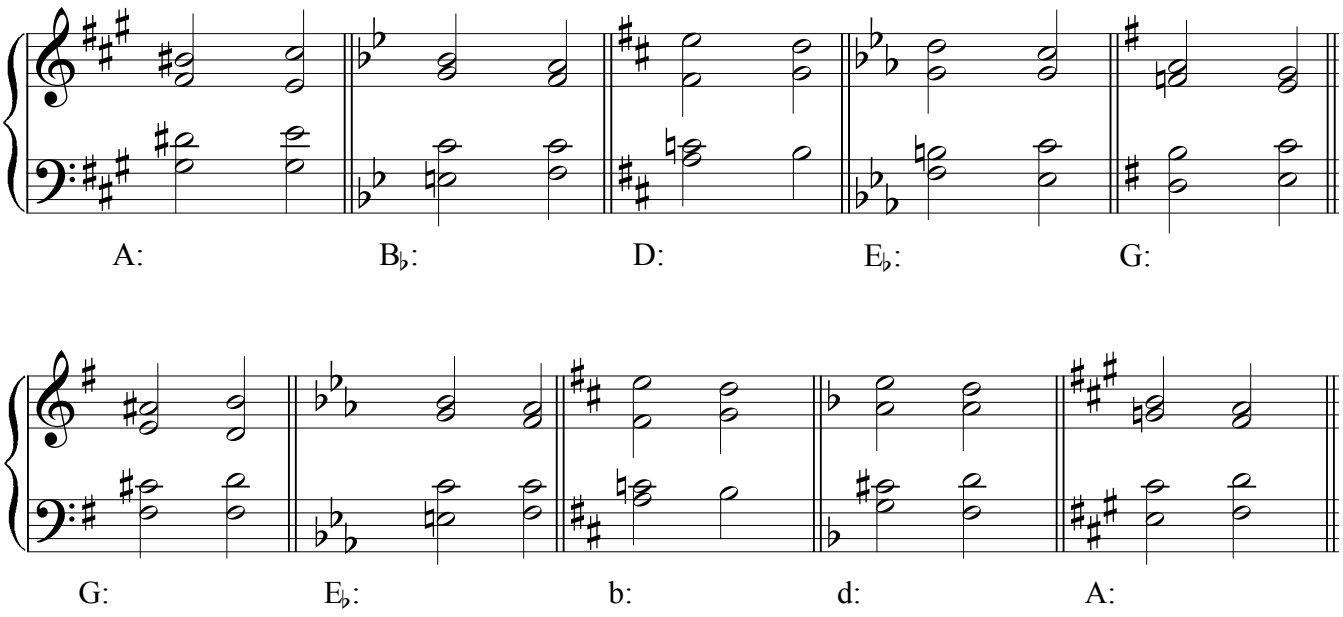


A♭: V^4_3/ii ii F: $vii^{o\,6}_{\ 5}$/V V



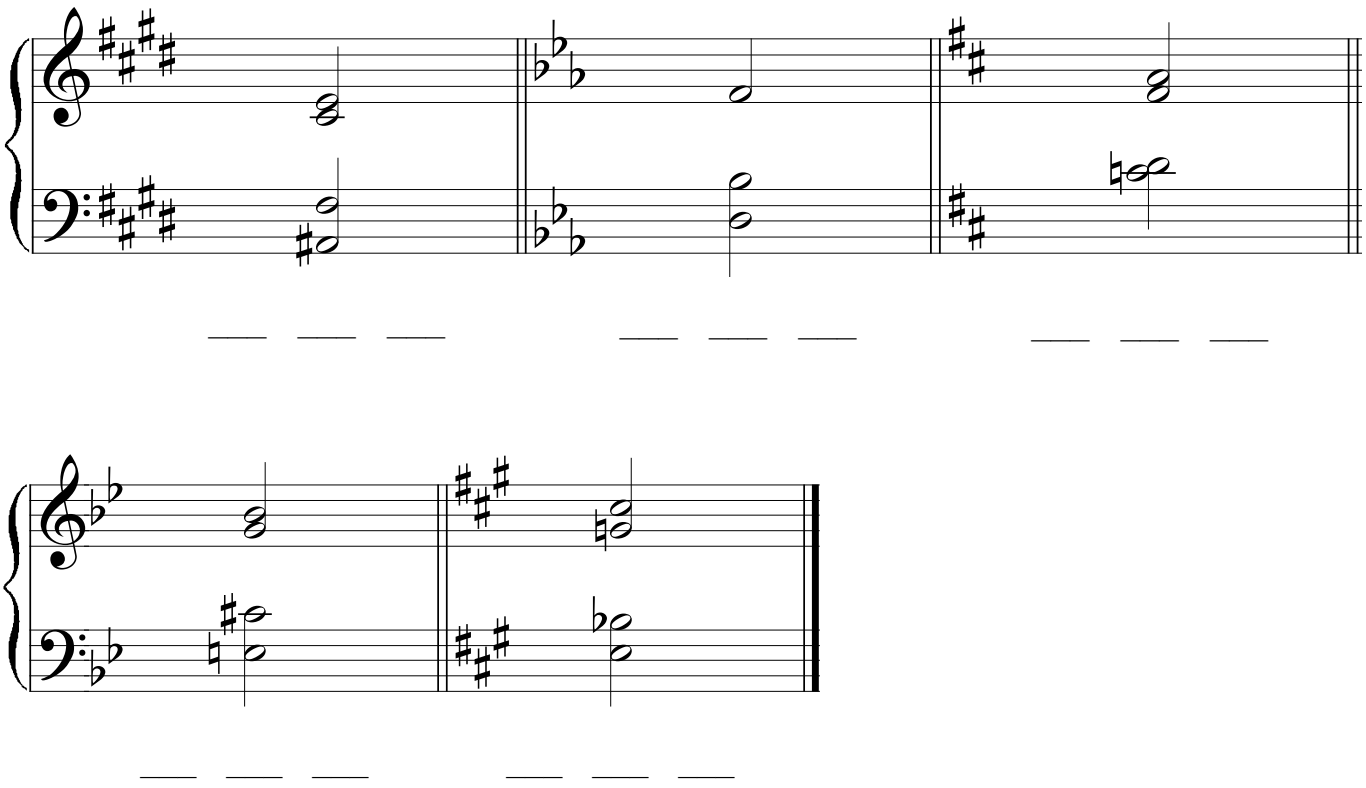
D: V^4_2/iii $iii^{\ 6}_{\ }$ A: vii^{o7}/IV IV

SD-6A



SD-7C

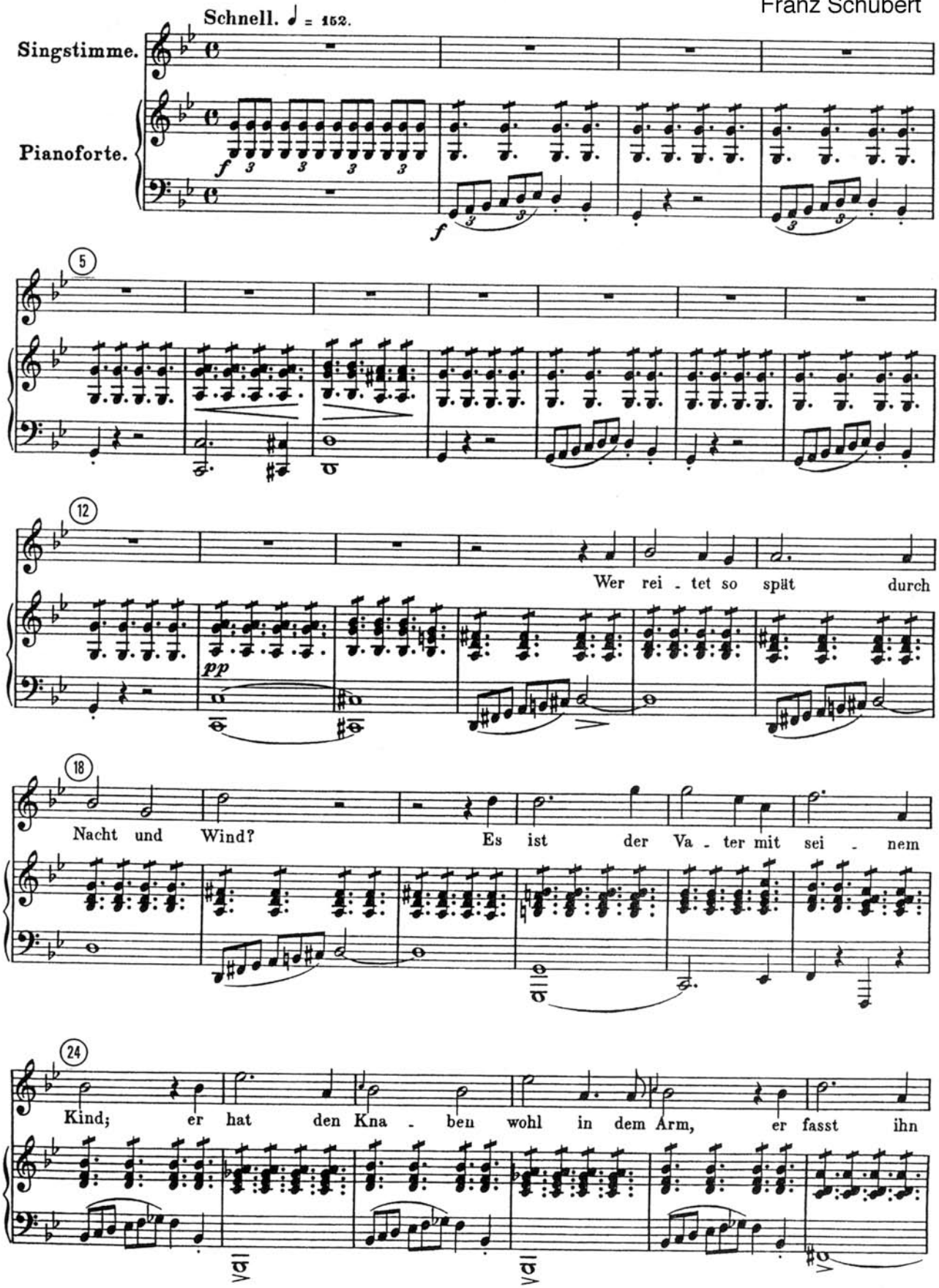
Each of the chords given is a secondary dominant or leading tone chord. Write an appropriate chord before and after each. Give a complete harmonic analysis.

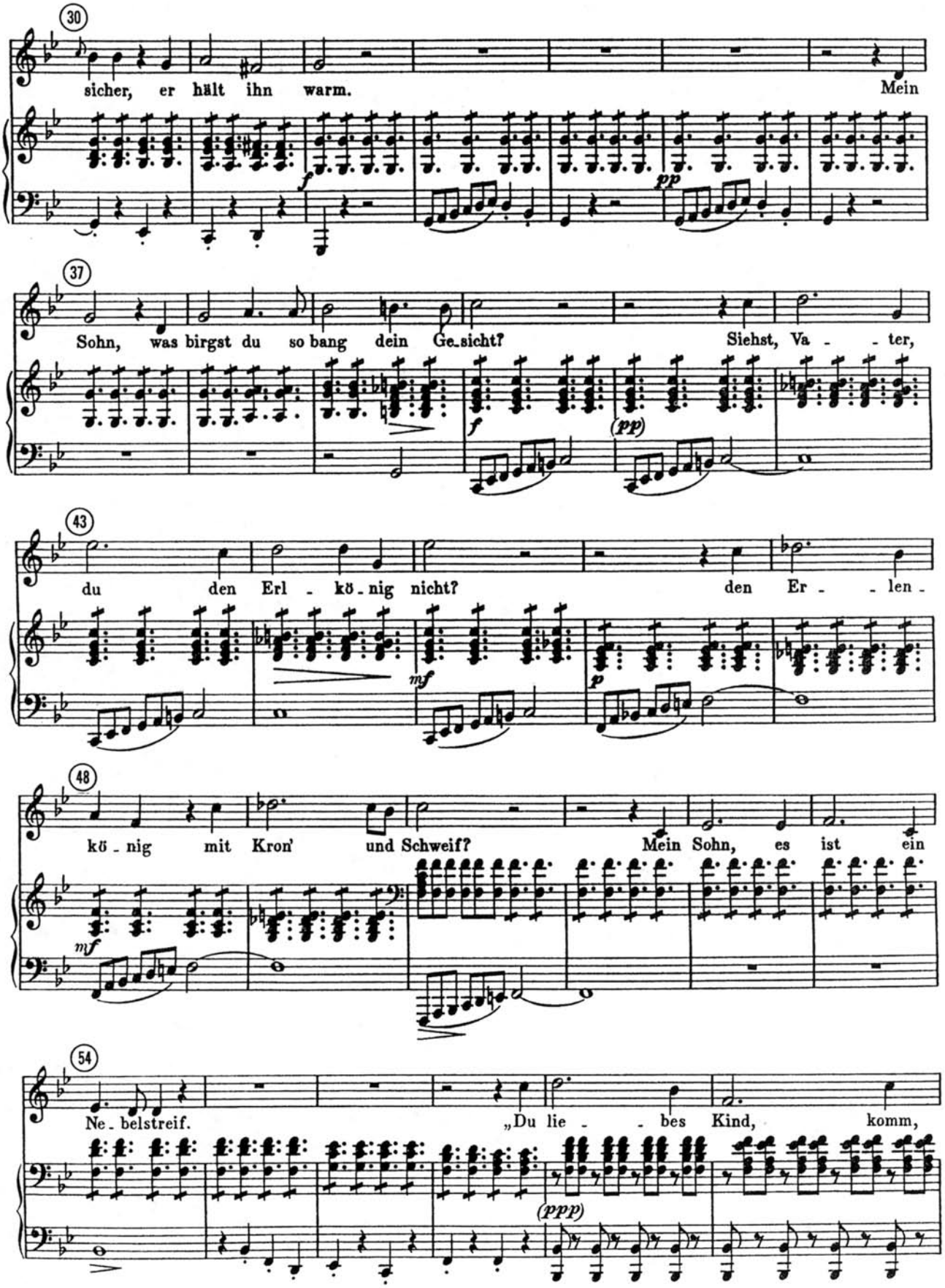


SD-8A

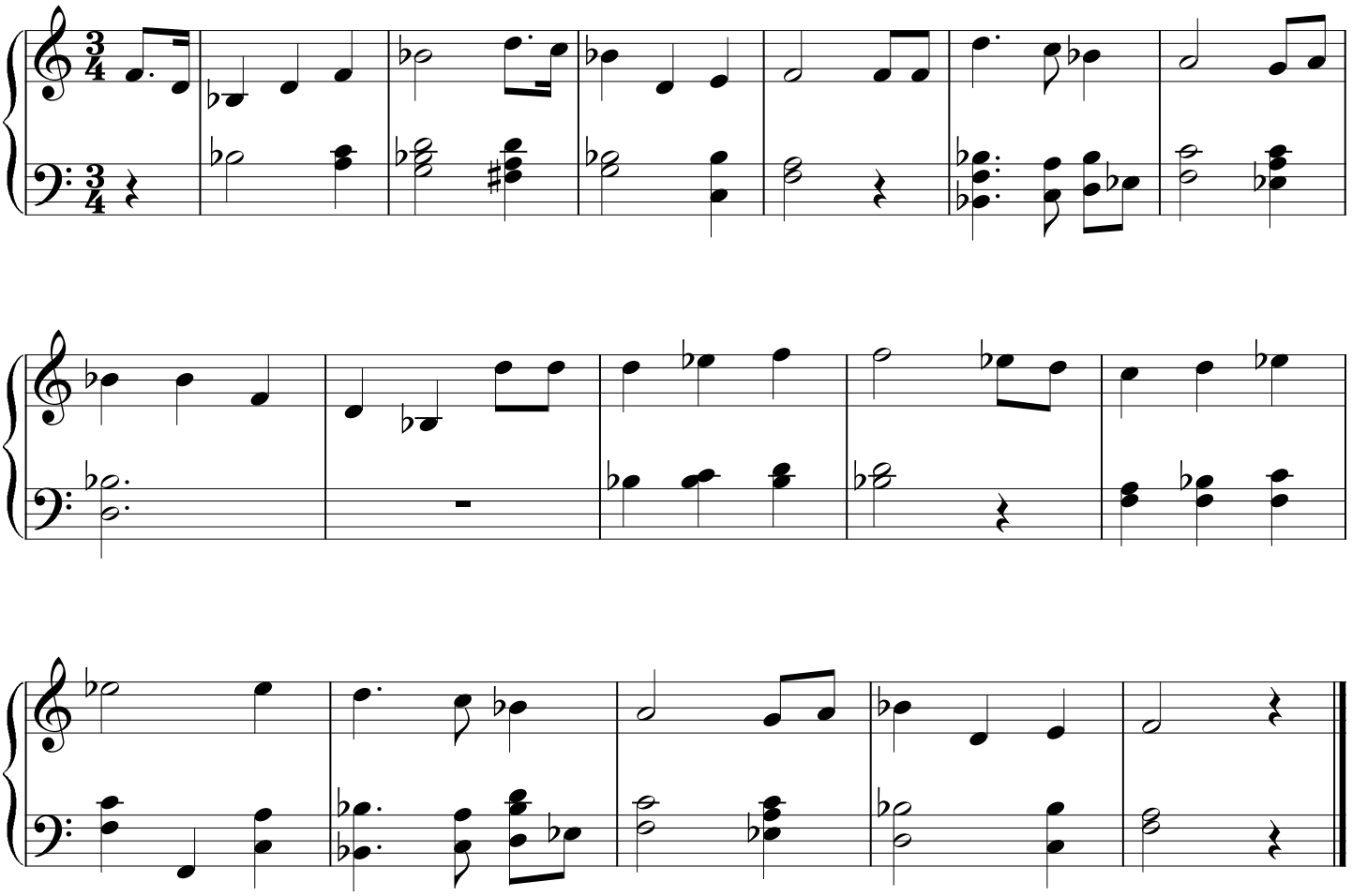
ERLKÖNIG

Franz Schubert



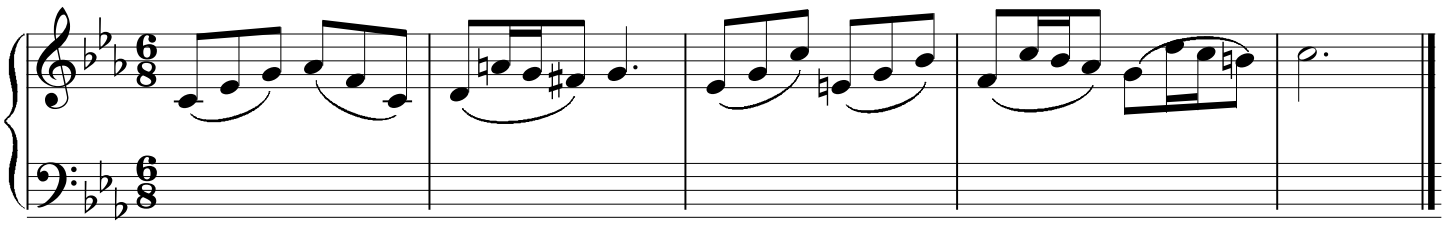

30
sicher, er hält ihn warm.
Mein
f
pp
37
Sohn, was birgst du so bang dein Ge-sicht?
Siehst, Va - - ter,
f
(pp)
43
du den Erl - kö-nig nicht?
den Er - - len -
mf
p
48
kö - nig mit Kron' und Schweif?
Mein Sohn, es ist ein
mf
54
Ne-belstreif.
„Du lie - - bes Kind, komm,
(ppp)

SD-9A



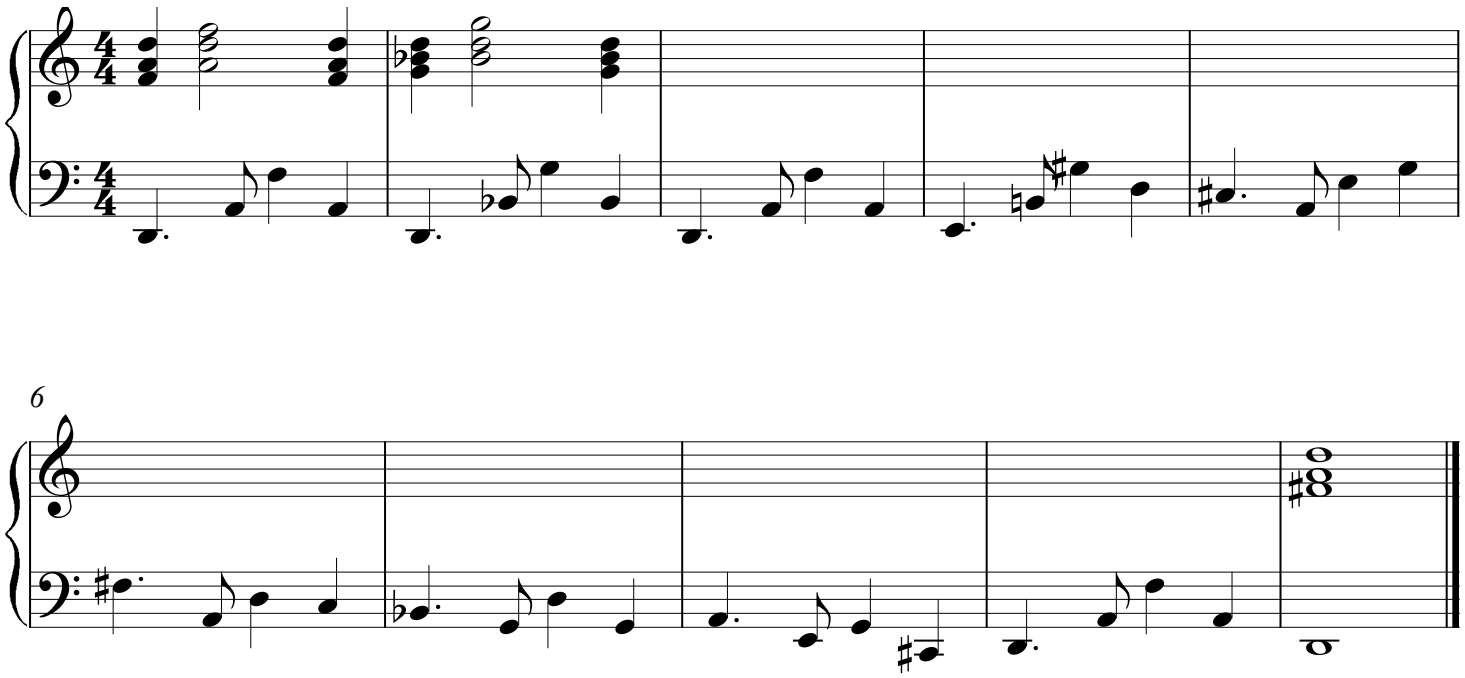
SD-10C

Compose an appropriate bass line, in dotted quarter notes. Use at least four inversions, keeping the bass line smooth. Give a full harmonic analysis.

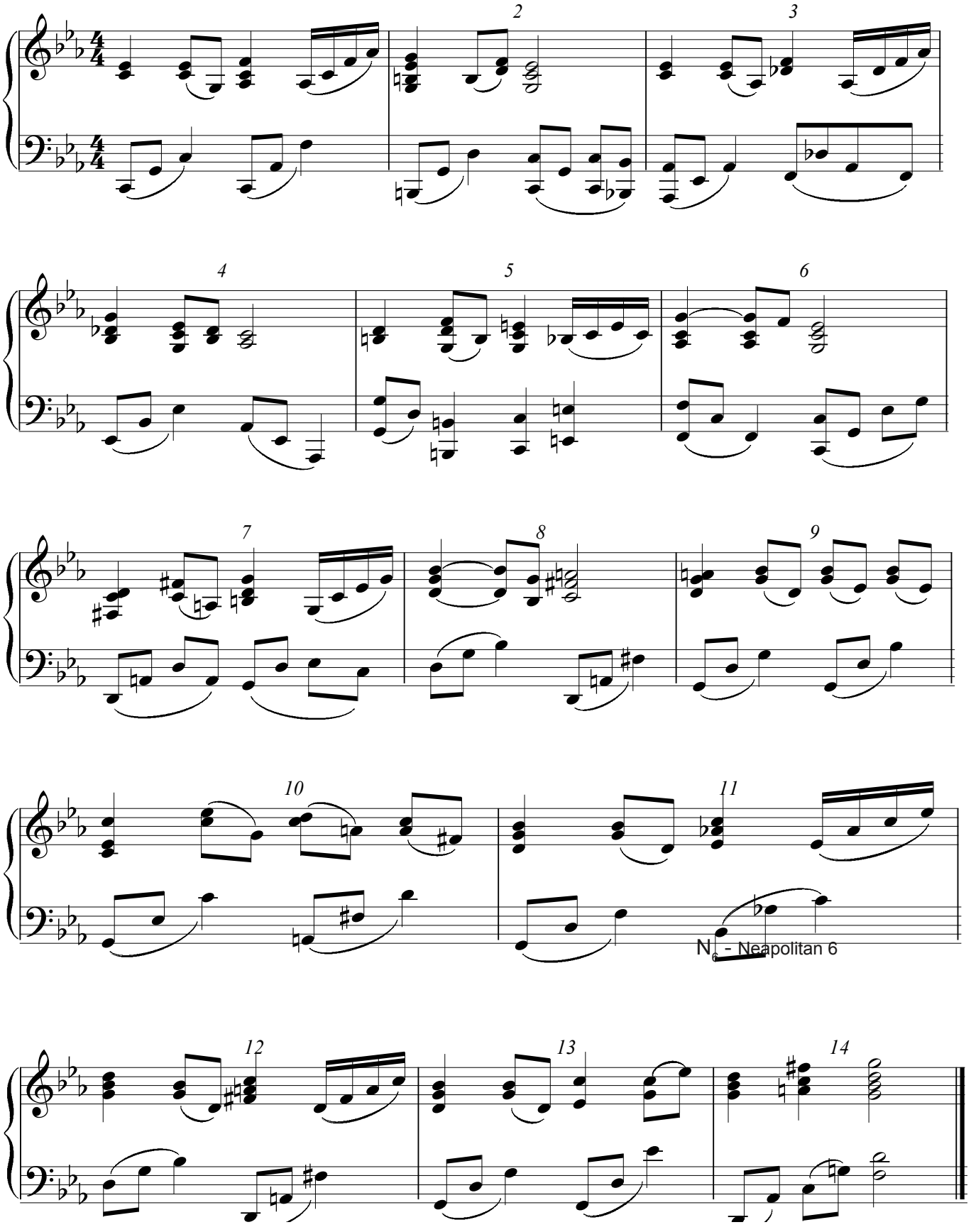


SD-11C

Compose the treble clef part, using measure 1 as an example.
Keep the treble part moving as smoothly as possible.
Give a complete harmonic analysis.
(Hint: 1 chord per measure)



SD-12A



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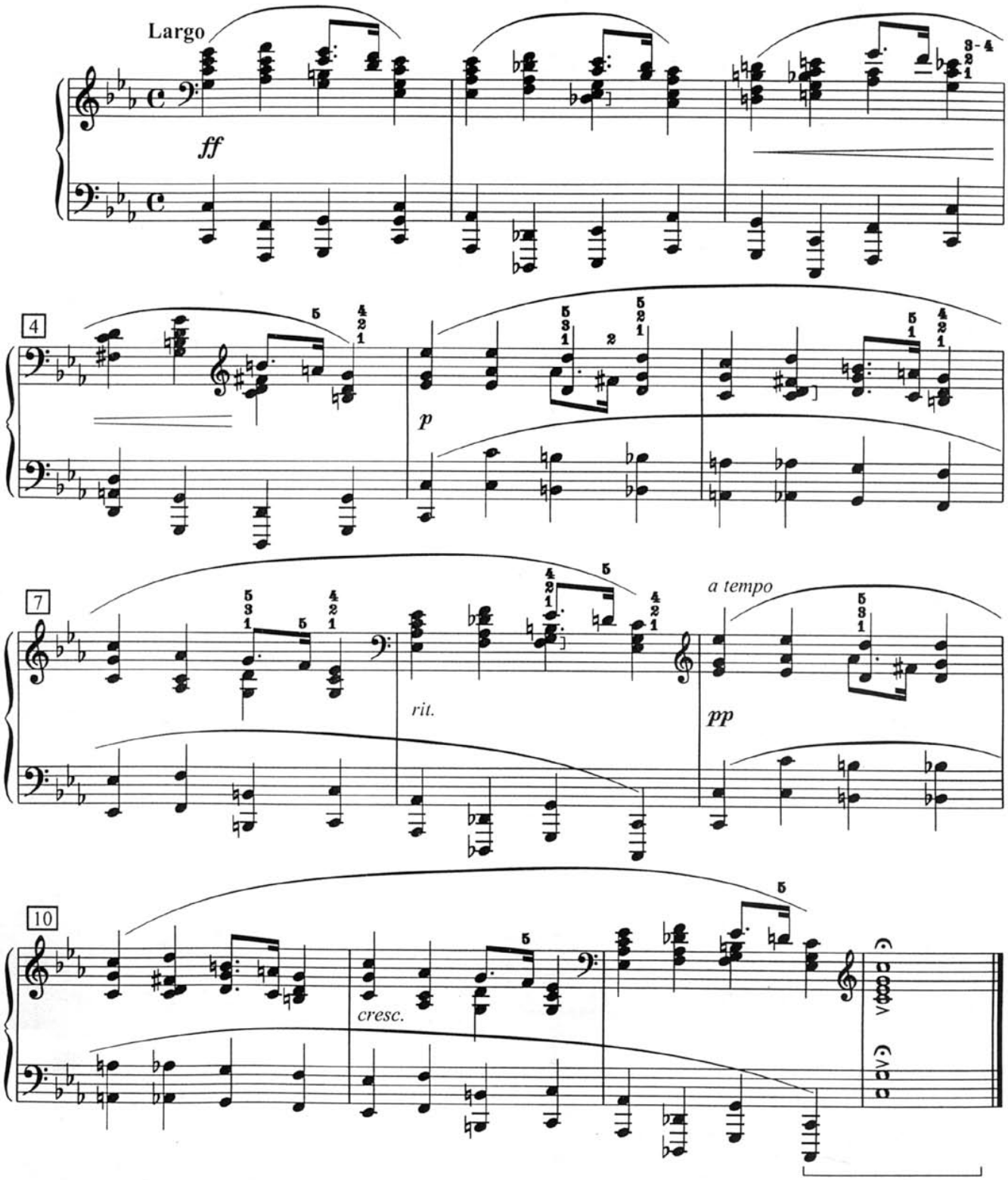
SD-13A

PRELUDE IN C MINOR

Opus 28, No. 20

F. Chopin



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Borrowed Chords

Definition

A chord borrowed from the parallel major or minor key

Characteristics

The most common usage is to borrow chords from the parallel minor to be used in the major

The altered scale degrees to look for are the minor 6th (most common) and the minor 3rd

The most common borrowed chords (in the major) are iv, ii°, ♭VI, and i

The iv, ii°, and ♭VI have the minor 6th scale degree

The ♭VI and i have a minor third scale degree

The most common borrowed chord in a minor key is the I

- Usually seen at the end of a piece
- Usually referred to as having a “picardy” third

Exceptions

A possible borrowed chord, but one not commonly seen is the ♭III in a major key

Resolution

Borrowed chords generally resolve as they would in their initial mode, following strong root movements

- down a 5th / down a 3rd / up a 2nd

Care should be taken when resolving the altered pitches

- Altered pitches tend to continue (resolve) in the direction they are altered

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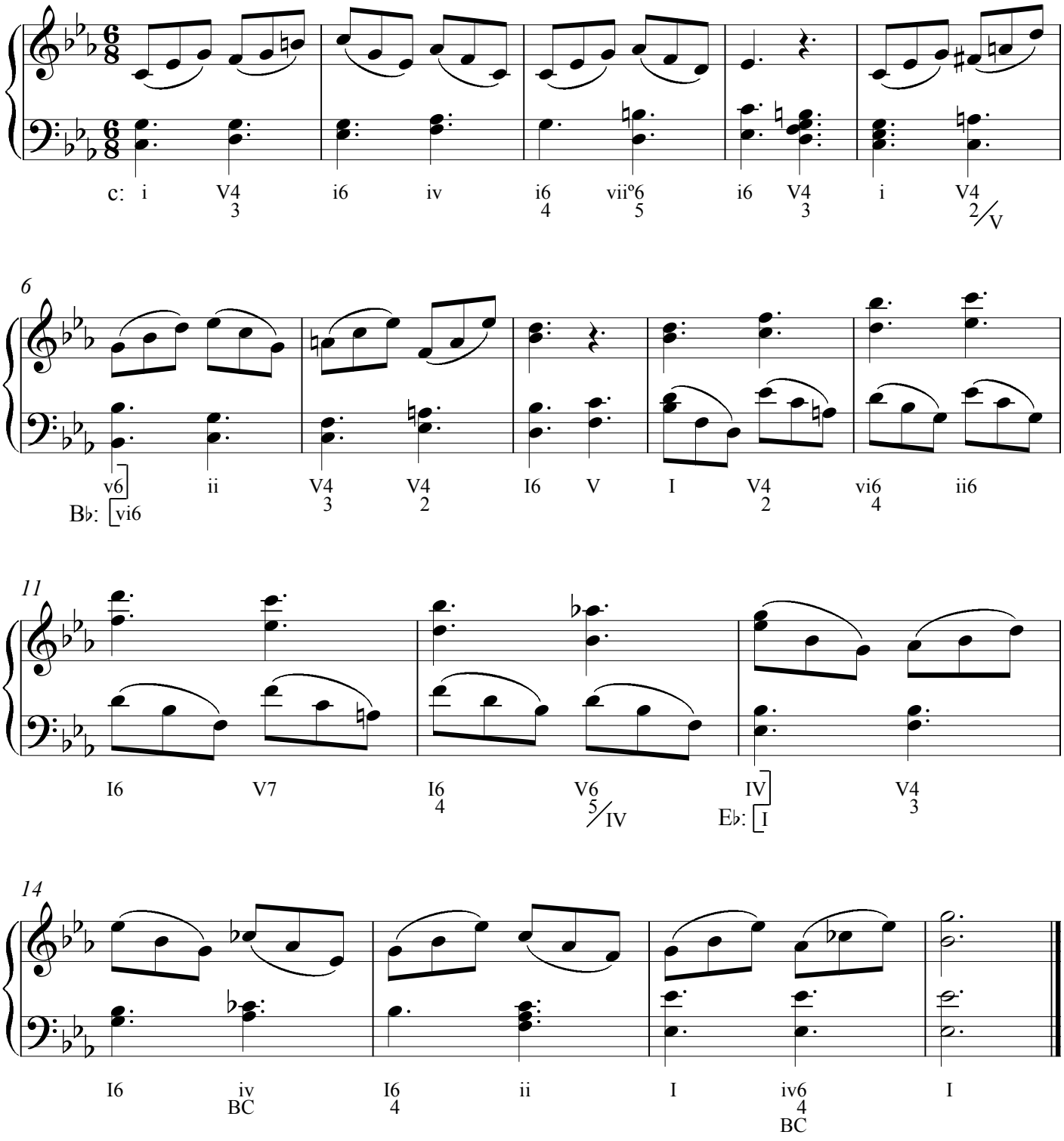
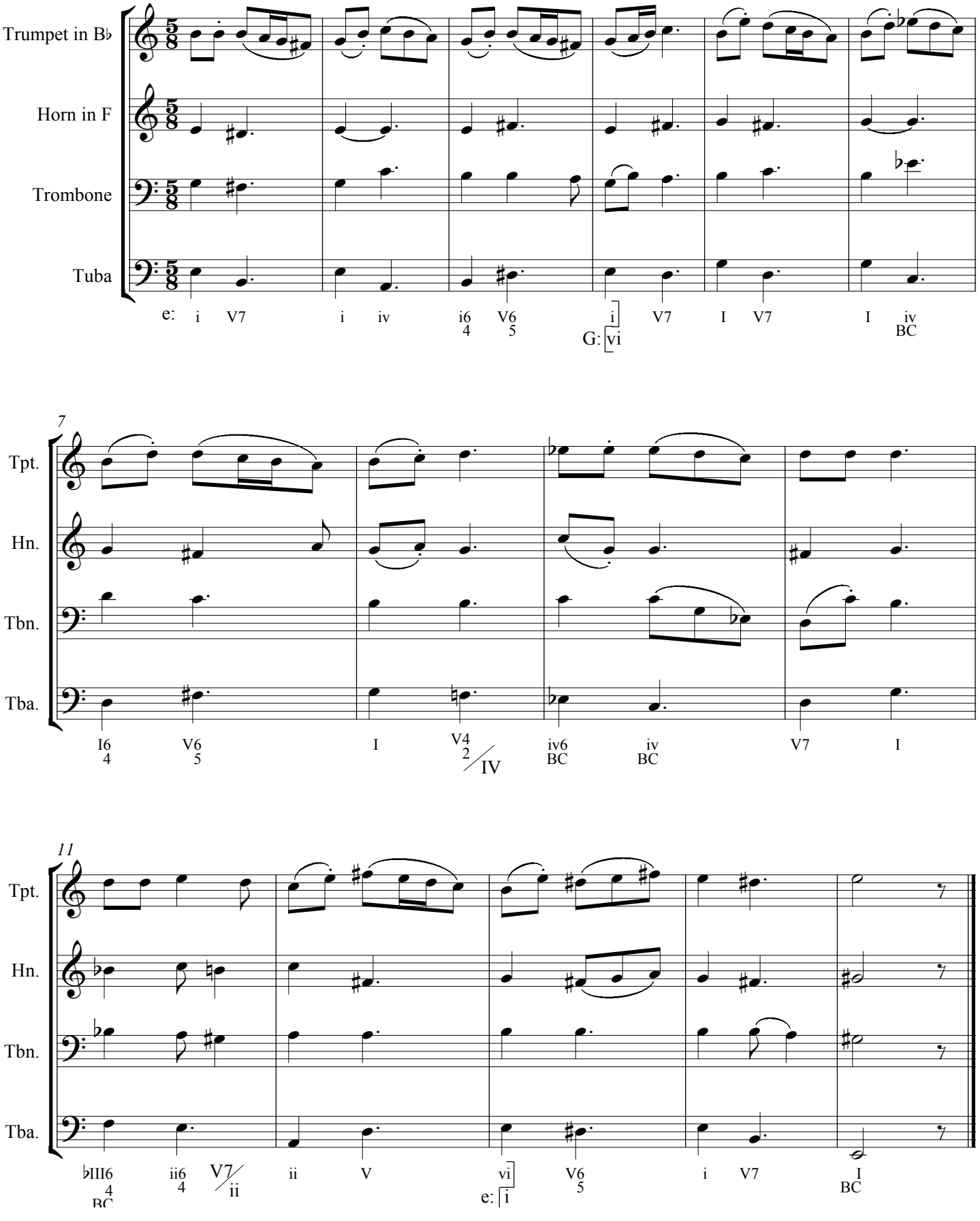
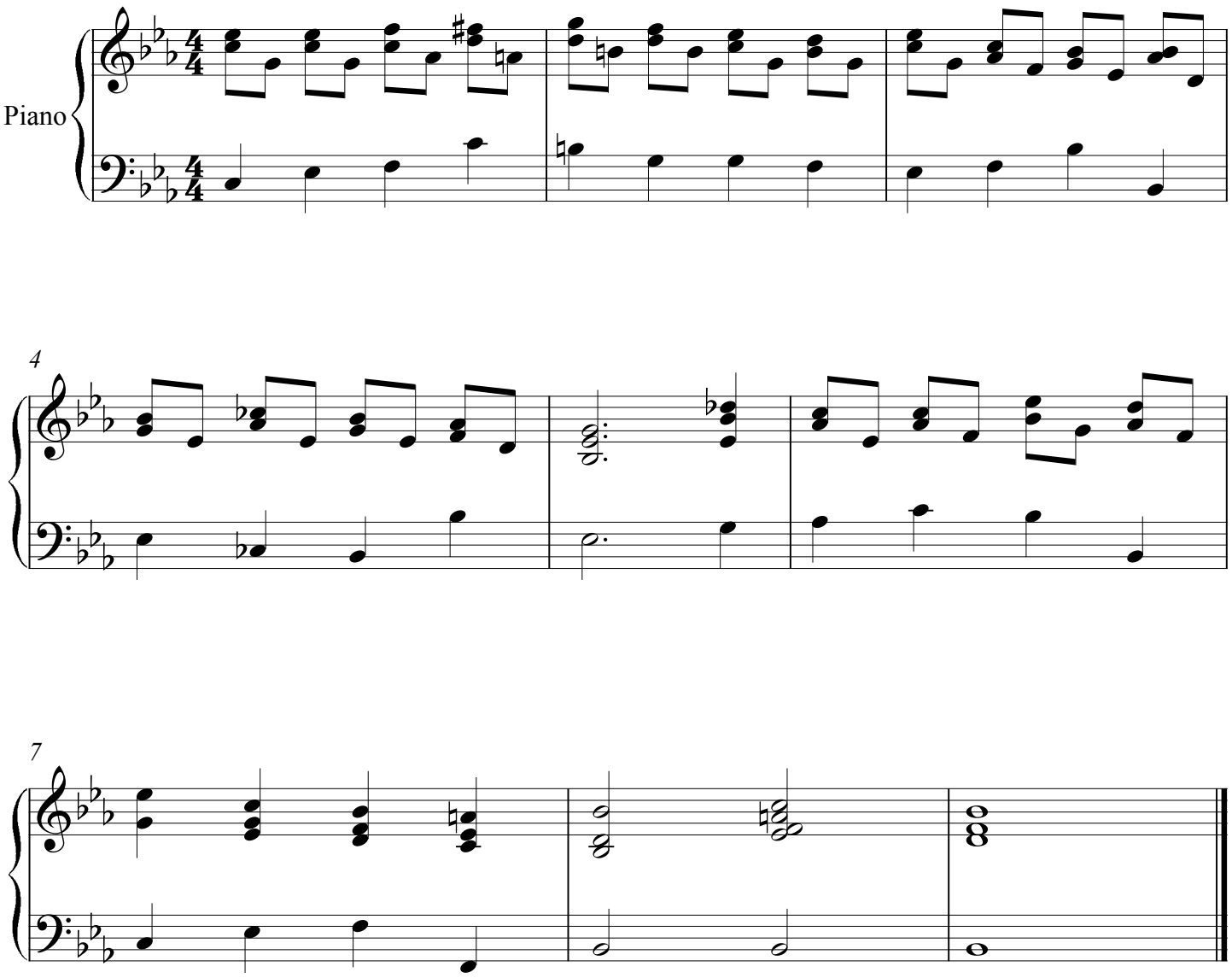
BC-1E


c: i V4 3 i6 iv i6 4 viiº6 5 i6 V4 3 i V4 2/V
6
v6 ii V4 3 V4 2 I6 V I V4 2 vi6 4 ii6
B♭: vi6
11
I6 V7 I6 4 V6 5/IV IV V4 3
E♭: I
14
I6 iv BC I6 4 ii I iv6 4 BC I

BC-2E


Trumpet in B♭
Horn in F
Trombone
Tuba
e: i V7 i iv i6 4 V6 5 i G: vi V7 I V7 I iv BC
7
Tpt.
Hn.
Tbn.
Tba.
I6 4 V6 5 I V4 2 IV iv6 BC iv BC V7 I
11
Tpt.
Hn.
Tbn.
Tba.
♭III6 4 BC ii6 4 V7 ii ii V vi e: i V6 5 i V7 I BC

BC-3A



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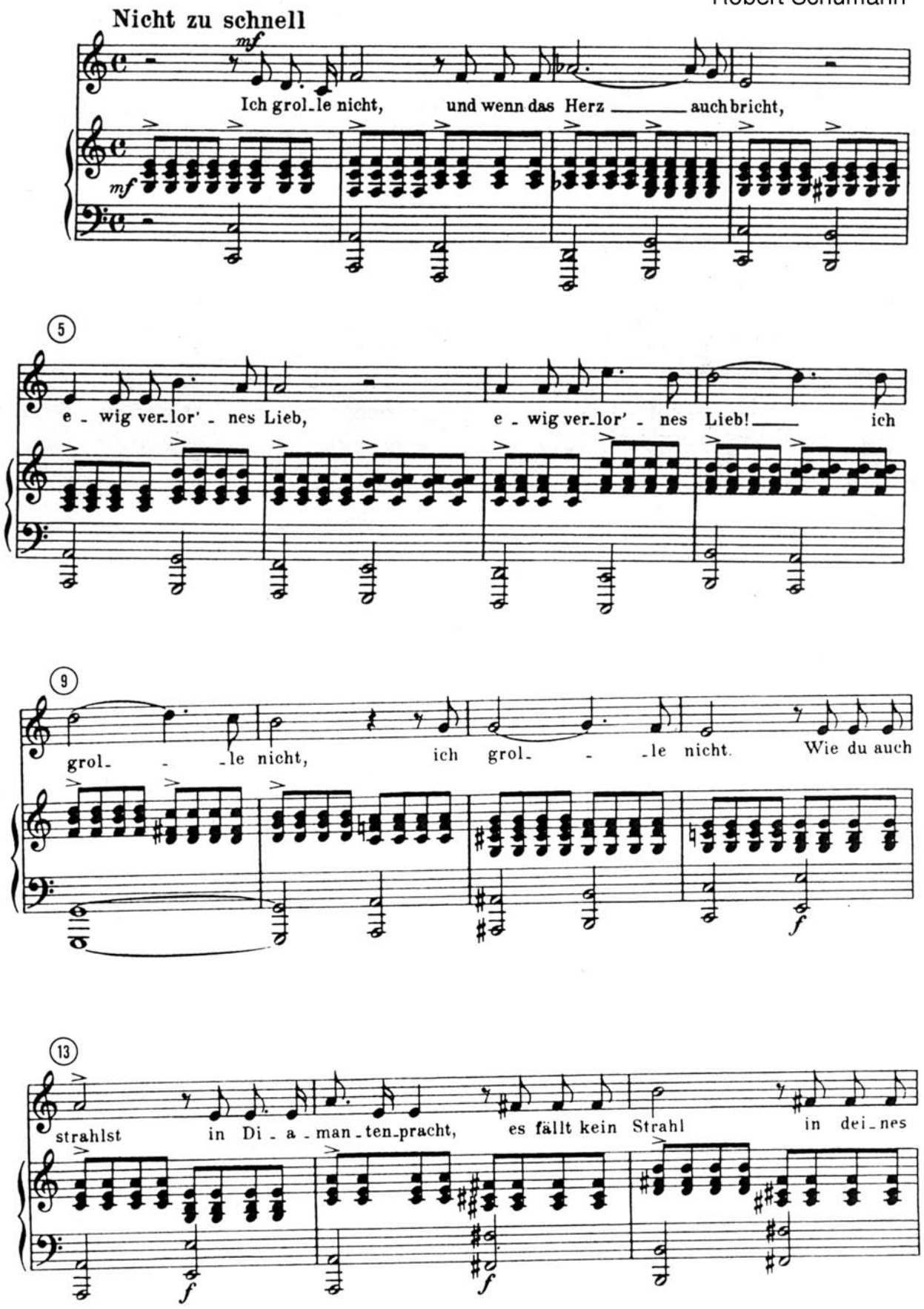
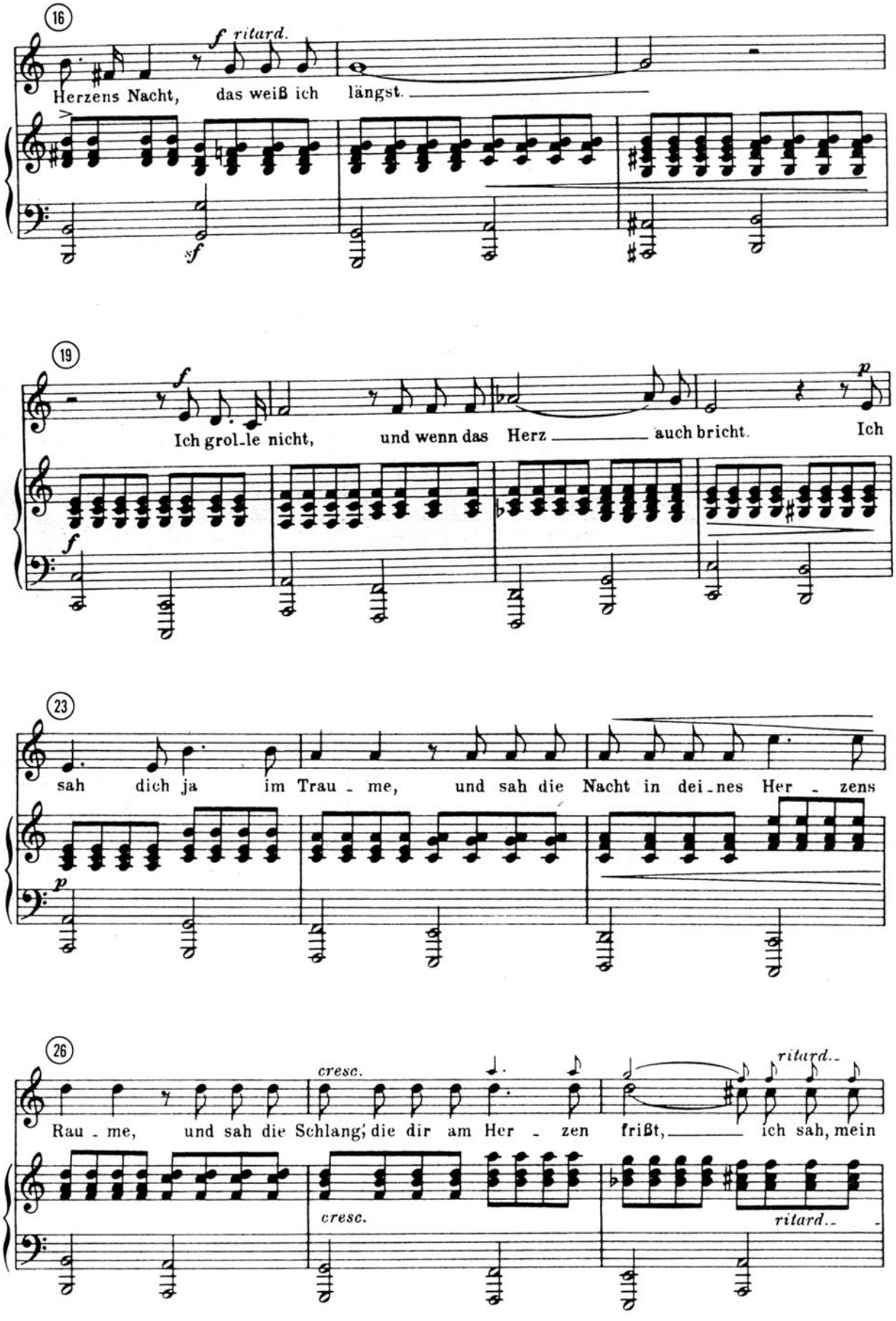
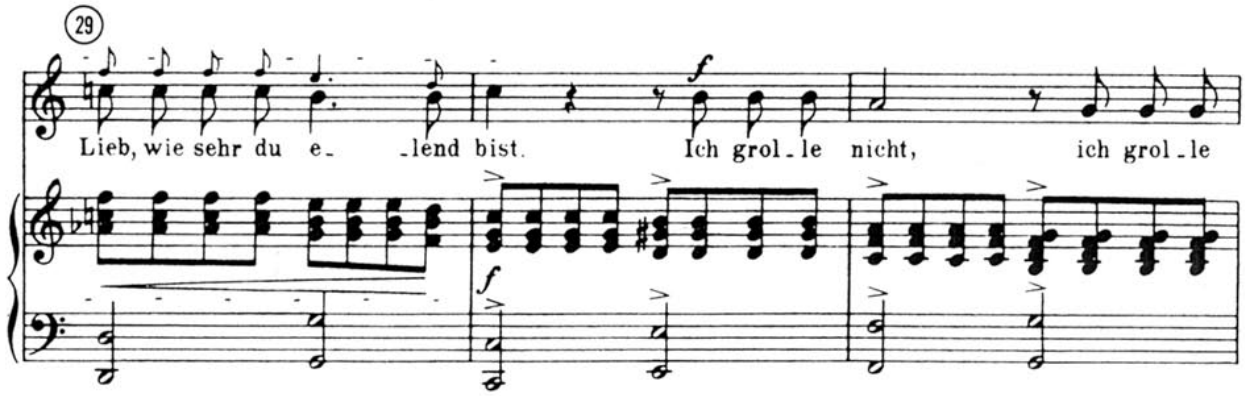
BC-4A

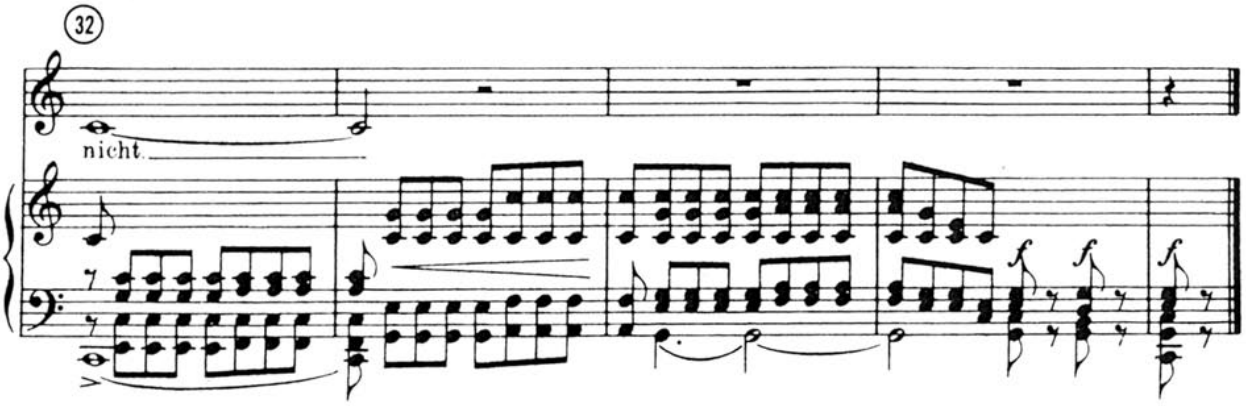
Ich Grolle Nicht

Robert Schumann




16
f ritard.
Herzens Nacht, das weiß ich längst.
sf
19
f
Ich grol-le nicht, und wenn das Herz auch bricht.
p
Ich
f
23
sah dich ja im Trau - me, und sah die Nacht in dei-nes Her - zens
p
26
cresc.
ritard..
Rau - me, und sah die Schlang; die dir am Her - zen frißt, ich sah, mein
cresc.
ritard..


29
Lieb, wie sehr du e_ _lend bist. Ich grol_le nicht, ich grol_le


32
nicht

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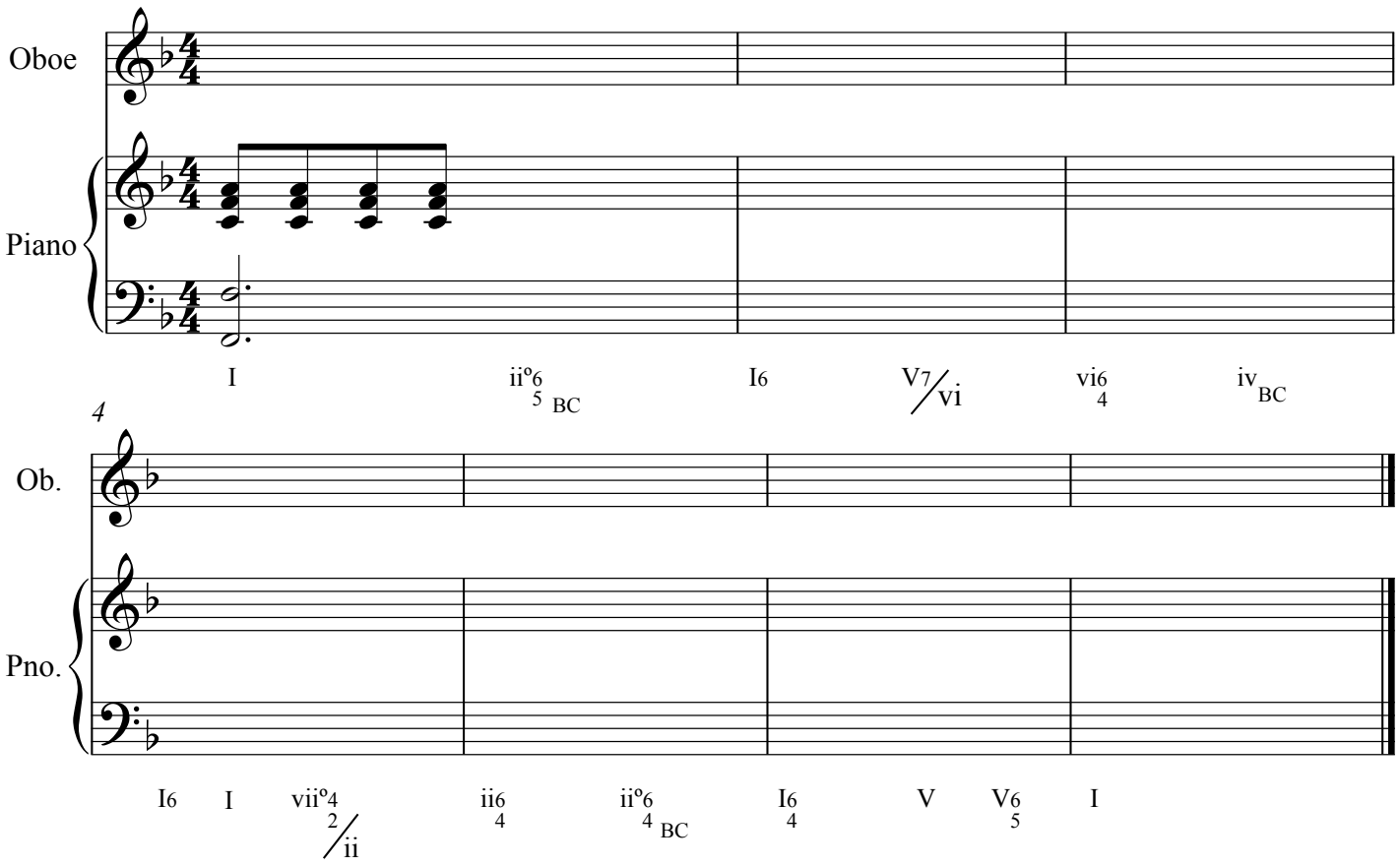
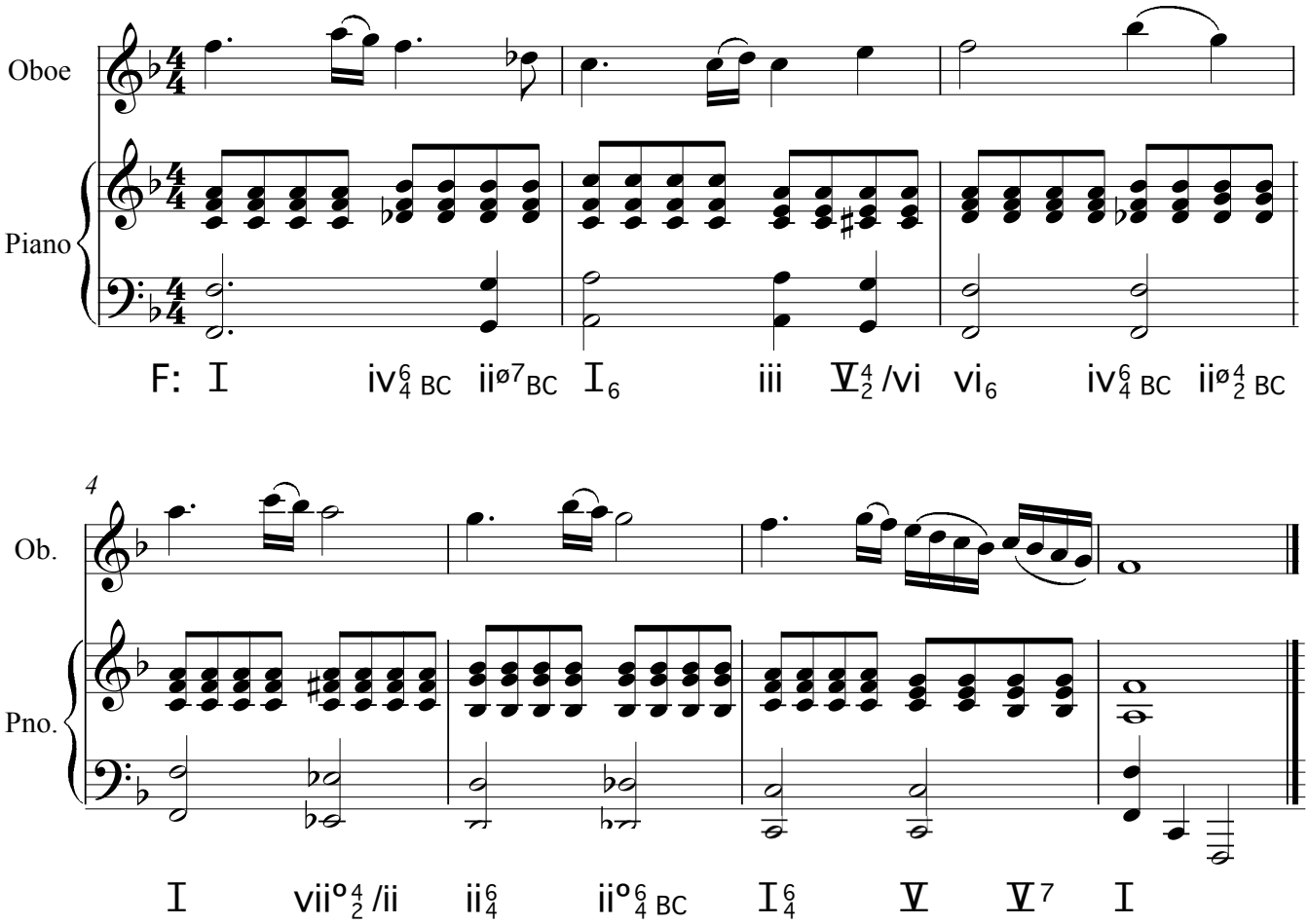
BC-5C

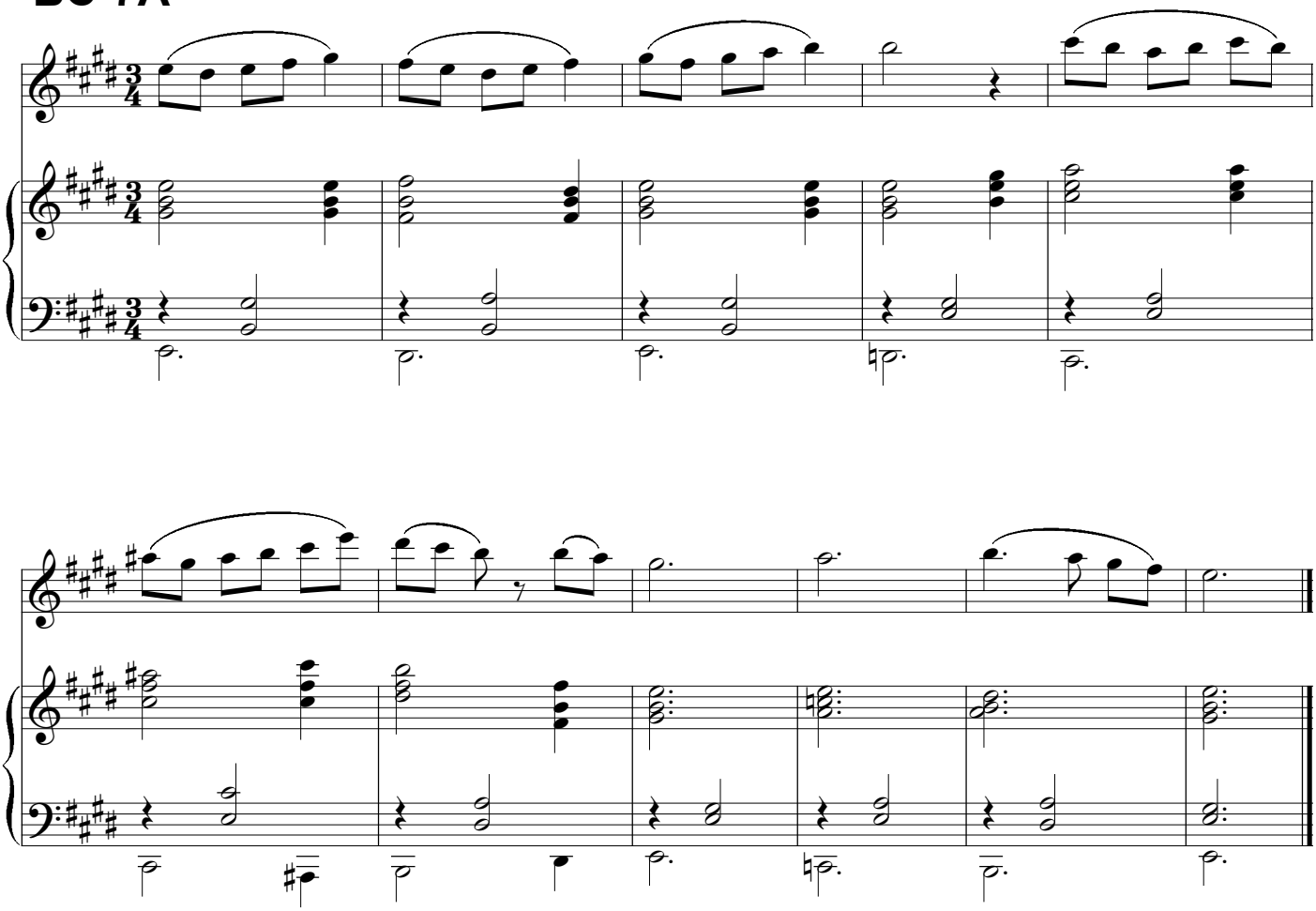
Compose a short piece using "Ich grolle nicht" as a model.
Write straight eighth notes in the right hand. Use quarter and half notes in bass.
Write an appropriate melody for the oboe part.
Follow the figured bass chord designations.



BC-6E

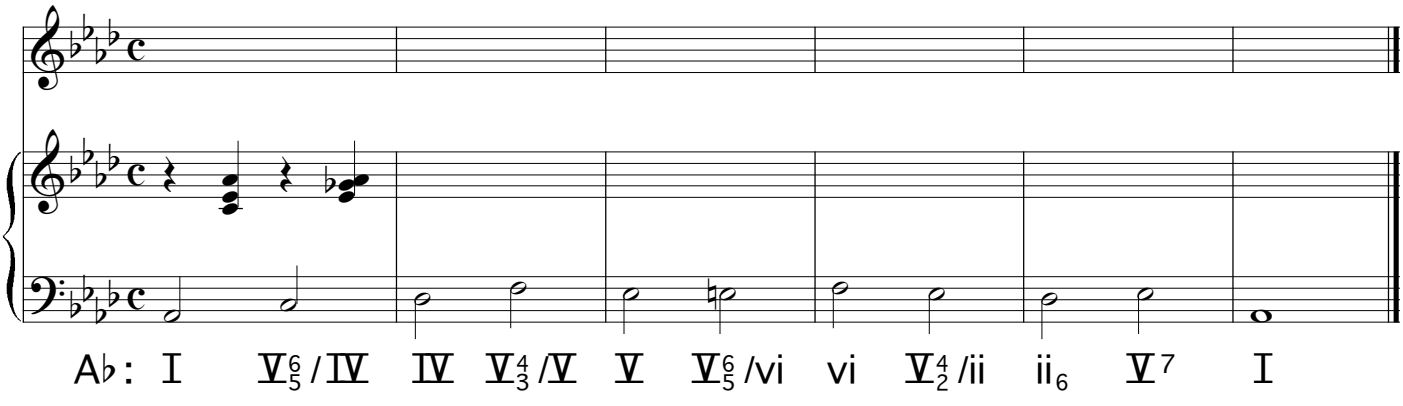

Oboe
Piano
F: I iv$^{6}_{4}$ BC ii^{ø7}BC I$_{6}$ iii V$^{4}_{2}$/vi vi$_{6}$ iv$^{6}_{4}$ BC ii$^{ø4}_{2}$ BC
4
Ob.
Pno.
I vii$^{o4}_{2}$/ii ii$^{6}_{4}$ ii$^{o6}_{4}$ BC I$^{6}_{4}$ V V^{7} I

BC-7A

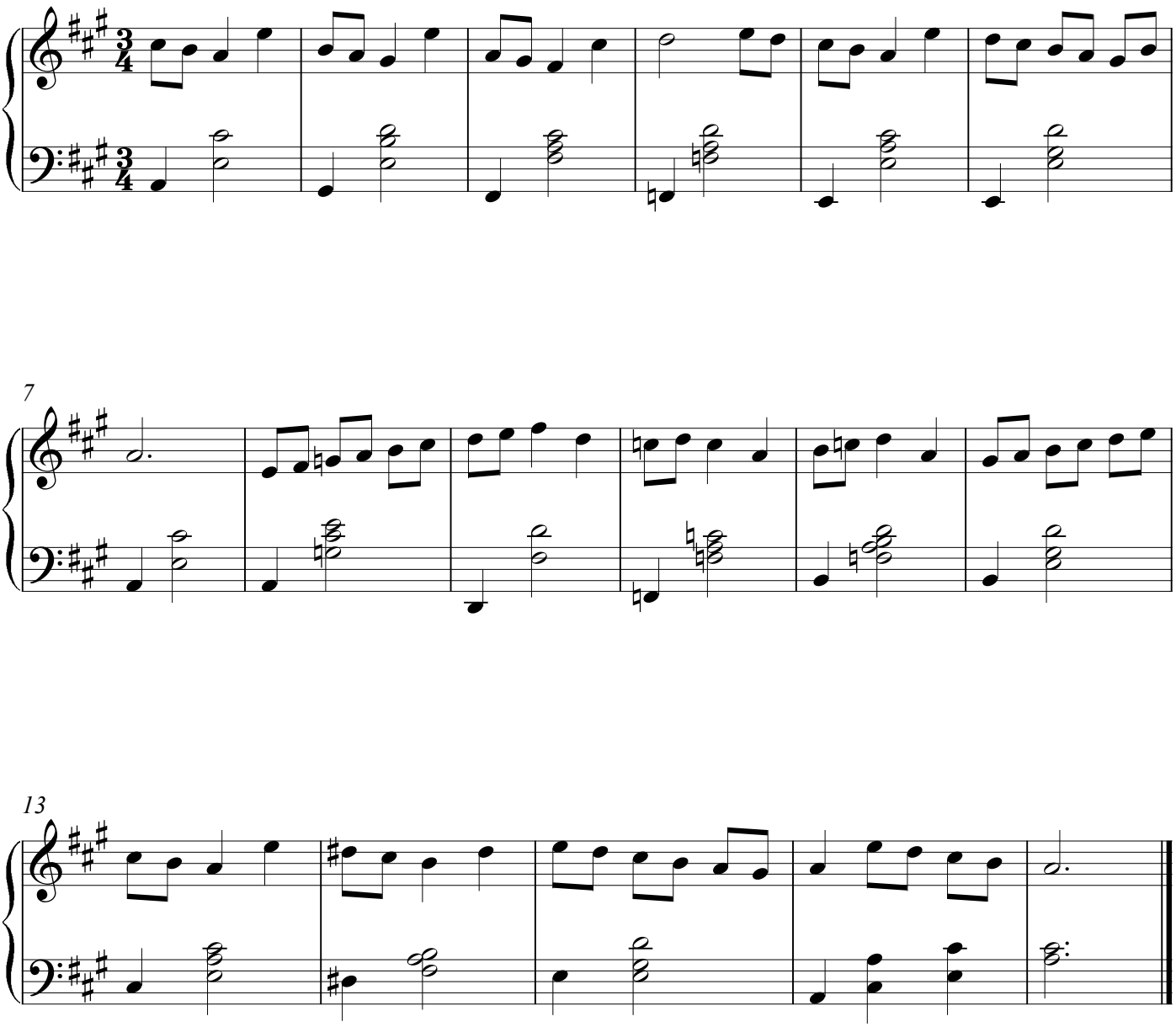


BC-8C

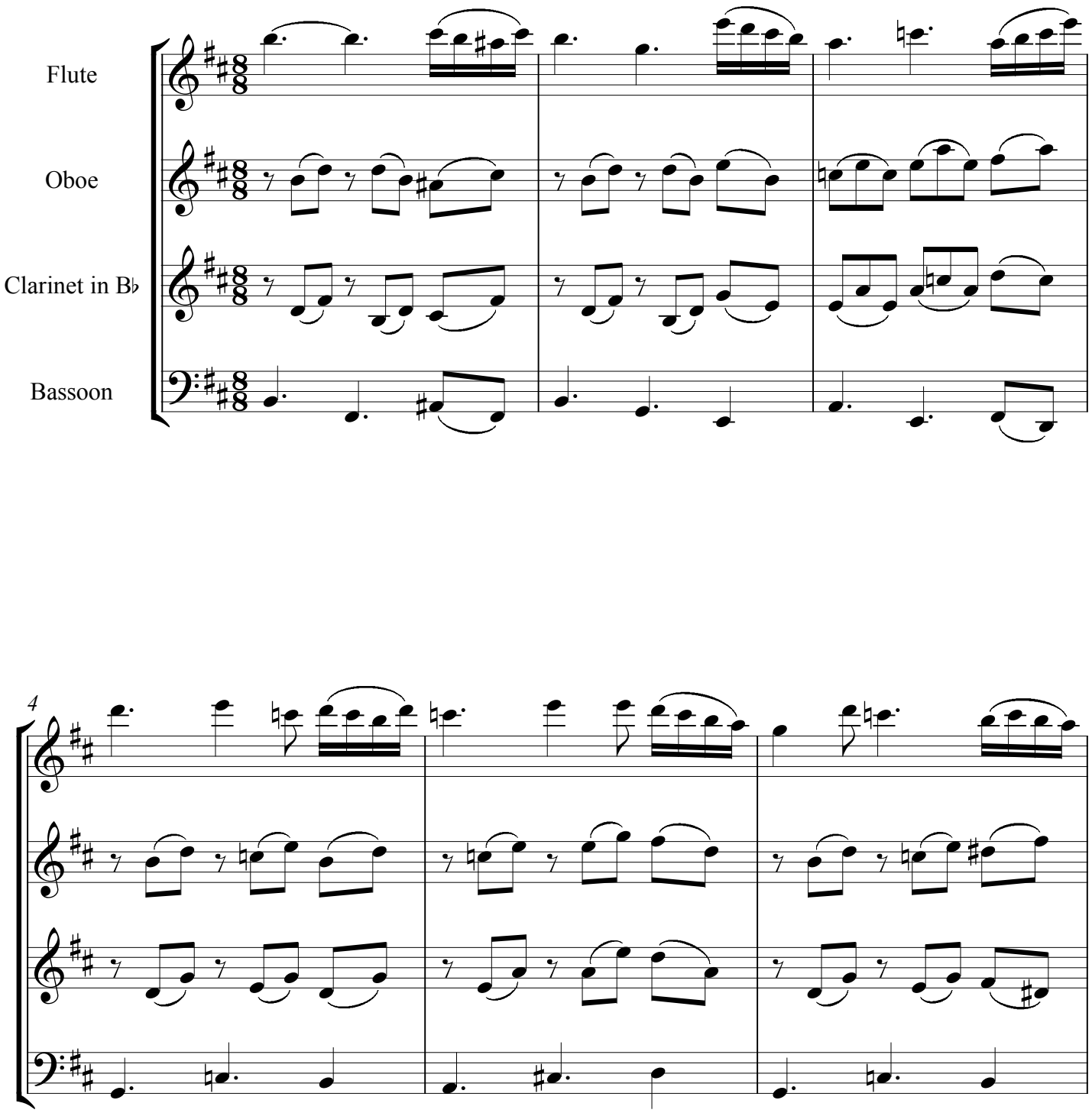
Complete the following selection, using measure 1 as a model.
Write a melody in the top treble clef for the accompaniment below.

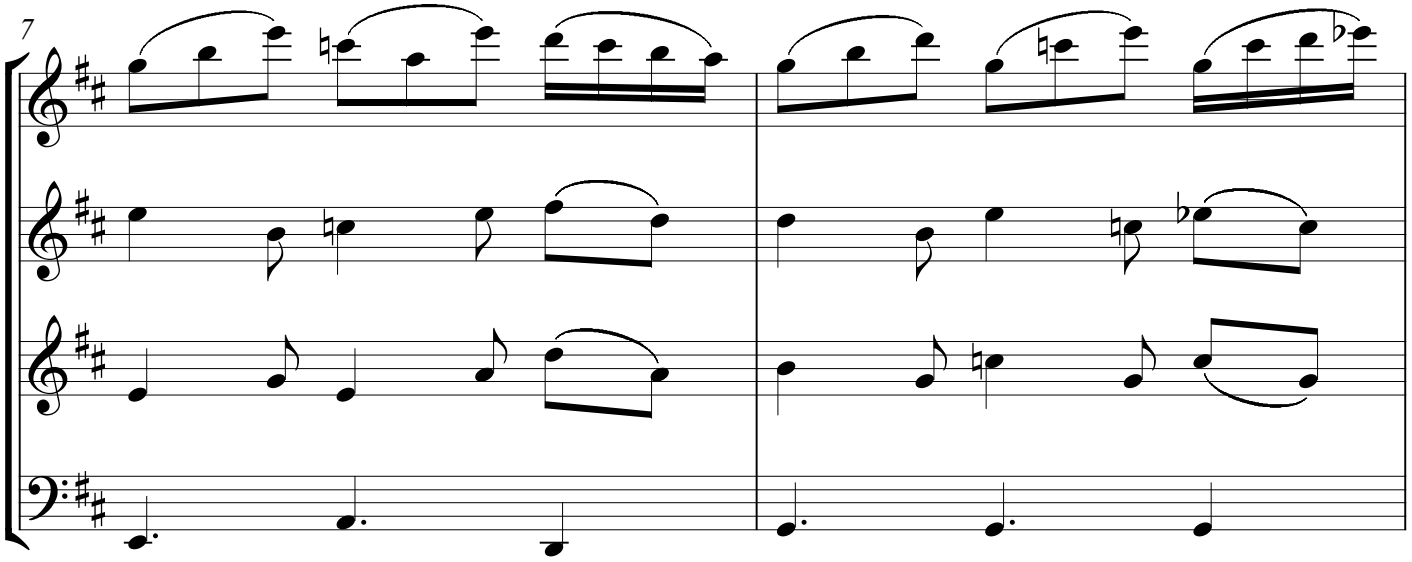


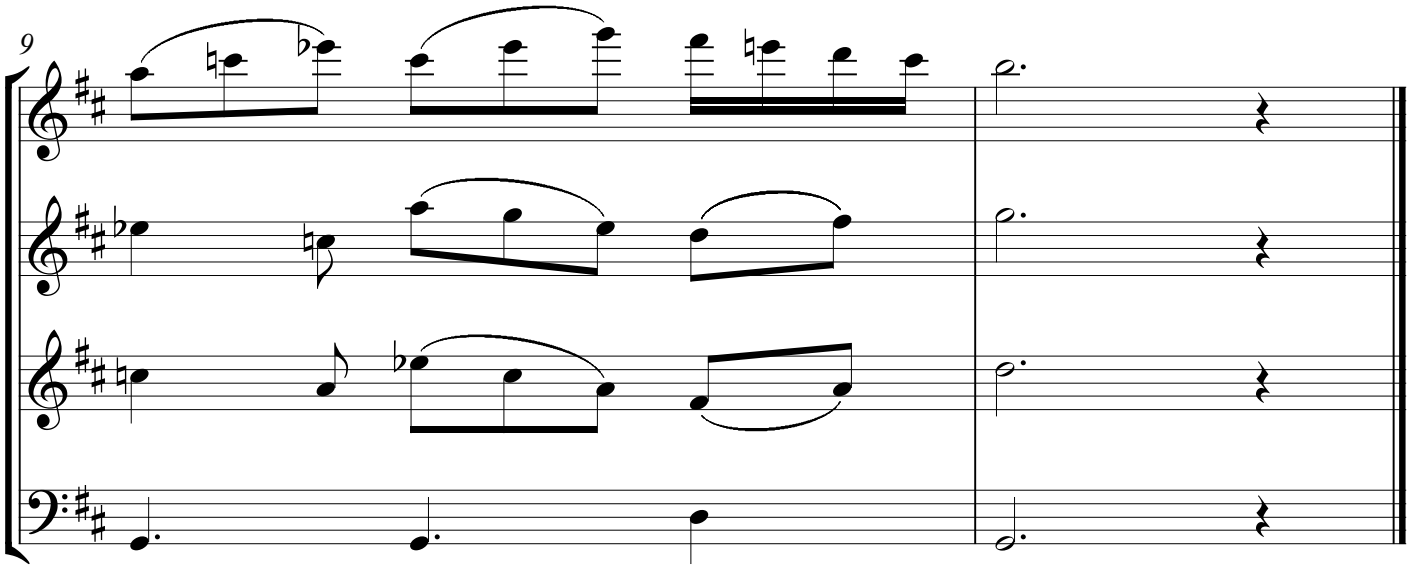
BC-9A



BC-10A




7


9

Neapolitan Chord

Definition

A major chord built on the flat 2nd scale degree ($\flat\hat{2}$)

Characteristics

- It will have a lowered 2nd scale degree and a minor* 6th scale degree
  - *(in a major key, 2 and 6 will both be lowered)
  - *(in a minor key, 2 will be lowered but the 6th scale degree is already minor)
- It is typically found in first inversion
- It is labeled N_6

Exceptions

Sometimes (not often) it is found in root position or second inversion

Resolution

It usually resolves to V or I^6_4

In a major key, care must be given to voice-leading to avoid parallel fifths resulting from the resolution of the two active (altered) tones

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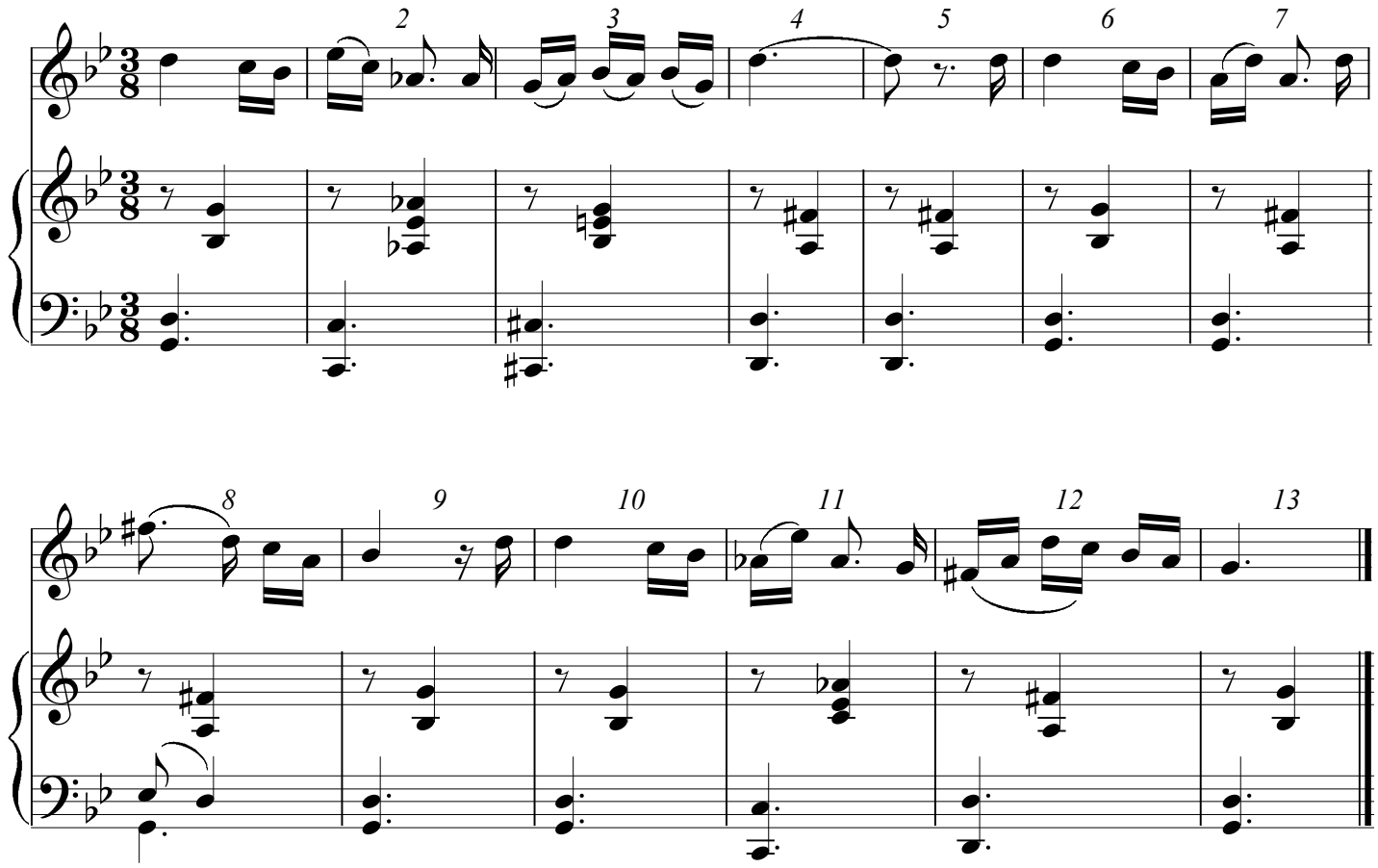
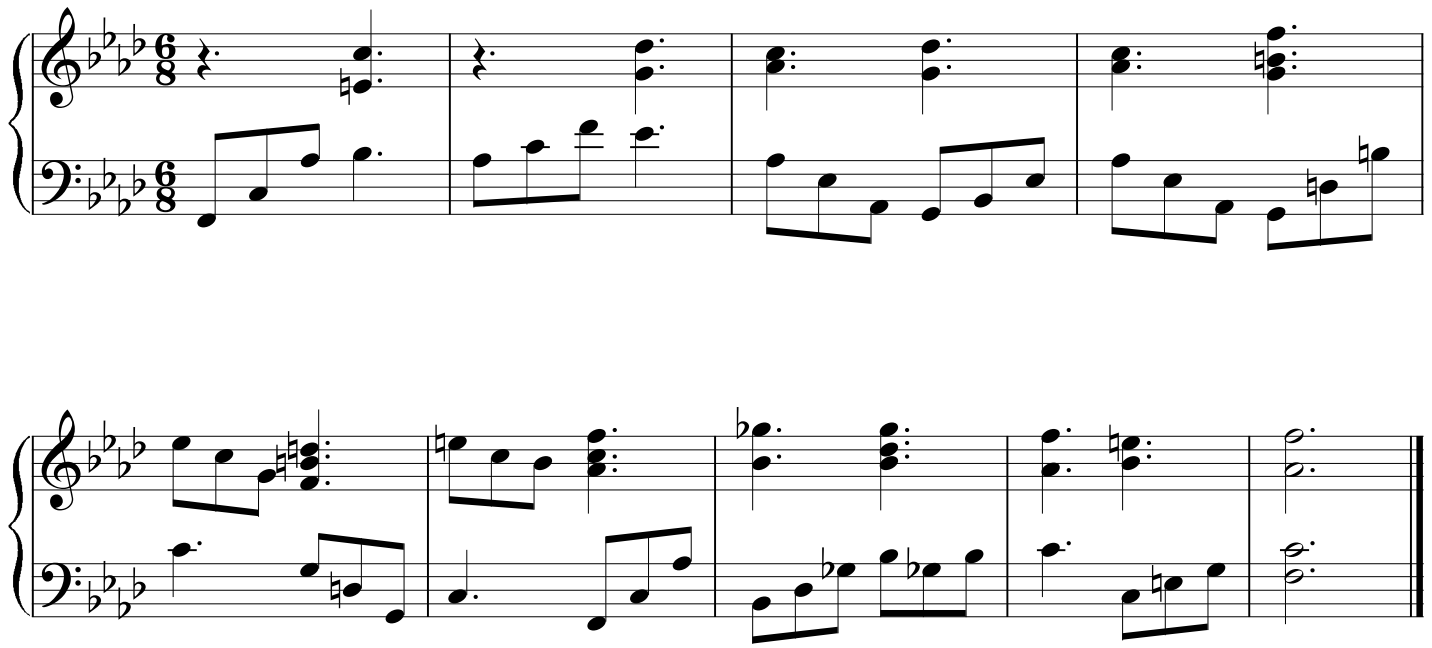
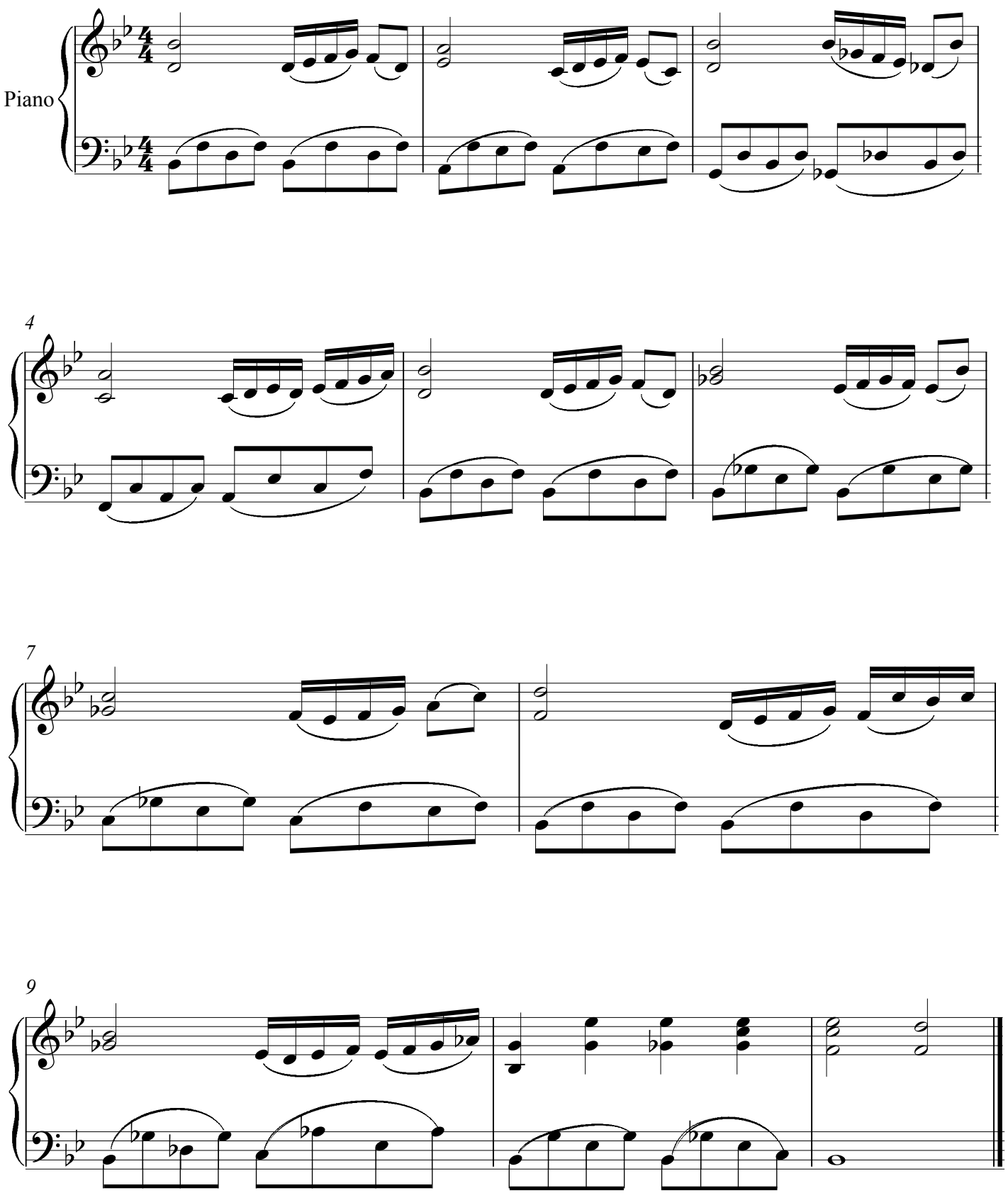
NC-1A



NC-2A

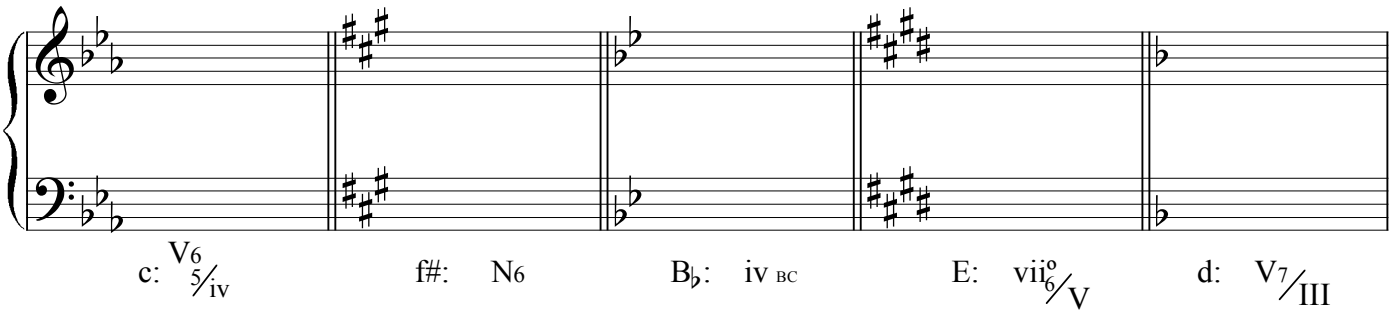


NC-3A

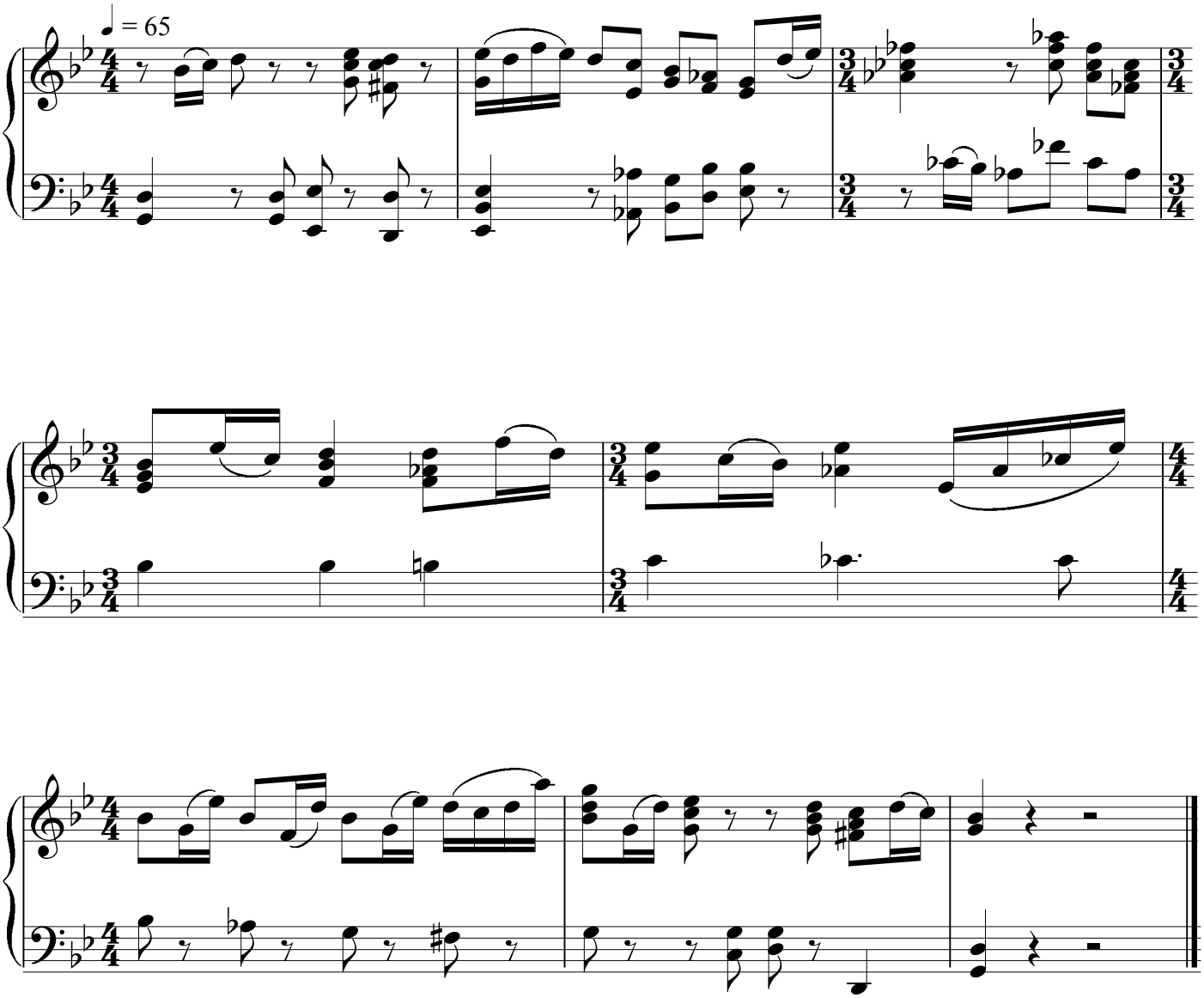


NC-4C

Construct each of the following chords, in the keys indicated, in traditional 4-part structure.



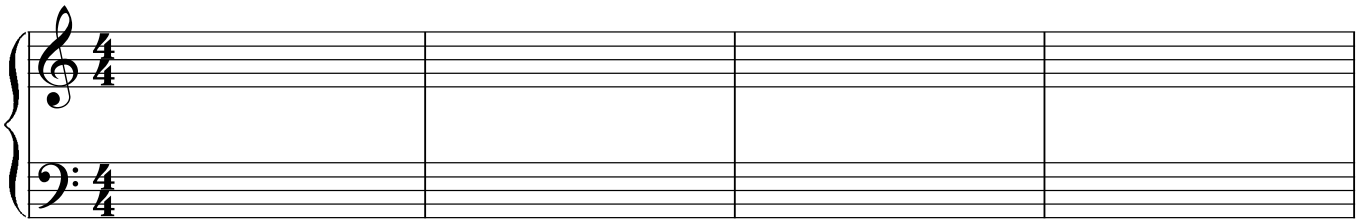
NC-5A

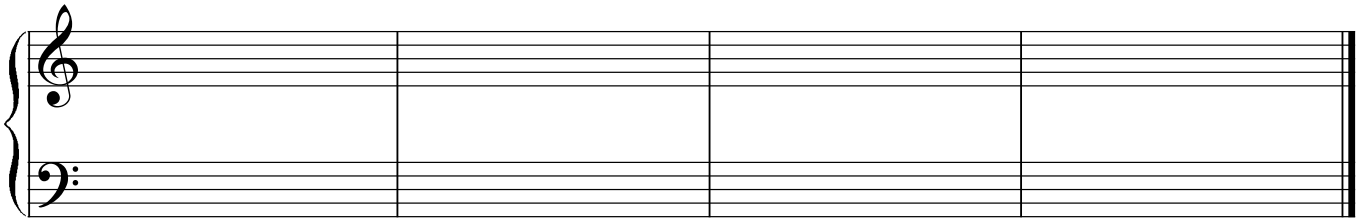


NC-6C

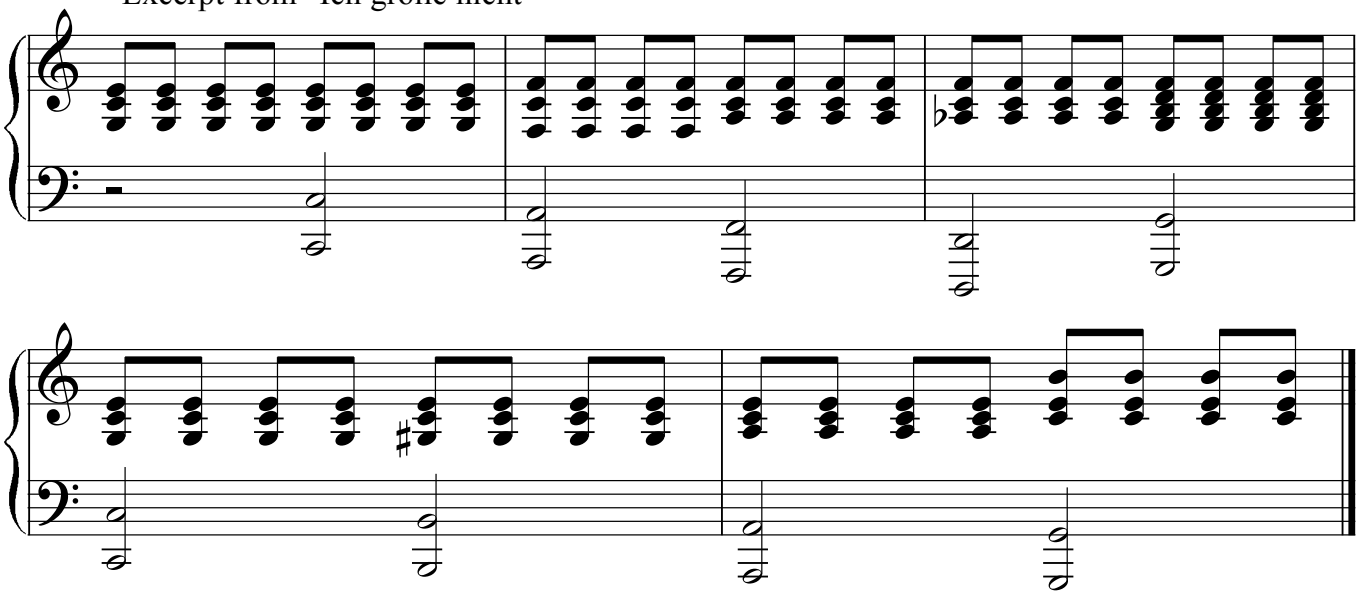
Using the piano accompaniment of "Ich grolle nicht" as an example, compose an eight-measure phrase by the following criteria:

1) Write Eighth notes in the right hand; half notes, in octaves, in the left hand
2) Make the right hand move in "smooth" step-wise motion
3) Use at least four inversions to make a "smooth" bass line (step-wise movement)
4) Use only strong root movements (start and end with a "i" chord)
5) Incorporate at least one secondary dominant and one borrowed chord.
6) Incorporate at least one Neopolitan chord in its most typical usage (inversion and resolution)
7) Use a minor key with at least two accidentals
8) Give a complete harmonic analysis



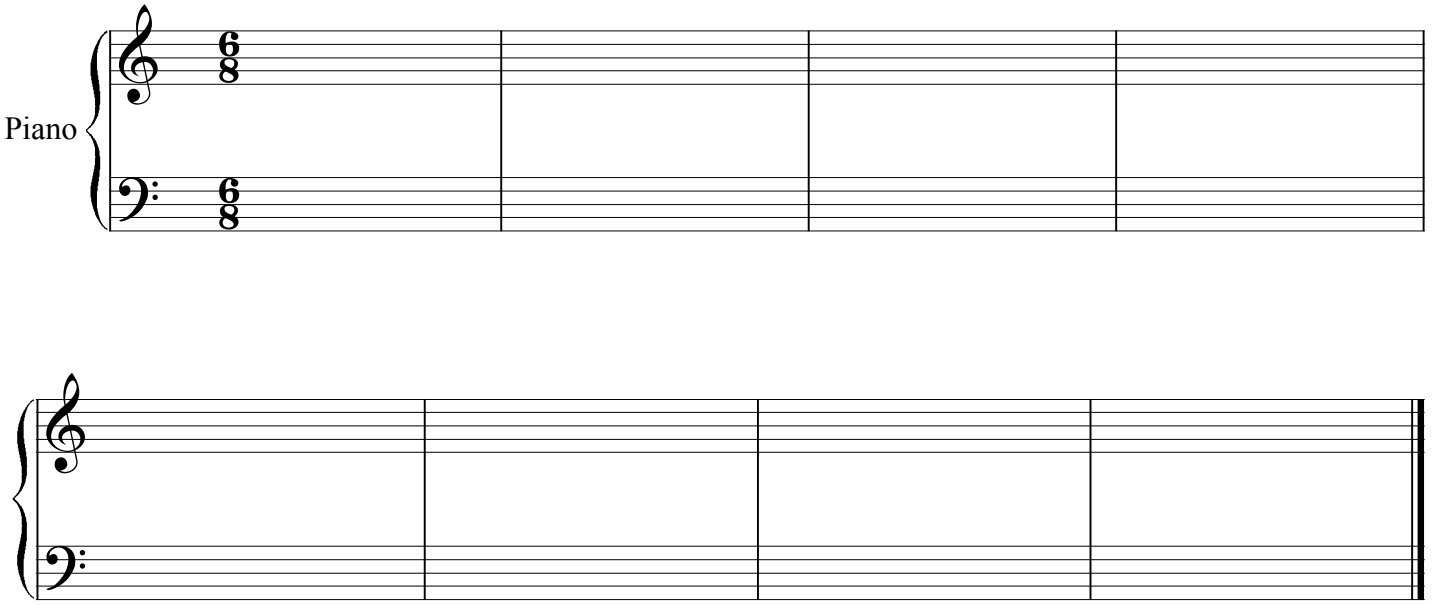


Excerpt from "Ich grolle nicht"

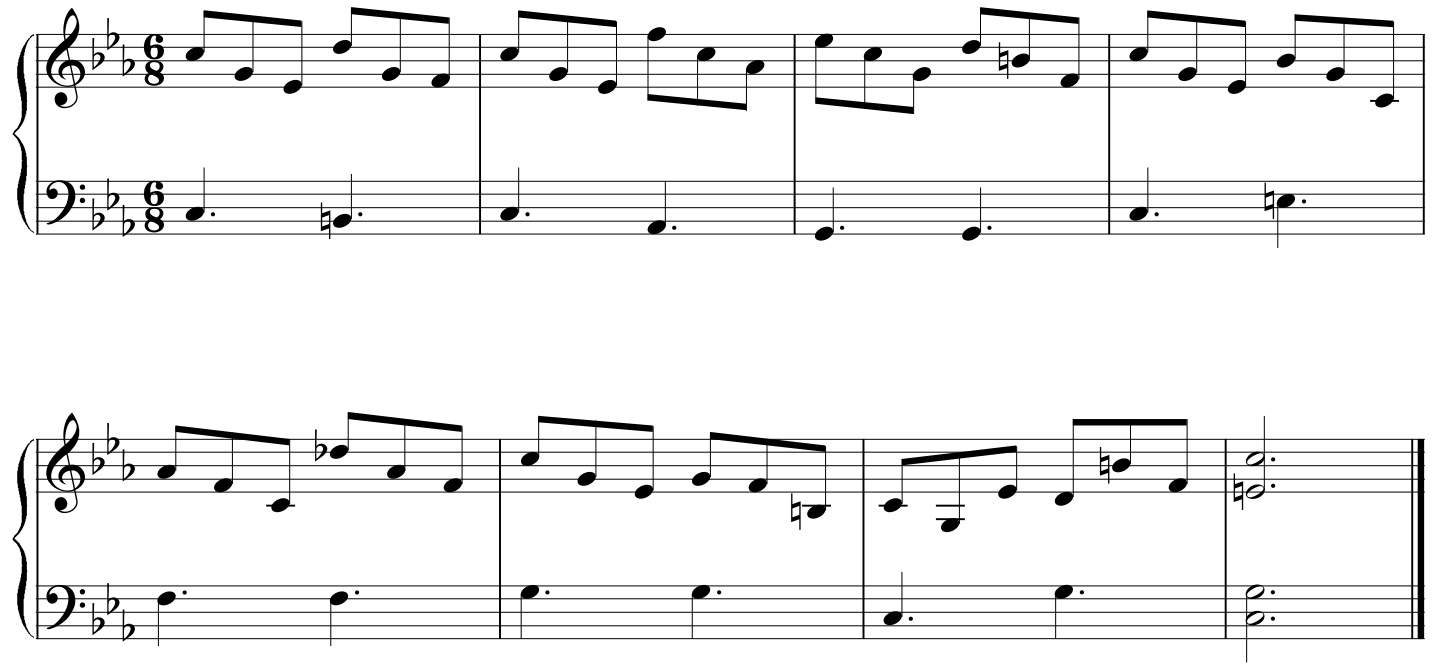


NC-7C

Compose an 8-measure piece for piano. Include at least one secondary dominant, borrowed chord, and Neopolitan6 chord. Use only strong root movement progressions. Use the same format as the DEM
Use at least 4 inversions.
Give a harmonic analysis underneath.



DEMO



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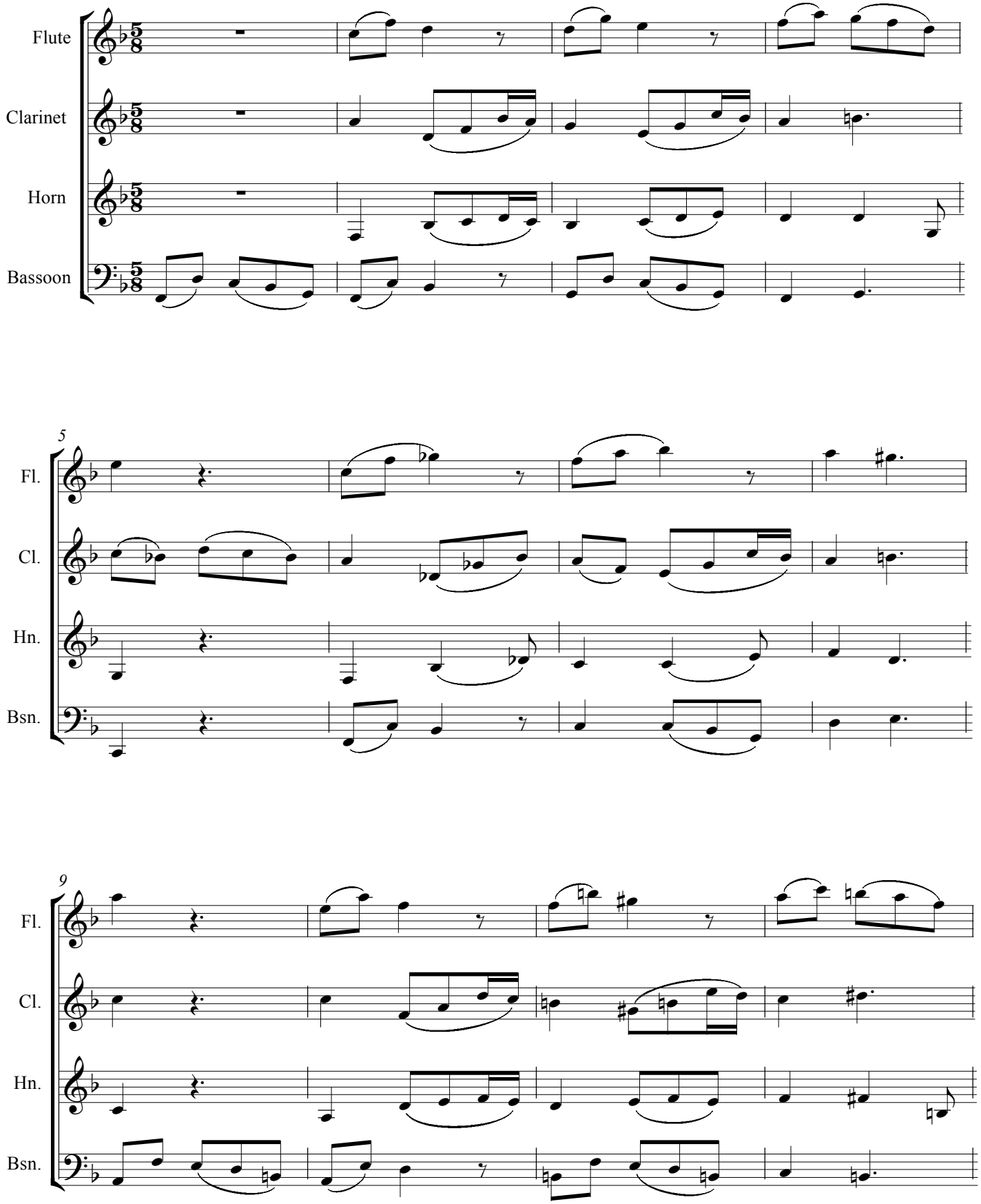
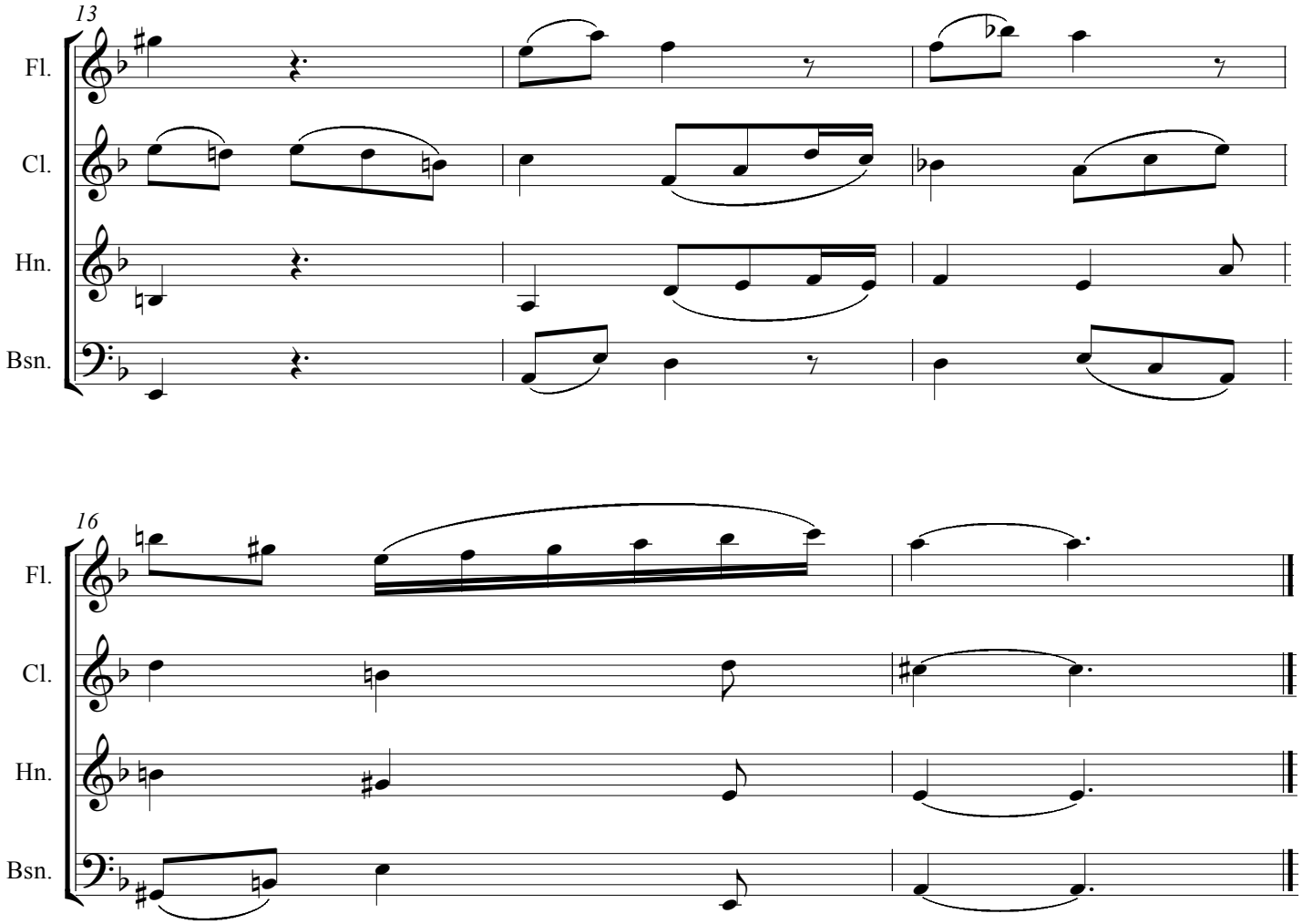
NC-8A




13
Fl.
Cl.
Hn.
Bsn.
16
Fl.
Cl.
Hn.
Bsn.

Augmented 6th Chords

Definition

A pre-dominant, melodic functioning chord that contains the interval of an augmented 6th (A6)

Characteristics

All three types contain the following pitches

1. Sharp 4th scale degree (♯$\hat{4}$) (lower leading tone to the dominant pitch)
2. Minor 6th scale degree (m$\hat{6}$) (upper leading tone to the dominant) (lowered in major keys; no accidentals needed in minor)
3. Tonic pitch ($\hat{1}$)

Italian Augmented 6th adds

No other pitches (typically the tonic pitch is doubled)

French Augmented 6th adds

Second scale degree ($\hat{2}$)

German Augmented 6th adds

Minor third scale degree (m$\hat{3}$)

The interval of the augmented 6th is the distance from the minor 6th scale degree (m$\hat{6}$) up to the sharp 4th scale degree (♯$\hat{4}$)

Typically, the minor 6th scale degree (m$\hat{6}$) is in the bass

Exceptions

Occasionally in the German Aug. 6th chord, the minor third scale degree (m$\hat{3}$) is respelled enharmonically as a sharp 2nd scale degree (♯$\hat{2}$) to avoid parallel fifths in the resolution.

Resolution

Usually followed by a V or I^{6}_{4}

The lower leading tone (♯$\hat{4}$) resolves up to the dominant pitch ($\hat{5}$)

The upper leading tone (m$\hat{6}$) resolves down to the dominant pitch ($\hat{5}$)

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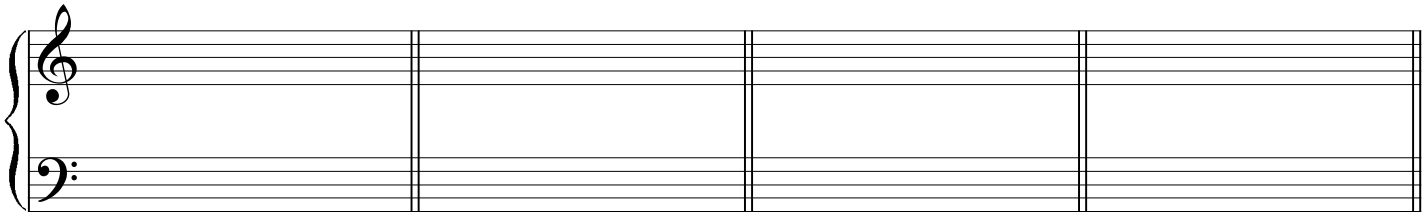
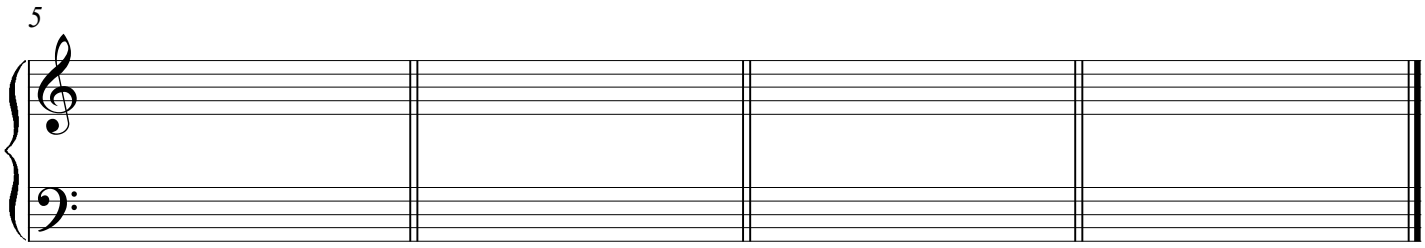
A6-1C

Construct and resolve each of the following chords in appropriate 4-part writing.

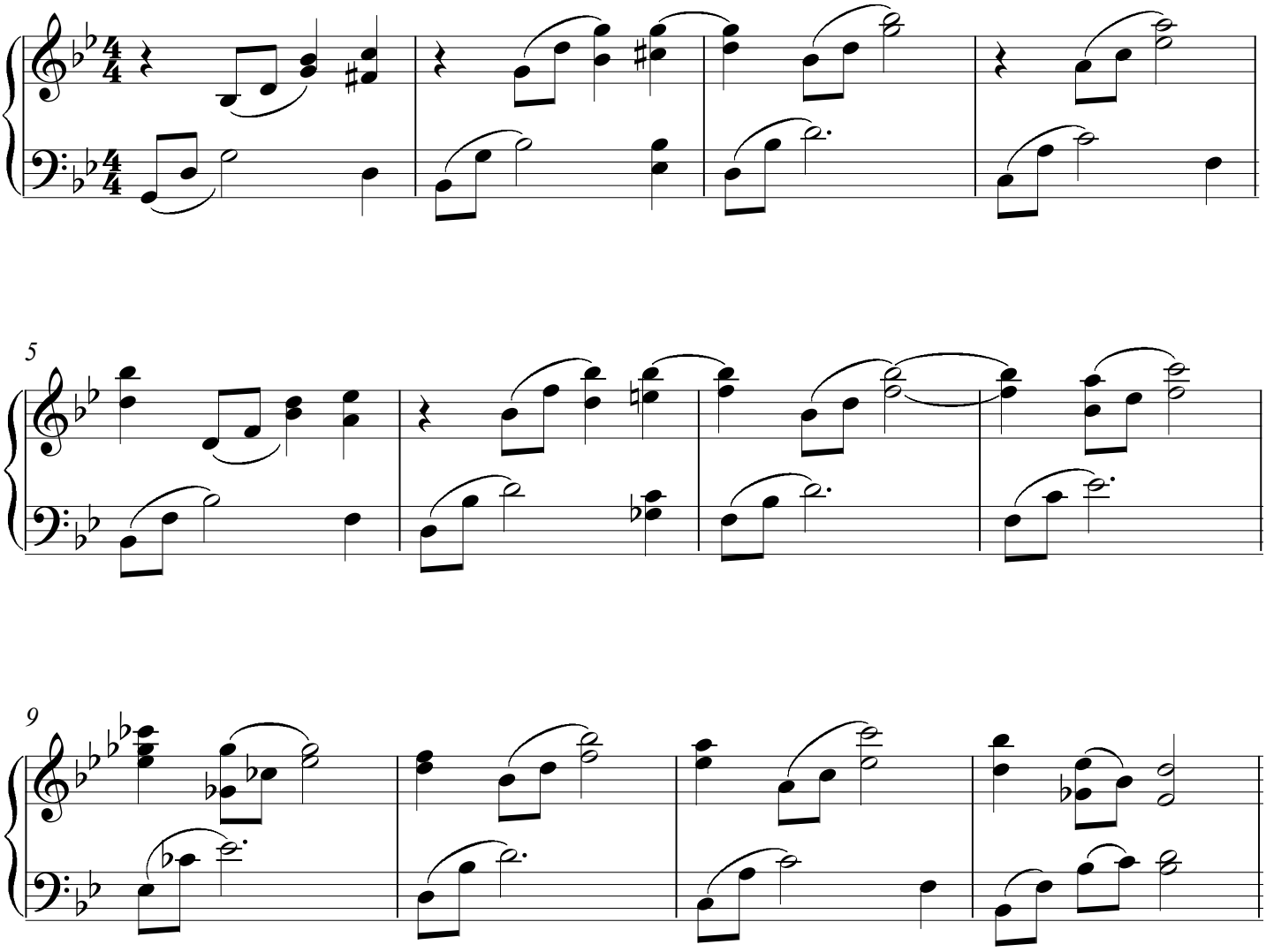


G: Fr+6 F: Ger+6 f: It+6 g: Ger+6



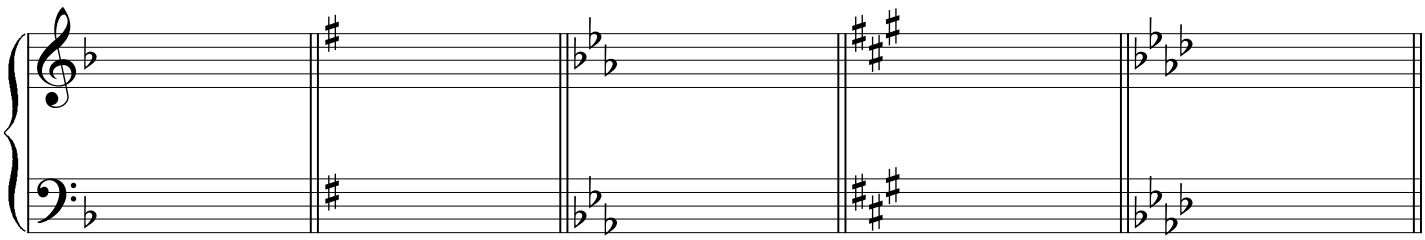
E: It+6 c: Fr+6 f#: Ger+6 B: Fr+6

A6-2A



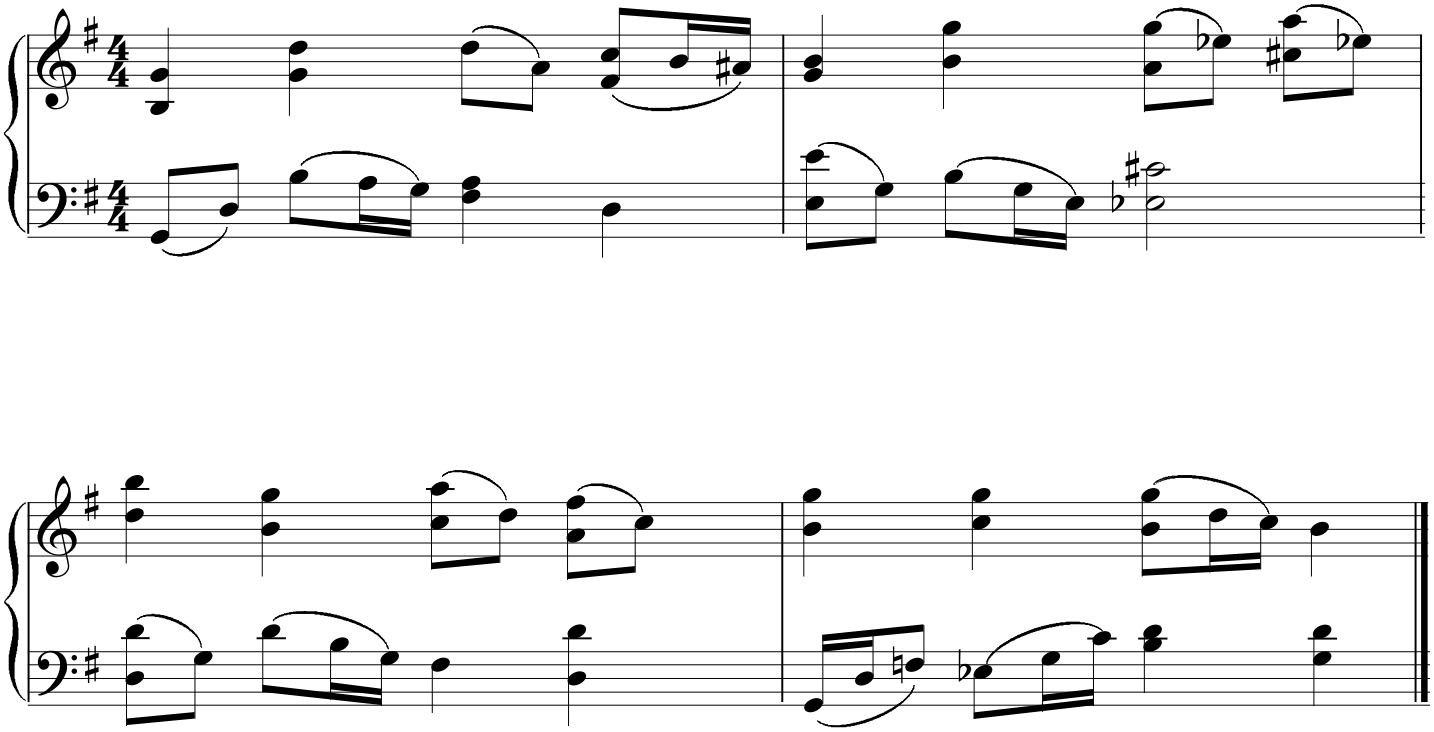
A6-3C

Construct each of the following chords in appropriate 4-part style,
then resolve each and label the new chord.



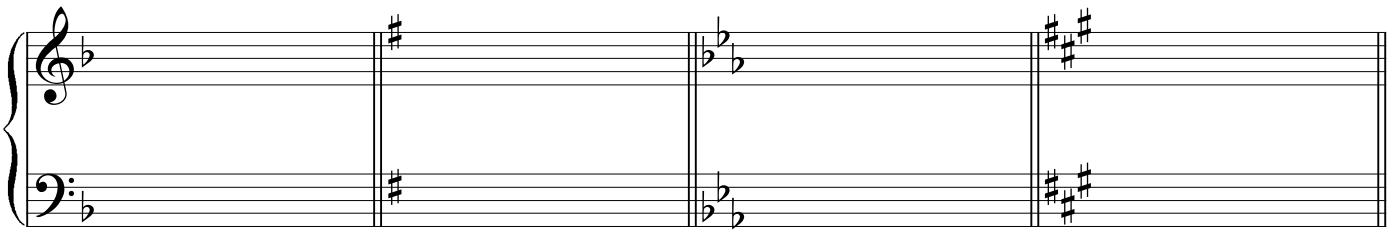
F: Ger +6 e: Fr +6 c: Ger +6 A: It +6 f: Fr +6

A6-4A



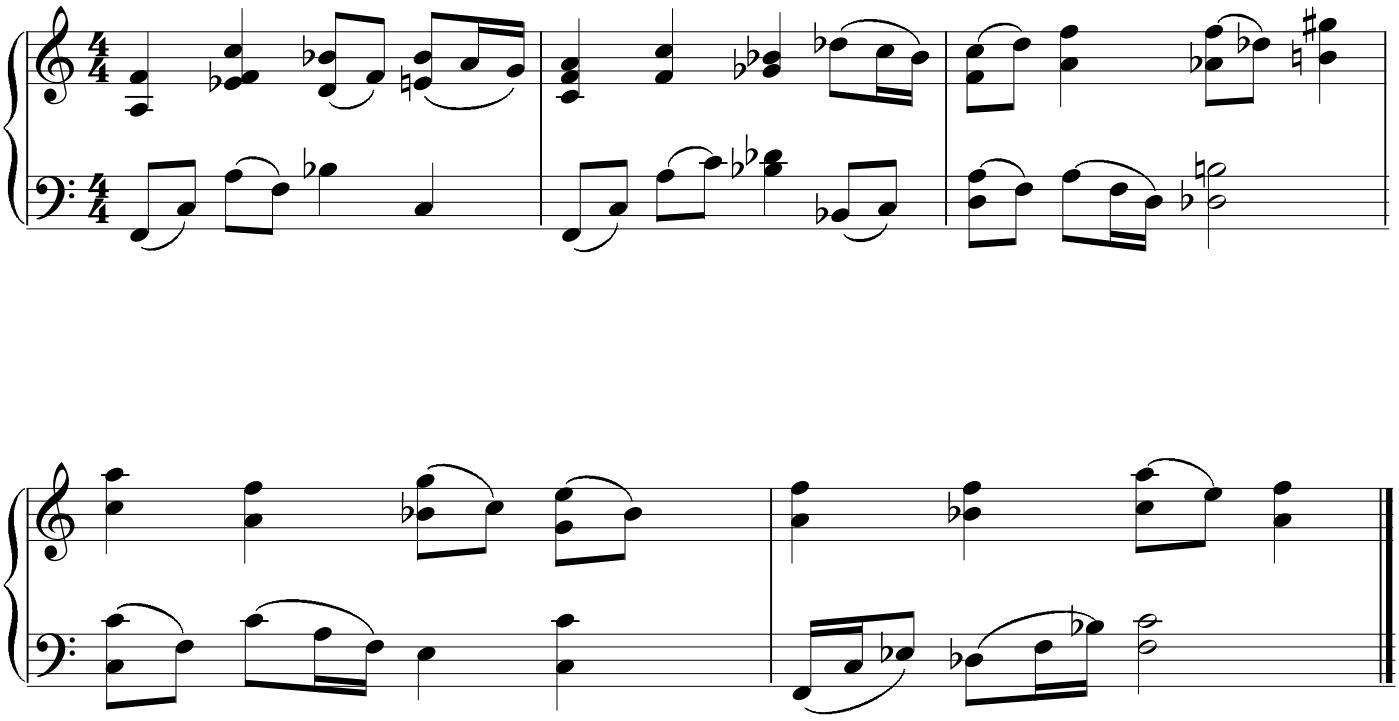
A6-5C

Construct each of the following chords in appropriate 4-part style,
then resolve each and label the new chord.

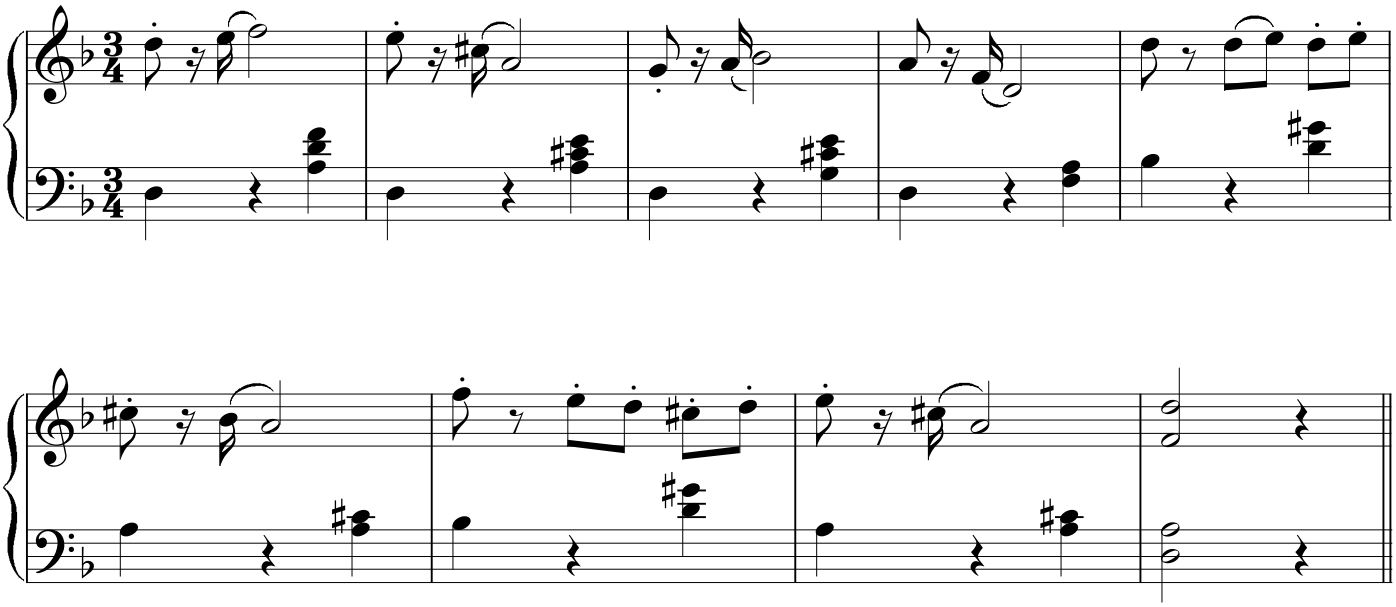


d: Ger +6 G: Fr +6 E♭: Ger +6 f#: It +6

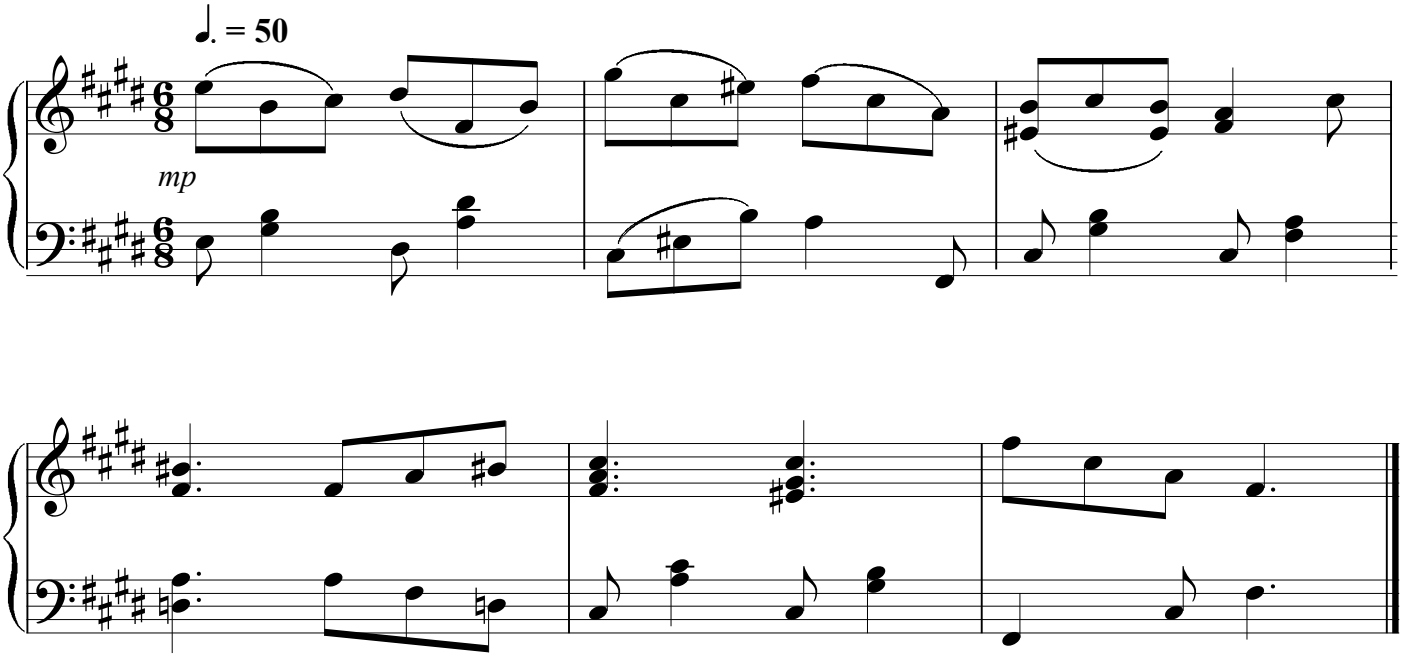
A6-6A



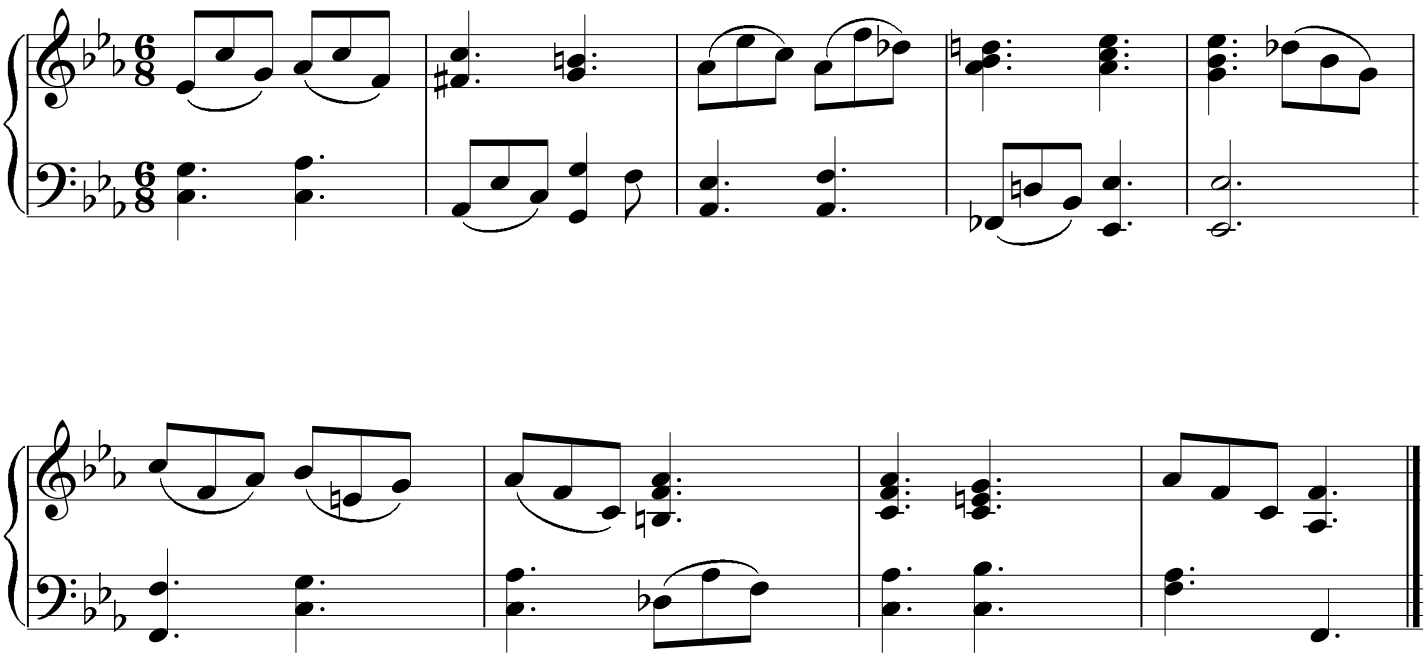
A6-7A



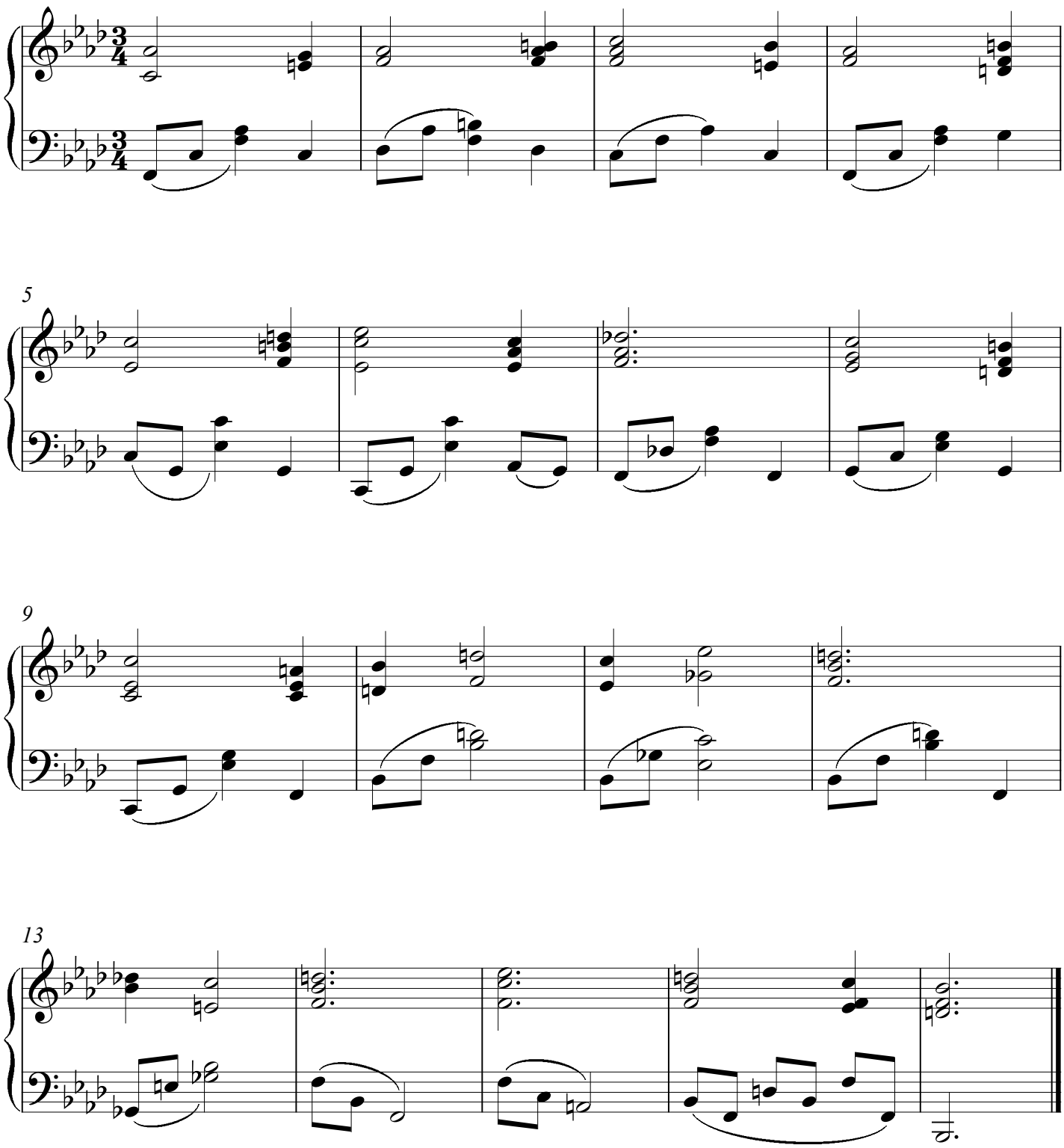
A6-8A



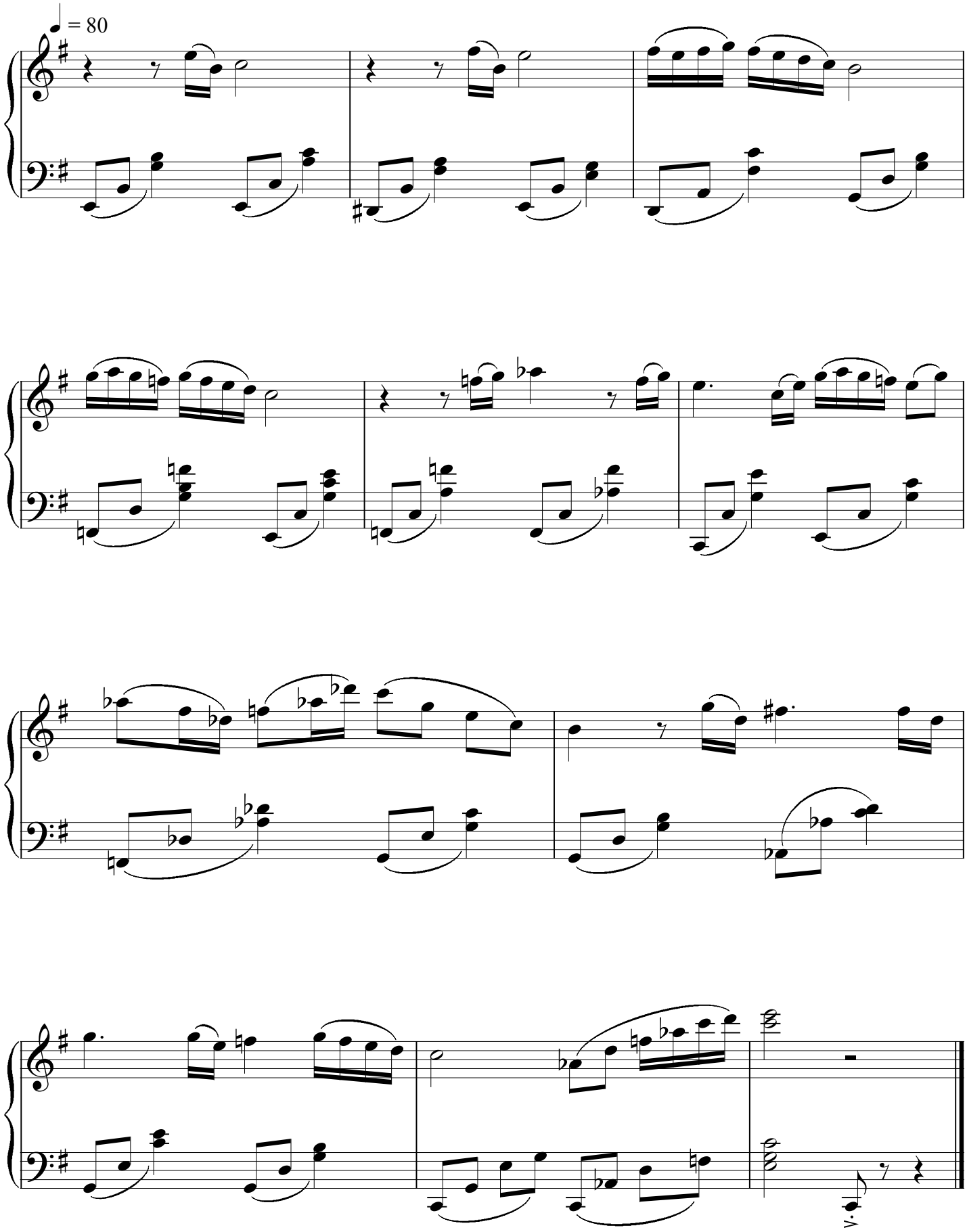
A6-9A



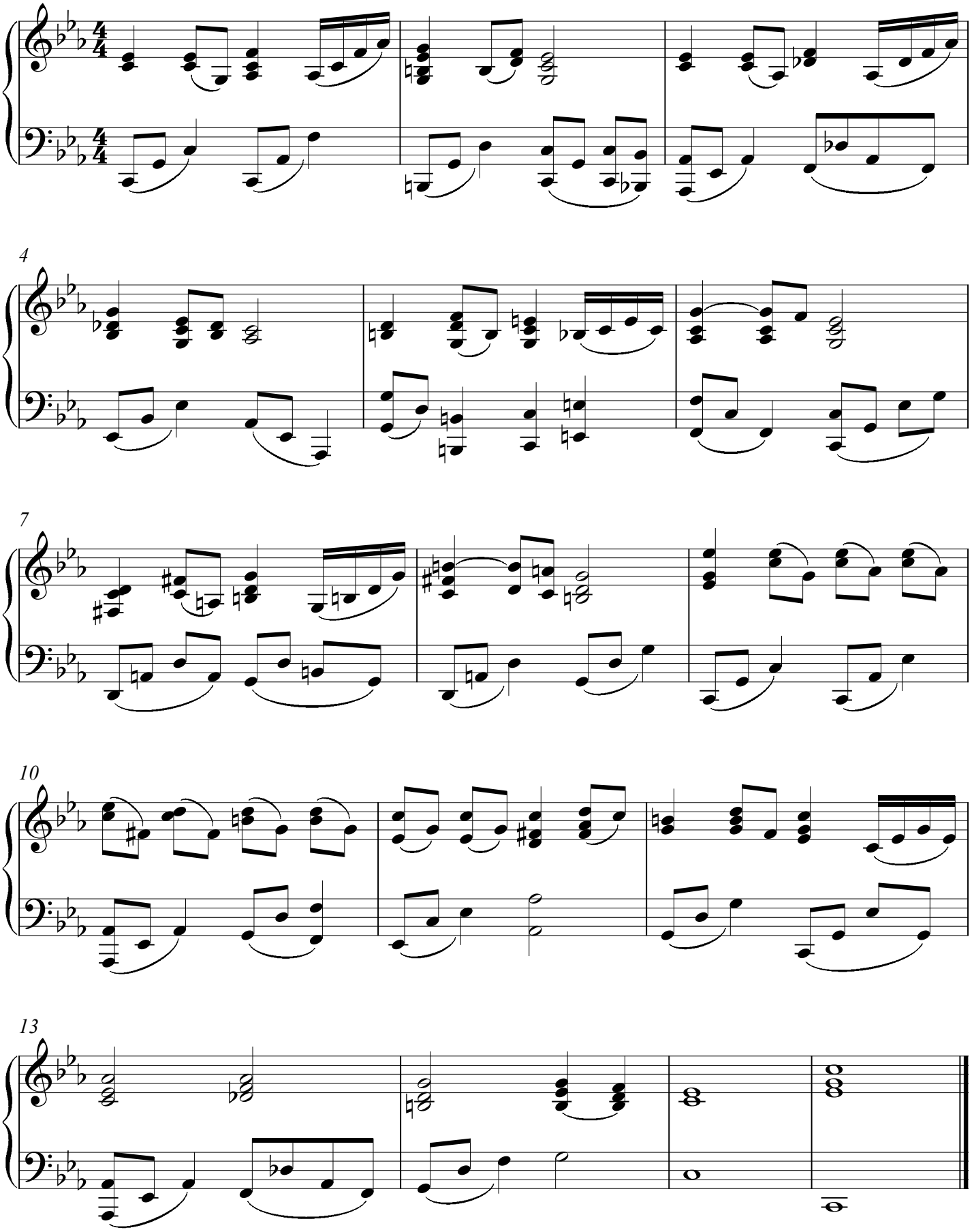
A6-10A



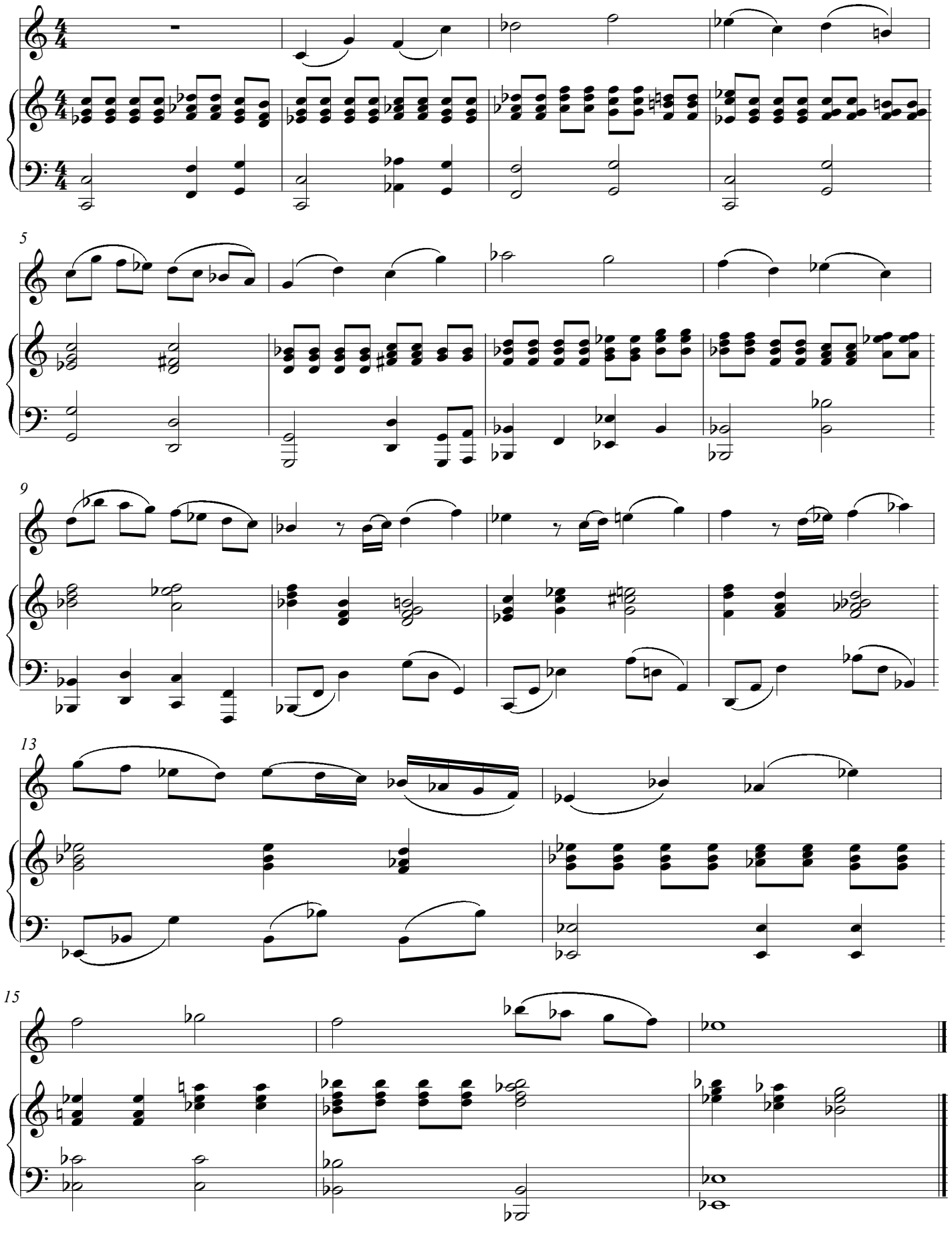
A6-11A



A6-12A



A6-13A

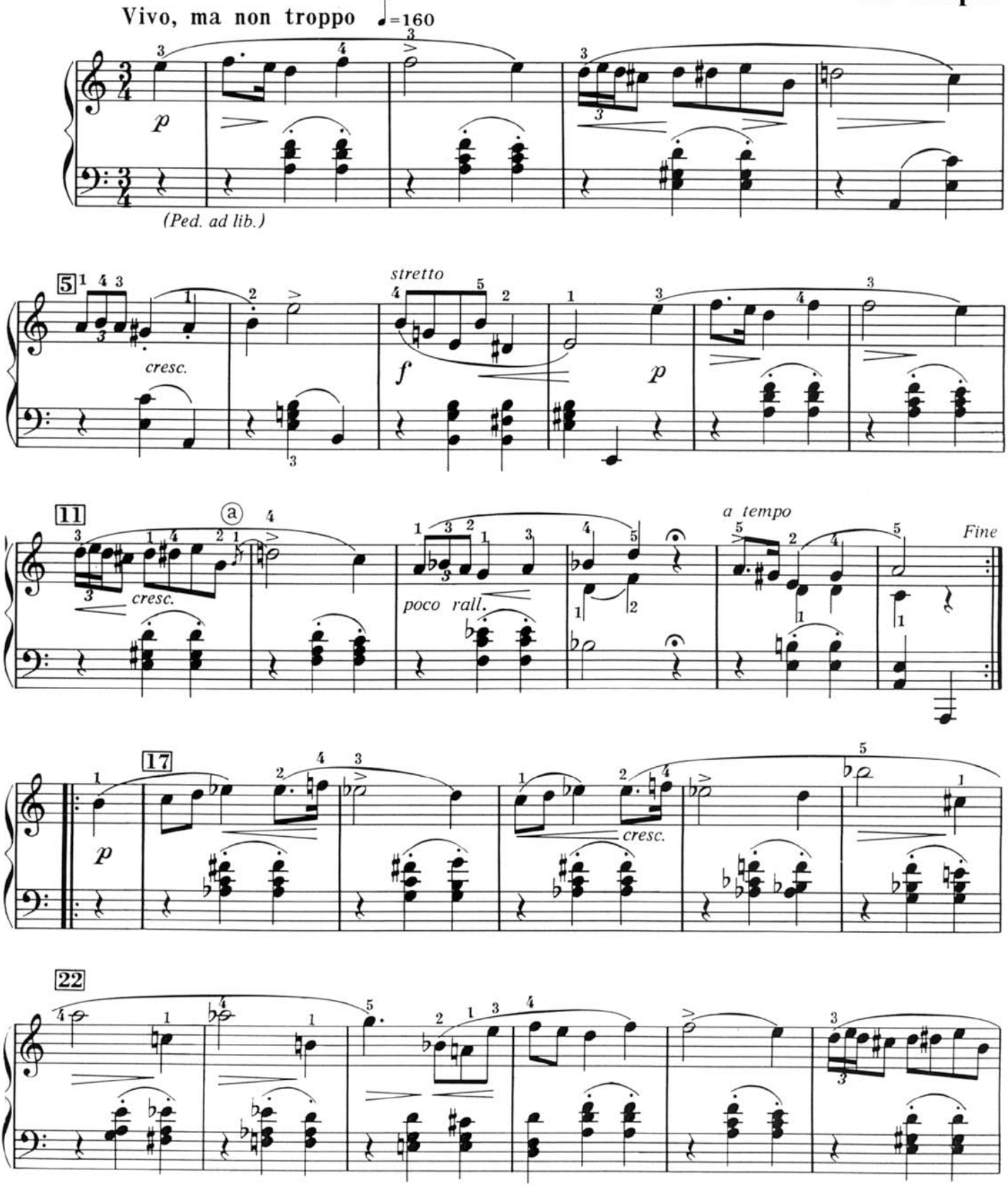


A6-14A

MAZURKA IN A MINOR

OP. 7, NO. 2

F. Chopin



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Church Modes

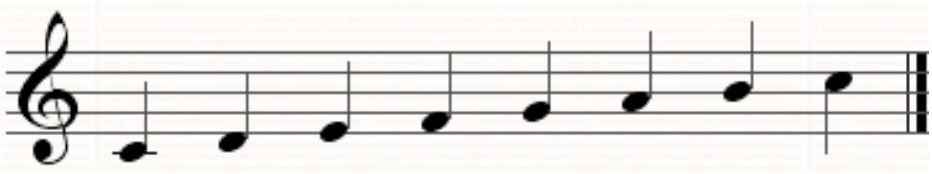
Definition

Seven scales, in contemporary use, related to the traditional 16th century modes

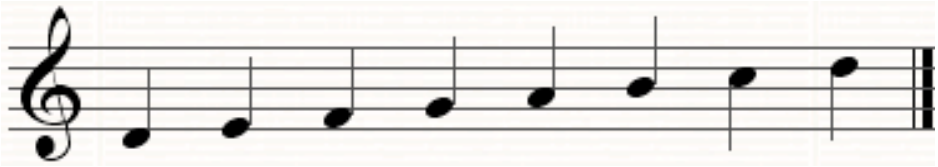
Characteristics

Each mode can be based on a specific scale degree of the traditional major scale

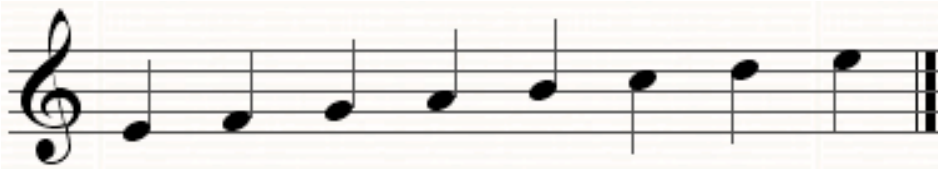
The examples seen below are based on the C major scale, but a mode, in contemporary usage, can be based on any pitch



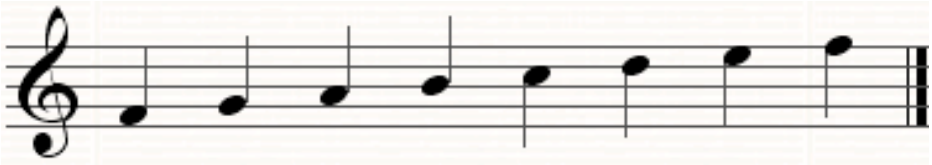
Ionian Mode (Major scale)



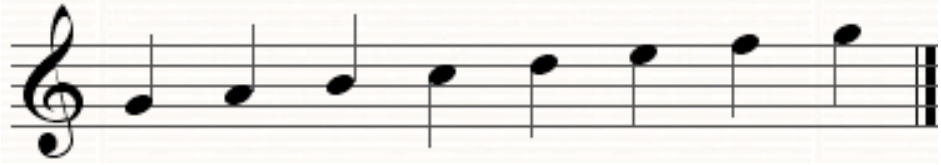
Dorian mode (2nd scale degree)



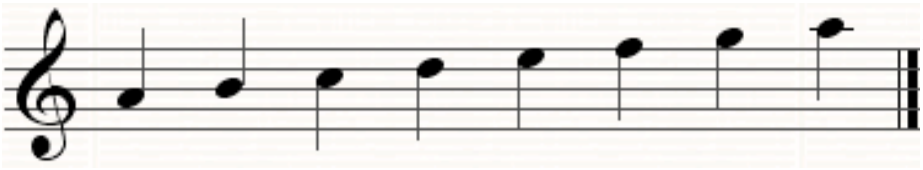
Phrygian mode (3rd scale degree)



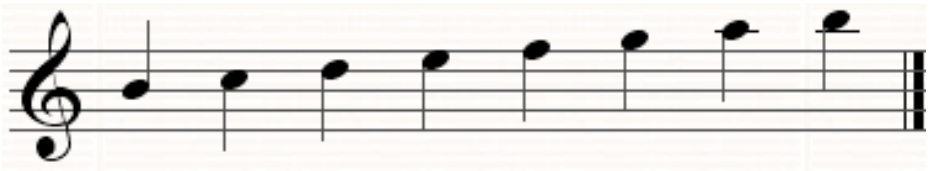
Lydian mode (4th scale degree)



Mixolydian mode (5th scale degree)

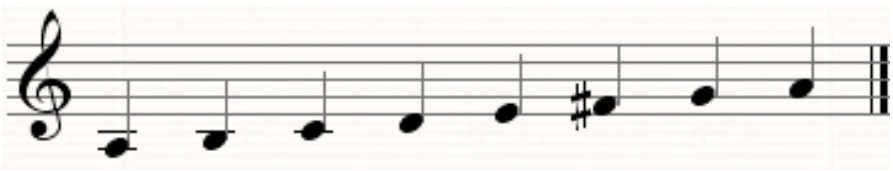


Aeolian mode (pure minor scale)

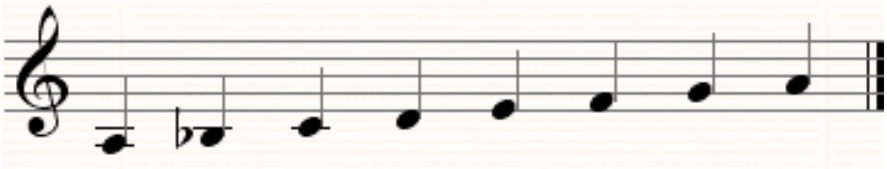


Locrian mode (7th scale degree)

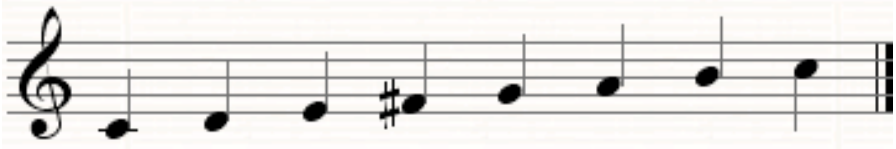
Each mode, except Locrian, can also be related to either the traditional major scale (Ionian) or pure minor scale (Aeolian).



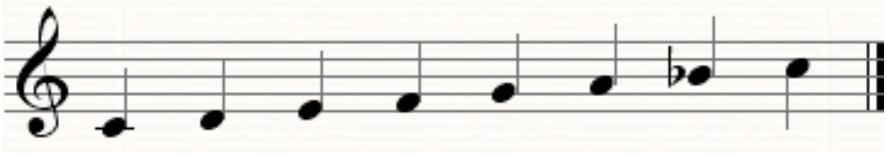
Dorian - pure minor with a raised 6th



Phrygian - pure minor with a lowered 2nd



Lydian - major with a raised 4th



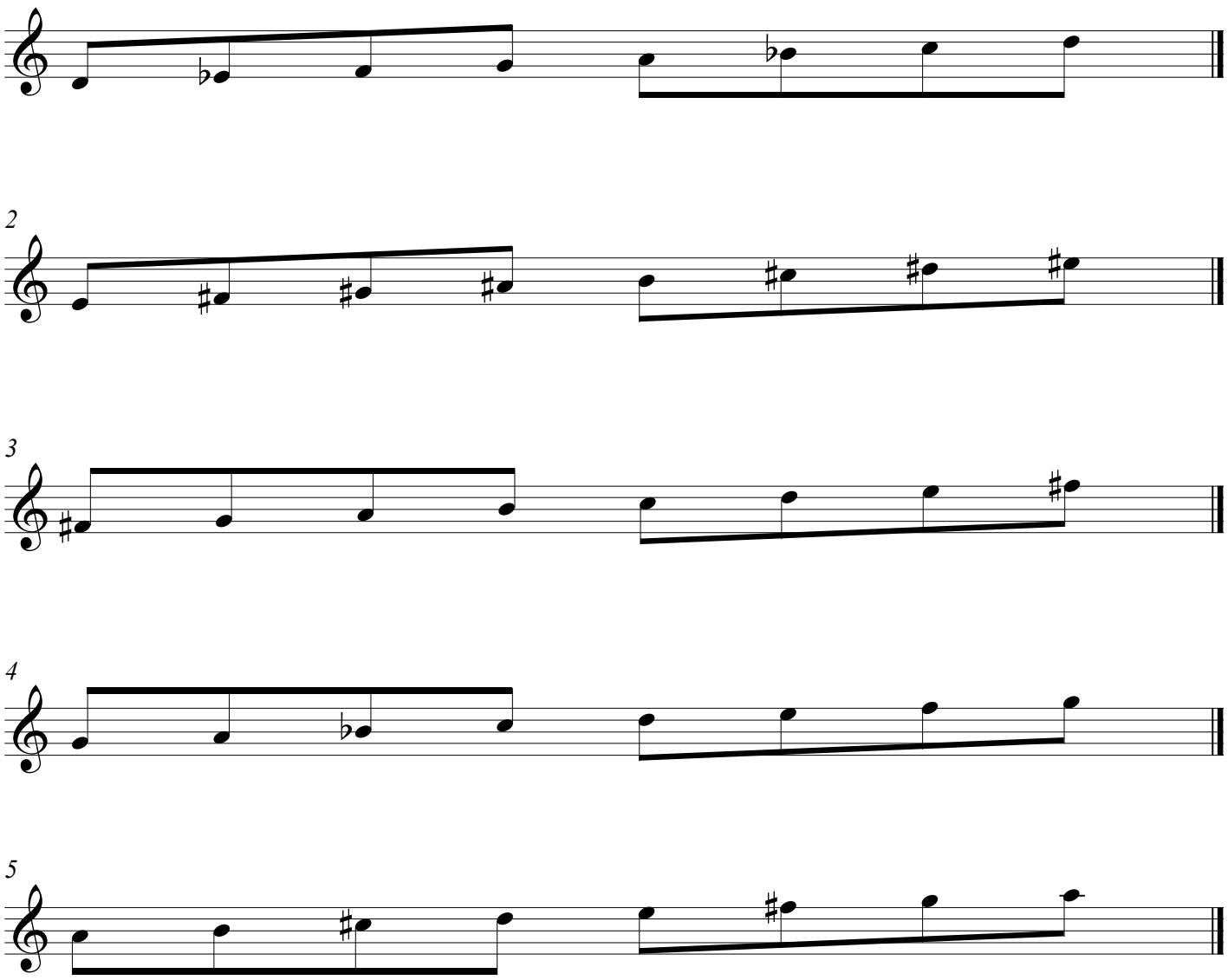
Mixolydian - major with a lowered 7th

Exception

The Locrian mode is seldom seen.

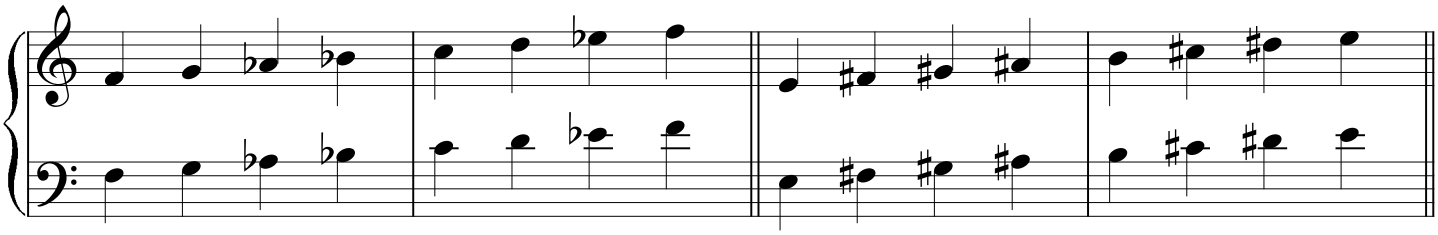
Since it is based on the 7th scale degree, its “tonic” chord is diminished

CM-1A

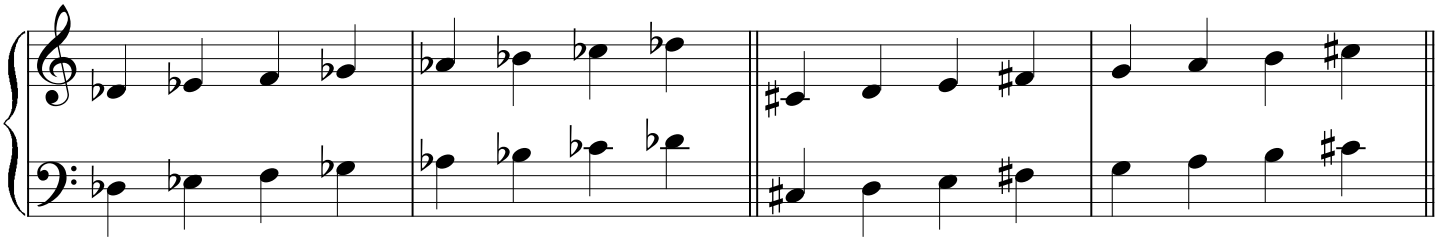


CM-2A

Identify and label each of the following modes.



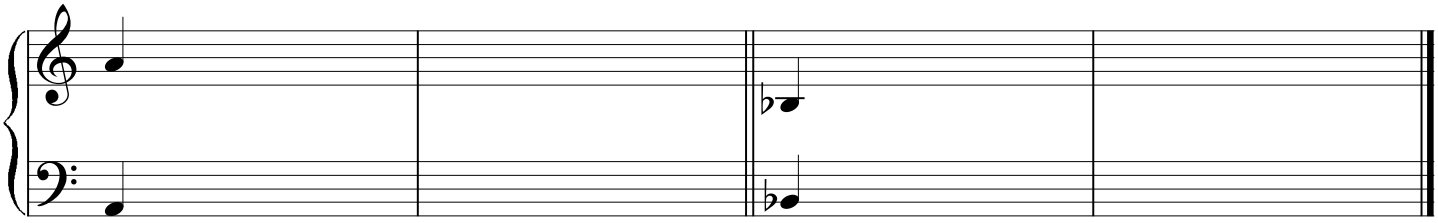
_____ _____



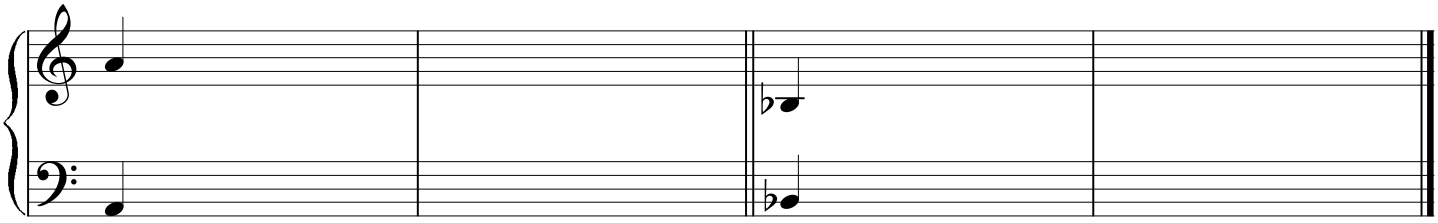
_____ _____

CM-3C

Construct each of the modes from the given pitch.

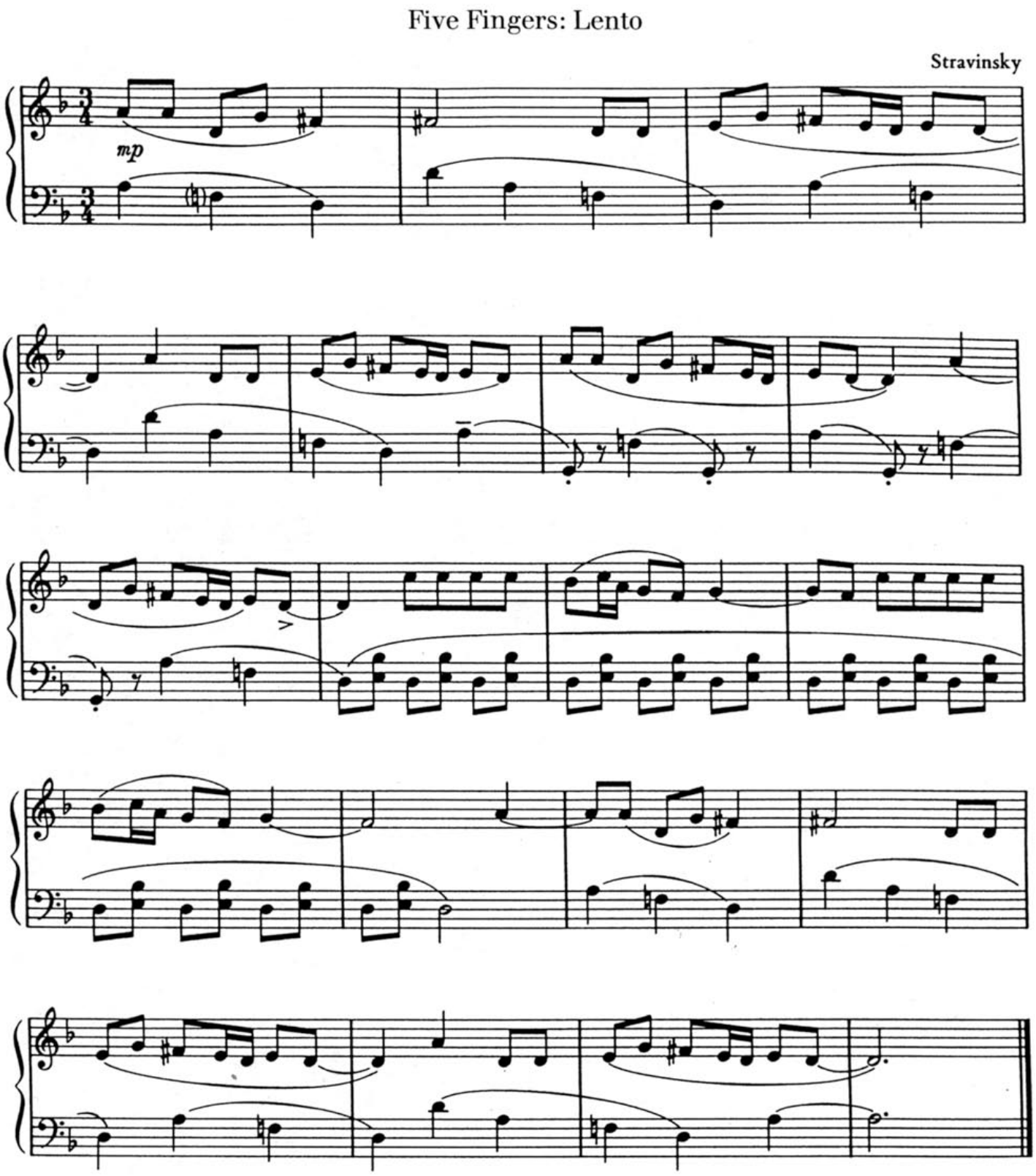


Lydian Phrygian



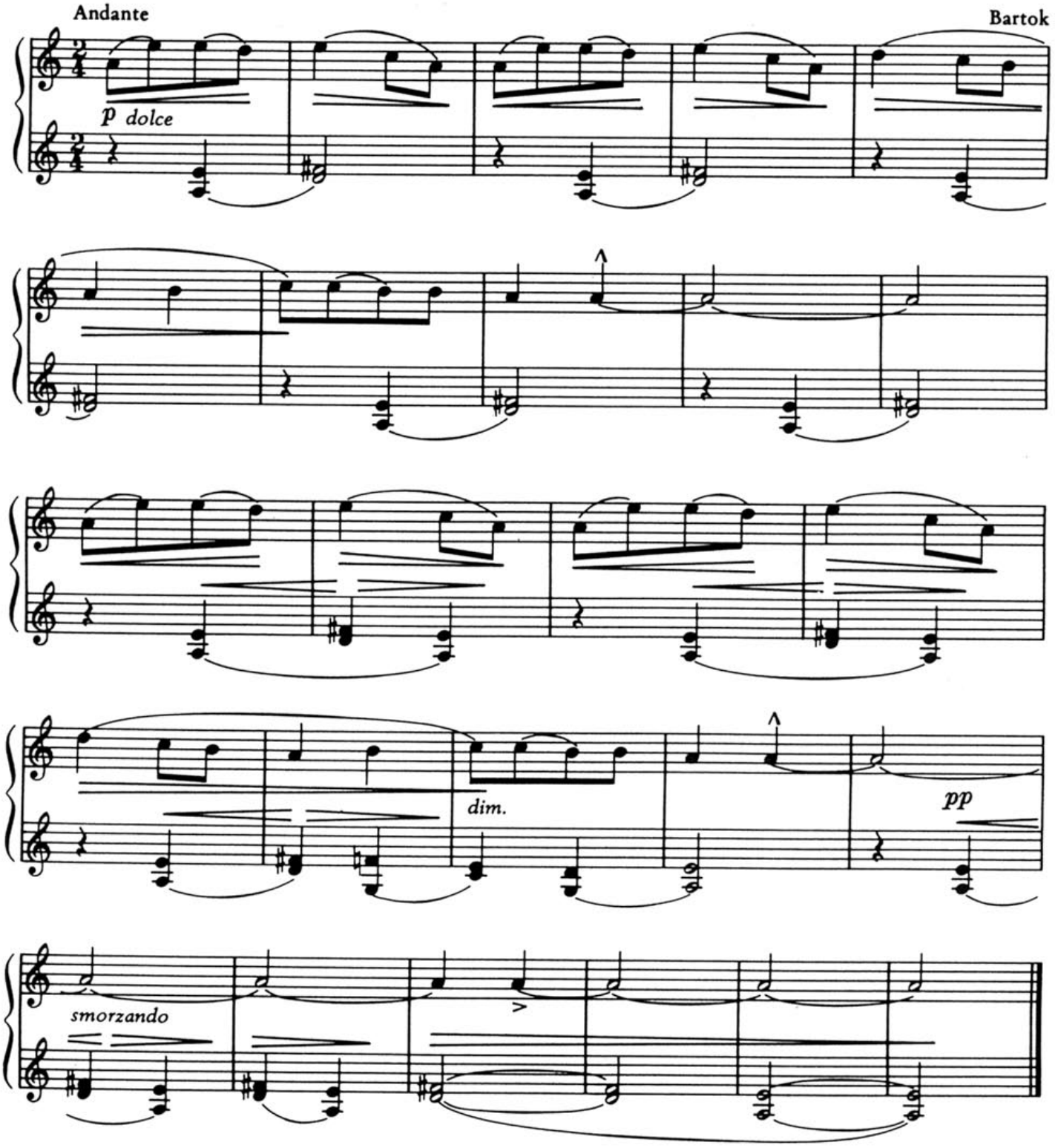
Dorian Mixolydian

CM-4A

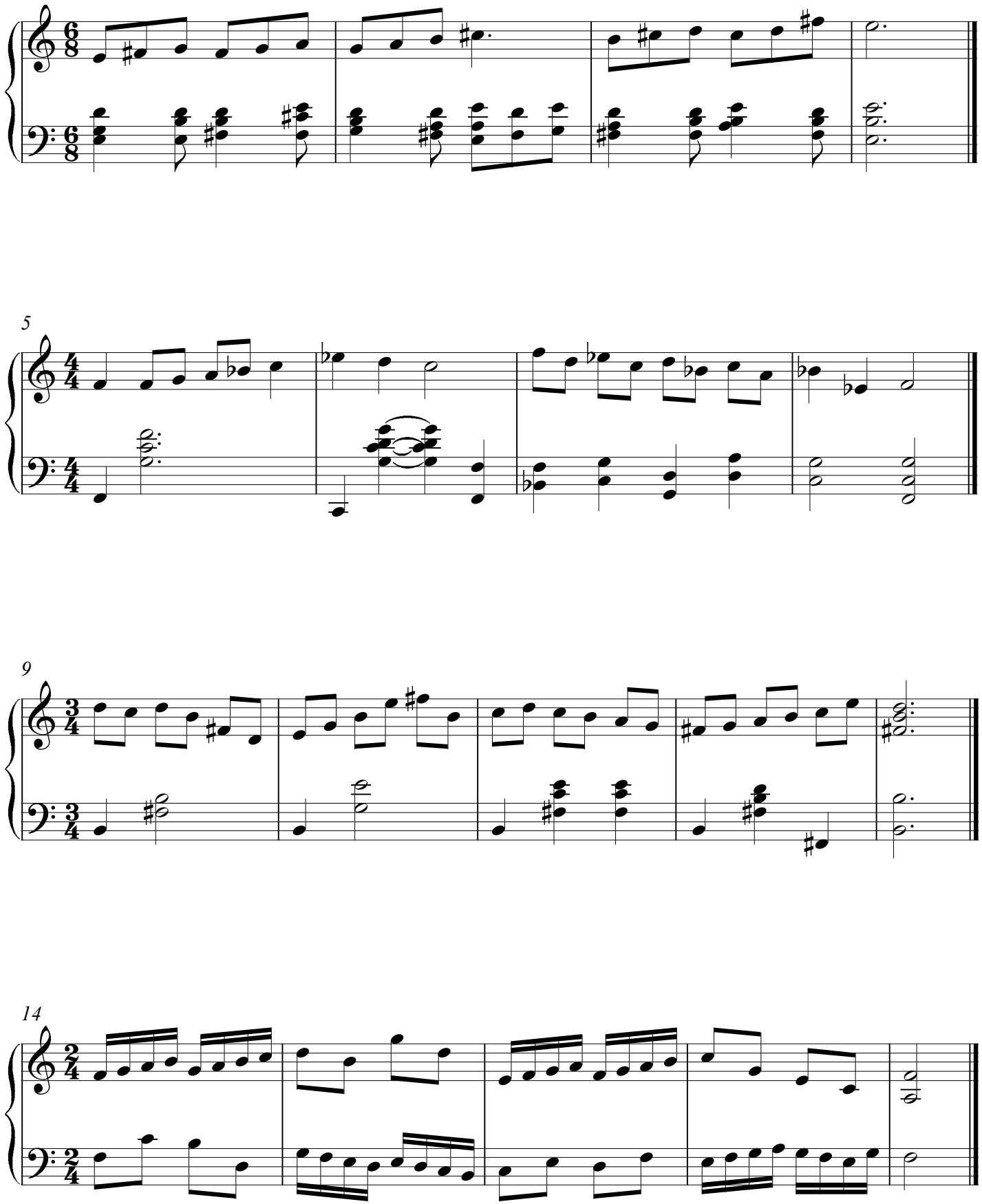


CM-5A

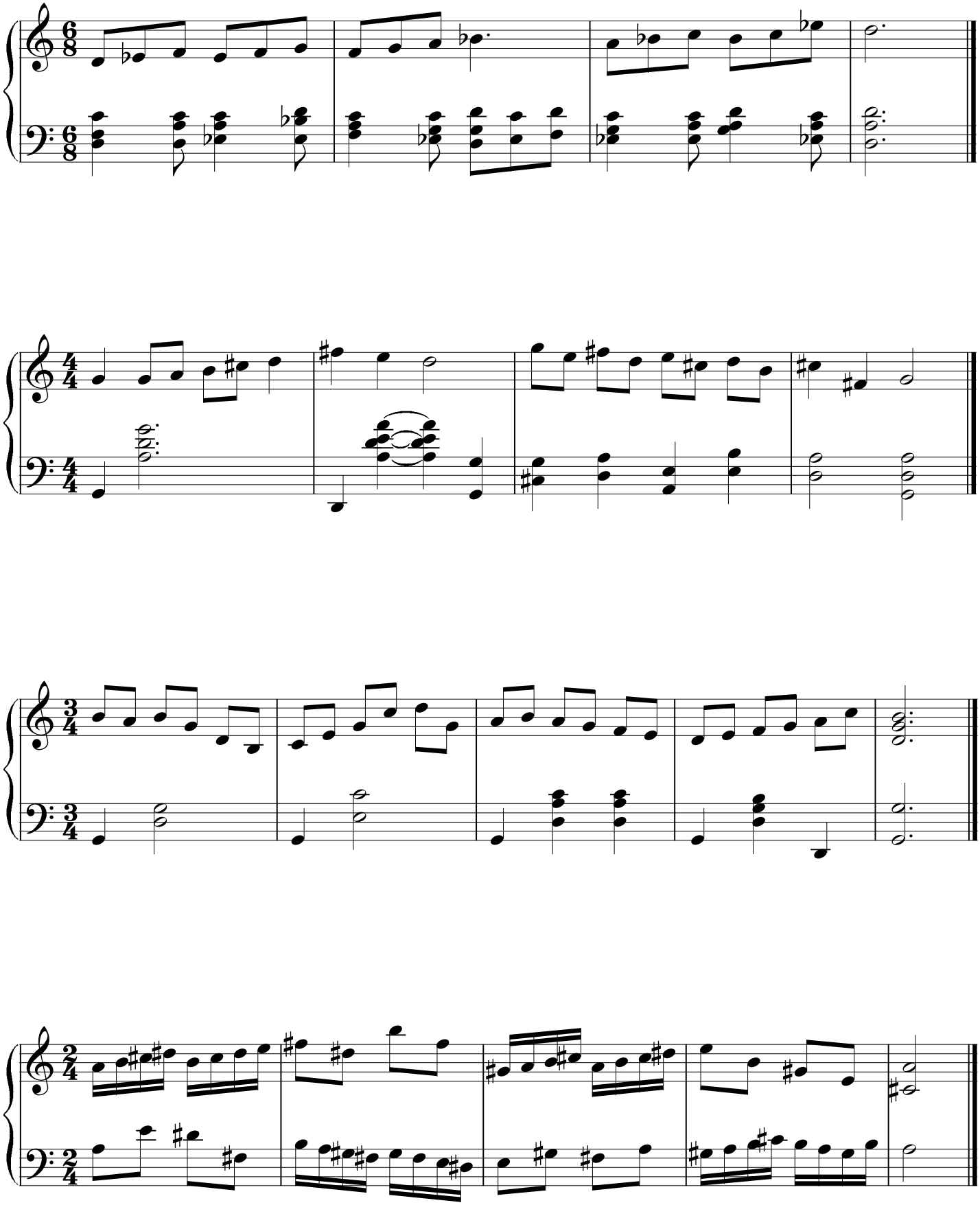
Little Pieces for Children, no. III



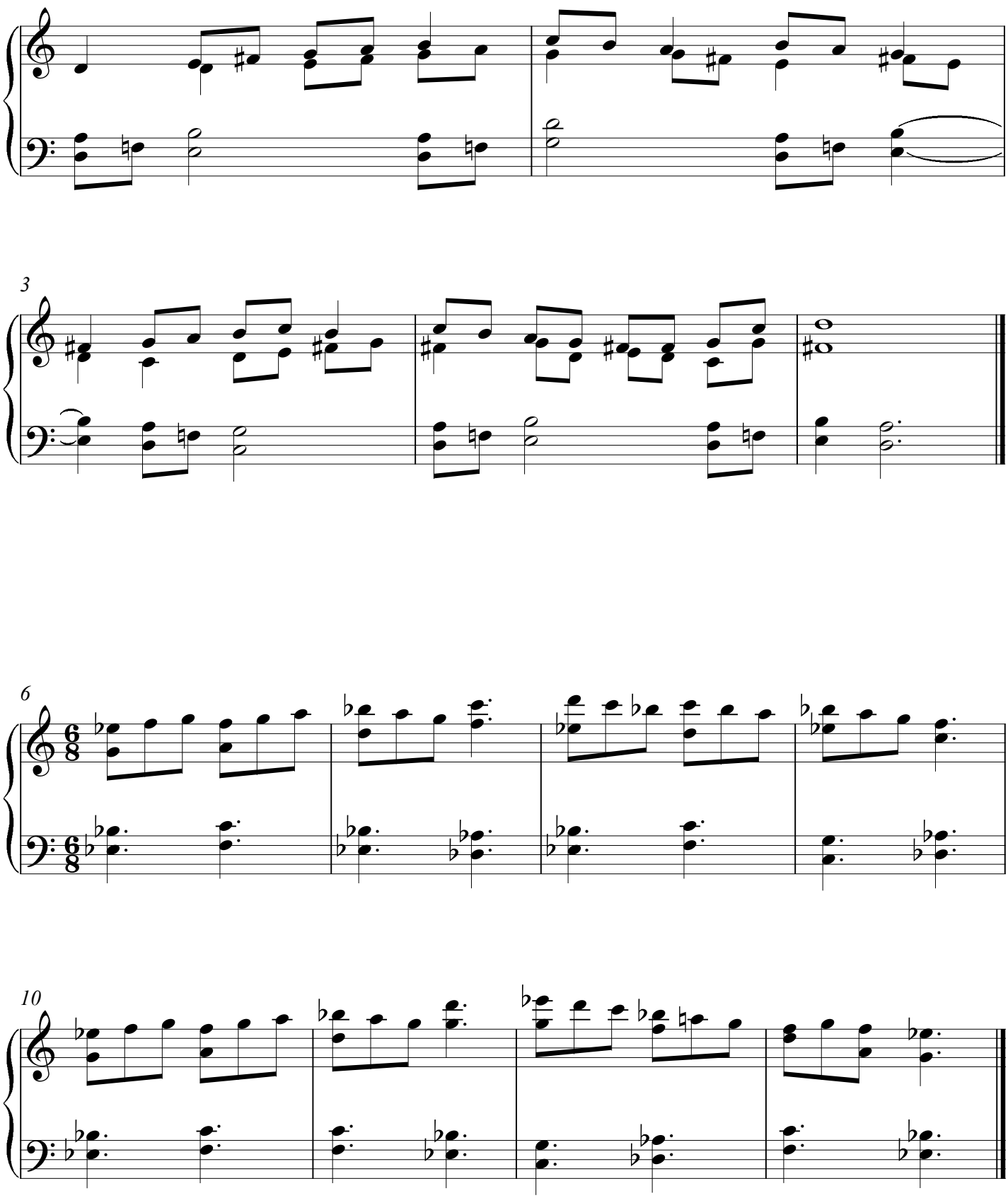
CM-6A



CM-7A



CM-8A



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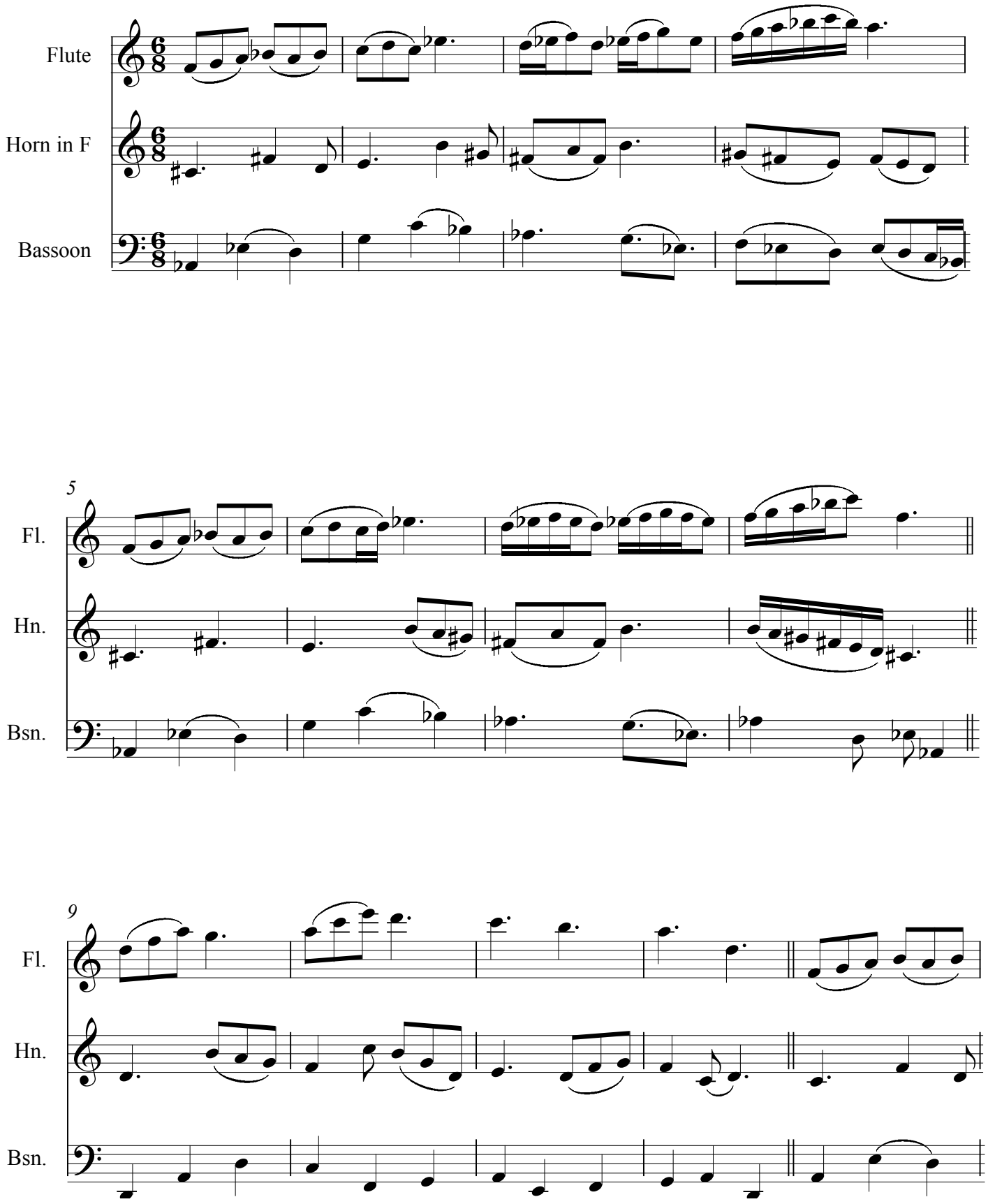
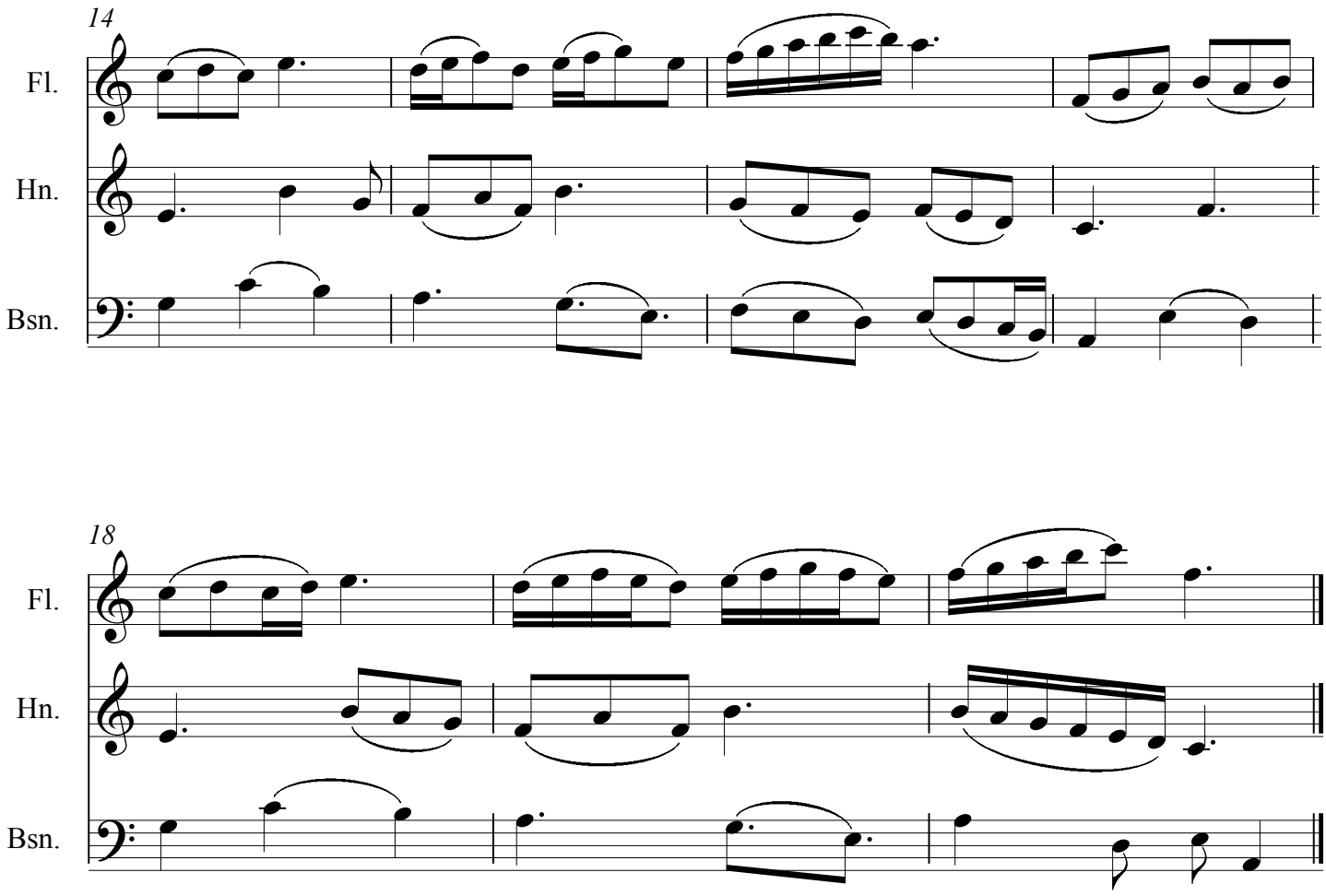
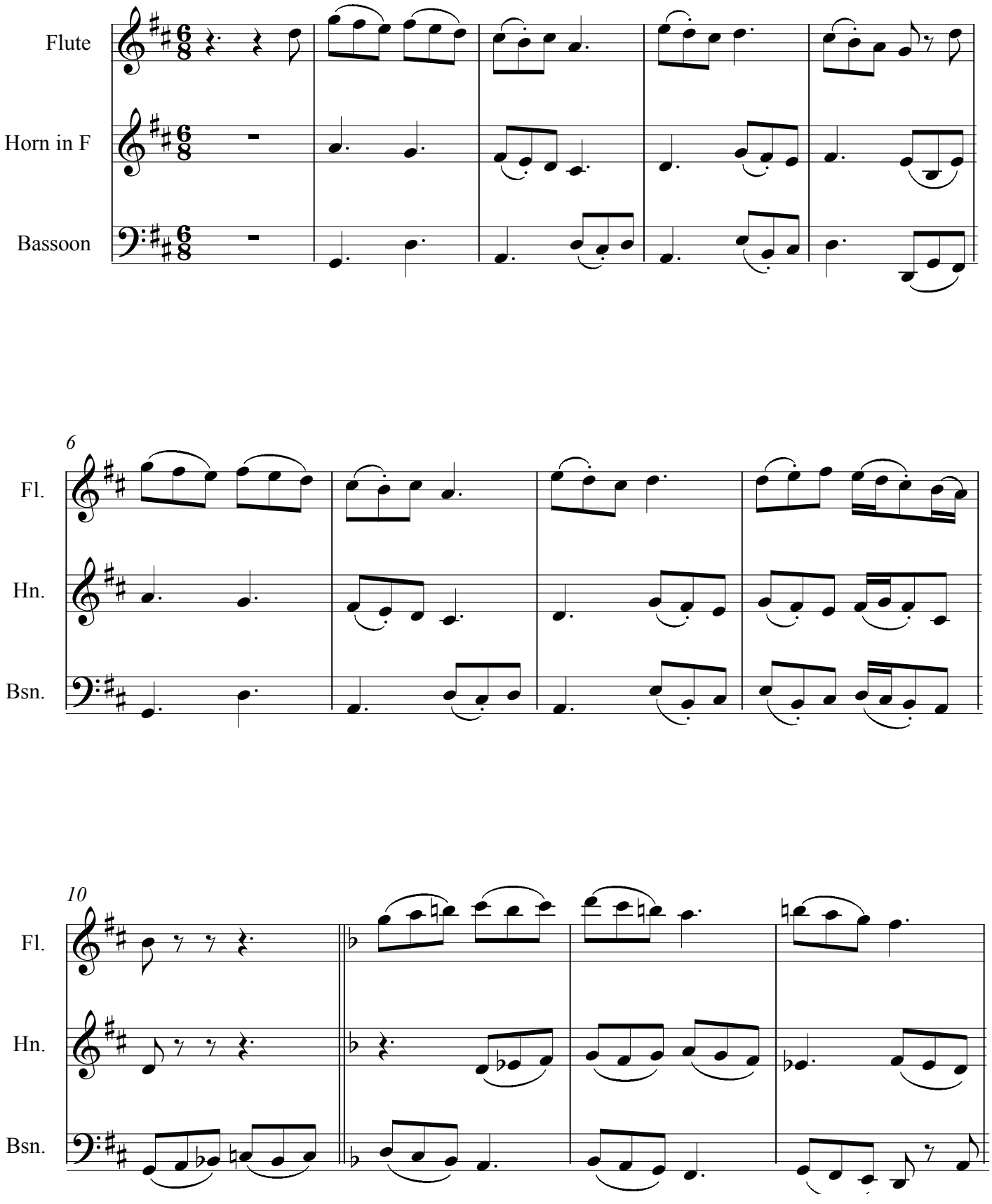
CM-9A

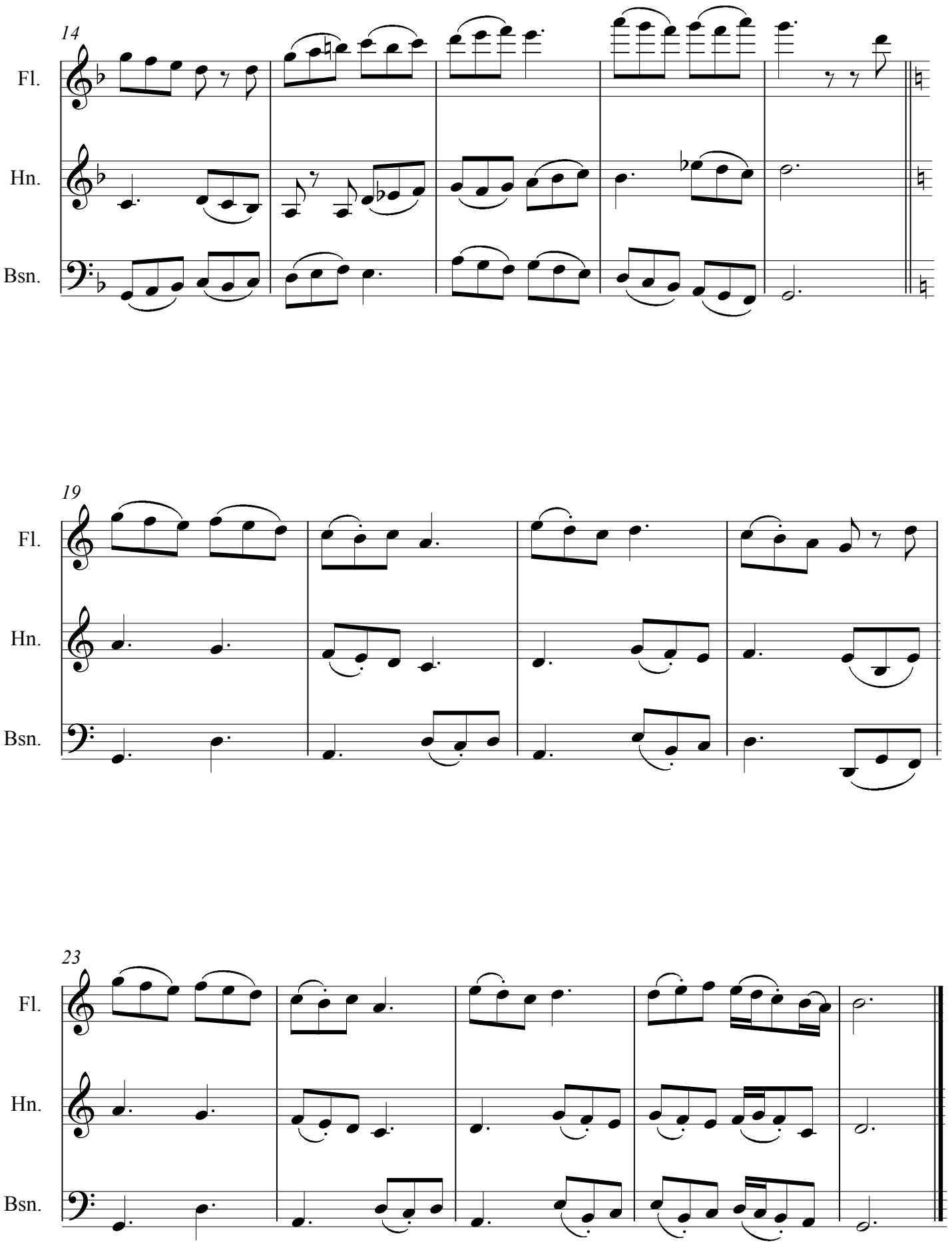
Identify and label the different modes used in this selection.
Write the name of the mode under the first measure of the staff in which it is used.




14
Fl.
Hn.
Bsn.
18
Fl.
Hn.
Bsn.

CM-10A




14
Fl.
Hn.
Bsn.
19
Fl.
Hn.
Bsn.
23
Fl.
Hn.
Bsn.

Analysis from previous FINAL EXAMS

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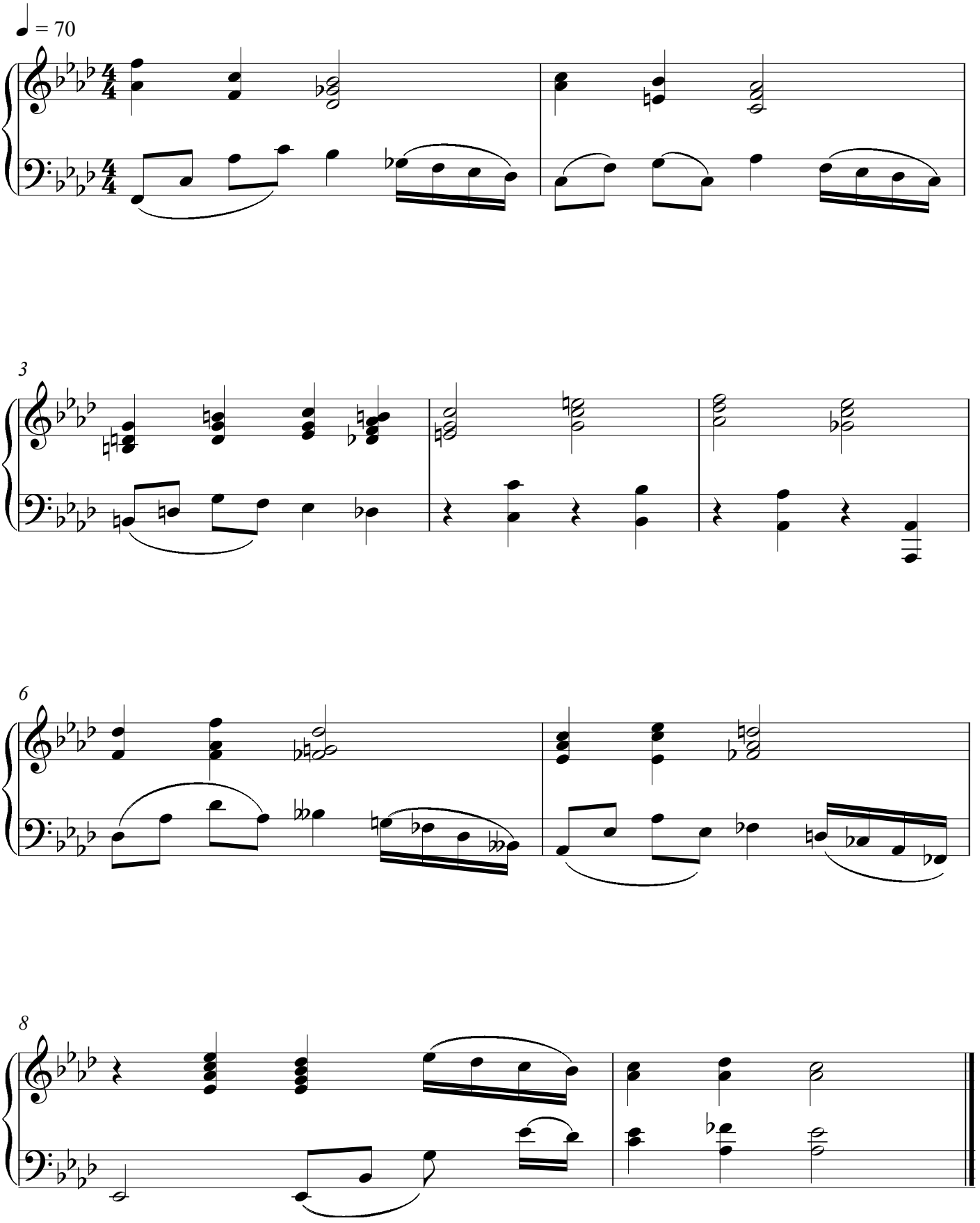
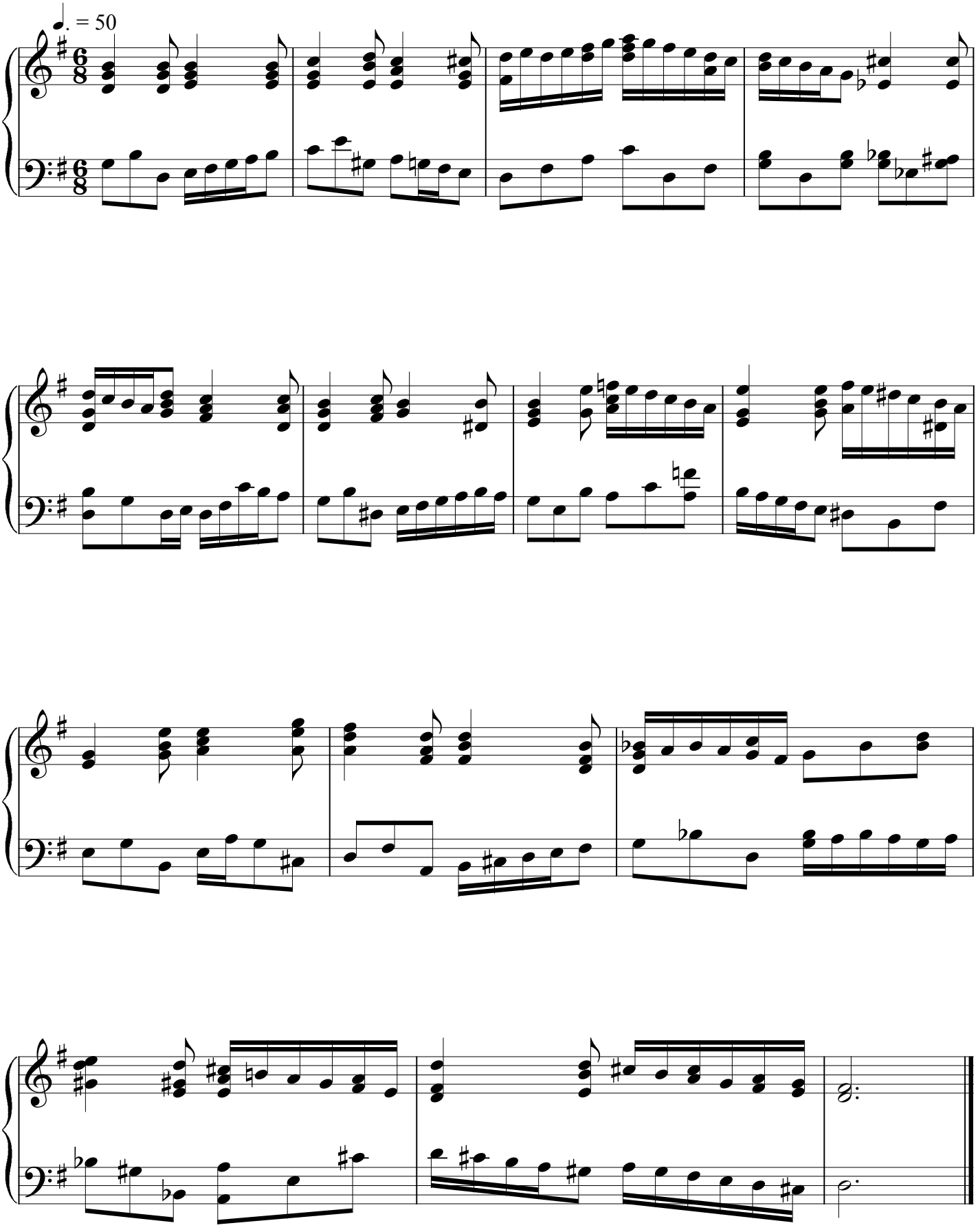
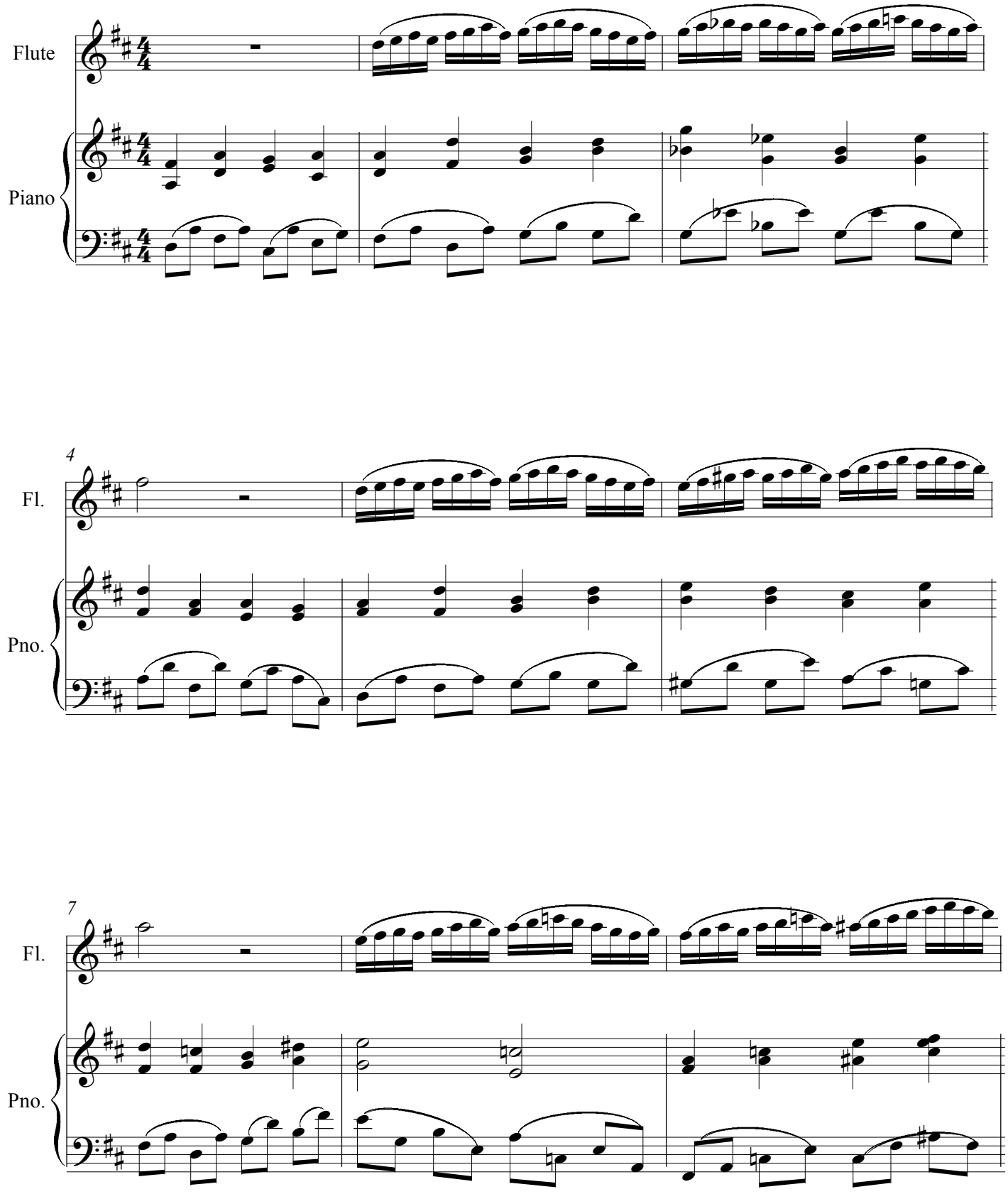
FE-1A

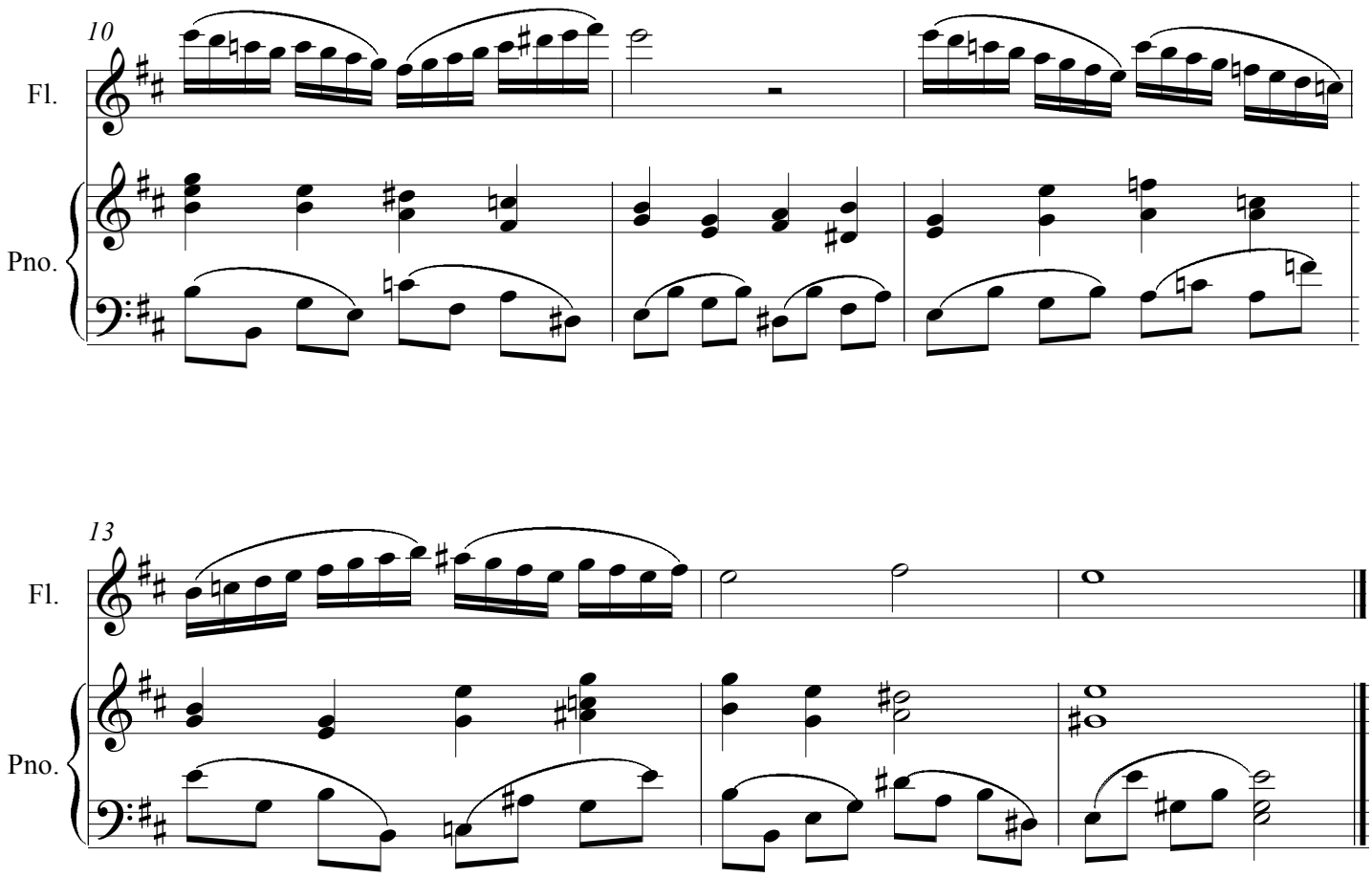


FE-2A

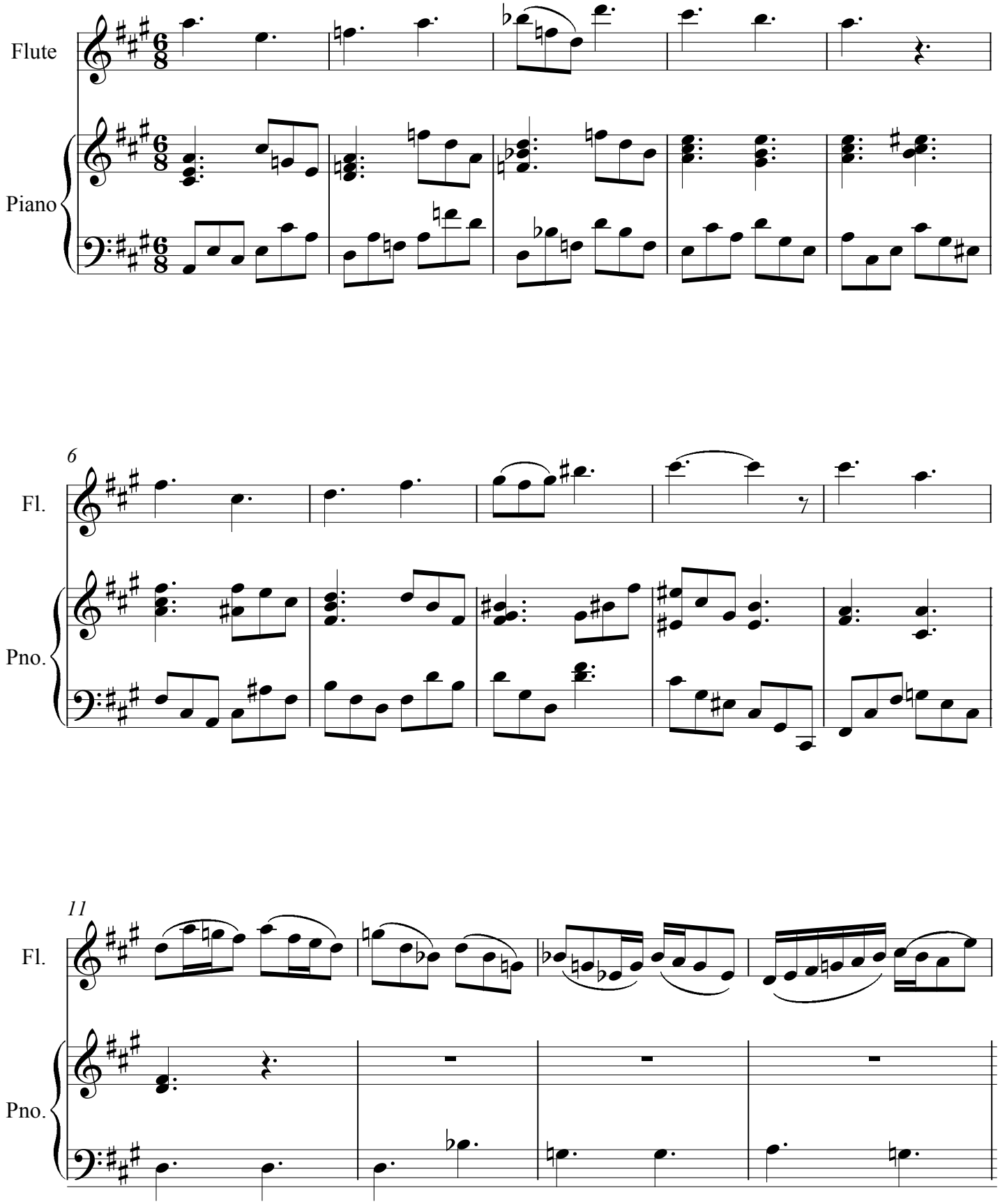


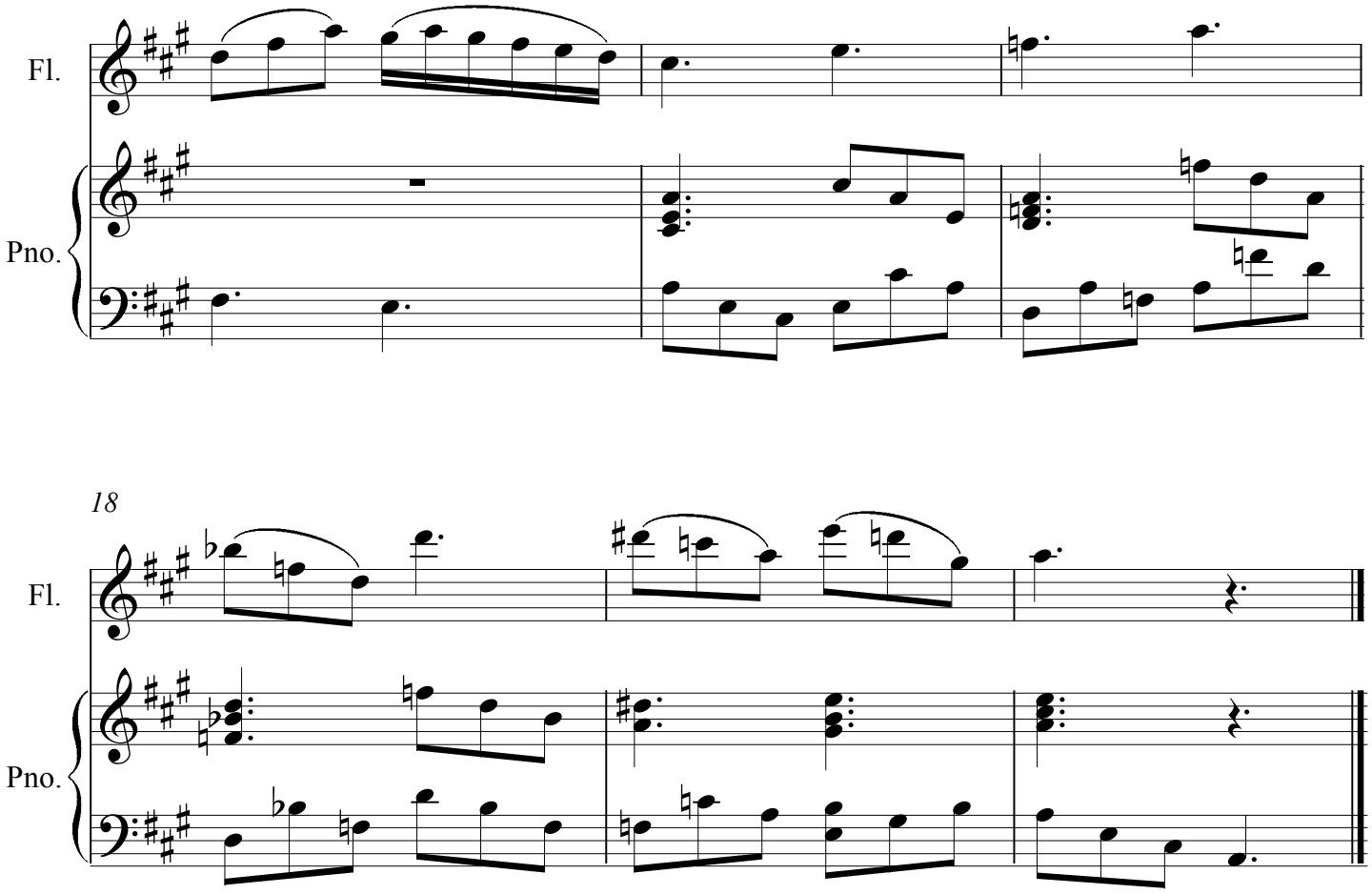
FE-3A




10
Fl.
Pno.
13
Fl.
Pno.

FE-4A

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18
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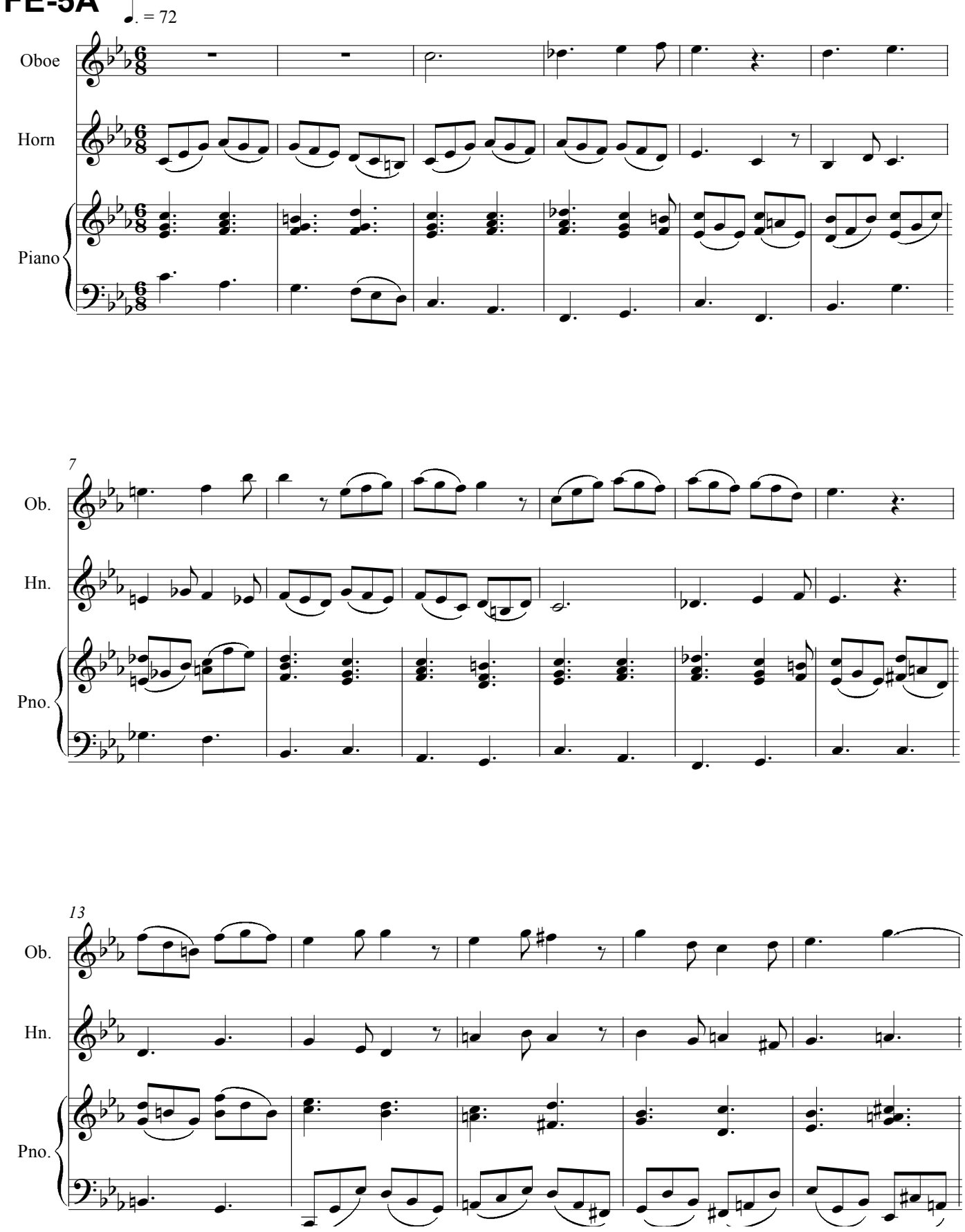
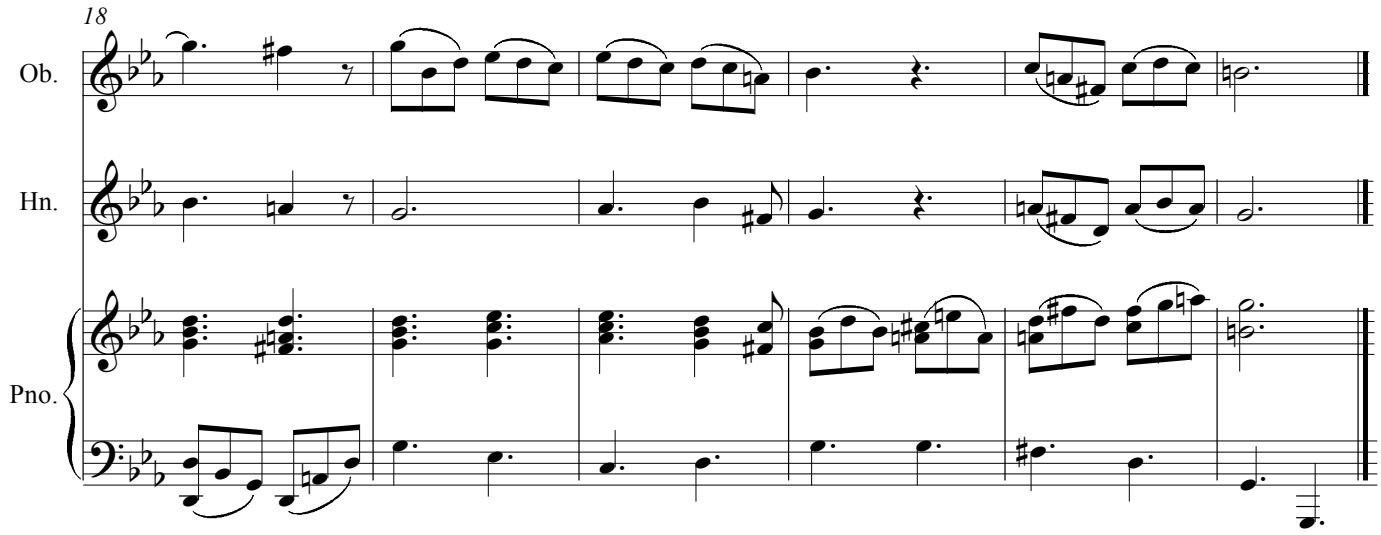
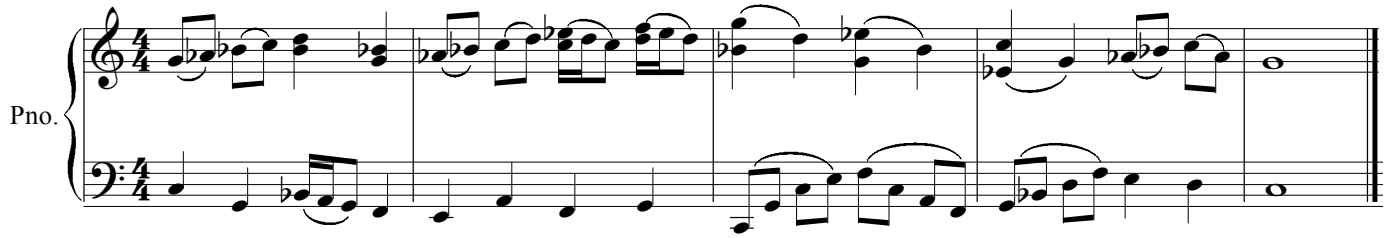
FE-5A

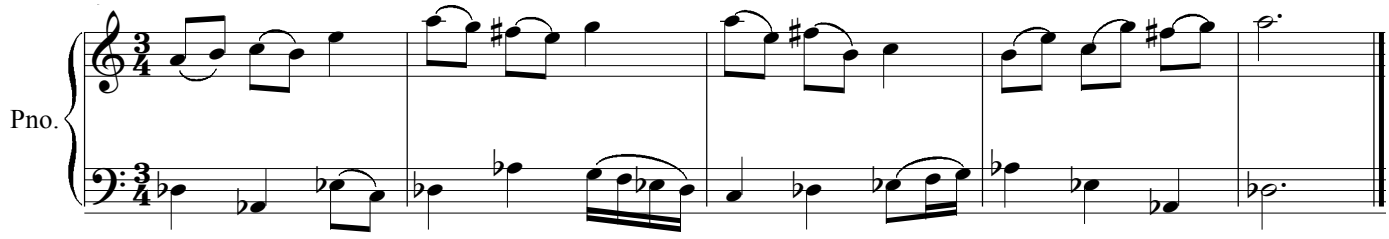




FE-6A



FE-7A



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