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.

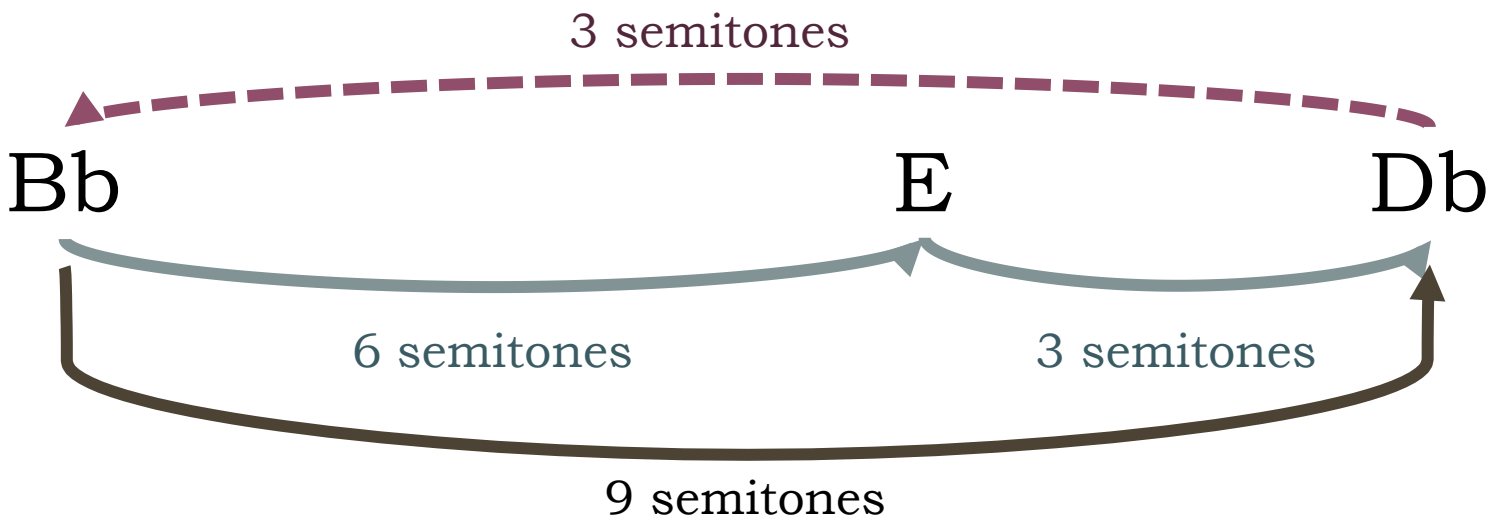
First Observations

- 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

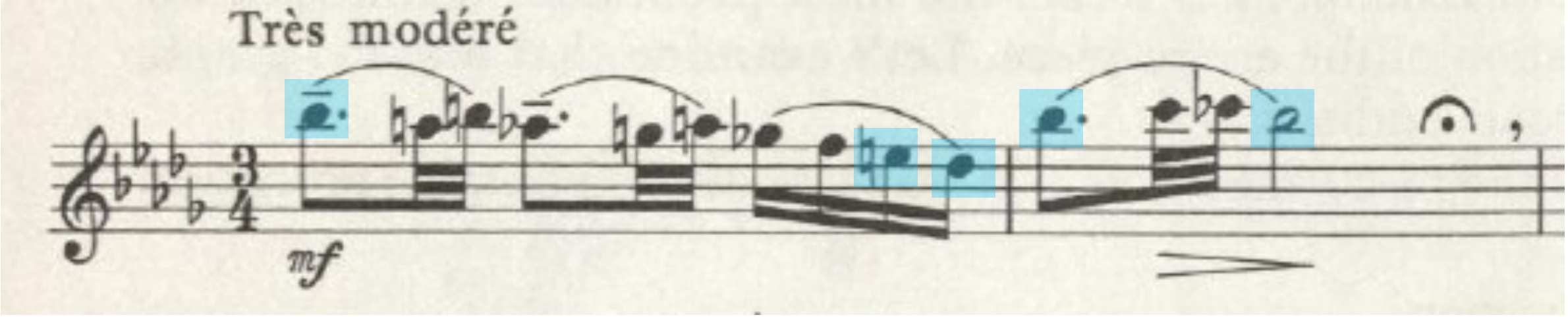
Debussy: Syrinx for Solo Flute

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



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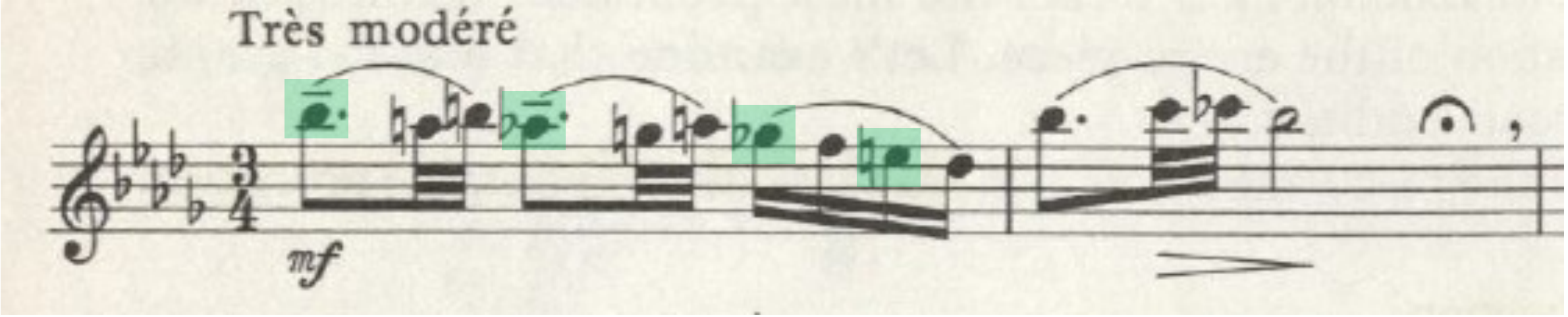
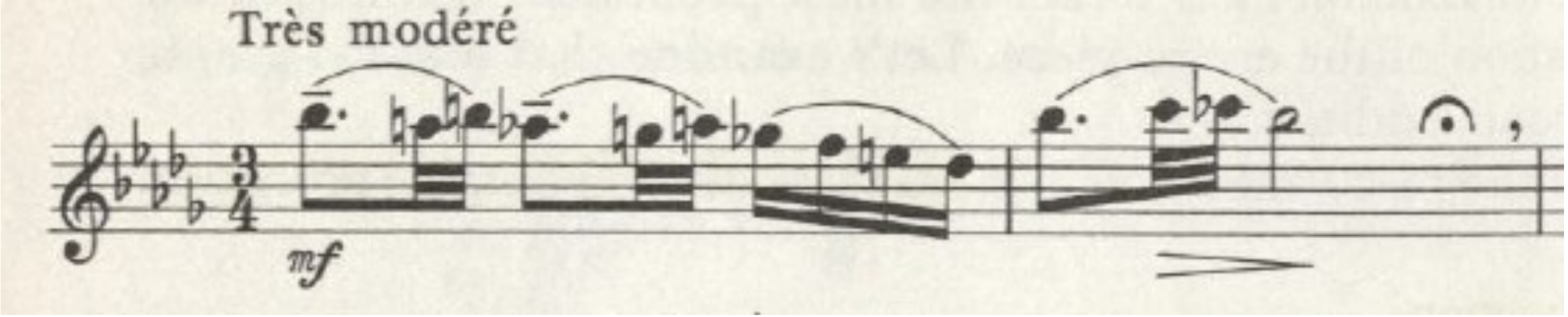


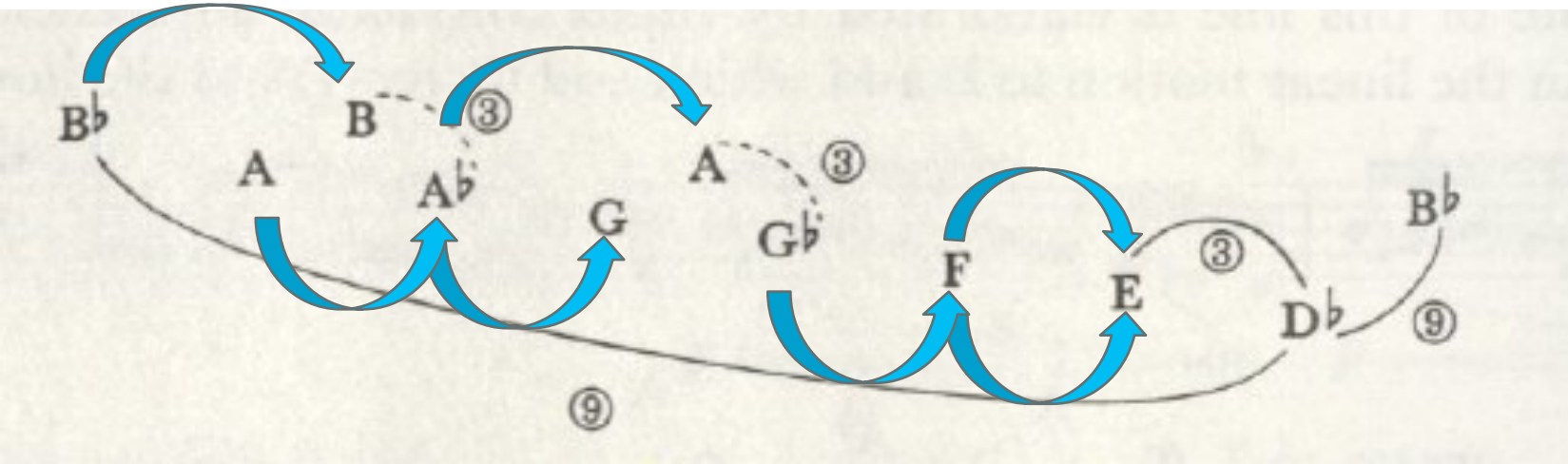
2 semitones

Bb Ab Gb E

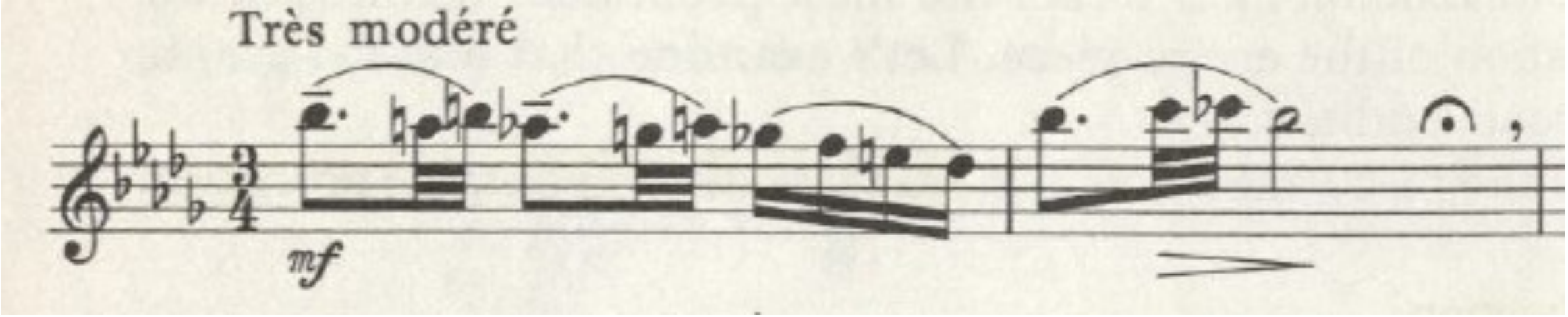
2 semitones 2 semitones

Debussy: Syrinx for Solo Flute





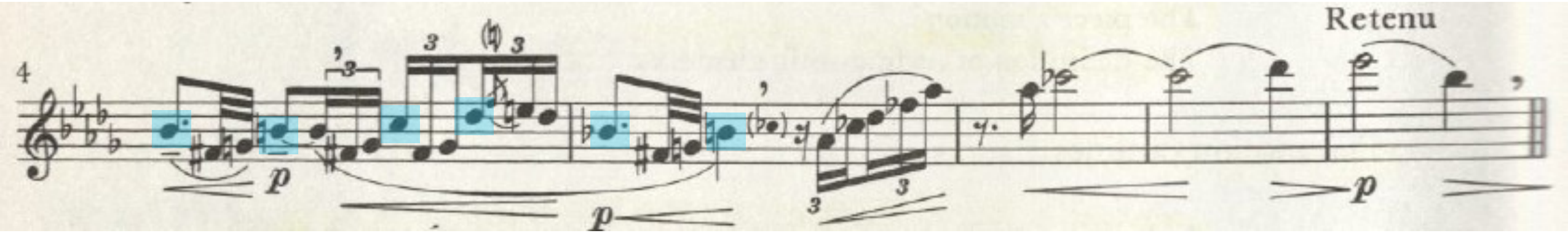
Debussy: Syrinx for Solo Flute



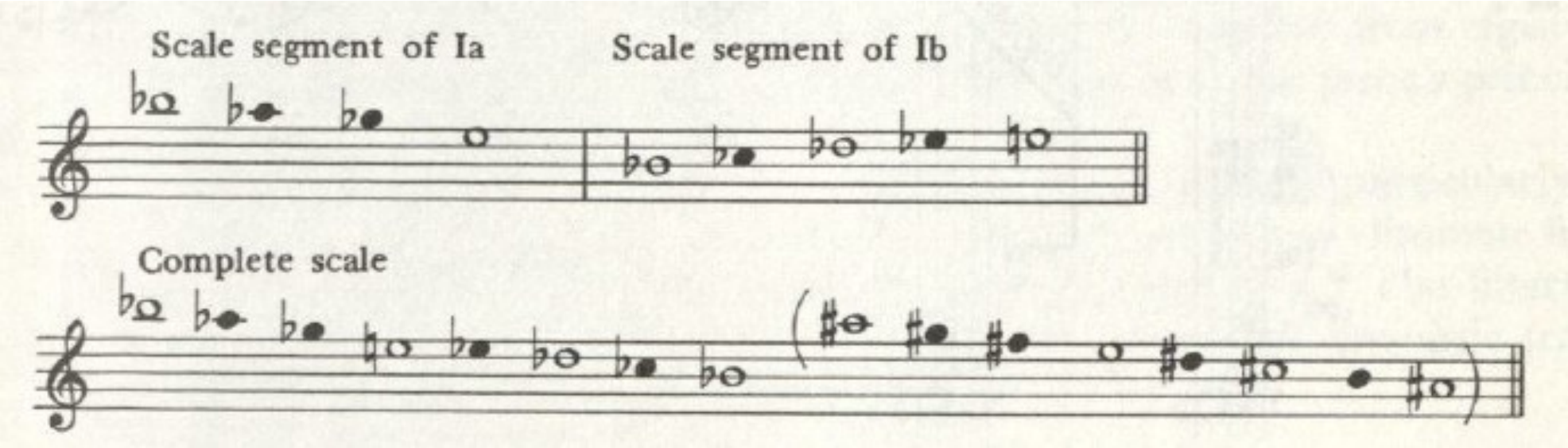
- Intervals 4 and 5 are excluded in this opening phrase

- “A primary cell, Bb-E-Db, embodying 3’s and a 6; connecting 2’s, forming a scalar segment; and elaborating 1’s”

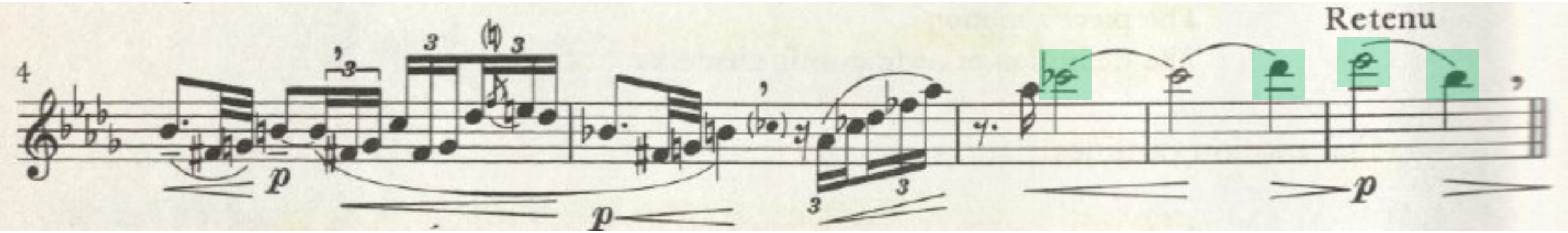
Debussy: Syrinx for Solo Flute



- Rising by semitone, with notes in between filling out the rest of the scale



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

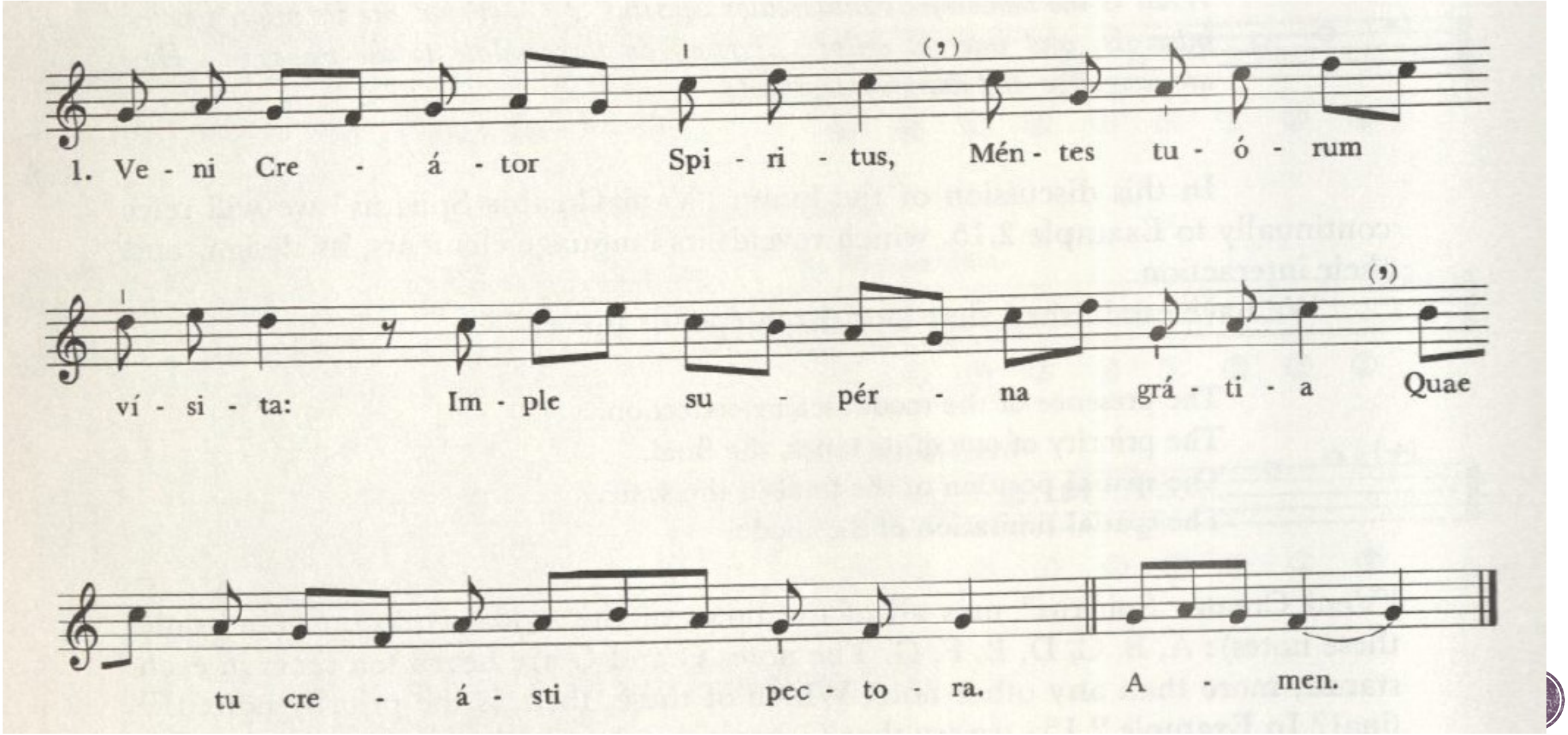
- Seventh-Century: Pope Gregory I's reign, collecting and ordering of chants
- Tenth-Century: treatise *Alia Musica*, first attempt at defining modal system
- ca. 995-1050: writings of Guido d'Arezzo
- d.1048: writings of Berno of Reichenau
- 1013-1045: writings of Hermannus Contractus
- 1547: last important 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.[19]
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



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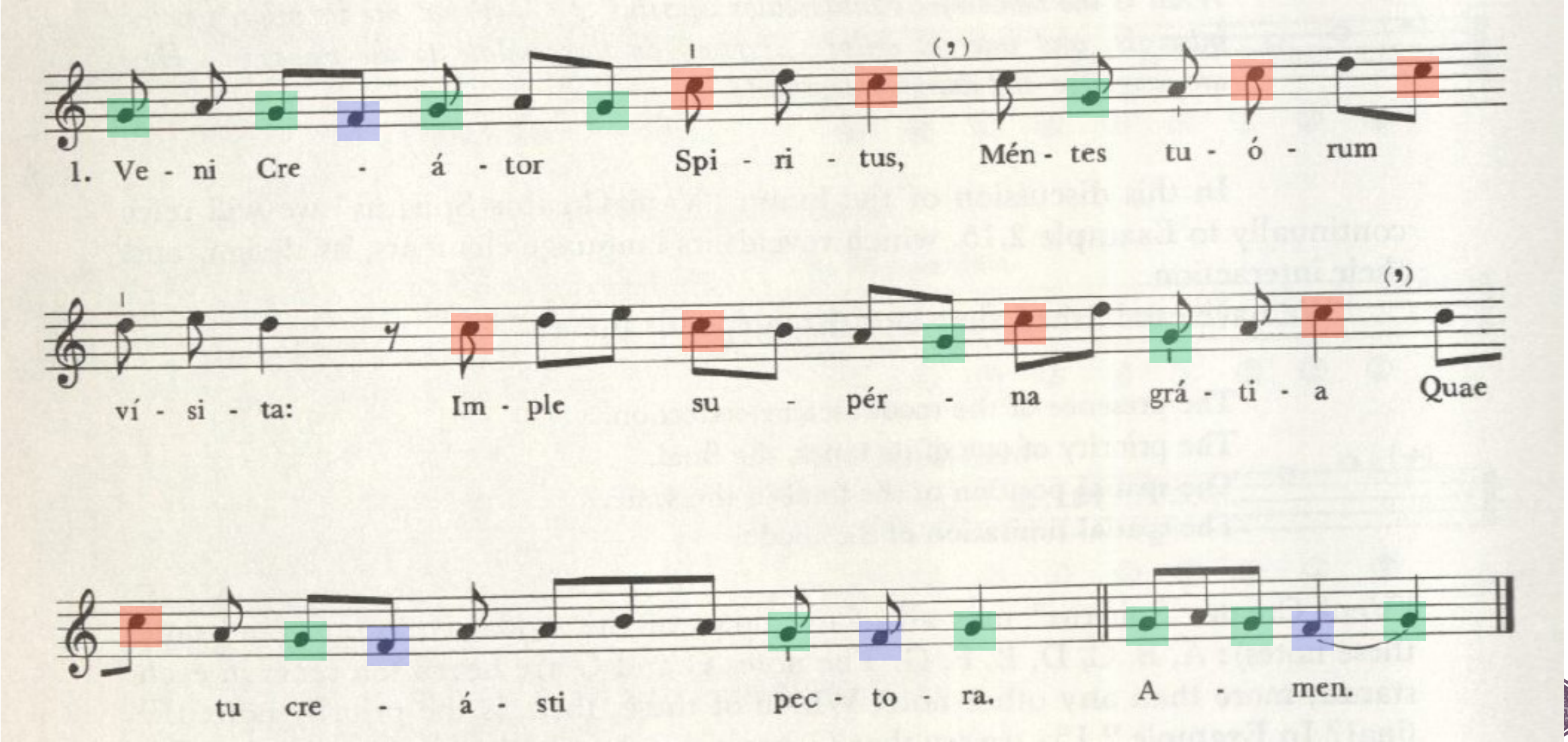

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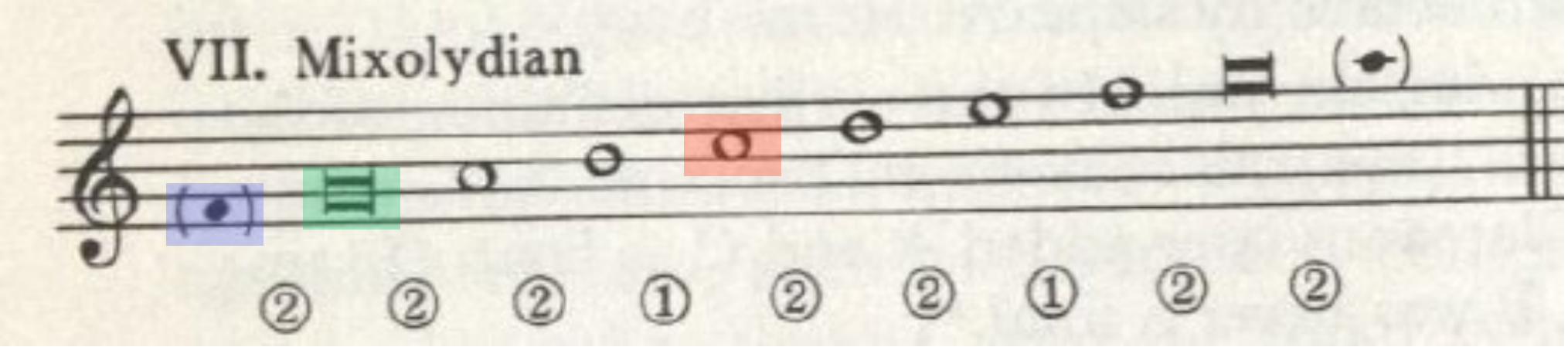

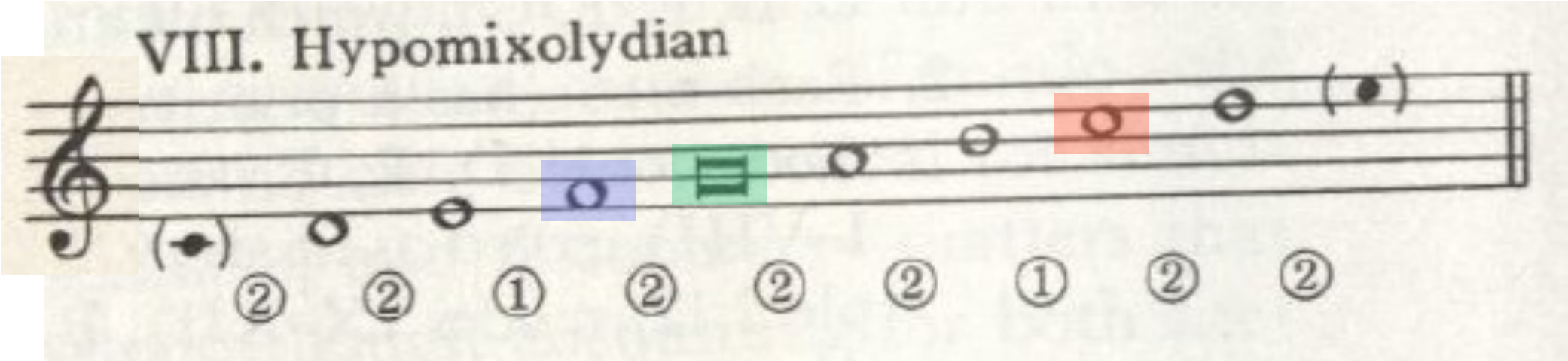

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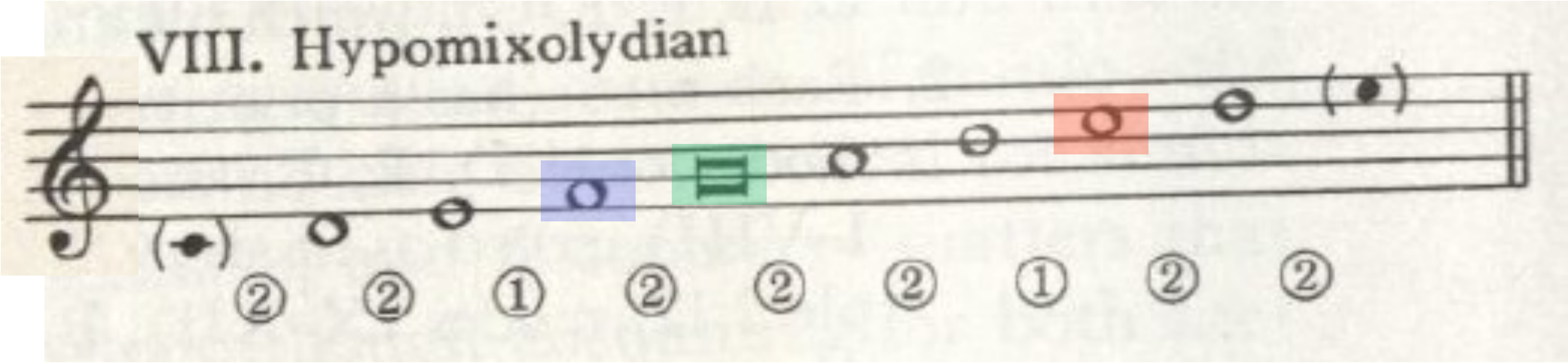

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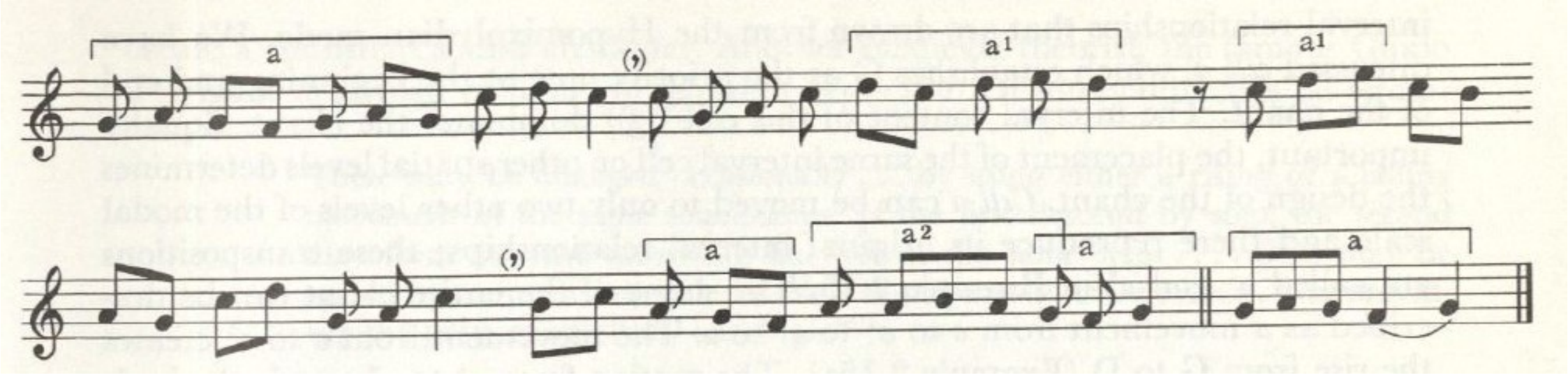
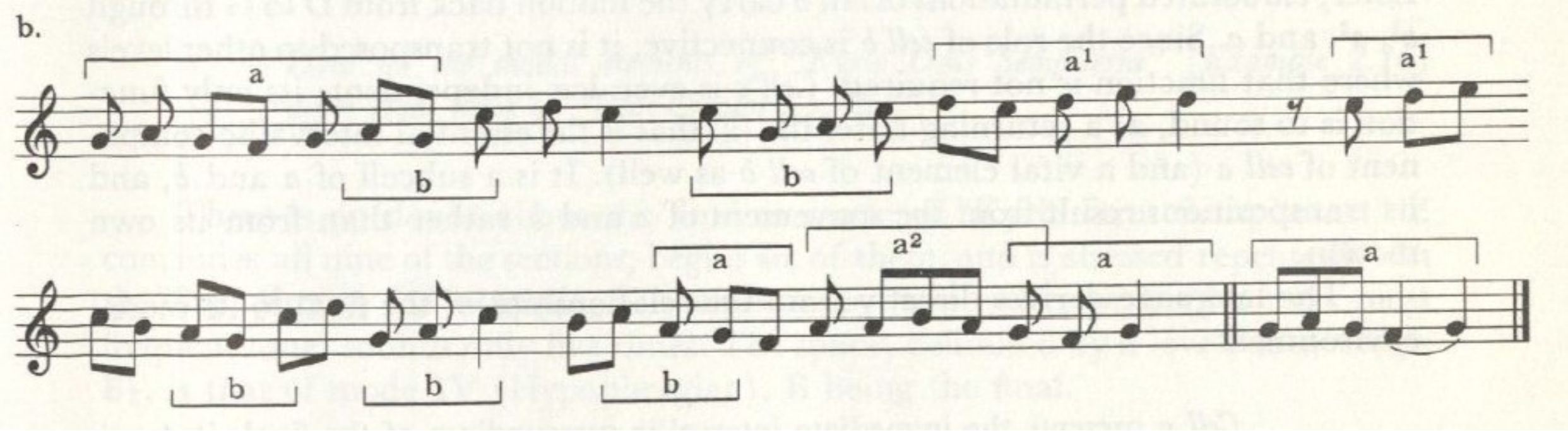


All “a” cells are comprised of interval 2, or a whole tone

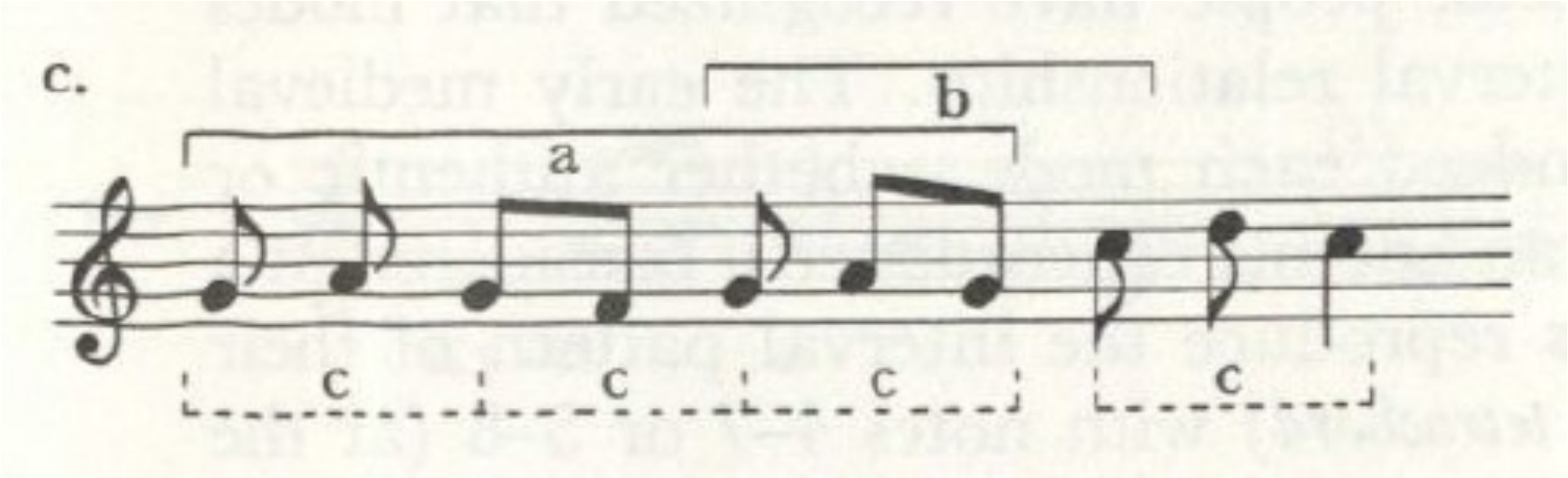
Veni Creator Spiritus



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

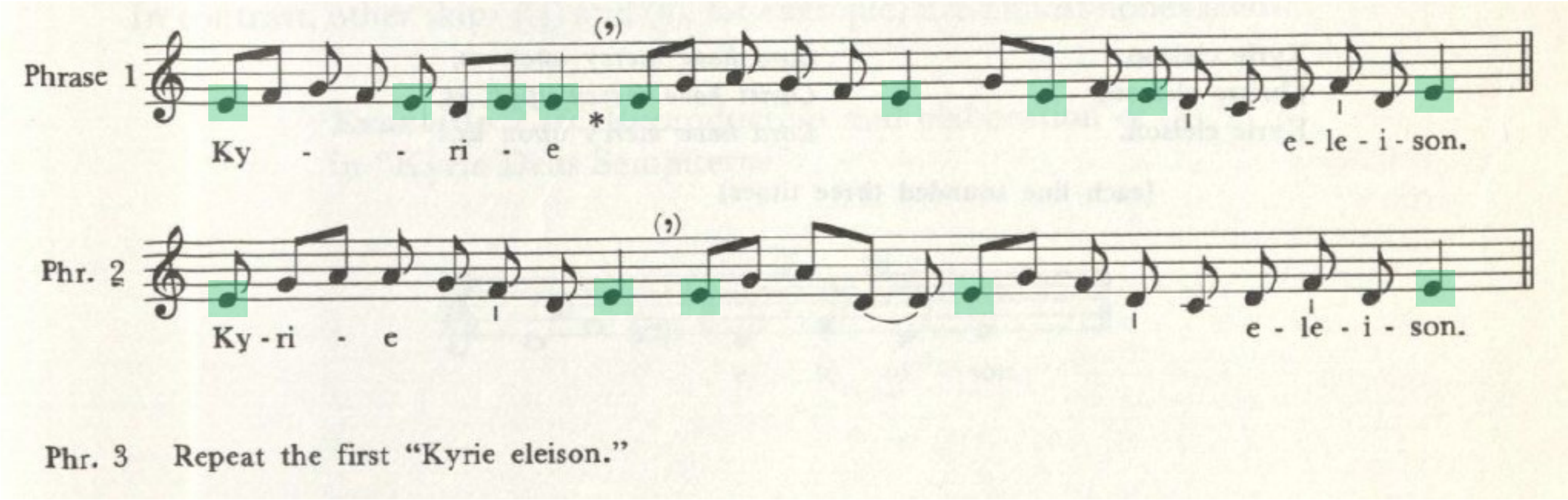
Veni Creator Spiritus



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

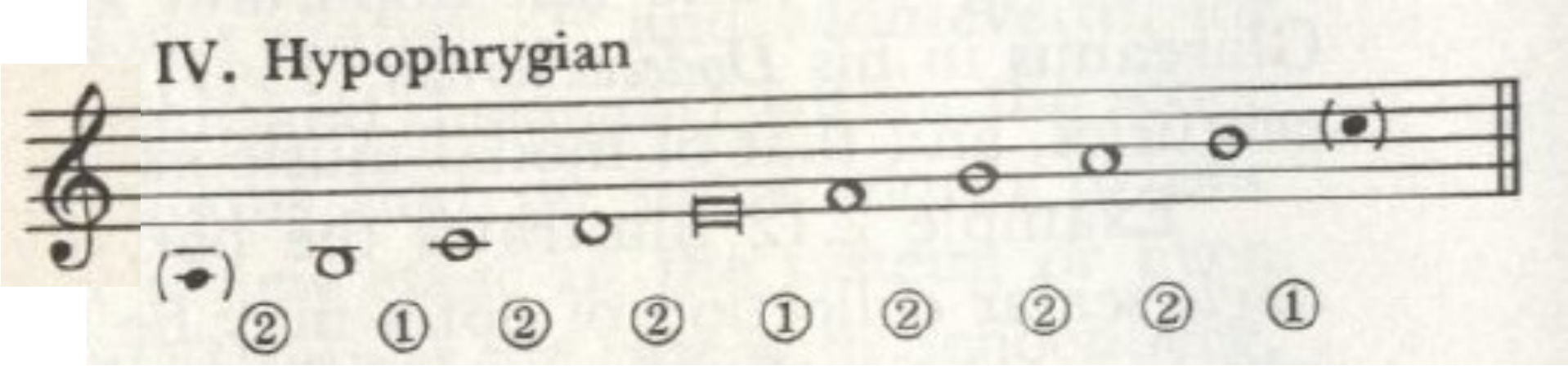
Represents the cohesiveness of cells “a” and “b”

Kyrie Deus Sempiterne



The piece continues further…

Kyrie Deus Sempiterne

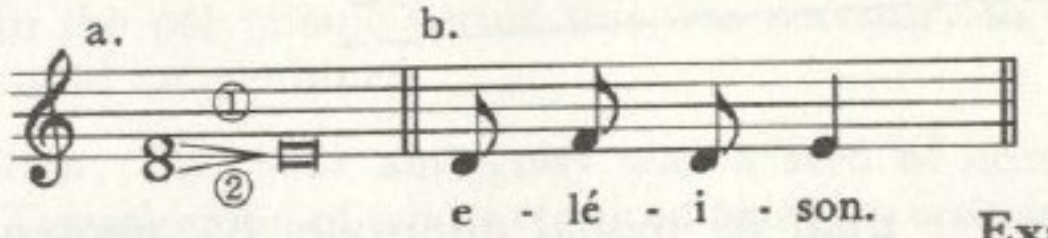


Can’t be in the phrygian mode due to the range; lowest note in phrygian is “D”

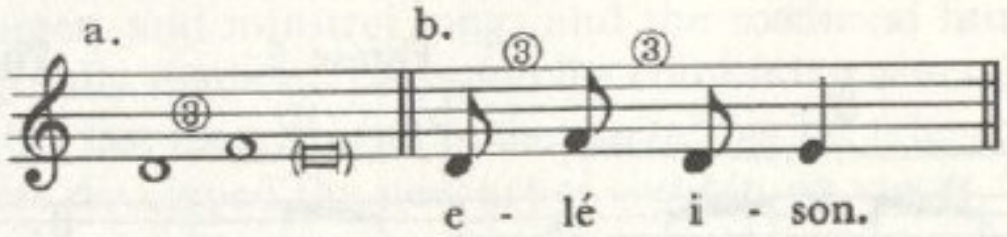
Kyrie Deus Sempiterne

- 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 Sempiterne"



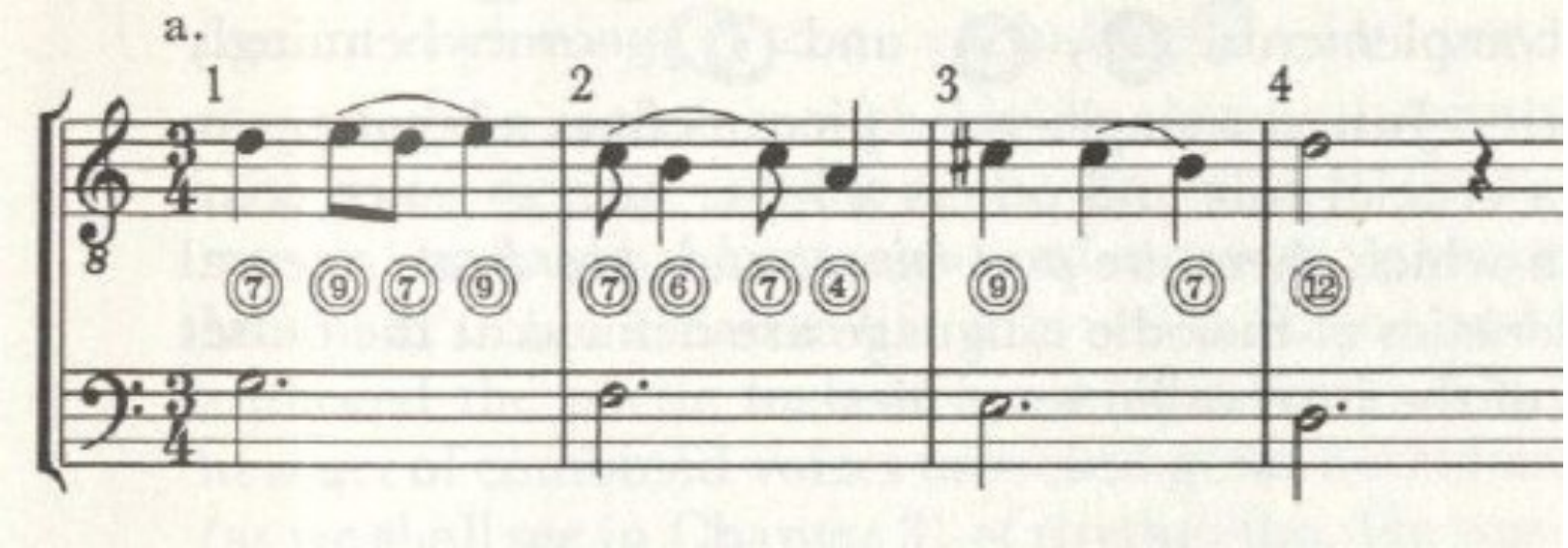
Modal System

New features added in the modal system:

- Transposition: so different voice ranges can be used
- Chromaticism: B vs. Bb 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



Guillaume de Machaut

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

7 sounds for seven ♪'s duration

9 sounds for seven ♪'s duration

12 sounds for four ♪'s duration

4 and 6 sound for two ♪'s duration

7 receives two simultaneous attacks

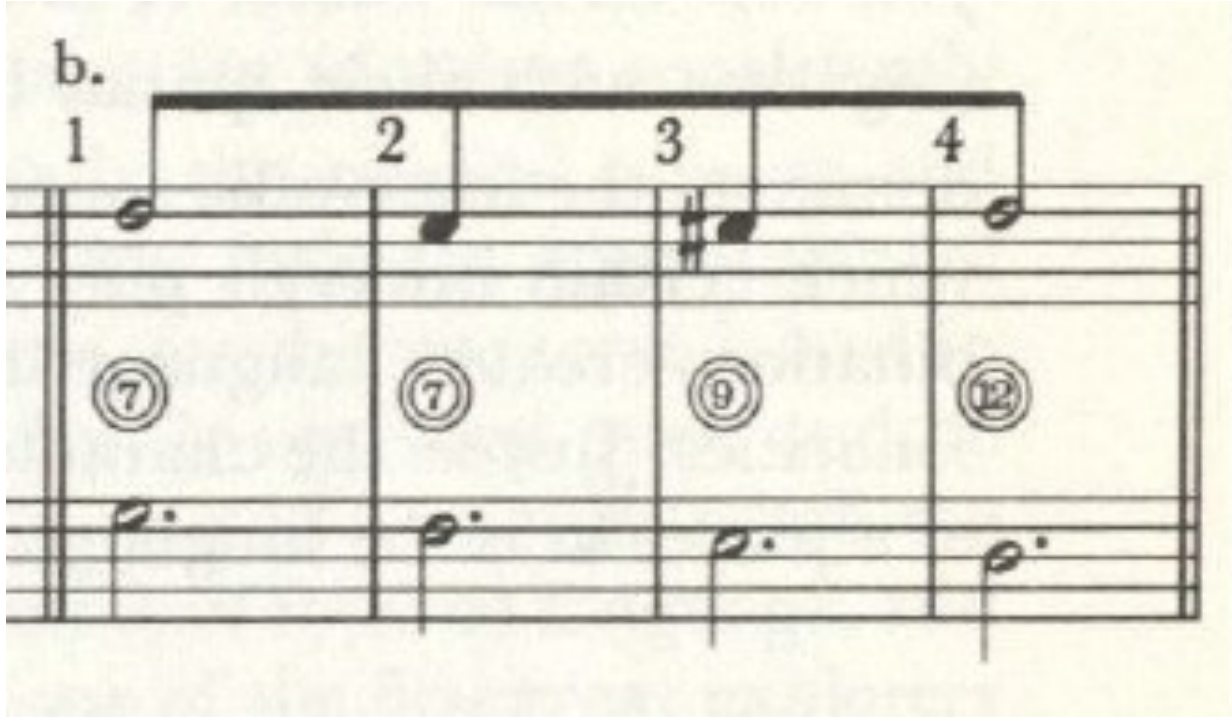
9 receives one simultaneous attack

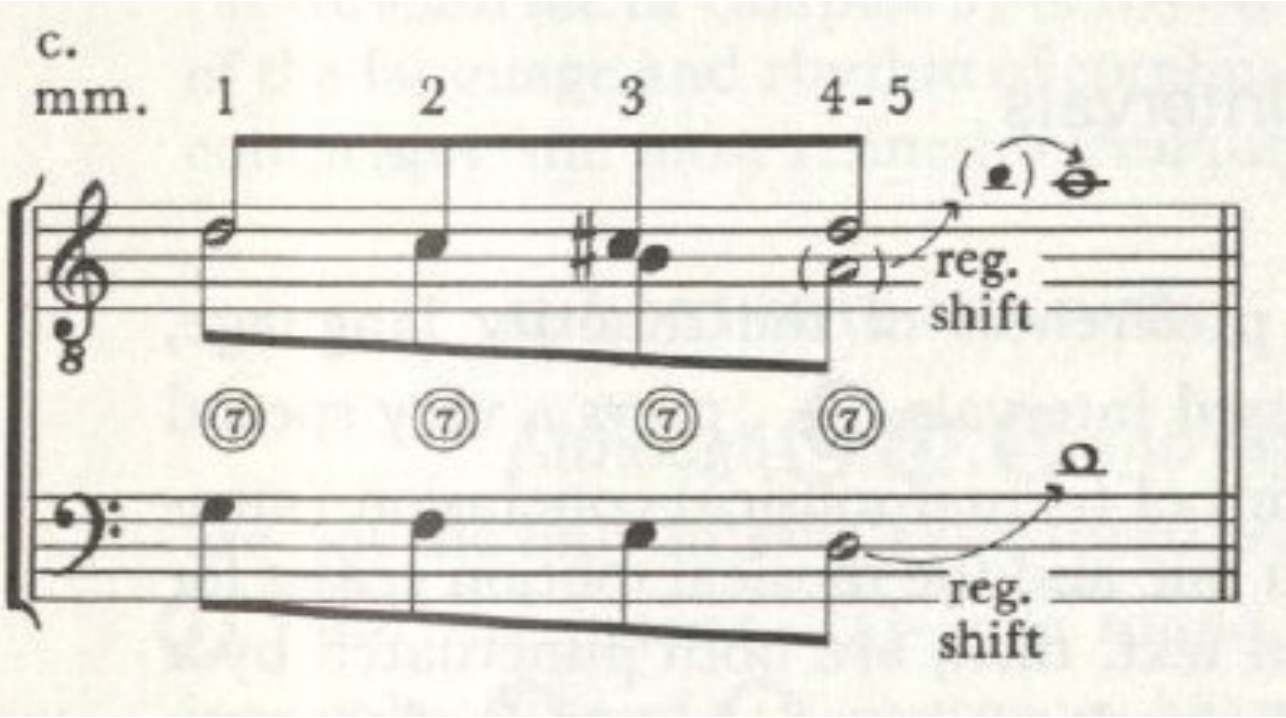
12 receives one simultaneous attack

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





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

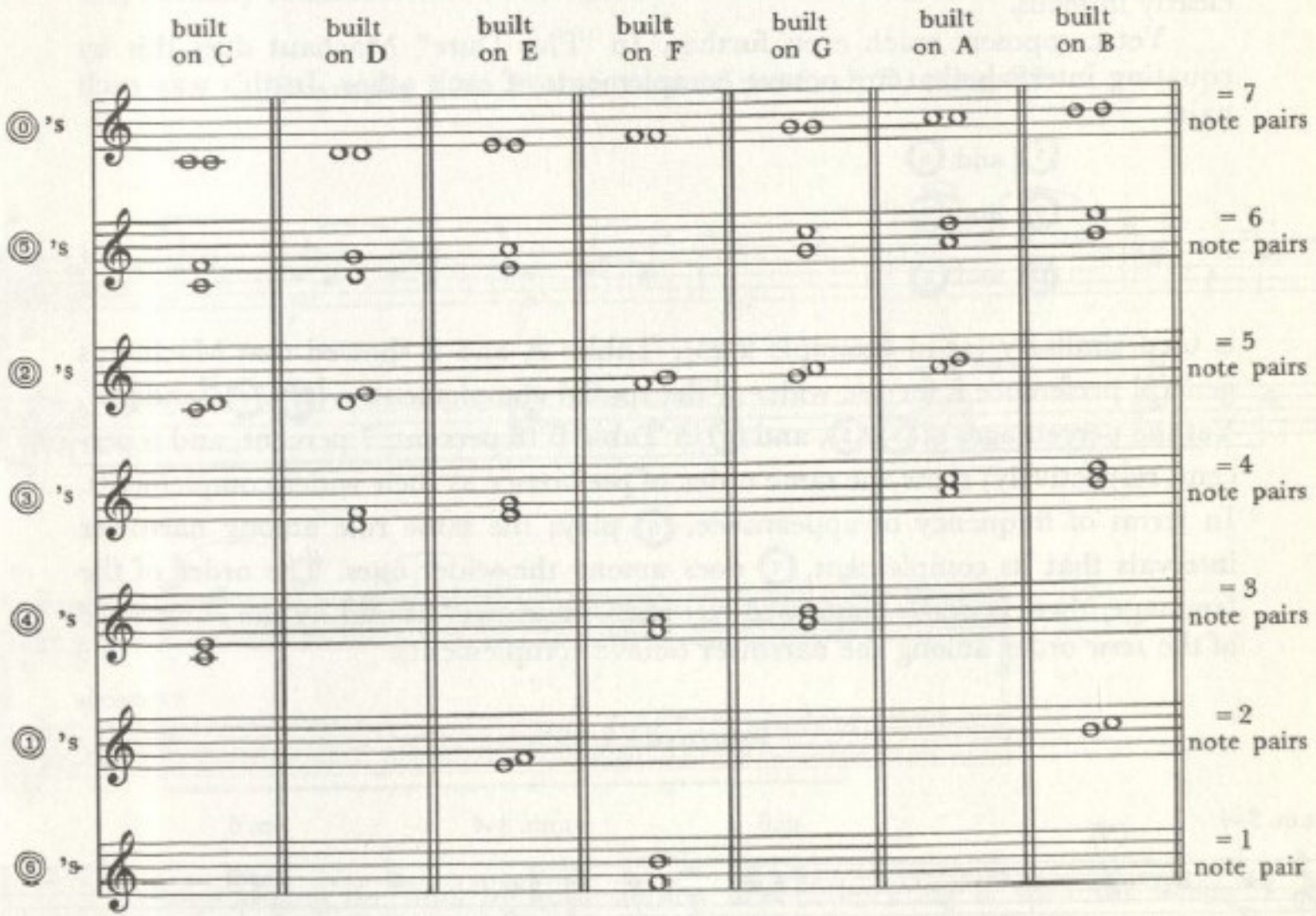
Machaut’s phrases contain a form that begins with interval 7 and ends with interval 12, which occurs consistently throughout the piece

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



Example 2.24 portrays the intervals obtained by combining every note of the modal collection with every other note. Intervals 0 – 6 are shown; wider intervals (7 – 12, and so forth) are spatial redeployments of these same note pairs.

TABLE C

7 possible 0's (or 12's)	25%
6 possible 5's (or 7's)	21%
5 possible 2's (or 10's)	18%
4 possible 3's (or 9's)	14%
3 possible 4's (or 8's)	11%
2 possible 1's (or 11's)	7%
1 possible 6 (the spatial complement is also 6)	4%
	100%

Josquin des Prez: Missa "L'Homme Arme," "Benedictus"

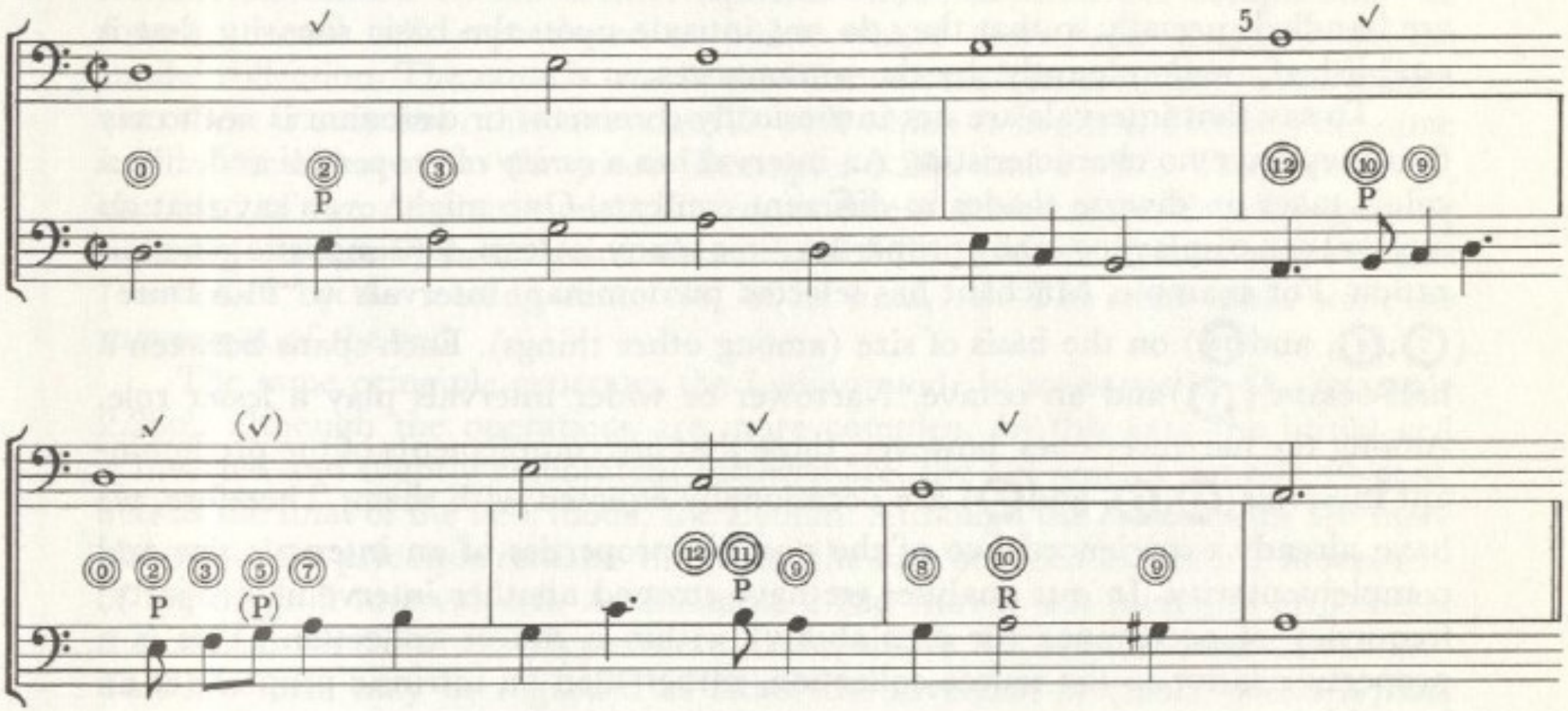
- The first phrase (measure 1-9) and the frequency of intervals:
  - Interval 3 (minor third): nine times
  - Interval 0 (unison): five times
  - Interval 4 (major third): five times
  - Interval 7 (perfect fifth): four times
  - Interval 2 (major second): four times
  - Interval 1 (semitone): one time
  - 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	0 = 5	7 = 51
8 = 14	4 = 5	0 = 41
0 = 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	Simultaneous attacks	Lengths of intervals (in ♪'s)
3 = 48	3 = 19	3 = 141
7* = 36	0 = 8	4 = 71
4 = 25	4 = 7	0 = 68
0 = 21	7 = 3	7 = 63
2 = 13	2, 1 and 6 = 0	2 = 24
1 = 6		1 = 8
6 = 1		6 = 1



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

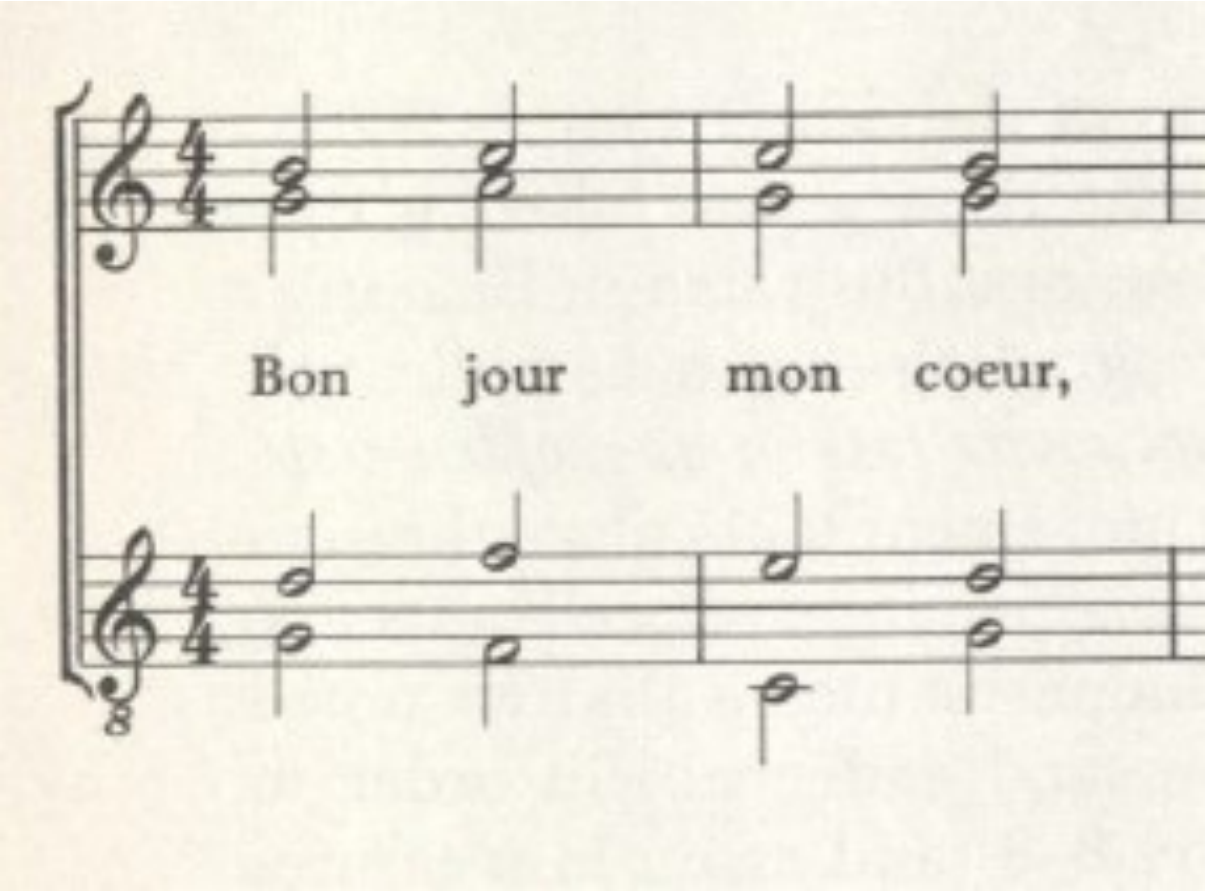
(5) is included among the subordinate intervals because it sounds as infrequently as they do, and is treated as they are. (Spatial complements are not always equivalents.)

Subordinate intervals in “Benedictus”

Machaut & des Prez

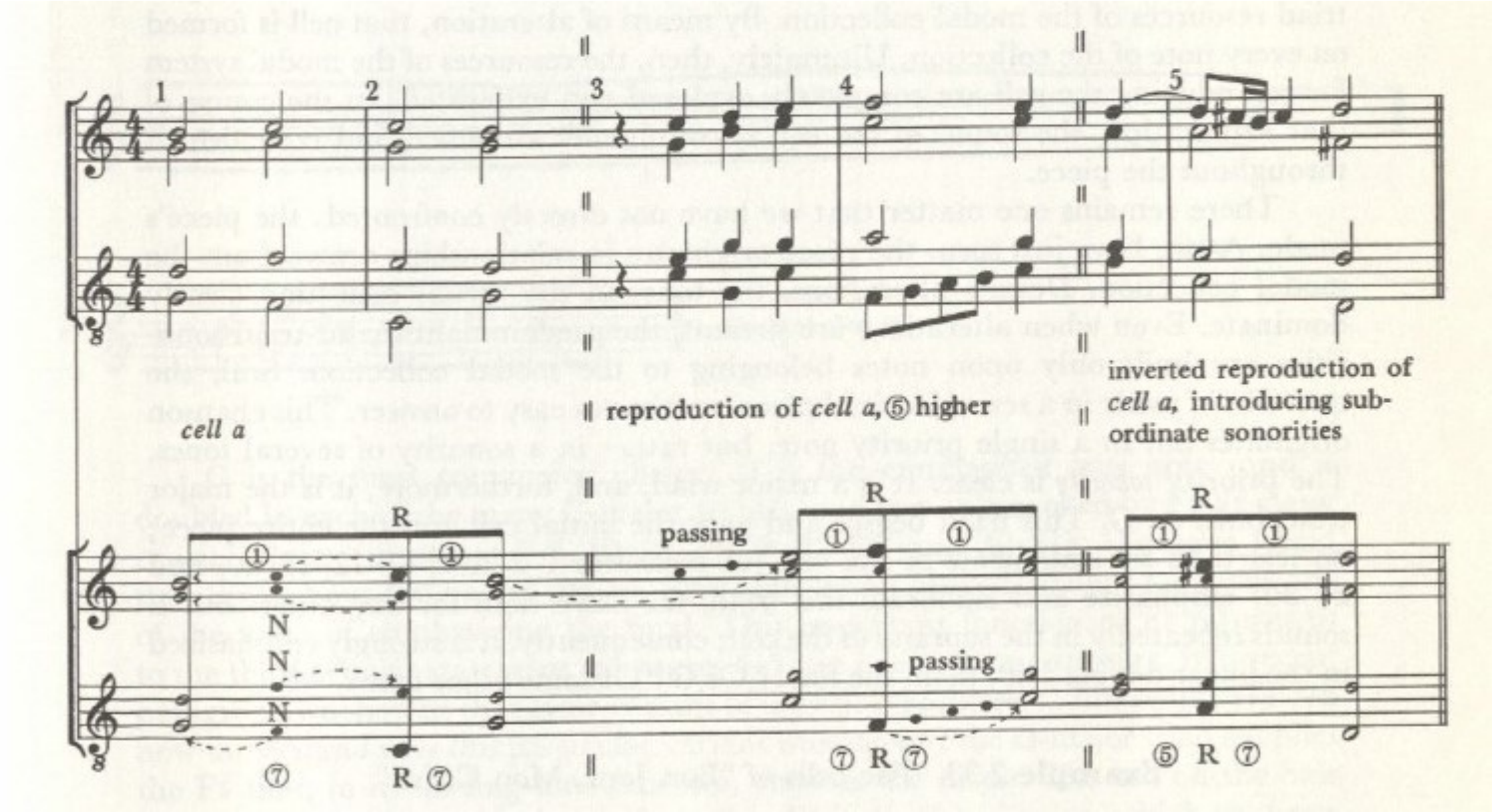
- Consonance: “predominant” intervals
- Dissonance: “subordinate” intervals, often non-obtrusive of the set consonance musical language
- Consonance and dissonance in this musical language doesn’t adhere to today’s set definition of consonance and dissonance
  - Context is important to consider

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



- 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



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

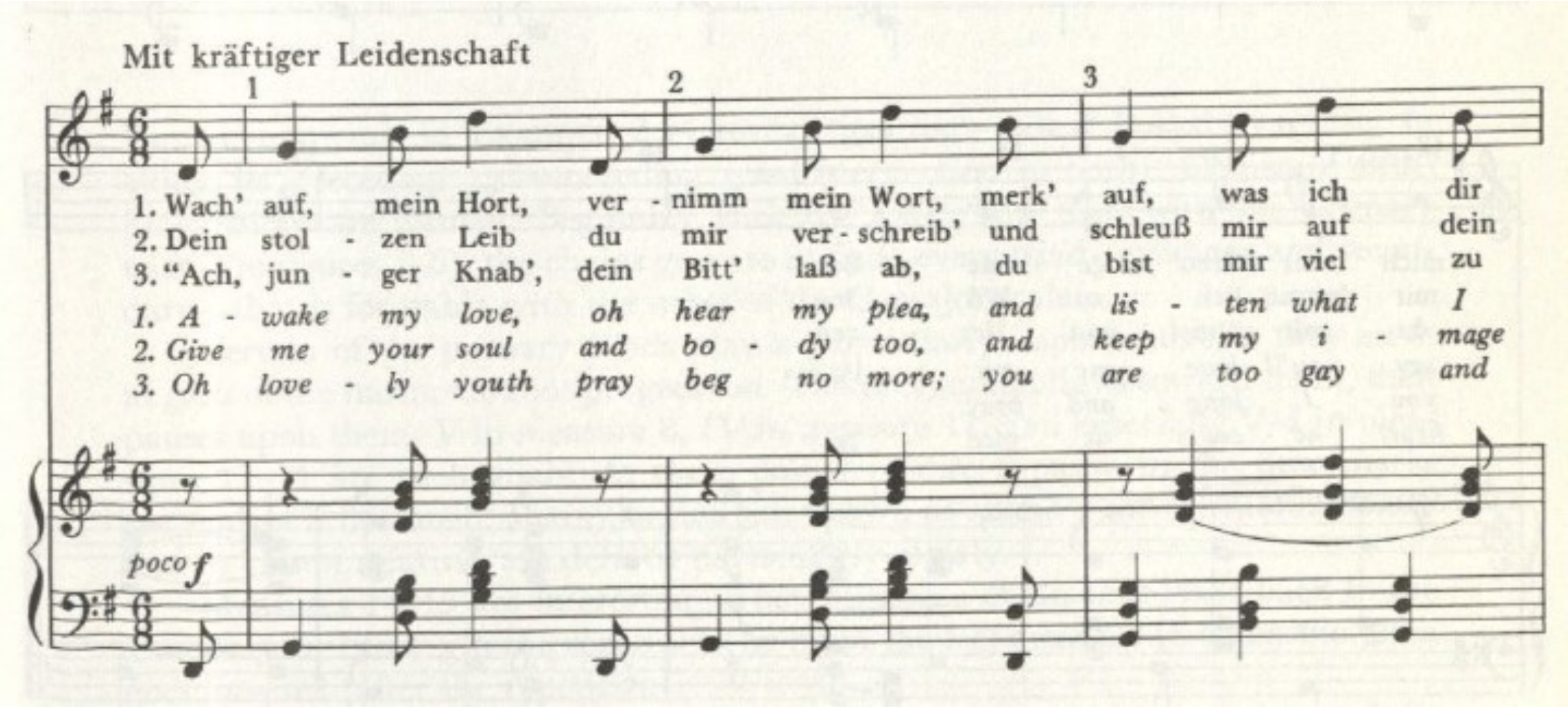
Evolution of musical language:

- 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

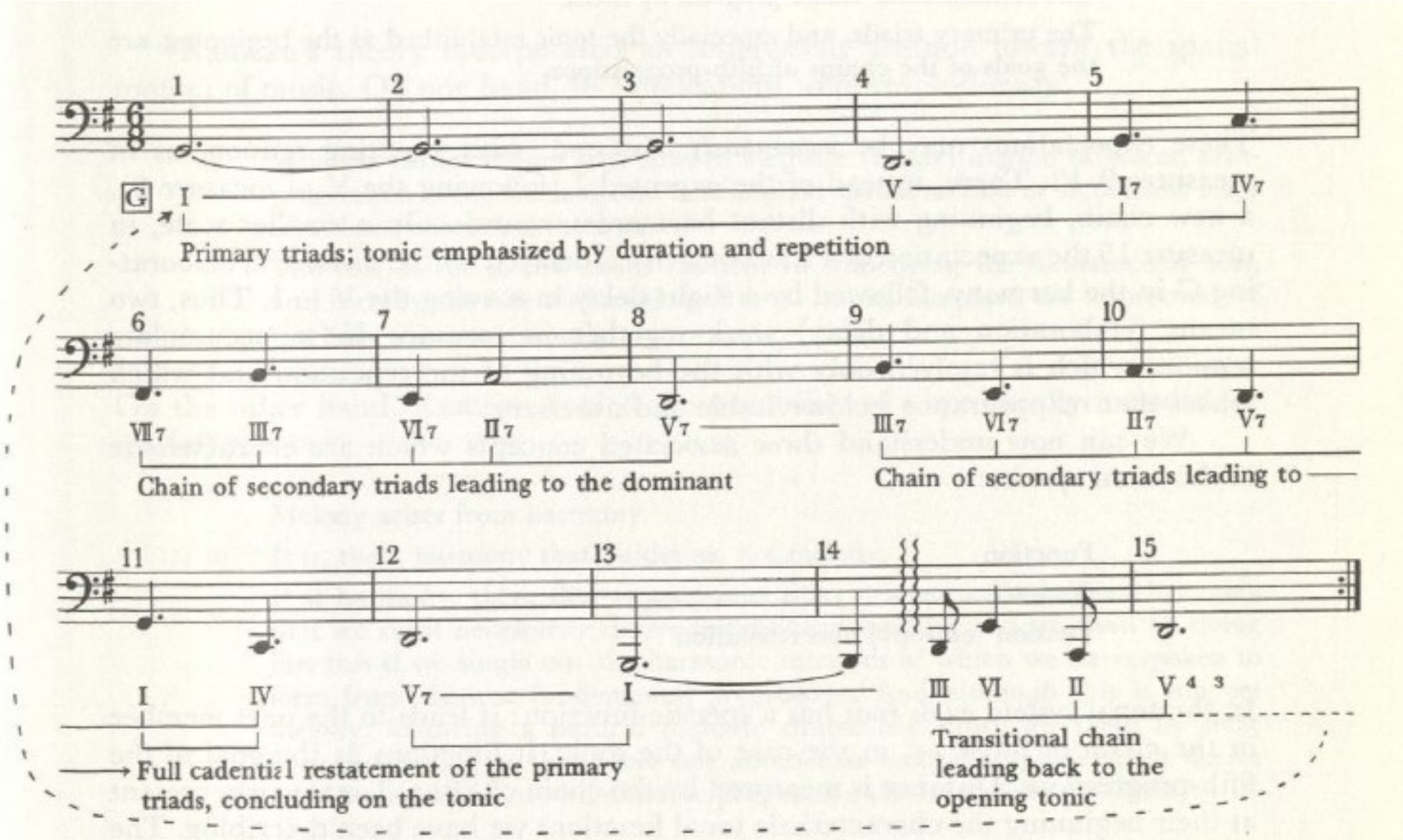
Tonal Collection

- 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”



Johannes Brahms



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

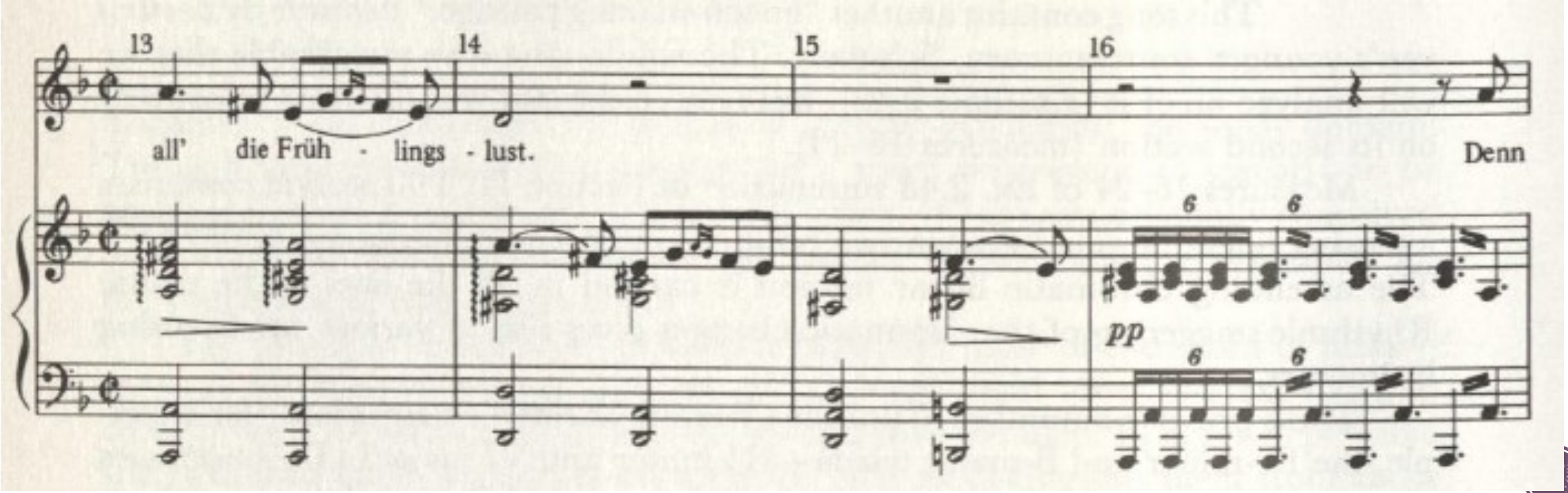
The roles of voices have changed:

- 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”

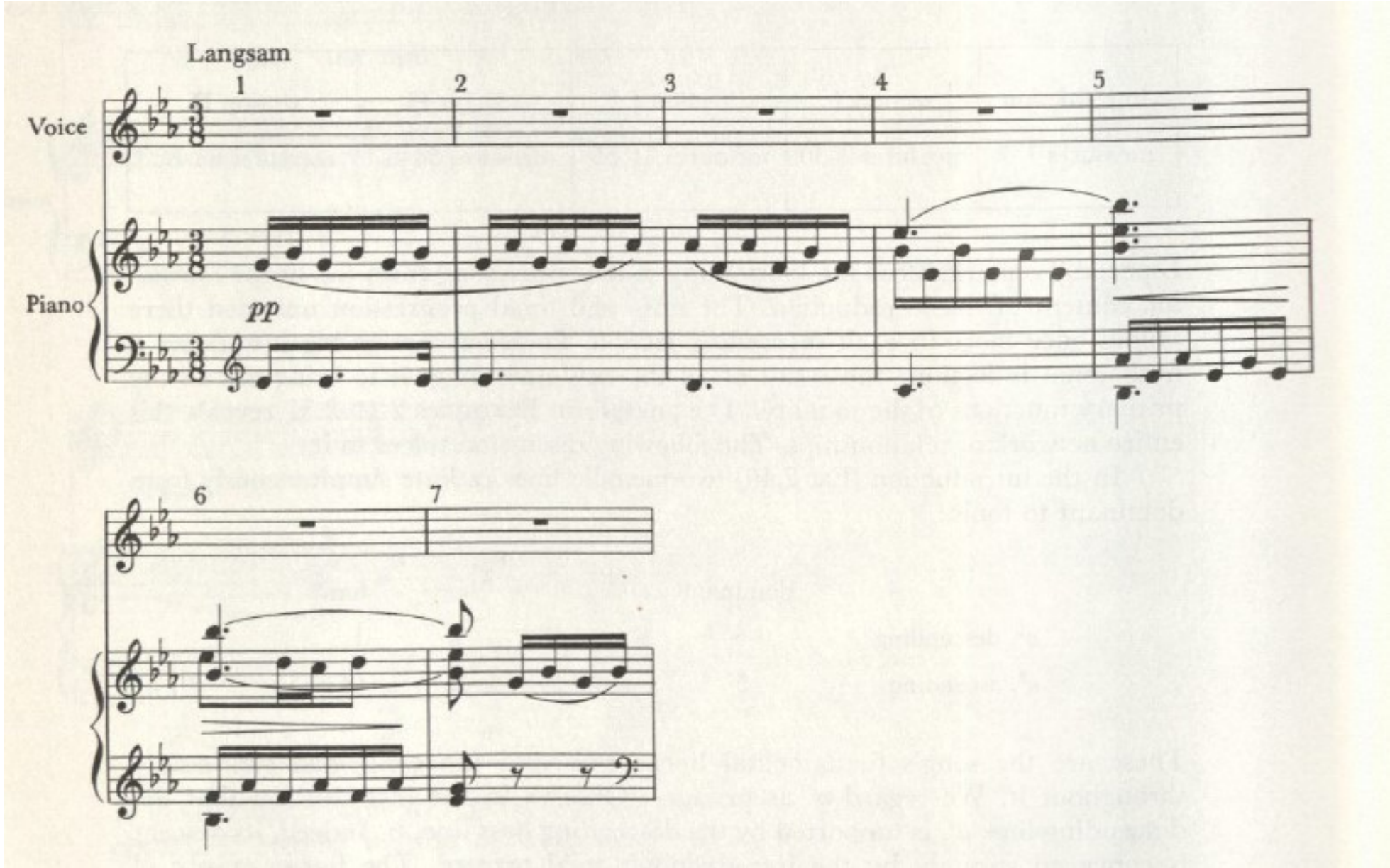
- Notes are not limited to the seven note collection within the scale; is expanded to include all twelve notes
- Sonorities not limited to triads (and sevenths) based on the circle of fifths
- Chromatic passing motion merges major and minor tonalities



Franz Schubert: “Du Bist Die Ruh”

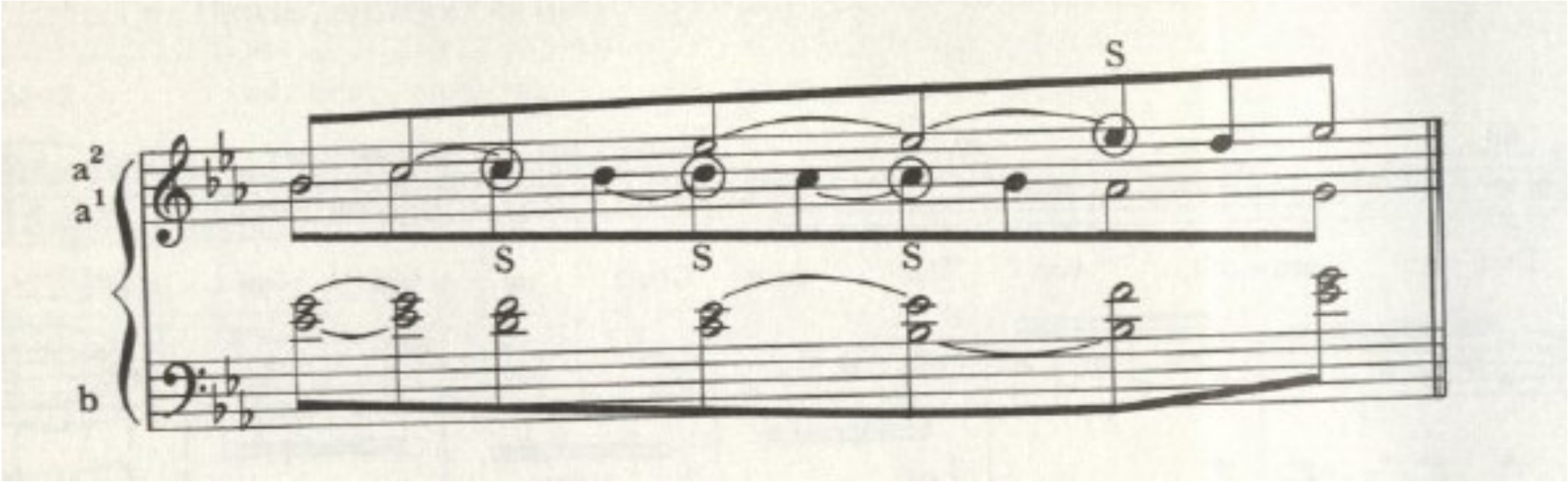
Introduction

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



Franz Schubert: “Du Bist Die Ruh”

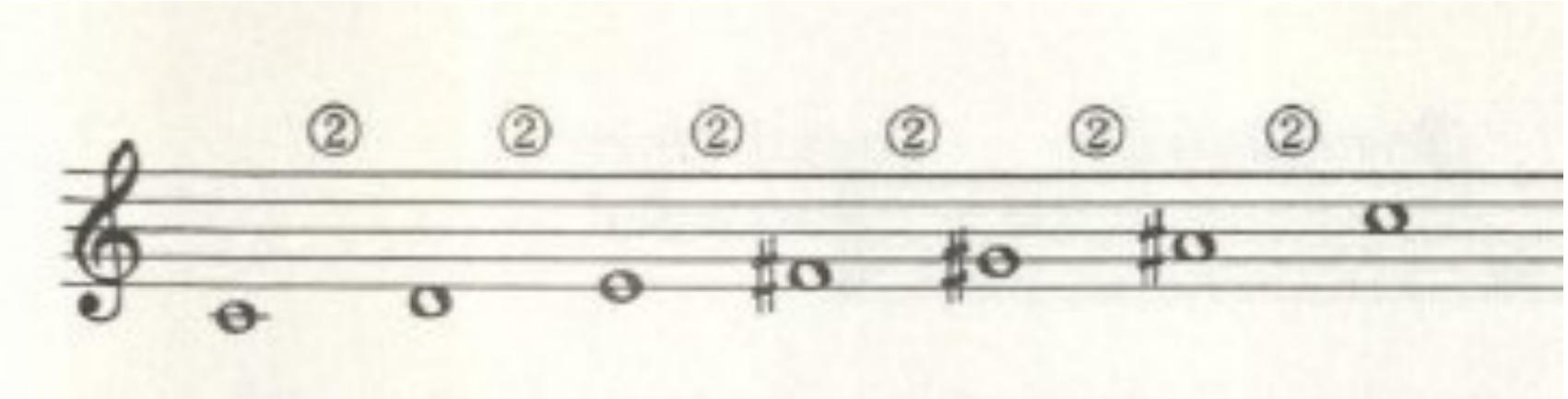
Begin to see suspensions due to rhythmic staggering of events



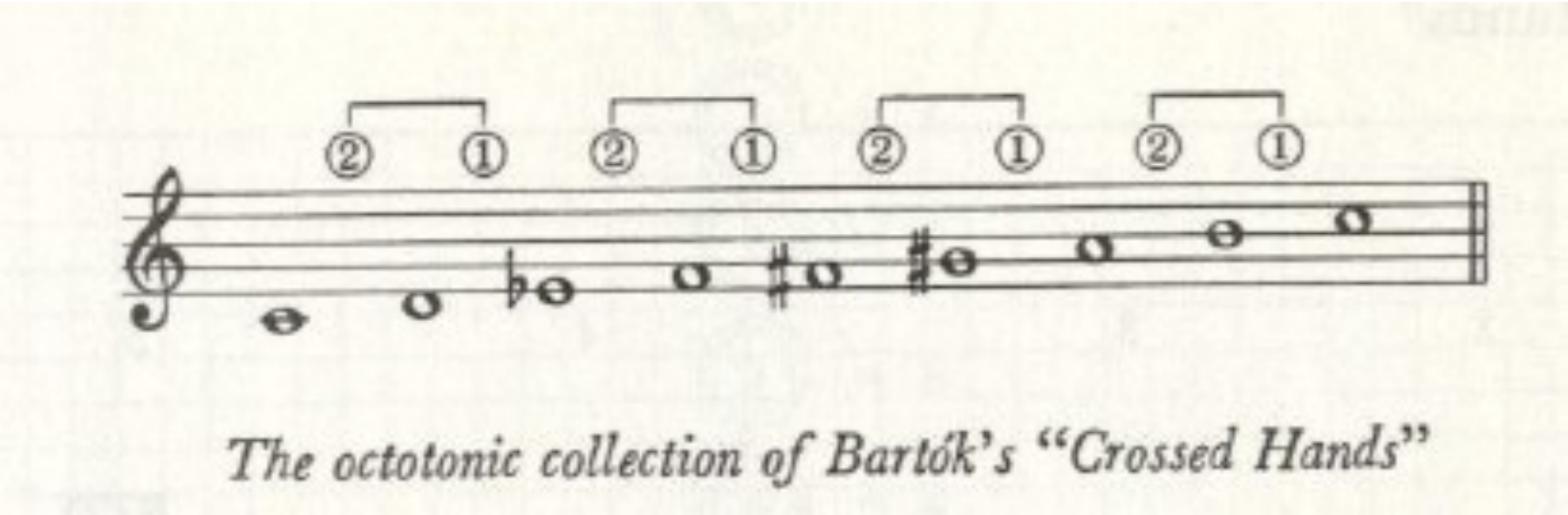
Twentieth-Century Systems

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



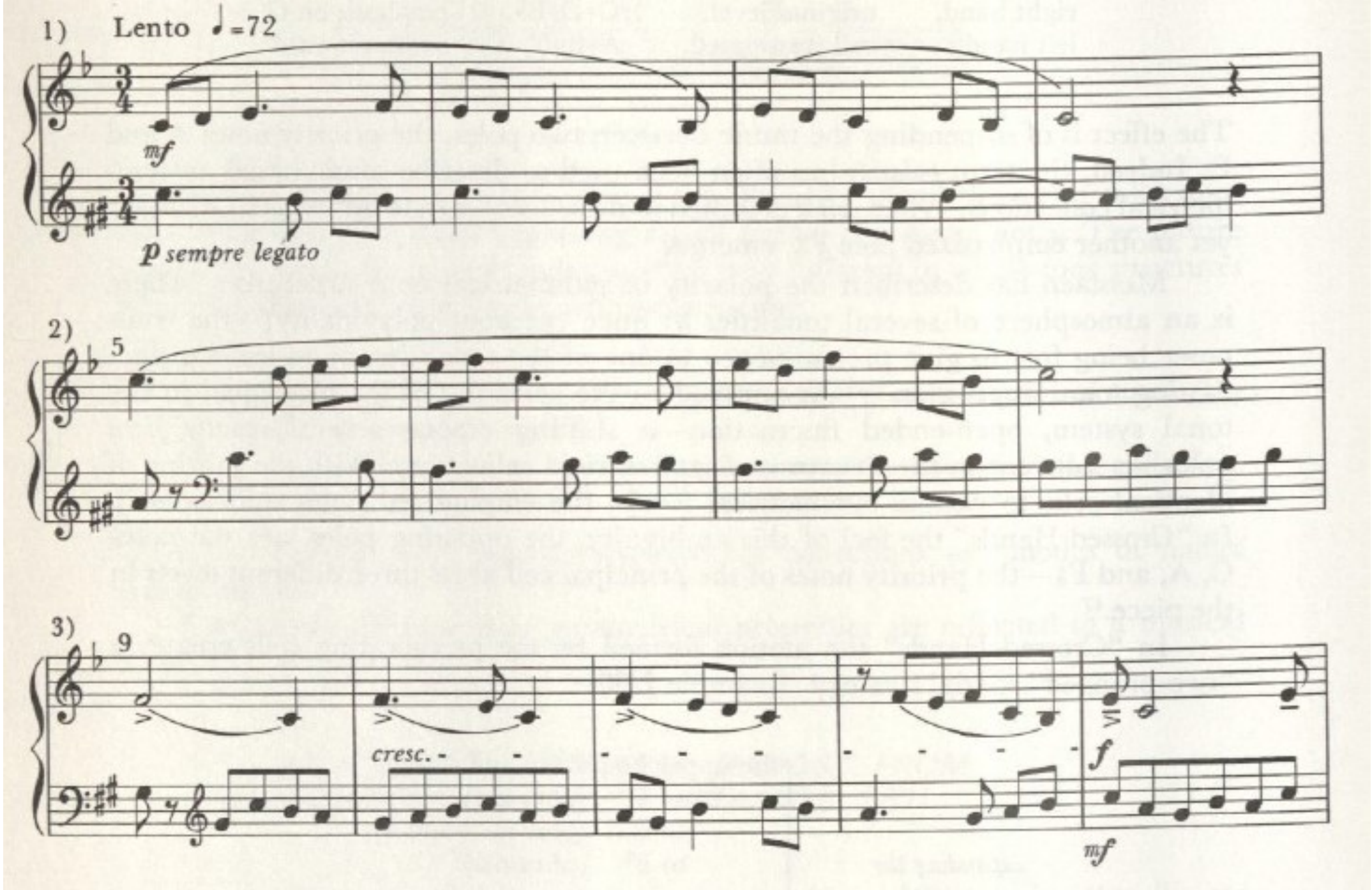
Bela Bartok: “Crossed Hands” from Mikrokosmos, Vol. 4



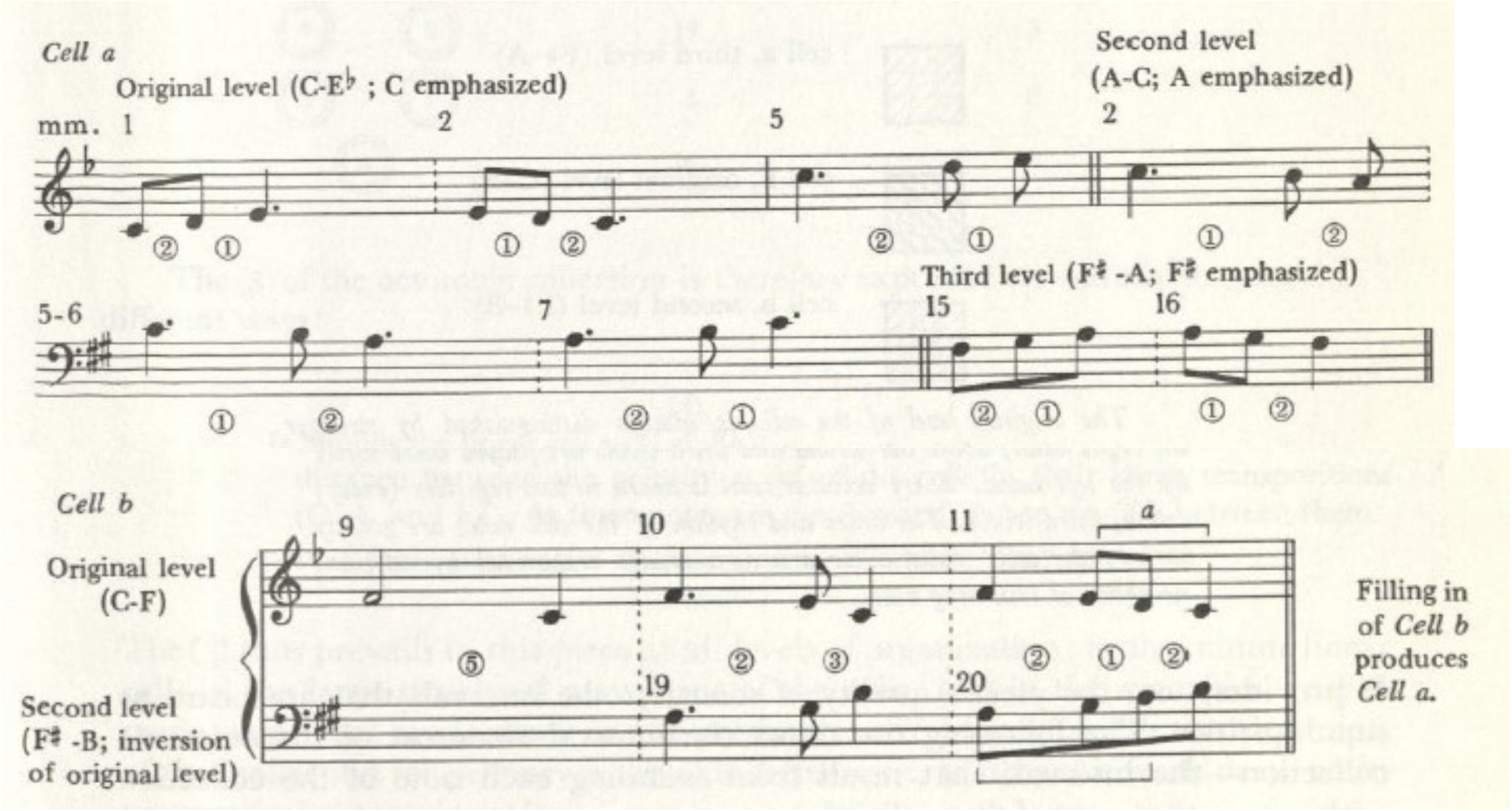
The octotonic collection of Bartók’s “Crossed Hands”

The collection provides:

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

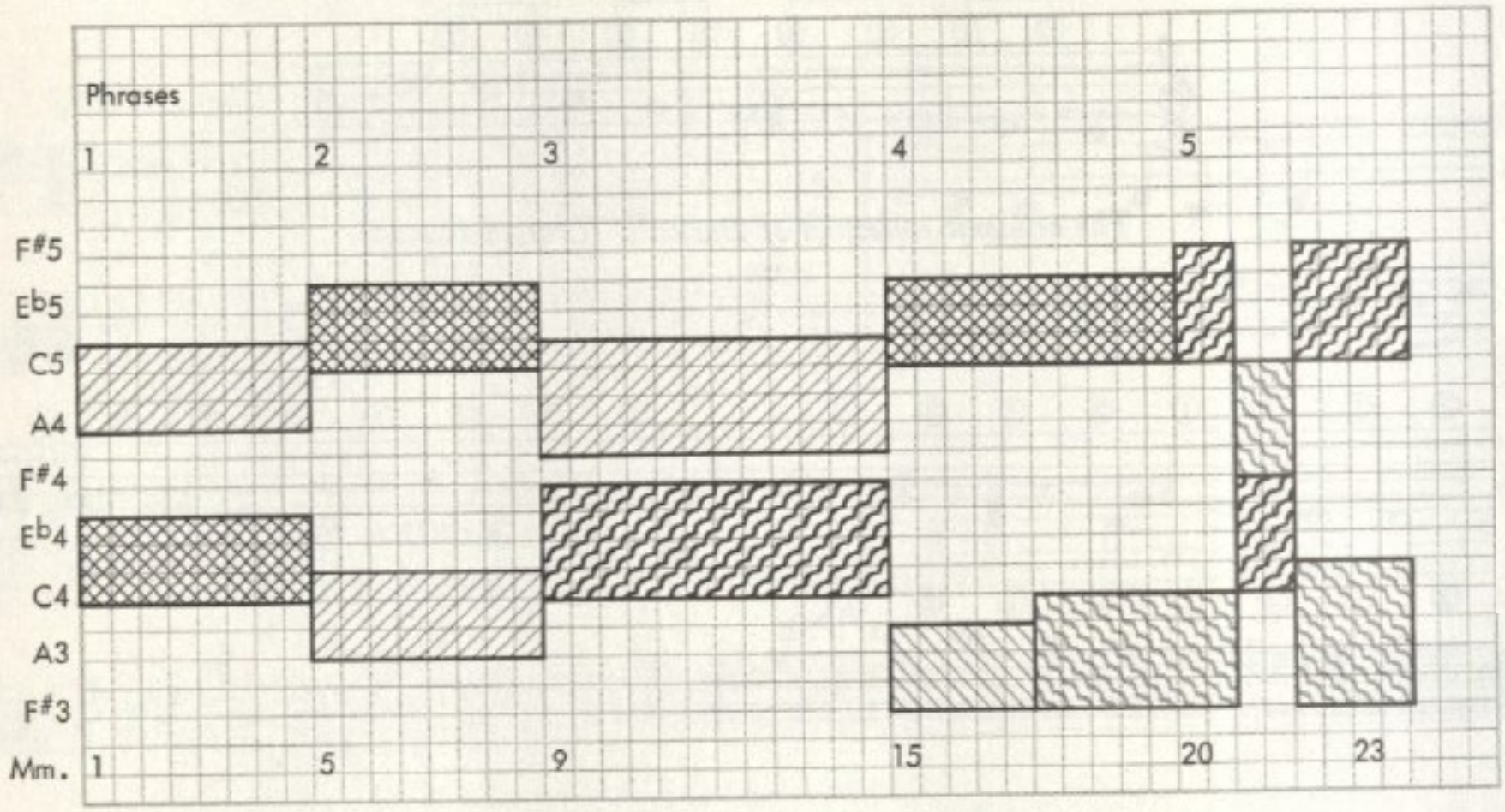

1)
Lento ♩=72
mf
p sempre legato
2)
5
3)
9
cresc.
f
mf

Bela Bartok


Cell a
Original level (C-E♭ ; C emphasized)
Second level
(A-C; A emphasized)
mm. 1
2
5
2
5-6
7
Third level (F♯ -A; F♯ emphasized)
15
16
Cell b
9
10
11
a
Original level
(C-F)
Second level
(F♯ -B; inversion
of original level)
19
20
Filling in
of Cell b
produces
Cell a.

Bela Bartok

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



cell a, original level (C–E♭)

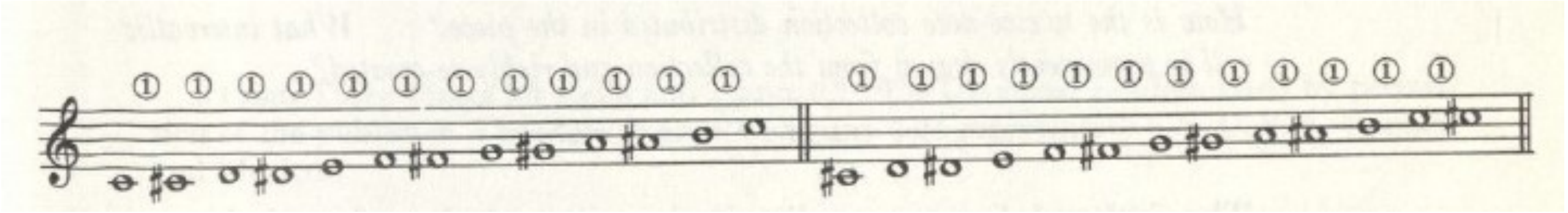
cell a, second level (A–C)

cell a, third level (F♯–A)

cell b, original level (C–F)

cell b, second level (F♯–B)

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

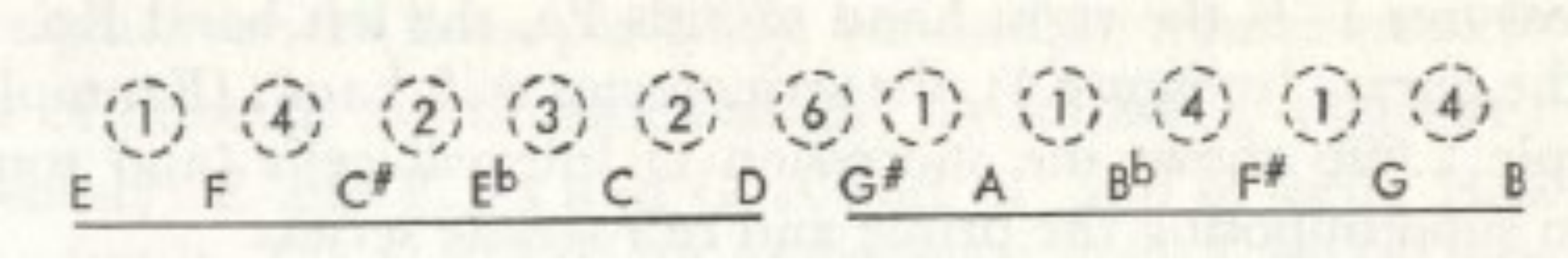


- Made up of the twelve-tone collection
- The single melodic notes in the cello and piano make one complete statement of the twelve note collection
- The melodic notes appear in different tone colours, registers, and rhythms

in a variety of tone colors		*in a variety of spacings and registers, ascending in overall motion*	
E♭–F♭	muted cello; trill; sul ponticello	①,	register 2
C–B	muted cello; harmonic to normal; legato bowing	⑬,	registers 4 and 2
B–B♭	muted cello; normal; legato bowing	①,	register 2
F♯–G G♯–G	piano, in the colors of two different registers; legato touch	①, ⑪,	register 3 registers 2 and 3
D–C♯	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

I

b.	0	1	9	11	8	10	4	5	6	2	3	7
P 0	E	F	C#	Eb	C	D	G#	A	Bb	F#	G	B
11	D#	E	C	D	B	C#	G	G#	A	F	Gb	Bb
3	G	G#	E	F#	D#	F	B	C	C#	A	Bb	D
1	F	F#	D	E	Db	Eb	A	Bb	B	G	Ab	C
4	Ab	A	F	G	E	F#	C	C#	D	Bb	B	Eb
2	Gb	G	Eb	F	D	E	Bb	B	C	Ab	A	C#
8	C	C#	A	B	Ab	Bb	E	F	F#	D	Eb	G
7	B	C	Ab	Bb	G	A	Eb	E	F	Db	D	F#
6	Bb	B	G	A	F#	Ab	D	Eb	E	C	Db	F
10	D	D#	B	C#	Bb	C	F#	G	Ab	E	F	A
9	C#	D	Bb	C	A	B	F	F#	G	Eb	E	G#
5	A	Bb	Gb	Ab	F	G	C#	D	Eb	B	C	E

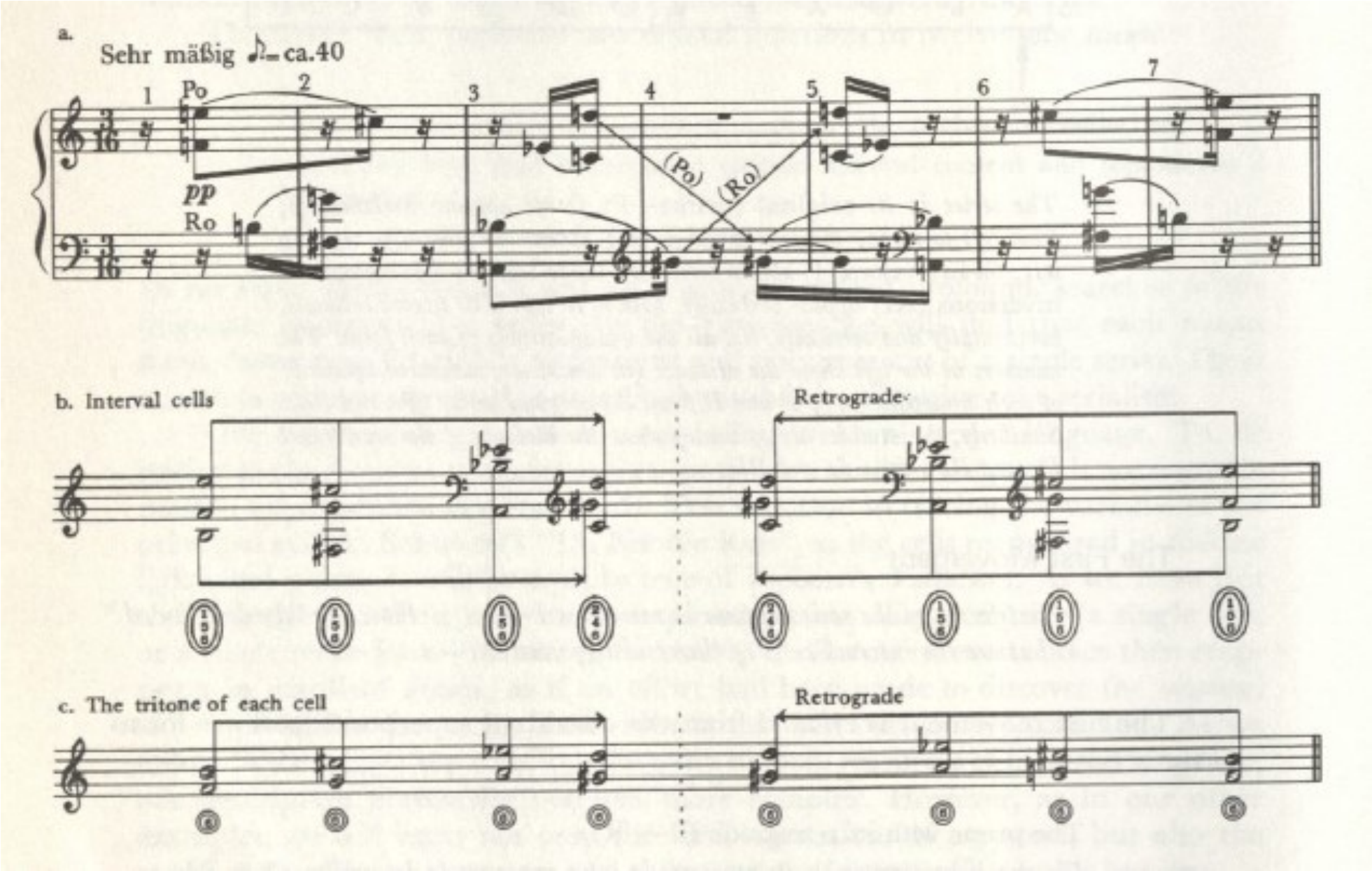
R

RI

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



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

0	A–A	or E♭–E♭
2	G♯–B♭	or D–E
4	G–B	or C♯–F
6	F♯–C	

P4:	A^b	A	F	G	E	$F^\#$	C	$C^\#$	D	B^b	B	E^b
I6:	B^b	A	$C^\#$	B	D	C	$F^\#$	F	E	A^b	G	E^b
	a.	b.	c.	d.	e.	f.	f.	c.	e.	a.	d.	g.

P11:	$D^\#$	E	C	D	B	$C^\#$	G	$G^\#$	A	F	G^b	B^b
I11:	E^b	D	$F^\#$	E	G	F	B	B^b	A	$C^\#$	C	A^b
	g.	e.	f.	e.	d.	c.	d.	a.	b.	c.	f.	a.

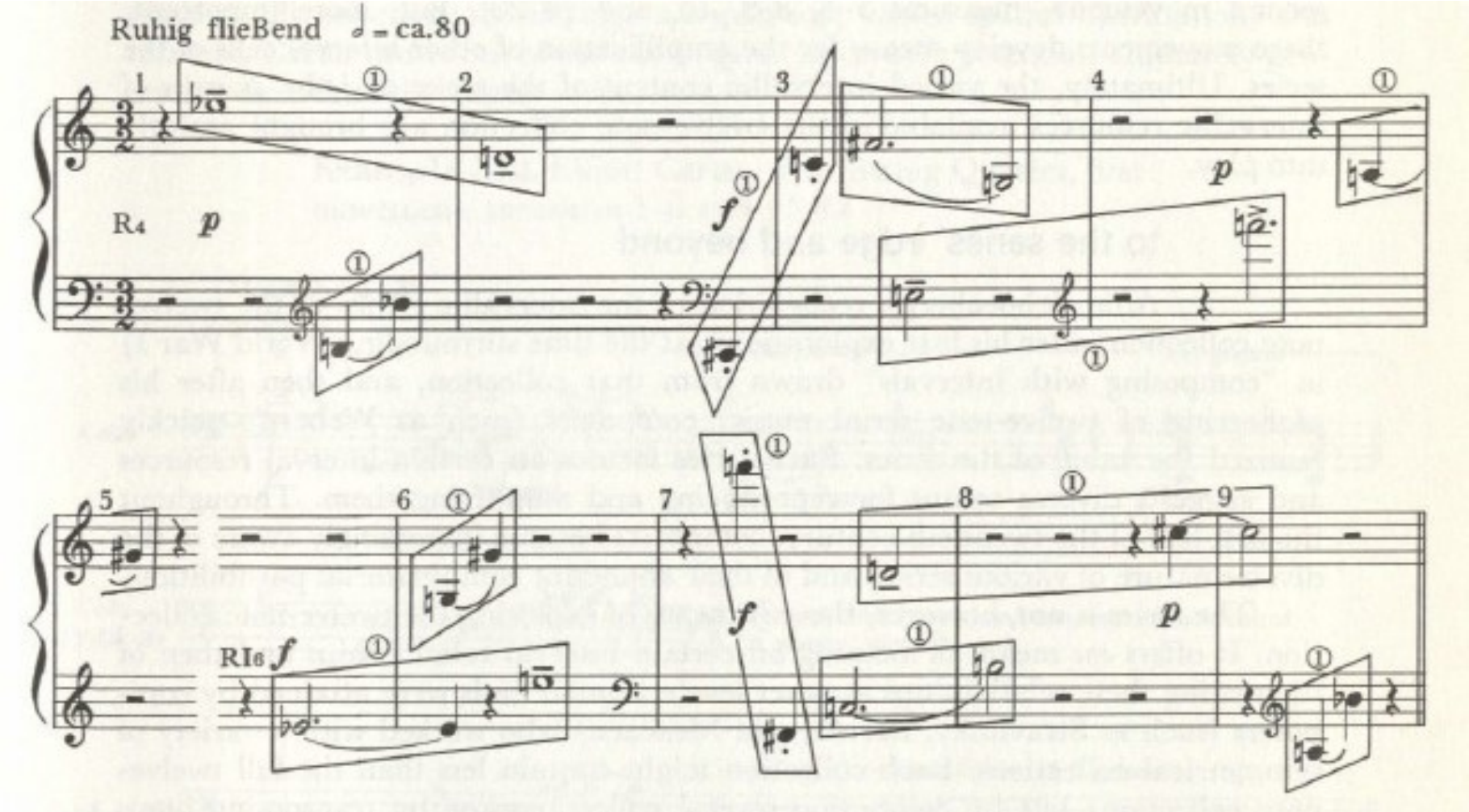
P6:	B^b	B	G	A	$F^\#$	A^b	D	E^b	E	C	D^b	F
I4:	A^b	G	B	A	C	B^b	E	E^b	D	$F^\#$	F	$C^\#$
	a.	d.	d.	b.	f.	a.	e.	g.	e.	f.	c.	c.

P9:	$C^\#$	D	B^b	C	A	B	F	$F^\#$	G	E^b	E	$G^\#$
I1:	F	E	$G^\#$	$F^\#$	A	G	$C^\#$	C	B	$D^\#$	D	B^b
	c.	e.	a.	f.	b.	d.	f.	f.	d.	g.	e.	a.

6 5 1

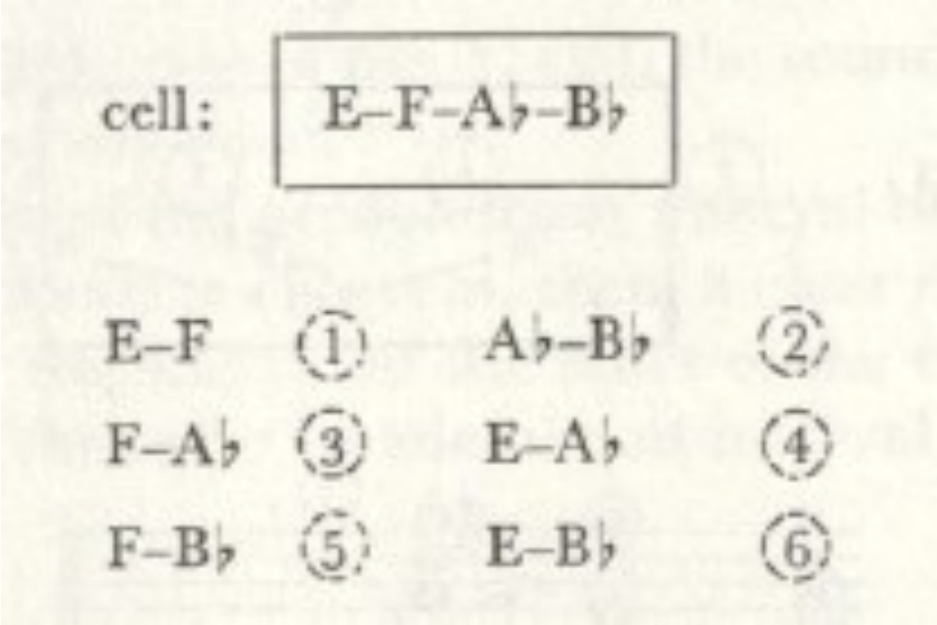
Anton Webern: Third Movement

- 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



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♭–B♭		
E–F	1	A♭–B♭	2
F–A♭	3	E–A♭	4
F–B♭	5	E–B♭	6

The same interval content exists within all permeations 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	B♭		A C# E♭			A♭ F C	
1 4						4 2				

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

D♭ F G	D# B A	D F# G#	E C B♭
4 2	4 2	4 2	4 2
D# B A	C E F#	D♭ F G	D B♭ A♭
E C B♭	D F# G#	E♭ G A	F D♭ B

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

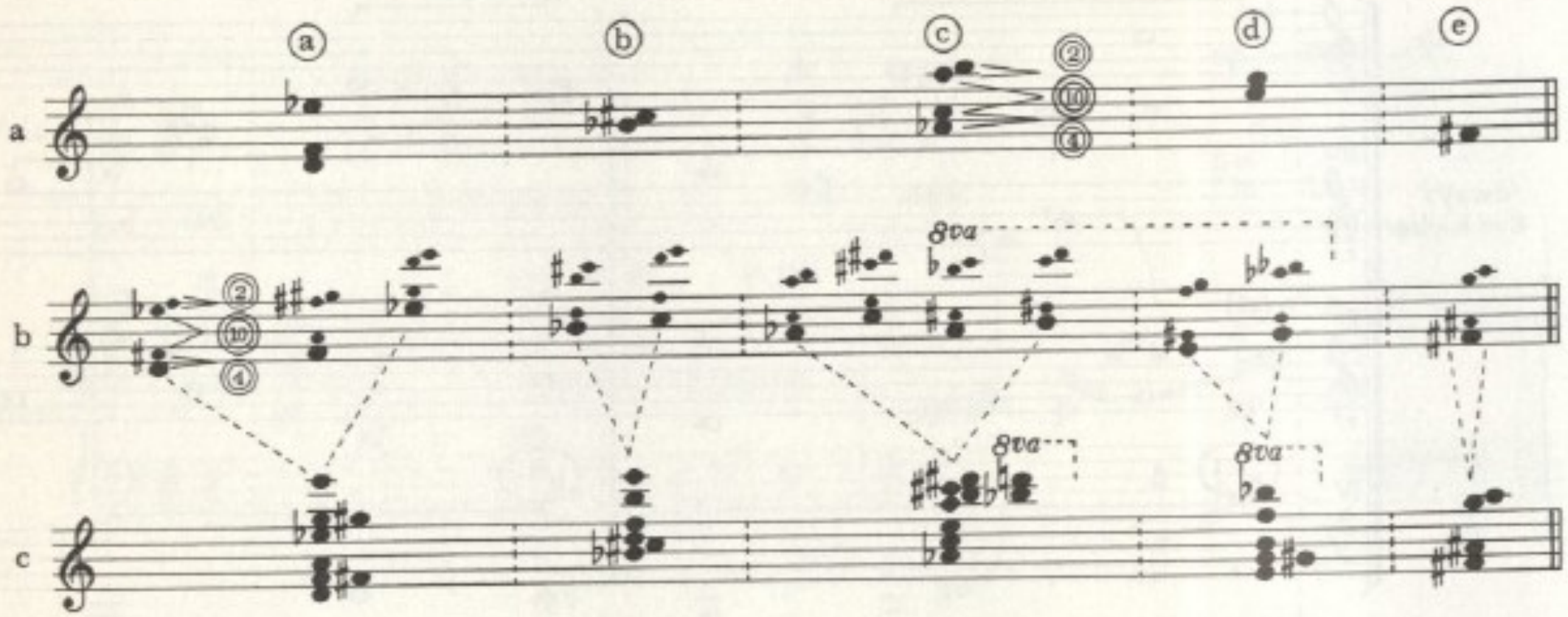
E D# B	G A♭ C	G♭ F D♭	A B♭ D
1 4	1 4	1 4	1 4
G# A C#	F E C	G F# D	A# B D#
F G♭ B♭	G A♭ C	D C# A	E D# B

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 ⓒ



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

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