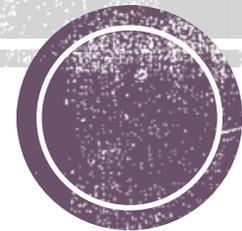


# **Musical Language**

**Mia Gazley**



# First Observations

“The selection of pitches and (especially) of characteristic interval relationships among them creates musical language.” (page 88)

Mussorgsky’s *Pictures at an Exhibition*,  
“The Ancient Castle” (m. 1-18)

Chopin’s Mazurka Op. 56, No. 1  
(m. 12-22)



Share notes A#, B, C#, D#, E, F#, G#  
but arranged in a different order



Minor tonality

Major tonality

Stresses notes G#, B, and D#

Stresses notes B, D#, F#; E, G#, B; F#, A#, C#

Language has two aspects:

The collection of pitches used, which contains various relationship *potentials*, and the interval relationships *actually* manifested and chosen for emphasis.



# First Observations

- By using intervals, one can manipulate notes to sound a specific sonority
- Many different cultures have created different musical systems that use attributes of their own musical language

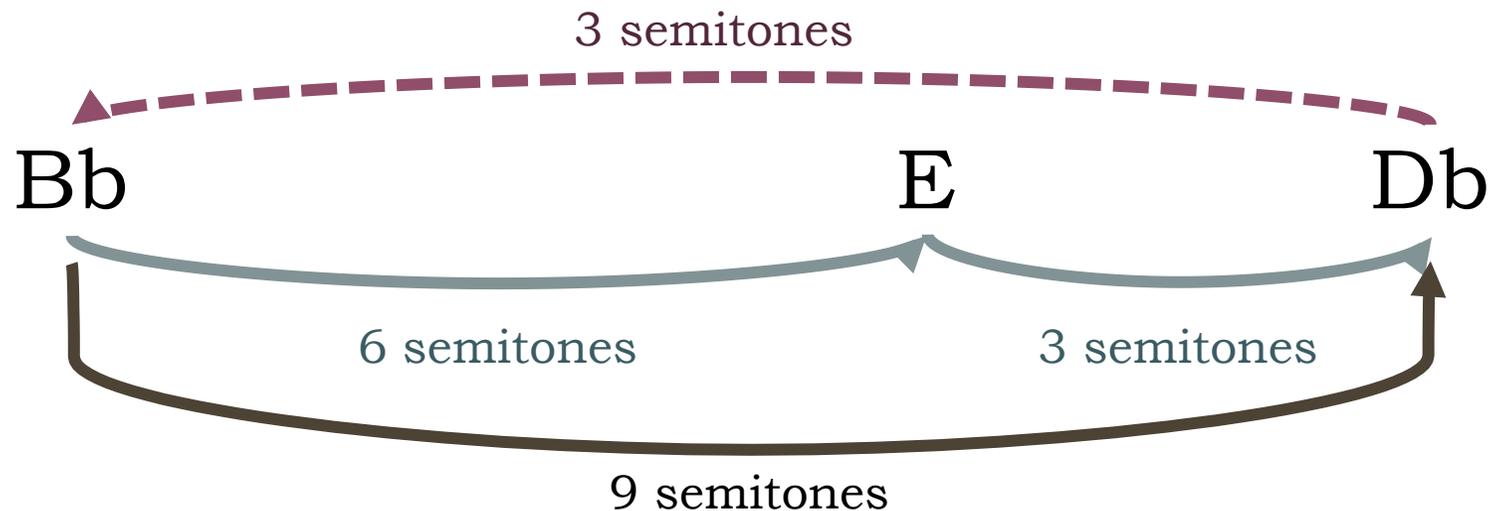


# Debussy: Syrinx for Solo Flute



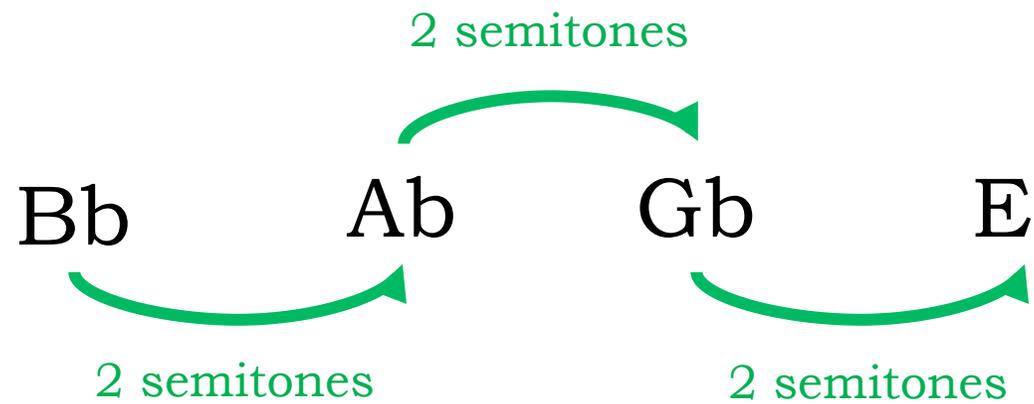
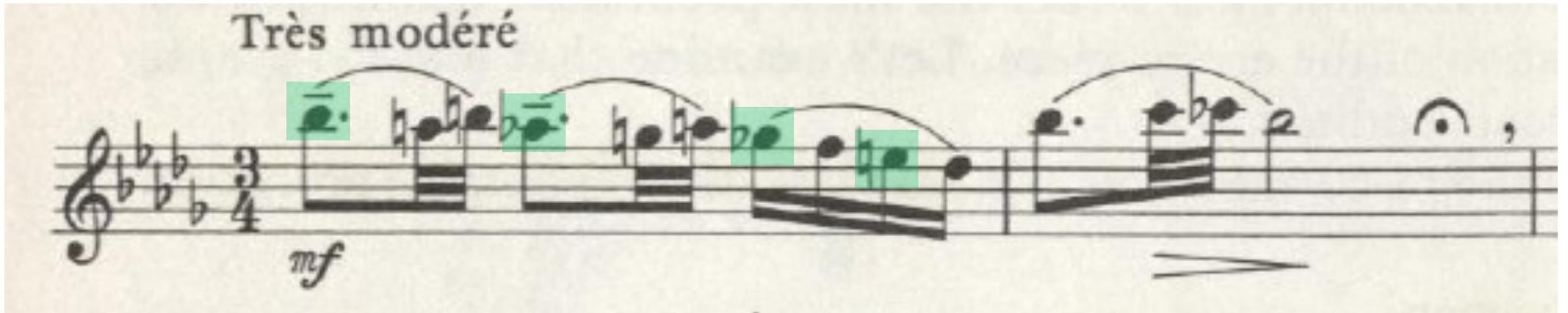
The first phrase, m. 1-2, consists of two processes:

- Motion
  - Descending line from Bb to Db, and a return to Bb
- The linguistic element
  - Bb, E, and Db becomes the “cell” that the piece is based off of

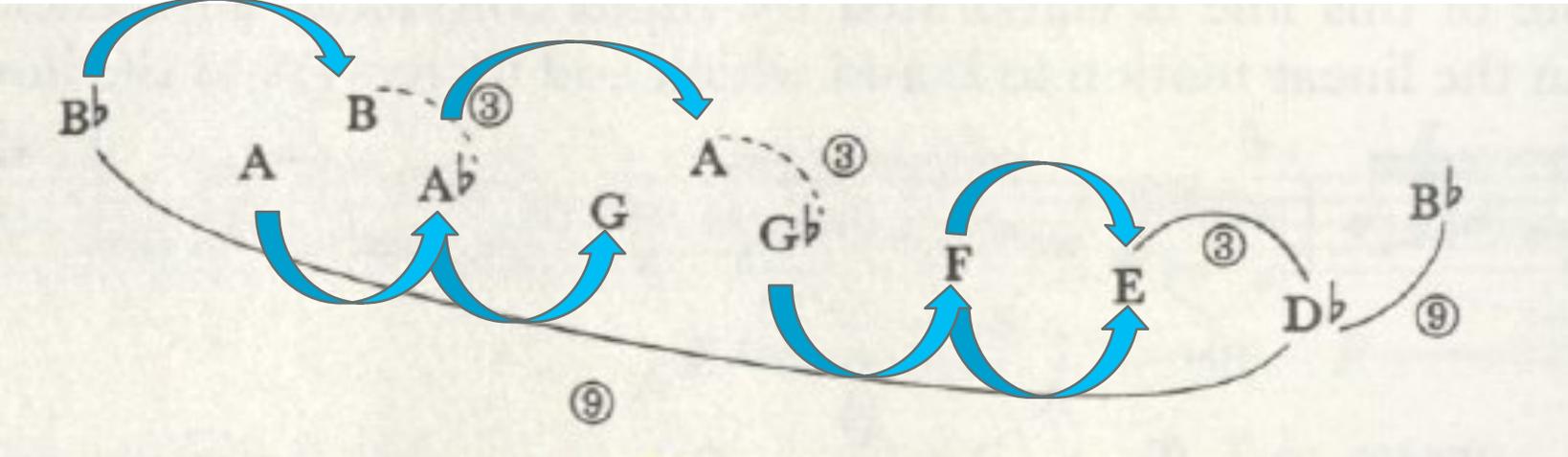




# Debussy: Syrinx for Solo Flute



# Debussy: Syrinx for Solo Flute







# Debussy: Syrinx for Solo Flute



- End of the phrase only sounds notes from the scale with no chromatic embellishments.
- Musical space is extended, spanning a higher octave (Eb6 being the peak)
- Creates a larger idea, extended spatially with the addition of notes
- Remainder of the piece adds onto these transformations, using the same ideas presented in the first phrase



# Musical Systems

## Compositional Musical Language

- Doesn't necessarily attempt a systematic explanation of compositional act
- Ex: Composition of modal Christian chant before any modal theory
- A composition that doesn't fit in a systematic theory may be indicative of a new system (ex. Schoenberg)

## Theoretical Musical Language

- Attempt to explicitly describe the order and operations of a musical language
- Ex: Medieval modal theory developed after composition of chants
- Dynamic and growing, learning from what came before



# Theoretical System

- Theoretical systems are generally incomplete
  - Collective and general, common factors over many pieces
- May give general clues to musical language
  - Should be revealing
- “Works of art make rules, but rules do not make works of art”



# Modal System – Middle Ages and Renaissance

- Seventh-Century: Pope Gregory I's reign, collecting and ordering of chants
- Tenth-Century: treatise *Alia Musica*, first attempt at defining modal system
- ca. 995-1050: writings of Guido d'Arezzo
- d.1048: writings of Berno of Reichenau
- 1013-1045: writings of Hermannus Contractus
- 1547: last important addition to modal theory by Glareanus in *Dodecachorden*
  
- The ideas of modal theory evolved and grew over time



# Modal System

1. All of the modes are formed from a single scalar collection of tones (A, B, C, D, E, F, G), which fill an octave by steps.
2. Each mode has a priority note, the *final*. In the earliest definition of the modes only D, E, F, and G (the square notes in Example 2.12, modes I–VIII) served as finals; Glareanus later added A and C as finals (Example 2.12, modes IX–XII). B was never a final.<sup>19</sup>
3. Each final generates two modal scales, which are distinguished by a different spatial placement of the scalar tones and the final. In the *authentic* modes the final is the upper and lower note of the scale; in the *plagal* it lies in the middle of the scale.
4. The space of each mode is strictly limited to one octave plus a single additional elaborative note at each end.



# Veni Creator Spiritus



1. Ve - ni Cre - á - tor Spi - ri - tus, Mén - tes tu - ó - rum

The first staff of music is written on a single treble clef line. It begins with a quarter note G4, followed by quarter notes A4, B4, and C5. This is followed by a half note D5, then a quarter note E5, a quarter note F5, and a quarter note G5. The melody concludes with a quarter note F5, a quarter note E5, and a quarter note D5. A fermata is placed over the final D5 note. A small number '1' is written above the first measure, and a circled number '9' is written above the final measure.

ví - si - ta: Im - ple su - pér - na grá - ti - a Quae

The second staff of music is written on a single treble clef line. It begins with a quarter note G4, followed by quarter notes A4, B4, and C5. This is followed by a half note D5, then a quarter note E5, a quarter note F5, and a quarter note G5. The melody concludes with a quarter note F5, a quarter note E5, and a quarter note D5. A fermata is placed over the final D5 note. A small number '1' is written above the first measure, and a circled number '9' is written above the final measure.

tu cre - á - sti pec - to - ra. A - men.

The third staff of music is written on a single treble clef line. It begins with a quarter note G4, followed by quarter notes A4, B4, and C5. This is followed by a half note D5, then a quarter note E5, a quarter note F5, and a quarter note G5. The melody concludes with a quarter note F5, a quarter note E5, and a quarter note D5. A fermata is placed over the final D5 note. A double bar line is placed after the first measure of the final phrase, and another double bar line is placed at the end of the staff.

# Veni Creator Spiritus

1. Ve - ni Cre - á - tor Spi - ri - tus, Mén - tes tu - ó - rum

The first line of musical notation is on a treble clef staff. It contains the lyrics "1. Ve - ni Cre - á - tor Spi - ri - tus, Mén - tes tu - ó - rum". The notes are: G4 (green), A4 (green), B4 (blue), C5 (green), D5 (green), E5 (red), F5 (red), G5 (green), A5 (green), B5 (red), C6 (red). There is a fermata over the G5 note and a breath mark above the staff.

ví - si - ta: Im - ple su - pér - na grá - ti - a Quae

The second line of musical notation is on a treble clef staff. It contains the lyrics "ví - si - ta: Im - ple su - pér - na grá - ti - a Quae". The notes are: G5 (red), A5 (red), B5 (red), C6 (green), D6 (red), E6 (red), F6 (green), G6 (green), A6 (red), B6 (red). There is a fermata over the G5 note and a breath mark above the staff.

tu cre - á - sti pec - to - ra. A - men.

The third line of musical notation is on a treble clef staff. It contains the lyrics "tu cre - á - sti pec - to - ra. A - men.". The notes are: G5 (red), A5 (green), B5 (blue), C6 (green), D6 (green), E6 (blue), F6 (green), G6 (green), A6 (blue), B6 (green). There is a double bar line after the first measure and a fermata over the G6 note.

# Veni Creator Spiritus

VII. Mixolydian

② ② ② ① ② ② ① ② ②

VIII. Hypomixolydian

② ② ① ② ② ② ① ② ②



# Veni Creator Spiritus

VIII. Hypomixolydian

The image shows a musical staff with a treble clef. The title "VIII. Hypomixolydian" is written above the staff. The scale is represented by a series of notes on the staff, with a final note in parentheses. Below the staff, there are circled numbers indicating fingerings: 2, 2, 1, 2, 2, 2, 1, 2, 2. There are also colored boxes highlighting specific notes: a blue box under the fourth note (F), a green box under the fifth note (G), and a red box under the eighth note (D). A small black dot is visible on the staff between the eighth and ninth notes.



# Veni Creator Spiritus



All “a” cells are comprised of interval 2, or a whole tone



# Veni Creator Spiritus

b.

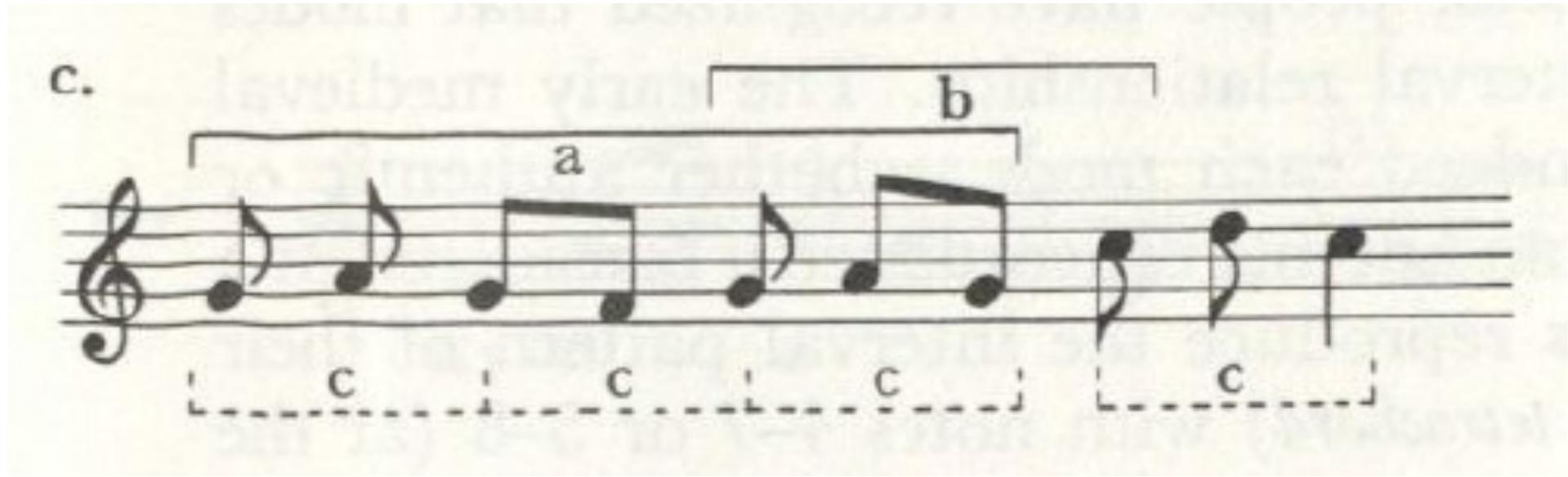
The image shows two staves of musical notation in treble clef. The first staff contains a sequence of notes with brackets labeled 'a' and 'b'. The 'a' bracket covers the first four notes, and the 'b' bracket covers the next four notes. This pattern repeats. The second staff continues the sequence with 'b' brackets for the first three notes, followed by 'a' and 'a2' brackets for the next two notes, and then 'a' brackets for the final two notes. The notation includes various note values and rests, with some notes beamed together.

All “b” cells are comprised of intervals 2 and a leap of interval 3 or 5 in order to avoid the note “B”

Acts as a connection to “a” cell



# Veni Creator Spiritus



All “c” cells are small three note segments of interval 2, or a whole tone

Represents the cohesiveness of cells “a” and “b”



# Kyrie Deus Sempiternus



Phrase 1

Ky - ri - e \* e - le - i - son.

Detailed description: This block shows the first musical phrase on a single staff in treble clef. The melody is written in a series of eighth and sixteenth notes. There are seven green rectangular highlights under the notes corresponding to the syllables 'Ky', 'ri', and 'e' in the first measure, and 'e', 'le', 'i', and 'son' in the second measure. A small asterisk is placed below the first 'e' in the first measure. A circled number '9' is written above the staff at the end of the phrase.

Phr. 2

Ky - ri - e e - le - i - son.

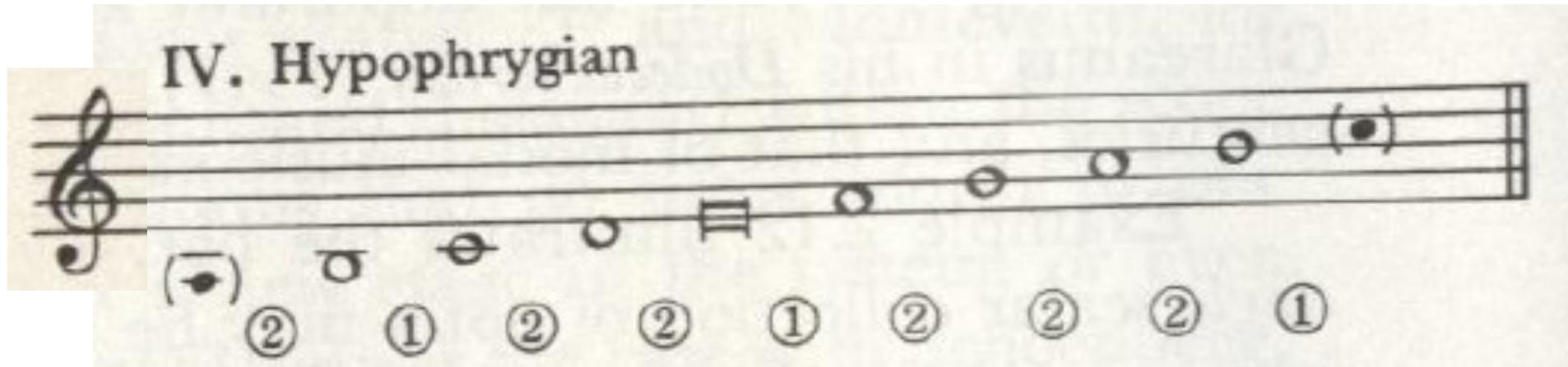
Detailed description: This block shows the second musical phrase on a single staff in treble clef. The melody continues with eighth and sixteenth notes. There are four green rectangular highlights under the notes for 'Ky', 'ri', 'e' in the first measure and 'e', 'son' in the second measure. A circled number '9' is written above the staff at the end of the phrase.

Phr. 3 Repeat the first "Kyrie eleison."

The piece continues further...



# Kyrie Deus Sempiterna



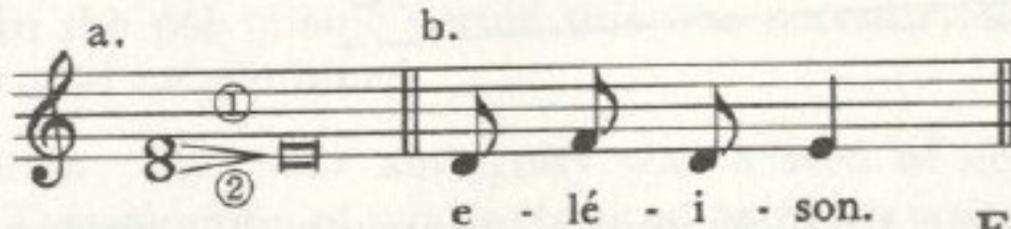
Can't be in the phrygian mode due to the range; lowest note in phrygian is "D"



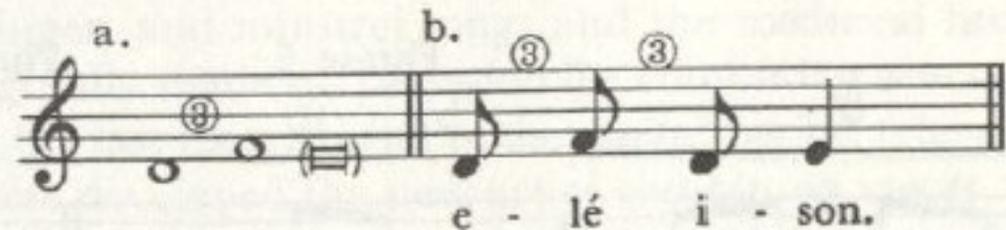
# Kyrie Deus Sempiternae

- Most common skip is 3 semitones (minor third)
- Interval 1 (semitone) also plays a prominent role

**Example 2.17.** Intervallic surroundings of the final in the Phrygian modes



**Example 2.18.** Reproduction and elaboration of ③'s in "Kyrie Deus Sempiternae"



# Modal System

New features added in the modal system:

- Transposition: so different voice ranges can be used
- Chromaticism: B vs. B $\flat$  evolved into use of other chromatic tones
- Multimodality (Polymodality): longer pieces may have sections that change modality, and with the emergence of polyphony, different voices may be in different modes
- Polyphony: Combining of different voices, using melodies and harmonies, changing the modal system



# Guillaume de Machaut: “Plus Dure Que Un Dyamant,” Virelai

- Combined voices: Hypodorian solo vs the Dorian accompaniment
  - How does this change the musical language previously described in previous chant?
- The first phrase contains a hierarchy of intervals between the accompaniment and solo:
  - Interval 7 (perfect 5) sounds five times
  - Interval 9 (major 6) sounds four times
  - Intervals 12 (octave), 4 (major 3), and 6 (tritone) each sound once



A musical score for the first phrase of 'Plus Dure Que Un Dyamant' by Guillaume de Machaut. The score is in 3/4 time and consists of two staves: a treble staff (top) and a bass staff (bottom). The treble staff is marked with a treble clef and a '3' above it, indicating a 3/4 time signature. The bass staff is marked with a bass clef and a '4' below it, indicating a 4/4 time signature. The score is divided into four measures, numbered 1, 2, 3, and 4. Above each measure is a circled number: 7, 9, 7, 9 in measure 1; 7, 6, 7, 4 in measure 2; 9, 7 in measure 3; and 12 in measure 4. The notes in the treble staff are: Measure 1: G4, A4, B4, A4, G4; Measure 2: G4, A4, B4, A4, G4; Measure 3: G4, A4, B4, A4, G4; Measure 4: G4. The notes in the bass staff are: Measure 1: G3, A3, B3, A3, G3; Measure 2: G3, A3, B3, A3, G3; Measure 3: G3, A3, B3, A3, G3; Measure 4: G3.

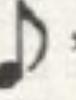


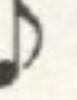
# Guillaume de Machaut

- Can also count the occurrence of intervals by duration and by stresses intervals receive upon attack

⑦ sounds for seven   $\frac{1}{3}$  duration

⑨ sounds for seven   $\frac{1}{3}$  duration

⑫ sounds for four   $\frac{1}{3}$  duration

④ and ⑥ sound for two   $\frac{1}{3}$  duration

⑦ receives two simultaneous attacks

⑨ receives one simultaneous attack

⑫ receives one simultaneous attack

④ and ⑥ receive no simultaneous attack (Example 2.22b)



# Guillaume de Machaut

- Can also count the occurrence of intervals by duration and by stresses intervals receive upon attack

Example b. shows a four-measure melodic line with notes on a single staff. Above the staff, a horizontal bar is divided into four segments labeled 1, 2, 3, and 4. Below the staff, four circles contain the numbers 7, 7, 9, and 12, representing interval counts. The notes are: G4 (measure 1), A4 (measure 2), B4 (measure 3), and G4 (measure 4).

Example c. shows a four-measure melodic line on a single staff with a treble clef. Above the staff, a horizontal bar is divided into four segments labeled 1, 2, 3, and 4-5. Below the staff, four circles contain the numbers 7, 7, 7, and 7. The notes are: G4 (measure 1), A4 (measure 2), B4 (measure 3), and G4 (measure 4). An annotation 'reg. shift' with an arrow points to the G4 note in measure 4, indicating a registration change. A second 'reg. shift' annotation with an arrow points to the G4 note in measure 4, indicating a registration change in the bass line.



# Guillaume de Machaut

- Examining all of the intervals heard between the solo and the accompaniment show which intervals are most important
- Determines “predominant” and “subordinate” intervals
- Predominant interval: interval 12 (octave)
  - A stressed interval
  - Occurs at the end of musical lines, matches with text rhyme
  - A place of rest (cadence); interval held long without rhythmic motion
- Predominant interval: interval 7 (perfect fifth)
  - After resting points, interval 7 used to begin new phrase

Machaut’s phrases contain a form that begins with interval 7 and ends with interval 12, which occurs consistently throughout the piece



# Guillaume de Machaut

- Subordinate intervals 10 (minor seventh) and 2 (major second), 8 (minor sixth) and 4 (major third), and 6 (tritone) are denied stress
  - Rhythmically: brief, usually placed between beats, never on beat one
  - Linguistically: always framed by more frequent intervals
  - Spatially: related to the framed intervals by stepwise motion

Machaut's use of subordinate intervals allows the music to have a sense of uncertainty that is always resolved to a more common interval, and is a necessary part of the music



**Example 2.24.** The available intervals of the modal collection

	built on C	built on D	built on E	built on F	built on G	built on A	built on B	
⓪ 's								= 7 note pairs
Ⓛ 's								= 6 note pairs
Ⓜ 's								= 5 note pairs
Ⓝ 's								= 4 note pairs
Ⓞ 's								= 3 note pairs
Ⓟ 's								= 2 note pairs
Ⓠ 's								= 1 note pair

**TABLE C**

7 possible ⓪'s (or ⑫'s)	25%
6 possible Ⓛ's (or ⑦'s)	21%
5 possible Ⓜ's (or ⑩'s)	18%
4 possible Ⓝ's (or ⑨'s)	14%
3 possible Ⓞ's (or ⑧'s)	11%
2 possible Ⓟ's (or ⑪'s)	7%
1 possible Ⓠ (the spatial complement is also Ⓠ)	4%
	<hr/> 100%

*Example 2.24 portrays the intervals obtained by combining every note of the modal collection with every other note. Intervals ⓪ - Ⓠ are shown; wider intervals (⑦ - ⑫), and so forth) are spatial redeployments of these same note pairs.*



# Josquin des Prez: Missa “L’Homme Arme,” “Benedictus”

- The first phrase (measure 1-9) and the frequency of intervals:
  - Interval 3 (minor third): nine times
  - Interval 0 (unison): five times
  - Interval 4 (major third): five times
  - Interval 7 (perfect fifth): four times
  - Interval 2 (major second): four times
  - Interval 1 (semitone): one time
  - Interval 6 (tritone): zero times
- Interval 3 (minor third) is heard the most often and is the primary interval



Number of occurrences

Simultaneous attacks

Length of intervals (in ♩'s)

③ = 35	③ = 18	③ = 112
⑦ = 25	⑦ = 5	⑦ = 51
⑧ = 14	④ = 5	⑦ = 41
⑦ = 11	⑦ = 3	④ = 41
④ = 11	⑫ = 3	⑧ = 30
⑨ = 10	⑧ = 2	⑫ = 27
⑫ = 10	⑨ = 2	⑨ = 24
⑤ = 9		② = 12
② = 7		⑤ = 12
⑩ = 5		⑩ = 10
⑪ = 3		⑮ = 5
⑮ = 3	① and	⑪ = 3
⑬ = 2	⑬ and	⑭ = 2
①, ⑥ and ④ = 1		⑥ = 1

Intervals throughout the entire “Benedictus”



**TABLE E Grouped by Interval Class**

Number of occurrences

③ = 48

⑦<sup>+</sup> = 36

④ = 25

① = 21

② = 13

① = 6

⑥ = 1

Simultaneous attacks

③ = 19

① = 8

④ = 7

⑦ = 3

②, ① and ⑥ = 0

Lengths of intervals (in ♪'s)

③ = 141

④ = 71

① = 68

⑦ = 63

② = 24

① = 8

⑥ = 1

The first system of musical notation consists of two staves. The upper staff is in bass clef with a common time signature. It contains a sequence of notes: a whole note on G2, a half note on A2, a whole note on B2, a half note on C3, and a whole note on D3. Above the first note is a checkmark (✓), and above the last note is a checkmark (✓) and the number 5. The lower staff is also in bass clef with a common time signature. It contains a sequence of notes: a half note on G2, a quarter note on A2, a quarter note on B2, a quarter note on C3, a quarter note on D3, a quarter note on E3, a quarter note on F3, a quarter note on G3, a quarter note on A3, a quarter note on B3, a quarter note on C4, a quarter note on D4, a quarter note on E4, a quarter note on F4, a quarter note on G4, a quarter note on A4, a quarter note on B4, a quarter note on C5, a quarter note on B4, a quarter note on A4, a quarter note on G4, and a quarter note on F4. Above the first note is a circled 0 (0), above the second note is a circled 2 (2) with a 'P' below it, above the third note is a circled 3 (3), above the fourth note is a circled 12 (12), above the fifth note is a circled 10 (10) with a 'P' below it, and above the sixth note is a circled 9 (9).

The second system of musical notation consists of two staves. The upper staff is in bass clef with a common time signature. It contains a sequence of notes: a whole note on G2, a half note on A2, a whole note on B2, a half note on C3, and a whole note on D3. Above the first note is a checkmark (✓), above the second note is a checkmark (✓) in parentheses (✓), above the third note is a checkmark (✓), above the fourth note is a checkmark (✓), and above the fifth note is a checkmark (✓). The lower staff is also in bass clef with a common time signature. It contains a sequence of notes: a half note on G2, a quarter note on A2, a quarter note on B2, a quarter note on C3, a quarter note on D3, a quarter note on E3, a quarter note on F3, a quarter note on G3, a quarter note on A3, a quarter note on B3, a quarter note on C4, a quarter note on D4, a quarter note on E4, a quarter note on F4, a quarter note on G4, a quarter note on A4, a quarter note on B4, a quarter note on C5, a quarter note on B4, a quarter note on A4, a quarter note on G4, and a quarter note on F4. Above the first note is a circled 0 (0), above the second note is a circled 2 (2) with a 'P' below it, above the third note is a circled 3 (3), above the fourth note is a circled 5 (5) with a '(P)' below it, above the fifth note is a circled 7 (7), above the sixth note is a circled 12 (12), above the seventh note is a circled 11 (11) with a 'P' below it, above the eighth note is a circled 9 (9), above the ninth note is a circled 8 (8), above the tenth note is a circled 10 (10) with an 'R' below it, and above the eleventh note is a circled 9 (9).

✓ indicates a subordinate interval. Subordinate intervals are shown with their surrounding intervals.

⑤ is included among the subordinate intervals because it sounds as infrequently as they do, and is treated as they are. (Spatial complements are not always equivalents.)

Subordinate intervals in “Benedictus”



# Machaut & des Prez

- Consonance: “predominant” intervals
- Dissonance: “subordinate” intervals, often non-obtrusive of the set consonance musical language
- Consonance and dissonance in this musical language doesn’t adhere to today’s set definition of consonance and dissonance
  - Context is important to consider



# Roland de Lassus: “Bon Jour, Mon Coeur,” Chanson



Bon jour mon coeur,

The image shows a handwritten musical score for the beginning of the piece. It features two staves in 4/4 time. The upper staff is in treble clef and contains four measures of music, each with a single half note. The lower staff is in bass clef and contains four measures of music, each with a single half note. The lyrics "Bon jour mon coeur," are written below the first two measures of the upper staff. The music consists of a sequence of chords: a major triad (C4, E4, G4) in the first measure, a minor triad (C4, E3, G3) in the second, a major triad (C4, E4, G4) in the third, and a major triad (C4, E4, G4) in the fourth.

- First two measures consist of three major triads, formed by intervals 3, 4, and 7 (and 12)
- Bass note always doubled
- First phrase:
  - “predominant” major triad (heard 10 times)
  - “subordinate” minor triad (heard once)
  - “subordinate” incomplete major triad (heard once)
- Entire piece contains:
  - 71 major triads
  - 18 minor triads
- The musical language of the piece is consistent with the first phrase



# Roland de Lassus

The image displays a musical score for Roland de Lassus, consisting of two systems of music. The first system is a four-part setting in 4/4 time, with measures numbered 1 through 5. The second system is a more detailed analysis of the first system, showing the relationship between the original 'cell a' and its transformations. Annotations include 'cell a', 'reproduction of cell a, ⑤ higher', and 'inverted reproduction of cell a, introducing subordinate sonorities'. The analysis also shows 'passing' notes and specific sonorities labeled 'R' and 'N'.

1 2 3 4 5

cell a

|| reproduction of cell a, ⑤ higher

|| inverted reproduction of cell a, introducing subordinate sonorities

R

passing

R

passing

R

⑦ R ⑦

⑤ R ⑦



# Roland de Lassus

- The piece ends with “B” in the soprano and “G” in the bass
  - What is the mode?
- “G” is the most emphasized bass note, and is doubled in all G major triads
- “G” often approached by semitone
- Mode most likely mixolydian



# Roland de Lassus

Evolution of musical language:

- Predominance of modal collection
- Establishment of priority note
- Modal relationships
- Definition of predominant and subordinate sonorities
- Reproduction of melodic and sonority relationships within the modal collection
- Alteration of modal-collection notes to elaborate priority notes
- Ordering of all elements to achieve coherent linear design



# Tonal Collection

- Modes reduced to two: Ionian (major scale) and Aeolian (minor scale)
- Space limitation of the modes is dropped, and notes in all octaves can be used
- Interval structure within the scales allows for any note to become a tonic and create the musical language
  - The major or minor scale of a work forms the basic relationship; the remaining chromatic notes are “subordinate”
- Triads extended to include seventh chords
- Interval 7 is the only interval to link all notes together (circle of fifths)



# Johannes Brahms: "Wach' Auf, Mein Hort"



Mit kräftiger Leidenschaft

1 2 3

1. Wach' auf, mein Hort, ver - nimm mein Wort, merk' auf, was ich dir  
2. Dein stol - zen Leib du mir ver - schreib' und schleuß mir auf dein  
3. "Ach, jun - ger Knab', dein Bitt' laß ab, du bist mir viel zu  
1. A - wake my love, oh hear my plea, and lis - ten what I  
2. Give me your soul and bo - dy too, and keep my i - mage  
3. Oh love - ly youth pray beg no more; you are too gay and

*poco f*



# Johannes Brahms

The image displays a musical score in bass clef with a key signature of one sharp (F#) and a time signature of 6/8. The score is divided into three systems, each with a corresponding chord progression below it.

**System 1 (Measures 1-5):** The notes are G, A, B, C, D. The chord progression is I, V, I<sub>7</sub>, IV<sub>7</sub>. A bracket under measures 1-3 is labeled "Primary triads; tonic emphasized by duration and repetition".

**System 2 (Measures 6-10):** The notes are E, F#, G, A, B. The chord progression is VII<sub>7</sub>, III<sub>7</sub>, VI<sub>7</sub>, II<sub>7</sub>, V<sub>7</sub>, III<sub>7</sub>, VI<sub>7</sub>, II<sub>7</sub>, V<sub>7</sub>. Brackets under measures 6-8 and 9-10 are labeled "Chain of secondary triads leading to the dominant" and "Chain of secondary triads leading to" respectively.

**System 3 (Measures 11-15):** The notes are C, D, E, F#, G. The chord progression is I, IV, V<sub>7</sub>, I, III, VI, II, V<sup>4 3</sup>. A bracket under measures 11-13 is labeled "Full cadential restatement of the primary triads, concluding on the tonic". A bracket under measures 14-15 is labeled "Transitional chain leading back to the opening tonic".

Root Progression:

- Every root is related by a fifth
- Contains every triad possible within the notes in the G-major scale

Three characteristics of the tonal system:

- Function
- Distance
- Tension and resolution



# Johannes Brahms

The roles of voices have changed:

- Soprano voice carries principle line
- Bass voice defines fundamental root progression
- Inner voices provides support and completes harmonies

Roles will occasionally switch, but this is the general standard



# Franz Schubert: “Wehmut”



- Notes are not limited to the seven note collection within the scale; is expanded to include all twelve notes
- Sonorities not limited to triads (and sevenths) based on the circle of fifths
- Chromatic passing motion merges major and minor tonalities

The image shows a musical score for Franz Schubert's "Wehmut". It consists of two systems of staves. The top system is the vocal line, and the bottom system is the piano accompaniment. The vocal line is in G major and features a chromatic passing motion in measures 13 and 14, moving from G4 to A4, B4, and C5. The piano accompaniment features a chromatic bass line in measures 13 and 14, moving from G3 to F3, E3, and D3. The score is marked with "all'" and "Denn". The piano part includes a *pp* dynamic marking and a sixteenth-note figure in measures 15 and 16.

# Franz Schubert: “Du Bist Die Ruh”

## Introduction

- Conveys tonic and dominant
  - Dominant highlighted by rising above the texture
- highlighted by rising above the texture



Langsam

1 2 3 4 5

Voice

Piano

*pp*

6 7

The image shows a musical score for the song "Du Bist Die Ruh" by Franz Schubert. The score is written for voice and piano. The tempo is marked "Langsam" (Ad libitum). The key signature is B-flat major (two flats) and the time signature is 3/8. The score is divided into two systems. The first system contains measures 1 through 5. The second system contains measures 6 and 7. The voice part is written on a single staff with a treble clef. The piano part is written on two staves (treble and bass clefs). The piano part begins with a piano (*pp*) dynamic. The piano part features a melodic line in the right hand and a bass line in the left hand. The piano part is characterized by a rising melodic line in the right hand, which is highlighted by rising above the texture. The piano part is marked with a piano (*pp*) dynamic. The piano part is written in a style that is characteristic of Schubert's early work. The piano part is written in a style that is characteristic of Schubert's early work. The piano part is written in a style that is characteristic of Schubert's early work.

# Franz Schubert: “Du Bist Die Ruh”

Begin to see suspensions due to rhythmic staggering of events

The image displays a musical score for Franz Schubert's "Du Bist Die Ruh". The score is written for voice and piano. The vocal line is in the upper staff, and the piano accompaniment is in the lower staff. The key signature is B-flat major (two flats). The vocal line features a melodic line with several notes circled and labeled with an 'S', indicating suspensions. The piano accompaniment consists of chords and arpeggiated figures. The score is presented on a single page with a light background.



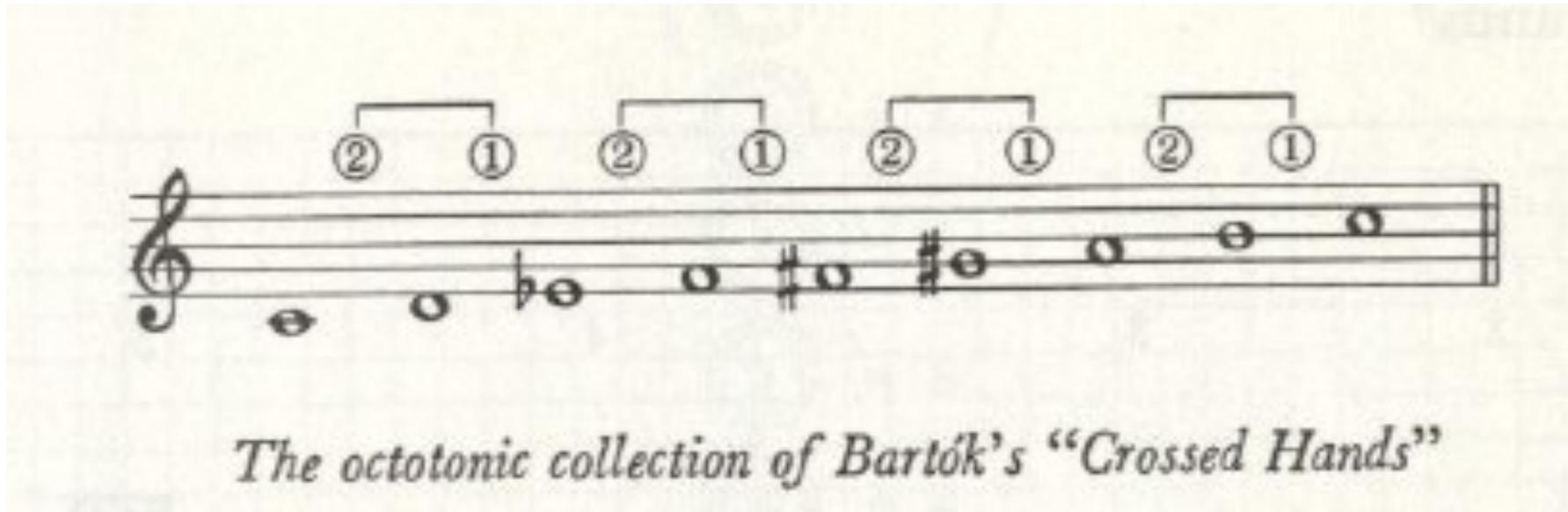
# Twentieth-Century Systems

Uses symmetry and structural ambiguity:

- Symmetrical note collections
  - Fill an octave by exact reproductions of a single interval or interval cell
  - Can begin on more than one of their tones and reproduce the exact same interval succession
  - Example: whole-tone scale



# Bela Bartok: “Crossed Hands” from Mikrokosmos, Vol. 4



The collection provides:

- The piece's cells
- Levels to which they move
- Resulting polar emphases
- Means for expanding and filling in the spatial design





1) Lento  $\text{♩} = 72$

Musical score for exercise 1, measures 1-4. The piece is in 3/4 time, key of B-flat major, and marked Lento with a tempo of quarter note = 72. The right hand starts with a melody in measure 1, marked *mf*. The left hand provides a bass line starting in measure 1, marked *p sempre legato*. The exercise consists of four measures, with a fermata at the end of measure 4.

2)

Musical score for exercise 2, measures 5-8. The piece is in 3/4 time, key of B-flat major, and marked Lento. The right hand starts with a melody in measure 5, marked *mf*. The left hand provides a bass line starting in measure 5, marked *p sempre legato*. The exercise consists of four measures, with a fermata at the end of measure 8.

3)

Musical score for exercise 3, measures 9-12. The piece is in 3/4 time, key of B-flat major, and marked Lento. The right hand starts with a melody in measure 9, marked *mf*. The left hand provides a bass line starting in measure 9, marked *p sempre legato*. The exercise consists of four measures, with a fermata at the end of measure 12. The piece concludes with a *mf* dynamic marking.



# Bela Bartok

## Cell a

Original level (C-E<sup>b</sup> ; C emphasized)

Second level

(A-C; A emphasized)

mm. 1 2 5 2

5-6 7 15 16

## Cell b

Original level  
(C-F)

Second level  
(F<sup>#</sup> -B; inversion  
of original level)

9 10 11 a

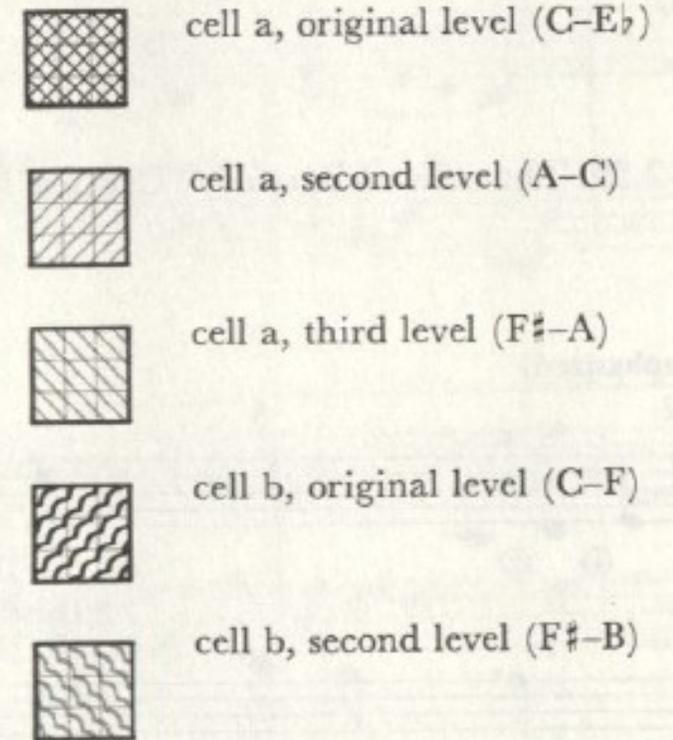
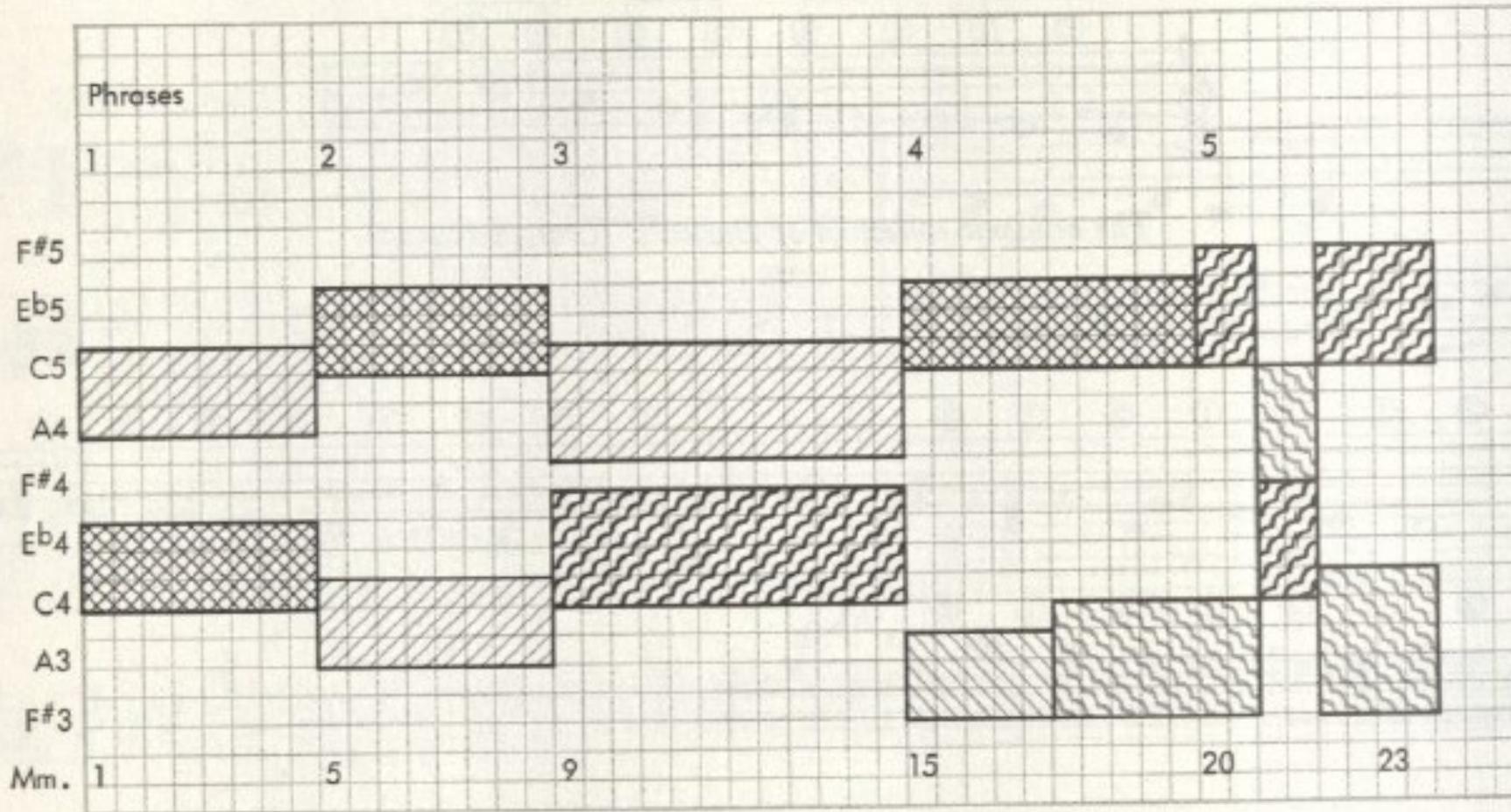
19 20

Filling in  
of Cell b  
produces  
Cell a.

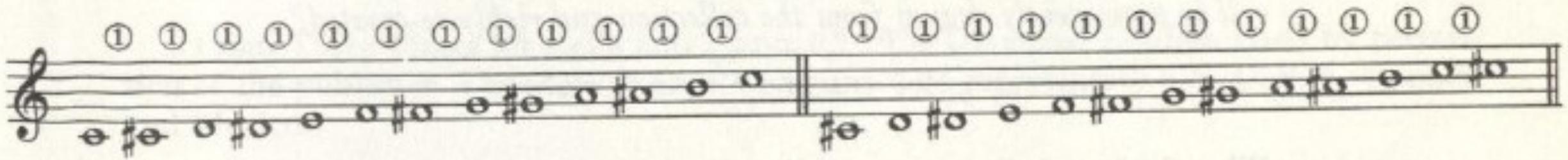


# Bela Bartok

Example 2.60. Cell distribution in Bartók's "Crossed Hands"



# Anton Webern: Three Pieces for Cello and Piano, Op.11, No.3



- Made up of the twelve-tone collection
- The single melodic notes in the cello and piano make one complete statement of the twelve note collection
- The melodic notes appear in different tone colours, registers, and rhythms



*in a variety of tone colors*

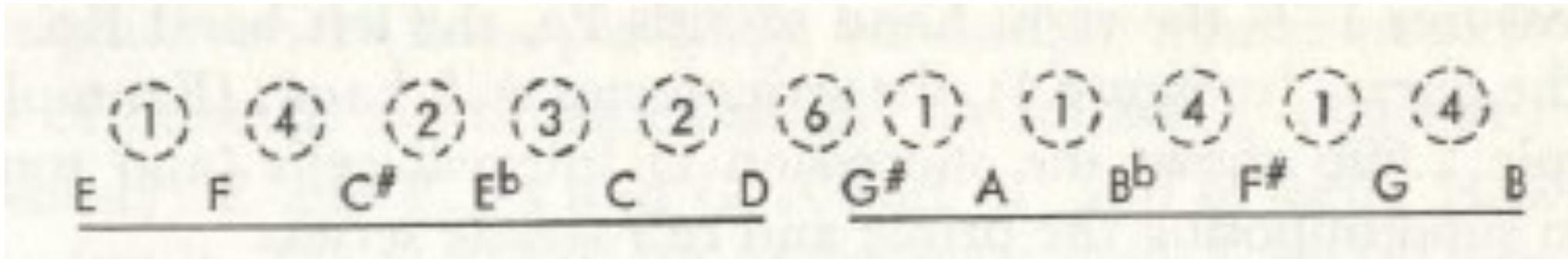
*in a variety of spacings and registers,  
ascending in overall motion*

E $\flat$ -F $\flat$	muted cello; trill; sul ponticello	①,	register 2
C-B	muted cello; harmonic to normal; legato bowing	⑬,	registers 4 and 2
B-B $\flat$	muted cello; normal; legato bowing	①,	register 2
F $\sharp$ -G } G $\sharp$ -G }	piano, in the colors of two different registers; legato touch	{ ①, ⑪,	register 3 registers 2 and 3
D-C $\sharp$	muted cello; harmonics	⑪,	registers 5 and 6



# Anton Webern: Variations for Piano, Op. 27

- Twelve tone row: the twelve note collection is ordered so it produces a specific succession of intervals
- A twelve tone row can be in prime form, inversion, retrograde, and retrograde-inversion



# Anton Webern

b.

	0	1	9	11	8	10	4	5	6	2	3	7
P → 0	E	F	C <sup>#</sup>	E <sup>b</sup>	C	D	G <sup>#</sup>	A	B <sup>b</sup>	F <sup>#</sup>	G	B
11	D <sup>#</sup>	E	C	D	B	C <sup>#</sup>	G	G <sup>#</sup>	A	F	G <sup>b</sup>	B <sup>b</sup>
3	G	G <sup>#</sup>	E	F <sup>#</sup>	D <sup>#</sup>	F	B	C	C <sup>#</sup>	A	B <sup>b</sup>	D
1	F	F <sup>#</sup>	D	E	D <sup>b</sup>	E <sup>b</sup>	A	B <sup>b</sup>	B	G	A <sup>b</sup>	C
4	A <sup>b</sup>	A	F	G	E	F <sup>#</sup>	C	C <sup>#</sup>	D	B <sup>b</sup>	B	E <sup>b</sup>
2	G <sup>b</sup>	G	E <sup>b</sup>	F	D	E	B <sup>b</sup>	B	C	A <sup>b</sup>	A	C <sup>#</sup>
8	C	C <sup>#</sup>	A	B	A <sup>b</sup>	B <sup>b</sup>	E	F	F <sup>#</sup>	D	E <sup>b</sup>	G
7	B	C	A <sup>b</sup>	B <sup>b</sup>	G	A	E <sup>b</sup>	E	F	D <sup>b</sup>	D	F <sup>#</sup>
6	B <sup>b</sup>	B	G	A	F <sup>#</sup>	A <sup>b</sup>	D	E <sup>b</sup>	E	C	D <sup>b</sup>	F
10	D	D <sup>#</sup>	B	C <sup>#</sup>	B <sup>b</sup>	C	F <sup>#</sup>	G	A <sup>b</sup>	E	F	A
9	C <sup>#</sup>	D	B <sup>b</sup>	C	A	B	F	F <sup>#</sup>	G	E <sup>b</sup>	E	G <sup>#</sup>
5	A	B <sup>b</sup>	G <sup>b</sup>	A <sup>b</sup>	F	G	C <sup>#</sup>	D	E <sup>b</sup>	B	C	E

RI ↑

← R



# Anton Webern: First Movement

- Comprised of the prime form with the retrograde form (P + R) or the inversion with its retrograde (I + RI)
- By superimposing P + R, the same (1,5,6) cell is formed on three different levels
  - A fourth cell, (2,4,6) is a variant, with the tritone being the linking interval
- The second half of the statement exactly reproduces in retrograde the same four cells in the first half



# Anton Webern: First Movement

a. Sehr mäßig ♩ = ca.40

b. Interval cells

Cell	Intervallic Structure	Retrograde	Intervallic Structure
1	(1 2 3 4)	4	(4 3 2 1)
2	(1 3 5 7)	5	(5 4 3 2)
3	(1 3 5 7)	6	(6 5 4 3)
4	(1 2 3 4)	7	(7 6 5 4)

c. The tritone of each cell

Cell	Tritone	Retrograde	Tritone
1	(b d)	d	(d b)
2	(c e)	e	(e c)
3	(c e)	f	(f c)
4	(b d)	b	(b d)



# Anton Webern: Second Movement

- Only uses prime and inversion forms (P + I) superimposed
- Half of P + I produce only the first set of intervals; the other half of P + I produce only a second set of intervals
- Is a mirror canon constructed of P + I that also mirror each other
- Intervals 0, 2, 4, and 6 are always sounded by the same note pairs

①	A-A	or E $\flat$ -E $\flat$
②	G $\sharp$ -B $\flat$	or D-E
④	G-B	or C $\sharp$ -F
⑥	F $\sharp$ -C	



{	p4:	A <sup>b</sup>	A	F	G	E	F <sup>#</sup>	C	C <sup>#</sup>	D	B <sup>b</sup>	B	E <sup>b</sup>
	6:	B <sup>b</sup>	A	C <sup>#</sup>	B	D	C	F <sup>#</sup>	F	E	A <sup>b</sup>	G	E <sup>b</sup>
		(a.)	(b.)	(c.)	(d.)	(e.)	(f.)	(f.)	(c.)	(e.)	(a.)	(d.)	(g.)

{	p11:	D <sup>#</sup>	E	C	D	B	C <sup>#</sup>	G	G <sup>#</sup>	A	F	G <sup>b</sup>	B <sup>b</sup>
	11:	E <sup>b</sup>	D	F <sup>#</sup>	E	G	F	B	B <sup>b</sup>	A	C <sup>#</sup>	C	A <sup>b</sup>
		(g.)	(e.)	(f.)	(e.)	(d.)	(c.)	(d.)	(a.)	(b.)	(c.)	(f.)	(a.)

{	p6:	B <sup>b</sup>	B	G	A	F <sup>#</sup>	A <sup>b</sup>	D	E <sup>b</sup>	E	C	D <sup>b</sup>	F
	4:	A <sup>b</sup>	G	B	A	C	B <sup>b</sup>	E	E <sup>b</sup>	D	F <sup>#</sup>	F	C <sup>#</sup>
		(a.)	(d.)	(d.)	(b.)	(f.)	(a.)	(e.)	(g.)	(e.)	(f.)	(c.)	(c.)

{	p9:	C <sup>#</sup>	D	B <sup>b</sup>	C	A	B	F	F <sup>#</sup>	G	E <sup>b</sup>	E	G <sup>#</sup>
	1:	F	E	G <sup>#</sup>	F <sup>#</sup>	A	G	C <sup>#</sup>	C	B	D <sup>#</sup>	D	B <sup>b</sup>
		(c.)	(e.)	(a.)	(f.)	(b.)	(d.)	(f.)	(f.)	(d.)	(g.)	(e.)	(a.)



# Anton Webern: Third Movement

- R4 is the series used in the first five measures
  - Sounds as a succession of 1 cells
  - Notes are paired in 1 cells by use of rhythmic space, register, attack, and dynamics

Ruhig fließend  $\text{♩} = \text{ca. } 80$

The image shows a musical score for Anton Webern's Third Movement, measures 1 through 9. The score is in 3/2 time and features a series of notes grouped into cells. The first five measures are labeled R4 and the last five are labeled RI6. The notes are paired in cells using rhythmic space, register, attack, and dynamics. The score includes dynamics like *p* and *f*, and articulation like accents. The tempo is marked 'Ruhig fließend' with a quarter note equal to approximately 80 beats per minute. The score is written for piano and includes a treble and bass clef. The notes are grouped into cells, with some cells containing two notes. The cells are numbered 1 through 9. The first five measures are labeled R4 and the last five are labeled RI6. The notes are paired in cells using rhythmic space, register, attack, and dynamics. The score includes dynamics like *p* and *f*, and articulation like accents.



# Elliott Carter: First String Quartet, First Movement

- Uses a single four-note cell that contains a large number of possible intervals of the twelve-note collection



cell: E-F-A $\flat$ -B $\flat$

E-F	①	A $\flat$ -B $\flat$	②
F-A $\flat$	③	E-A $\flat$	④
F-B $\flat$	⑤	E-B $\flat$	⑥

The same interval content exists within all permutations of the cell (I, R, RI)



# Luigi Dallapiccola: *Canti di Liberazione*

- Uses an all-interval source divided into three note cells that are reproduced to create a new, derived series
- Each derived series amplifies one cell and its intervals
- By doing so, the entire interval source is expanded



# Luigi Dallapiccola

Source series:  
(Mm. 1-4)

(11)	(8)	(3)	(2)	(6)	(1)	(4)	(10)	(5)	(9)	(7)	
F#	G	B	D	E	Bb	A	C#	Eb	Ab	F	C
(1)	(4)					(4)	(2)				

Derived series  
from (4) (2) cell:  
(Mm. 14-18)

Db	F	G	D#	B	A	D	F#	G#	E	C	Bb
(4)	(2)		(4)	(2)		(4)	(2)		(4)	(2)	
D#	B	A	C	E	F#	Db	F	G	D	Bb	Ab
E	C	Bb	D	F#	G#	Eb	G	A	F	Db	B

Derived series  
from (1) (4) cell:  
(Mm. 18-25)

E	D#	B	G	Ab	C	Gb	F	Db	A	Bb	D
(1)	(4)		(1)	(4)		(1)	(4)		(1)	(4)	
G#	A	C#	F	E	C	G	F#	D	A#	B	D#
F	Gb	Bb	G	Ab	C	D	C#	A	E	D#	B



# Milton Babbitt: *Du*

- Uses an all-interval source in voice line
- The three note cells are amplified to create the piano line
- Each derived series is given a registral space in the piano texture
- Each twelve-note area can be divided into equal halves



# Milton Babbitt: *Du*

Example 2.82. A series divided into five cells which are then multiplied by cell (c)

The image displays a musical score for Example 2.82, illustrating a series divided into five cells (a, b, c, d, e) which are then multiplied by cell (c). The score is presented in three staves (a, b, and c) and is written in treble clef.

- Staff a:** Shows the five cells of the series. Cell (a) is a single note (Bb). Cell (b) is a dyad (Bb, C). Cell (c) is a dyad (Bb, C) with a circled 2 above it and circled 10 and 11 below it. Cell (d) is a single note (Bb). Cell (e) is a single note (C).
- Staff b:** Shows the multiplication of the series by cell (c). The notes are grouped into five sets, each corresponding to one of the cells in staff a. Dashed lines connect the notes in staff b to the notes in staff c, indicating the multiplication process. The notes in staff b are: (Bb, C), (Bb, C), (Bb, C), (Bb, C), (Bb, C). The notes in staff c are: (Bb, C), (Bb, C), (Bb, C), (Bb, C), (Bb, C). The notes in staff b are grouped into five sets, each corresponding to one of the cells in staff a. The notes in staff c are grouped into five sets, each corresponding to one of the cells in staff a. The notes in staff b are: (Bb, C), (Bb, C), (Bb, C), (Bb, C), (Bb, C). The notes in staff c are: (Bb, C), (Bb, C), (Bb, C), (Bb, C), (Bb, C). The notes in staff b are grouped into five sets, each corresponding to one of the cells in staff a. The notes in staff c are grouped into five sets, each corresponding to one of the cells in staff a.
- Staff c:** Shows the multiplication of the series by cell (c). The notes are grouped into five sets, each corresponding to one of the cells in staff a. Dashed lines connect the notes in staff b to the notes in staff c, indicating the multiplication process. The notes in staff c are: (Bb, C), (Bb, C), (Bb, C), (Bb, C), (Bb, C).



# Conclusion

- Musical space is partitioned in order to provide a collection of pitches and intervals
- Different spans of space and different partitionings are possible; thus, different collections are also possible
- Each partitioning makes available certain intervallic resources, which composers explore and exploit
- To understand the language of a musical work, one must identify the underlying collection and consider its intervallic properties and resources
- Then, the work's specific choices among those resources – its way of defining, displaying, and reproducing its chosen pitches and interval relationships – must be formulated

p.213

