Advanced Music Theory Course Book

Adams State University
Dr. Matthew Schildt

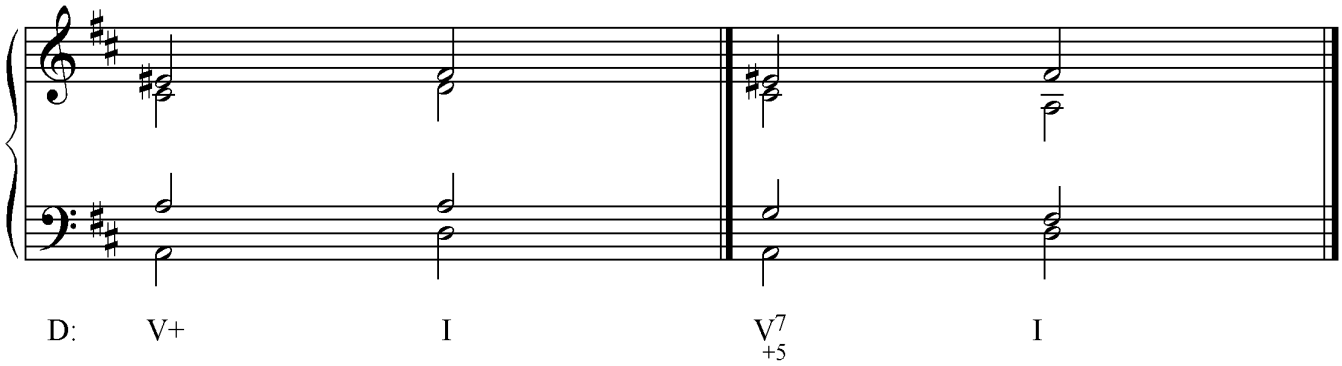


Advanced Music Theory - Altered Dominant Chords (aka, "Fancy Fives")

Composers in the Romantic period and jazz (and some songwriters) often altered dominant chords and tinkered with the chordal 5th. This gives V chords a change of sound with either more tendency and push, more crunch, or an added sweetness. Altered dominant chords (V+, V-, V sub 6) are chords with a chromatically raised, lowered, or replaced 5th.

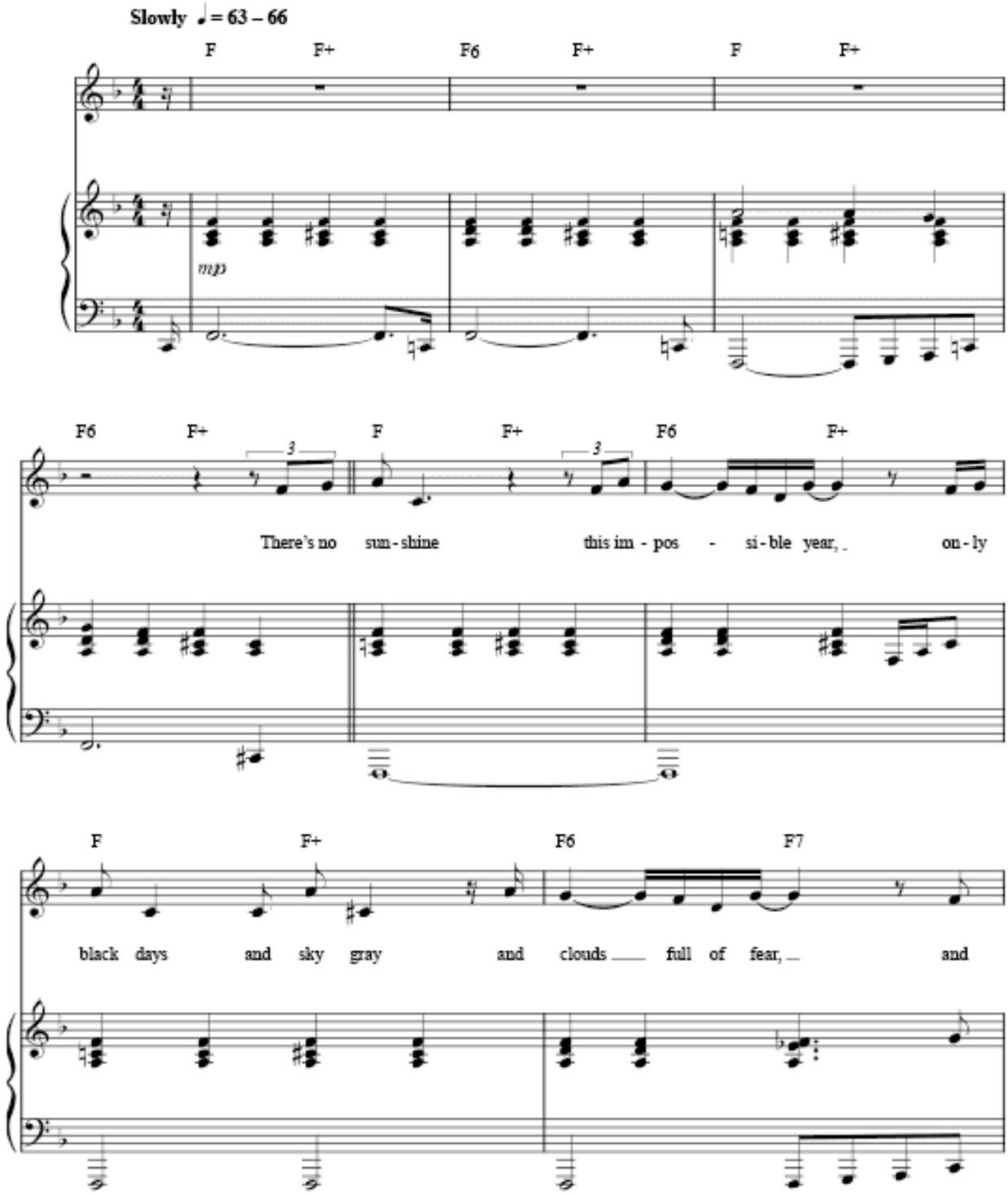
Altered Dominant with raised 5:

A dominant triad or 7th chord with a chromatically raised 5th, shown as V+ or V^{7}_{+5}. The raised 5 should ascend to mi, as it acts as a leading tone to the third scale degree. In the case of V^{7}_{+5}, a doubled 3rd results in the I chord from both #5 and the chordal 7th resolving to mi. The #5 should never be doubled (as is most always the case with tendency tones).

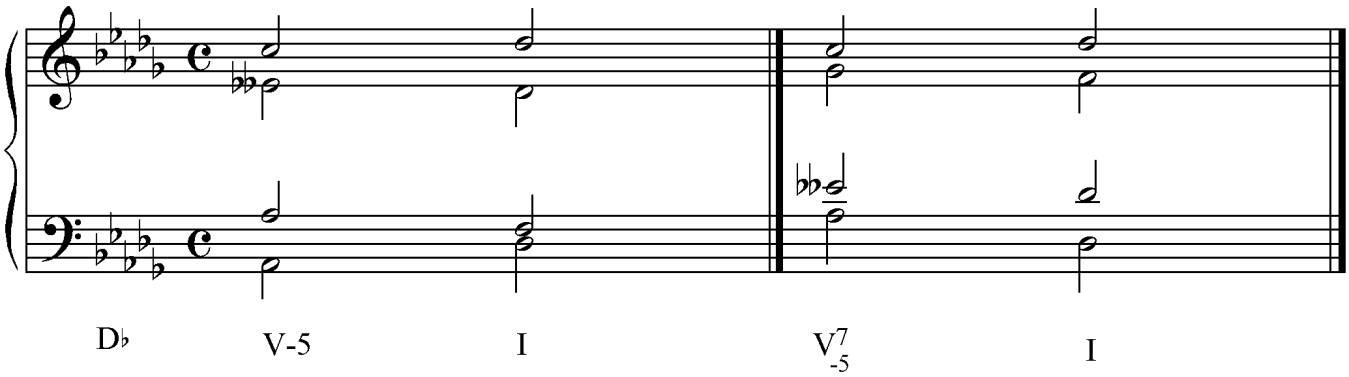


Sometimes composers and songwriters have a chromatic line from 5 to #5 to 6 that produces augmented harmonies. This can be seen in the example by the band Panic at the Disco below. The chromatic line of C to C# to D (and later Eb) produces an augmented harmony, added 6th, and later dominant 7th. These chords can be looked at as byproducts of the chromatic line.

Panic at the Disco: Impossible Year

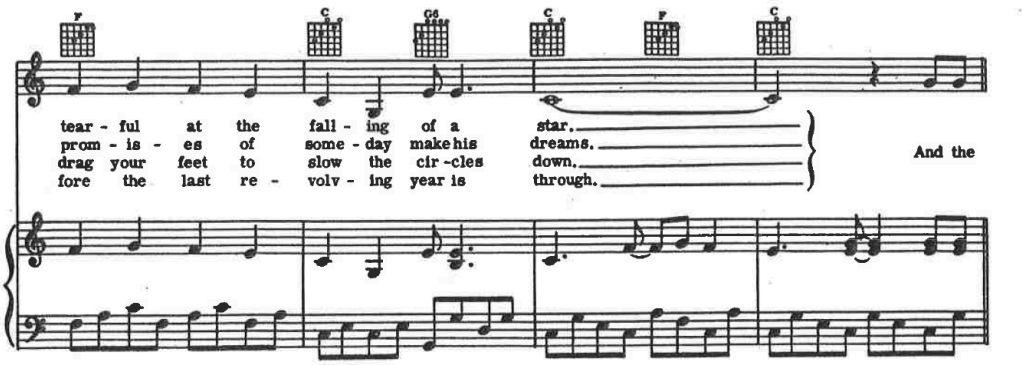


<u>Altered dominant with lowered 5:</u>
This chord is encountered much less than the dominant with a raised 5th, though you will see it employed in jazz every so often. The flat 5 resolves down (remember, raised pitches normally resolve up, lowered pitches normally resolve down).



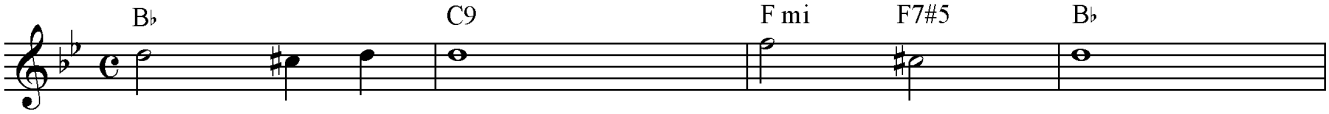
<u>Dominant with substituted 6</u>:
A dominant triad with a 6th substituting for the 5th - we will label as V(sub6). The 6th normally resolves down **by leap** (like an escape tone) to the tonic and **is not** retained as a common tone. Though a V(sub6) will be spelled the same as a iii6, it will have a dominant function. When there is a 7th in the chord, this is usually considered a V13, a chord we'll discuss later.

Joni Mitchell: Circle Game

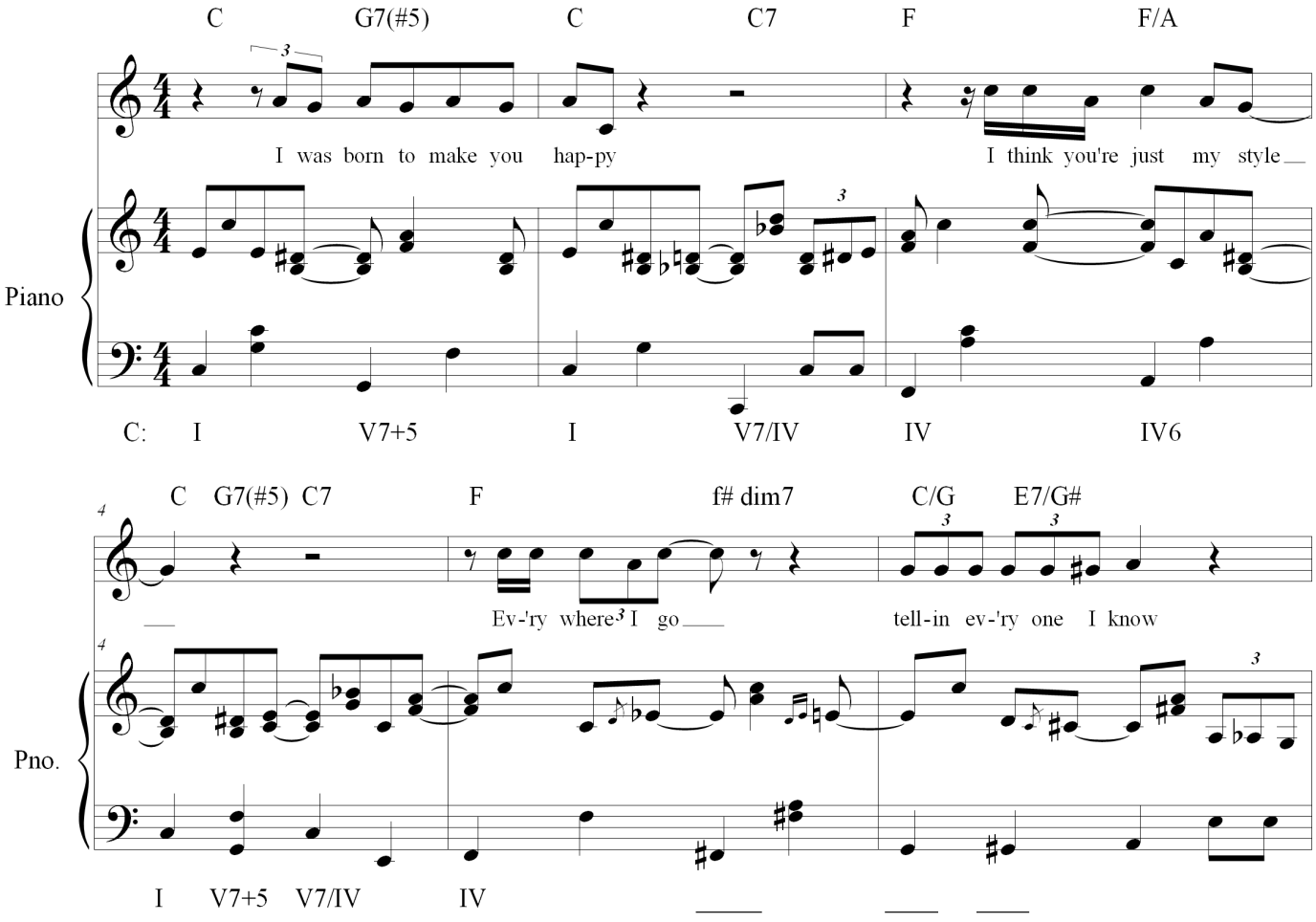


Examples

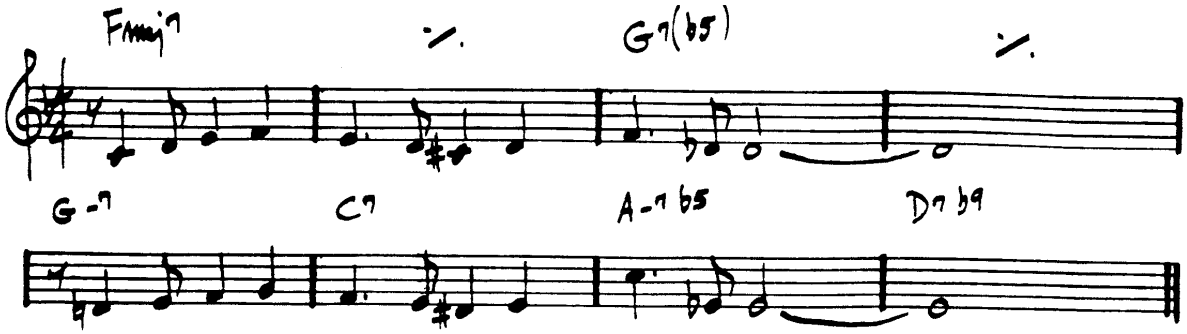
1) Mills, Bigard: Mood Indigo



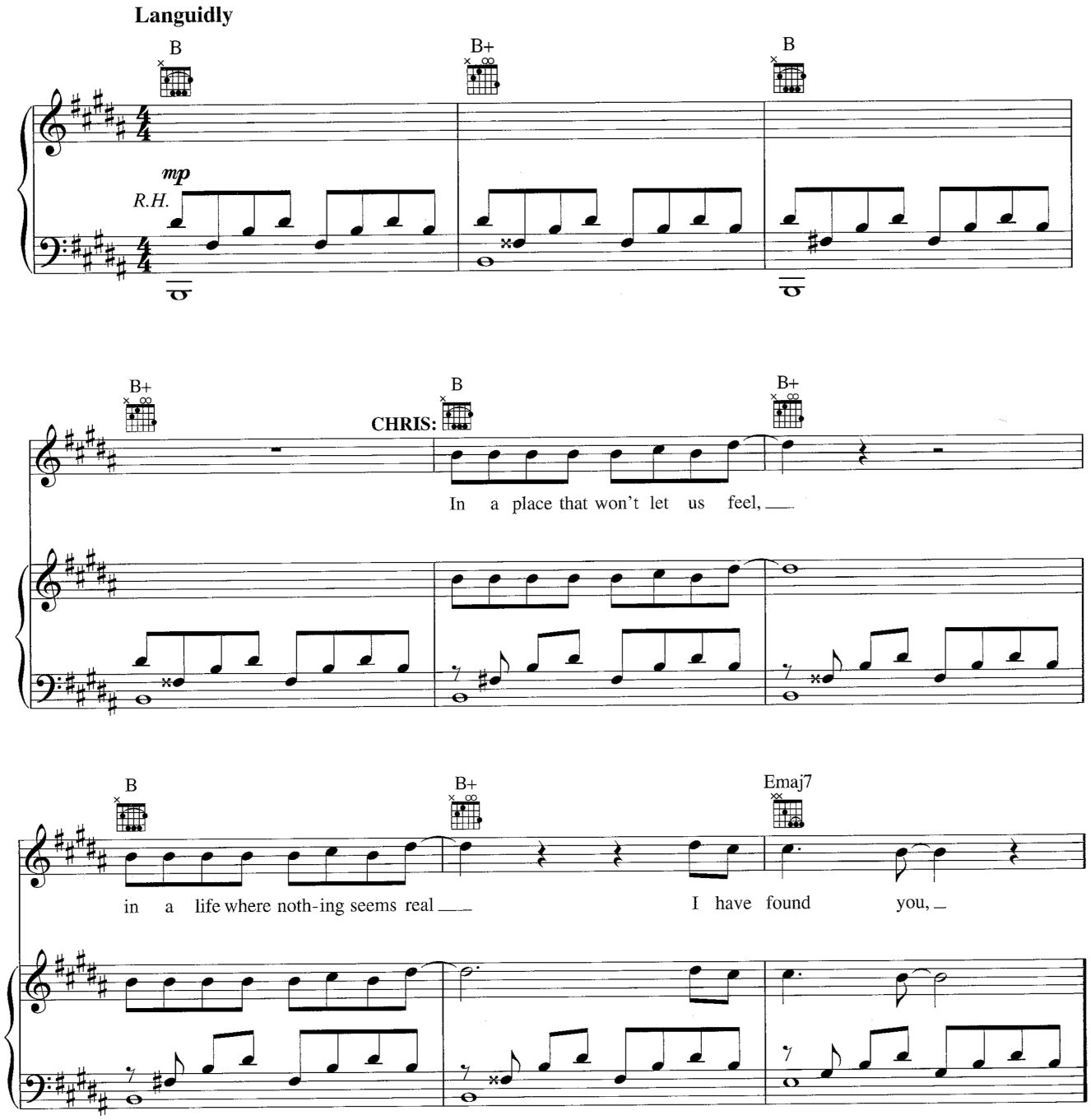
2) Randy Newman: I Love To See You Smile



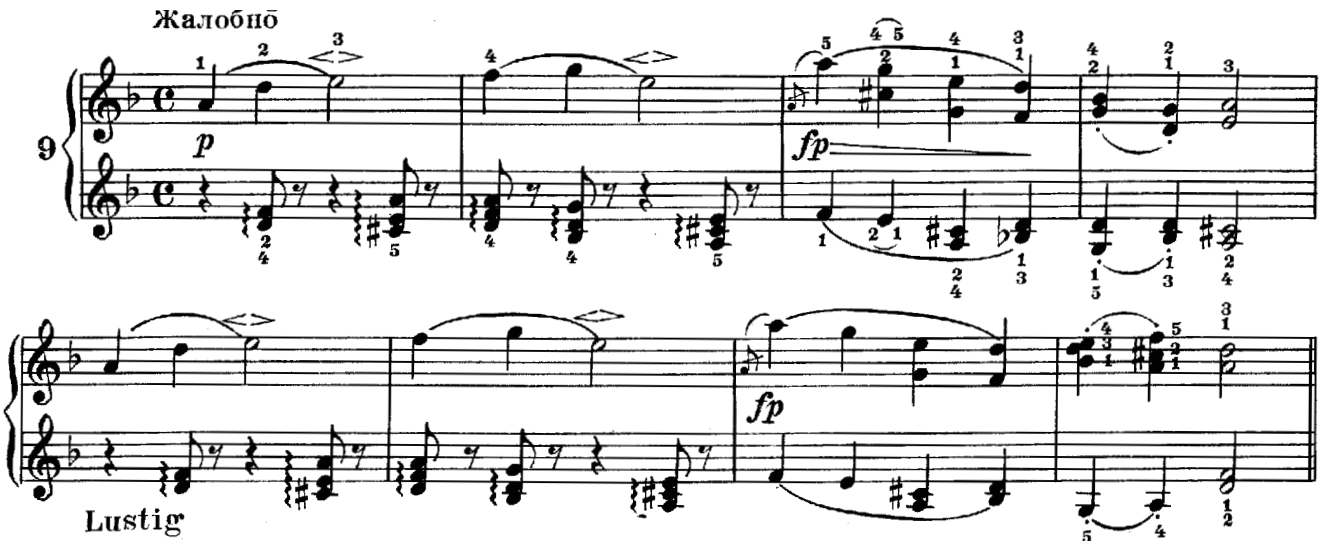
3) Antonio Carlos Jobim: Desafinado



4) Claude-Michel Schonberg: Last Night of the World (from Miss Saigon)



5) Schumann: Folk Song from Album for the Young. Notice that the penultimate chord, the V sub6, is enharmonically the same as V+, though the pitch acts as 6 rather than #5.

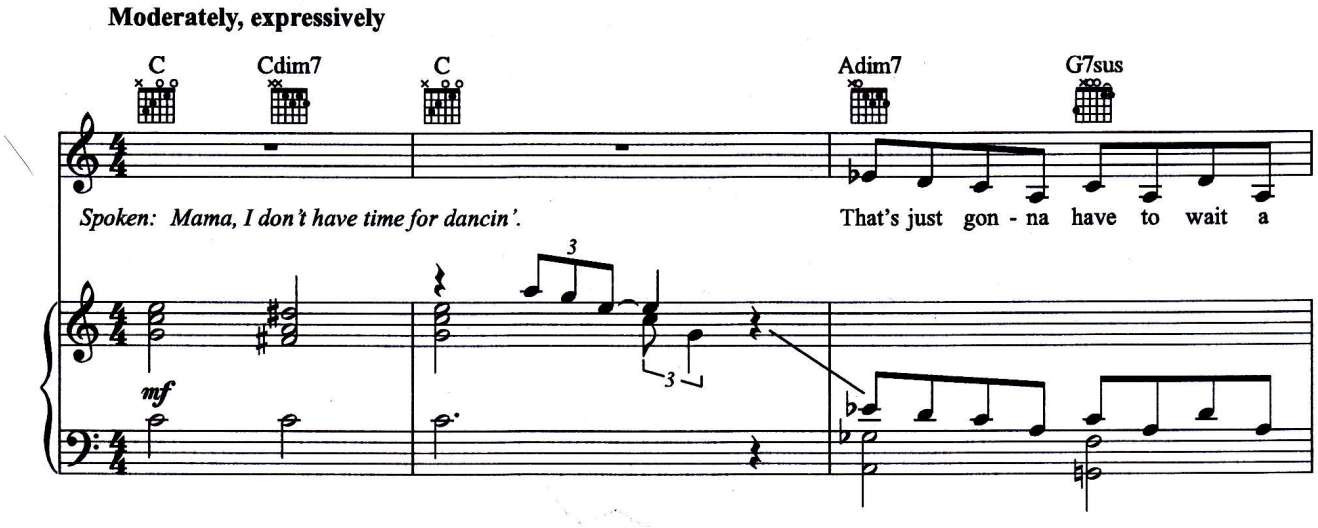


Advanced Music Theory - The common-tone diminished 7th chord

Unlike most diminished 7th chords, the common-tone diminished 7th chord (or sometimes called embellishing) does not function as a leading-tone 7th chord. The chord is an embellishing chord and is related to the harmony it embellishes through a common tone. Notice the embellishing function of the common tone diminished 7th below with the tonic prolonged and the cto7 sandwiched between. One definition of the word embellish is: to make beautiful with ornamentation or decoration. In music, embellishing chords decorate or elaborate a primary harmony and we can think of embellishment as when *a single harmony is perceived by the listener to be sustained, even if different chords are present.* The chord remains "in effect" even if it is not present at every moment.

Randy Newman: Almost There

*** (the c dim7 is incorrectly labeled in the lead sheet symbols)**

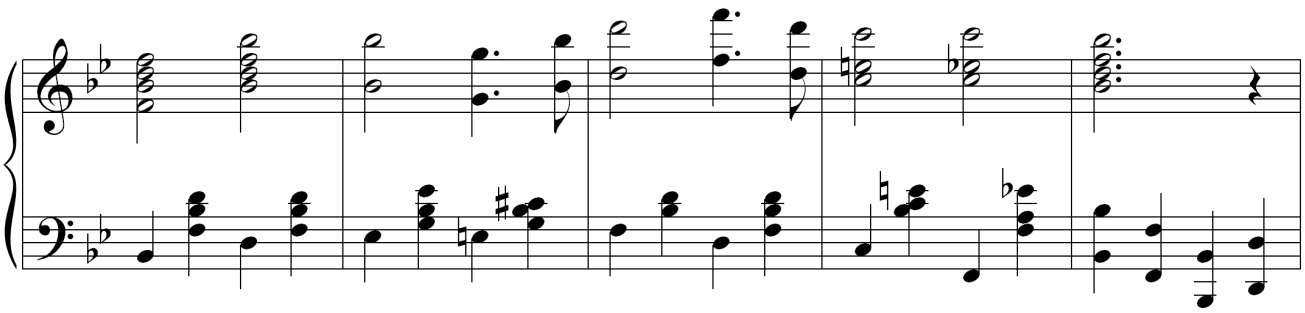


This chord differs from the functional diminished 7th chord in that ***the root of the ct7 does not step up to the tonic*** (does not act as a leading tone) and the 7th does not resolve down.

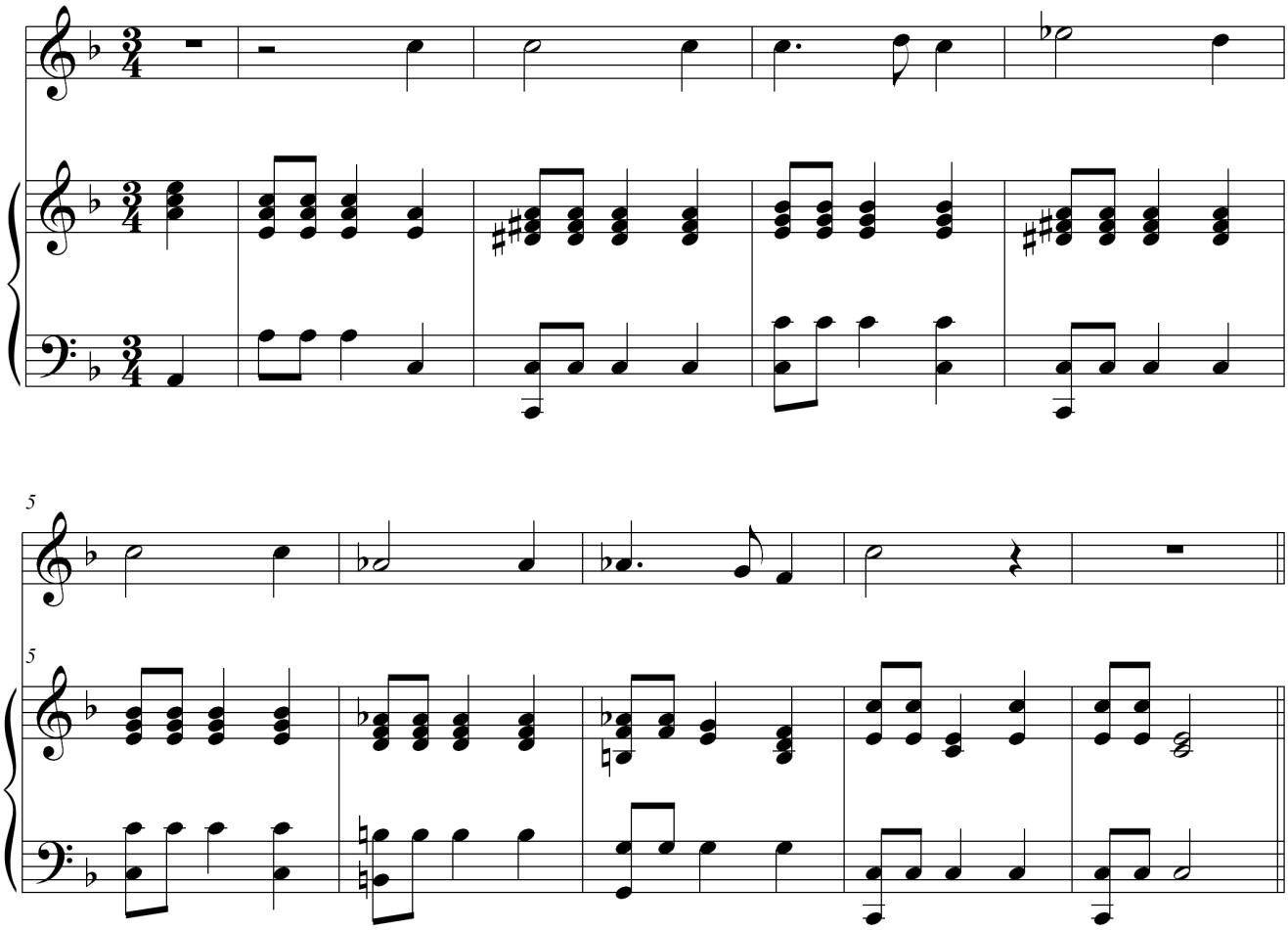
This common pitch is the *7th of the ct°7 and the root of the embellished chord* (I or V). The chord appears almost exclusively in major keys and embellishes the I or V chord. Due to this, the ct°7 can be spelled downward from the root of I or V. The common tone diminished 7th is thus either a #ii or #vi diminished 7. This chord is used often in ragtime, barbershop music, and the music of Romantic period composers such as Chopin.

<u>Example:</u> To build the ct^{0}7 of a I chord in C Major, build a dim. 7th downward (in minor 3rds) from C. This yields C – A – F# - D#, You could do the same with a V chord by building a dim 7th chord downward from G. This chord would be G – E – C# - A#.

Scott Joplin: Crush Collision March

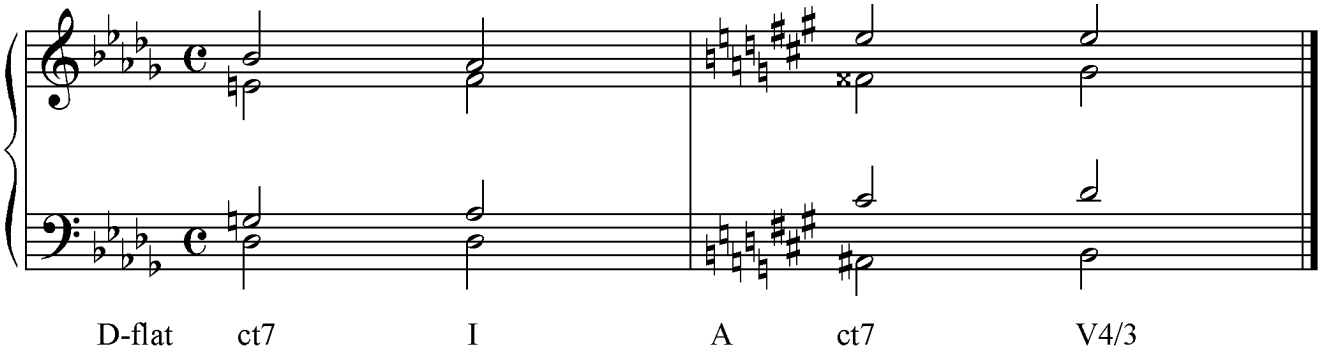


Brahms: Standchen

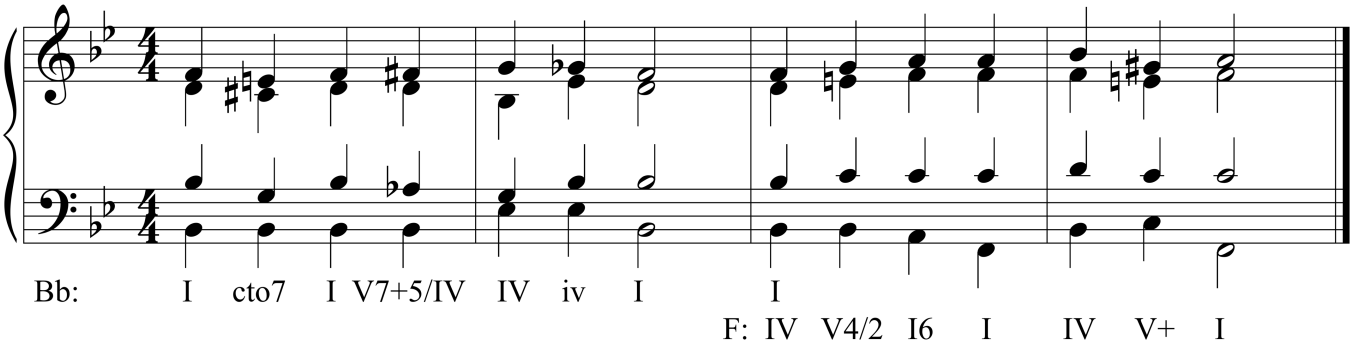


Partwriting:

- Remember, the 7th is retained and does not resolve down by step. Retain this common tone and try to move all other voices by step. The common tone is often, though not always, kept in the bass (as in the Brahms above).
- Resolve raised pitches in direction of inflection (up).
- One pitch will need to move by 3rd if the I or V has standard doubling. All voices can move by step if the I or V has the 5th doubled. In the first example below, the 5th in the I is doubled, allowing everything to move by step, though a D in the soprano and jump of a 3rd is totally fine.



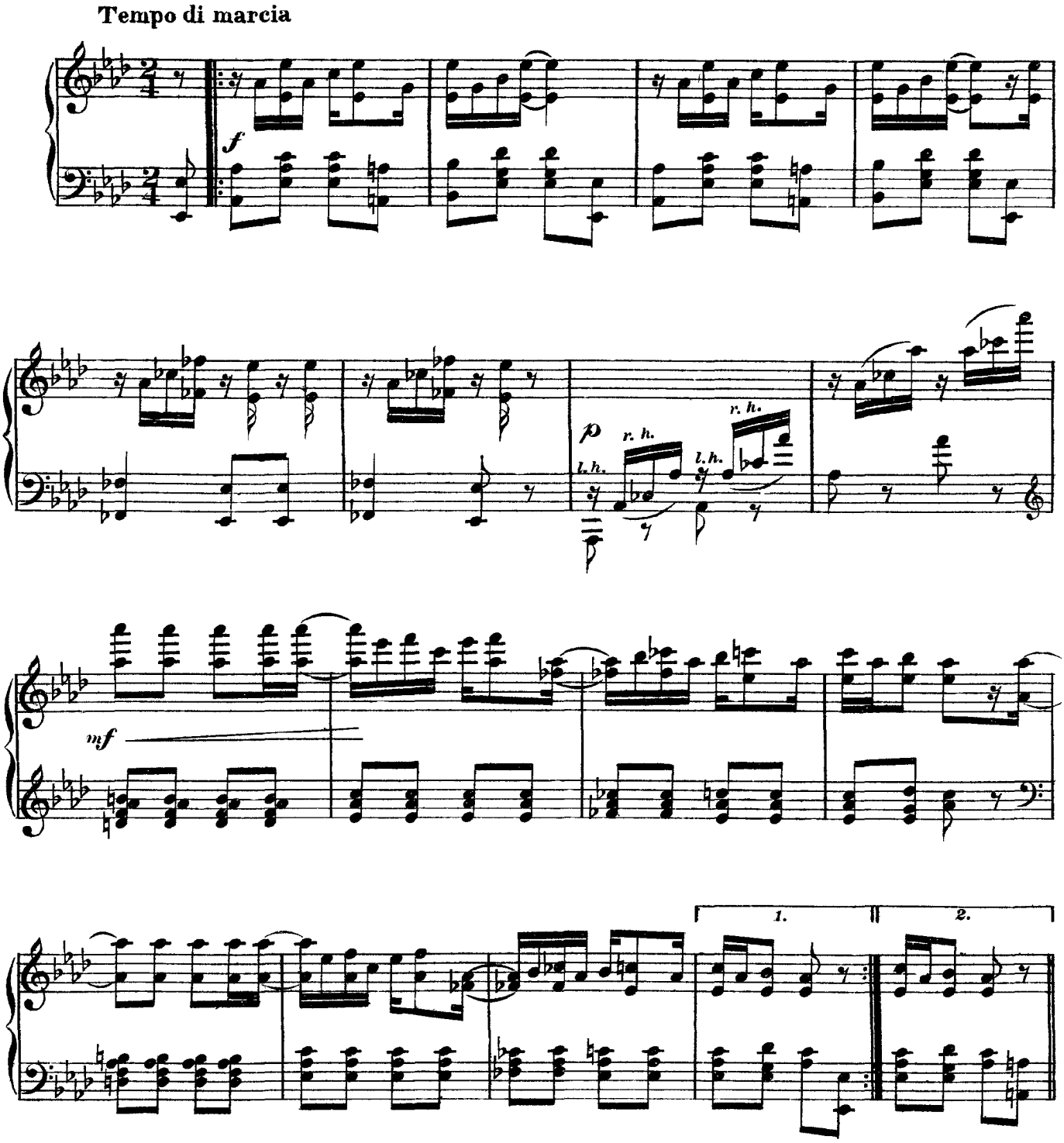
Observe the voice-leading of all chromatic harmonies in the following example and sing in four parts.



A few things about ragtime:
Ragtime was a style of popular music, chiefly American and written for piano, that flourished from about 1896 to 1918. It predated and influenced jazz, originated in African American communities, and combines the sophistication of European classical music with blues and work songs. Rhythmically, ragtime has a march-like left hand with a syncopated ("ragged") right hand. Ragtime is highly chromatic and features many ct dim7th chords and secondary function chords. **Scott Joplin (1867-1917**) was known as the King of Ragtime and he strove for a 'classical' excellence in his music and recognition as a composer of artistic merit, rather than one simply of popular acclaim.

Scott Joplin

Maple Leaf Rag

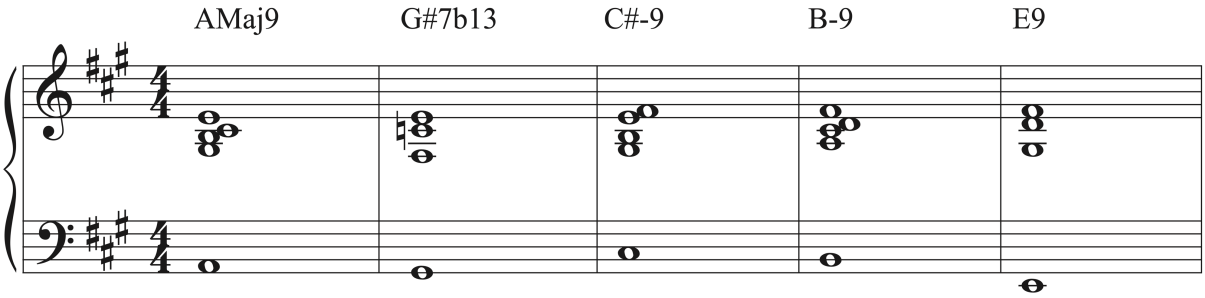


Advanced Music Theory - Extended Tertian Chords aka, "Fancier Fives" (or fancier iis, IVs, etc.)

Adding thirds to our tertian harmonies beyond the 7th yields what are known as extended tertian harmonies. These are harmonies with 9ths, 11ths, or 13ths and are all over jazz (see Blue in Green and Moonlight in Vermont below), the music of Debussy, Ravel, and other 20th-century composers, and many songwriters. Music of Romantic era composers utilize these chords as well, though it is mostly 9th chords that are seen in the music of Brahms, Chopin, Grieg, etc..

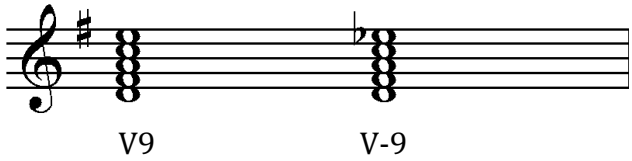
Give a listen to the chord progression below by Mac Miller. The 9ths and 13th add great richness, tension, color, and interest to the progression. Play and listen to this without the extensions (just triads and 7ths) and notice the striking difference.

Mac Miller: ROS

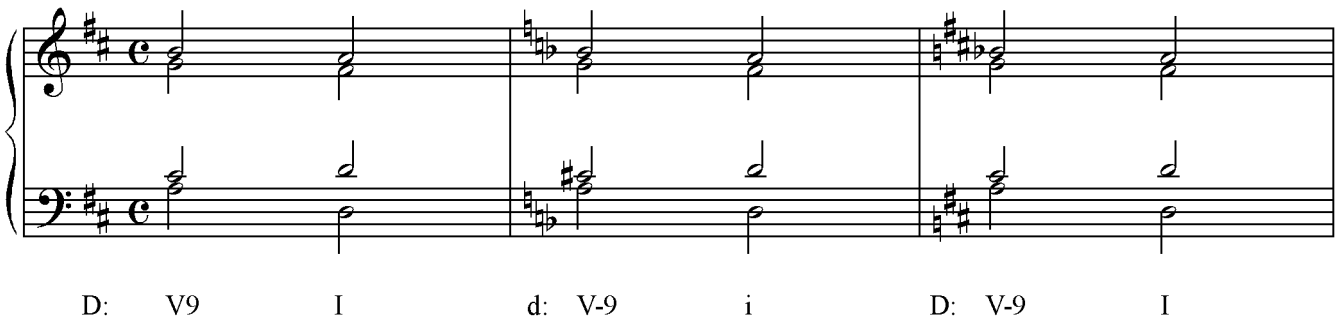


9th Chords:

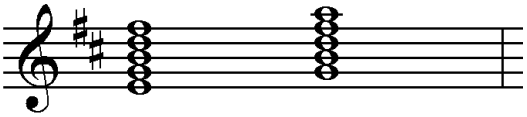
The dominant 9th chord is the most frequently encountered 9th chord in music. There are two types, the Dominant Major 9th (major 9th above the root) and the Dominant minor 9th (minor 9ths above the root). These are shown as V^{9} and V^{-9}.



The V^{9} occurs diatonically in major and the V^{-9} occurs diatonically in minor as well as in major (as a borrowed harmony). Ninth chords are most often in root position and the 9th is most often the highest voice. In 4 voices, t**he 5th is often omitted** yielding a voicing of **root, 3rd, 7th, 9th**. **The 7th and 9th normally resolve down**.



Non-dominant 9th chords are used frequently in jazz and in the music of French composers such as Faure and Debussy. These are to be labeled with the appropriate roman numeral such as I^9, ii^9, IV^9 etc….. and referred to as Major 9th chords and minor 9th chords. Minor 9th chords contain a minor 7th chord and the interval of a Major 9th, while Major 9th chords contain a Major 7th chord and the interval of a Major 9th. The same voicing and resolutions as seen in the dominant 9ths apply.

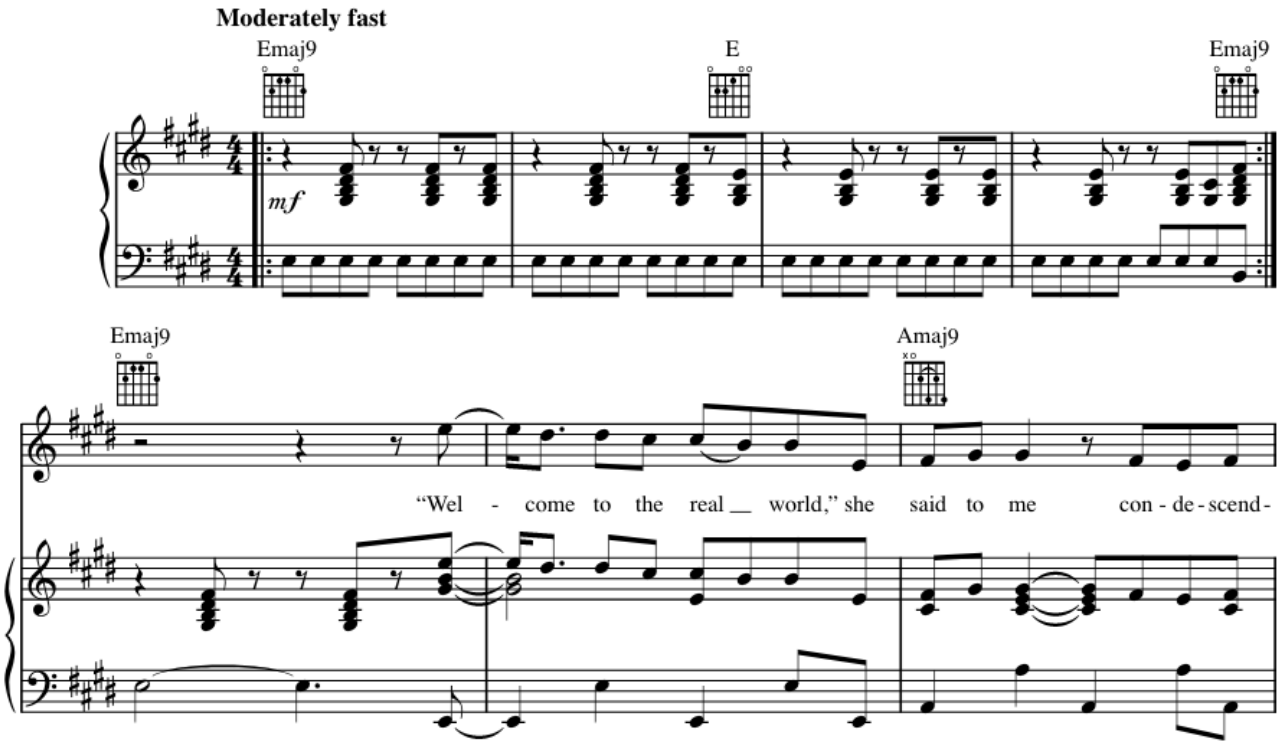


ii9 IV9
(minor 9th chord)(Major 9th chord)

Major and minor 9th chords are seen a good deal in jazz and songwriters such as John Mayer, Jason Mraz, etc… use these chords in their "jazzier" tunes.

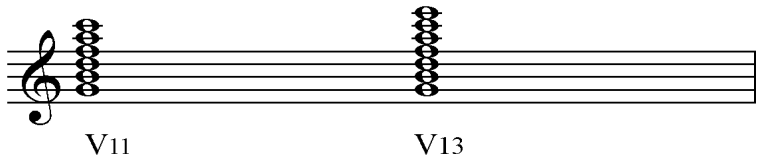
The #9 chord (aka the Hendrix chord)
In the *Blue in Green* example a few pages later, you will see an A7#9 chord. This chord features the raised 9th, so the 9th would be a B#. This chord is not found commonly in classical music, though it is prominent in jazz and rock. It is sometimes called the **Hendrix chord** after Jimi Hendrix and can be heard in many of his songs, including *Purple Haze*. A shortcut way to think of this chord is that it has a major 3rd ***and*** minor 3rd (the enharmonic #9). So, an A7#9 would have a C# and C natural (which is technically a B#). So, a D7#9 would have F# and F natural (E sharp). The #9 is usually placed in the top voice.

John Mayer: No Such Thing

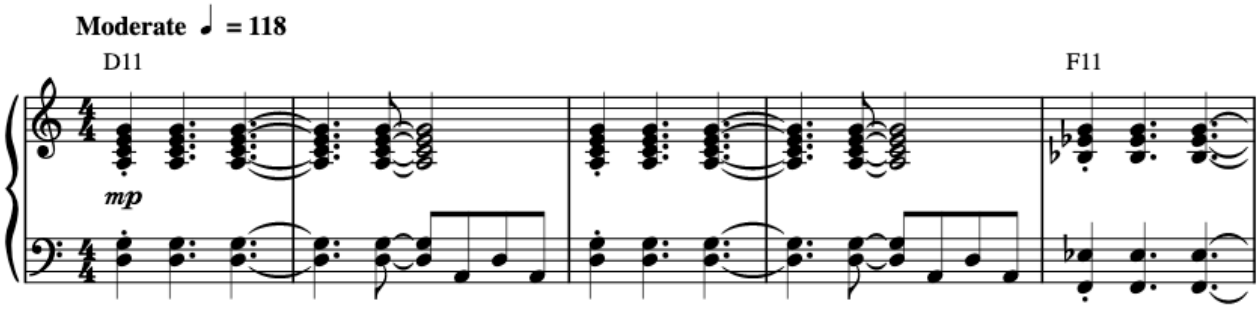


<u>11th and 13th Chords:</u>

An 11th is simply a compound 4th and a 13th is a compound 6th. The most common 11th and 13th chords are the dominant 11th and 13th chords, V^{11} and V^{13}.



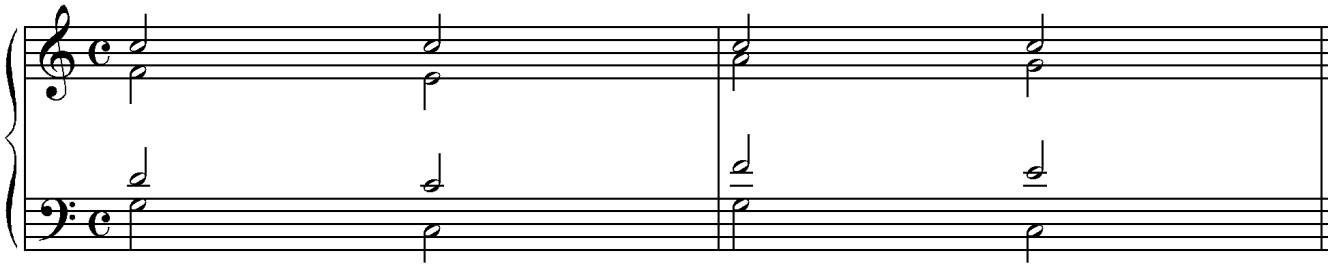
Herbie Hancock: Maiden Voyage



Obviously, some chord tones must be left out in 4 voice texture. In an **11th chord**, the 3rd is almost always omitted, as is either the 5th or the 9th. In the examples below, notice the tripled root with the 1st voicing to avoid parallel 5ths. **One way to think of an 11th chord voicing is to think of **the major triad a major 2nd below the root and to voice that above the root.** In other words, a dominant 11th on A could be thought of as a G Major triad voiced above A. **The 11th is usually kept as a common note when resolving to the tonic (see soprano below).***

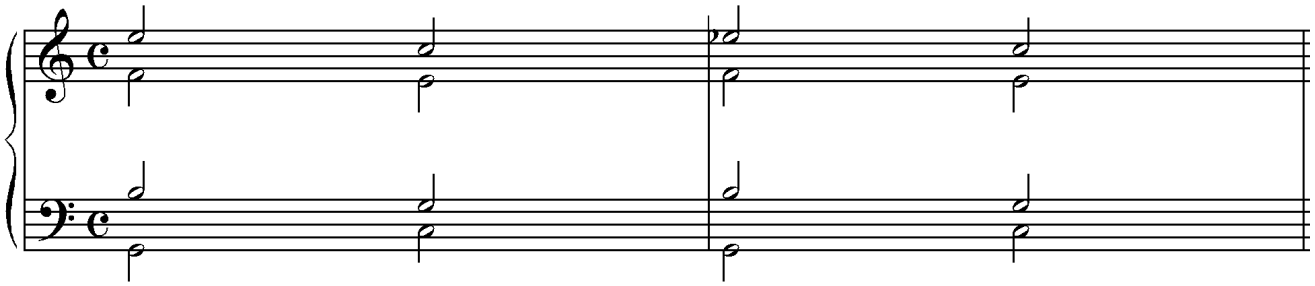
Option 1: R,5,7,11 (omitted 3rd, 9th)

*** (preferred) Option 2: R,7,9,11 (omitted 3rd, 5th)** *(can think of the shortcut above as F over G)*



V11 I V11 I

In a 13th chord, the **root, 3rd, 7th, and 13th** are usually the tones present in 4 voice texture. The 13th may be a major 6th or a minor 6th above the bass. If a minor 6th, the chord is usually shown as V-13. ***The 13th should always be placed above the 7th and normally resolves down to tonic (like the sub 6).***



V13 I V-13 I

Non-dominant 11th and 13th chords are seen often in jazz but are not too common in classical music until Debussy and Ravel in the 20th century. These chords would be shown with the R.N. and the given extension, such as ii^{11} or ii^{13}. The V^{9}, V^{11}, and V^{13} chords are found in both jazz and classical music.

*A V^{13} differs from a Vsub6 due to the presence of the chordal 7th. In general, if no 7th is present, a pitch is considered within the octave and not an upper extension. An example would be an added 2nd or 6th (C E G D, C E G A). If the 7th is present,

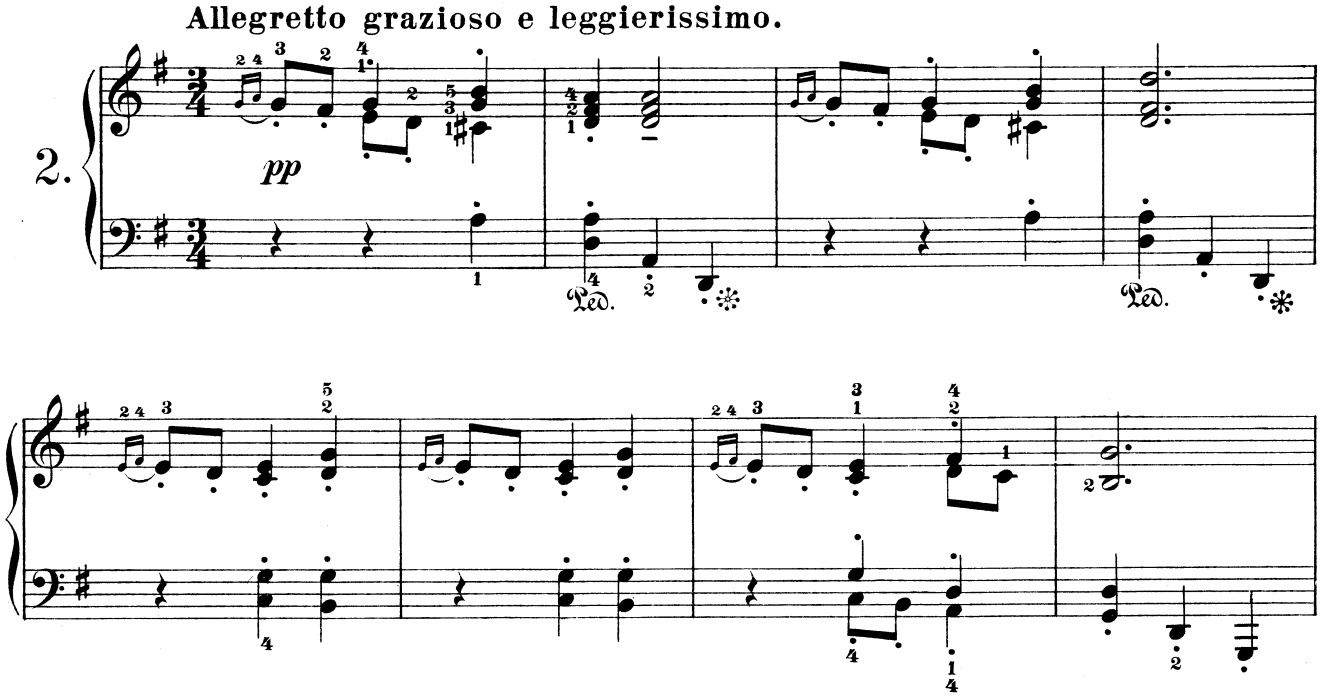
the chord is considered a compound interval and thus an upper tertian extension (C E G B-flat D).

<u>To sum up the common 4-part voicings:</u>

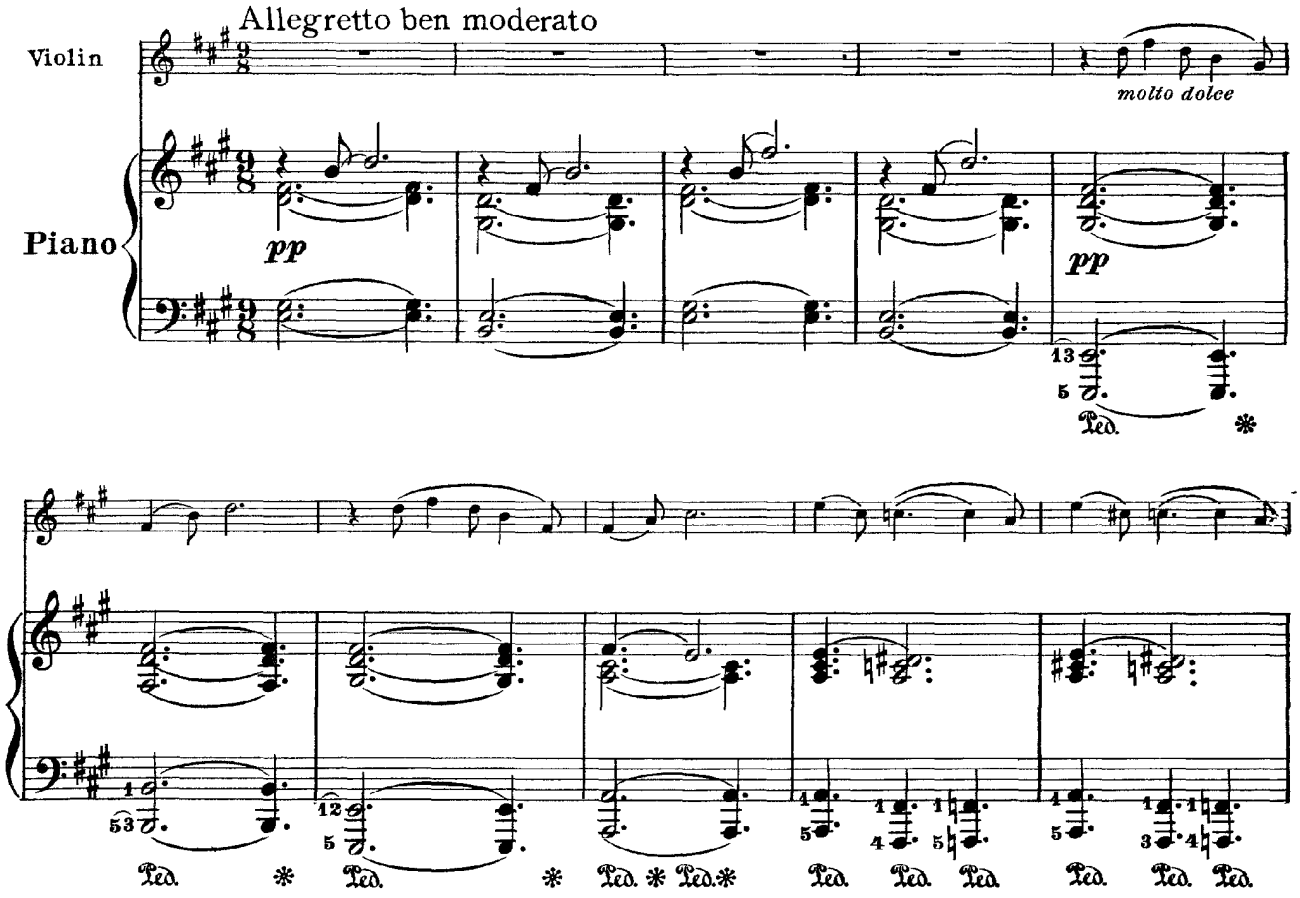
<u>9th chords</u> – root, 3rd, 7th, 9th *The 9th will resolve down by step.*
<u>11th chords</u> – root, 5th, 7th, 11th **or** root, 7th, 9th, 11th ***(can think of a major triad a M2 below the root, voiced above the root)*** *The 11th will be kept as a common note when resolving.*
<u>13th chords</u> – root, 3rd, 7th, 13th *The 13th will resolve down by leap to the tonic.*

Examples

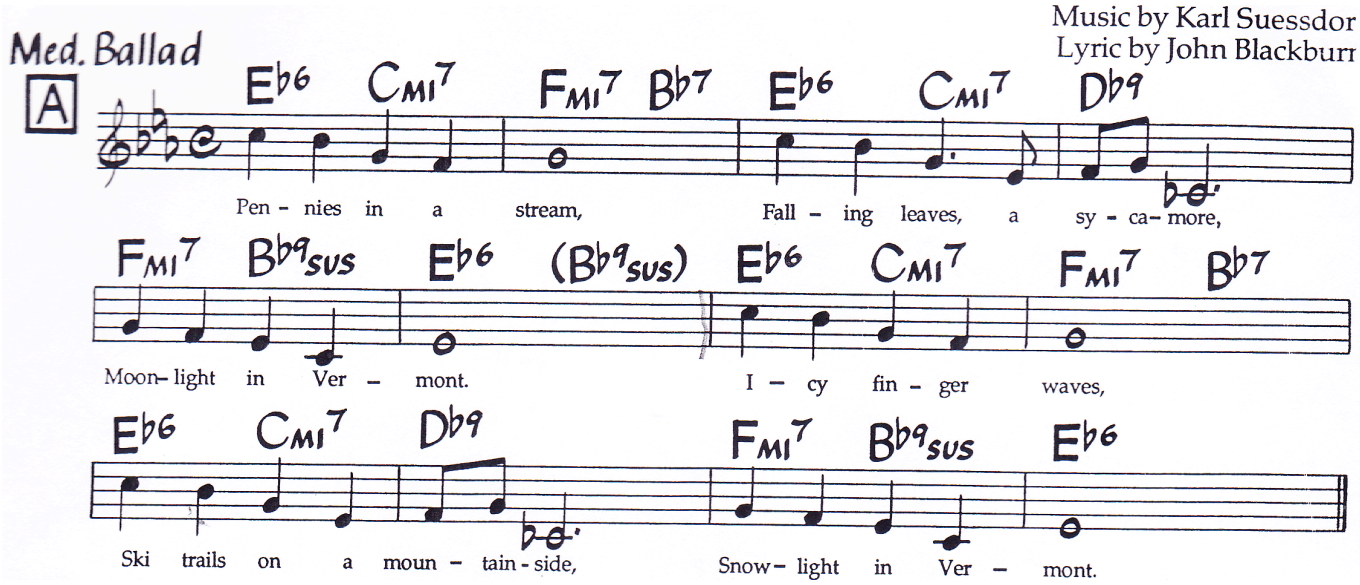
Edvard Grieg: Grandmother's Minuet from Lyric Pieces, op. 68 no. 2



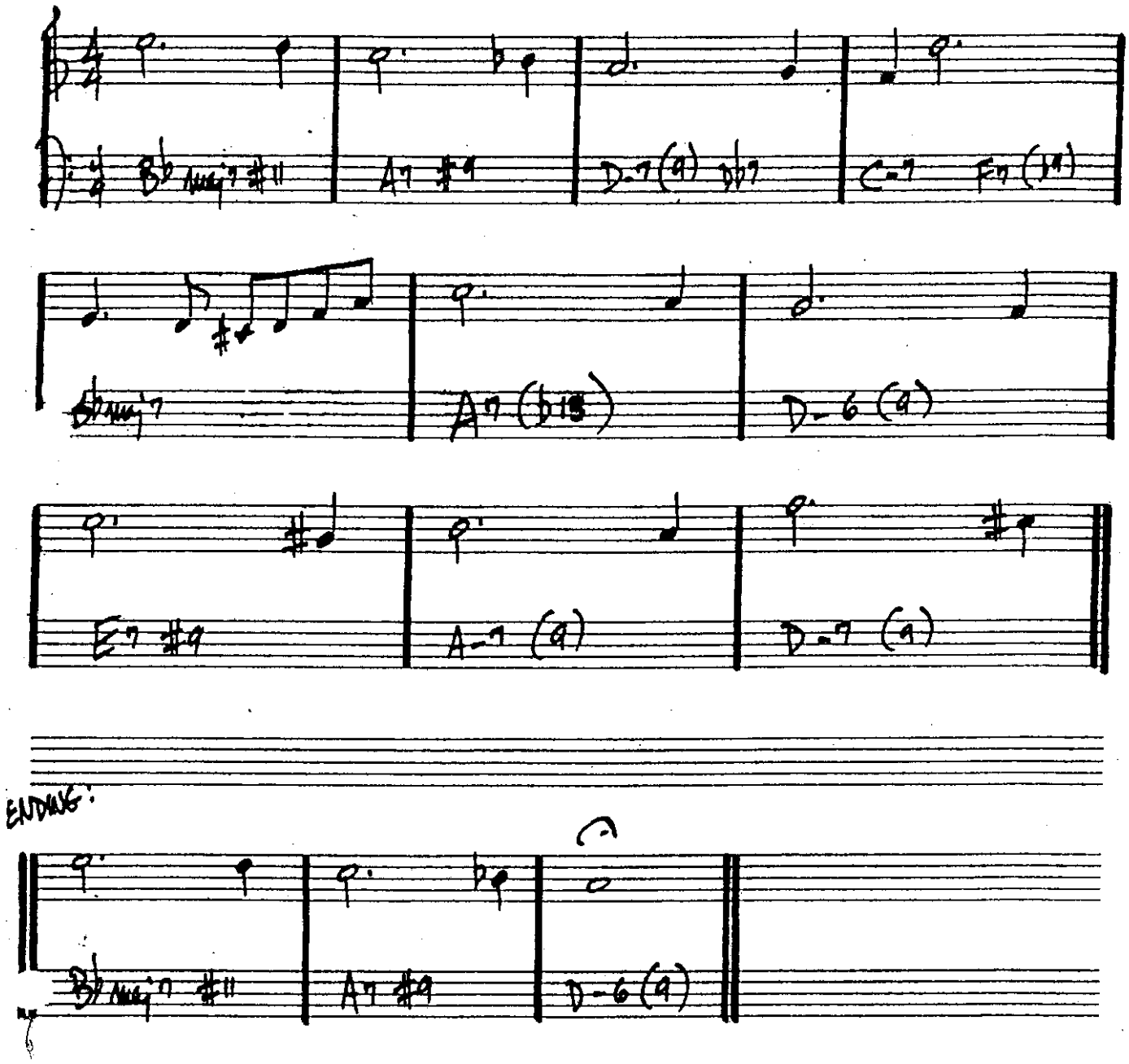
Cesar Franck: Violin Sonata in A Major



Karl Suessdor: Moonlight in Vermont

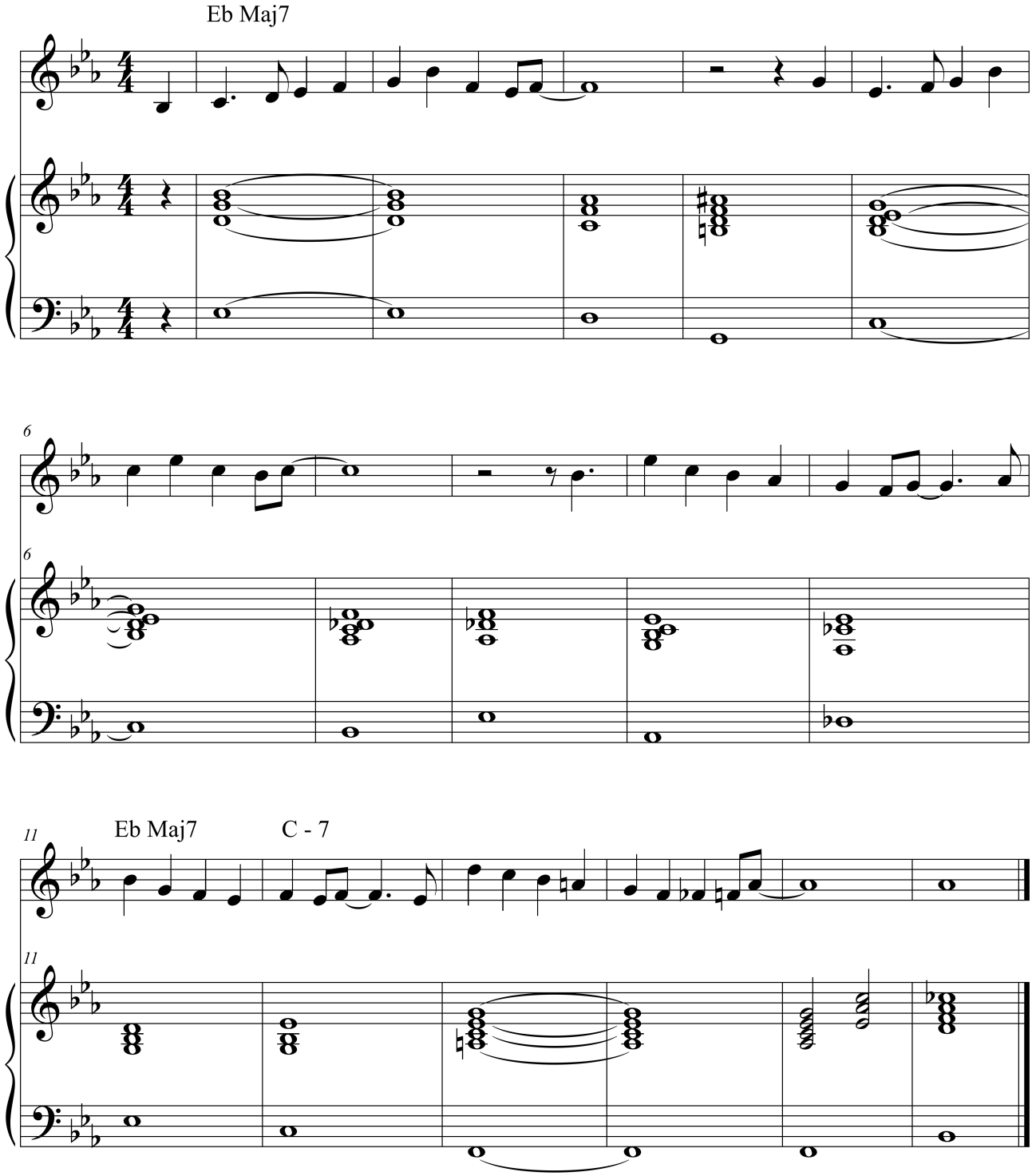


Miles Davis/Bill Evans: Blue in Green (from Kind of Blue, 1959)



Harry Warren: There Will Never Be Another You (see Chet Baker version)

Using jazz chord notation (no RNs), label all harmonies in the example. If a chord is a dominant major 9th, writing C9 is normal, though if the chord is a dominant *minor 9th or #9*, writing C7 ♭ 9 or C7 #9 would be the norm. A minor 9th can be shown as C-9 or C-7 (9). *As is typical with extension chords, these are all in root position.*



Advanced Music Theory – Johannes Brahms

Brahms (1833-1897): Brahms wrote for every primary genre except opera, including four symphonies, a great deal of chamber music, and several concertos. During the late Romantic era, Brahms and Richard Wagner (1813-1883) could be viewed as inhabiting different sides of the musical landscape; Wagner being the more radical composer who stretched tonality and pushed boundaries, and Brahms being the more conservative, backwards-looking composer. That being said, Brahms' use of rhythm and meter was forward-looking, with considerable use of ambiguity of meter and use of polyrhythms. In this way, the music of Brahms is an interesting mix of both progressive and conservative.

From Robert Schumann, Oct. 28 1853 in "New Ways" in the New Music Journal

> …..there should and must suddenly appear one who was appointed to articulate the highest expression of the times, one who would bring us mastery not in gradual developments, but rather, like Minerva, springing fully armored from the head of Zeus. And he came, a youngster whose cradle was watched over by heroes. His name is Johannes Brahms, he came from Hamburg, creating there in dark tranquility, but shaped by an excellent and enthusiastic teacher, who had been recommended to me previously by a known and revered master. He bore all indications, also externally, every sign that would announce to us: this is a chosen one…..We were drawn into ever more magical spheres. There came about an entirely brilliant performance that made the piano into an orchestra with lamentation and loud, jubilant voices. There were sonatas, or veiled symphonies, — songs, whose poetry one would understand without knowing the words, although a deep song melody runs through everything, — particular piano pieces, of a partly demonic nature from the most gracious form, — then sonatas for violin and piano — quartets for strings — and each so different from the other, that they seemed to stream from every possible source, and then they appeared, as he united them, as one roaring current, all as to a waterfall, bearing the peaceful rainbow over the downrushing torrent, where butterflies play about its banks to the accompaniment of nightingale songs.

A reminder/overview of some of the traits we've observed in Romantic era composers (Chopin, Schubert, Schumann, Brahms, etc…)

1. The use of more distant key relationships (including chromatic mediant)
2. More frequent and rapid tonicizations and modulations *
3. The sometimes blurring of harmonies with NCTs that are longer and more frequent
5. Less emphasis on dominant and tonic harmonies
6. More chromaticism and extended tertian harmonies/ coloristic chord progressions (chords that are used for their color rather than their function)

Brahms Violin Sonata Questions

1. What keys are tonicized mm. 4-6, 7-8, 10-11? *Look for dom 7ths! If not a dom 7th, any other chords or progressions that suggest a key?*

2. What is the chord on beat 2 of m.11 (the key is not A)? What do you notice about the voice leading that is unusual?

3. In the home key of A, what is the chord on beat 2 of m.12?

4. After moving around considerably, the music lands back on a strong tonic chord in A at m. 21. Why this measure? What happens here?

5. What are the phrase lengths of opening 10 measures?

6. In the home key of A, provide a RN analysis of m.12-13.

7. In the home key of A, provide a RN analysis of m. 17-20.

8. What is happening rhythmically at mm.13-14 and mm. 18-19? Consider that the written meter is 3/4 – do these measures feel like 3?

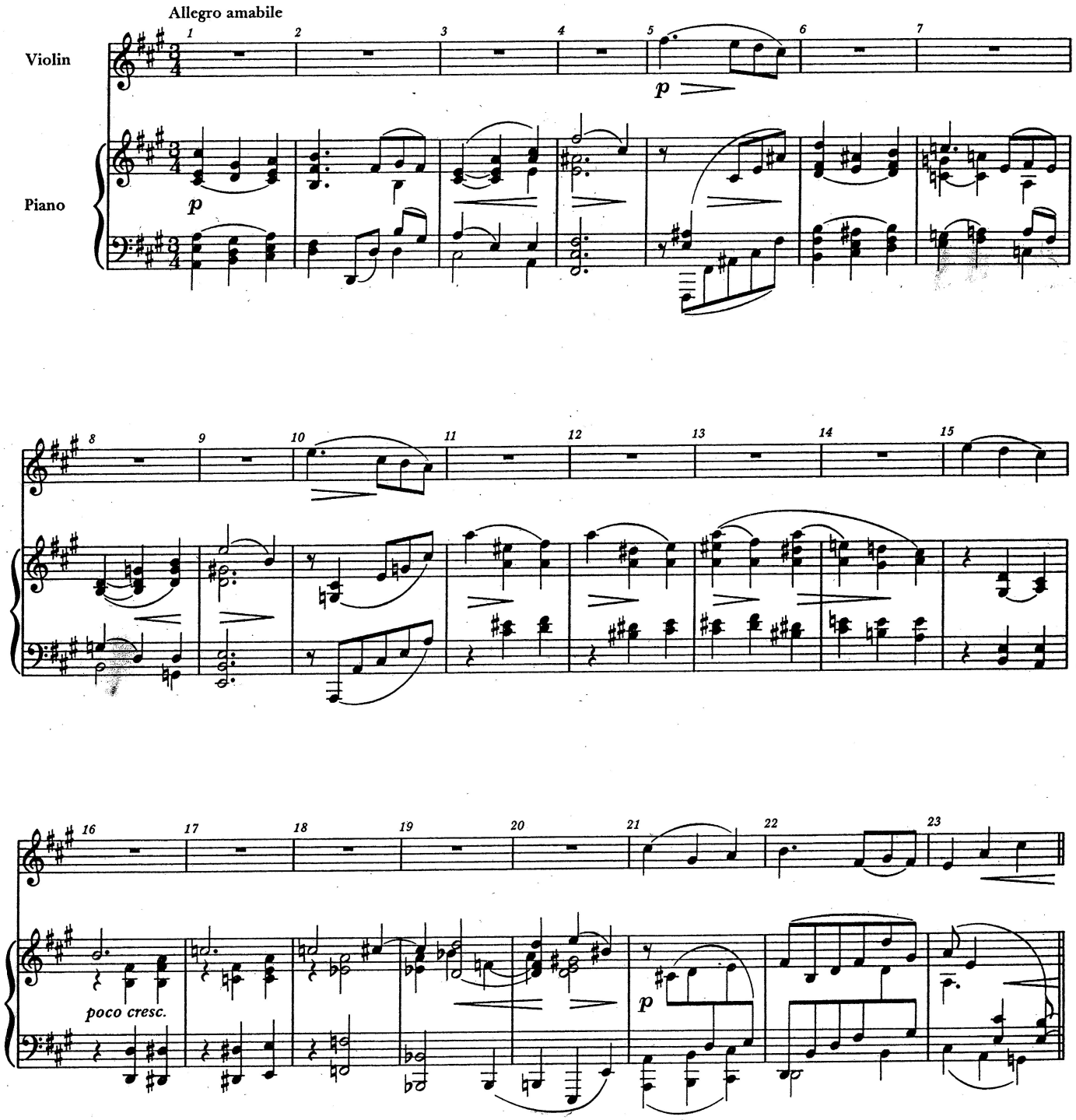
Wagner and Prelude to Tristan and Isolde

Wagner (1813-1883) was one of the most influential composers of the late Romantic era. His music is quite different from Brahms, whose music had much in Common with Classical and earlier Romantic era composers. Wagner's music was often tonally ambiguous and can be viewed as pointing the way forward to music of many 20th century composers. While retaining aspects of traditional tonality, he stretched tonality to extremes not seen in other composers in the middle of the 19th century.

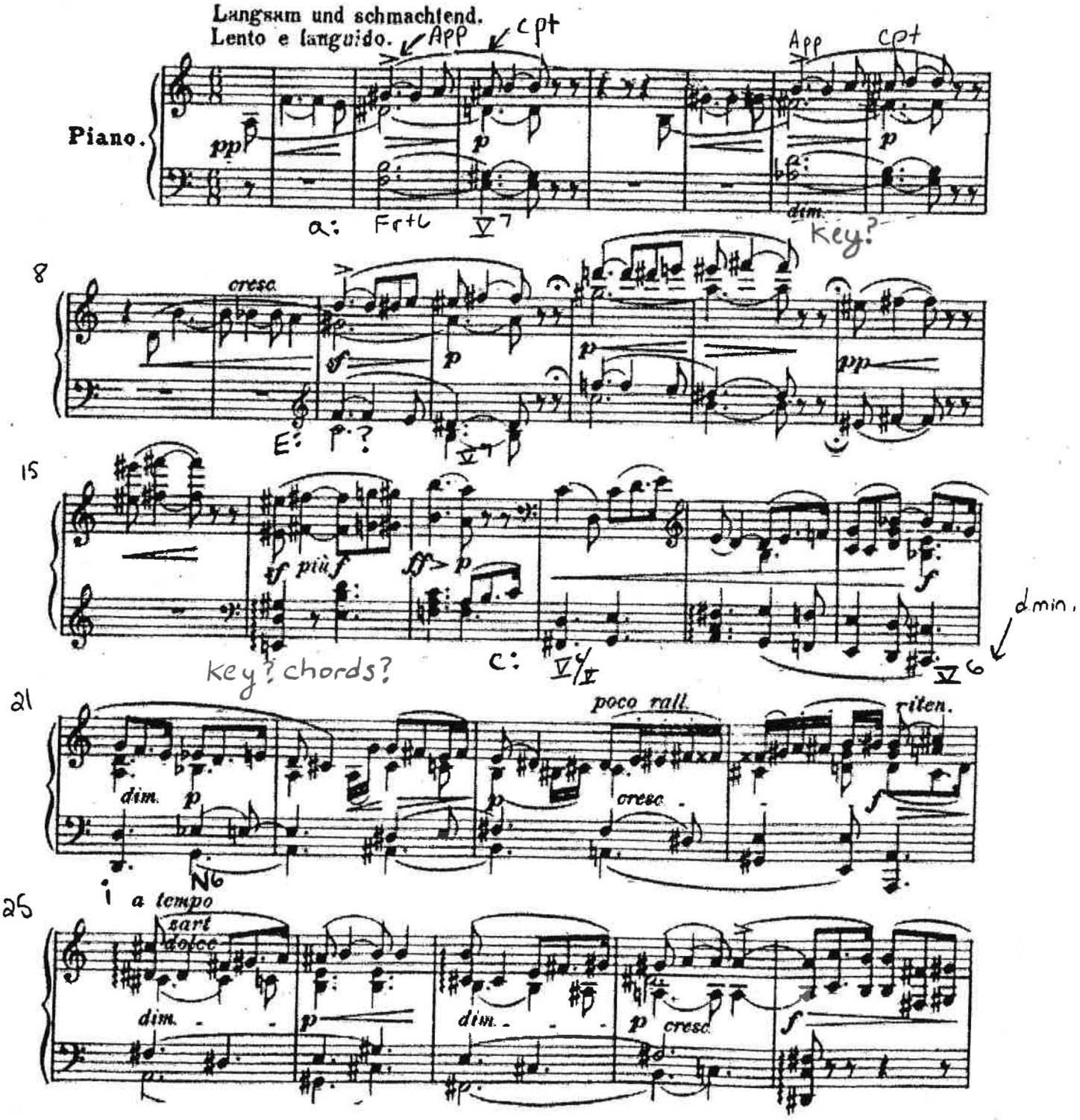
Ambiguity can be defined as: 1) vague, doubtful, unclear, uncertain
2) capable of being understood in two or more ways

In what ways do you think music can be ambiguous?

Brahms: Violin Sonata, op. 100



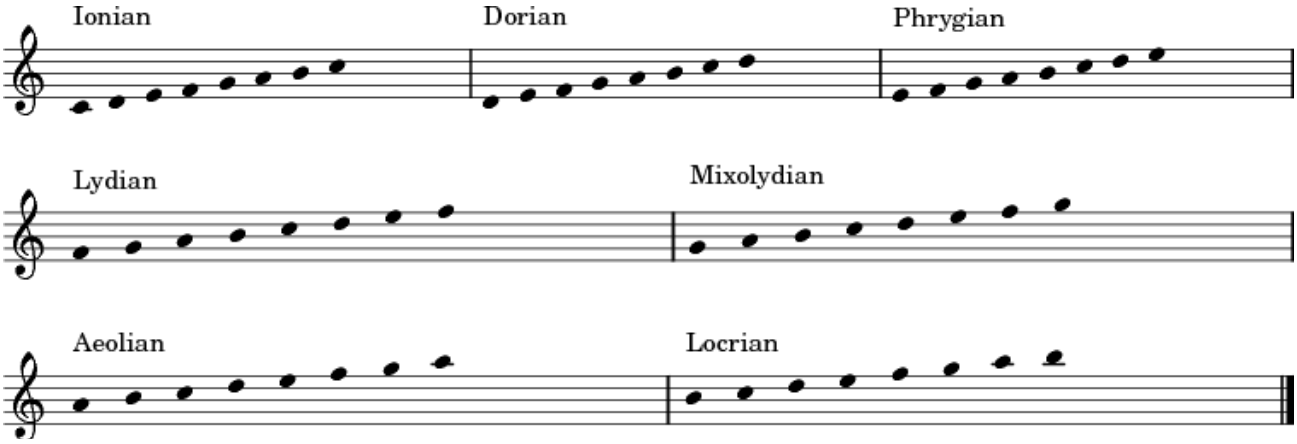
Advanced Music Theory – Wagner's Tristan and Isolde (1859)



Advanced Music Theory – Modes

At the dawn of the century (and slightly before), Debussy composed works that were both a step away from the music of the 19th century and also an extension of the Romantic era. With Debussy, we see the major/minor stronghold start to disappear with the re-adoption of the church modes (which had not seen much use in 300 years), the use of new scales (the whole tone and octatonic scales), and an avoidance of traditional harmonic practices. Many of these modes (as well as the whole tone and octatonic scales) do not make use of one of the primary traits of music from the Baroque period through the Romantic era – the leading tone.

Impressionism in music was a movement among various composers in Western classical music, mainly during the late 19th and early 20th centuries, whose music focuses on suggestion, atmosphere, mood, and ambiguity. The two composers most associated with the impressionist movement (a term not coined by the composers themselves) are Debussy (1862-1918) and Ravel (1875-1937). Though these composers share similarities, there are many differences between the music of Ravel and Debussy.



While modes existed before major and minor scales, it can be useful to think of. modes by the differences to major and minor scales.

Minor modes
D-D = Dorian (natural minor with raised 6th)
E-E = Phrygian (natural minor with lowered 2)
A-A = Aeolian (same as natural minor, the 6th and 7th scale degrees are not flexible as in minor)
B-B = Locrian (natural minor lowered 2,5)

Major modes
F –F = Lydian (major with raised 4)
G-G = Mixolydian (major with lowered 7)
C-C = Ionian (same as Major, though without typical scale degree function, usually lacks functional harmonies)

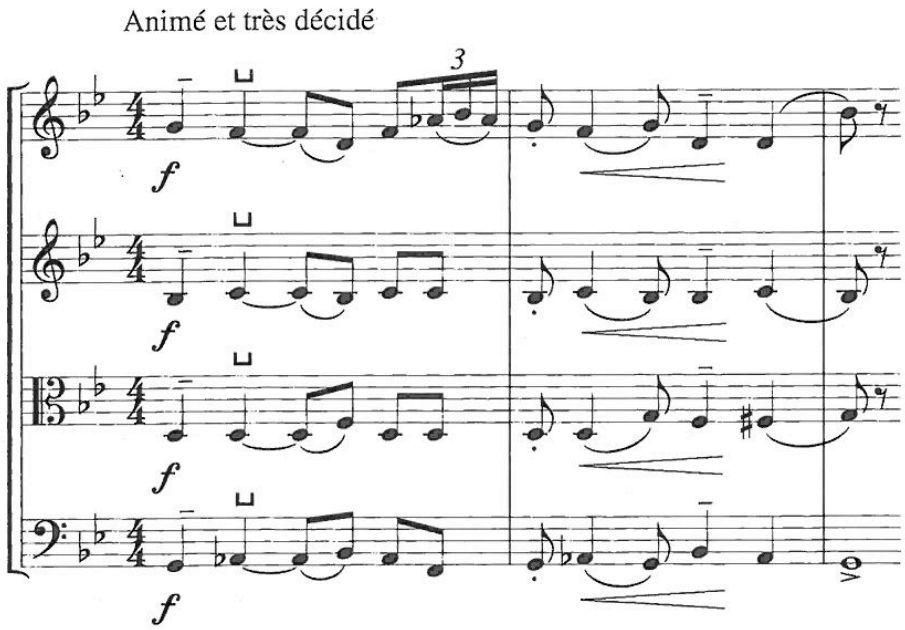
An acronym to help remember the modes on the white notes starting on C is:

I **D**on't **P**unch **L**ike **M**uhammad **AL**i

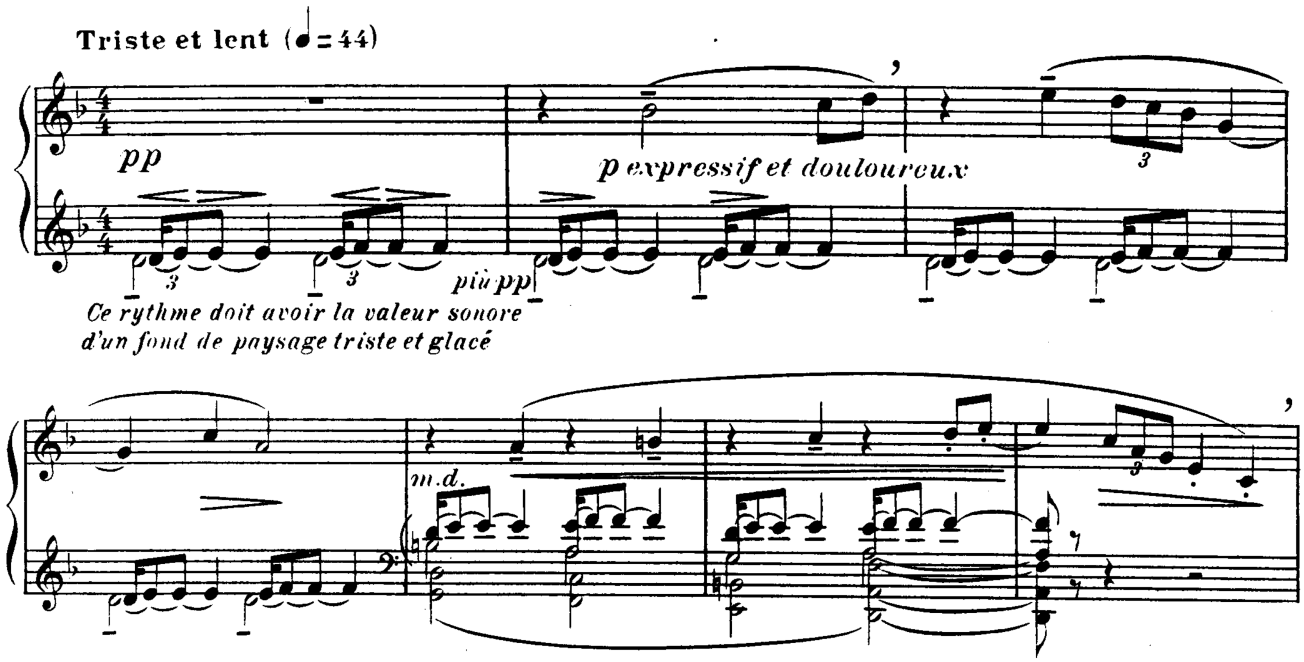
(Ionian, Dorian, Phrygian, Lydian, Mixolydian, Aeolian, Locrian)

What mode is being used in each excerpt?

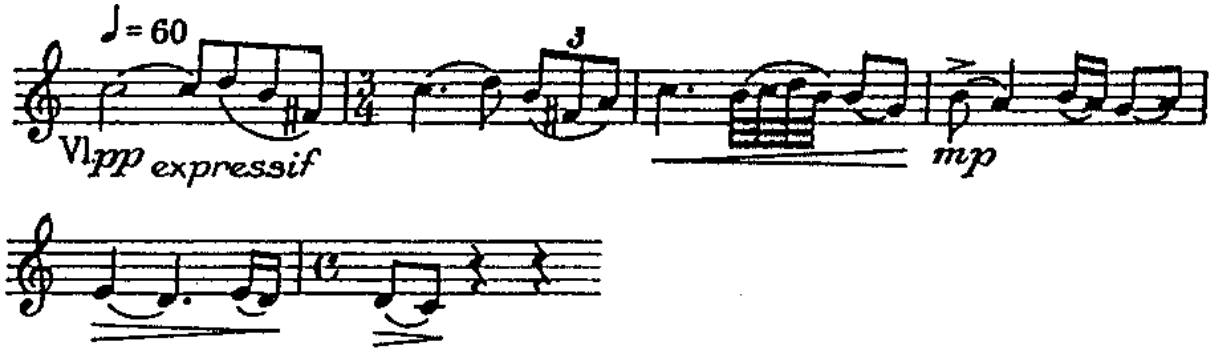
Debussy: String quartet op. 10



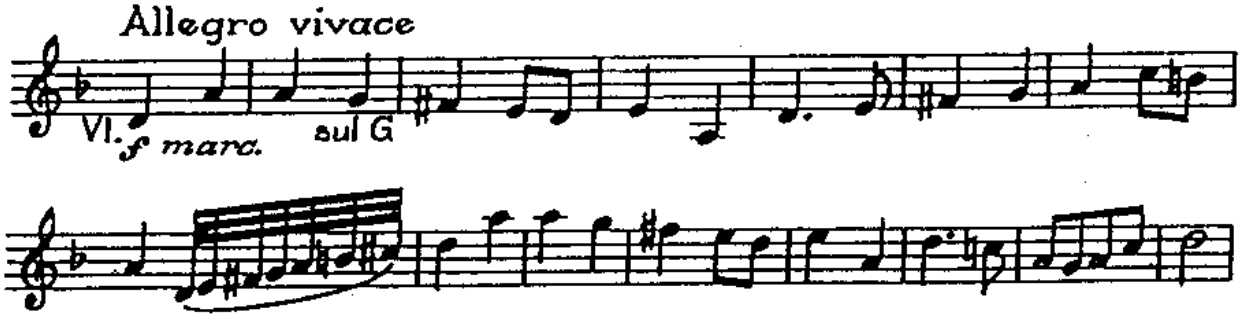
Debussy: Preludes Book 1: Footprints in the snow (Des pas sur la neige)



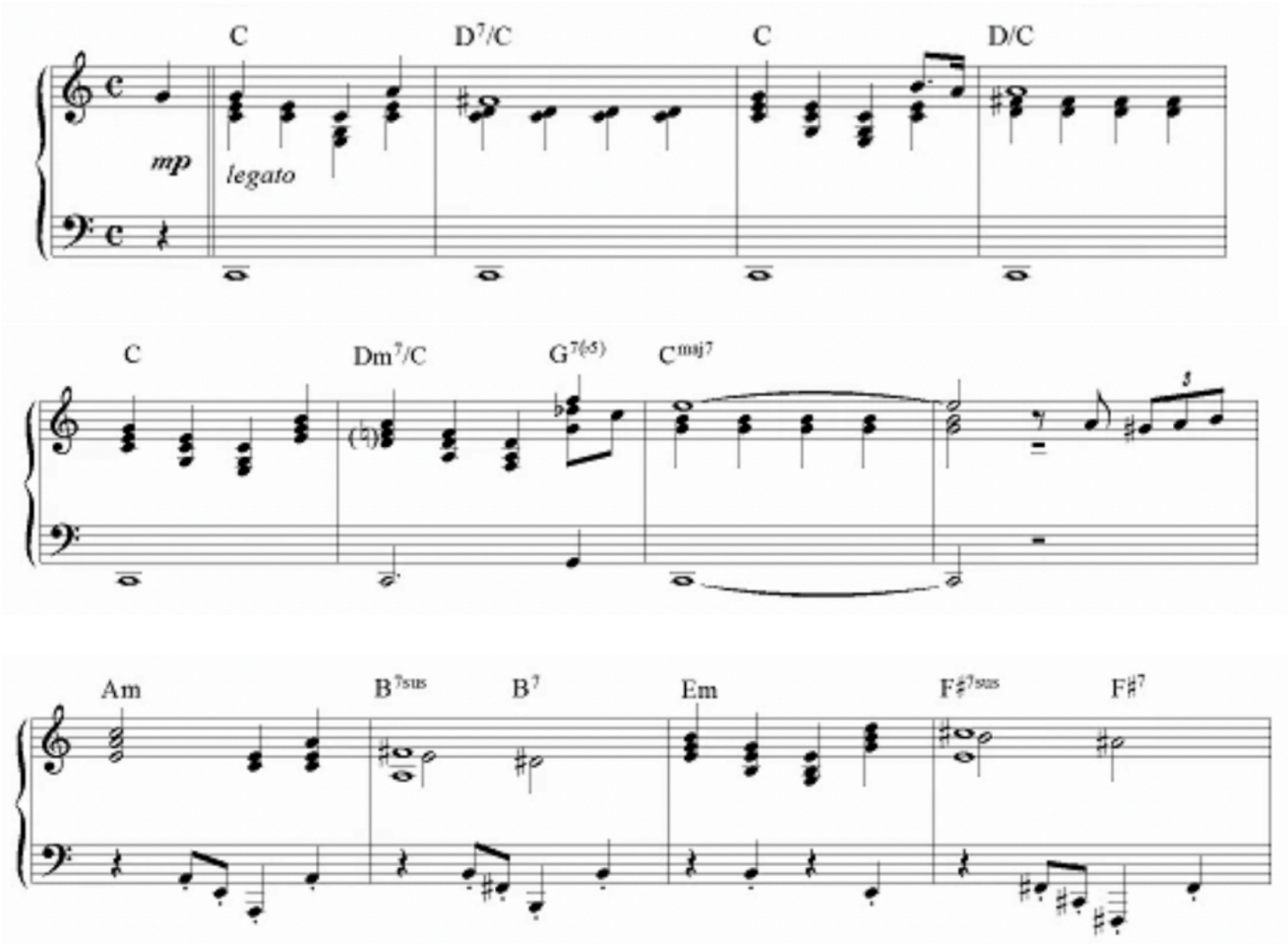
Ravel: String Quartet in F (1903) p. 30



Vaughan Williams: The Wasps Overture (1909)

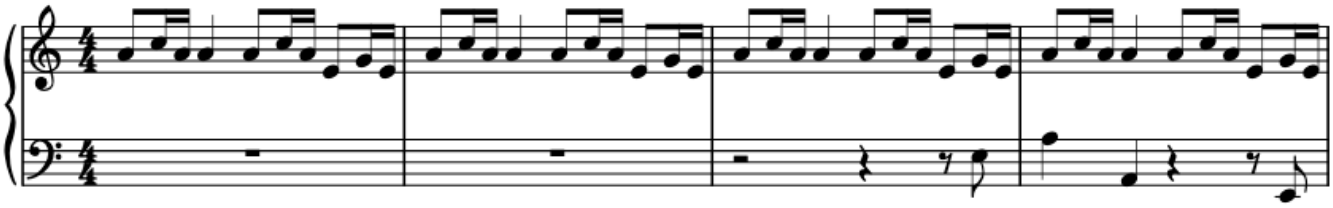


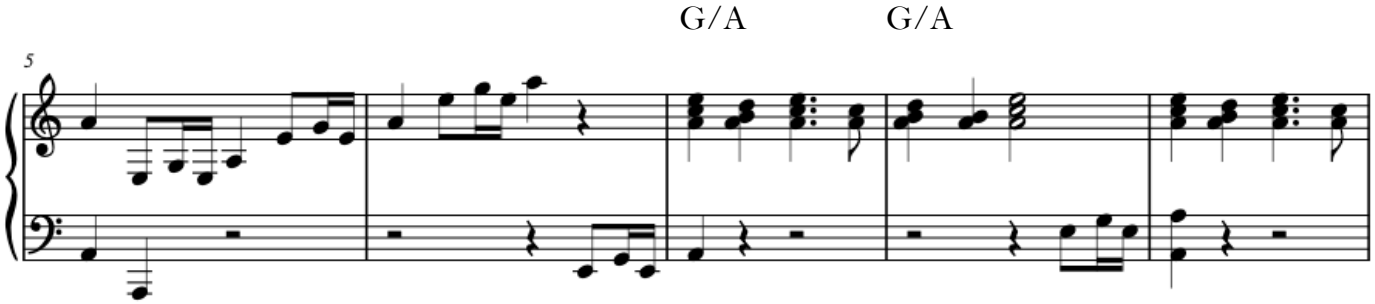
John Williams: Yoda's theme



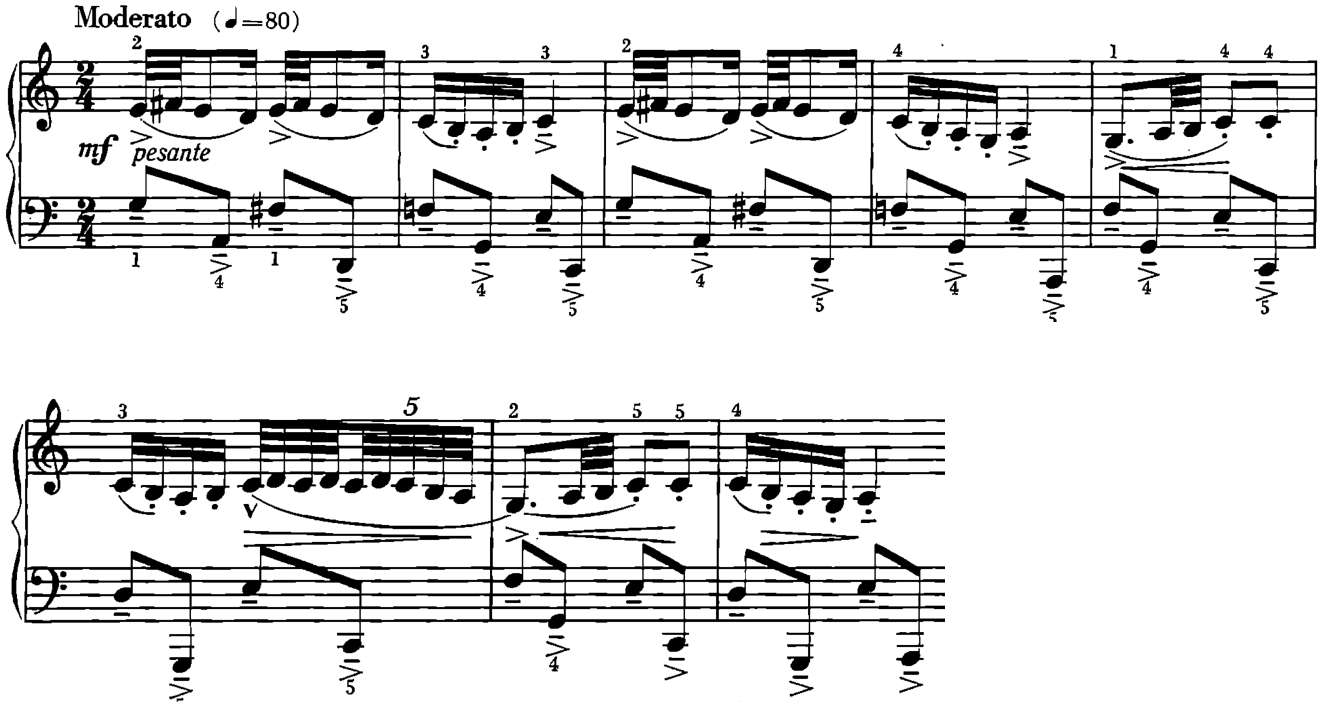
John Williams: Rey's theme
There is a change that emphasizes dorian with a D major chord shortly following this excerpt. Can you hear it?

Am





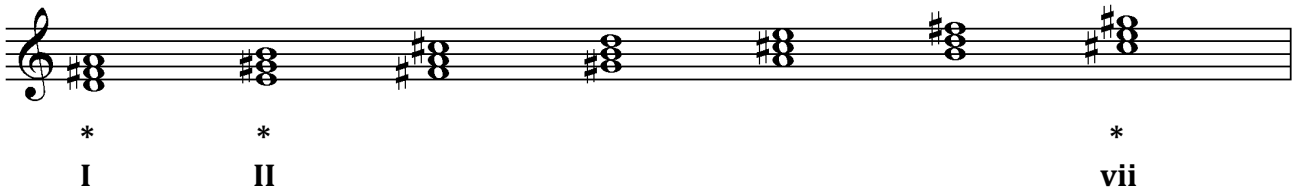
Bartok: Piano Sonatina (1915)



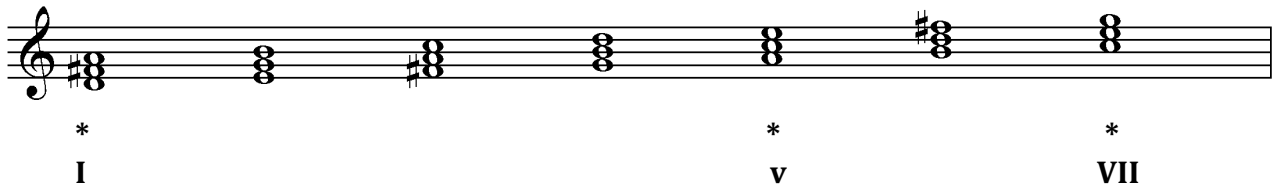
Modal Harmonies

*** primary chords (tonic chord and chords with the characteristic scale degree)**

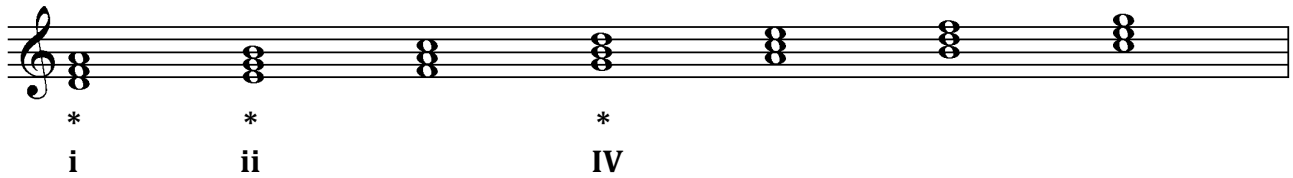
Lydian



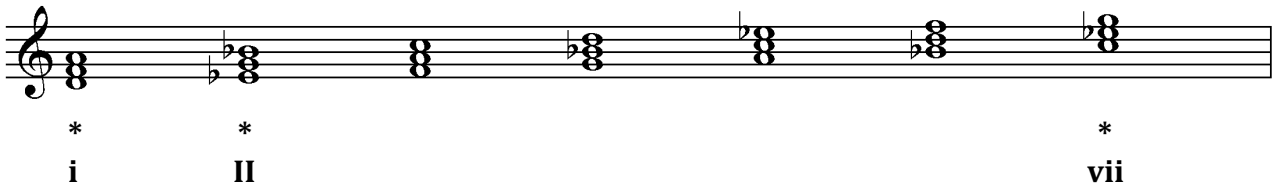
Mixolydian



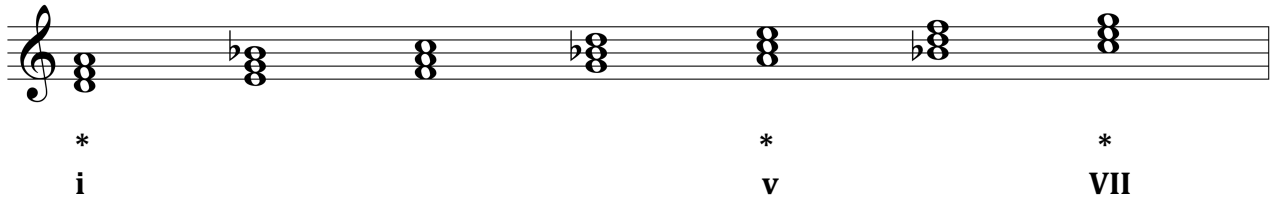
Dorian



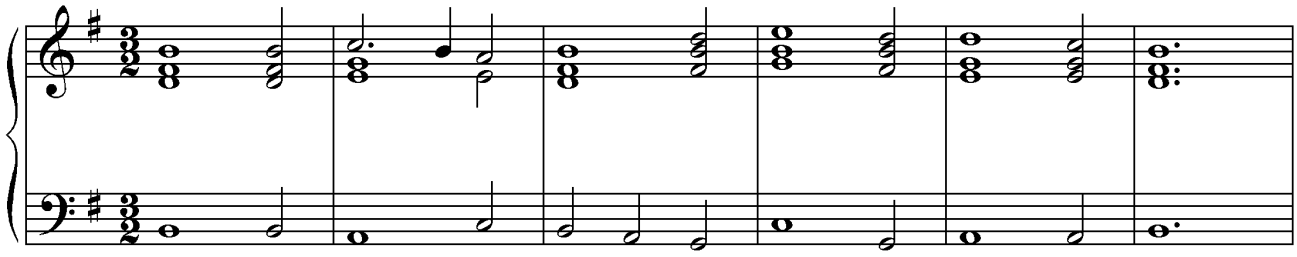
Phrygian



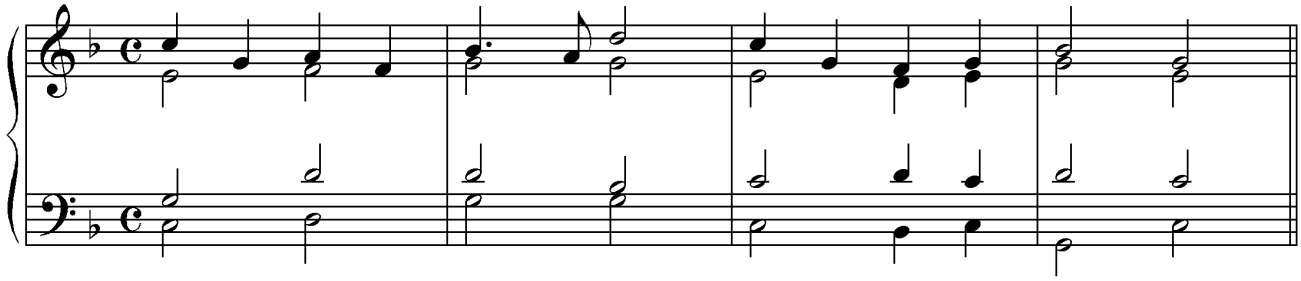
Aeolian



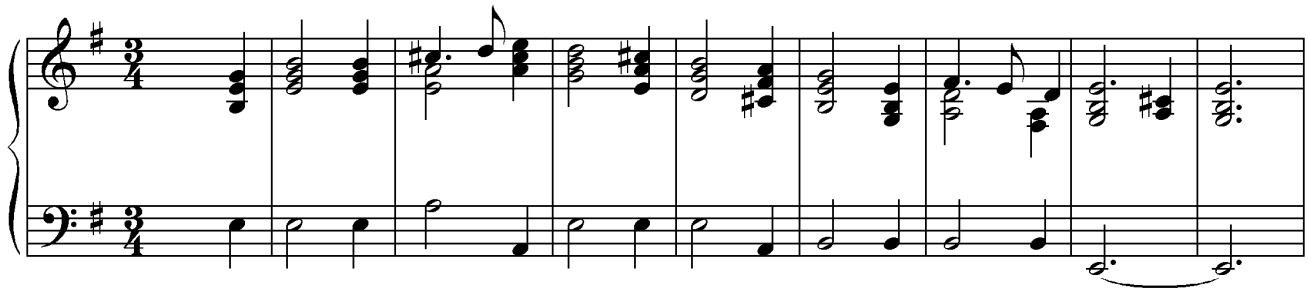
1) From Music for Ear Training by Horvit, Koozin, Nelson



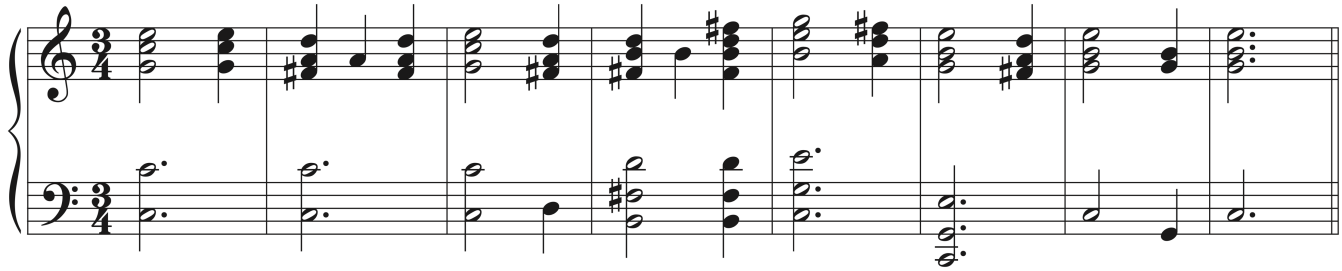
2)



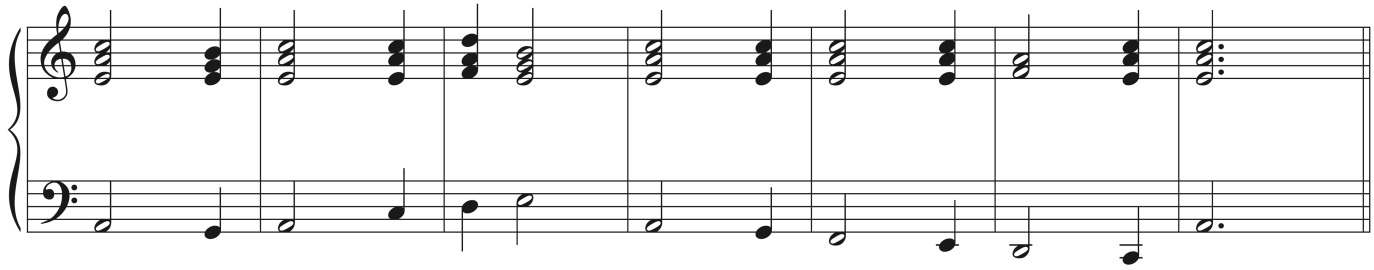
3) From Music for Ear Training by Horvit, Koozin, Nelson



4)



5)

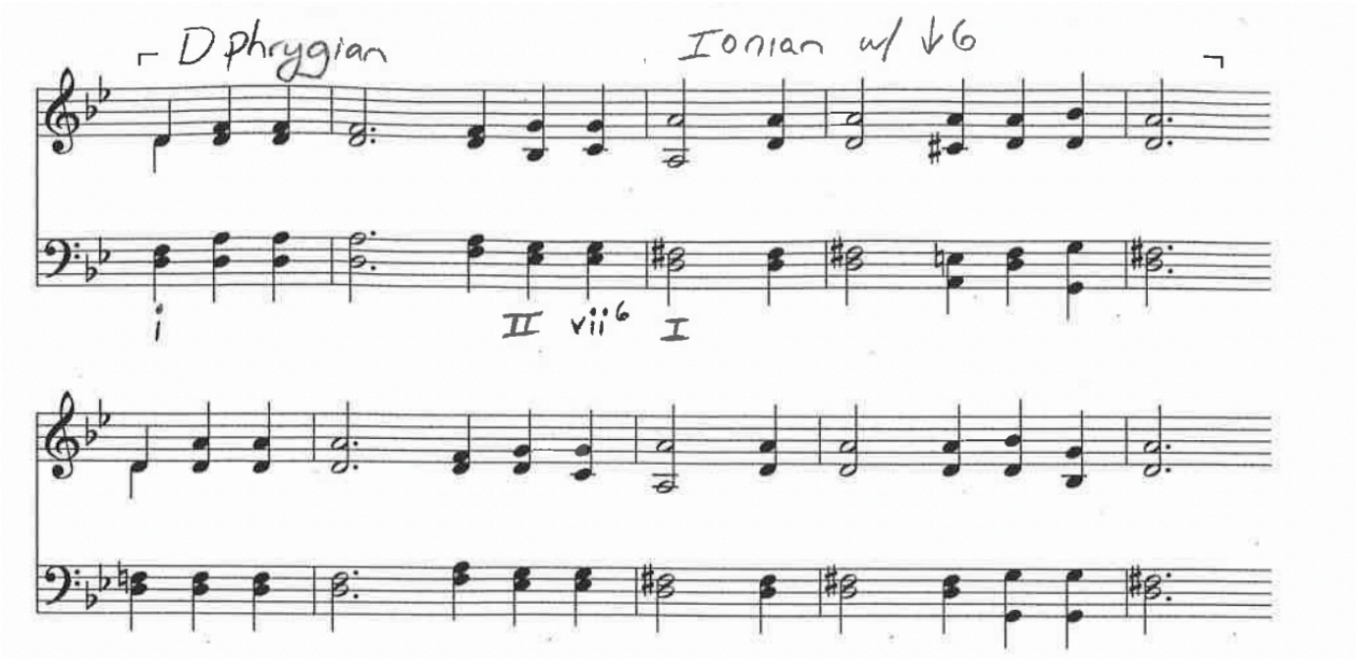


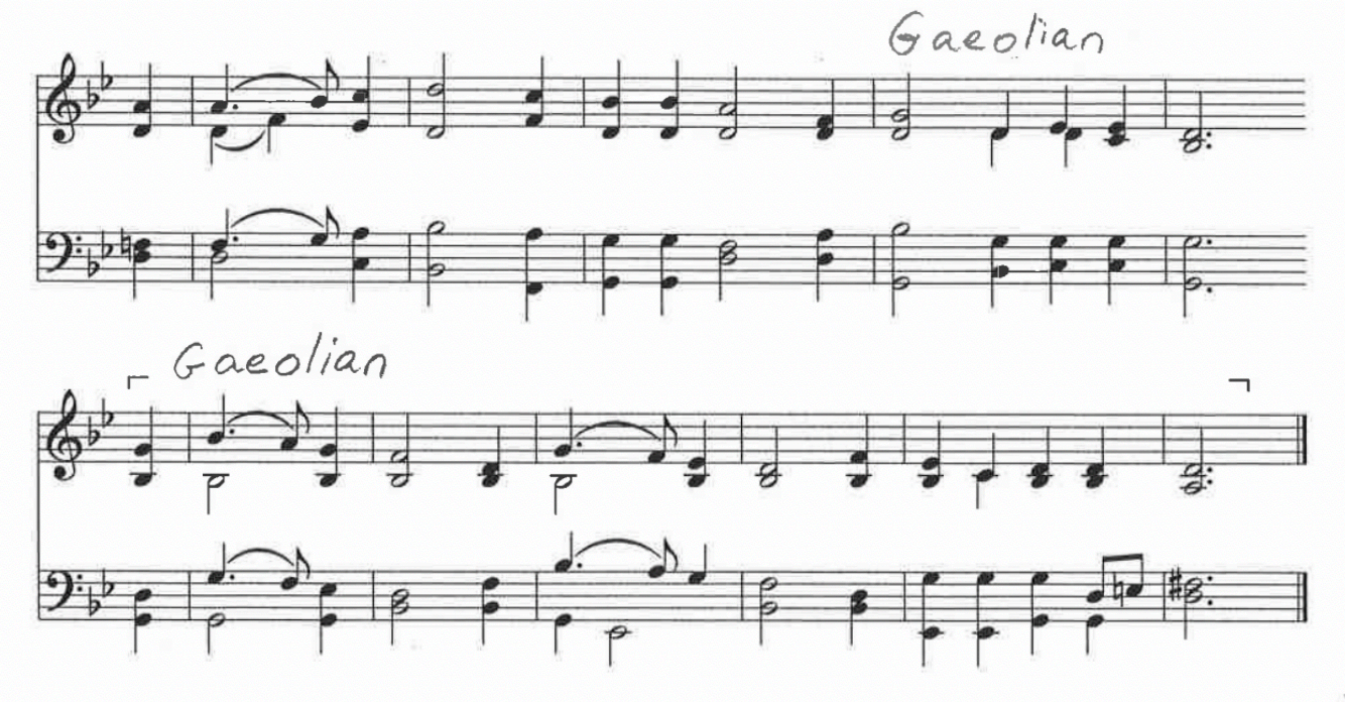
Thomas Tallis: My Sould Finds Rest in God Alone (1561)

From the guardian.com
The Fantasia on a Theme by Thomas Tallis is time travel enacted in music, a temporal bridge between the Tudors and the modern Edwardians. It operates in space as well as time. Vaughan Williams divided the string section into two blocs which throw call-and-response repetitions at each other as if from either side of the choir stalls. A quartet occasionally rises up, but in the opening bars all are united, drawing a veil of mystic chords around the listener. Tallis's lines are furtively picked out in the lower register, and then all strings rhapsodically "sing" the tune in one of the composer's most lustrous, luminescent pieces of writing. Recurring throughout is an ascending phrase in the Phrygian mode – a scale Vaughan Williams detected repeatedly in English folk music. This motif, sounding like an ecstatic awakening, obsessed him……. The *Fantasia* contains many of Vaughan Williams's trademarks, particularly the way he whets his chord harmonics with the flattened seventh, a staple of English folk, and the minor third, the key feature of *Tallis*'s setting. The piece also makes use of "Picardy thirds", an emotive trick common in Renaissance music, whereby a minor key suddenly stabilises into a major, punching home with the force of a revelation.

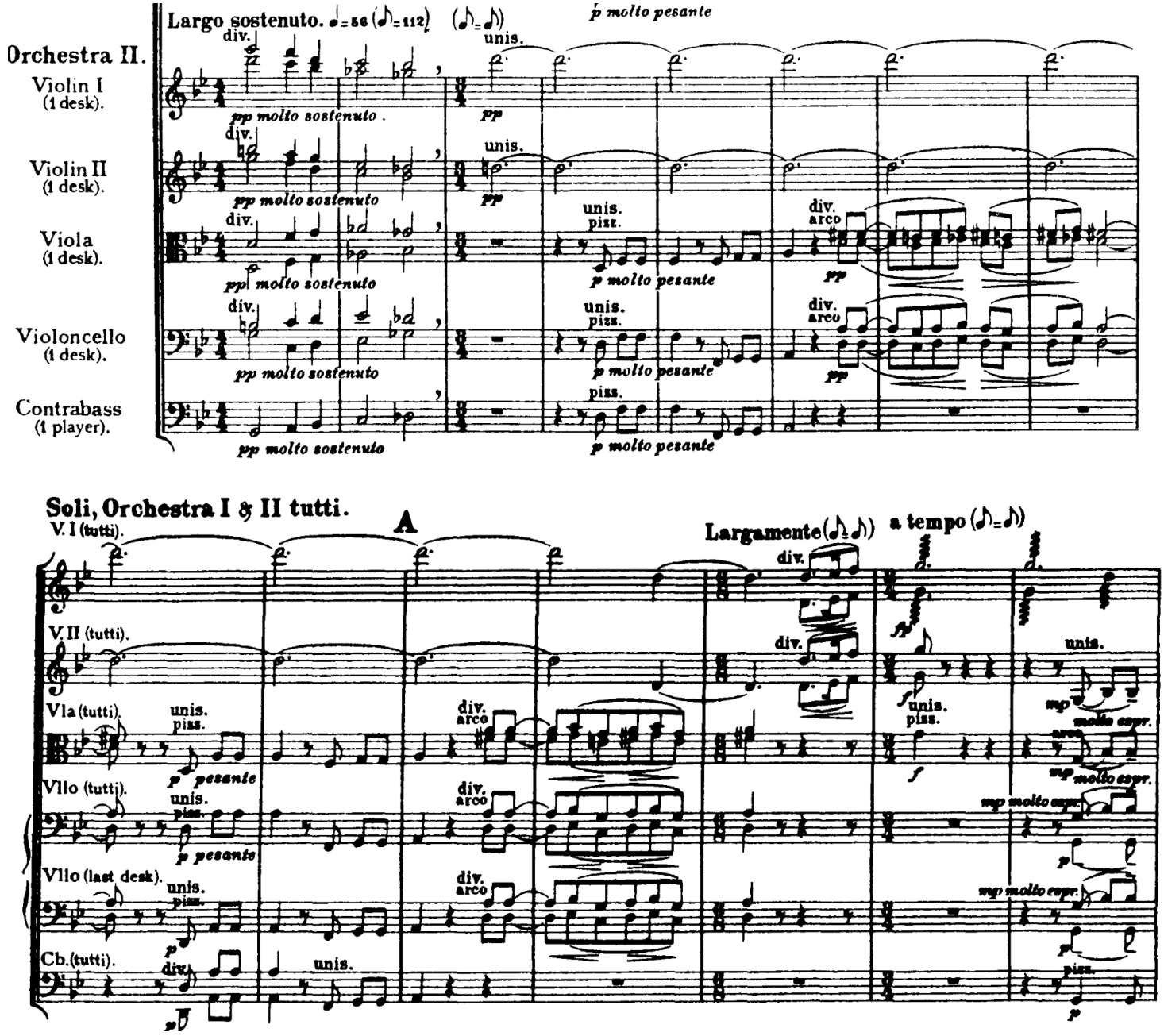
From pianistmusings.com
Known for interjecting English folk and Renaissance stylings into his music, it's no surprise that Vaughan Williams composed an entire work based on a Renaissance theme. In the *Tallis Fantasia*, he combines minor third intervals (from Tallis's theme) with flattened seventh intervals (a characteristic particular to English folk music) and Picardy thirds (a Renaissance technique where minor thirds become major thirds). All of these ideas work together, shifting the tonality of the work and adding color and mystery to the atmosphere.

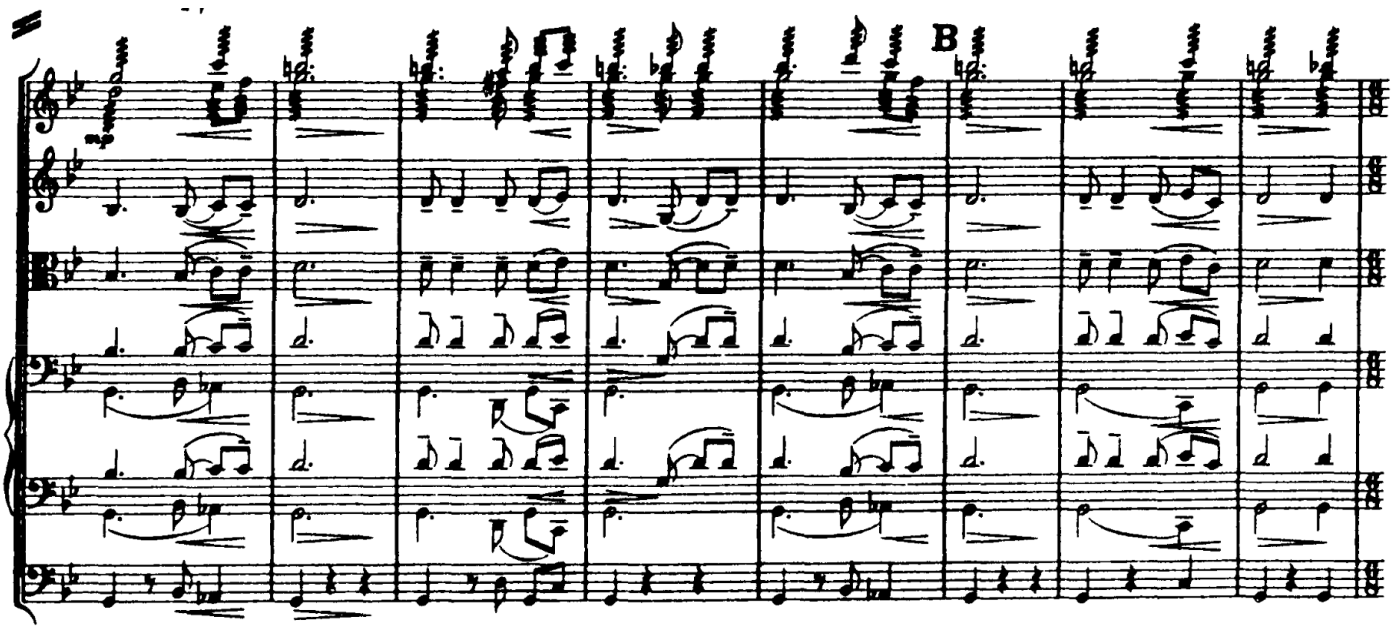
Vaughan Williams scored his *Fantasia* for an expanded string orchestra divided into three parts: 1) a full-sized string orchestra, 2) a small group composed of a single player from each string section, and 3) a string quartet. Ideally, these orchestras are placed apart from each other in the performance venue to imitate the sound of an organ. This also allows for an eerie change in texture when the music transitions from the full orchestra to the small.


D phrygian
Ionian w/ ♭6
i
II vii°6 I


Gaeolian
Gaeolian

Vaughan Williams: Fantasia on a Theme by Thomas Tallis



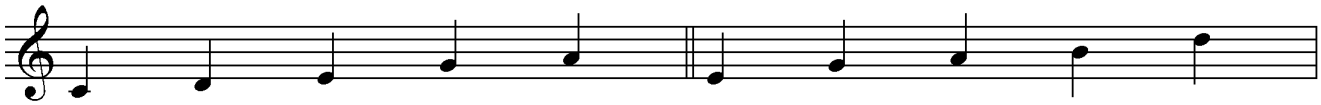


Advanced Music Theory - The pentatonic, whole tone, and octatonic scales

Pentatonic scales are 5-note scales, the most common of which contain no half-steps. The major pentatonic and minor pentatonic scales are the most common and can be seen clearly on the black notes of the piano, starting on G-flat (major pentatonic) and E-flat (minor pentatonic). The major pentatonic can be thought of as a major scale that is missing the 4th and 7th note. The minor pentatonic can be thought of as the natural minor scale without the 2nd and 6th.

Intervals: M2, M2, m3, M2 (do-re-mi-sol-la)

Intervals: m3, M2, M2 m3 (do-me-fa-sol-te)

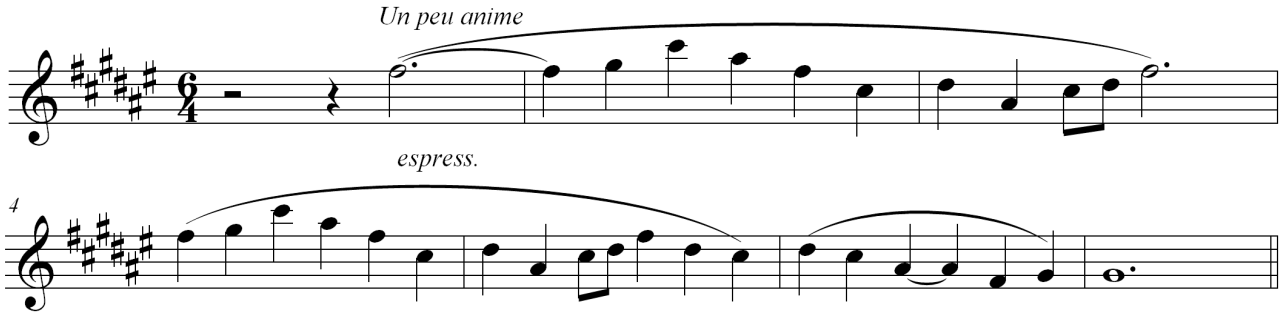


major pentatonic

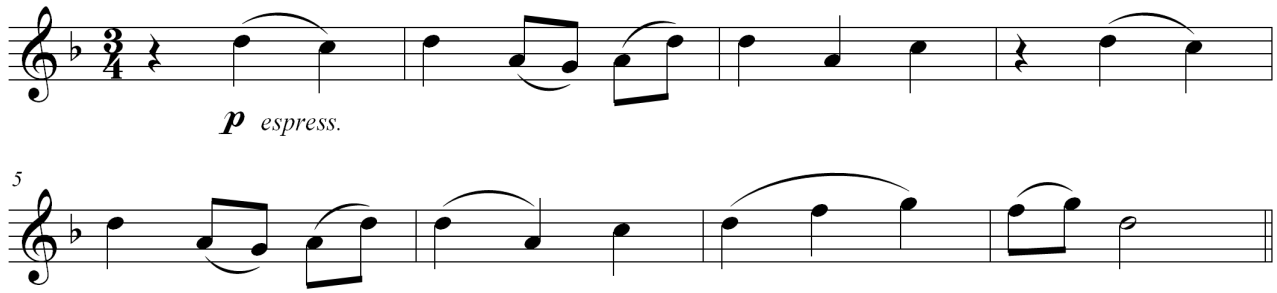
minor pentatonic

The lack of leading tone and half-step tendencies of the pentatonic scale made these scales attractive to many composers. Many folk tunes use pentatonic scales and composers often use these scales to give their music a folk-like quality. These scales are also sometimes used by composers to evoke the sound of the orient.

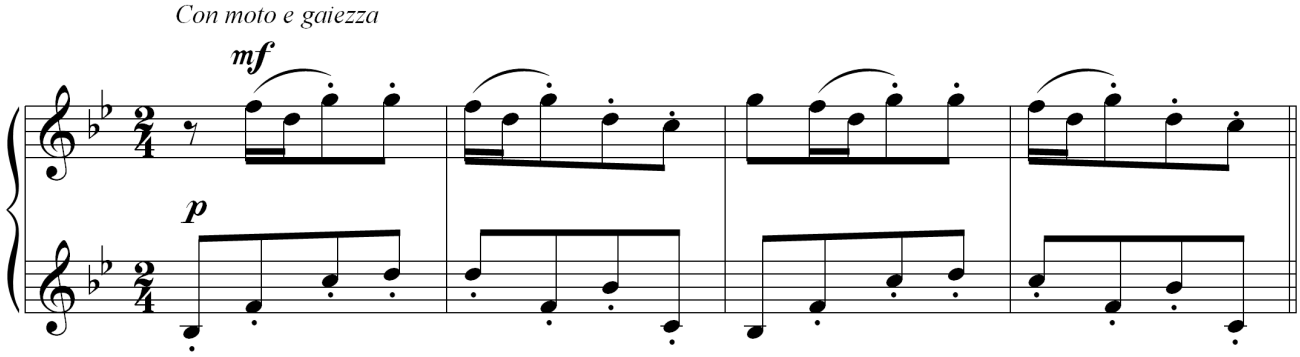
Debussy: *Nuages* from *Nocturnes* (1899) 4:27



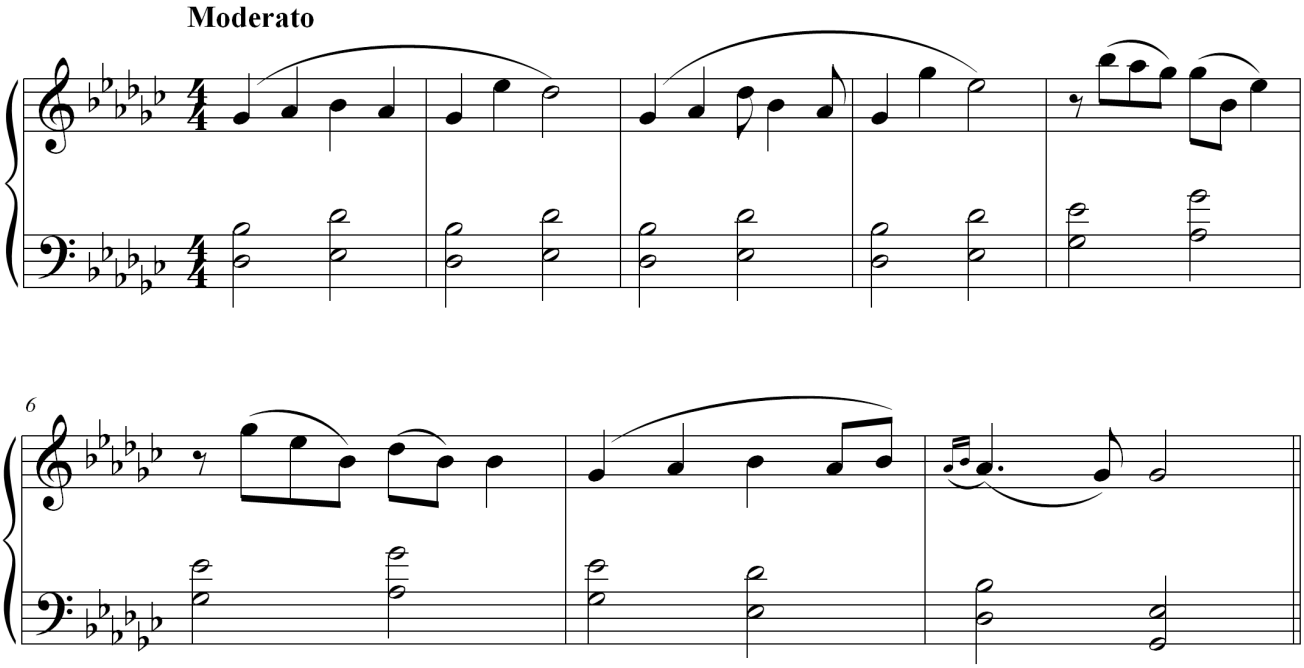
Ravel: String Quartet in F 4th mvt. (1903) 0:55



Charles T. Griffes: So-fei Gathering Flowers



Milhaud: Touches Noires



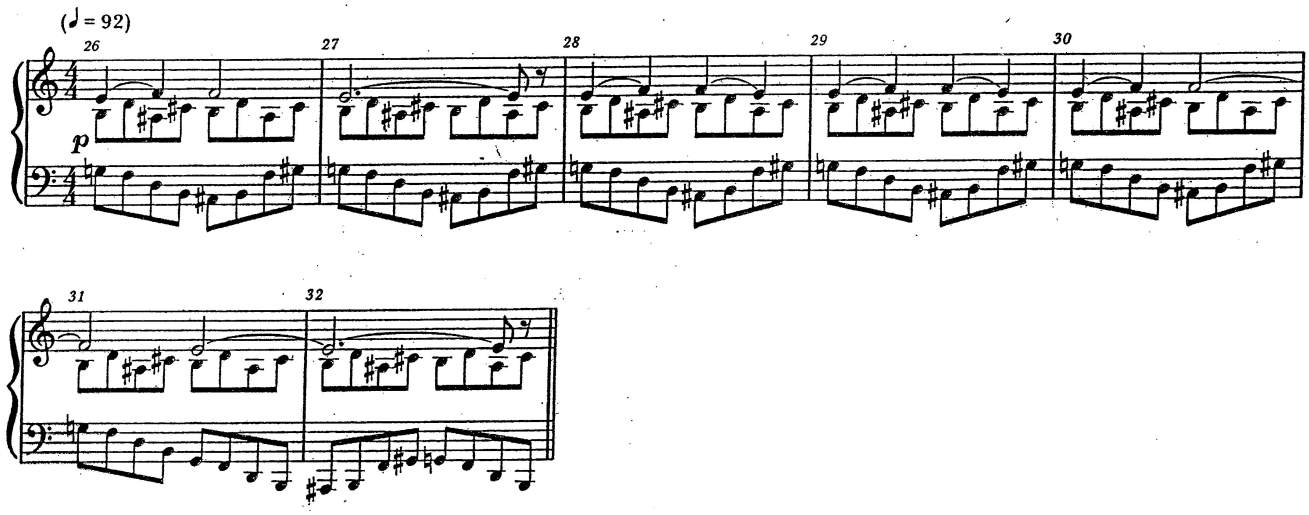
The **<u>whole tone scale</u>** is a 6-note scale built entirely of whole steps. Composers are attracted to the whole tone scale for its lack of gravitational pull to any note, resulting in an ambiguous and dreamy sound. **Augmented triads** can be built on any note of the scale. Enharmonic spelling is not important in this scale and there will need to be the interval of a diminished 3rd somewhere (A#-C and D#-F below)

There are only two whole tone collections – starting on other pitches will duplicate these:

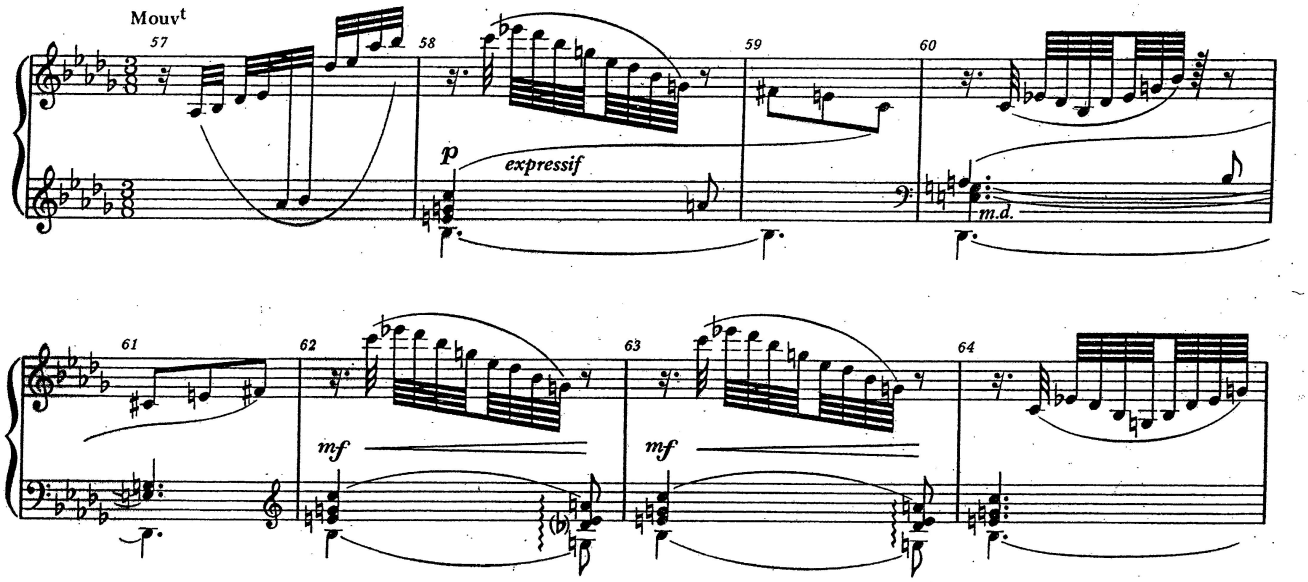
1) C, D, E, F#, G#, A# (known as WT0)
2) C#, D#, F, G, A, B, (known as WT1)

The **<u>octatonic scale</u>** features alternating whole steps and half steps (it can start with either a whole step or half step). There are **only three octatonic collections before pitches duplicate** and a **fully diminished 7th chord can be built on any pitch of the scale**. This scale is often known as the diminished scale in jazz due to the fact that the scale juxtaposes two fully diminished 7th chords. Impressionists such as Claude Debussy and Maurice Ravel used this scale to blur tonality and create "washes of sound." Russian composers of the late 19th century and early 20th century were also fond of this scale and use of the octatonic scale can be found in works by Rimsky-Korsakov, Igor Stravinsky, and Alexander Scriabin.

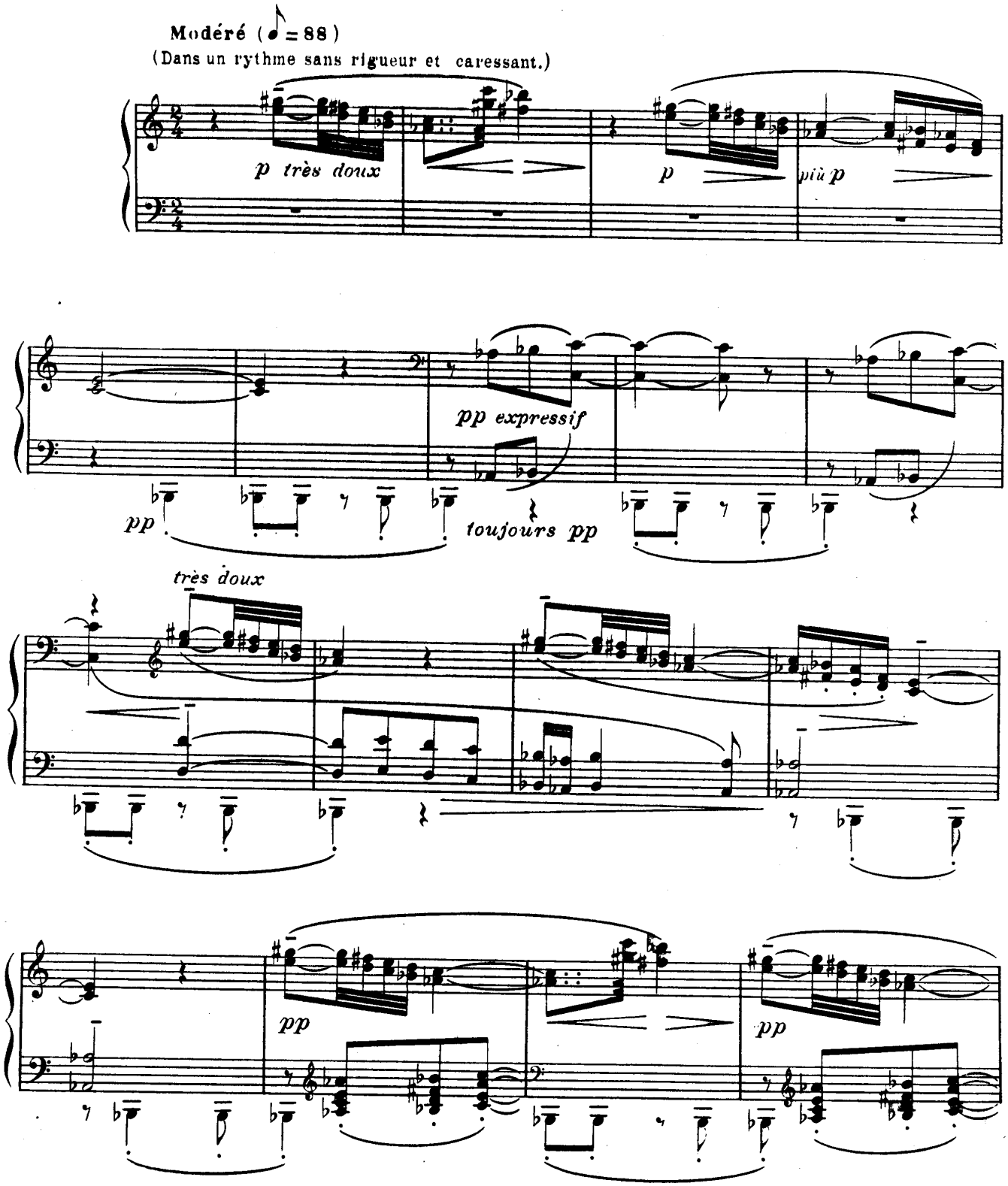
Stravinsky: Symphony of Psalms (I). Write out the pitches of the following excerpts (Bb seems a good starting point for Debussy, E for the Stravinsky). What is the interval pattern?

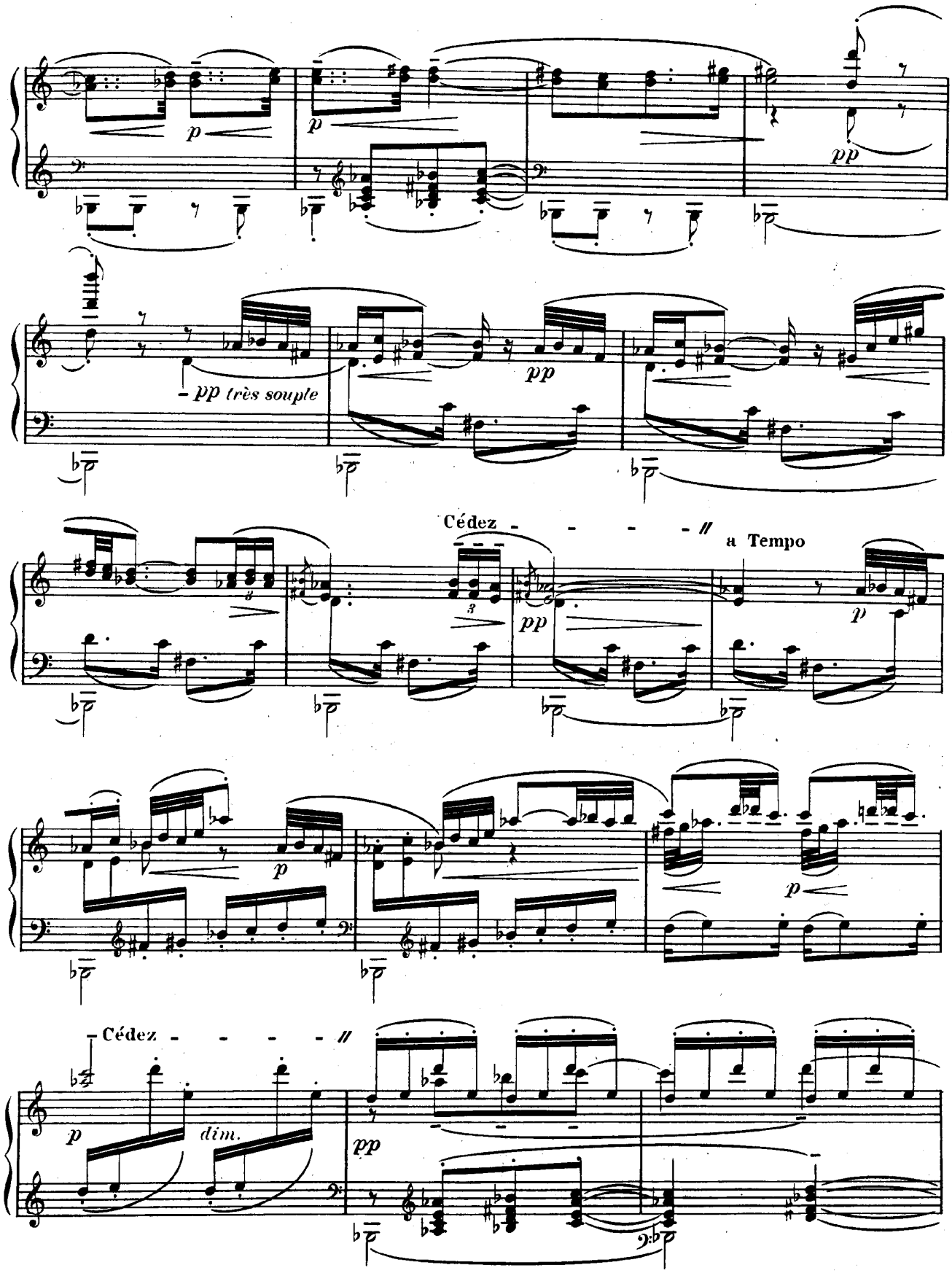


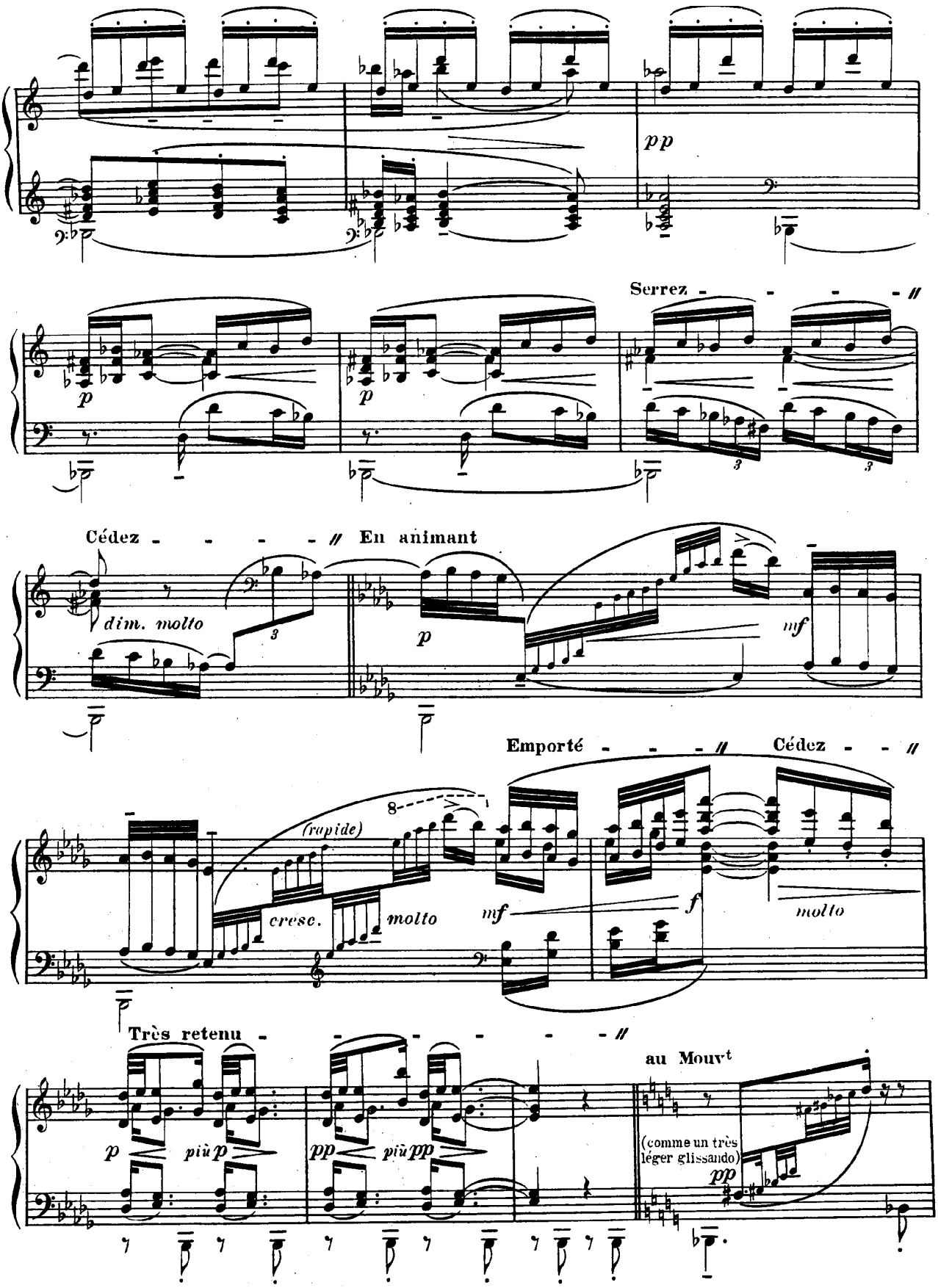
Debussy: Preludes Book II #4



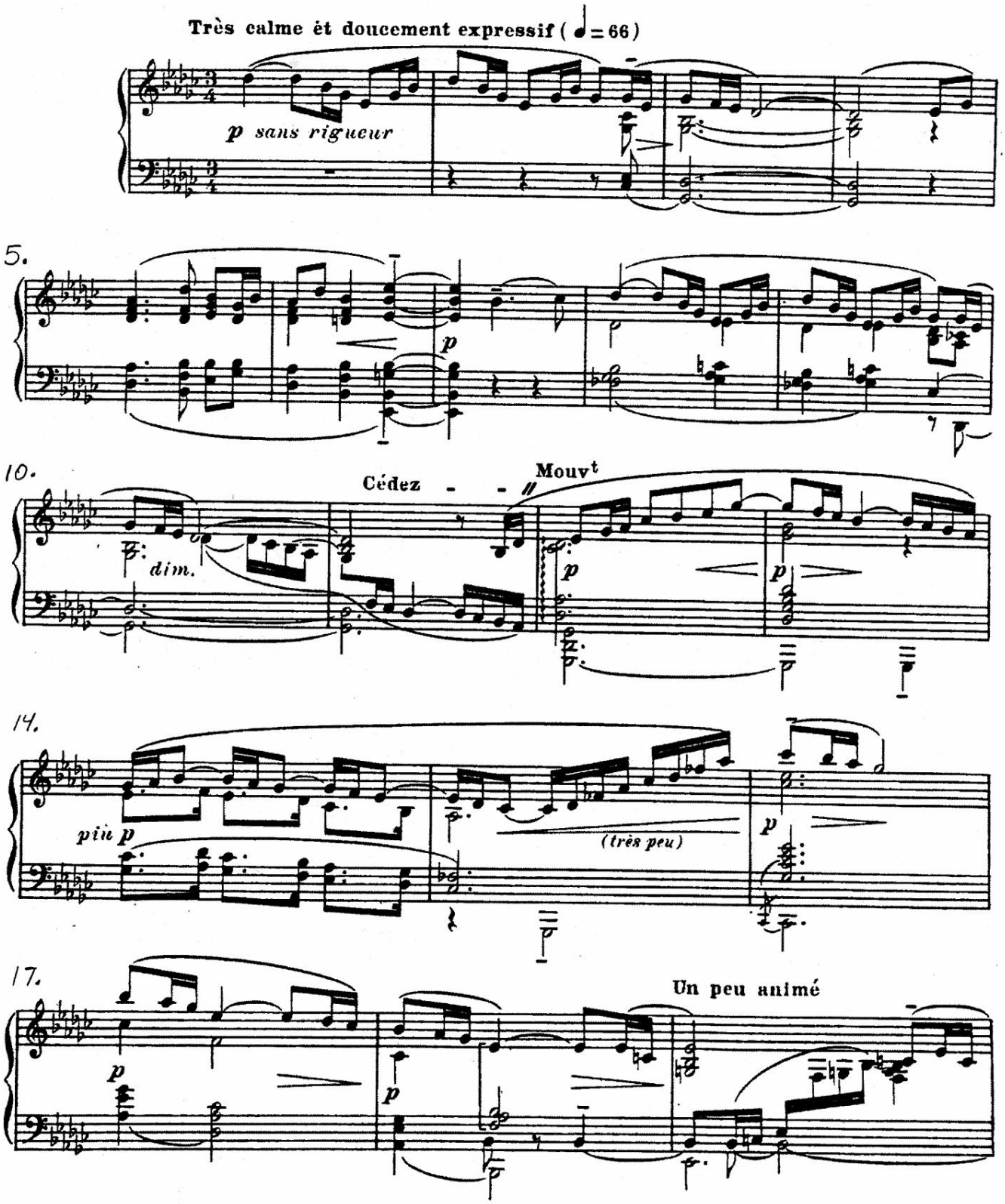
Debussy: Voiles: Preludes book 1

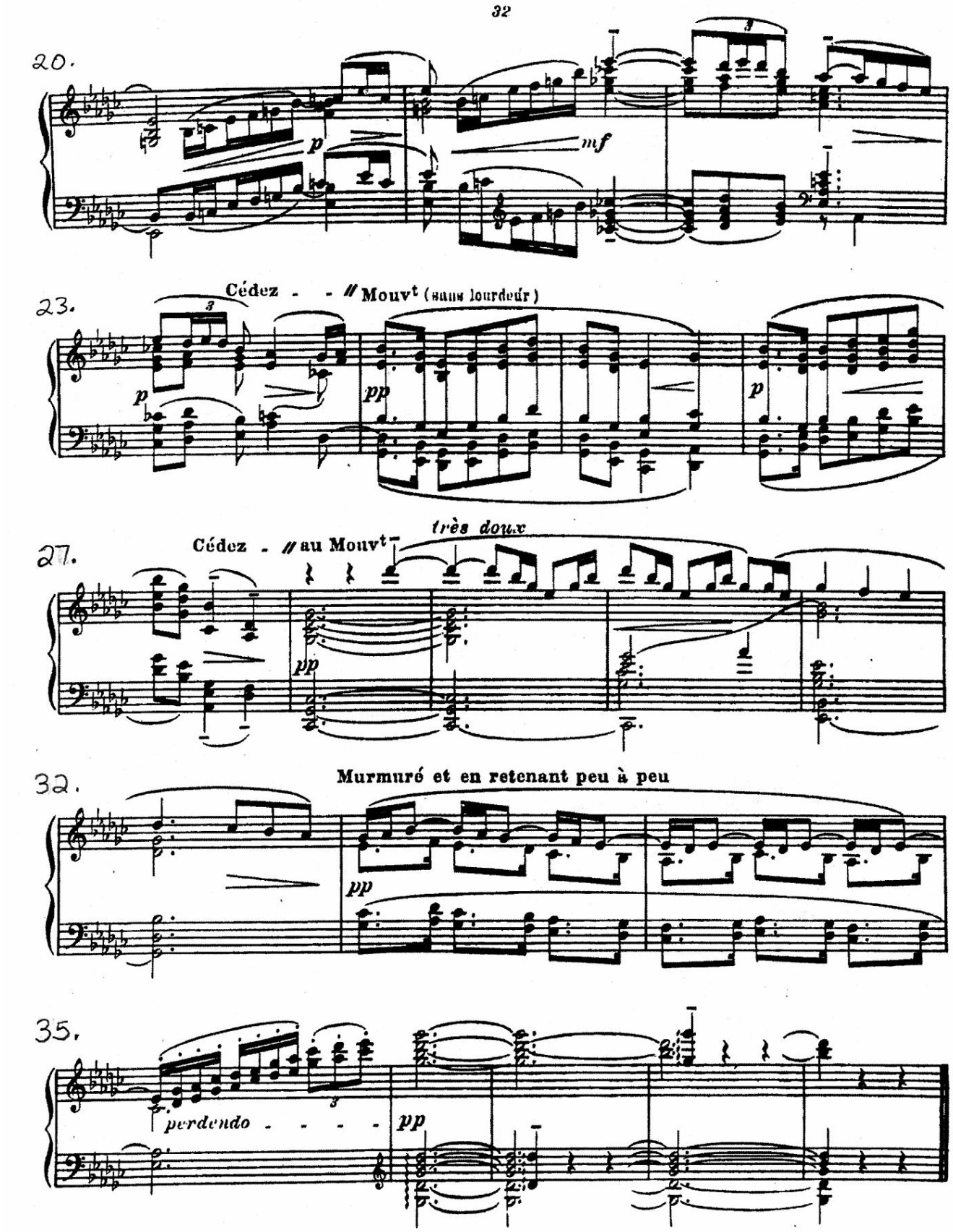



p
p
pp
pp très souple
pp
Cédez - - - - //
a Tempo
pp
p
p
p
Cédez - - - - //
p
dim.
pp


pp
Serrez - - - - //
p
p
Cédez - - - - //
En animant
dim. molto
p
mf
Emporté - - - //
Cédez - - //
(rapide)
cresc.
molto
mf
f
molto
Très retenu - - - - - - //
au Mouvt
p
più p
pp
più pp
(comme un très léger glissando)
pp

Debussy: The Girl with the Flaxen Hair: Preludes book 1




32
20.
p
mf
23.
Cédez - - // Mouvt (sans lourdeur)
p
pp
p
27.
Cédez - // au Mouvt
très doux
pp
32.
Murmuré et en retenant peu à peu
pp
35.
perdendo - - - -
pp

Grant Lee Phillips: Lazily Drowning (from the album *Mobilize*, 2002)

We take a break from Debussy, Ravel, etc… to look at a song by songwriter Grant Lee Phillips (formerly of the band Grant Lee Buffalo and the town troubadour on the show Gilmore Girls). What do you find noteworthy or interesting about this song? Consider harmonic progressions, modality, modulation, non-functional tonality, text painting, etc… Is there anything Debussy-esque about this song? What moments are surprising, and why?

```
Verse 1:

A                       Em
  On a sea of untapped leagues
                       D
Rocking to and fro I dreamed
                        A
Far below there was a monster
A                      Em
  Golden finned with confidence
                         D
Churns the muddy floor alive
                           A     E
Drowns the voices in the water

Chorus:

A        G#
  Lazily drowning
G          F#7
  Ferry me downstream
F        E7
  Lazily drowning
A                   E
  Not a care in the world
A                    G#
  In the blink of an hour
G         F#7
  Races a lifetime
F        E7
  Lazily drowning
A                   E
  Not a care in the world
A              E
  Not a caring world
```

repeat verse and chorus

```
Verse 3:

C                        Gm
  Onyx slivers catch the light
                          F
Still a slave in heaven's eye
                       C
But I'm soon to be delivered
C                          Gm
  For the tales that we've been fed
                         F
Only leave ya dumb and deaf
                       C      G
To the gospel of the river
```

Advanced Music Theory – Harmonies of the 20th century

In the 20th century, composers expanded musical language in all directions and began using harmonies other than those built in 3rds (the only interval we've seen in our harmonies thus far). These include harmonies in 4ths (**quartal**), 5ths (**quintal**), and 2nds (**secundal**). Composers also used chords in combination (**polychords)** and voice-leading that is quite different from the voice-leading of composers of the past **(planing)**. These harmonies and techniques gave composers new sounds and new methods of exploring tension and release.

Planing: The movement of chords entirely in parallel motion. Diatonic planning stays within the scale or mode with chord qualities that change. Chromatic planing leaves the scale or mode and the chord qualities remain the same.

Added note harmonies: The addition of a 2nd, 4th, or 6th to a triad. A pitch is considered a 2nd, 4th, or 6th when no 7th is present. If a 7th is present, it is often considered a 9th, 11th, or 13th. Extended tertian chords are a significant part of the musical language of composers such as Debussy and Ravel and can be seen in the Debussy Prelude below.

Quartal and quintal harmonies: Chords built in perfect 4ths or perfect 5ths. These harmonies are often stacked in consecutive 4ths or 5ths. Quartal harmonies can be seen in composers ranging from Copland, Debussy, and Stravinsky and are often used in jazz (often by pianists such as Herbie Hancock, McCoy Tyner, etc…).

Secundal harmonies: Harmonies built in 2nds that can be spread out or adjacent, though composers often use these adjacently in what is known as a **tone cluster**. American composer **Henry Cowell** (1897-1965), a leading figure of American avant-garde composers in the 1920s and 1930s, was one of the first to use tone clusters in his piano music (as well as pioneering "inside the piano" playing). A critic for the *San Francisco News*, writing in 1932, referred to Cowell's famous tone clusters as, "probably the most startling and original contribution any American has yet contributed to the field of music."

Hungarian composer **Gyorgy Ligeti** (1923-2006) and other composers such as Krystof Penderecki made secundal harmonies a part of their harmonic and textural language in the 1960s with a technique known as ***sound mass***. This technique uses very close pitches in seconds (or microtones) and minimized individual pitch importance with more stress on timbre, shape, and dynamics. The musical texture in pieces using this technique is dense with a cloud-like texture rather than clarity of individual lines. From The Guardian.com

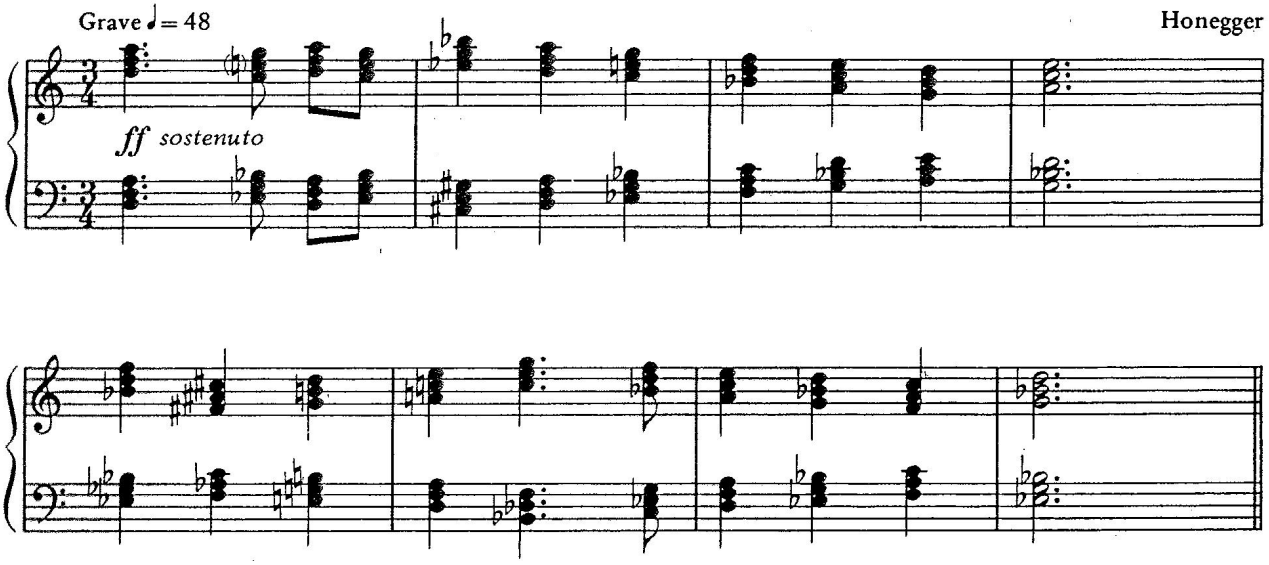
> "Ligeti's idea was to make texture as much of a driving force in musical architecture as pitch or rhythm, developing what he called a "micro-polyphony" of incredibly dense pile-ups of musical lines so that you're more aware of an ever-changing amorphous cloud of sound than the movement of individual instruments or voices."

Polychords: Many composers (in classical and jazz) were attracted to the sound of two harmonies sounding simultaneously. To be considered a polychord, two distinct harmonies must be perceived by the listener. Instrumentation, register, contour, and dynamics/articulations are often used to give a sense of distinction to both harmonies. The sound of a polychord will vary significantly depending on the chords chosen, including the following factors:

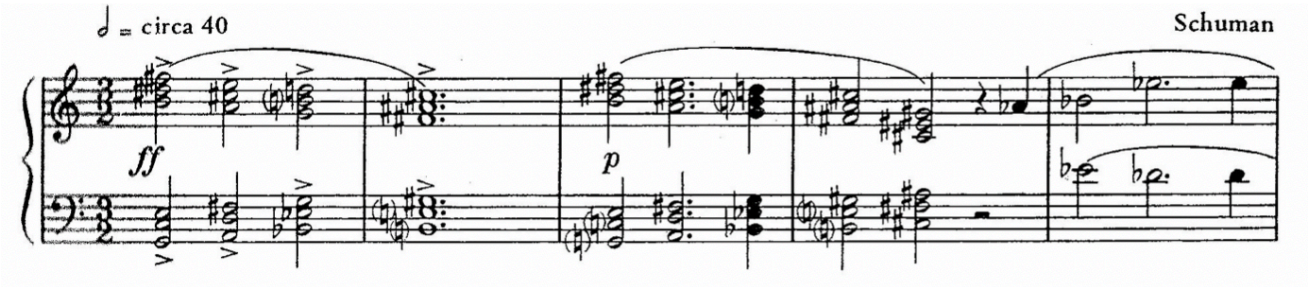
1) Consonance/dissonance of outer voices
2) Consonance/dissonance of roots
3) Proximity of dissonant pitches (the closer they are, the higher the degree of tension).
4) Common notes in chords will yield a more consonant sound, cross relations (G vs. G#) will yield more of a dissonant sound

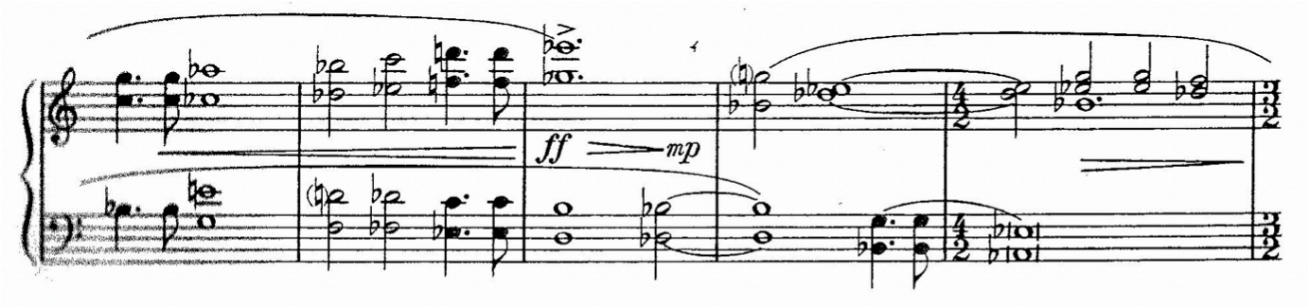
Polychordal examples

Honneger: Symphony no. 5



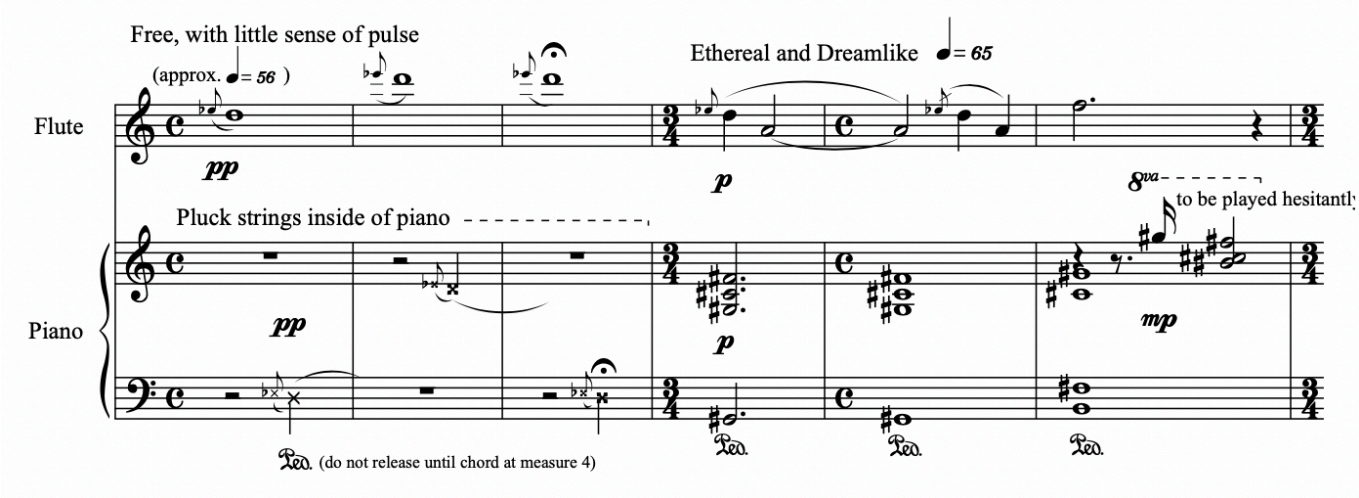
William Shuman: A Three-Score Set

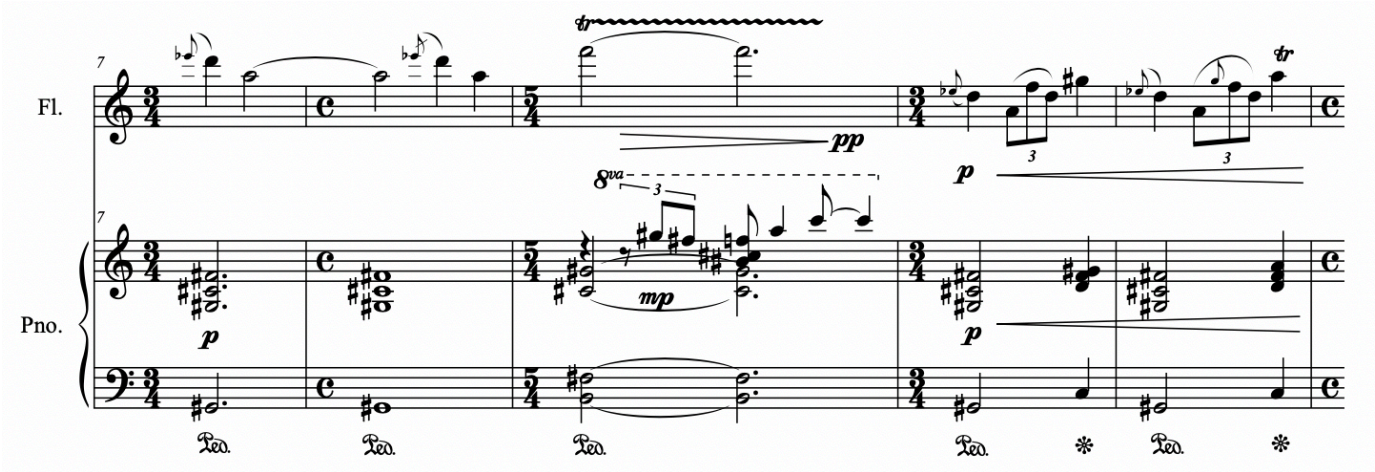




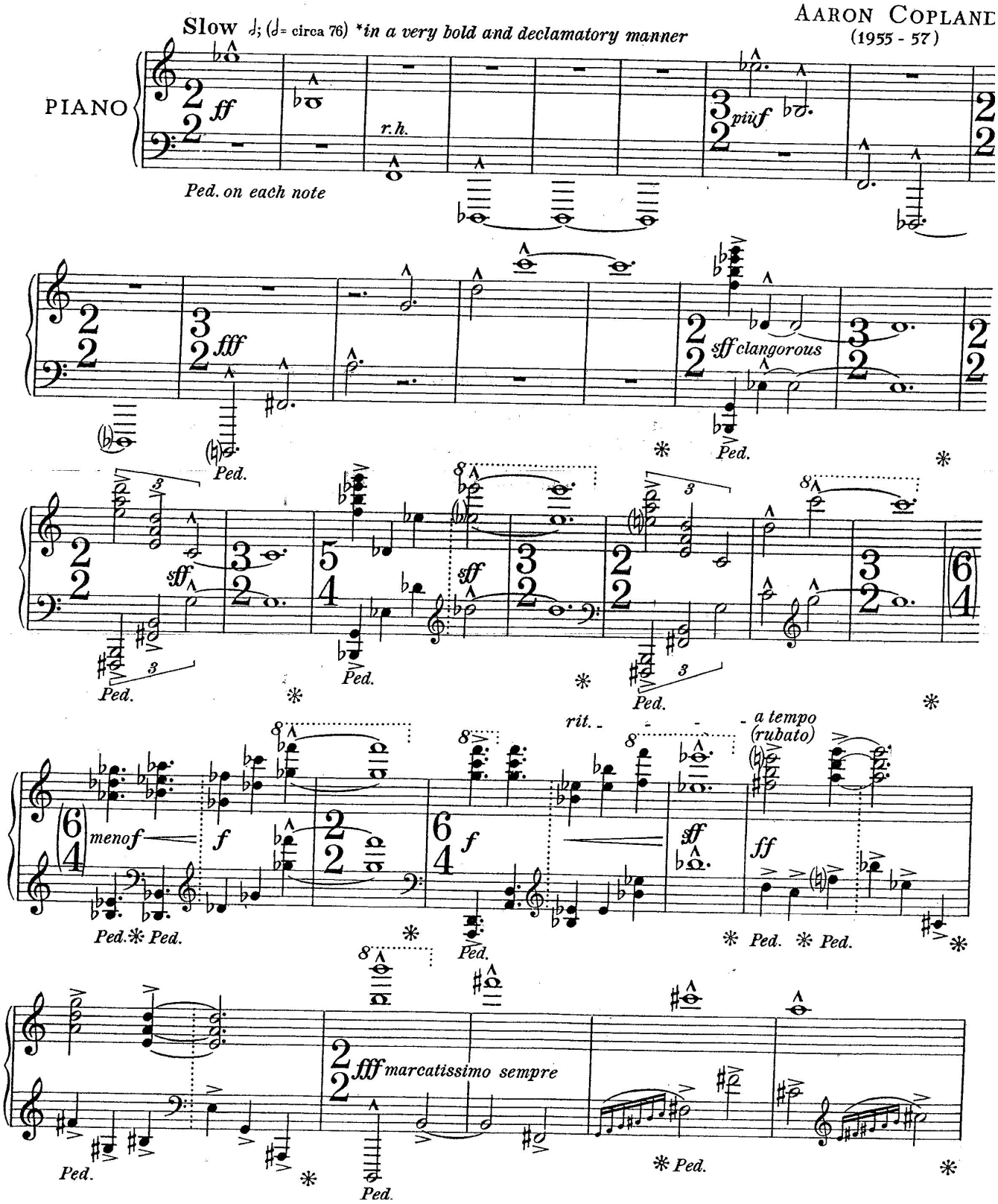
Quartal harmony examples

Schildt: Nocturnal Passage, mvt. 1





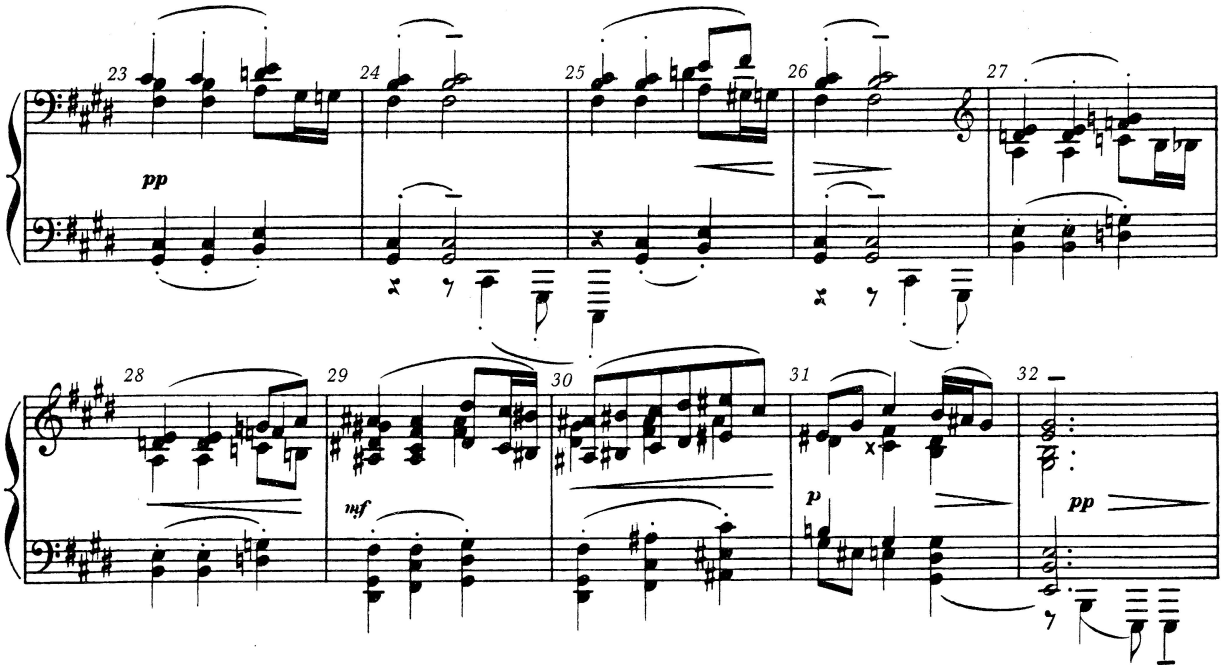
Copland: Piano Fantasy



What harmonies are being used in each excerpt: polychords, quartal, quintal, secundal (including clusters), or extended tertian?

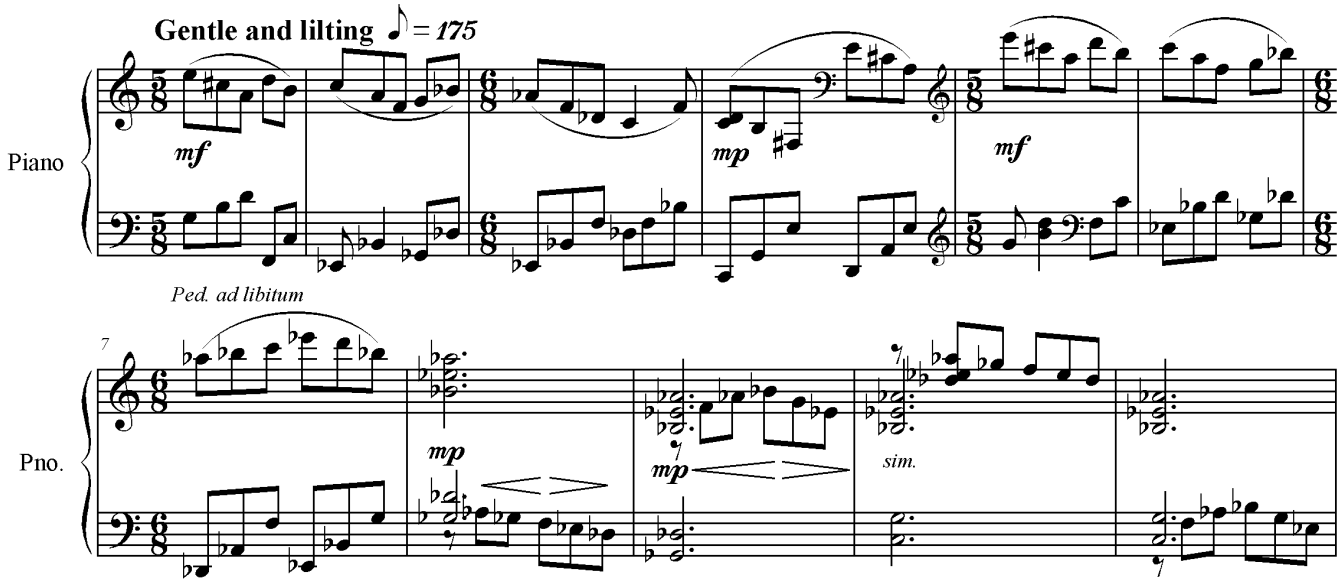
Debussy: Sarabande

What types of harmonies are used from m.23 - 28? 29 - 32? What are the specific harmonies in m.29? What is the harmony on beat 2 of m.31 (consider the Cx a D)? What is the tonal center of the opening? What mode is suggested?

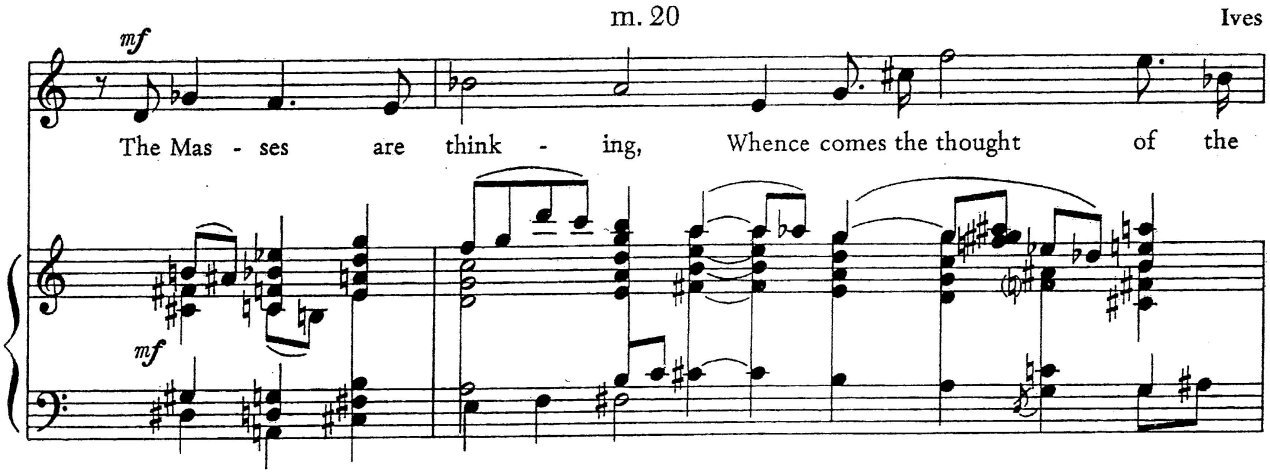


Schildt: Sleep Now O' Sleep Now

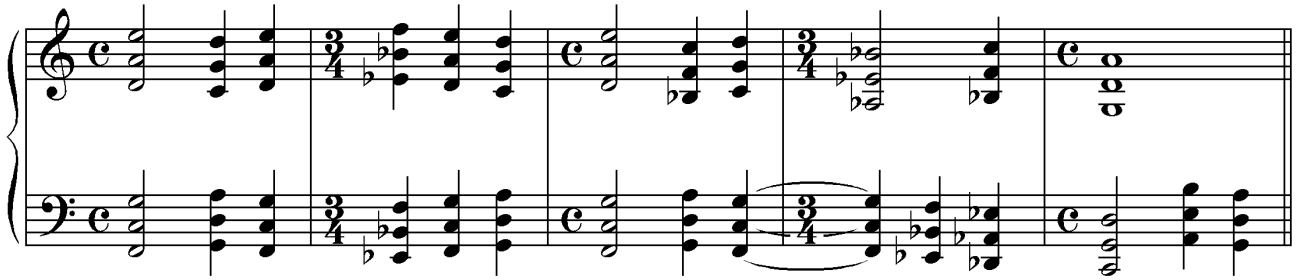
What are the chords at the opening? What makes each chord sound distinct? What is the relationship between each of the opening chords? Where do the harmonies change and what are the chords?



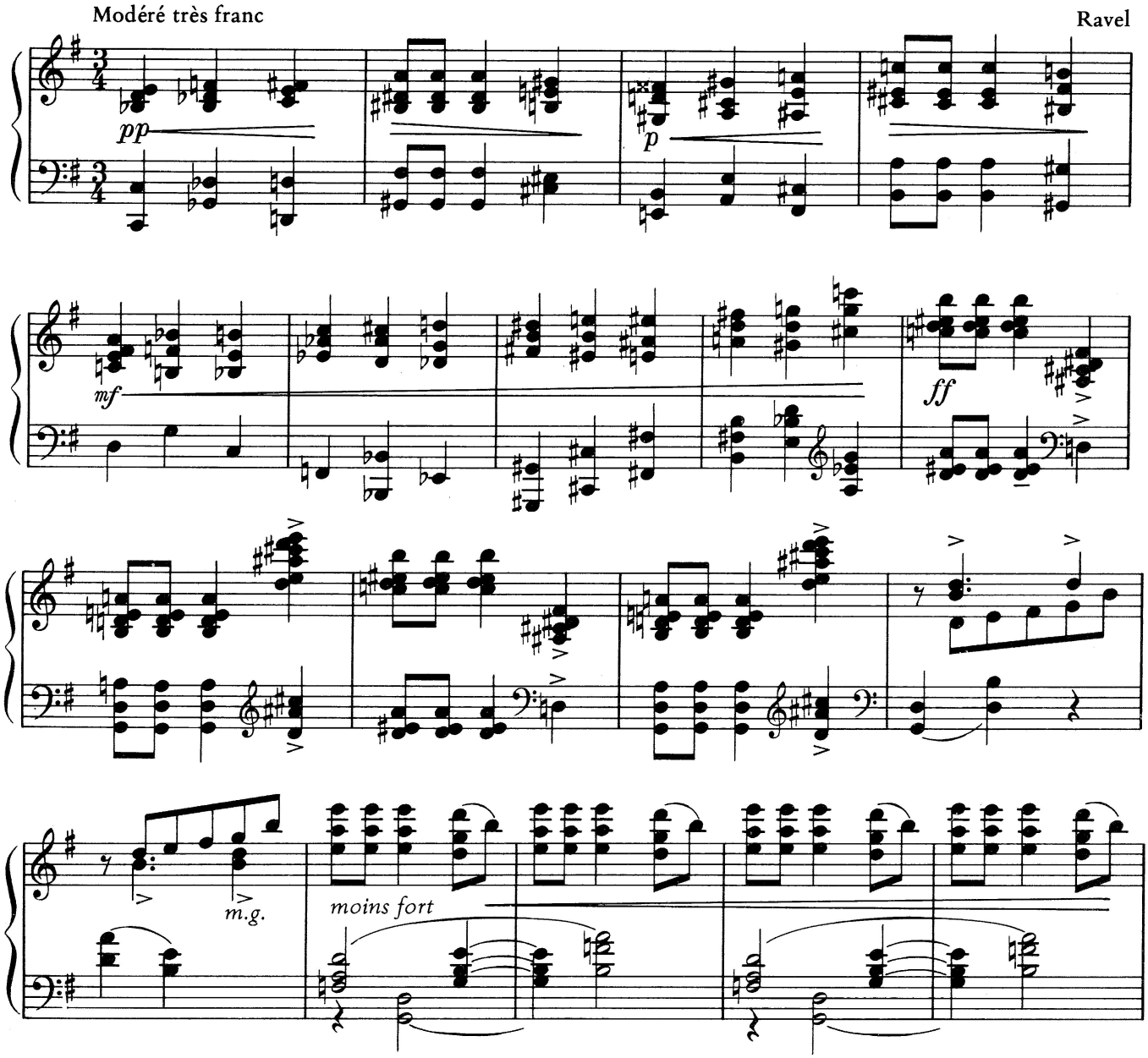
Charles Ives: Majority



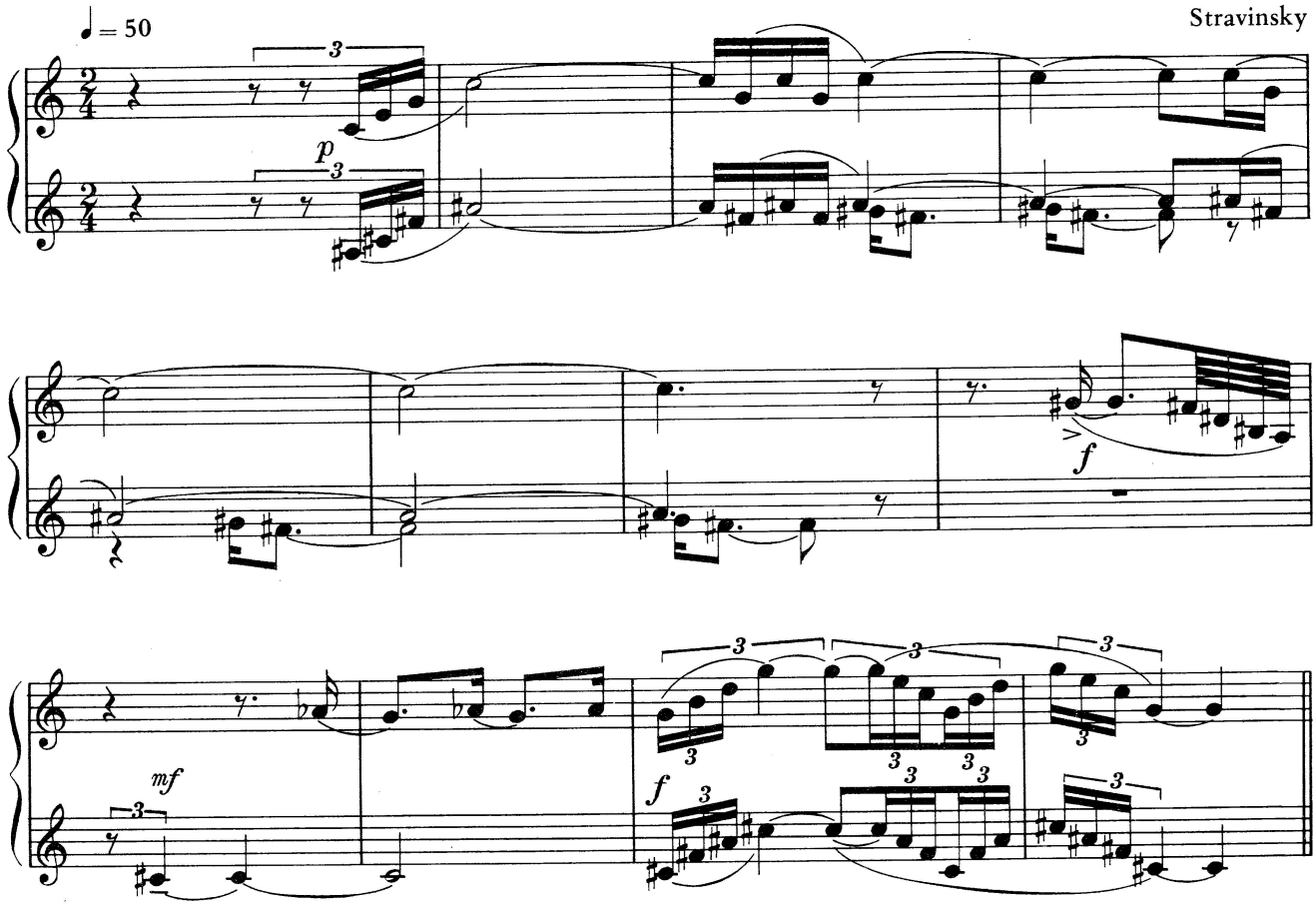
Bartok: Piano Concerto no. 2



Ravel: Valse Nobles et Sentimentales



Stravinsky: Petrushka Scene 2



Advanced Music Theory - Stravinsky

Stravinsky (1882–1971) is one of the most important and influential composers of the twentieth century. Much of Stravinsky's music is characterized by a development of material through layering and recombining motives/ostinati in various ways. His textures are often multi-layered and many of his works are mosaic-like in form, meaning that there are short, self-contained sections that abruptly end and progress to new sections differing in melodic material and texture. His music can be roughly divided into three periods:

Russian period (1905 – 1920s): use of Russian themes/motives, colorful orchestration (with similarities to his teacher Rimsky-Korsakov)
The Firebird Suite, Petrushka, Rite of Spring

Neoclassical period (early 1920s – early 1950s): attention to smaller chamber ensembles, simplified textures, use of classical forms and harmonies with interjecting dissonance
L'histoire du Soldat (A Soldier's Tale), *Octet*, *Pulcinella Suite*

Serial period (post 1952): flexible interpretation of serial processes, 5 and 7-note rows
In Memoriam Dylan Thomas, *Requiem Canticles*, *Agon*

Harmony:
Stravinsky uses a variety of harmonies, including, quartal/quintal harmonies, added note harmonies, and polychords: Often polychords consist of two triads, though Stravinsky does often employ quartal and tertian harmonies at the same time. His *Petrushka chord*, named after its use in his ballet, contains two triads a tritone apart.

Scales:
Stravinsky often employed modes, pentatonic scales, and octatonic scales in his works.

Rhythm:
Stravinsky, like other 20th century composers, attempted to break from the restrictions of the barline. He often employed asymmetrical meters (5, 7) that cannot be divided evenly into 2 or 3 beat groups (more on that later).
Polyrhythm/Polymeter: Polyrhythm is the occurrence of two or more different beat divisions simultaneously. This was employed in the music of Chopin and Brahms, though the use of polyrhythm is more complex with Stravinsky and other 20th century composers. In polymeter, two or more meters occur simultaneously, either notated or implied. This topic is covered in detail later in the course.

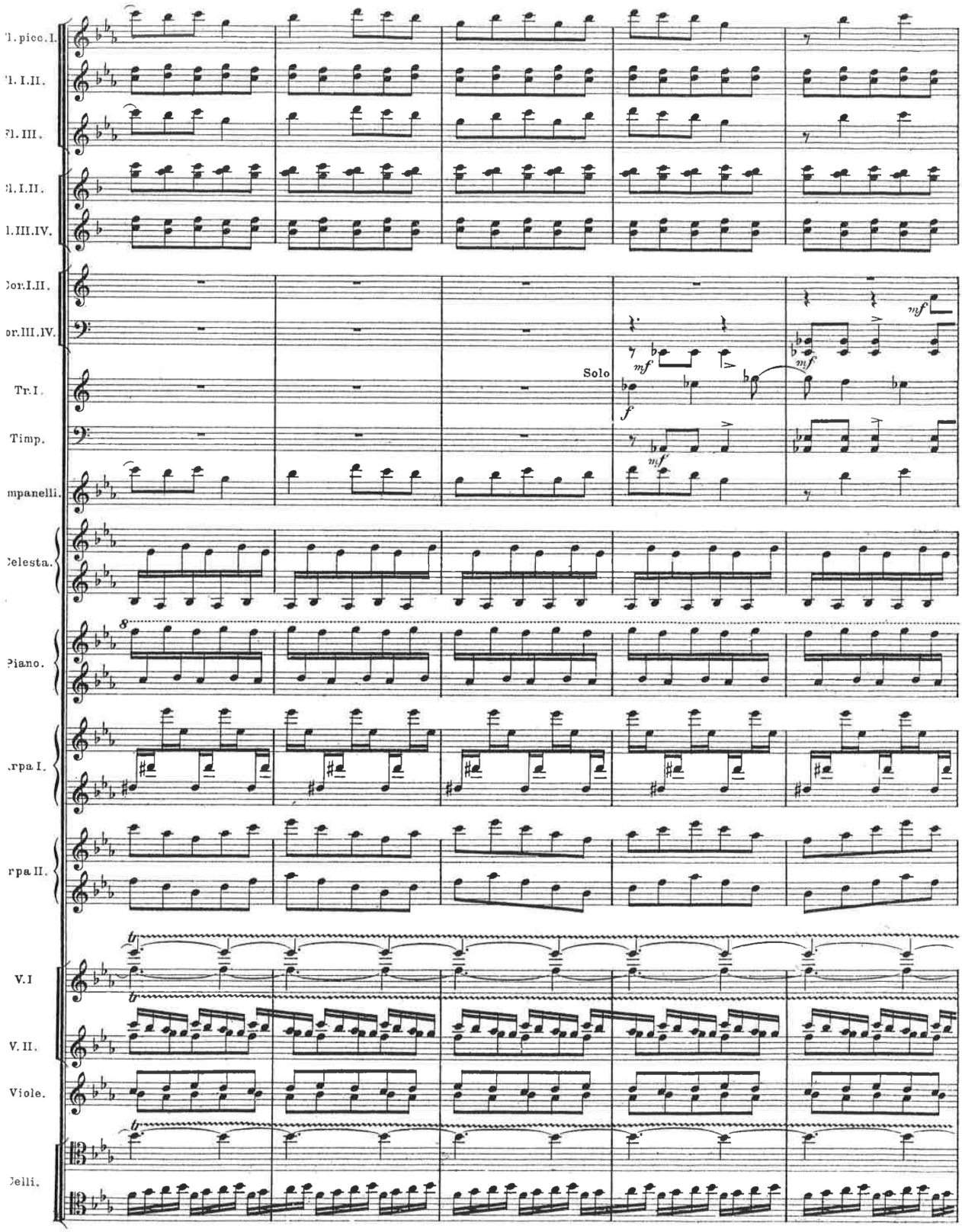
Tonality:
Stravinsky's music (with the exception of his last period) is tonal, though through non-functional means (as was seen in many of the Debussy examples). ***This means that traditional harmonic relationships do not establish tonality, but rather tonality is established via ostinato and pedal point*** (a sustained pitch, often in the bass, as seen in many examples thus far in class).

Ostinato: Ostinato is a *major* trait of Stravinsky's music. Ostinatos in Stravinsky's music are often independent of the meter.

Bitonality: Bitonality can be seen in many of Stravinsky's works, and contributes to the stratified/layered texture.

Pandiatonicism: The use of pitch material from a given scale or mode, though lacking traditional harmonic/melodic relationships. It can be thought of as free use of the pitches of a scale/mode, giving the pitches more equality than in functional tonal music. This is covered in detail later in the course.

Stravinsky – Petrushka excerpt: rehearsal 122



Stravinsky – Symphony of Psalms (1930)

1) What is unusual about Stravinsky's choice of instrumentation?

2) There are 4 primary musical ideas that are central to the movement presented from measure 1 – 22. What are they?

3) How does the 16th-note run change upon each repetition at the opening?

4) What is the mode/scale at m. 15 (first, figure out the tonal center)?

5) What is the mode/scale at m. 27 (what is the interval pattern?)?

6) The section at m. 68 has a bitonal/bimodal quality with the scales/modes/tonal centers of the above question combined. How does Stravinsky combine these?

7) Where is the movement's climax? What makes this sound like a climax?

8) Stravinsky's approach to texture is quite different from other music we have studied. How so? What differentiates one section from another?

9) Stravinsky's use of ostinato (which applies to the above question) is often additive, meaning that short patterns often expand. This means that there is usually rhythmic displacement with the ostinato. Can you find examples of this?

10) What is the highest number of ostinatos Stravinsky employs at any given time?

11) What do you feel the overall tonal center of this movement is? How is it established? Does the movement end on this tonal center?

Advanced Music Theory – 20th century tonality, ostinato, polytonality, and pandiatonicism

Composers of the 20th century often sought different ways of creating tension and establishing a tonal center. Often, rather than establishing a tonal center through functional chord progressions, composers would use other means to establish a **pitch center** (a term we will use when a tonal center is established through means other than functional harmony). A **pedal point,** which we have studied before, is a sustained pitch, often in the bass that is used to establish a pitch center. Another means is the use of an **ostinato**, a repeated melodic and rhythmic pattern of varying length.

Polytonality (usually bitonality) was used by many composers in the 20th century and is the use of two (or more) aurally distinguishable pitch or tonal centers. When two modes are used simultaneously, this is referred to as **bimodality.** The sound and level of consonance/dissonance of bitonality varies, of course, on the choice of keys and the relationship of keys. Keys are often separated in a similar manner to that of polychord: instruments, register, melodic/rhythmic independence, dynamics, etc…. The more differences in pitch there are between keys, the more striking or dissonant the sound of the music.

A few common traits in bitonality:

- The pitch differences between keys are often emphasized. There would be little sense of bitonality between C Major and F Major if B/B-flats are avoided.
- Each part is often very tonal and identifiable and usually contains characteristic tonal progressions. Strong, defining progressions/motion often used to define/give each key a clear identity.
- Modulations are often avoided as it makes for a haphazard, bichordal sound rather than polytonal.
- Bitonality is usually used for sections of a piece, rather than for an entire piece.

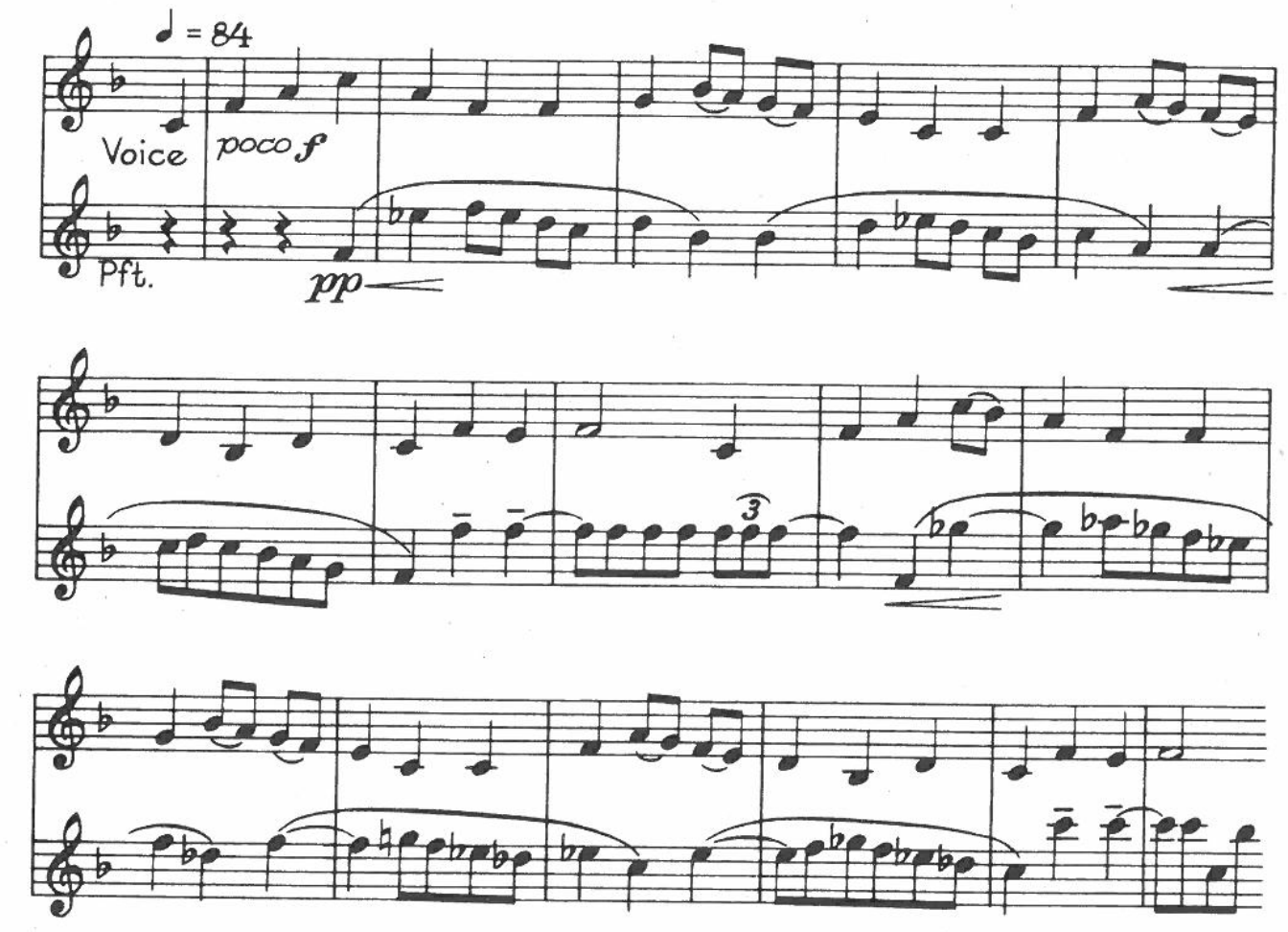
Pandiatonicism is an approach to tonality seen in many 20th century composers. This was a technique explored a great deal in Stravinsky's second period, the music of Aaron Copland (Appalachian Spring for example), Ravel, and in neo-classical music of the 1920's and '30's. Pandiatonic music uses a diatonic scale without the limits of functional harmony and equalizes the 7 notes of a diatonic scale so that no pitch is given too much emphasis as a tonal center.

In pandiatonicism, pitches are used and combined more freely and added note harmonies are common (triads with added 2nds, 4ths, etc…). A pandiatonic passage can be identified by the use of a key signature, few accidentals, and a free use of

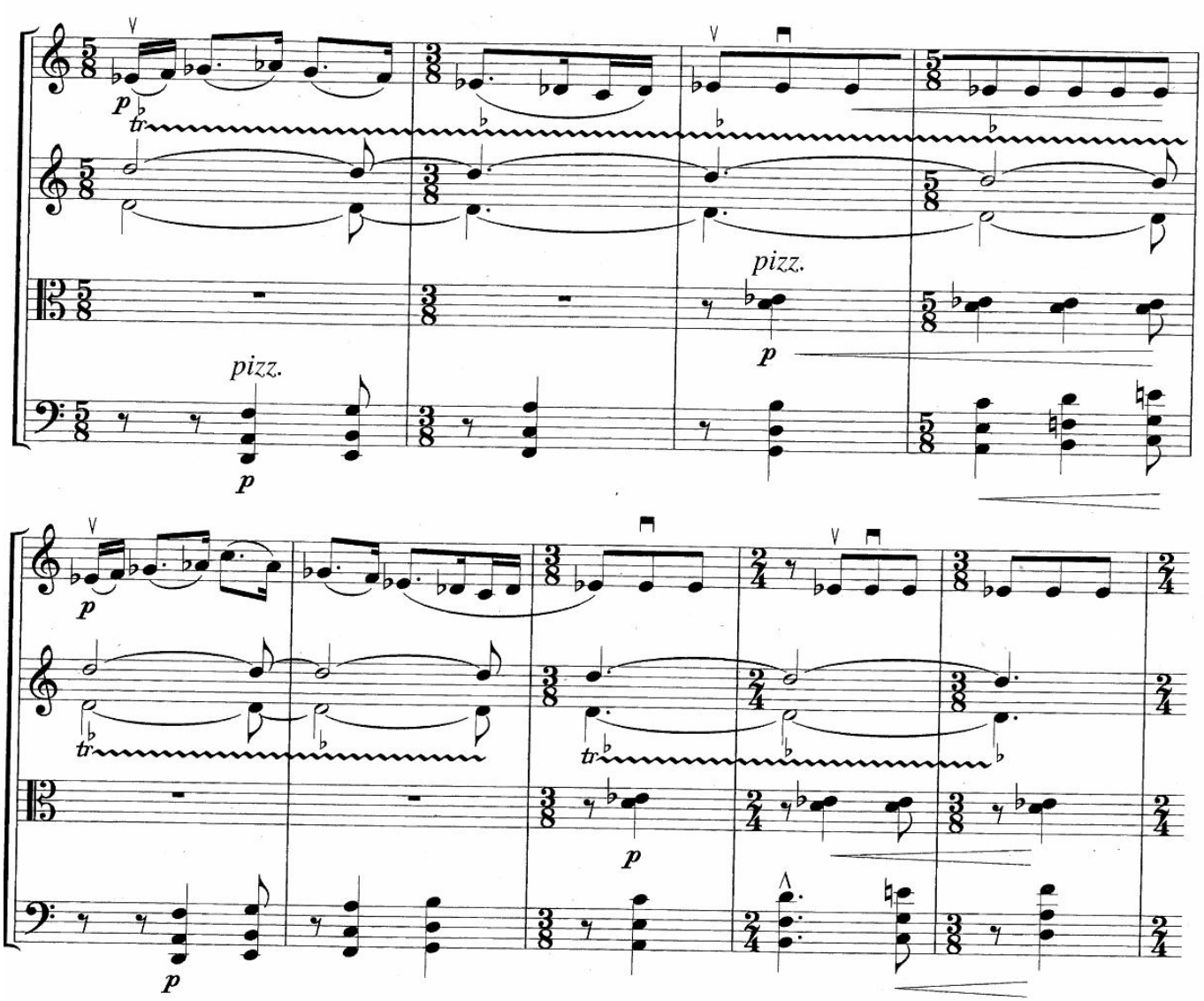
pitches with little functional harmonic movement. In pandiatonic music, the normal tendencies of a scale are defeated, yet the familiarity ("sweetness") is still there.

Polytonal examples

Britten: Folk songs of the British Isles, Vol. 1, no. 6 (1943)

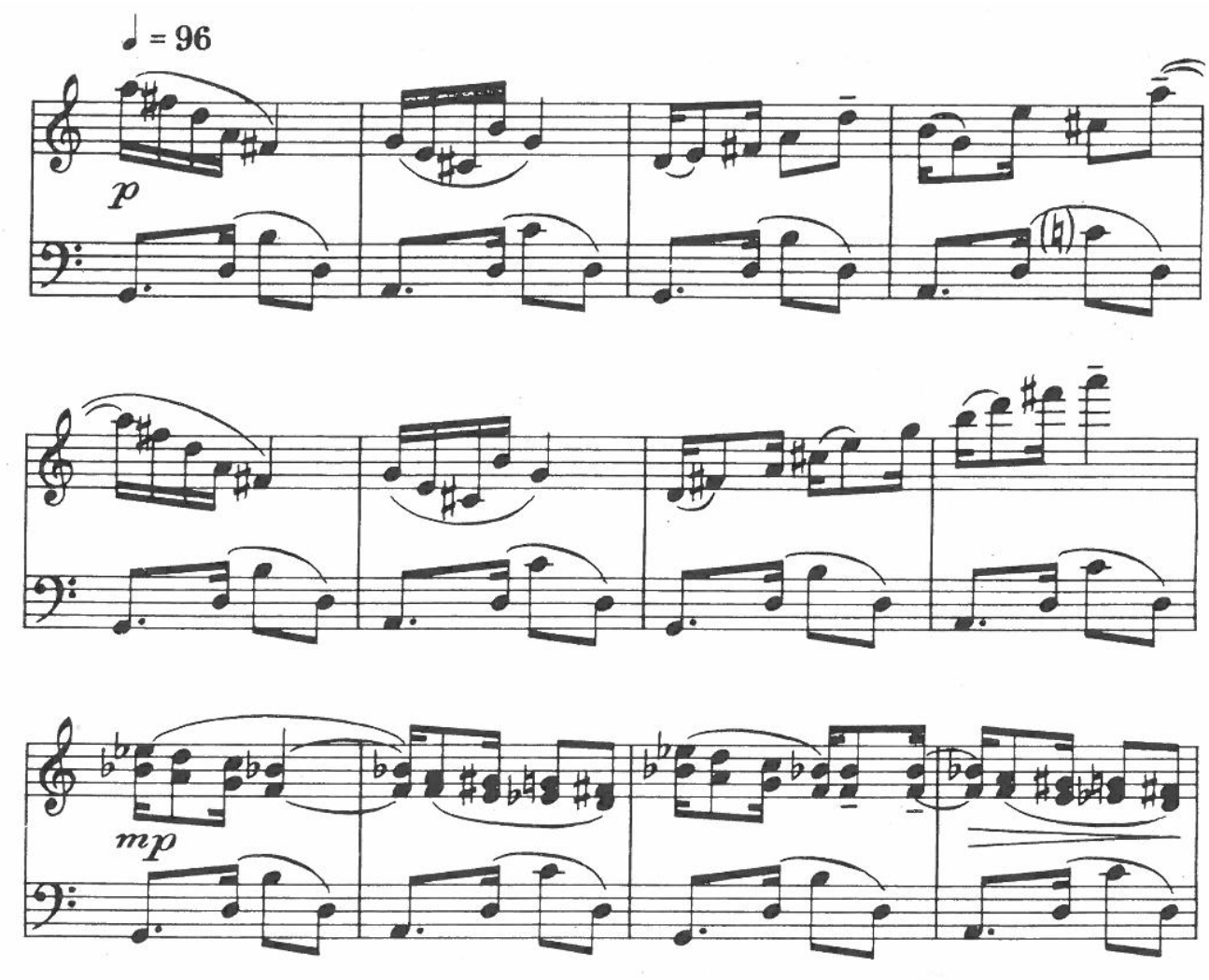


Bartok: String Quartet no. 3, II (1927)

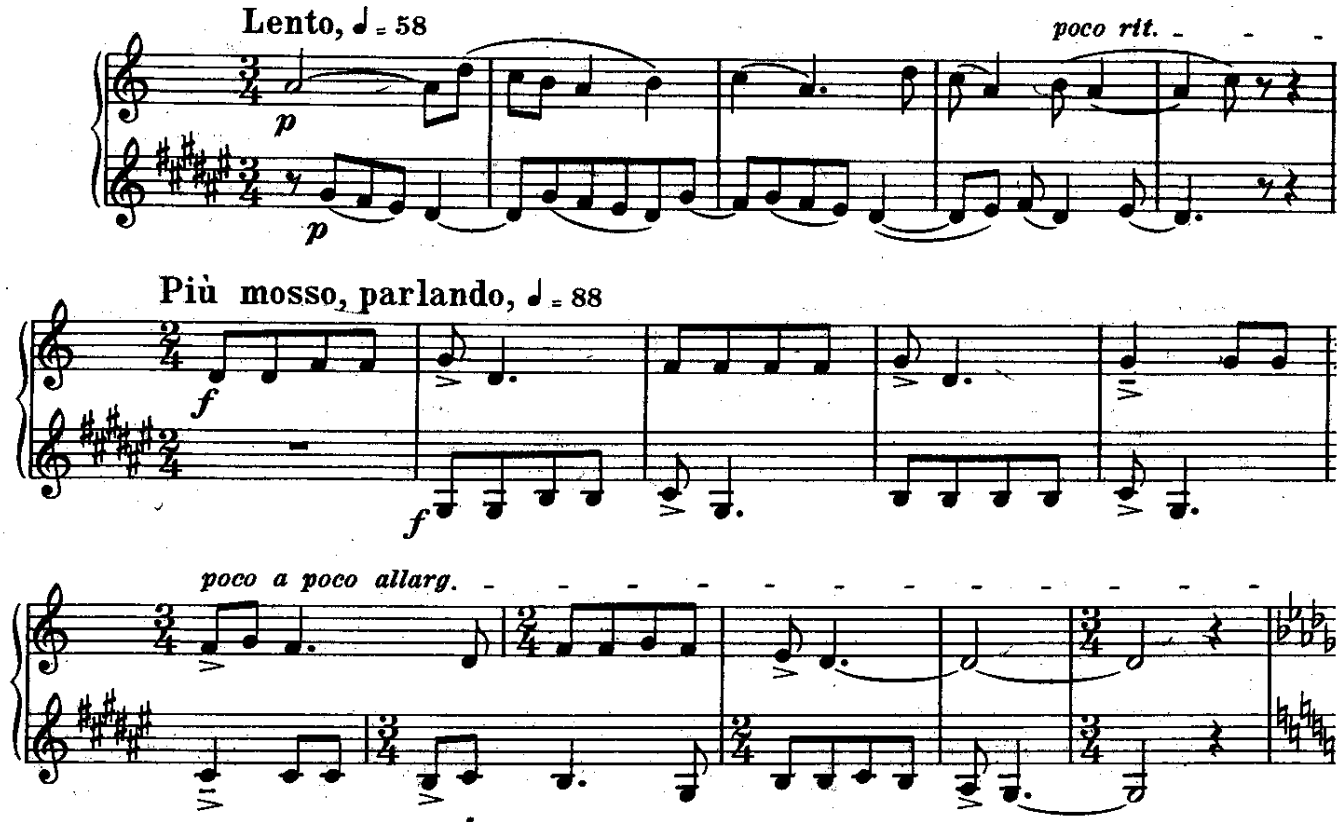


Milhaud: Saudades do Brasil – Corcovado (from Saudades do Brasil, 1920)

Saudades do Brasil are a suite of twelve dances for piano (an orchestral version was created a few years later) by Darius Milhaud (pronounced Mee-O). Composed after Milhaud's visit to Latin America in 1917-1918, each dance is based on a duple tango or samba rhythm and bears the name of a neighborhood in Rio de Janeiro or a Brazilian city. The title of the piece translates to "Longing for Brazil" or "Fond Remembrances of Brazil."



Bartok: Song of the Harvest from 44 violin duets



Milhaud: Botafogo (from Saudades do Brasil, 1920)

What are the keys at the opening?

When listening to the orchestral version, how does Milhaud divide these orchestrationally?

What are the keys at m. 27?

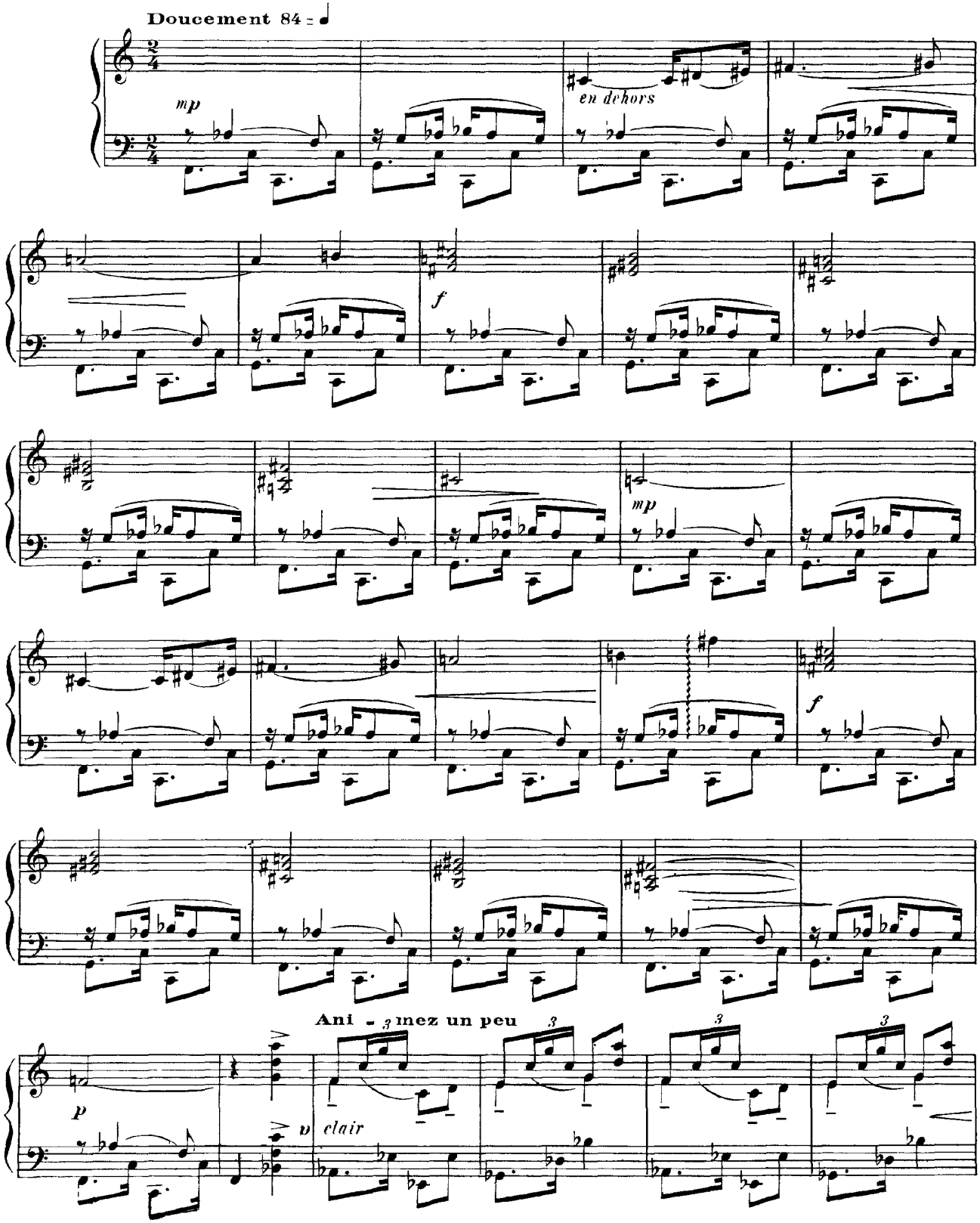
What is the harmony at 26?

Where do the two hands/keys come together and seem to resolve the tension?

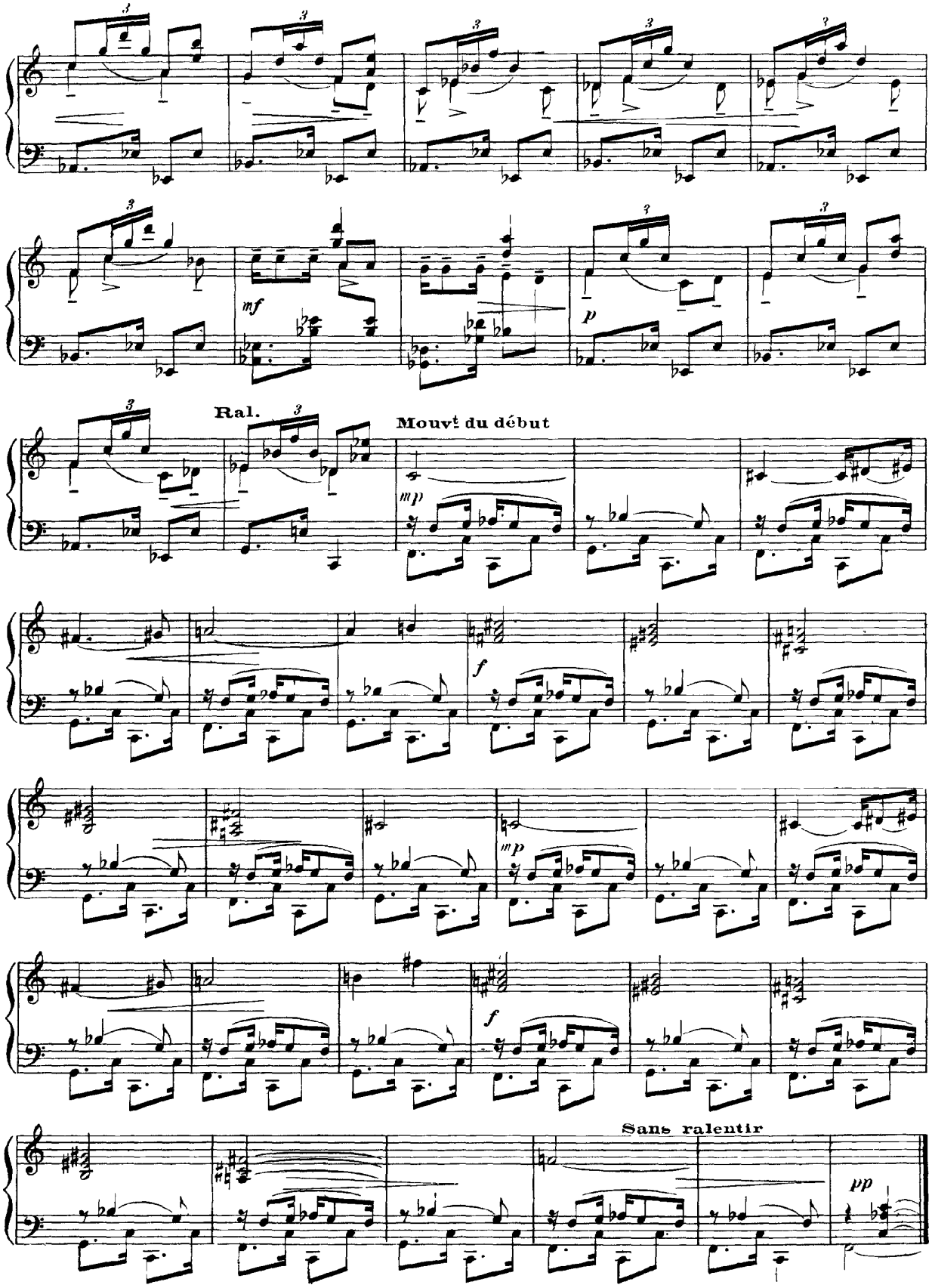
Do you hear this piece as overly dissonant? Why do you feel the piece sounds as dissonant or consonant as it does?

Milhaud - Saudades Do Brasil

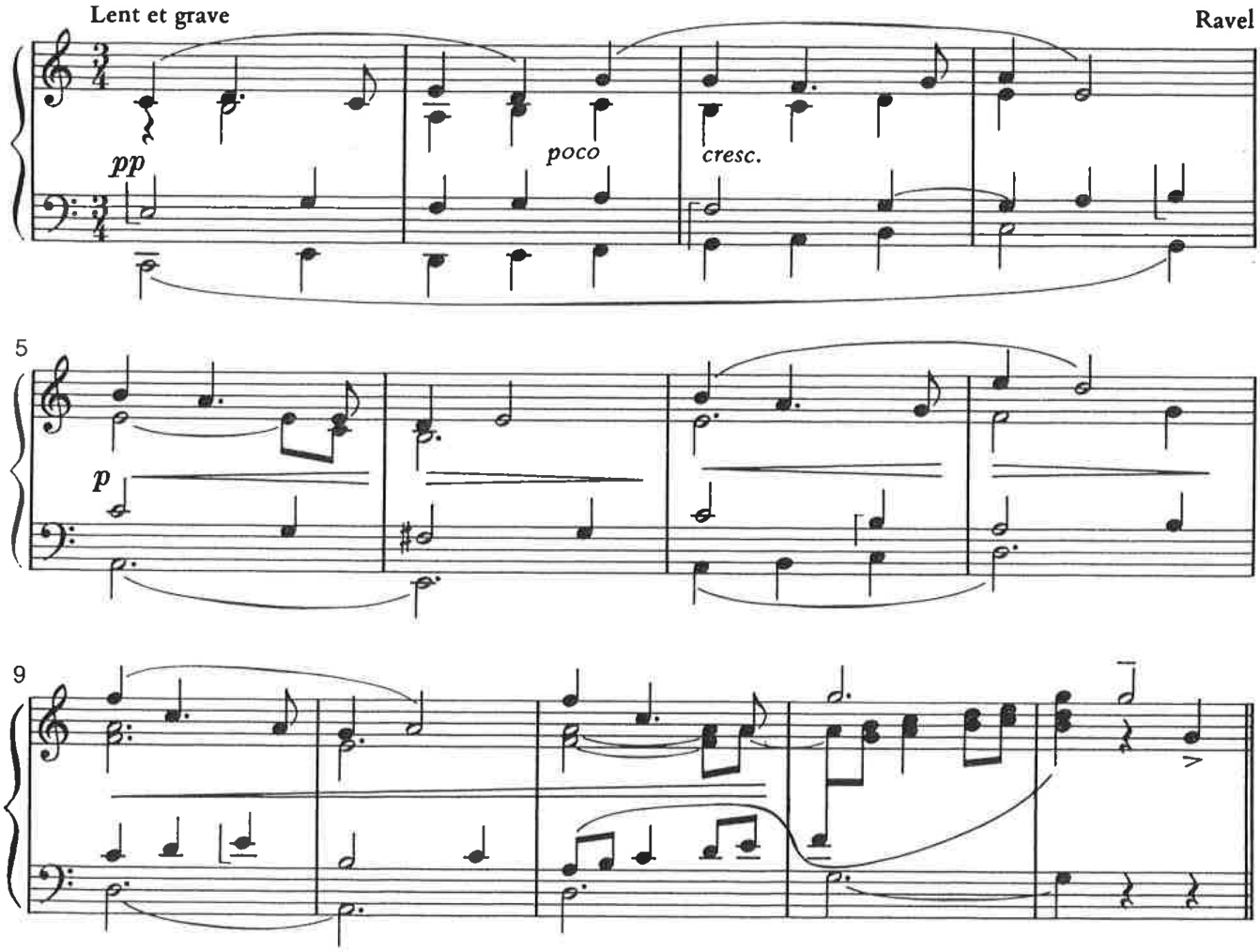
II. Botafogo



Milhaud - Saudades Do Brasil

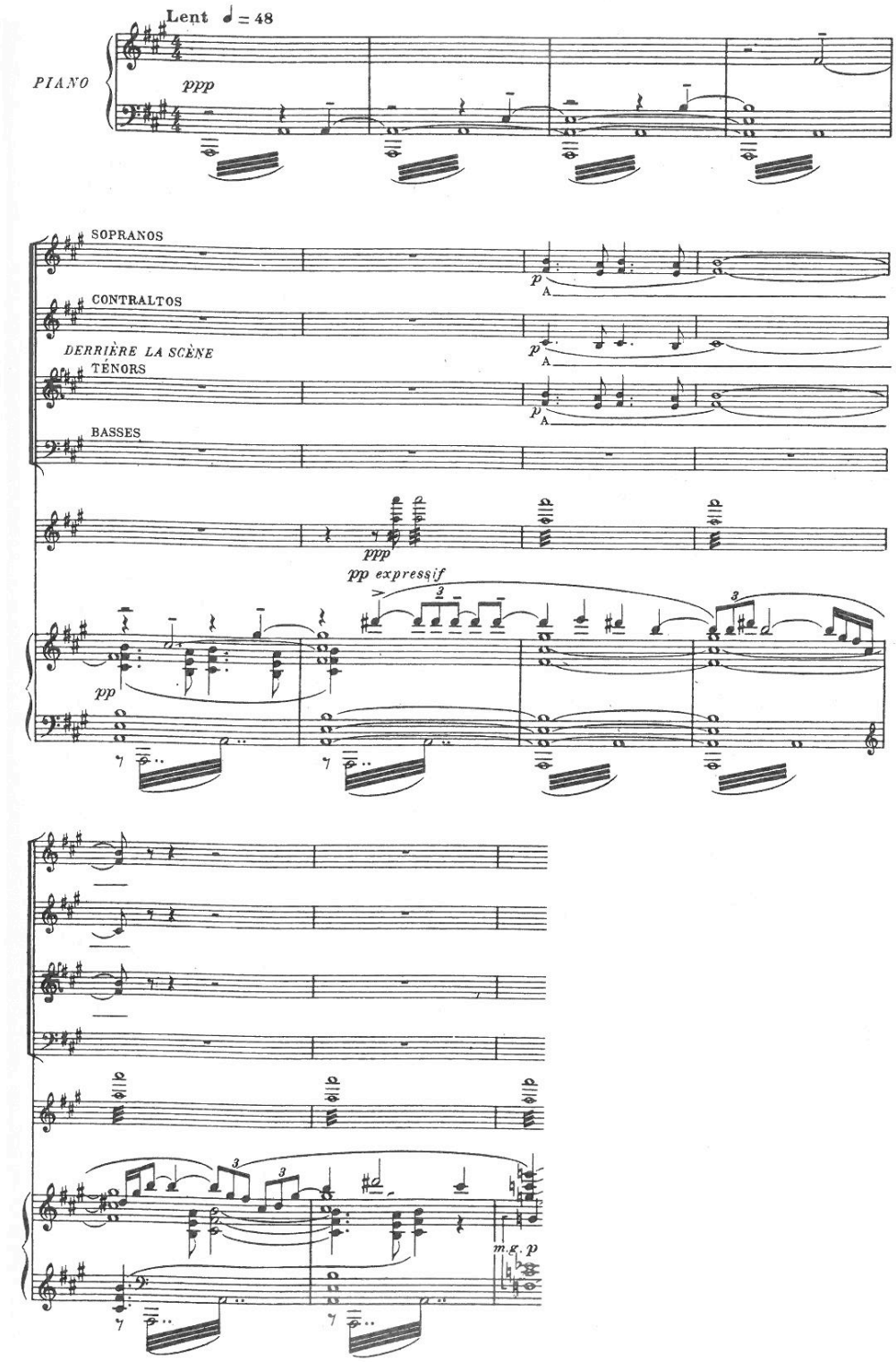


Example of pandiatonicism – Ravel: Mother Goose Suite, The Magic Garden



Advanced Music Theory – 20th/21st century rhythm

Ravel: Daphnis and Chloe



The 20th and 21st centuries were much more rhythmically free than music of the preceding centuries. Though time signatures, bar lines, metric accents, and four-measure phrases were still used, composers looked for new rhythmic possibilities and methods of stretching rhythm/meter from previous conventions and restrictions.

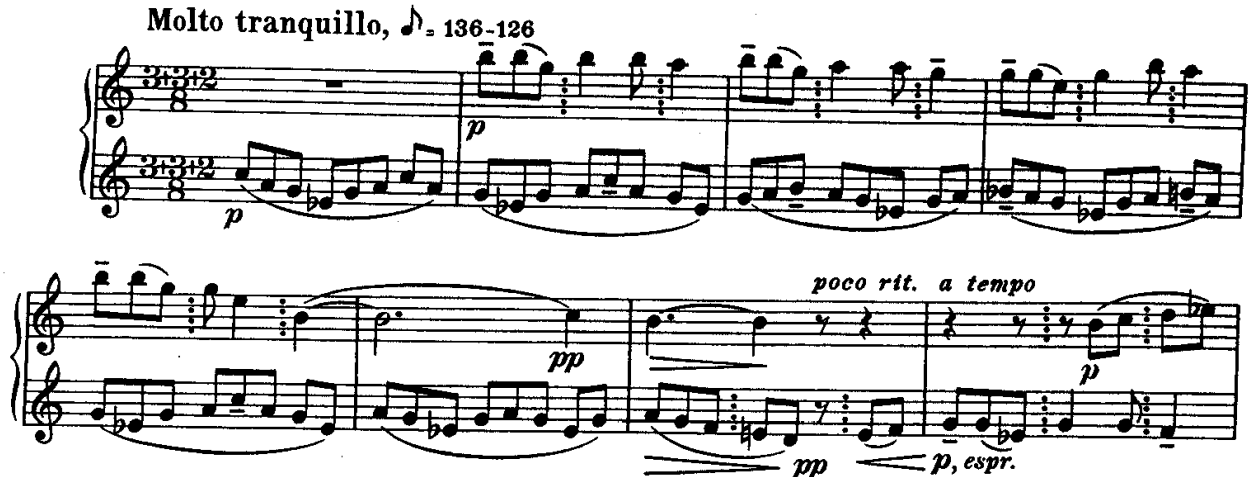
We'll see the following rhythmic traits in composers such as Stravinsky, Bartok, and other 20th century composers

- "Freedom from the barline" – what do you think this means?
- Asymmetrical meters and more frequent changes in meter
- Ambiguity: Increased syncopation and downbeat ambiguity
- Feeling of multiple meters or subdivisions at the same time

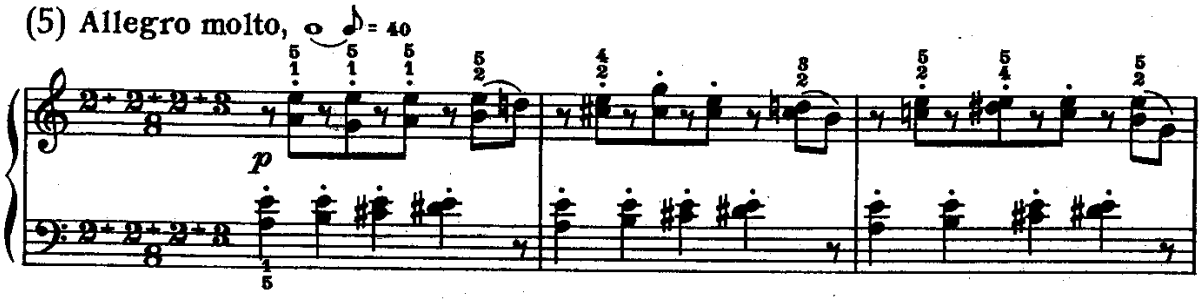
Asymmetrical meters

Composers sometimes have an asymmetrical grouping of a normally symmetrical meter: this is where we have 8 or 9 eighth notes per measure though **not** in their common groupings.

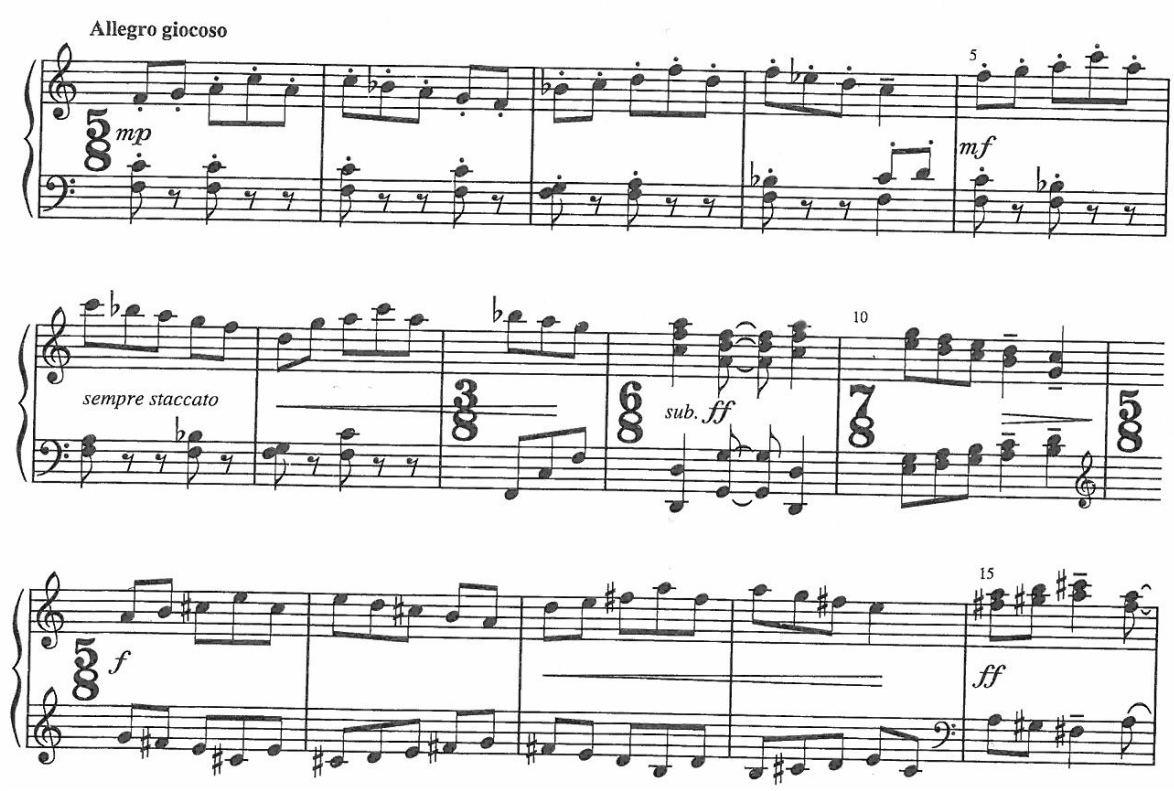
Bartok: A Fairy Tale from 44 violin duets



Bartok: Six Dances in Bulgarian Rhythm (no. 5) from Mikrokosmos



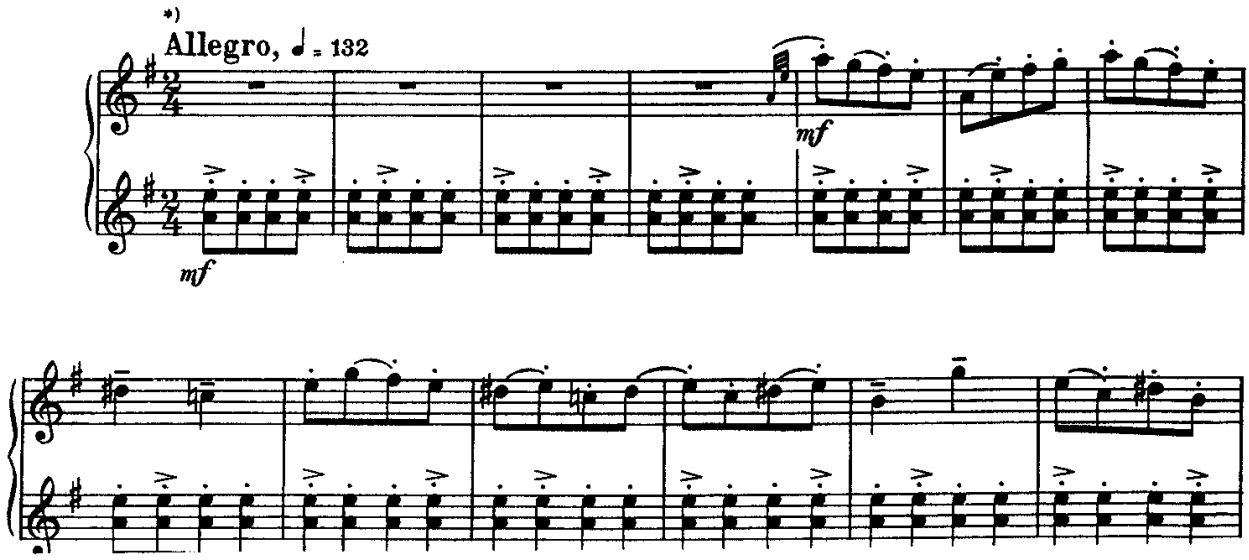
Adler: Capriccio



Displaced Accents

Composers can create a sense of irregularity by *displacing accents* and using *syncopation.* Displaced accents are where the composer intentionally goes against normal metric accents implied by the meter and instead accents a typically weak beat or division.

Bartok: Ruthenian Kolomeika from 44 violin duets

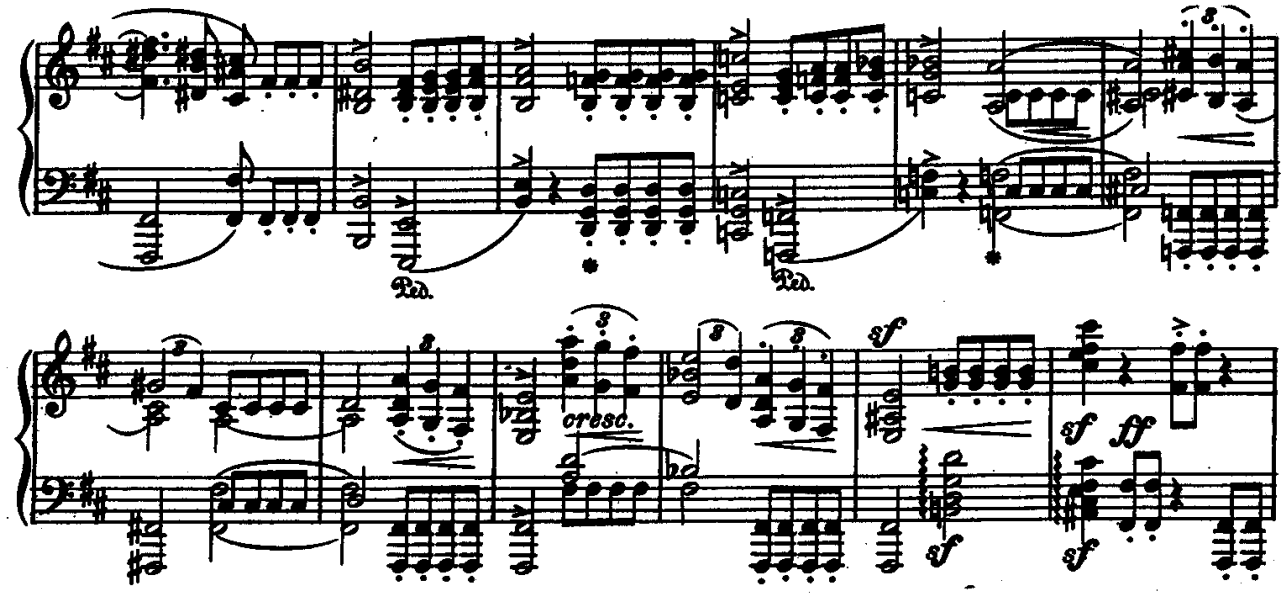


See also: Stravinsky's Rite of Spring, m. 76

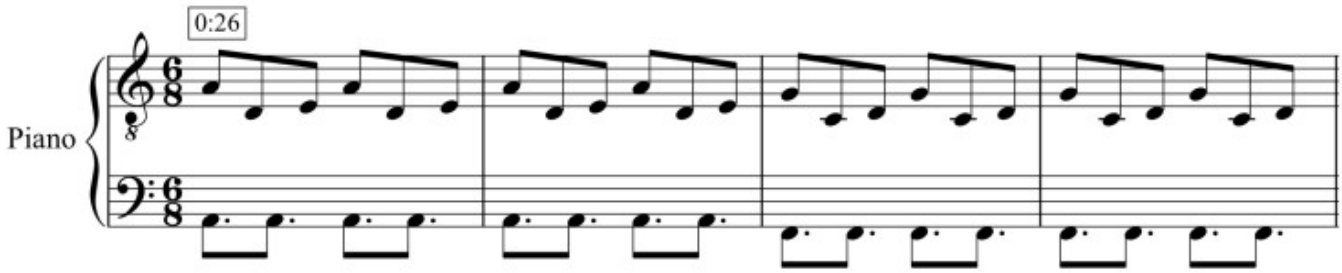
Polyrhythm/Polymeter

Polyrhythm is the simultaneous employment of different beat divisions and **polymeter** is the simultaneous use of two or more aurally distinguishable time signatures.

Brahms: Ballade op. 10 no. 2 (2:11)

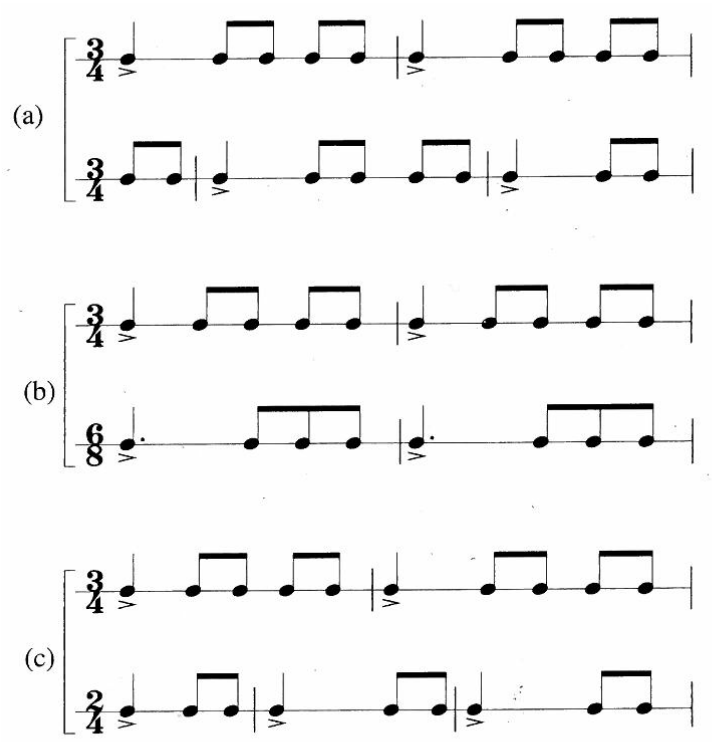


Radiohead: Daydreaming (courtesy of Brad Osborn)



Types of Polymeter (from Materials of 20th century music – Stefan Kostka)

a) The same meter, barlines not coinciding
b) Two different meters, the barlines coinciding
c) Two different meters, barlines not coinciding

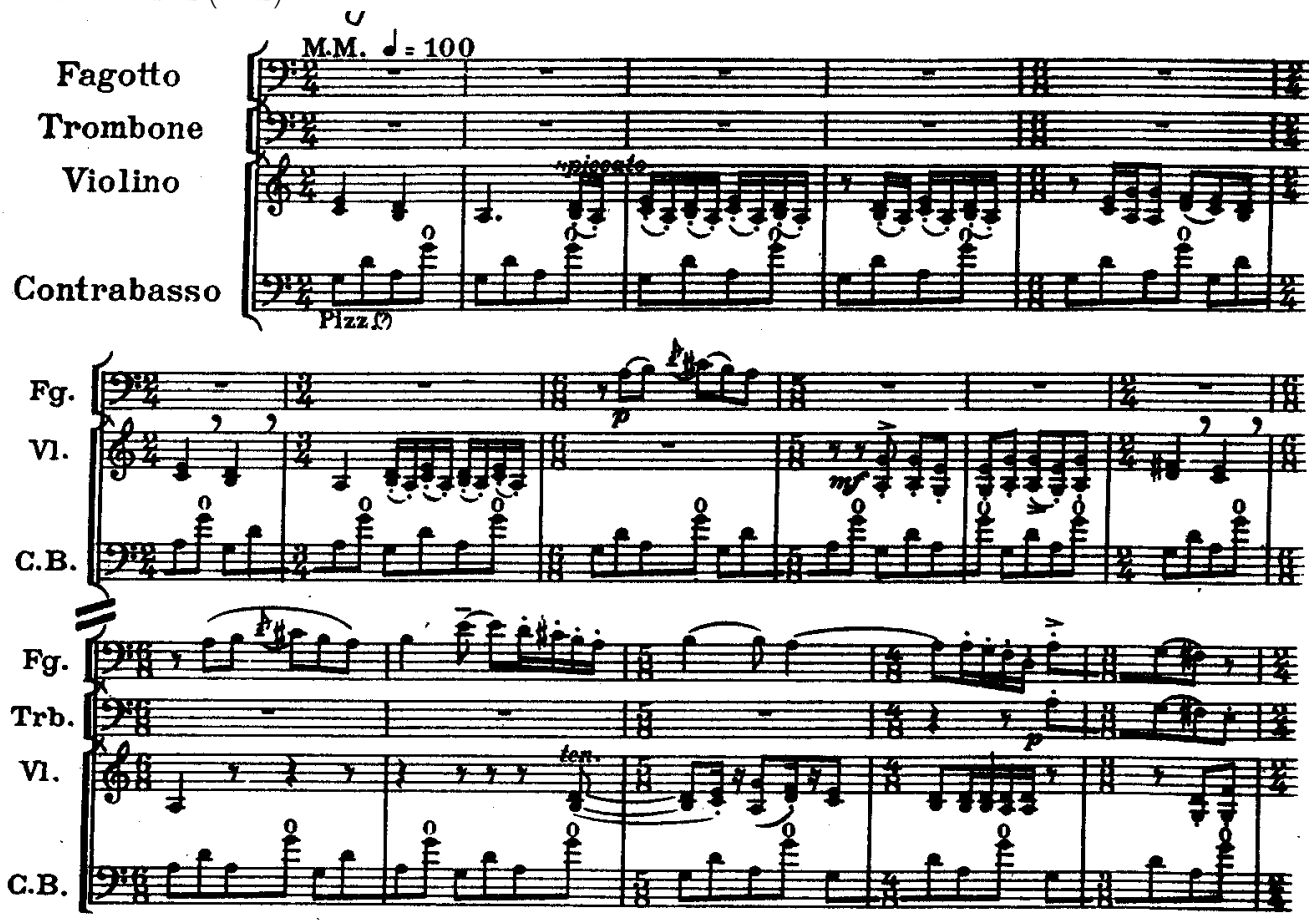


Obstruction of the barline and polymeter in Stravinsky's *L'histoire du Soldat*

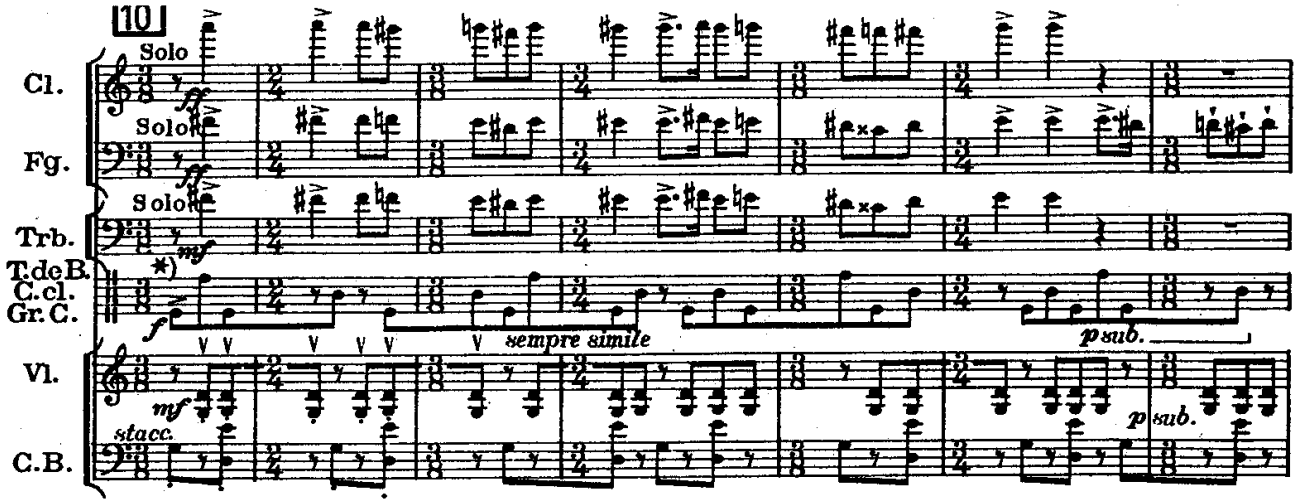
L'histoire du soldat; translated as *The Soldier's Tale* or *A Soldier's Tale*, is a 1918 theatrical work "to be read, played, and danced" set to music by Igor Stravinsky. The music is scored for a septet of violin, double bass, clarinet, bassoon, cornet, trombone, and percussion, and the story is told by three actors: the soldier, the devil, and a narrator, who also takes on the roles of minor characters. The story centers around a soldier who trades his fiddle to the devil for a book that predicts the future of the economy. The piece

was written for small ensemble to compensate for the lack of players due to World War I. Listen for any examples of polymeter and for the rhythmic aspects that create uncertainty and unpredictability.

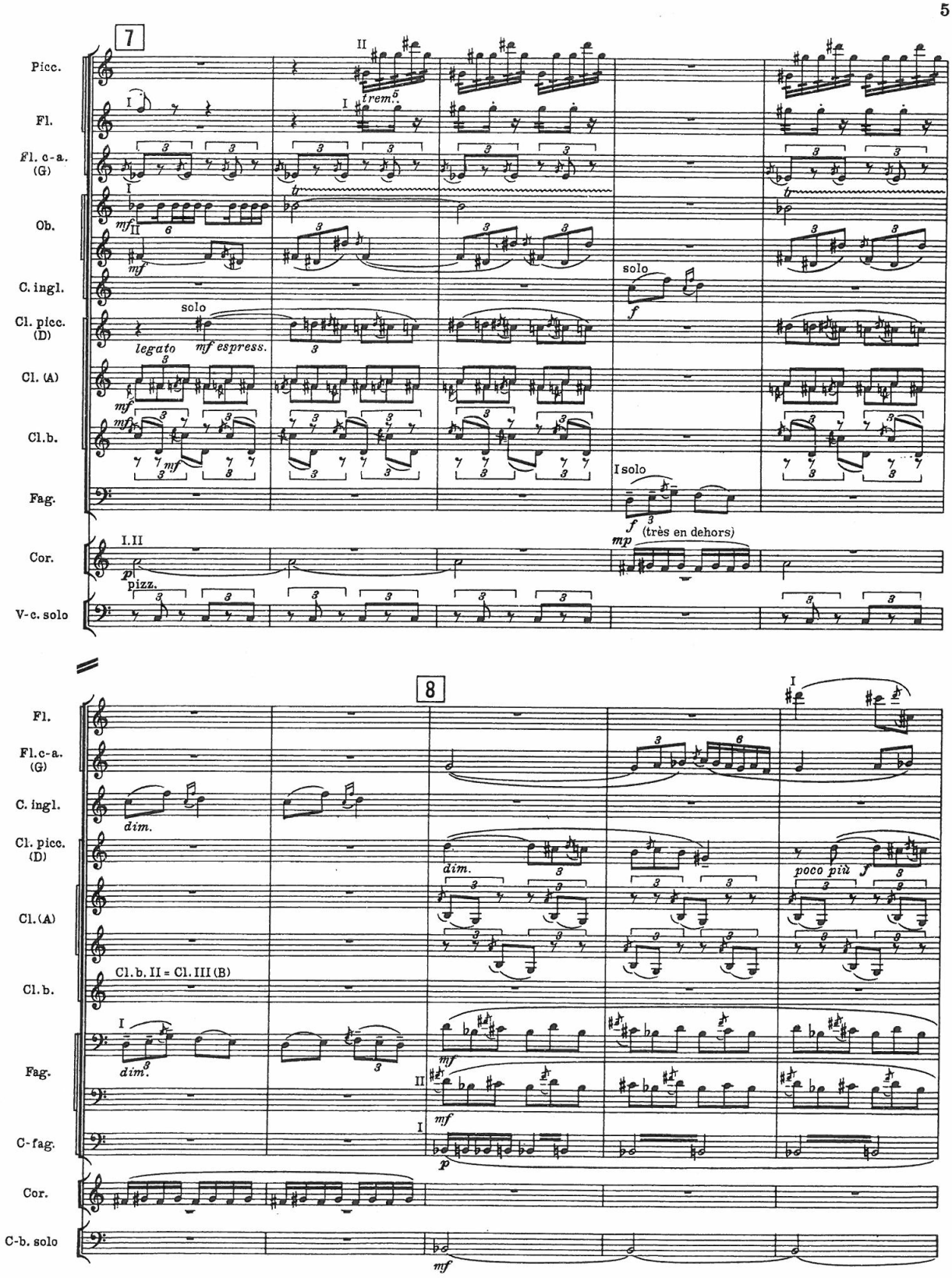
Movement 2 (1:42)

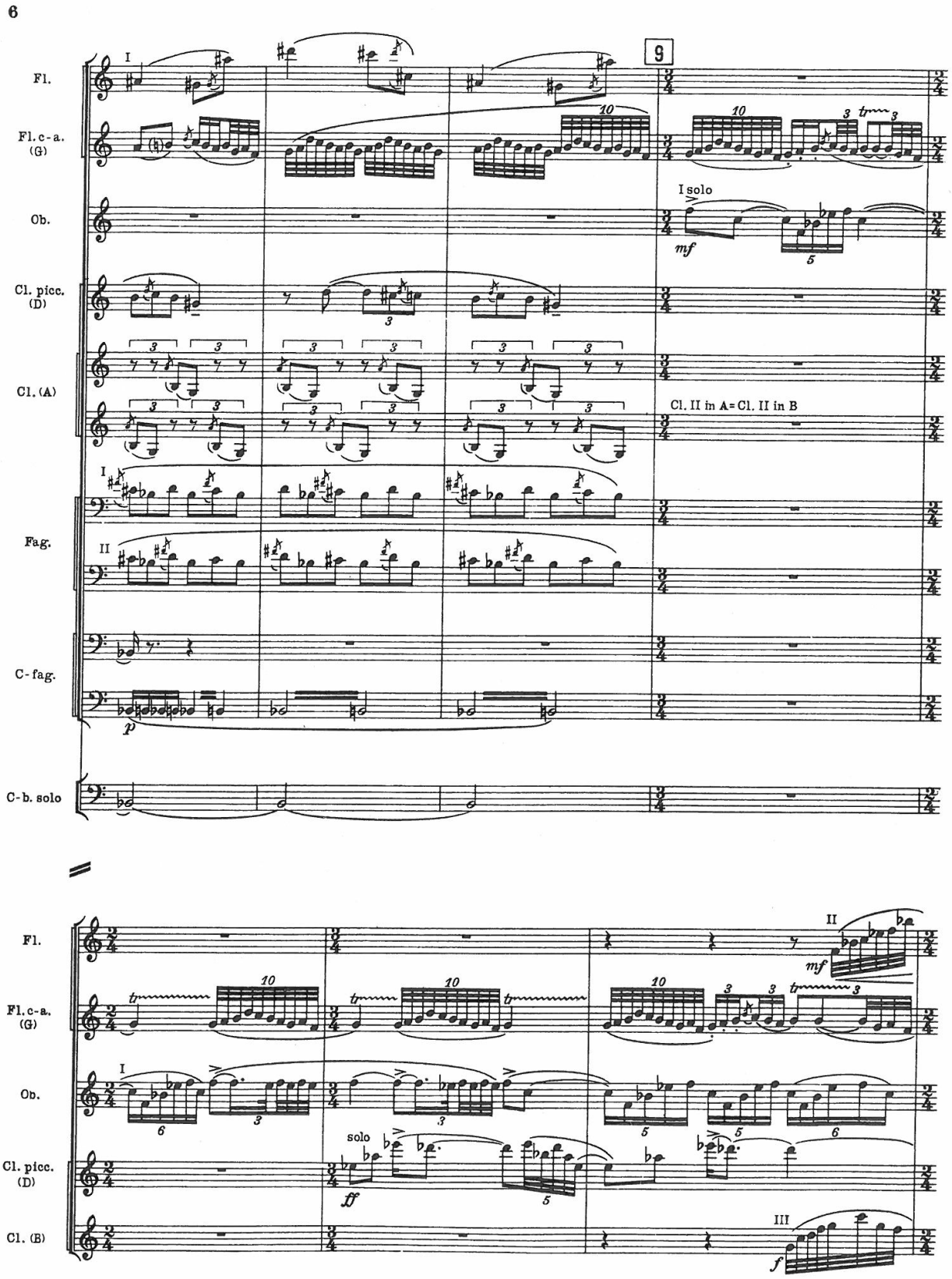


Marche du soldat

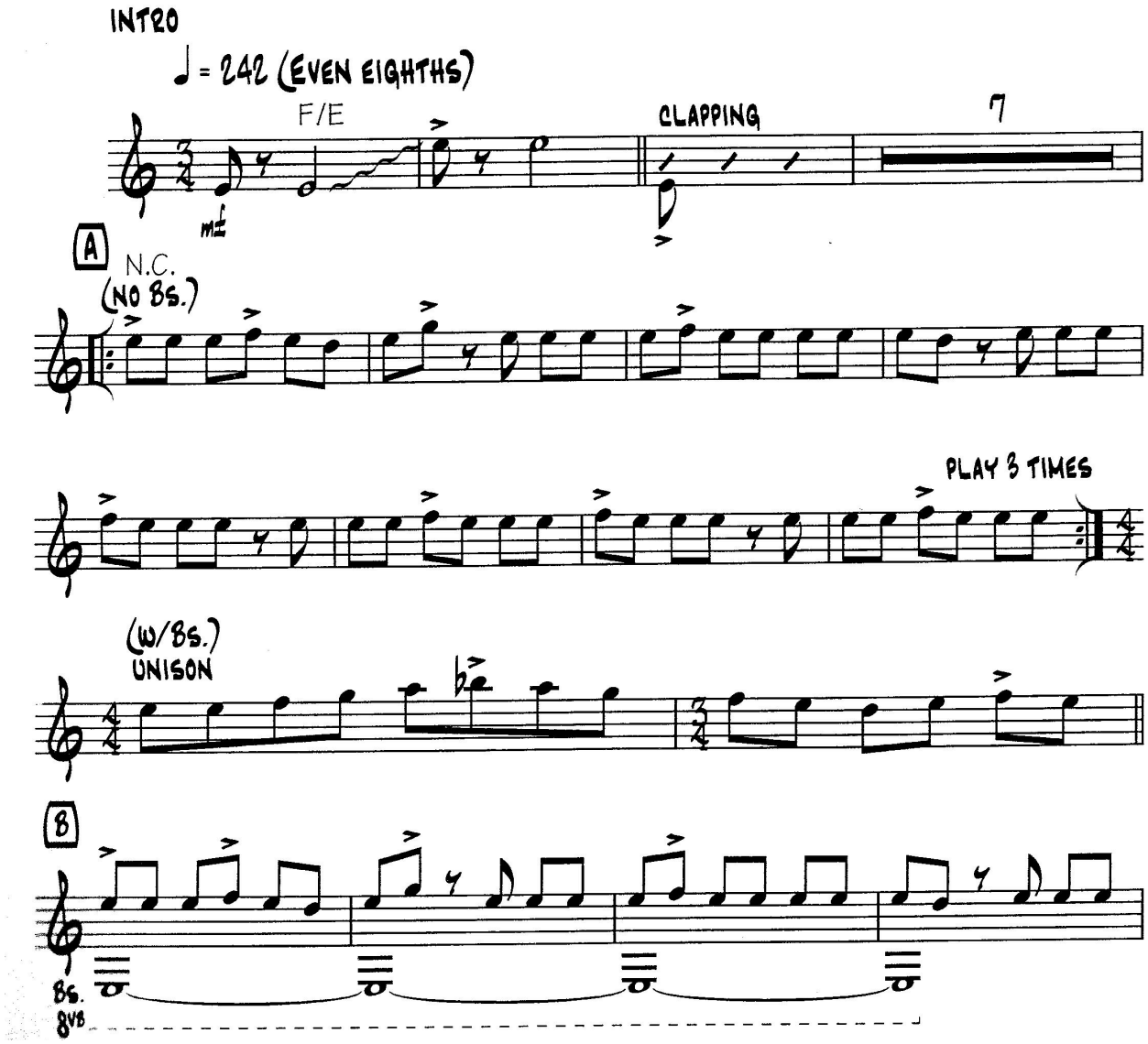


Polymeter and polyrhythm in Stravinsky's *Rite of Spring*




6
9
Fl.
Fl. c-a. (G)
Ob.
Cl. picc. (D)
Cl. (A)
Fag.
C-fag.
C-b. solo
I solo
Cl. II in A = Cl. II in B
solo
Cl. (B)

Pat Metheny Group: Heat of the Day



Advanced Music Theory – Atonality

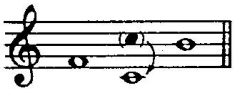
Atonal music is music that is not centered around a central key or scale and avoids the conventional melodic, harmonic, and rhythmic patterns that typically establish tonality. In 1908, **Arnold Schoenberg** began composing atonal music, and this music is often termed *freely atonal*, as there was no method for maintaining this atonality. Schoenberg's students were **Anton Webern** and **Alban Berg**, known as the ***Second Viennese School.***

Since atonal music does not make use of functional harmony or tonal melodies, composers often base their pieces on a small collection of pitches. A **cell** is a small collection of pitches (typically 3 or 4) which together with various transformations (and perhaps with other cells), forms the melodic/harmonic basis of a work. Below are some typical ways in which a cell is used (from Ralph Turek – Elements of Music vol. 2).

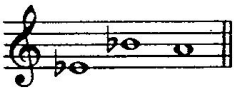
1 Original cell

2 **Verticalization**
(all members sounding simultaneously)

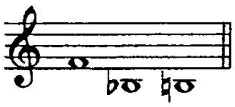
3 Octave displacement
(one or more members transposed an octave)



4 Transposition
(all members transposed by the same interval)

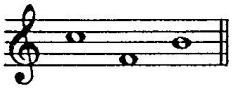


5 Melodic inversion
(Also called **mirror inversion**, each upward interval is replaced by its downward counterpart and vice versa.)

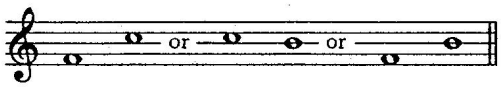


6 Retrograde
(members in reverse order)

7 Permutation
(*any* reordering of the members)

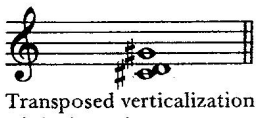


8 Fragmentation
(omission of one or more pitches)

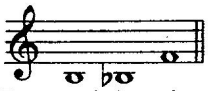


Note: Because of the brevity of the cell itself, this really amounts to a "fragmentation of a fragment" and *may* take the form of a single interval.

9 Any of the above processes in combination



Transposed verticalization of the inversion



Retrograde inversion

Set theory

Because of the great freedom in which composers transformed cells and the importance of intervallic relationships in atonal music, a method of analysis called ***set theory*** has been found useful in analysis. Some concepts that are essential to set theory are:

1) Enharmonic equivalence: in tonal music, accidentals reflect function and there is a difference between a m3rd and a +2. Lack of traditional harmonic function in atonal music renders enharmonic equivalents identical.

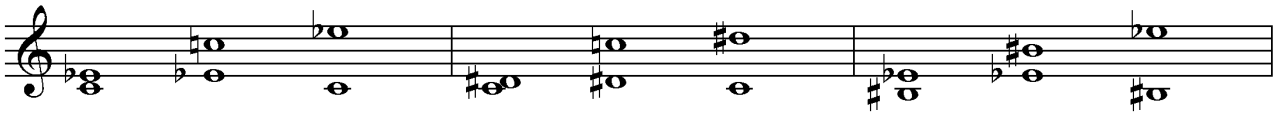
2) Pitch class: A pitch class is any given pitch and all 8v transpositions and enharmonic spellings.

3) Interval class (***Interval class will not be emphasized in this course, though is here as a reference)***: a boiling down of an interval to its smallest form. In atonal theory, we are going to consider an interval and its inversion to be equivalent, therefore the highest interval class is 6.

What matters is not the direction or order of the pitch classes, but the shortest span between the two pitch classes. Any interval, its inversion, all enharmonic spellings, and all compound forms would constitute a single interval class. Because an interval and its inversion are considered to be the same (E to C is the same as C to E), there are only 6 interval classes.

To determine interval class:
1) Organize the intervals to be within an octave
2) Simple intervals containing more than 6 half steps are inverted. This can be done by subtracting the number of ½-steps from 12 ***or*** by inverting any interval over a tritone.
3) The interval class is labeled by the #of ½ steps

<u>All of the following are IC3</u>



Why set theory?
All of the above cell transformations have the same interval content, regardless if the cell is inverted, retrograded, etc…. Set theory is a way of <u>comparing the interval content of pitch collections</u>. To help understand set theory, think of the term 'major triad.' When we refer to a 'major triad,' we are being unspecific of pitch and are referring only to the interval content; there are twelve possible transpositions and the intervals can be rearranged. When we numerically label pitch class sets, it is a similar label.

Steps:

First step in comparing collections is to arrange them in the same way. This is called normal form or normal order.

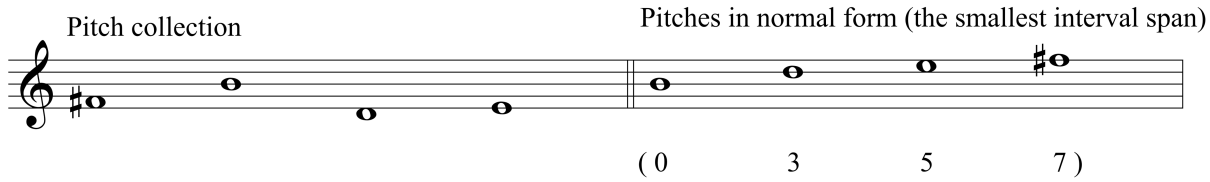
<u>Normal form</u>: If we want to be able to recognize a pitch class set (a group of pitches) no matter how it is represented in music, it is helpful to put it into a simple, compact, easily graspable form (like stacking a triad in root position).

1) Arrange the pitches:
- Within the span of a single octave
- With ordering that has the smallest interval from first to last
- If this is the same, choose the order with the smallest intervals on the left.

2) Assign the lowest pitch the number zero and list the # of half-steps between this pitch and each succeeding pitch. This allows us to numerically display a set's interval content. **Put these in parentheses: (0 3 4)**

3) Find the **prime form**, which is the most "boiled down" way of looking at a group of pitches. To find the prime form, compare the normal form of a pitch class set to its inversion; the prime form is whichever has the smallest intervals on the left. Prime form allows us to look at the set in all its forms (all transpositions and inversions). **Put these in brackets: [0 3 4]**

Example:



The inversion of (0 3 5 7) is (0 2 4 7) – you can figure this out by looking at the intervals backwards (look at ½ step distance from right to left) ***or*** finding the inversion the long way (inverting the intervals, writing these pitches on the lowest note, looking at the intervals). The prime form is [0 2 4 7] since it starts with the smaller intervals (is the most "packed" to the left).

Expressionism and Pierrot Lunaire

Expressionism was a modernist movement in art and music at the turn of the 20th century in Germany and Austria. Its typical trait is to present the world solely from a subjective perspective, often distorting it radically for emotional effect. Some traits of expressionism are:

- The depiction of inner emotions and the psychological state
- The portrayal of human terror, haunting anxieties, nightmarish fears, anguish.
- Musically, expressionist works often feature avoidance of tonal centers, dissonant and nontriadic harmony, use and manipulation of cells, musical expression of intensely dramatic texts, wide leaps and extreme registers.

Egon Schiele (1890-1918) was one of the most important expressionist artists in Vienna and his art was a reaction against the traditionalism in Austrian and German art. Schiele's art features extreme bodily gestures and depictions of the soul. He was imprisoned for his art being too explicit and pornographic and died of the Spanish flu at 28. Emperor Franz Joseph said of his work, "But this is awful." When he asked artist Gustav Klimt, Am I talented? Klint replied, "Yes, too much."

See the following paintings:

- Self-portrait with Chinese Lantern Plant (1912)
- Hermits (1912)
- Self Portrait Screaming (1910)

Schoenberg's expressionist period was from approximately 1907-1913. Pierrot Lunaire (1912) is gist most important expressionist piece and is for 5 performers, 8 instruments: Piano, flute/piccolo, cello, clarinet/bass clarinet, violin/viola, soprano.

Schoenberg chose twenty-one poems by Albert Giraud for the piece and used the technique of sprechstimme, a mixture between speech and singing. The work is in 3 parts: In Part I, Pierrot, drunk, is subject to a whirlpool of feelings and fantasies about love, sexual longing, and religious hysteria. Part II finds him plunged into a nightmare world of pillage, violence, and blasphemy. He climbs slowly from this murky depth in Part III, journeying toward his home in sunny Bergamo and returning, at last, to the daylight world and thoughts of a fabled past.

Moonfleck, from Pierrot Lunaire

Einen weißen Fleck des hellen Mondes
Auf dem Rücken seines schwarzen Rockes,
So spaziert Pierrot im lauen Abend,
Aufzusuchen Glück und Abenteuer.

Plötzlich stört ihn was an seinem Anzug,
Er beschaut sich rings und findet richtig -
Einen weißen Fleck des hellen Mondes
Auf dem Rücken seines schwarzen Rockes.

Warte! denkt er: das ist so ein Gipsleck!
Wischt und wischt, doch - bringt ihn nicht herunter!
Und so geht er, giftgeschwollen, weiter,
Reibt und reibt bis an den frühen Morgen -
Einen weißen Fleck des hellen Mondes.

One white spot from the bright moon
On the back of his black coat,
So Pierrot walks in mild evening
Searching for luck and adventure.

Instantly he's troubled by something on his suit,
He looks himself over and finds sure enough--
One white spot from the bright moon
On the back of his black coat.

Wait! he thinks: that's a spot of plaster!
Wipes and wipes, but-can't get it out!
So on he goes, swollen with fury, farther,
Rubs and rubs until early morning--
One white spot from the bright moon.

Webern: Five Movements for String Quartet mvt. *3* (1909)

Questions:

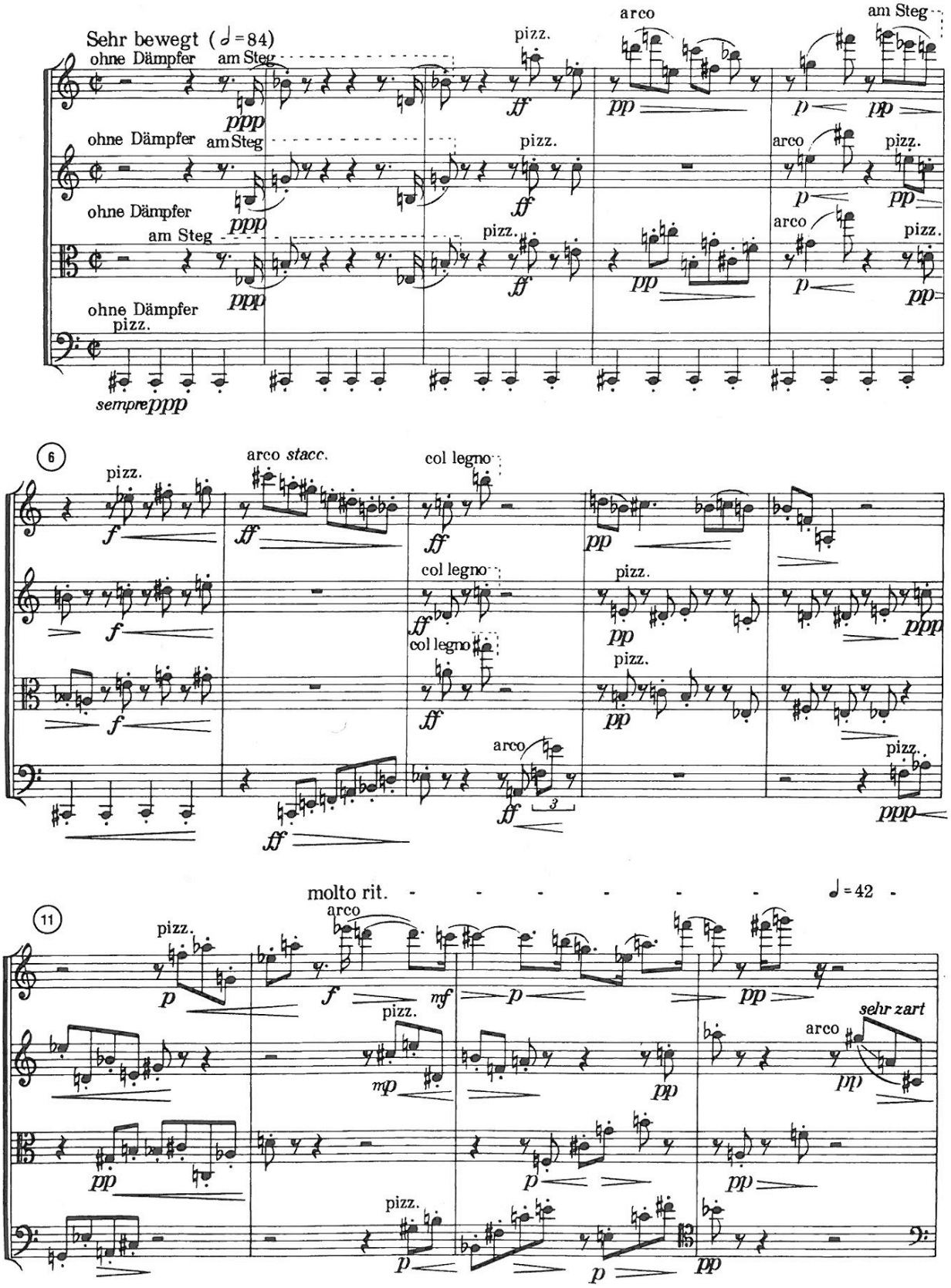
1. What is the form and how many sections do you hear? What differentiates the sections?

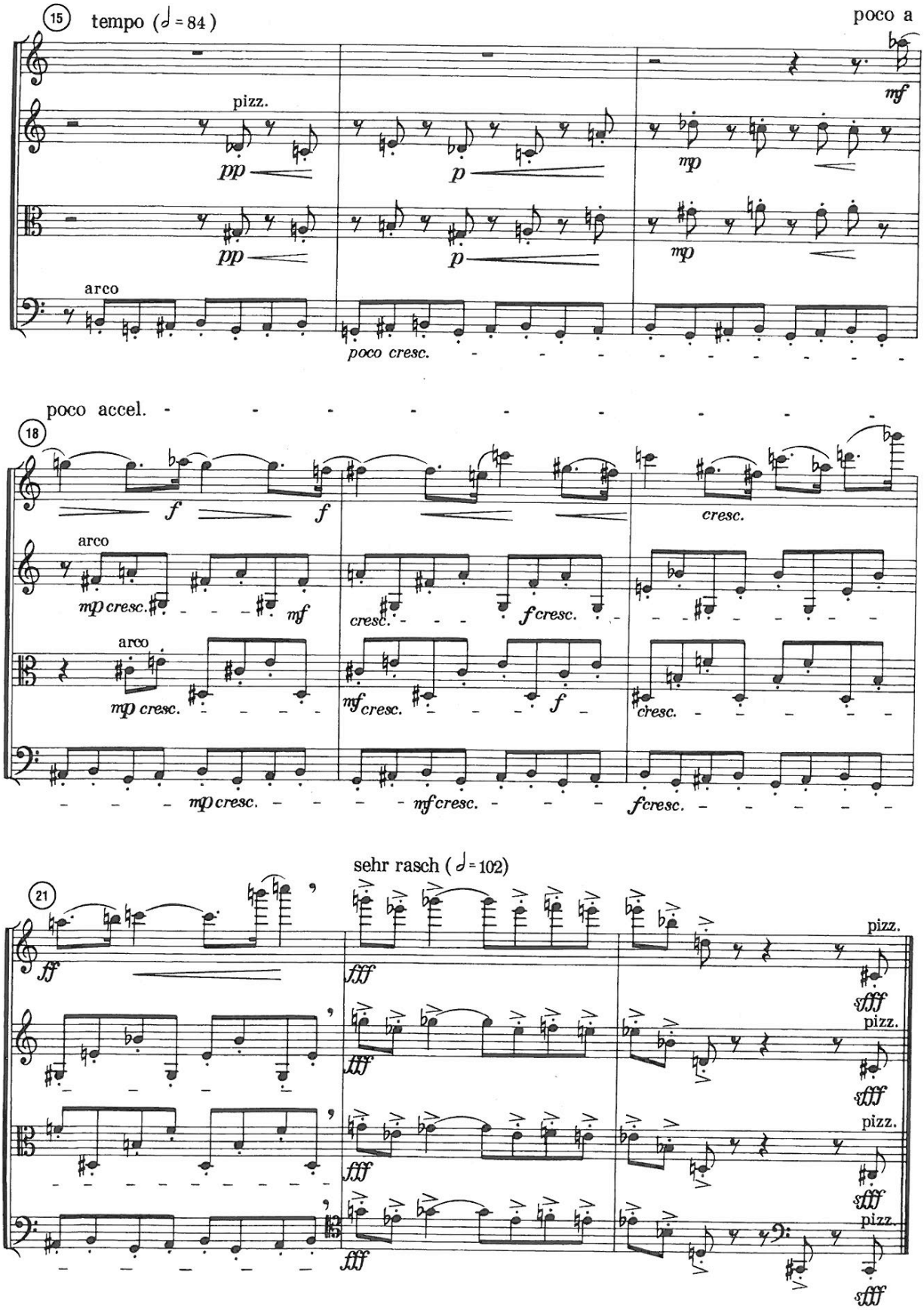
2. Though a freely atonal piece, there is sense of a pitch anchor here (this is something that is much less common in Webern's later works). What pitch or pitches seem to carry special significance?

3. Are there elements of repetition a listener can "grab onto?"

4. Compare the last three vln.1 pitches of m.6 to the 1st three vln.1 pitches of m.9. Find the set class (prime form). It is important not to stop at labeling pitch class sets, but to explore how pitches are related. How are these related?

5. As we know, the first section of the piece makes use of the set [014]. The prevalence of this set gives a cohesive and organic sound to this section and to the entire piece. The section starting at m.15 utilizes [014] while also having a sound of its own with usage of other sets as well. What sets are used in this section that were not heard in the first half of the piece? Where do you see [014] that was used in the 1st half?




15
tempo (𝅗𝅥 = 84)
poco a
pizz.
pp
p
mp
mf
arco
poco cresc.
poco accel.
18
f
cresc.
mp cresc.
mf
f cresc.
sehr rasch (𝅗𝅥 = 102)
21
ff
fff
sfff
pizz.

Advanced Music Theory – 12-tone serialism

Schoenberg, feeling that his freely atonal music lacked organizing power, sought a new system that gave atonal music coherence and organization. His 12-tone method uses an ordering of the 12 pitches as the basis of a musical work. In 1923, Schoenberg composed his first works based on the 12-tone method and this method was adopted by students Anton Webern and Alban Berg as well as many later composers. The term serialism refers to music that uses an ordered series and later on in the 20th century, some composers looked to order rhythm, dynamics, and more. What we will be discussing, where the 12 pitches are ordered, is referred to as 12-tone serialism, 12-tone music, or dodecaphonic music. Schoenberg set out the following guidelines for his 12-tone method:

1. A 12-tone row or series is the basis of the composition.
2. No pitch class in a given statement is to be sounded out of order. Any pitch class may appear in any octave.
3. No pitch class is to be repeated, except immediate repetition.
4. Octave doubling is to be avoided.

There are 4 basic forms of a 12-tone row:
Prime (P): The original series
Retrograde (R): The series in reverse order
Inversion (I): The series in mirror form
Retrograde Inversion (RI): The inversion in reverse order

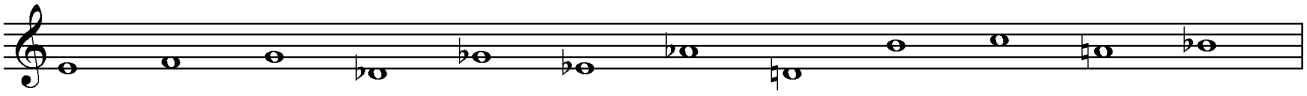
Any of the four basic row forms is available in 12 transpositions, yielding 48 possible transformations.

A number indicates the starting pitch of the row.

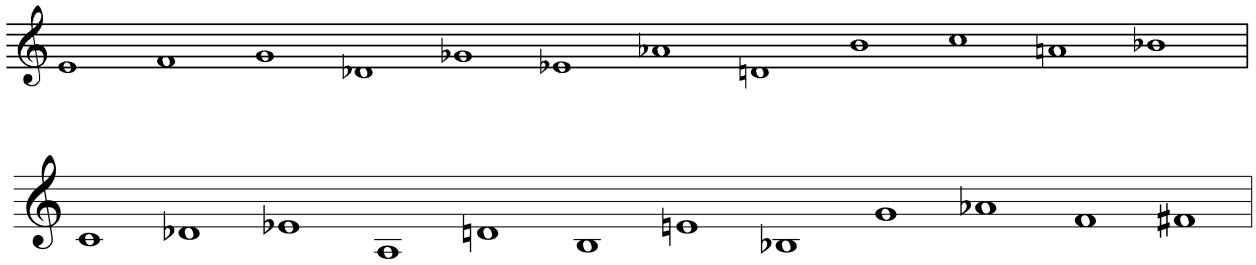
- We will use a fixed approach where C is always 0, C#=1, D=2, etc…. Therefore P4 would refer to the Prime form beginning on E and I7 would be the inverted form of the row starting on G.
- ***Labels for R and RI forms of the row refer to the starting pitch of either P or I forms of the row*** (think Retrograde *of* P4, etc…)

The 12-tone matrix: A matrix is an analytical aid that conveniently displays all 48 forms of the row.

Row from Schoenberg's *Suite for Piano*

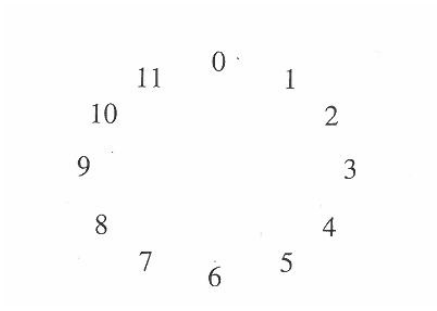


1. To start a matrix, take your 12-tone row upon which the piece is based and transpose it to C. Your matrix will start ***with the C version of the row*** across the top. While you can transpose the row to C and then assign #s (C=0, C#=1, etc….), you can also just start on 0 and look at the intervals from there (if E to F goes up 1 half-step and F-G a whole-step, you would go 0,1,3). Continue with your C form (P0) of the row across the top.



0 1 3 9 2 11 4 10 7 8 5 6

I find it useful to envision a circular clock face with numbers 0 through 11 when adding/subtracting. Subtracting 3 half-steps from 1 (C#) would yield 10 (Bb).



2. Construct the I form of the row going down. The inversion plus the original will equal 12, so subtract the P number from 12. Ex: the inversion of 1 is 11, the inversion of 3 is 9.

0 1 3 9 2 11 4 10 7 8 5 6
11
9
3
10
1
8
2
5
4
7
6

3. List all successive P forms on each member of I_0. Do this by following the interval succession of the P row ***or*** subtracting or minusing from another row (P3 would be adding two to all pitches in the P1 row, etc….). Make sure you consider that 12=0, therefore adding 5 to 9 would yield 2.

I ↓

	0	1	3	9	2	11	4	10	7	8	5	6
	11	0	2	8	1	10	3	9	6	7	4	5
	9	10	0	6	11	8	1	7	4	5	2	3
	3	4	6	0	5	2	7	1	10	11	8	9
	10	11	1	7	0	9	2	8	5	6	3	4
P→	1	2	4	10	3	0	5	11	8	9	6	7 ← R
	8	9	11	5	10	7	0	6	3	4	1	2
	2	3	5	11	4	1	6	0	9	10	7	8
	5	6	8	2	7	4	9	3	0	1	10	11
	4	5	7	1	6	3	8	2	11	0	9	10
	7	8	10	4	9	6	11	5	2	3	0	1
	6	7	9	3	8	5	10	4	1	2	11	0

RI ↑

2. Label your rows ***by always using the top and left rows for your index number***. A retrograde of the row; B-flat, A, C, B, C# etc… would therefore be labeled R4 (the retrograde of P4).

<u>12-tone matrix for Webern's *Wie bin Ich Froh!*</u>

<u>First form of the row</u>: F# F D E Eb C A C# G# B Bb G

<u>C form of the row:</u> C B Ab Bb A F# Eb G C# F E C#

The matrix starts with the C form of the row on top. P=Prime, I=Inversion R=Retrograde RI=Retrograde Inversion (retrograde of the inversion). Label with the form of the row and the pitch on the top or left. So, the prime form of the row starting on E would be P4, the inversion form of the row on Bb would be I10, the retrograde form of the row starting on G would be R6 (as it is the retrograde of P6), and the retrograde inversion form of the row starting on D would be RI3.

I ↓

P →

0	11	8	10	9	6	3	7	2	5	4	1
1	0	9	11	10	7	4	8	3	6	5	2
4	3	0	2	1	10	7	11	6	9	8	5
2	1	10	0	11	8	5	9	4	7	6	3
3	2	11	1	0	9	6	10	5	8	7	4
6	5	2	4	3	0	9	1	8	11	10	7
9	8	5	7	6	3	0	4	11	2	1	10
5	4	1	3	2	11	8	0	7	10	9	6
10	9	6	8	7	4	1	5	0	3	2	11
7	6	3	5	4	1	10	2	9	0	11	8
8	7	4	6	5	2	11	3	10	1	0	9
11	10	7	9	8	5	2	6	1	4	3	0

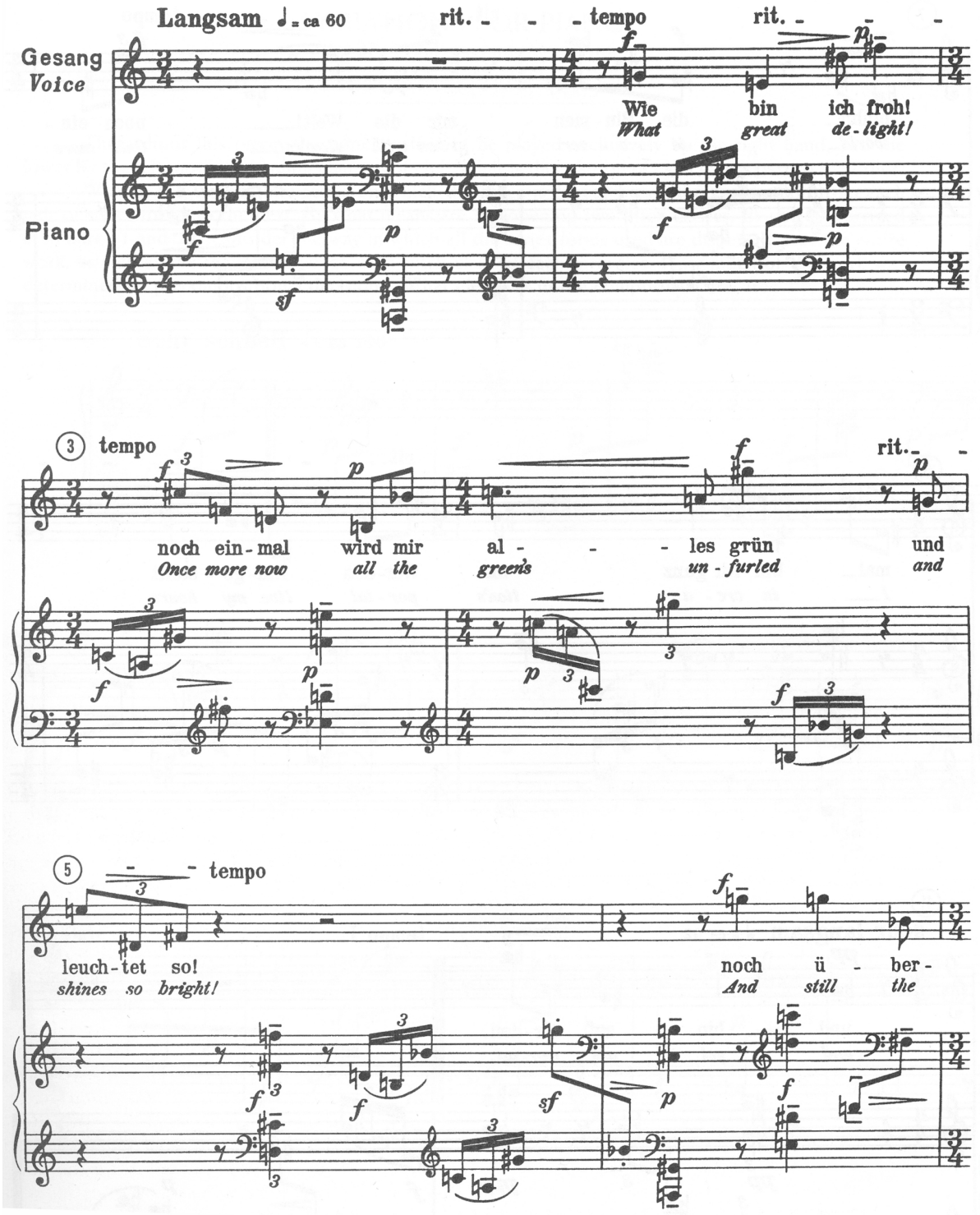
← R

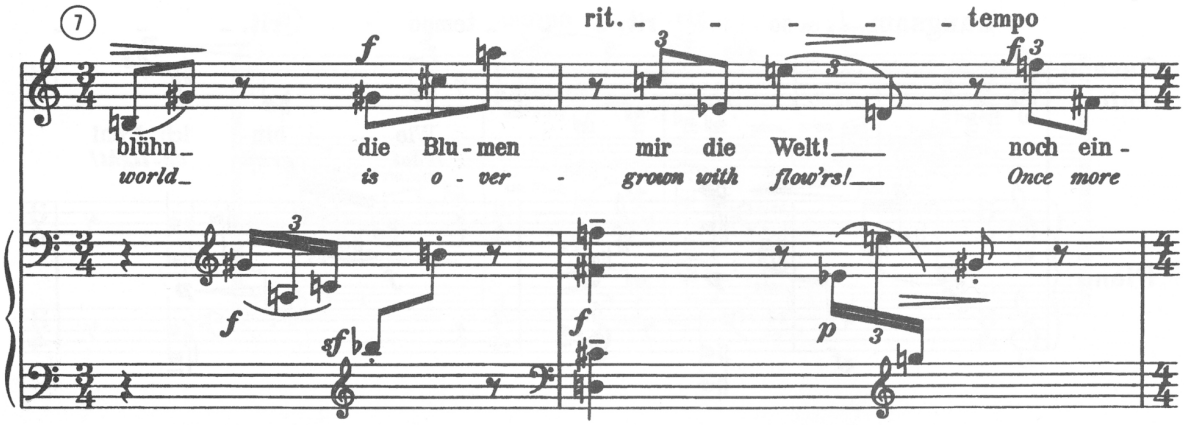
RI ↑

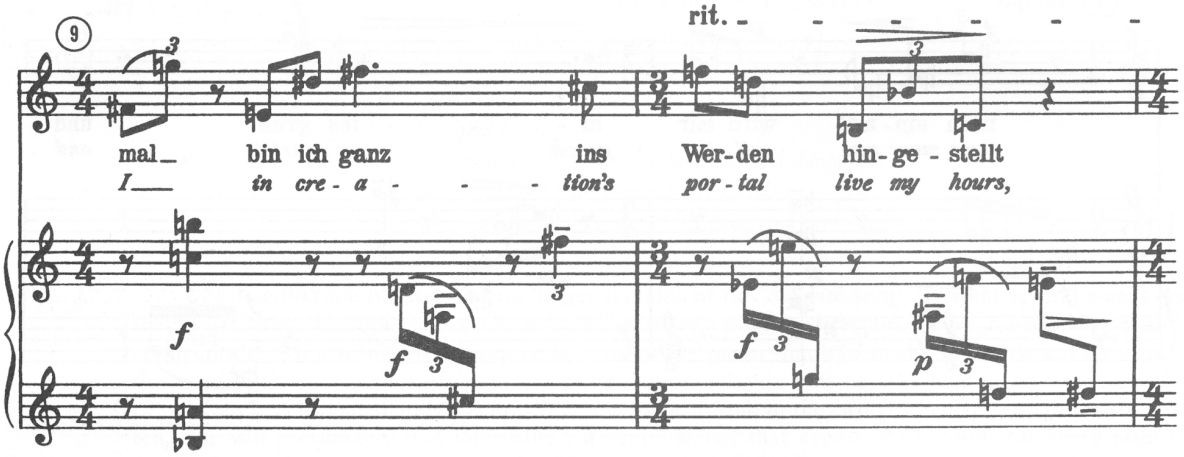
Some of Webern's music, as well as some of Schoenberg's, can be considered ***pointillistic.*** From Bryan Simms *Music of the Twentieth Century* (referring to Webern op. 21): "This texture consists of several lines, each of which is made discontinuous by the placement of rests, large leaps, disjunctions in register, and rapid changes of color. It is, in fact, difficult to perceive any lines in the traditional sense, and the listener's attention is at first drawn to a mottled array of individual sounds and intervals. Webern's texture of this kind may be described as *pointillistic.* This term comes from art criticism, where it refers to a technique of painting used by Georges Seurat (1859-91) and Paul Signac (1863-1935), in which subjects are represented by a multitude of dots of pure color. The mosaic of dots appears at a distance to merge into recognizable forms."

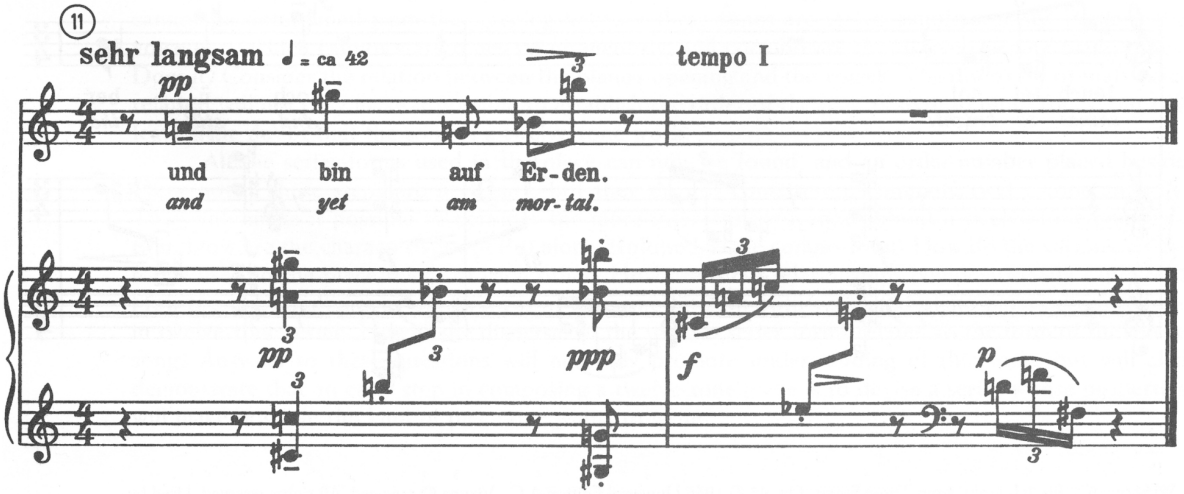
When tone color and orchestration are used to achieve this, the term Schoenberg coined was ***klangfarbenmelodie*** (tone color melody) where melodies are created by successions of different colors as well as pitches. Think of a melody where each notes has a different color (clarinet has one note, flute another, etc..)

Webern: *Wie Bin Ich Froh*! from op. 25 (1935)




7
rit. - - - - - tempo
blühn_ die Blu - men mir die Welt!___ noch ein -
world_ is o - ver - grown with flow'rs!___ Once more


9
rit. - - - - - -
mal_ bin ich ganz ins Wer-den hin-ge - stellt
I___ in cre - a - - - tion's por - tal live my hours,


11
sehr langsam ♩= ca 42
tempo I
und bin auf Er-den.
and yet am mor-tal.

Stravinsky's Serial Period

Stravinsky's late period characteristics

- Became interested in Schoenberg and Webern's twelve-tone serialism upon Schoenberg's death in 1952
- Stravinsky developed his approach to serialism and adapted it to his style, using smaller rows of non-repeating notes
- *In Memoriam Dylan Thomas* (1954) was his first completely serial piece and used a 5-note row. *Threni (*1957) was Stravinsky's first 12-tone work.

The Stravinsky/Schoenberg relationship: from *Assisting Stravinsky: On a Misunderstood Collaboration*, Robert Craft: www.theatlantic.com/past/docs/issues/82dec/craft82.htm

Visitors to the Stravinsky home, including Darius Milhaud, a friend of many years, also refrained from mentioning Schoenberg to Stravinsky, though I knew from Mrs. Schoenberg that Milhaud regularly called at their house when he was in Los Angeles. Even the far-from surreptitious Otto Klemperer never pronounced the name Schoenberg to Stravinsky. One day when the eminent conductor came to lunch, I greeted him with, underarm, a serial score I was to conduct in an Evenings-on-the-Roof concert. He grabbed the music, glanced at it, pointed to the first notes, counted aloud from one to twelve, and said to me in his stentorian voice: "Nowadays no one is doing anything else." Stravinsky overheard this but made no reference to the twelve-tone vogue. During the meal, he did not inquire about Schoenberg, probably assuming that Klemperer would be going to his house as well. When Klemperer had left, Stravinsky and I examined the score together, but its serial aspect did not interest him at all.

An incident told me by Dahl indicates that Schoenberg's followers were as cautious as Stravinsky's in mentioning the "enemy" name. One day when Dahl knocked at the Schoenberg door, Richard Hoffmann, from Vienna, a pupil and distant relative of Schoenberg's, opened it and exclaimed: "Zomeone from ze ozzer camp."

Nonetheless, subordinates usually echo their masters, and in this case must have known that no love was lost between them. It is reasonable to assume that the rivals themselves were jealous of each other: Schoenberg of Stravinsky's popularity, Stravinsky of Schoenberg's mystique with the intellectual elite. I think that I alone was aware that neither composer knew anything about the other's music, having realized that each of them had been unwilling to examine his own prejudice -- Schoenberg's being that Stravinsky depended on formulas and a bag of tricks, Stravinsky's that Schoenberg was a slave to a rigid, abstract system.

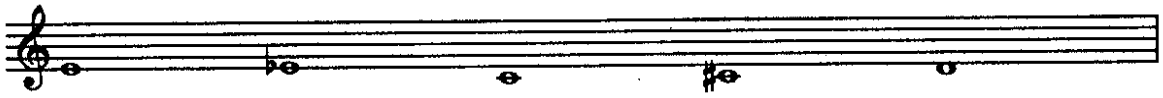
A week later, he asked to go for a drive to Palmdale, at that time a small Mojave Desert town, where the Stravinskys liked to eat spareribs and drink Bordeaux from thermos bottles in a cowboy-style restaurant. On the way home, he startled us, saying that he was afraid that he could no longer compose and he did not know what to do. For a moment he broke down and actually wept, whereupon Mrs. Stravinsky convinced him that these feelings and the musical problems, whatever they were,

would pass. He referred obliquely to the powerful impression that the Schoenberg piece had made on him, and when he said that he wanted to learn more, I knew that the crisis was over; so far from being defeated, Stravinsky would emerge a new composer.

In Memoriam Dylan Thomas (1954)

- Composed after the death of Welsh writer Dylan Thomas (1913-1953)
- The number five is significant in the piece (tone row, meter, and instrumentation).
- The piece is structured in three parts: *Song* (tenor and string quartet) with two *Dirge Canons (*string quartet and trombones) that opens and closes the work.
- Thomas's poem "Do not go gentle into that good night" is the text for the song.

<u>5-note row of *In Memoriam Dylan Thomas*</u>



Row forms (the reverse of prime is retrograde, the reverse of retrograde is retrograde inversion)

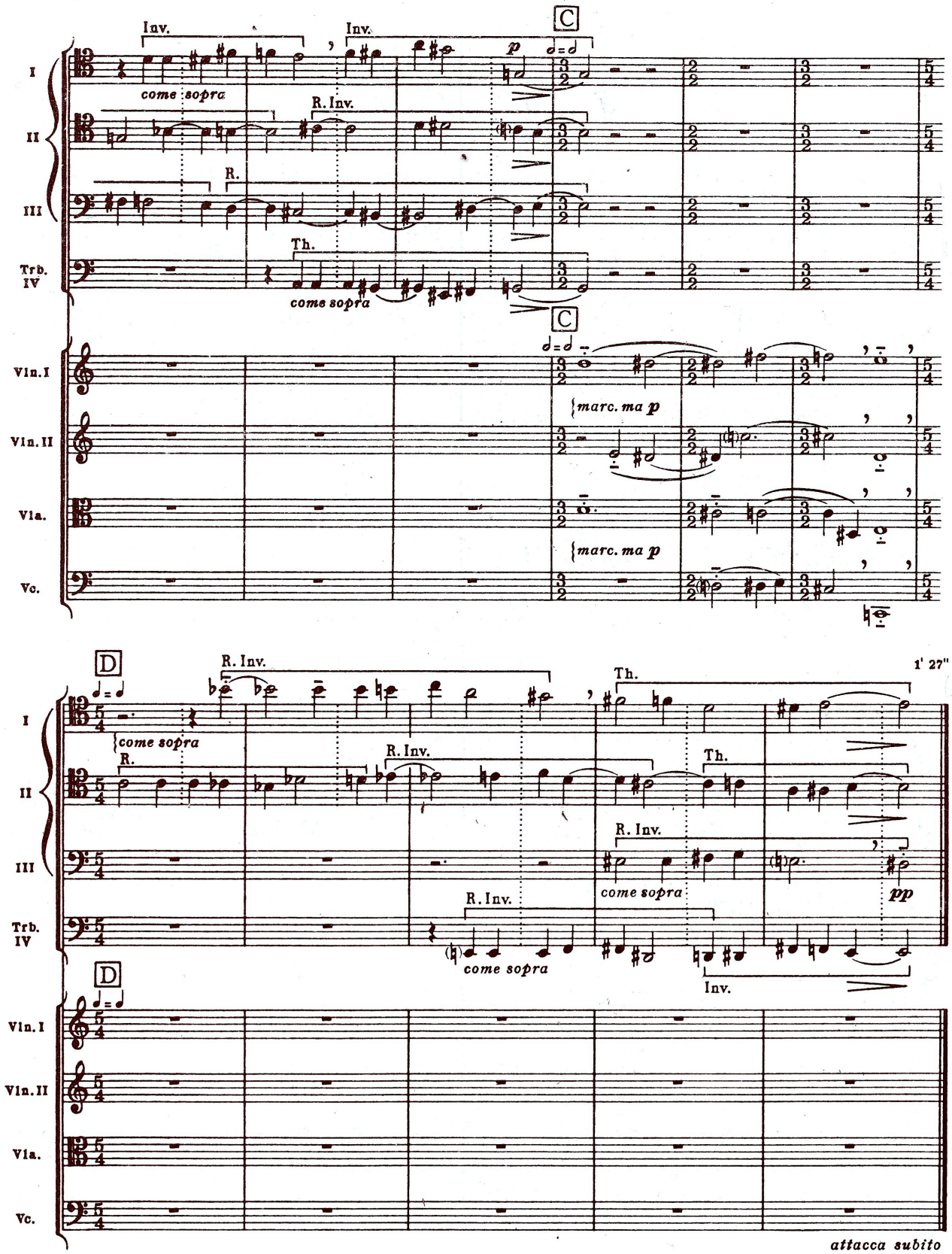
P_4	E	E♭	C	C♯	D	I_0	C	C♯	E	E♭	D
P_5	F	E	C♯	D	E♭	I_1	C♯	D	F	E	E♭
P_6	F♯	F	D	E♭	E	I_2	D	E♭	F♯	F	E
P_7	G	F♯	E♭	E	F	I_3	E♭	E	G	F♯	F
P_8	A♭	G	E	F	F♯	I_4	E	F	A♭	G	F♯
P_9	A	A♭	F	F♯	G	I_5	F	F♯	A	A♭	G
P_{10}	B♭	A	F♯	G	A♭	I_6	F♯	G	B♭	A	A♭
P_{11}	B	B♭	G	A♭	A	I_7	G	A♭	B	B♭	A
P_0	C	B	A♭	A	B♭	I_8	A♭	A	C	B	B♭
P_1	C♯	C	A	B♭	B	I_9	A	B♭	C♯	C	B
P_2	D	C♯	B♭	B	C	I_{10}	B♭	B	D	C♯	C
P_3	E♭	D	B	C	C♯	I_{11}	B	C	E♭	D	C♯

I Tromboni tenori
II Tromboni tenori
III
Trombone basso
IV
Violino I
Violino II
Viola
Violoncello

M. M. ♩ = 100-102

Theme
Inversion
Riversion
Th.
Inv.
R.Inv.
mp
etc. sim.

A
B
R.
come sopra
Inv.
Trb. IV
Vln. I
Vln. II
Vla.
Vc.
marc. cant.


Inv.
Inv.
C
p
come sopra
R. Inv.
R.
Th.
come sopra
I
II
III
Trb. IV
Vln. I
Vln. II
Vla.
Vc.
marc. ma p
marc. ma p
D
R. Inv.
1' 27"
Th.
come sopra
R.
R. Inv.
Th.
R. Inv.
come sopra
pp
R. Inv.
come sopra
Inv.
attacca subito

Advanced Music Theory - Minimalism

Minimalism was a style of music that originated in the 1960s that contrasted greatly with serial music in the middle of the 20th century. The key players in the beginning of the style known as minimalism were Terry Riley, Lamonte Young, Philip Glass, Steve Reich, and John Adams (though he comes a bit later). Minimalism, also a movement in visual art, often has some of the following characteristics:

- Use of short motives and a small amount of musical material
- Highly repetitive with repeated short patterns
- Equality of timbre and rhythm, consistent density, often static texture
- Longer pieces with a gradual unfolding (the process on which the piece is based can be heard, unlike serial music),
- Very tonal
- Triadic harmonies
- Strong sense of pulse and rhythmic groove

Composer John Adams, whose music is often considered post-minimal and sometimes combines minimalism, a sense of Romantic harmony and lyrical melody, and often Stravinsky-like rhythm (see pieces below), had the following to say on the oft-spoken idea that minimalism was a reaction to 12-tone music in his autobiography *Hallelujah Junction:*

> "But it's been my experience that creative artists don't make art in the negative mode. One doesn't suffer through the agonies of forging a personal language, of wresting something out of nothing simply to react against an oppressive father figure or merely to rebel against a perceived way of doing things. Granted, rebellion in a young artist can be a tonic, a productive and liberating energy. But work like *Le Sacre du Printemps (The Rite of Spring)*, *Pierrot Lunaire*, and Ives' Fourth Symphony emerged not because the composers were reacting against Wagner and his epigones but rather because the composers *needed* to make them, because the times had changed and a new expression, a new way of experiencing the world, was called for."

In C

Performing Directions

All performers play from the same page of 53 melodic patterns played in sequence.

Any number of any kind of instruments can play. A group of about 35 is desired if possible but smaller or larger groups will work. If vocalist(s) join in they can use any vowel and consonant sounds they like.

Patterns are to be played consecutively with each performer having the freedom to determine how many times he or she will repeat each pattern before moving on to the next. There is no fixed rule as to the number of repetitions a pattern may have, however, since performances normally average between 45 minutes and an hour and a half, it can be assumed that one would repeat each pattern from somewhere between 45 seconds and a minute and a half or longer.

It is very important that performers listen very carefully to one another and this means occasionally to drop out and listen. As an ensemble, it is very desirable to play very softly as well as very loudly and to try to diminuendo and crescendo together.

Each pattern can be played in unison or canonically in any alignment with itself or with its neighboring patterns. One of the joys of IN C is the interaction of the players in polyrhythmic combinations that spontaneously arise between patterns. Some quite fantastic shapes will arise and disintegrate as the group moves through the piece when it is properly played.

It is important not to hurry from pattern to pattern but to stay on a pattern long enough to interlock with other patterns being played. As the performance progresses, performers should stay within 2 or 3 patterns of each other. It is important not to race too far ahead or to lag too far behind.

The ensemble can be aided by the means of an eighth note pulse played on the high c's of the piano or on a mallet instrument. It is also possible to use improvised percussion in strict rhythm (drum set, cymbals, bells, etc.), if it is carefully done and doesn't overpower the ensemble. All performers must play strictly in rhythm and it is essential that everyone play each pattern carefully. It is advised to rehearse patterns in unison before attempting to play the piece, to determine that everyone is playing correctly.

The tempo is left to the discretion of the performers, obviously not too slow, but not faster than performers can comfortably play.

It is important to think of patterns periodically so that when you are resting you are conscious of the larger periodic composite accents that are sounding, and when you re-enter you are aware of what effect your entrance will have on the music's flow.

The group should aim to merge into a unison at least once or twice during the performance. At the same time, if the players seem to be consistently too much in the same alignment of a pattern, they should try shifting their alignment by an eighth note or quarter note with what's going on in the rest of the ensemble.

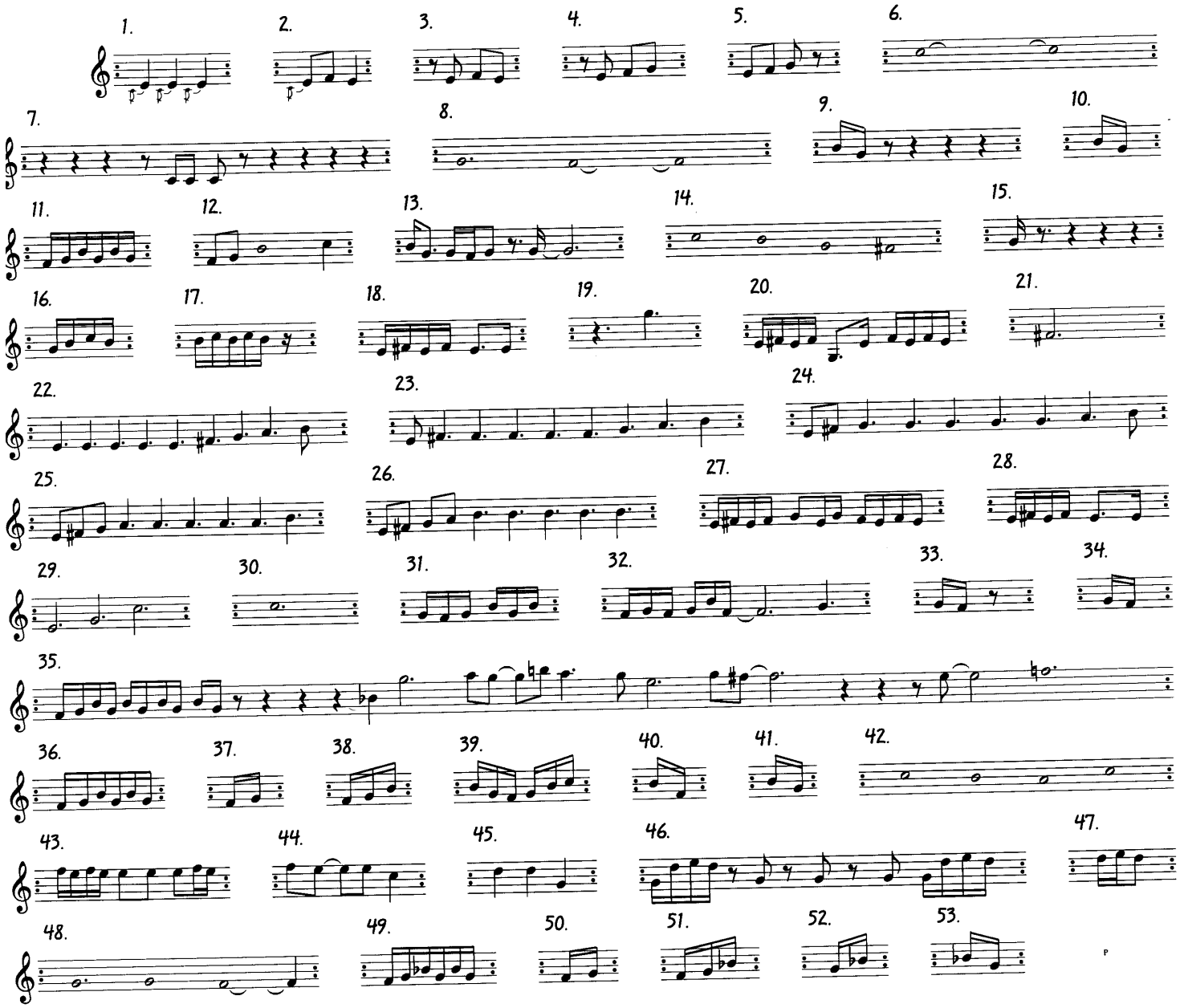
It is OK to transpose patterns by an octave, especially to transpose up. Transposing down by octaves works best on the patterns containing notes of long durations. Augmentation of rhythmic values can also be effective.

If for some reason a pattern can't be played, the performer should omit it and go on.

Instruments can be amplified if desired. Electronic keyboards are welcome also.

IN C is ended in this way: when each performer arrives at figure #53, he or she stays on it until the entire ensemble has arrived there. The group then makes a large crescendo and diminuendo a few times and each player drops out as he or she wishes.

Terry Riley


1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.
21.
22.
23.
24.
25.
26.
27.
28.
29.
30.
31.
32.
33.
34.
35.
36.
37.
38.
39.
40.
41.
42.
43.
44.
45.
46.
47.
48.
49.
50.
51.
52.
53.

Steve Reich – Piano Phase (1967)

"I do not mean the process of composition, but rather pieces of music that are, literally, processes. The distinctive thing about musical processes is that they determine all the note-to-note (sound-to-sound) details and the overall form simultaneously. (Think of a round or infinite canon.) I am interested in perceptible processes. I want to be able to hear the process happening throughout the sounding music. To facilitate closely detailed listening a musical process should happen extremely gradually. Performing and listening to a gradual musical process resembles: pulling back a swing, releasing it, and observing it gradually come to rest; turning over an hour glass and watching the sand slowly run through the bottom; placing your feet in the sand by the ocean's edge and watching, feeling, and listening to the waves gradually bury them." **- Steve Reich, Music as a Gradual Process (1968)**

Directions for Performance

Repeats

The number of repeats of each bar is not fixed but may vary more or less within the limits appearing at each bar. Generally speaking a number of repeats more than the minimum and less than the maximum should be aimed for. The point throughout, however, is not to count repeats, but to listen to the two voice relationship and as you hear it clearly and have absorbed it, move on to the next bar.

Duration

Although duration may obviously vary, experience has shown that it should be about 20 minutes.

Performance

The first performer starts at bar 1 and, after about 4 to 8 repeats, the second gradually fades in, in unison, at bar 2. After about 12 to 18 repeats getting into a comfortable and stable unison, the second performer gradually increases his or her tempo very slightly and begins to move very slowly ahead of the first until, after about 4 to 16 repeats, he or she is one sixteenth note ahead, as shown at bar 3. This relationship is then held steadily for about 16 to 24 repeats as outlined above. The dotted lines indicate this gradual movement of the second performer and the consequent shift of phase relation between both performers. This process of gradual phase shifting and then holding the new stable relationship is continued with the second pianist becoming an eighth (bar 4), a dotted eighth (bar 5), a quarter note (bar 6), etc. ahead of the first performer until he or she passes through all twelve relationships and returns to unison at bar 14. The second performer then gradually fades out and the first continues alone at bar 15. The first performer changes the basic pattern at bar 16 and the second performer gradually fades in with still another pattern at bar 17. The second performer again very slowly increases his or her tempo and slowly moves ahead and out of phase until he or she arrives one sixteenth note ahead as shown at bar 18. This relationship is then held steadily as before. After moving through all eight relationships in this way the second performer returns to his or her starting point at bar 25. The first performer then gradually fades out and the second performer continues alone at bar 26. The second performer changes the basic pattern at bar 27 and the first fades in, in unison, at bar 28. The second performer again slowly increases his or her tempo

and moves ahead and out of phase as before until he or she returns to unison at bar 32. After several repeats in unison one performer nods his or her head on the downbeat and, after 4 repeats, both performers end together.

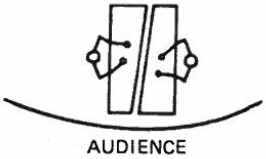
Rehearsal

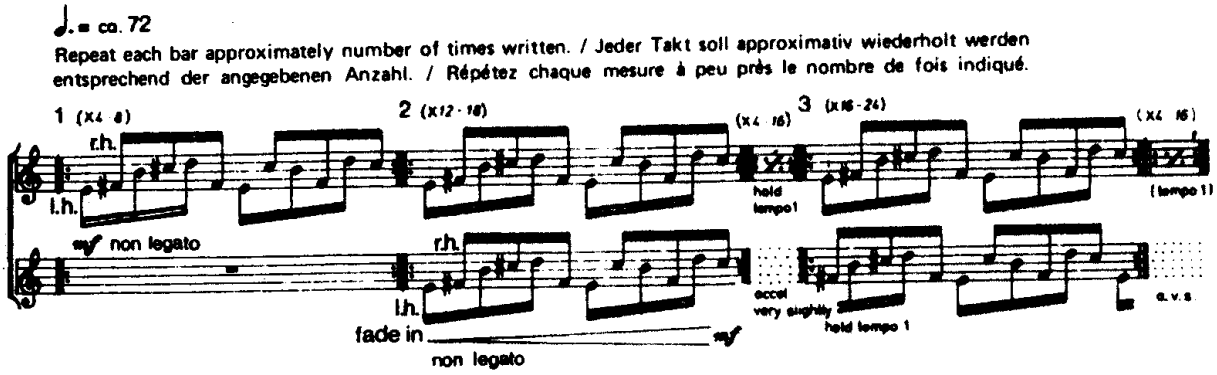
When first rehearsing the piece it may be useful for the first performer to play bar 1 and keep on repeating it while the second performer tries to enter directly at bar 3 exactly one sixteenth note ahead *without trying to phase there.* After listening to this two voice relationship for a while the second performer should stop, join the first performer in unison and only then try to increase very slightly his or her tempo so that he or she gradually moves one sixteenth note ahead into bar 3. This approach of first jumping in directly to bar 3, 4, 5, etc., listening to it and only then trying to phase into it is based on the principle that *hearing* what it sounds like to be 1, 2 or more sixteenth notes ahead will then enable the performer to phase there without increasing tempo too much and passing into a further bar, or phasing ahead a bit and then sliding back to where one started. Several rehearsals spread over several weeks before performance will help produce smooth phase movements and the tendency to phase too quickly from one bar to the next will be overcome allowing performers to spend due time-the slower the better-in the gradual shifts of phase between bars.

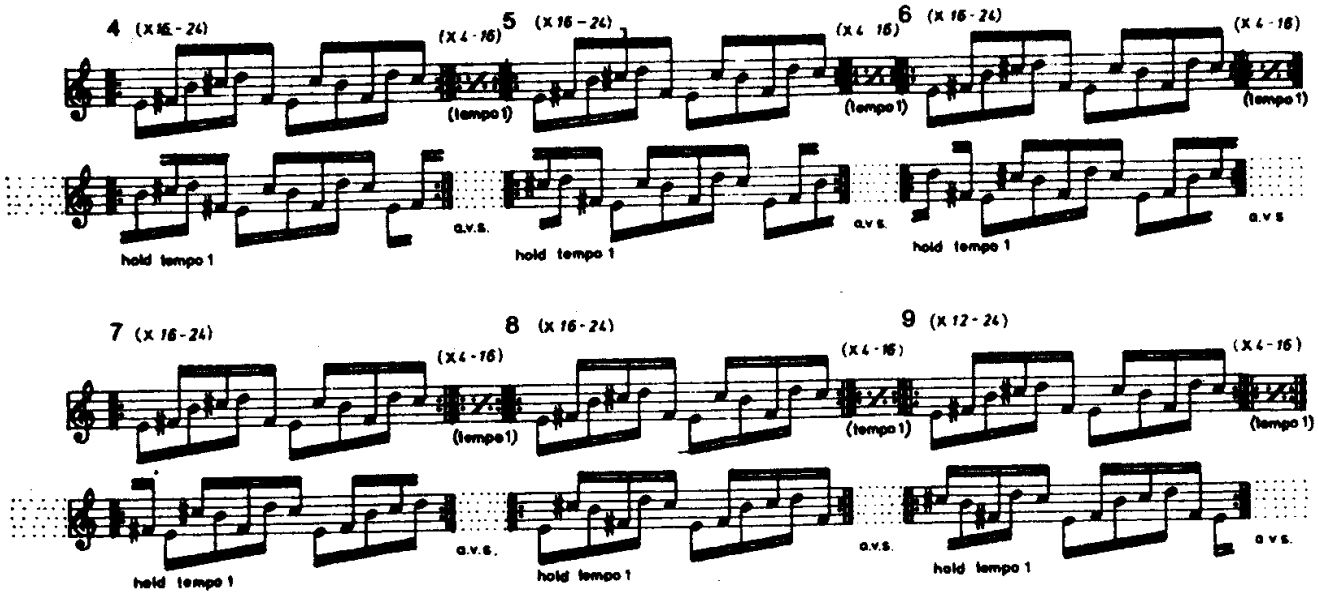
Instruments

When two pianos are used they should be as identical as possible. The lids should both be open or removed. The pianos should be arranged as follows:

When two marimbas are used they should be as identical as possible. Soft rubber mallets are suggested. *The piece may be played an octave lower than written, when played on marimbas.* The marimbas may be moderately amplified by conventional microphones if the hall holds more than 200 people. The marimbas should be arranged as follows:







John Adams – Shaker Loops (1978)

From the John Adams biography *Hallelujah Junction:* "The harmonic language of my earlier works like *Phrygian Gates* and *Shaker Loops* was stable and comfortably settled in distinct tonal regions. This was characteristic of the Minimalist style. I achieved variety in the design by carefully working up to the big moment of a key change. In *Phrygian Gates*, the modulations were dictated by a pre-compositional design, just as an architect might sketch out all the floor plans in advance of the start of construction. *Shaker Loops* attained its form in a unique way: I gave each player pages full of repeated musical phrases, and then, while conducting them, I spontaneously cued each player's progress through the modules. This was similar to but more complicated than what Terry Riley had done with *In C*. However, I noticed that *Shaker Loops* only seemed to work when I was the conductor. When someone else gave the cues, the overall shape of the piece, and especially its harmonic movement always troubled me. In the end I made a written out version of *Shaker Loops*, locking in the harmonic and formal design in a time scale that made the most sense."

PERFORMANCE NOTES

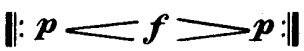
Performances of the modular version of *Shaker Loops* should be conducted. (A fully notated version in which all repeats are written out, designed for a string orchestra or for a septet without conductor, is also available from the publisher.)

Duration of the individual **modules** are, in this version, at the discretion of the conductor, but the overall length of the piece should not exceed 30 minutes. The conductor indicates the movement from one module to another by means of a large downbeat. When this signal for movement to a new module is given, most players will have to interrupt their present loops (submodules) in order to proceed directly to the new one. Players that have a repeat sign at the beginning of a new module can continue their previous material without interruption. If the ensemble deems it necessary, the conductor can indicate which module is operative by holding up fingers.

Submodules (those for the individual instruments indicated by small numbers in circles) are to be given by the conductor only to the player(s) involved and as subtly as possible. When a player receives a cue for a new submodule he or she should move more or less directly to the next submodule; however it is not necessary to make this change instantaneously. A beat or two rest before moving onto the next submodule is permissible. Generally it is not necessary to change submodules exactly on cue, unless it be a tutti cue as in submodule (1) in module [14] (page 5 of the score). Here the submodule cue should be treated just like a module cue.

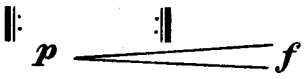
Crescendos and **decrescendos:** if a dynamic marking takes place within a repeat sign it should be observed with each repeat of the loop. If, however, a dynamic marking exceeds the boundary of the repeat sign it should be observed only once and over a more gradual time span.

For example:



would mean that the crescendo and decrescendo occur each time the loop is repeated.

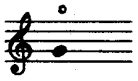
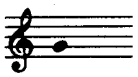
Whereas:



would mean that the loop is begun *p* and, over the course of a number of repeats, gradually grows to *f*.

Glissandos in Part II should be played more toward the end of the beat. For instance a glissando written should be executed more like .

Bass harmonics: all natural harmonics in the treble clef for the bass are to sound where written. All other notation for the bass, including natural harmonics in the bass clef, is written an octave above where it will sound.

Hence  sounds  , but  sounds 

13 (♩ = 144)

Vn. 1 Vn. 2 Vn. 3 Vla. Vc. 1 Vc. 2 Bass

mf ff mf niente

Cello 2 & Bass: gradually fade out

14 2 times only (8 beats)

④ Tutti: gradually dim. to *p*

sfz

Vns., Vla. & Cello 1: gradually decrease accents so that they are gone by ④

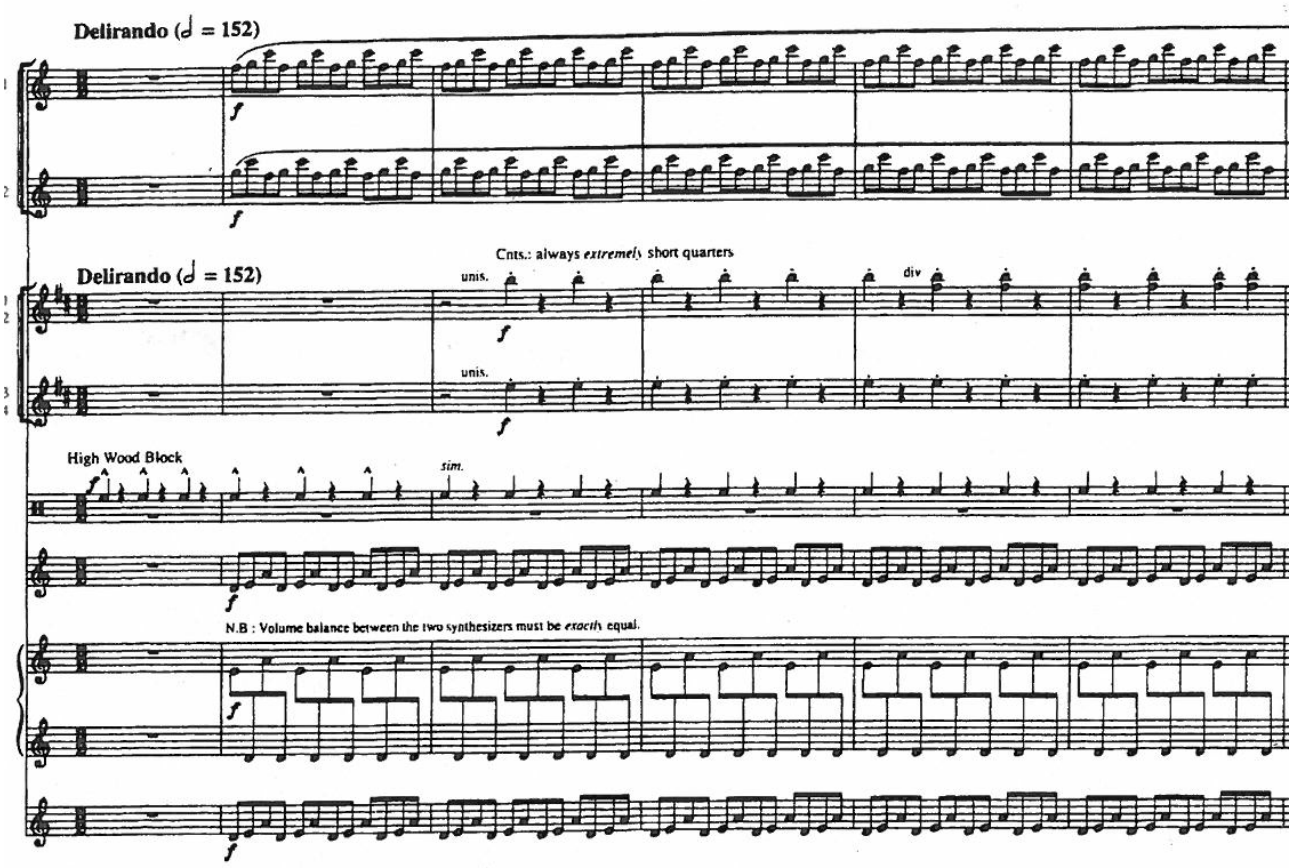
15

spiccato ff p mf gliss. fade out gradually fade out

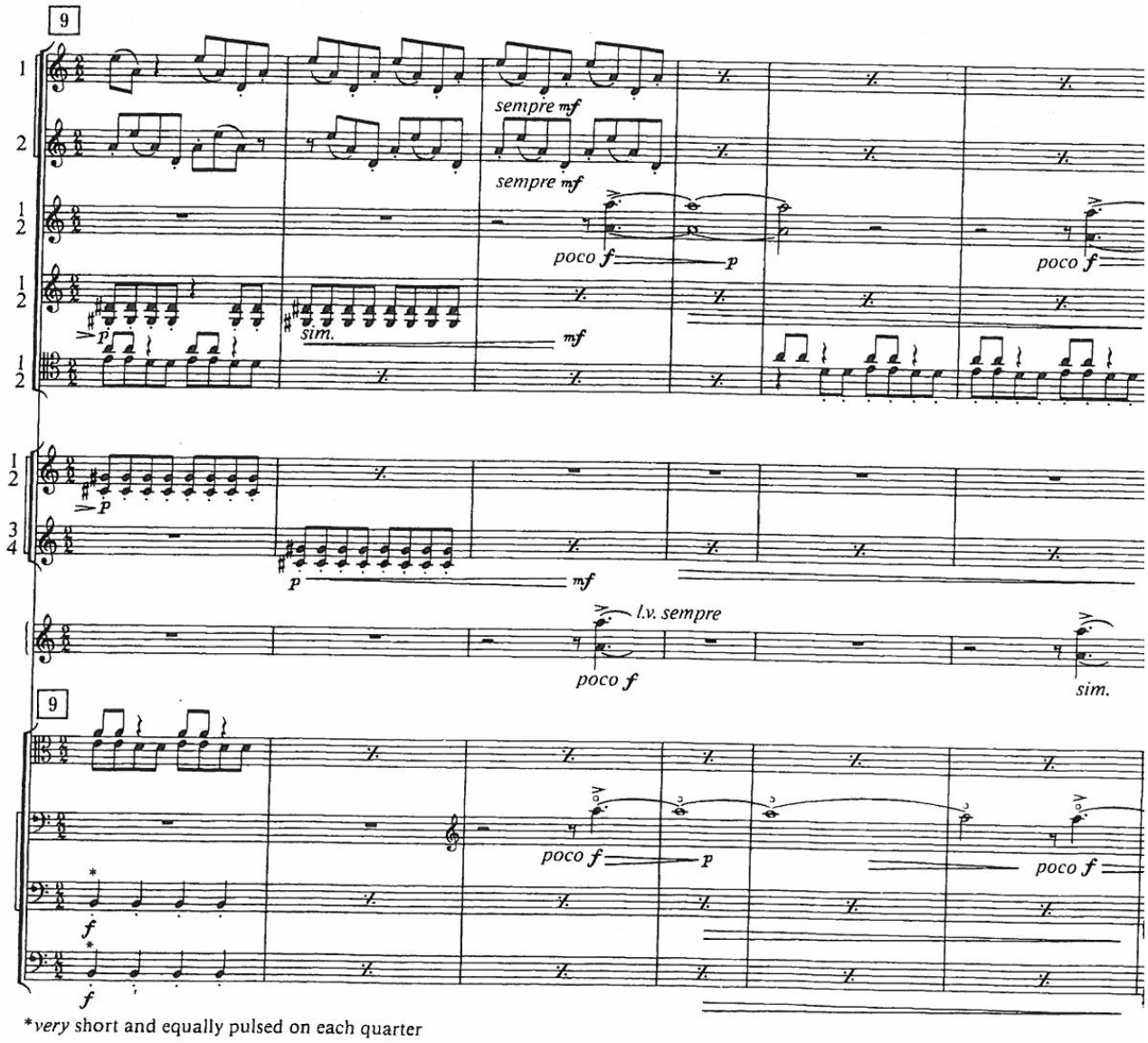
* Cello 2: first time only play D♭ alone

*The score also exists in a conventionally notated version, to be used when performed by string *orchestra*.

John Adams: Short ride in a Fast Machine (1986)



John Adams: The Chairman Dances (1985)



Advanced Music Theory - Composing with 20th-century melodic, harmonic, and tonal resources

Modes/Pentatonic scales

In the twentieth century, the old church modes were used for their unique interval patterns, much as the major and minor scales were used in the Baroque through Romantic periods. Composers like Debussy, Vaugh Williams, Bartok, Ravel and many others used modes prominently. Often, composers would move between modes throughout a piece with a mode hinted at for a number of measures before suggesting another mode. Composers were attracted to the absence of the LT in many of these modes. The pentatonic scales studied in class also do not have a LT nor do they contain any ½ steps.

Ideas for composition: I might begin by choosing a mode/scale (consider the difference in sound between the "minor" and "major" modes, though be aware that modes were not derived from these scales) and then improvising to get some idea of how it sounds. Consider the characteristic pitches of each mode, such as the b2 in Phrygian and the #4 in Lydian – these pitches behave diatonically and often do not resolve as would be expected in chromatic music in major or minor. Harmonically, you may want to focus on the primary harmonies that contain the characteristic scale degrees. In pentatonic passages, composers often use the pentatonic pitches harmonically, but sometimes use other pitches as well.

Whole-tone/octatonic scales

The whole-tone and octatonic scales are both symmetrical scales that have a limited number of transpositions. There are only ***2 unique whole tone scales*** and ***3 unique octatonic scales***. The WT scale consists entirely of whole steps and the octatonic scale (much used by Stravinsky) consists of alternating half and whole steps.

Ideas for composition: Whole-tone passages are harmonized almost exclusively with augmented triads. Though composers do sometimes employ a tonal center (through pedal or repetition), a sense of tonal ambiguity is often the composer's goal. Scalar passages tend to work well when using the whole-tone scale. The octatonic scale is also ambiguous sounding, though it has a much different musical affect since ½ notes appear in places unexpected to our major and minor-oriented ears. Scalar passages also work well with this scale as they yield a "slippery" and "slithery" type of sound. Diminished 7th chords are used often with this scale.

Polyharmony/Bitonality

Polytonality is the use of more than one (usually two) keys at the same time. Polyharmony is the creation of new chords by combining two (sometimes more)

triads (and less often, seventh chords). In both cases, the sensation of multiple tonalities, or multiple harmonies (rather than atonality or a cluster) is achieved by isolating the keys or chords by register or timbre.

Ideas for composition:
Often, two different triads simultaneously (together or arpeggiated) are clearly separated either registrally or timbrally. Remember that the outer intervals (low note of bottom chord/high note of top chord), dissonance of roots, and closeness of dissonant pitches are a determining factor in the amount of dissonance in a polychord. You will want to experiment with the sound of two keys or two chords against one another. Try various combinations of chords until you find the sound that you like, feeling free to experiment. If writing bitonal music, find two keys that sound good or interesting together to your ear. It is common for textures to be either homophonic or polyphonic - if homophonic, one of the keys will provide melody, while the other provides accompaniment. If polyphonic, each voice usually is very identifiable and distinct.

Models:
Stravinsky: Petrushka
Milhaud: Just about anything
Bartok: Various examples in Mikrokosmos and the 44 violin duets (in which 2 key signatures are used)
Ives: Most of his pieces have polytonal passages (e.g. Central Park in the Dark)

Pandiatonicism

This was a technique explored a great deal in Stravinsky's second period and in neo-classic music of 1920's and '30's Paris. Pandiatonicism is the idea of using the diatonic scale in a way that equalizes the pitches, avoids half-step tendencies, and avoids common resolutions and emphatic tonal centers. Typical of pandiatonicism is the use of "additive harmony" where an extra note or notes is added to a triad. Also typical is the defeating of the half step tendency, especially the leading tone, as when Stravinsky writes a "V-I" cadence in which the tonic scale step is included in the dominant harmony. In pandiatonic music, the normal tendencies of a scale are defeated yet the familiarity ("sweetness") is still there.

Ideas for composition: Pick any major scale (i.e. any collection of 7 pitches that fit into one conventional key signature). Experiment with melodies and chords that exclusively use this collection of pitches but that avoid suggesting a tonal center. Avoid triads and conventional resolutions of tritones and half steps and try to violate the tendencies of tones. Instead of triads, experiment using triads with added 4ths or other tones. Try to wipe away the sense of a tonal center. Rhythm and motives should be fairly clear, since a sense of forward motion cannot be established with harmony.

Models:
Stravinsky: Octet, Piano Sonata, Serenade in A, L'Histoire du Soldat
Copland: Appalachian Spring, Parts of Piano Blues (II, III), The World Feels Dusty

Quartal/Quintal Harmonies

Starting very early in the 20th century and earlier, composers attempted to break from the tradition of building harmonies out of stacked thirds (tertian harmony), resulting in harmony with *perfect* 4ths (quartal) and with *perfect* 5ths (quintal). Usually, these chords are stacked 4ths or 5ths in order to retain their identity, since changing the intervals takes away the characteristic "4thy" or "5thy" sound. Quartal and quintal harmony has been used greatly in jazz piano and big band chord voicing.

Ideas for composition:
You may wish to focus on one type of harmony or you may want to combine the two. Quartal harmony has a more edgy, sharp sound whereas quintal harmonies sound more open and pure, and tend to evoke a pastoral-like sound. Since successive perfect 4ths do not fall within the make-up of any scale, often quartal harmony is not grounded in a key.

Models:
Quartal/Quintal: Bartok Piano Concerto #1/II
Hindemith: Une Cigne
Ives: The Cage

Secundal Harmony or Tone Clusters

Secundal harmony is the creation of chords out of major or minor seconds, or composites. Henry Cowell was one of the first composers to use the tone cluster, which is uniquely suited to the piano since it is fairly easy to depress multiple adjacent keys with the open hand, the fist, or the arm. Secundal harmony, or tone clusters, came to be used later by European composers in "sound mass" compositions.

Ideas for composition: Often, melodies are harmonized by chords made of seconds (minor and major). You may also wish to create melodies out of clusters themselves (a melodic line with lots of seconds below) in planing fashion. Do not assume that clusters have to be violent or noisy (although they certainly can be). Quiet clusters can be very beautiful and effective. Another strategy would be to create a texture out of clusters that is not dependent on the melody/accompaniment rhetoric; something more like a soundscape (we will see this later in Penderecki's Threnody).

Models:
Secundal: Cowell: Tiger, The Tides of Minoan
Ives: The Majority, Penderecki: Threnody