

How do we think in terms of wholes? If we are to be effective, we are going to have to think in both the biggest and most minutely-incisive ways permitted by intellect and by the information thus far won through experience.

R. BUCKMINSTER FULLER¹

Postlude

Gesture, form and structure

Erick C.



Form - How music:

- Displays and moves its elements throughout its chosen musical space.
- Explores and crystallizes intervallic resources of pitch cells, sonorities, and collections.
- Unfolds a variety of levels and rates of rhythmic activity.
- Establishes interrelated dimensional time spans.
- Transforms its sounds to intensify or reduce, in an ordered way, its spectral and other psychophysical color properties

- “These are the continuous processes of music.”

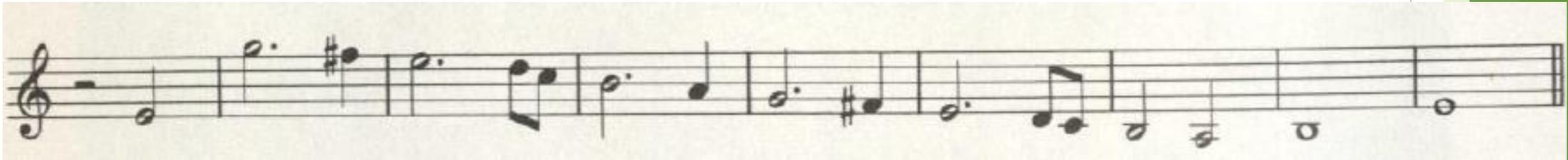


Perception Depends on Context

- ▶ “We perceive and understand events different in different formal contexts.”
- ▶ Let’s look at an example.



“Hor che’l ciel e la terra,” (1638) *Monteverdi*



- ▶ A tenth was the widest spatial distance in the Medieval times, with the widest leaps being a 5th.
- ▶ So this 10th leap by Monteverdi on the words “are far” was significant.
- ▶ For a composer to provide a unique experience, they need to first firmly establish the context.



Structure - How to define and delineate it?

- ▶ We've learned about the 10% rule. Equal durations of time create a definition for a larger section of time.
- ▶ But that's not the only way that structure is defined.
- ▶ That's where we use the tools we've learned about "formal processes of space and language."
- ▶ Structure - The coordination of formal processes.
- ▶ "Such structural integration produces in a musical work a common core of characteristics, which are conveyed vividly by all of its formal processes."



Structure (cont.)

SO that they focus on the core characteristics at the heart of the structural integrity of the musical work. For example, in the “Buffalo Dance” the core characteristics are:

The tritone.

The filled-in ③ linear motion.

Rhythmic displacement by truncated triplets.

The binary nature of every formal process.

These characteristics emerge from the coordination of the formal processes of space, language, and time. They are the fingerprints of the work.

This is an example of the kinds of processes and characteristics that can create structure



Structure (cont.)

We arrive, then, at a sense of how musical elements combine to create formal, structural wholes that are unified musical works. These formal, structural wholes arise from the working together of the largest musical elements—space display and motion, and durations of dimensional areas—and the most minutely incisive elements—intervals, details of rhythmic activity, and psychophysical details of color.



Thematic Molds

- ▶ But what if I told you that that wasn't the only way to create unity within music?
- ▶ **Melodic thematicism** - When music is created from melodic themes that are arranged in patterns, or *molds*, based on thematic likeness and contrast.



Melodic Theme Common Patterns

- Theme and variations - A, A¹, A², A³, A⁴
 - A theme with variations that “transform its character.”
- Song Form - A B A
 - B contrasts thematically
- Rondo Form - A B A C A
 - Similar to song form
- Sonata form – Exposition, Development, Recapitulation



Themes in Contention

- ▶ Just keep in mind that the idea that themes can determine the “logic of music” has been in some contention.

intensively in the past seventy-five years. As conservative a theorist as Donald F. Tovey stressed repeatedly that themes cannot determine the logic of music:

If themes cannot determine the logic of music, neither can a single figure really form the “idea” of a whole movement or section. . . . Closely akin to the error of identifying the “idea” with any single figure that happens to persist, is the error of running away with the first apparently completed sentence before you have made sure that the issues raised by its context are not essential to your understanding of it.³

For Tovey the musical essence is embodied in the formal processes of musical language and time:

Themes have no closer connection with larger musical proportions than the colors of animals with their skeletons. In the sonata style three things are funda-



So what CAN themes do?

- ▶ “They may carry, or elaborate, members of the underlying linear-harmonic motion.”
- ▶ “They may allude to that motion intervallically.”
- ▶ “Or they may present it at accelerated speeds, in diminution.”
- ▶ Schenker might describe the ‘thematic play’ as the foreground material.
- ▶ When there isn’t thematic material unifying a section, that’s when processes in space, language, time, and color can take over as a way to understand.

In regard to the Bach variations discussed in Chapter 3, the “Chaconne” and *Goldberg Variations*, it has been widely observed that thematic melody does not unify the variations. It is achieved, rather, by linear-harmonic motion of the bass voice, and especially by the durations of rhythmic activity and dimensional plan. In addition, unification is achieved by the magnification of these initial durations of activity and dimension into great spans of activity and dimension embracing the entire works.



Thematic Molds As Processes

- ▶ We can use what we've learned from thematic molds, and combine them with the ideas we've already learned from the previous chapter.
- ▶ A quick example of A B A
 - ▶ The A's could be of equal durations
 - ▶ The A's could be of similar rhythmic activity
 - ▶ The A's could use the same space, fields, or registers
 - ▶ The A's could use the same harmonic language



Thematic Molds in Sonata Form

- “The fundamental process of sonata form is not thematic; it is tonal and linguistic.”
 - The theory is that this can help us add to what we already know about sonata form.
- Sonata form is meant to juxtapose I and V, which can lead to juxtapositions of
 - Dimensional areas
 - Diverse rhythmic activity
 - Register and Line
 - Dynamics and tone color

<i>Section I Exposition</i>	<i>Section II Lead-through</i>	<i>Section III Recapitulation</i>
Establishment of I.	Modulation to V or other closely related tonal level, requiring the momentary eradication of I.	Reestablishment and confirmation of I.



The Importance of Process

- There are several advantages to not just relying on thematic mold theory.
- “Thematic-mold theory assumes implicitly that all music is melodic and thematic, and that its molds are universally applicable.”
- But we all know that’s not true, especially with contemporary classical music.
- “We have already seen numerous examples in which the processes of space, language, time, and color reveal order and unity where thematicism reveals none.”
- It’s important to acknowledge that thematicism is mostly a European concept and that other cultures have many other methods of unifying music.

Any theme is a detail, a gesture, a part of a larger whole. As such, it can be a symptom of large formal processes. It may be:

- A part of a line or field, or a single line or field among others.
- One, or several, linguistic cells.
- One, or several, modules of rhythmic activity.
- A single dimensional span.
- A specific bundle of spectral, or other tone-color, characteristics.



Arnold Schoenberg: Five Pieces for Orchestra, Op. 16 “Colors”

- ▶ Score on p. 412
- ▶ <https://www.youtube.com/watch?v=1GrJxlu8lew>



Space and Language

Phrase	I	II	III	IV		
Measure	1	15	24	29	32	44

The image shows a musical score with three systems of staves. The top system is labeled "Higher field of upward reflections" and contains two staves with treble clefs. The middle system is labeled "Principal field and motion" and contains two staves with treble and bass clefs. The bottom system is labeled "Lower field of downward reflections" and contains two staves with bass clefs. The score is annotated with various symbols: curved arrows indicating register shifts, circled numbers 1 and 2, and dashed boxes labeled "8va" above the top system. A legend at the bottom left shows a curved arrow with the text "= register shift".



Space and Language

Phrase I II III IV
Measure 1 15 24 29 32 44

Higher field of upward reflections

Principal field and motion

Lower field of downward reflections

= register shift

The image shows a musical score with four phrases (I, II, III, IV) and measures 1, 15, 24, 29, 32, and 44. The score is divided into three fields: 'Higher field of upward reflections' (top), 'Principal field and motion' (middle), and 'Lower field of downward reflections' (bottom). The 'Principal field and motion' is further divided into ascending and descending sequences, marked with circled numbers 1 and 2. A legend at the bottom indicates that a curved arrow symbol represents a register shift.

- ▶ The piece's principal motion can be described as a "single five-voice sonority, which progresses throughout the piece in parallel motion."

All voices of the sonority move in a single cellular pattern—a ① rise, followed by a ② descent.

- ▶ Ascending sequences are separated by a ②
- ▶ Descending sequences are separated by a ①
- ▶ This forms a kind of mirrored idea.
- ▶ The cells match up with phrases and have small variations over time.



- ▶ In the actual music, the five voices are staggered, which causes the momentary sounding of other sonorities. But they always come back together.



Space and Language



Space and Language

Example PO.5. Reflected derivations of the principal sonority and cell in one, two, three, and four voices

The musical score consists of two staves. The top staff is in treble clef and the bottom staff is in bass clef. Measure 20 shows a sonority in the treble clef with a circled 1 and 2. Measure 27 shows a sonority in the bass clef. Measures 20-21 show a sonority in the treble clef with circled 1 and 2. Annotations include '8va' with a dashed line above measure 20, 'with 8va' with a dashed line above measure 21, and circled numbers 1 and 2 indicating specific notes or intervals.

⑤'s C-F, F-B \flat , B \flat -E \flat ,
and E \flat -A \flat respaced as
⑦'s; occurs in many
transpositions

A \flat (G \sharp)
-E \flat (D \sharp)-G-B
respaced

①-②
cell
re-
spaced

①-②
cell
re-
ordered,
becoming
a ①-①
cell

①-② cells reordered
to form ①-① cells,
and respaced



Space and Language

Example PO.5. Reflected derivations of the principal sonority and cell in one, two, three, and four voices

⑤'s C-F, F-B \flat , B \flat -E \flat , and E \flat -A \flat respaced as ⑦'s; occurs in many transpositions

A \flat (G \sharp) - E \flat (D \sharp)-G-B respaced

①-② cell re-spaced

①-② cell re-ordered, becoming a ①-① cell

①-② cells reordered to form ①-① cells, and respaced

- ▶ “In these two fields elements of the principal field are reflected outward, up or down.”
- ▶ This can happen by register shift of the principal motion’s notes and sonorities. (Indicated by arrows in the earlier graphic)



Space and Language

In phrase I the principal motion begins at its *lowest* level in the piece (the lowest voicings of principal sonority and cell—for example, $A^4-B\flat^4-A\flat^4$ in the soprano) and then ascends. The relative *lowness* of its beginning is intensified by *downward* registral reflections throughout phrase I, measures 7–11.

In phrase II the principal motion's *rise* is intensified by *upward* registral reflections in measures 16–17 and 20–21.

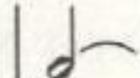
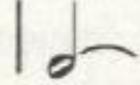
In phrase III the principal motion is characterized by the close climactic juxtaposition of its linear high and low points (measures 28–29). This is matched by juxtaposition of registral reflections upward and downward that, in measures 30–31 (C^1-G^7), form the piece's registral extremities.



Time

- ▶ The opening uses three different rates of activity at a 2:1 ratio.
- ▶ Defined by change of tone color, rather than change of pitch.
- ▶ The edges of the notes are blurred, but the temporal idea of 2:1 is prominent no matter what.
- ▶ Throughout the duration of the entire piece, though, the activity slowly increases.
- ▶ “The distances between attacks and color changes... have accelerated by measures 28-29.”

♪ —the distance between attacks in the solo strings.
♪ —the distance between attacks in the winds.
○ —the span of the instrumentation pattern in the winds.

		
Flutes Clarinet Bassoon	Double reeds Muted brasses	Flutes Clarinet Bassoon



Time

mm.1-9

Musical score for measures 1-9, showing a piano accompaniment with a treble and bass clef. The music consists of chords and single notes, primarily in the bass clef.

mm.19-22

Musical score for measures 19-22, showing a piano accompaniment with a treble and bass clef. The music consists of chords and single notes, primarily in the bass clef.

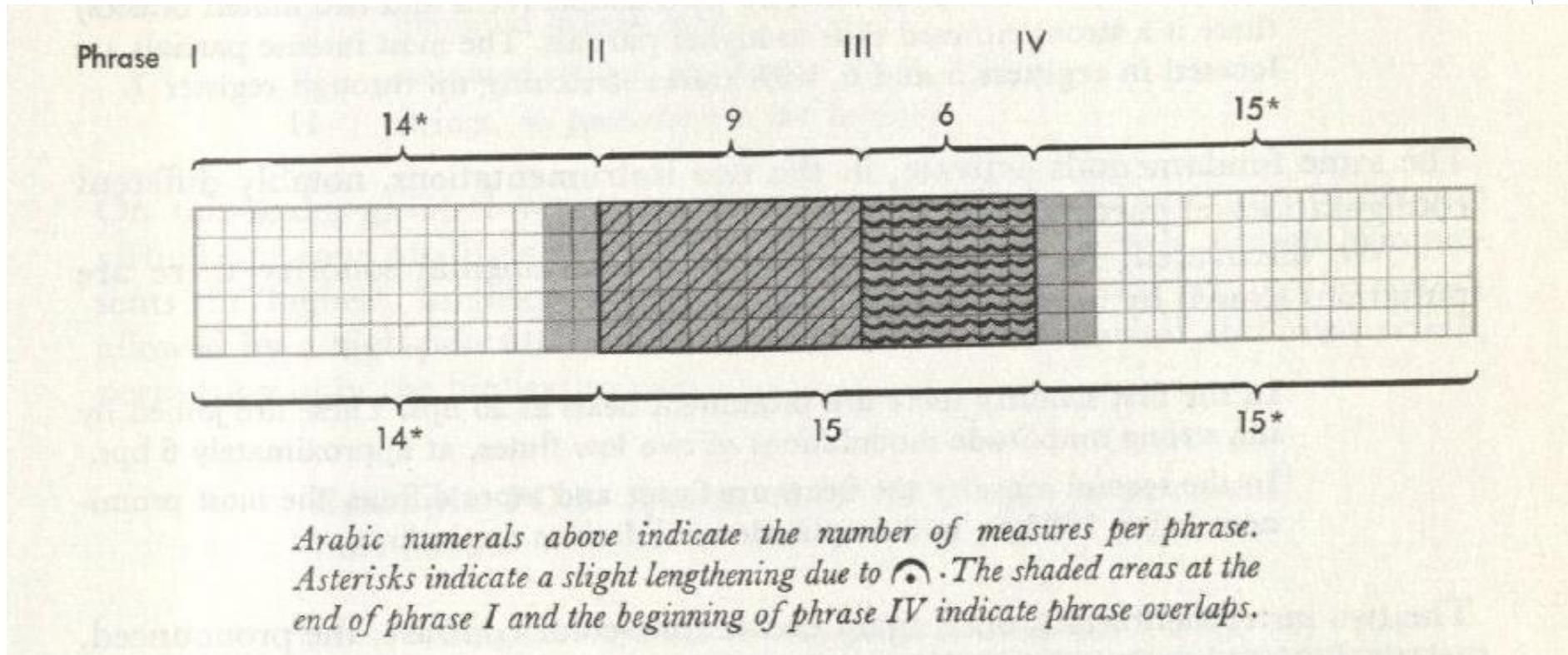
mm.28-29

Musical score for measures 28-29, showing a piano accompaniment with a treble clef. The music consists of a melodic line with two measures marked with circled numbers 1 and 2.



Time

- ▶ There is also different durations and overlap of phrases along with note attacks and durations



Tone Color

- ▶ Opening of the piece analyzed for spectra and beats.

The combined spectrum of the first sonority (two flutes, clarinet, and bassoon) concentrates its energy in register 4, with only minute traces of upper partials. In contrast, in the second sonority (two double reeds and two muted brasses) there is a strong upward shift to higher partials. The most intense partials are located in registers 5 and 6, with traces stretching up through register 7.

In the first sonority there are prominent beats at 25 bps. These are joined by the strong amplitude modulations of two low flutes, at approximately 6 bps. In the second sonority the beats are faster and more diffuse, the most prominent being 108 bps, and amplitude modulations are lacking.

- ▶ The important idea is contrast between the first and second sonority.



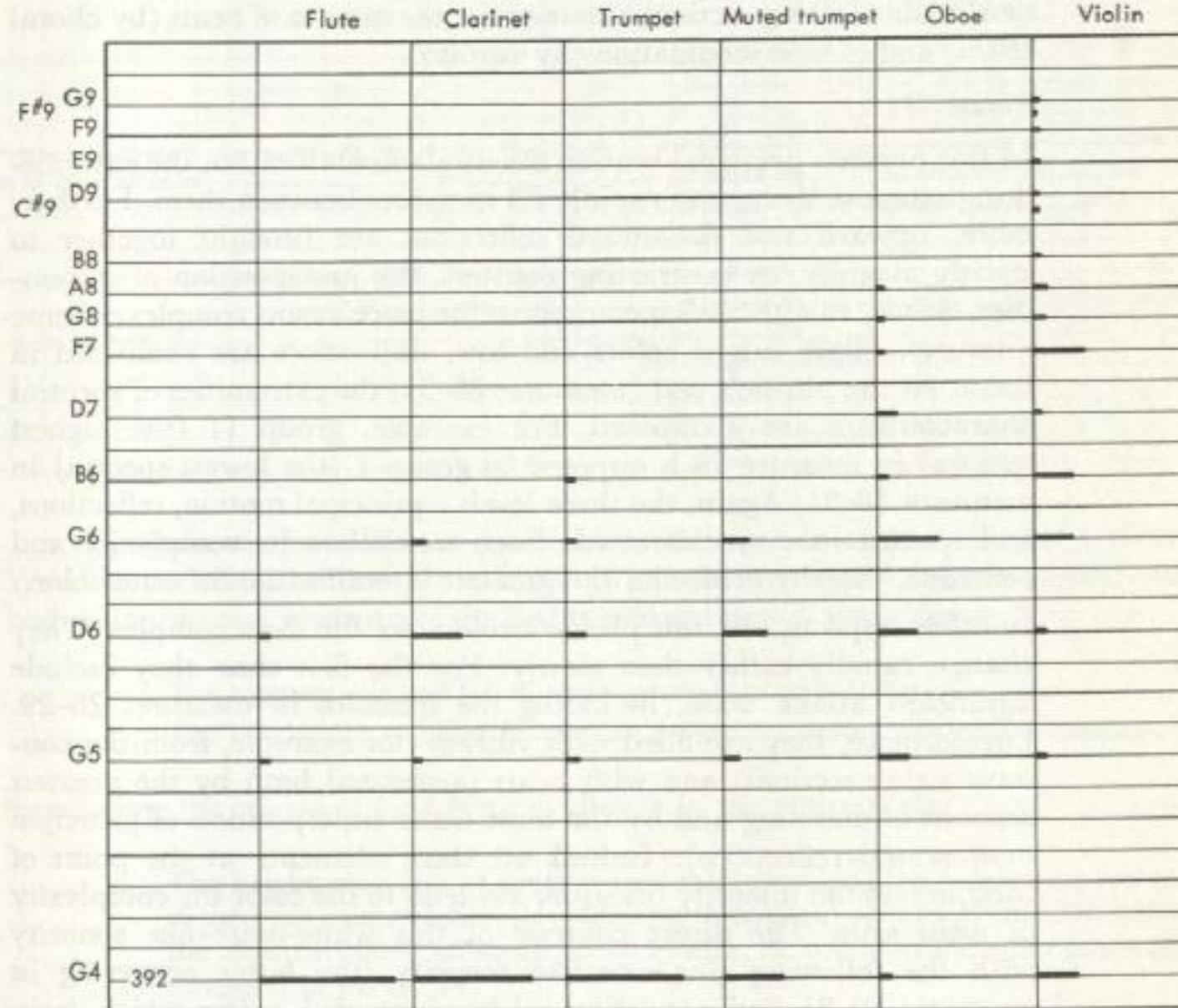
Tone Color - arranged from least to most partials

Group

- 1 string harmonics (violas, celli, double basses)
- 2 flutes
- 3 clarinets
- 4 brasses (French horns, trumpets, trombones, tuba)
- 5 muted strings, solo
- 6 muted strings, section
- 7 muted brasses
- 8 double reeds (oboes, English horn, bassoon, contrabassoon)
- 9 unmuted strings, solo
- 10 unmuted strings, section
- 11 strings, *sul ponticello* (on the bridge)



Example PO.8. Spectra of G⁴ (392 cps), at *p*, on six instruments

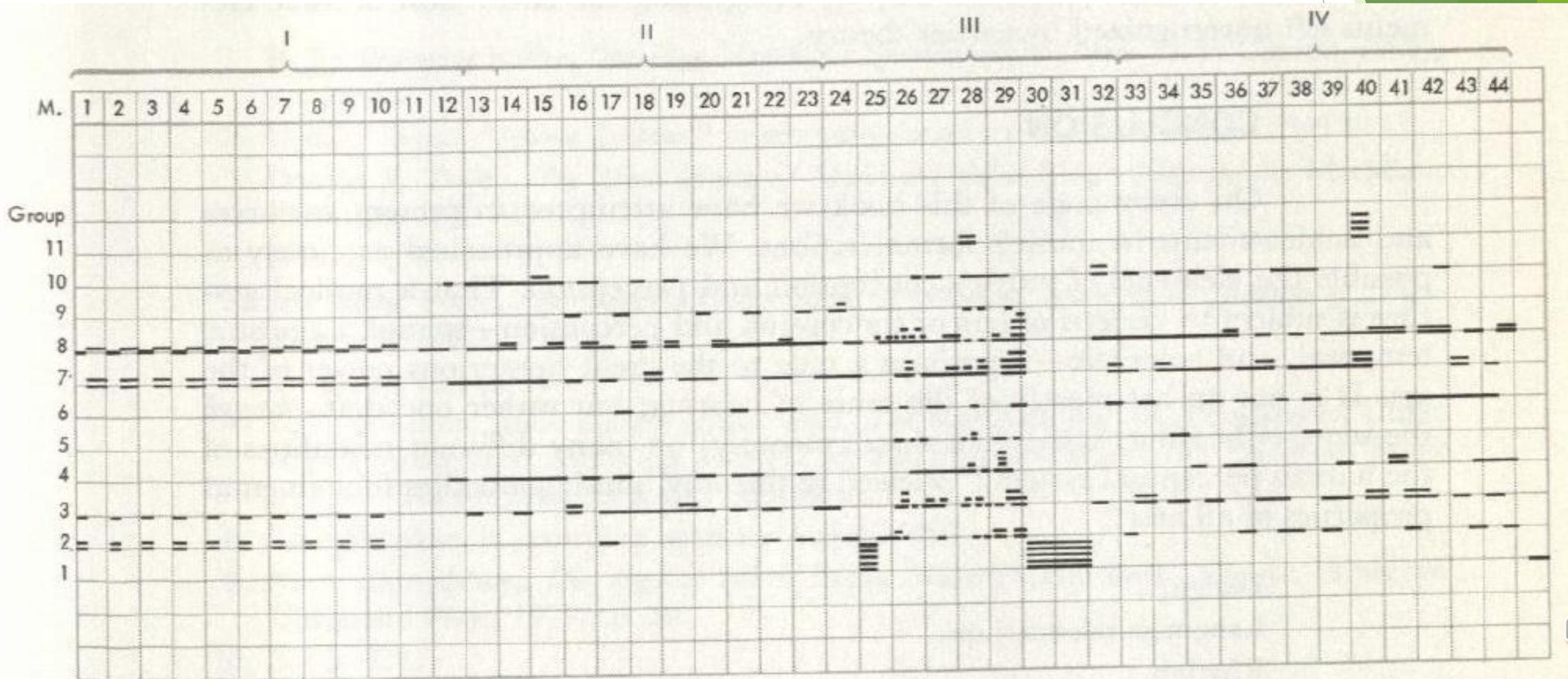


Tone Color

Example of partials



Tone Color - Structure of Piece using Timbre



Tone Color

- ▶ Phrase 1 - alternation between a duller and a brighter sonority.
- ▶ Phrase 2 - addition of groups with higher partials
- ▶ Phrase 3 - The most extreme groups of fundamentals and high partials are juxtaposed.
- ▶ Phrase 4 - We go back to the “initial tone-color state.”

