TEMPORALITY IN THE FIRST MOVEMENT OF TRIO NO.1 FOR PIANO, VIOLIN, AND CELLO (1954) BY LEON KIRCHNER IN LIGHT OF JONATHAN KRAMER'S APPROACH TO TEMPORAL STUDY

by

Huan Yang

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DMA Document approved:

John Owings	04/12/2023
Prof. John Owings (Major Professor)	Date
Yvonne Cao	04/06/2023
Prof. Yvonne Cao	Date
Blaise Ferrandino	04/13/2023
Dr. Blaise Ferrandino	Date
Ann M Gipson	04/13/2023
Dr. Ann Gipson	Date
Timothy D. Watkins	04/14/2023
Dr. Timothy D. Watkins	Date

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CHAPTER 1
INTRODUCTION

Reasons for this Study

Scholars of music have used the word "modernist" to describe those composers in the first half of the twentieth century whose writing diverged from the tonal system established during the late Baroque period. Some of the resulting music challenged audiences' perceptions and performers' capacities due to its atonal language and radical effect. The music by Leon Kirchner (1919-2009) is relatively accessible due to its emotionalism and extravagant sound effects rooted in the nineteenth century. His compositional approach is highly idiosyncratic, however, and avoids categorization into any "systems," which is the reason why Kirchner's large-scale work still confounds a conventional analysis.[1]

Kirchner composed his Piano Trio no.1 in 1954 as a commission by the Elizabeth Sprague Coolidge Foundation for the 50th anniversary of the Coleman Chamber Series of Pasadena in California. This piece combines Schoenberg's compositional principle of organic growth of music and Kirchner's personal musical language. The idiomatic writing, swift changes of mood, and splendid sonority of Trio No.1 have attracted an increasing number of performers. This piece, however, has received little analysis from the academic realm. This thesis attempts to provide an exhaustive analysis of the first movement by means of Jonathan Kramer's concept of temporality in music.

Theory

Reasons for the choice of theory: Jonathan Kramer (1942-2004), an American

[1] Alexander L Ringer. "Leon Kirchner." *The Musical Quarterly* 43, no. 1 (1957): 1-20.

composer, music theorist, and composition student of Leon Kirchner, developed his work on the different temporalities in music in his book *The Time of Music* (1988).[2] He pointed out the limitations of traditional analytical approaches (conventional harmonic analysis and Schenkerian linear analysis) that assume progressive elements and take pitch parameters as the primary support for the musical structure.[3] The traditional analytical approach focuses on the concrete elements and therefore the ideas of cause and effect. The invention of recording, broadcast, and film during the past two centuries, however, has impacted the dominance of linearity (progressive force) in the realm of Western art. The new technology allows musicians to split and reorder existing materials, which results in a new temporal continuity that did not exist prior to the original event.[4] Thus, Kramer suggests a new theory of temporalities in music that extends beyond the standard discussion of progressive elements and acknowledges the importance of discontinuity and unprogressive elements. Kramer's approach to temporal study offers valuable (or indispensable) insight into understanding music in the twentieth century.

Temporality in Music: To Kramer, the meaning of music resides in its temporality, including how music exists in time, how music portrays time, and how music creates time.[5] Music exists in time because the duration of a musical event is measurable. The way that music portrays time depends on the style, period, and culture of a certain piece. The means by which music creates time involves how a composer conceives a piece and uses compositional devices to realize the conception. This last point represents the core and the most practical

[2] Jonathan D. Kramer, *The Time of Music New Meanings, New Temporalities, New Listening Strategies* (New York, NY: Schirmer, 1988).

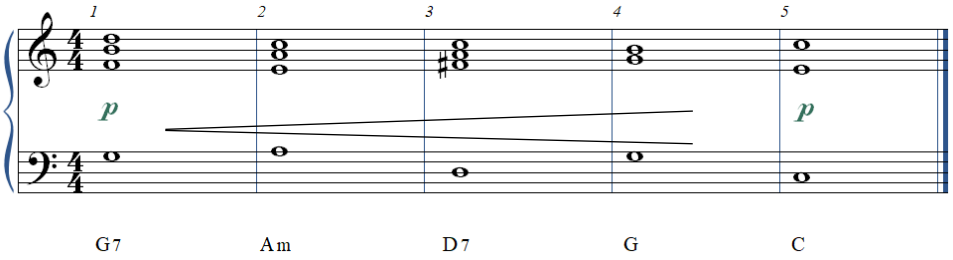
[3] Jonathan D Kramer, *Postmodern Music, Postmodern Listening*, ed. Robert Carl (New York, NY: Bloomington Academic, 2016), 18.

[4] Kramer, *The Time of Music*, 45.

[5] Ingrid Arauco, review of *The Time of Music New Meanings, New Temporalities, New Listening Strategies* by Jonathan Kramer, *College Music Symposium* 30, no. 1 (1990): 153-56.

part of Kramer's theory, and the theoretical source of my study.

Fundamental Concept: According to Kramer, all music is a result of the mixture of **linearity and nonlinearity**. Their interplay determines the style and form of a composition.[6] **Linearity**, on which most of the traditional analytical methods focus, represents a progressive force that exists as a sequential and irreversible continuum in the music, such as the order of V7 to I to form a cadence. **Nonlinearity** represents the non-progressive element that is not subject to chronological order but results from principles governing a section or piece. Example 1.1 illustrates linearity and nonlinearity in the music in the simplest manner:



Example 1.1 V^7—vi—V^7/V—V—I Progression in C major

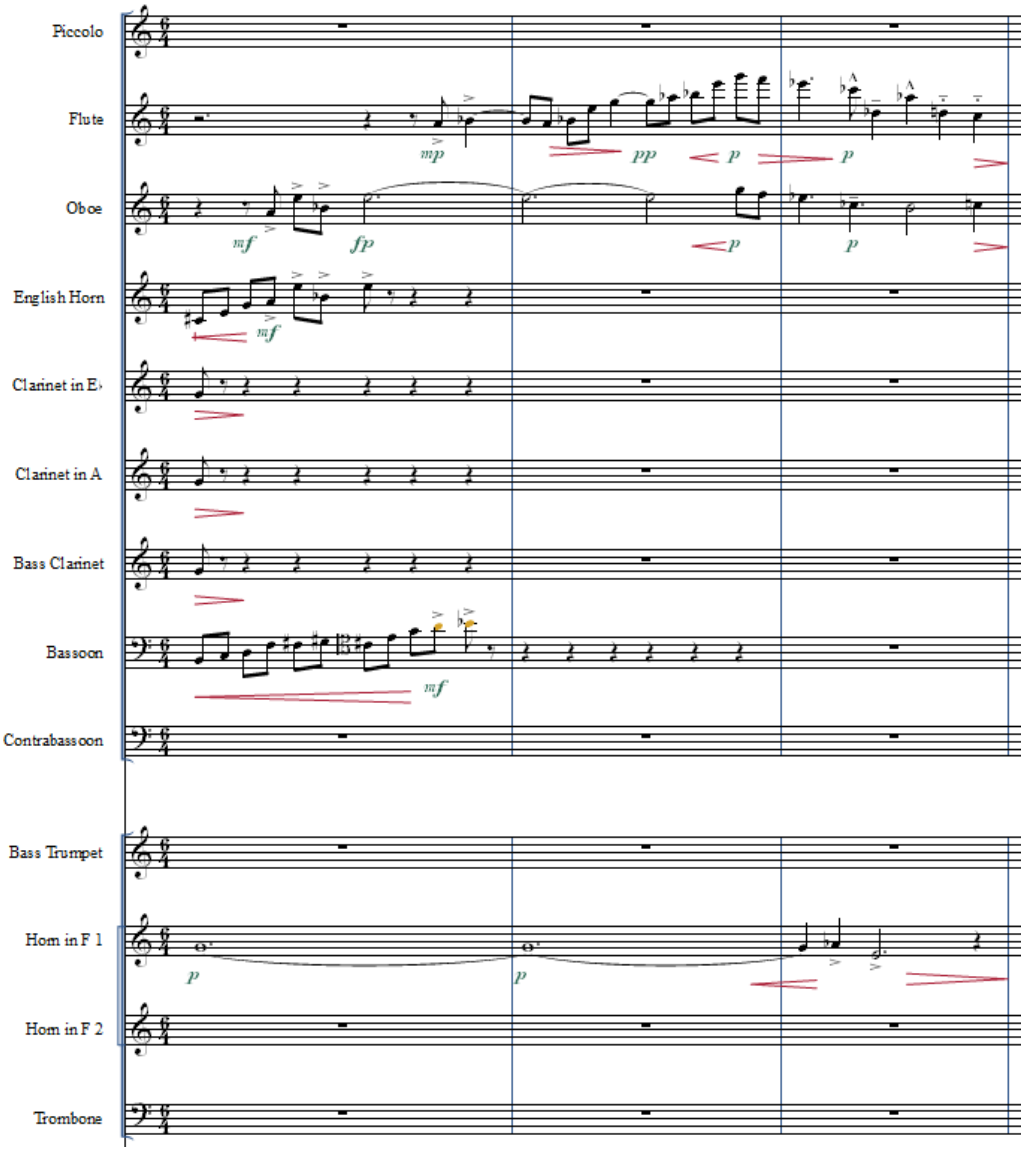
Table 1.1 categorizes the information from Example 1 according to linear and nonlinear properties:

Linearity	Nonlinearity
• Crescendo (mm. 2-4) • Cadence in C (mm. 4-5) • Tonicization of G	• Proportion between two tonal centers • Meter of 4/4 • SATB texture

Table 1.1. Linear and Nonlinear Elements in the Chord Progression of Example 1.1

[6] Kramer, *The Time of Music*, 20.

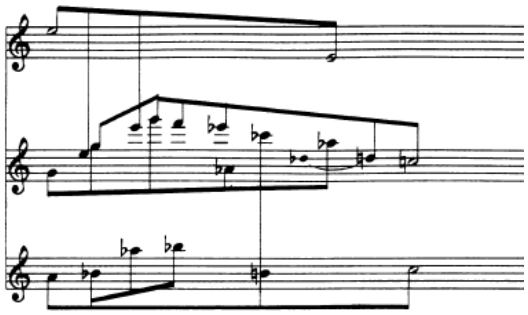
The traditional tonal system is the primary source Kramer uses to distinguish linearity and nonlinearity in music. He specifically discusses the rise of nonlinearity as a novel concept beginning in the twentieth century. He uses Berg's Chamber Concerto, 1st Movement, measures 5-7 as a typical example of nonlinearity, as shown in Example 1.2.



Example 1.2. Mm. 5-7 of Chamber Concerto by Alban Berg[7]

[7] Kramer, *The Time of Music*, 37.

Compared to a standard cadential gesture, the goal of the voice leading (C—E) of measures 6-7 of Chamber Concerto by Alban Berg, as shown in Example 1.3, is unpredictable until the music approaches its end. The harmonies do not form a linear chain and the tension-release in the music depends highly on the non-pitch elements.

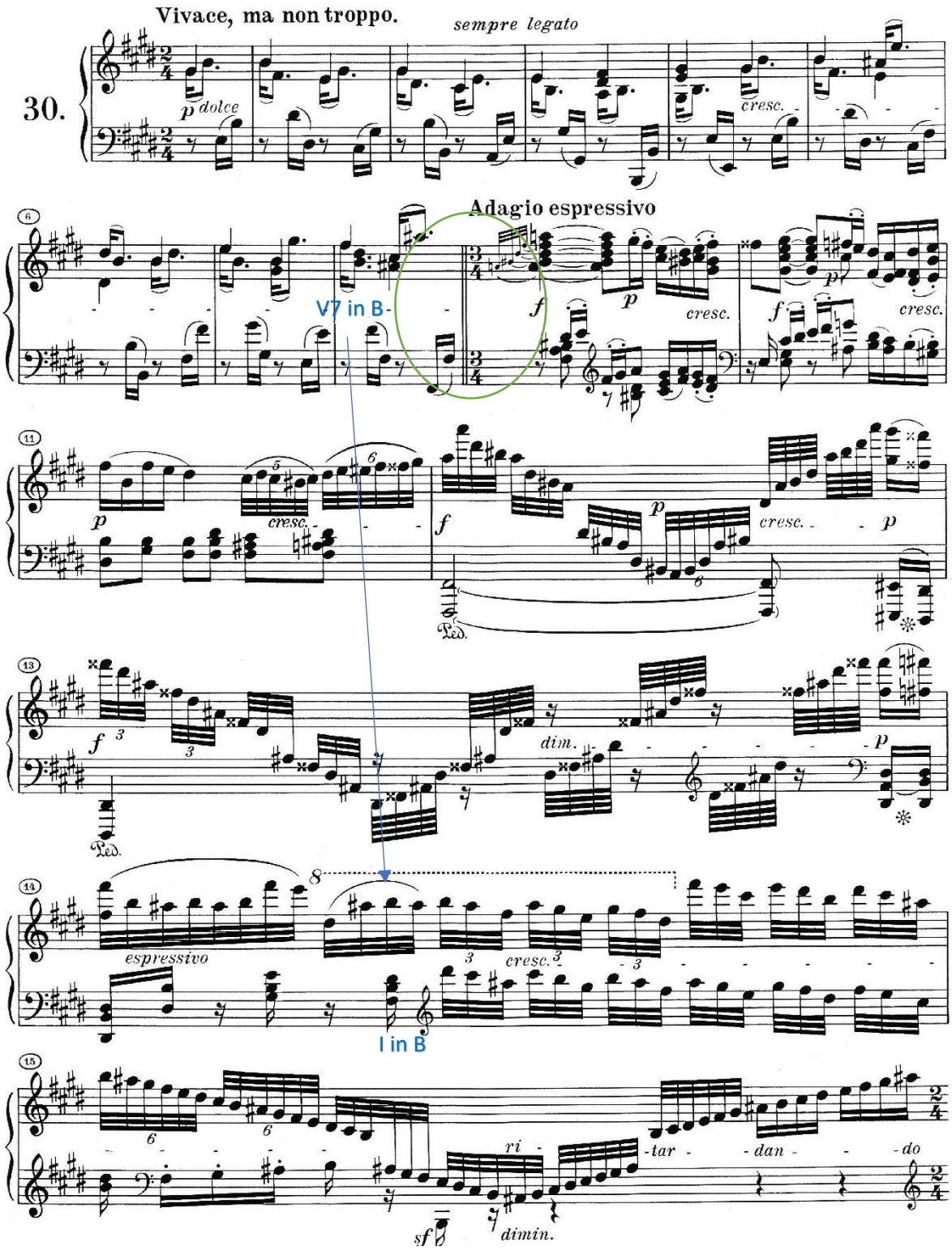


Example 1.3. Voice leading of mm. 6-7 of Chamber Concerto by Alban Berg[8]

In tonal music, Beethoven's op. 109 displays how the music can unfold in a nonlinear sense, as shown in Example 1.4.

The B-sharp diminished seventh in measure 9, along with the unpredictable changes in tempo and texture interrupts the cadence of B in measure 10. On the other hand, the last beat of measure 9 and the second beat of measure 14 form a cadence (V^7-I) in the key of B. These two beats relate more to each other in both harmonic progression and texture than the music in the adjoined measures. Measure 10 to the second half of the second beat of measure 14, therefore, exists as a nonlinear passage inserted in a linear continuum.

[8] Kramer, *The Time of Music*, 38.



Example 1.4. Piano Sonata op. 109 by Ludwig van Beethoven[9]

Linearity and nonlinearity might coexist in a certain time span. Such interaction could be much more varied and complicated than the case shown in Example 3 depending on style, scale, and a composer's individuality in real music. Kramer discusses at length several types of temporalities created by the interaction and conflict in different hierarchic levels between the two forces:

Goal-directed linearity (Example 1, chord 3-4): V^7 directs to the key of G and the following tonic confirms it, which completes a process of expectation-satisfaction with no interruption.

Multiple-directed linearity (Example 1): The cadence in G (2-4) divides the cadence in C. The V^7 in C strongly implies the arrival of its tonic as a destination, even though the two chords are not adjacent.

Non-directed linearity (Example 3): The stepwise motion and non-pitch element lead the music in an unclear direction, and the tonic goal at a background level is unpredictable (This happens mainly in atonal music).

Methodology

The methodology of this paper derives from the three aspects of temporality in music. "How music exists in time" suggests an analysis of temporal elements, including duration, tempo, the proportion of subsection, and the relationship between metronomic tempo and perceived tempo in the first movement of Trio No.1. "How music portrays time" requires an

[9] Ludwig van Beethoven, "Piano Sonata Opus 109," *Klaviersonaten, Band II*, ed. Bertha Antonia Wallner, (München: G. Henle, 1976).

understanding of Kirchner's general compositional characteristics and detailed formal analysis. Lastly, "how music creates time" uses Kramer's theory to explain the temporalities of this movement.

Goal of the Study

The conceptual goal of my study is to take a step toward a precise understanding of the first movement of Kirchner's Trio No. 1 by applying Kramer's theory, especially to its tonal arrangement and the specific function of sections that a traditional analysis cannot satisfactorily explain. Understanding the temporal structure of this idiosyncratic piece is helpful for performers in managing tempo, pacing climax(es), differentiating and interpreting the characters of each subsection, and, therefore, cooperating with their performance partners.

Structure

Chapter 1 introduces the reason for this study, the methodology, the goal of this study, and the structure of this thesis. Chapter 2 briefly reviews Kirchner's compositional style, based on existing studies. Chapter 3 discusses the essential content of Kramer's theory and the terms that appear in the rest of the paper. Chapter 4 consists of a detailed analysis of three discrete elements and a comprehensive analysis of the temporal structure of the first movement of Piano Trio No.1 by Kirchner. Chapter 5 provides a performance analysis of this piece, guided by the results of the previous chapters. Chapter 6 concludes with the values and limitations of the application of temporal analysis.

CHAPTER 2

CHARACTERISTICS OF LEON KIRCHNER'S COMPOSITIONAL STYLE

A number of scholars analyzed Kirchner's music according to their individual approaches. This chapter collects the content from the existing studies that not only reflect the general characteristics of Kirchner's style but also are useful when analyzing the first movement of Piano Trio No.1. This review is also a necessary step for a temporal analysis because those studies provide the basis for the judgment of the non-linear elements in Kirchner's music, and, thus help to ensure objectivity.

Melody and Motive

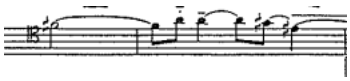
Unlike the singable melodies in the music of the Classical era, those in Kirchner's music constantly challenge the listener. His melodic writing features frequent switches between opposite directions, intense chromaticism, and intervallic interrelation. The initial hearing of one of Kirchner's pieces can leave the impression of a chaotic profusion of different melodic lines.[10]

Kirchner pursues Arnold Schoenberg's concept of *grundgestalt* to vary and extend the melodies. According to Schoenberg, *grundgestalt*, ("basic shape" in German) refers to a basic motive that undergoes repetition, variation, development, and "liquidation" as the piece unfolds wholly or partially.[11] In the first movement of Piano Trio No. 1, Kirchner exhibits the abundant possibility of thematic transformation as shown in Examples 2.1-2.5:

[10] Nelita True. "A Style Analysis of the Published Solo Piano Works of Leon Kirchner." (DMA diss., Peabody Conservatory of Music, 1976), 43.

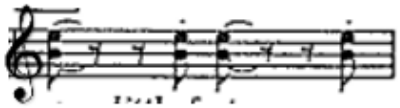
[11] Michael J Schiano, "Grundgestalt." Grove Music Online. 2001

Example 2.1. Mm. 1-2: Melody in the Up-Down Shape (Motive A)

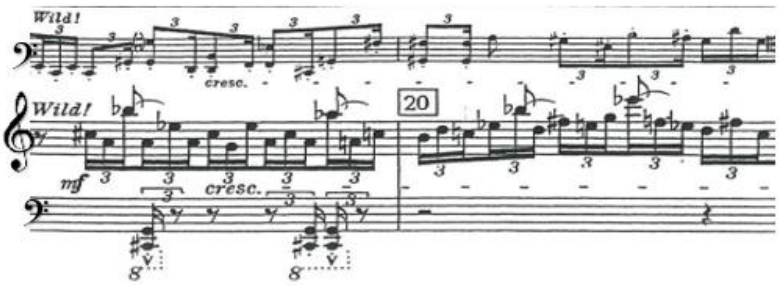


Example 2.2. Mm. 3-4: Fundamental Shape in the Melodic Interval of Third (Motive B)

Example 2.3. M. 6: the Inversion of mm. 3-4 with More Tension (Motive C)



Example 2.4. M. 5: Violin Motive (Motive D)



Example 2.5. Mm. 19-20: Motive F in the Piano Collects the Traits from the Previous Motives.

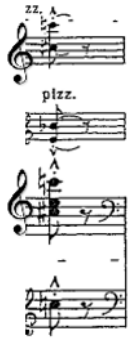
Those motives become the germinal sources of subsequent ideas in the rest of the movement. In this process, thematic transformation is more important than preserving an original melodic idea. Kirchner suggests the listener "concentrate on organic growth rather than thematic recognition," confirming the intentional use of developing variation in his music.[12]

Harmony

[12] David Siegfrid Rostkoski, "The Piano Style of Leon Kirchner," DMA thesis, (University of Washington, 1970), 36.

Due to the overlapping parallel keys and the system of the axis of the diminished fifth, bi-chordal elements extensively appear in both vertical and contrapuntal sonorities.[13] David Rostkoski summarized the different types of bi-chords that Kirchner uses in his music in general:

Rostkoski pointed that "Kirchner uses triads with one or two added tones, usually a chromatic second, fourth, or sixth, to present a relatively stable tonal area."[14] Examples 2.6-2.7 present this type of bi-chords in the first movement of his Piano Trio No. 1.



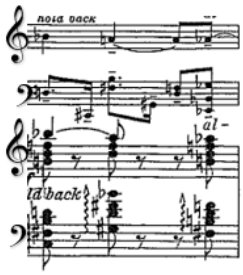
Example 2.6. M. 43, C Major Triad (omitted G) with added C-Sharp with added F-Sharp

Example 2.7. M. 25, C Major Triad

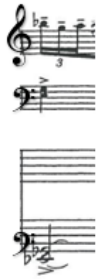
The second type of bi-chord could function as a cadence in which two triads are linked by a common note in the inner voice or two complete triads whose roots are an augmented second apart. Examples 2.8-2.9 illustrate the use of this type of bi-chord in the first movement of Piano Trio No.1.

To increase musical tension and propel harmonic rhythm, two incomplete triads (root and third), an augmented fifth apart, minor ninth apart, or a tritone apart, occur frequently. Again, no example is the same as Rostkoski's description in the first movement of Piano Trio No. 1.

[13] Rostkoski, "The Piano Style of Leon Kirchner," 10.
[14] Rostkoski, "The Piano Style of Leon Kirchner," 13.

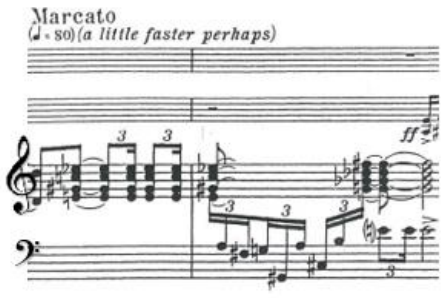


Example 2.8. M. 128: Three Bi-chords with B—D—F in Common Prepare for the Following Tonic in C minor

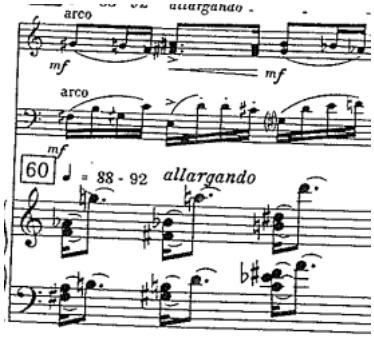


Example 2.9. M. 18: E-Flat Minor and E Diminished Triads are Linked by B-Flat Before Motive F (Example 2.5.)

Examples 2.10 -2.11 show similar models in which each bi-chord is a perfect fifth or a seventh apart:



Example 2.10. Mm. 32-33: the Incomplete Bi-chords on the Piano Intensify the Music before the Development.

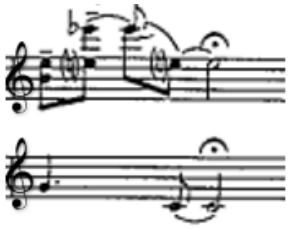


Example 2.11. M. 60: Three Incomplete Bi-chord Interrupts the Previous Section.

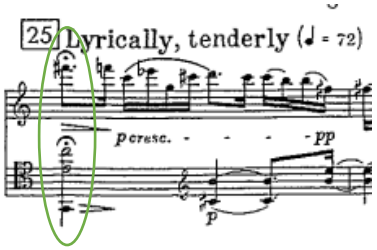
Tonality

Scholars used "frame tonality" to describe Kirchner's tonal method: this term initially was initially used by Alexander Ringer, who explained its meaning as tonality "may serve to suggest the initial indication and final clarification of tonality, which is typical of most of

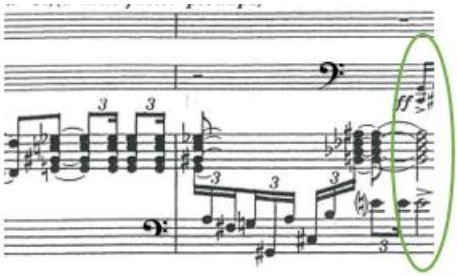
Kirchner."[15] In the first movement of Trio No. 1, Kirchner uses various ways to define a tonal center at the beginning or end of a section, as shown in Examples 2.12-2.15:



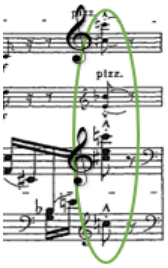
Example 2.12. M. 9, a Quasi-Cadence in C



Example 2.13. M. 25 C Major Chord with Diminished 5th



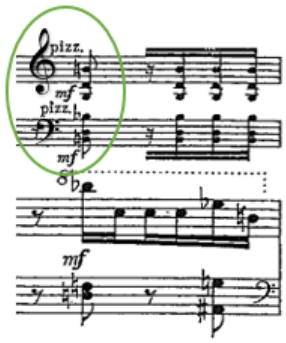
Example 2.14. M. 33: Bi-Chord Cased on C Major Triad



Example 2.15. M. 43: Collections of Tonic References (see tonal analysis in Chapter 4)

In particular, the clashing major and minor triads (such as the E and E-flat in Example 2.12.) indicate the same tonal centricity in Kirchner's music due to his frequent use of bi-chords. Example 2.16. provides a similar case:

[15] Ringer, "Leon Kirchner," 12.



Example 2.16. M. 57: Clash of G Major and Minor Triads in Strings

Alexander Ringer has discussed the influence of Bela Bartok's music on the form, tempo arrangement, and atonal effect of Kirchner's music.[16] As Ringer wrote, Kirchner's "style combines aspects of . . . Bartok without the folk elements . . ."[17] Figure 2.1, taken from Lendvai's book *Béla Bartók*, illustrates the system of the axes of the diminished fifth that Bartok primarily uses in most of his compositions to assist in understanding the tonal area in Kirchner's music.[18] In the system of the axes of the diminished fifth, each of the twelve pitches refers to a function—tonic (T), dominant (D), and subdominant (S).[19]

The first movement of Piano Trio No. 1 contains a few cases in which the pitches from the same axis concentrated appear in a thematic statement, as Examples 2.17-2.19 show.

The passages in Examples 2.17 and 2.19 refer to pitch G of the dominant axis as a tonal center, while the material in Example 2.18 implies pitch F of the subdominant axis as a tonal center. The tonal analysis in Chapter 4 uses the frame tonality and the axes of the diminished fifth as principles to confirm a tonal center.

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[16] Ringer, "Leon Kirchner," 5, 8, 10, 11, 19.
[17] Ringer, "Leon Kirchner," 19.
[18] Ernő Lendvai, *Béla Bartók: An Analysis of His Music*, (London: Kahn & Averill, 1971), 3.
[19] By situating the twelve pitches in the circle of fifths, there is a repeated sequence S-T-D, and the pitches relate to the same function form across a clock-like circle.

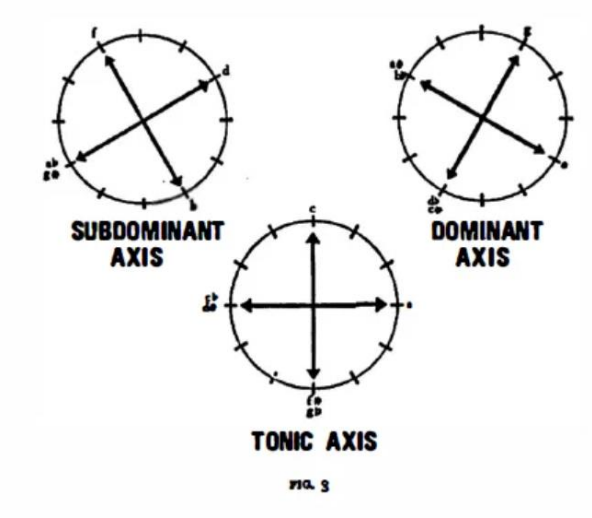
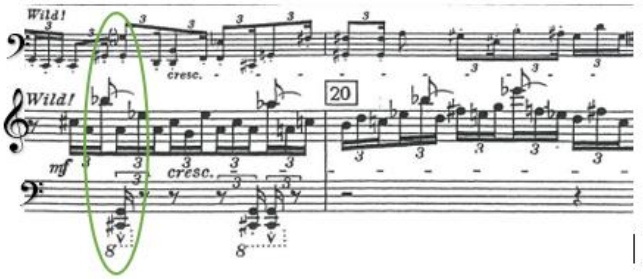
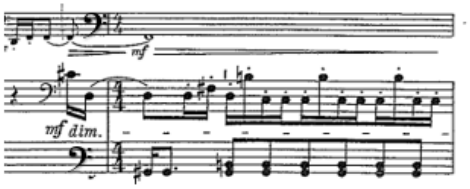


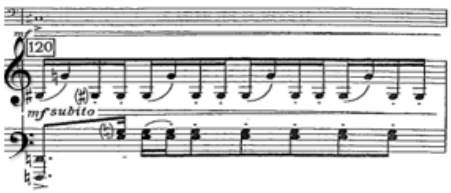
Figure 2.1 Diagram of the System of the Axis of Diminished Fifth



Example 2.17. Mm. 19-20, Motive F in the Dominant Axis



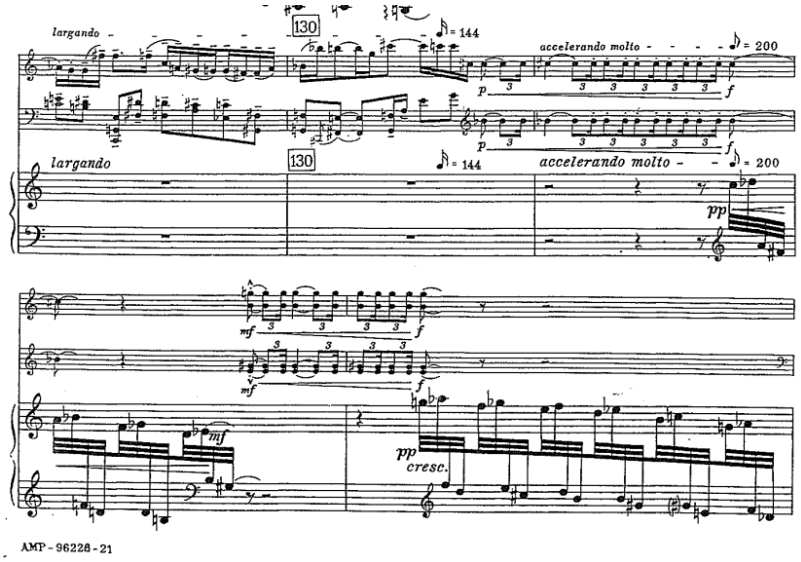
Examples 2.18. M. 12 in Tonic Axis



Example 2.19. M. 120 in Dominant Axis

Meter and Tempo

Meter is intimately related to musical expression. In any music, 1) meter and tempo partially determine the style and fundamental mood of a piece, 2) the meter creates a basic pulse that invites listeners to follow, and 3) the listeners can directly sense the change of tension once the regularity of the pulse is interrupted. Examples 2.20-2.21 illustrate how the expressive power in Kirchner's music thrives upon the surging rhythm and ever-changing tempos, which are hard to explain using either a conventional analytic method or a modern system.[20] In Example 24, the tempo markings based on an eighth or a sixteenth are independent of the 4/4 meter. Also, the rhythmic pattern and subdivision in Example 25 do not support the 4/4 meter.

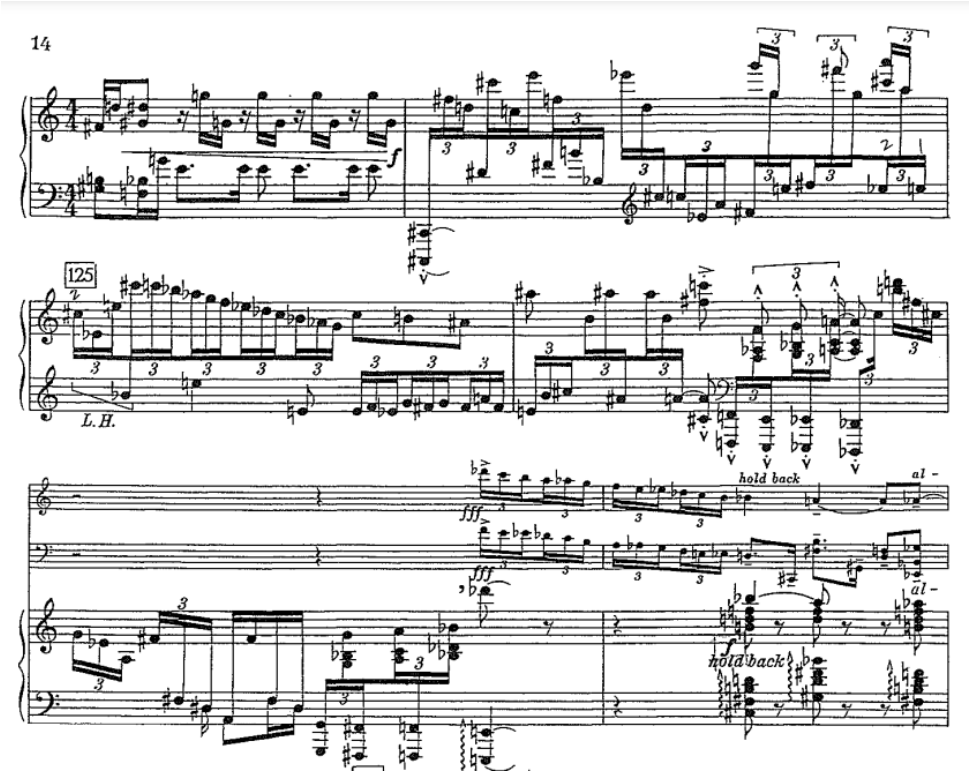


Example 2.20. Mm. 130-133: Temporal Fluctuation in 4/4 Meter

Kirchner freely applies different time signatures, asymmetric rhythm organization, polymetric rhythm, and lavish temporal terminology to create "an almost constant state of

[20] Ringer, "Leon Kirchner," 7.

flux."[21] Chapter 4 of this thesis describes the relationship between meter and tempo marks. Also, it provides a chart that reflects the ever-changing intensity in his first movement of Piano Trio No.1.



Example 2.21. Mm. 123-128: Irregular Rhythmic Pattern

About Structure

Trio No.1 consists of two contrasting movements alternating fast and slow tempos in roughly fifteen minutes. The opening movement reflects a typical form in Kirchner's music: a slow beginning introduces primary motives, while the subsequent fast section raises the rhythmic intensity.[22] The structure features a delicate balance of slow and fast segments within a general

[21] Ringer, "Leon Kirchner," 17.
[22] Ringer, "Leon Kirchner," 18.

fluid tempo. Rostkoski attempts to explain the structure of the first movement in binary form and sonata form, respectively, but both partially conflict with the music.[23]

In a thesis about Kirchner's piano sonata, James Cho explains that Kirchner's musical structure combines the developing variation of *grundgestalt* and cyclic reference.[24] The cyclic reference functions as a structural pillar to cohere thematically related sections and unify multiple movements. A cyclic reference consists of several characteristics: it reappears almost intact or slightly modified; each recurrence of a cyclic reference functions differently depending on the context; a cyclic reference appears throughout the movements. In the first movement of Kirchner's Piano Trio No. 1, Motive F plays a role of a cyclic reference even though it does not appear in the second movement. The functions of Motive F include dividing the music at a structural level, defining the function of a section, and even defining the temporal mode of the section in which it appears.

[23] Rostkoski, "The Piano Style of Leon Kirchner," 41-46.

[24] James H Cho, "Unifying Elements in Leon Kirchner's Piano Sonata," (DMA thesis, Rice University, 2007).

CHAPTER 3

THE BASIC CONCEPTS OF JONATHAN KRAMER'S TEMPORAL STUDY

Linearity And Nonlinearity

According to Kramer, "virtually all music utilizes a mixture of linearity and nonlinearity—the two fundamental means by which music structures time and by which time structures music. And their interplay determines both the style and the form of a composition."[25] The terms *linearity* and *nonlinearity* reflect a philosophical distinction between *becoming* and *being*.[26] *Becoming* is related to the teleological ways of thinking that began in ancient Greece and came to dominate the Western world over a period of centuries. The concept of linearity corresponds to *becoming,* and Kramer describes linearity in his book:

> The determination of some characteristic(s) of music in accordance with implications that arise from earlier events of the piece. It is a temporal continuum created by a succession of events in which earlier events imply later ones and later ones are consequences of earlier ones.[27]

As a processive phenomenon, linearity intimately links to such phenomena as cause and effect, progress, and goal-orientation. According to Kramer, tonal composition in Western music is directedly rooted in the linear ways in which individual notes, chords, or motives direct the listeners' expectations of what will subsequently occur. Also, whether this expectation is fully or partially satisfied influences the listeners' impression of a piece. Thus, the linear elements in the music construct a complex web of constantly changing implications and expectations.[28]

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[25] Kramer, *The Time of Music*, 20.
[26] Kramer, *The Time of Music*, 16.
[27] Kramer, *The Time of Music*, 20.
[28] Kramer, *The Time of Music*, 20.

Another concept related to linearity is the Markov chain, which has been used by many information theorists to study music.[29] A Markov chain forms when a series of precedents contribute to the probability of a consequent event. In a first-order Markov chain, a consequent event appears according to the possibilities suggested by the immediately preceding event.[30] In a second-order Markov chain, two preceding events contribute to a consequent event.[31] Greater linearity therefore consists of higher-order of Markov chains.

The concept of nonlinearity corresponds to *being,* and Kramer describes nonlinearity in his book:

> The determination of some characteristic(s) of music in accordance with implications that arise from principles or tendencies governing an entire piece or section. It is a temporal continuum that results from principles permanently governing a section or piece.[32]

As a non-processive force, nonlinearity neither grows nor changes. It exists beyond the dimension of linear development but as the principle(s) governing the entire piece or section. The content of a nonlinear element may manifest eventually but does not derive from earlier events or tendencies. Kramer specifically points out that comprehending a work's nonlinearity consists of learning its immutable relationships and mentions Chopin's Prelude op. 28 no. 1 in C major as an example.[33] In this piece, the nonlinear elements consist of the instrumentation piano, the repetition of the same texture, and the durational proportion among tonic and other keys, which is unchangeable even though a performer reorders the phrases. In short, the temporal sequence does not affect the meaning (or function) of a nonlinear event as it does with linearity.

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[29] Kramer, *The Time of Music*, 22.

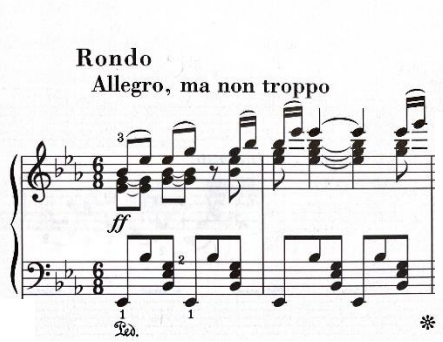
[30] Kramer, *The Time of Music*, 22. Kramer gives an example that pitch C has more chances to follow a B in the key of C major than in F-sharp major.

[31] Kramer, *The Time of Music*, 22. Kramer gives an example that there is a great probability that a pitch C follows B and A in the key of A minor.

[32] Kramer, *The Time of Music*, 21.

[33] Kramer, *The Time of Music*, 21.

In Kramer's temporal analysis, the concept of nonlinearity often exists in a more specific form—gestural time. According to the chapter "Beginnings, Endings, and Temporal Multiplicity," gestural time refers to the specific function of a fragment, such as opening, closing, or transition. Such a function depends on the specific contents (notes, rhythm, dynamic…etc.) of a passage instead of on what point of time the passage appears in a piece or how it relates to the surrounding music. For example, the "Mannheim Rocket" figuration (such as appears at the beginning of the third movement of Beethoven's Piano Concerto No. 5, shown in Example 3.1) was commonly used by composers in the eighteenth century to begin a piece because the quick ascending broken chords on the same harmony can effectively convey a sense of (new) beginning and draw listeners' attention to the new ideas in the following music. Such an opening function—the gestural time in Kramer's terminology—is perceivable even without the context.

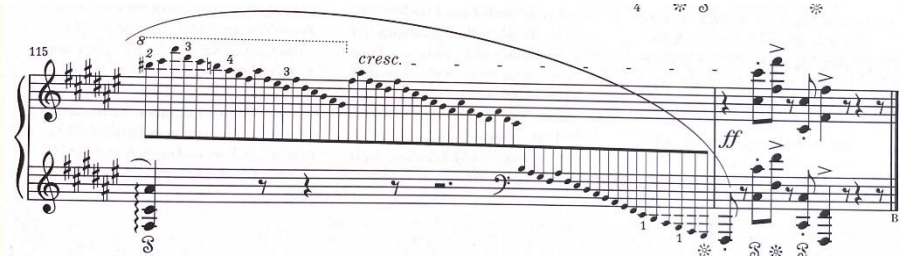


Example 3.1. Beethoven Piano Concerto No. 5, Movement III., Measures. 1-2[34]

Example 3.2 shows the ending of Chopin's Barcarolle, which coveys a strong closing function for the repeated cadence in the home key emphasizing strong beats. The tonal stability

[34] Ludwig van Beethoven, *Klavierkonzert Nr. 5, Es-Dur, Opus 73: Piano Concerto no. 5 in E♭ Major, Op. 73,* ed. Hans-Werner Küthen and Hans Kann, (Milwaukee; München: G. Henle, 1999).

of this cadence allows listeners to reflect on the complexity of the previous music. Even without context, the simplicity of such a figuration renders a sense of conclusion rather than initiation.



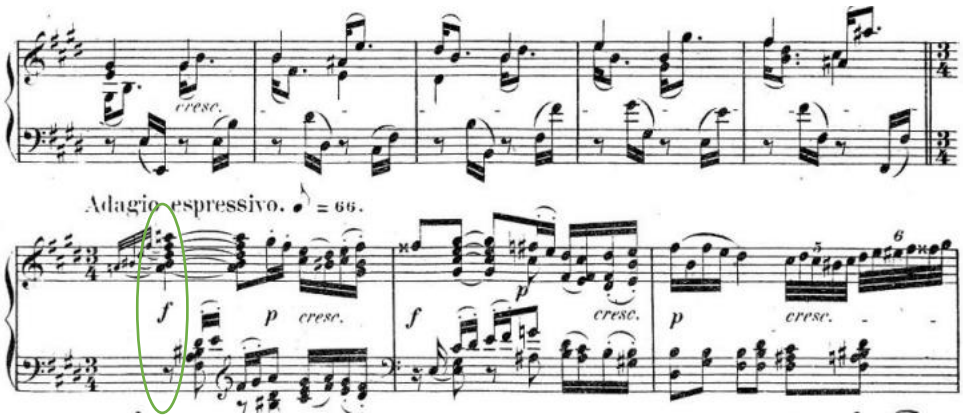
Example 3.2. The Ending of Chopin's Barcarolle[35]

As the gestural time of a fragment could be recognized without context in tonal music, a composer can utilize it to manipulate listeners' expectations by placing a particular passage at the "wrong" part of a piece.[36] In Example 3.3, the B-sharp diminished seventh chord at the beginning of Adagio appears surprisingly at a seemingly wrong spot with regard to harmony and texture. The harmonic progression in the previous measures has implied further confirmation of B major and the texture stays consistent. The B-sharp diminished seventh chord, however, breaks the expectation of cadence in B and interrupts the textural continuity. The interruption-like gestural time is determined by the nonlinear elements of this chord, such as the dissonance and sudden change of texture, that would not be affected by the surrounding passages as the context.

Gestural time therefore represents a purely nonlinear meaning that exists in each event in a piece of music and that may agree or conflict with the general function—the temporality in Kramer's terminology—in the context.

[35] Frédéric Chopin, *Barcarolle Fis-udr Opus 60*, ed. Norbert Mullemann, (Munich: G. Henle, 2011), 13, 115-116.

[36] Kramer, *The Time of Music*, 46.



Example 3.3. Beethoven's Piano Sonata Opus. 109, Movement I, mm. 5-9[37]

Different Temporalities in Music

In music, linearity and nonlinearity are complementary forces coexisting in different proportions and on different hierarchic levels.[38] Also, the interaction and conflict between those two forces form several types of temporalities in which the gestural time of each event may or may not agree with the past-present-future sequence in real time.[39] According to Kramer, *goal-directed linearity* and *vertical time* are the two extremes of a continuum, not separate categories.[40] Between them exist *multiply-directed linearity*, *moment time*, and *nondirected linearity*.

In tonal music, the thematic material in a home key at the beginning of a piece develops towards the most significant tension, which is remote from the tonic, and then returns to the home key, a process that brings satisfaction as an achievement of a goal.[41] Kramer describes

[37] Ludwig van Beethoven, "Piano Sonata Opus 109," *Klaviersonaten, Band II*, ed. Bertha Antonia Wallner, (München: G. Henle, 1952), 273.

[38] Kramer, *The Time of Music*, 19.

[39] Kramer, *The Time of Music*, 151. Kramer quotes an analogy theorist Judy Lochhead for the difference between absolute and gestural time:"The act of 'eating breakfast'. . . has two meanings here. First, it may mean eating a meal in the morning [absolute time]; second, eating the types of food associated with the morning meal [gestural time]."

[40] Kramer, *The Time of Music*, 58-61.

[41] Kramer, *The Time of Music*, 26.

such a sense of departure and return as *goal-directed linearity.* In goal-directed linearity without interruptions, the gestural time of an individual section matches the function that the corresponding section is "supposed" to reflect in chronological order. Figure 3.1 shows the relationship between real time and gestural time in goal-directed linearity:

Sectional function: Exposition----------Development----------Recapitulation

Real-time: beginning middle ending

Figure 3.1. Structure of Goal-oriented Linearity

In some instances, the direction of motion is frequently interrupted by a new passage or section. Kramer believes linearity still exists as a potent structural force even though it may be discontinuous or reordered. He categorizes this temporality as *multiply-directed linearity* time (1988, 46). In other words, if passage B is the goal of passage A but appears elsewhere than directly following passage A (either before or after), the temporal continuum is multiple. Kramer mentions the beginning of Mozart's Jupiter Symphony as an example in which a cadential gesture occurs at the beginning of the first movement. Thus, in multiply-directed linearity, the gestural time of an individual passage does not always agree with the processive time. Figure 3.2 shows a possible multiple-directed linearity:

Sectional function: Closure----------Development----------Exposition

Real time: beginning middle ending

Figure 3.2. Structure of Multiple-directed Linearity

Multiply directed linearity exists in tonal music mainly because gestural convention makes multiply-directed listening reasonable. According to Kramer, an instance of multiply-directed linearity is hard to imagine in atonal music due to the lack of unequivocal gestural time.[42]

Another type of discontinuous temporality is *moment time*. Unlike the reordered linearity in multiply-directed time, moment time is governed by nonlinearity with no sequential connection from one event to another. It often exists in some twentieth-century pieces in which a series of minimally connected sections form a seeming continuum, but each individual section is self-contained.[43] According to Kramer, each short section of Stravinsky's *Symphonies of Wind Instruments* is in moment time due to the repetition of the same motive within a certain time span. Nonlinearity dominates the order of those moments because they are not connected by transitions. Moment time also occur in Barney Childs' *Music for Cello* (1964), Stockhausen's *Momente* (1961-1972), and Earle Brown's *Available Forms* (1961).

Toward the end of the nineteenth century, chromaticism began to complicate the harmonic vocabulary established since the Baroque era. Composers faced the challenge of creating progressive tension, cadence, and defined goals in a diluted tonality. In order to make up for the missing tonal cadences, they utilized the non-pitch parameters (changing of rhythm, texture, timbre, figuration, or register) to divide sections or phrases. This substitution allowed for a type of linearity from one event to another, but one whose the goal is neither unequivocal nor predictable as it is in tonal music. According to Kramer, cases of such *nondirected linearity* as in Berg's chamber concerto, discussed in the introduction of this thesis, are common in atonal

[42] Kramer, *The Time of Music*, 48.

[43] Kramer, *The Time of Music*, 50. Self-contain means that a process must reach its goal within the confines of the section.

music. Figure 3.3 explains the relationship between real time and tonal structure of music in nondirected linearity.

ambiguous tonic-----development -----ending may without the tonic return

Real-time: beginning middle ending

Figure 3.3. Structure of Nondirected Linearity

Much twentieth-century music reflects extreme consistency in terms of progression, goal direction, and motion. Those compositions lack the progressive movement to build a climax, and have no contrast between release or intensity, even without the division between phrases. The resulting structure exists between simultaneous layers of sound instead of between successive gestures. Kramer calls such time sense, in which nonlinearity predominates over linearity, *vertical time*.[44] The middle movement of Erik Satie's *Pages mystiques* (1893) reflects a purely vertical time.

Difficulties in Categorizing Temporal Modes

In the chapter "Linearity and Nonlinearity," Kramer discusses the difficulties and paradoxes of temporal categorization at great length. All modes except the vertical time could present discontinuous sections. Distinguishing between multiply-directed linearity and moment time is far from a clear-cut procedure in real music. The difference between these two temporal modes is that multiply-directed linearity may contain a minor transition for what follows immediately, as Kramer states "in multiply-directed time, middle ground implications for

[44] Kramer, *The Time of Music*, 55.

immediate succession may be present, but they are ignored in favor of larger implications that operate on preceding (or even subsequent) but not immediately adjacent music."[45] Moment time does not contain any kinds of transitions. On the other hand, vertical time can be totally nonlinear or, paradoxically, linear if it contains linearity in hierarchic levels up through that of the moment/section but not beyond. Kramer acknowledges that the different temporal modes are not necessarily comparable and should not be taken too literally or rigidly. In the application of Kramer's theory, the categorization of temporalities should be variable depending upon the style of a piece of music, the composer's idiomatic devices, and the distinctive character of the piece.

Kramer also recognizes that most compositions, especially in the twentieth century, display characteristics of several different temporalities that may not always be immediately apparent. Stravinsky's *Symphonies of Wind Instruments* exemplifies how different temporal modes operate on different hierarchic levels. Each independent section in this piece is an instance of moment time for the static harmony and repeated motivic material. On the other hand, the intervallic step from one section to another suggests a linear progression to a predictable goal on a larger scale. Thus, the temporal structure of this piece consists of the linearity in the background (large scale) and moment time in the middle ground (local scale). This example points to the flexibility, or complexity in other terms, of the coexistence of different temporalities. As the predominant temporality (or temporalities) needs a process to reveal itself, the one that listeners perceive at the beginning of a piece is likely to be "deceptive."

[45] Kramer, *The Time of Music*, 61.

CHAPTER 4

TEMPORALITY IN THE FIRST MOVEMENT OF PIANO TRIO NO. 1

Application Of the Temporal Analysis in This Thesis

The difficulties of categorization make a temporal structure difficult to approach for several reasons: the standard to define a temporality is not fixed but relative; different temporalities could co-appear hierarchically; and the distinction between two temporalities is not clear-cut. Regarding those difficulties, Kramer suggests understanding and applying the most basic concept of his theory by stating that "the categories do represent useful means of making preliminary distinctions . . . they must be understood in terms of their two basic ingredients: linearity and nonlinearity."[46] This statement becomes the departure point of the temporal analysis in this thesis.

The temporal analysis of this chapter begins by examining the discrete elements of the music: tonal area, motive analysis, and durational elements. The study of each element will finish with a conclusion about the general temporality and a diagram that displays the dynamic changing of linearity. In each diagram, the horizontal line presents the real-time performance order because all the events of a piece of music must be heard in a particular order. The vertical line lists the different temporalities from zero-order (non-linearity) to the highest-order (goal-oriented linearity) Markov chain. This method visualizes a dynamic linear change over the whole movement. Ranking the different temporalities according to the Markov chain does not conflict with Kramer's statement that "goal-directed linearity and nondirected linearity are extremes of a

[46] Kramer, *The Time of Music*, 26.

continuum, not separate categories."[47] The last section of this chapter provides a comprehensive temporal structure of the entire movement based on the interconnection among the three discrete linear procedures.

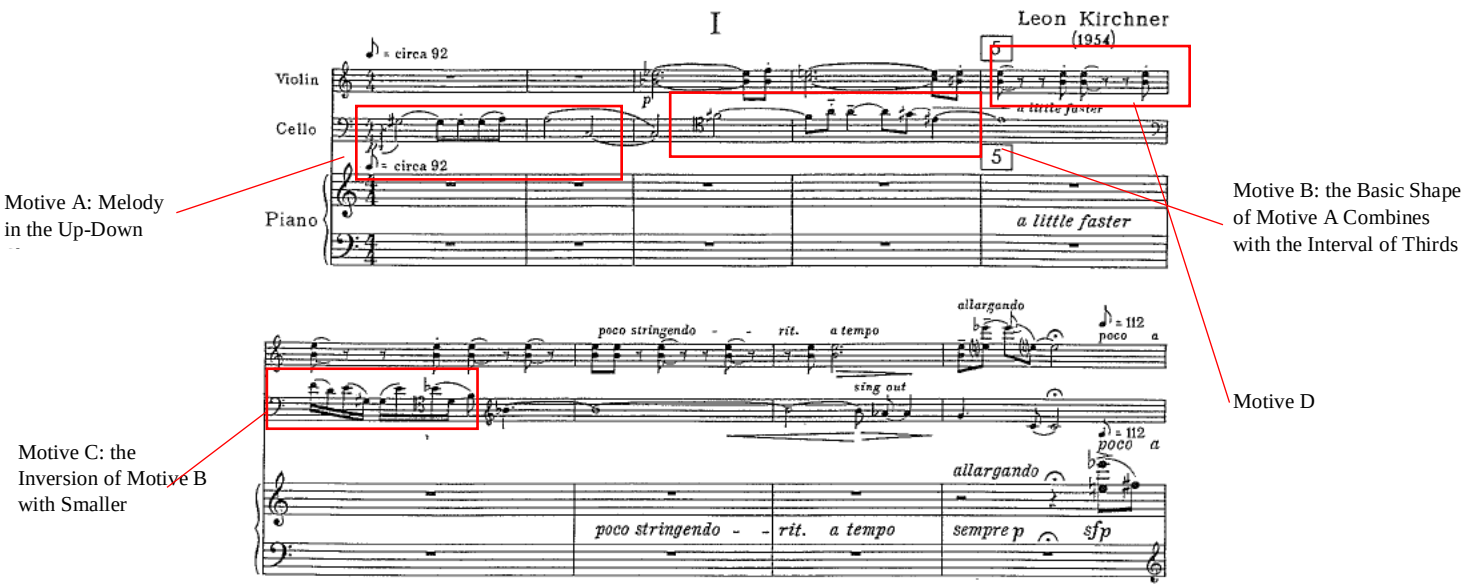
Motivic Elements

This analysis focuses on the linear progression in the motivic use and the relationship between each motive and its local meter in the first movement of Leon Kirchner's Piano Trio No. 1.

- Exposition (measures 1-33)

  - *Grundgestalt* with Transition (Exposition I, measures 1-11): The music begins with a *grundgestalt* in the cello. It contains several basic motives in which the further motives root, as shown in Example 4.1:[48] measure1, the melodic intervals of seventh A—G-sharp and sixth A—C (Motive A) in cello; measures. 3-4, the rising and falling of the interval of third, which relates to the shape of Motive A (Motive B); measures 6, the inversion of an interval of third (Motive C); measures 3-8, the harmonic interval of "B—E" in violin (Motive D). The motives in the cello appear sequentially with the successive growth of complexity and intensity in the frame of 4/4. Also, the Motive D in the violin highlights the pulse (the first and third beats) in the meter of 4/4 but breaks its rhythmic regularity at the last beat of measure 6.

[47] Kramer, *The Time of Music*, 59.
[48] Rostkoski, "The Piano Style of Leon Kirchner," 38.



Example 4.1. The *Grundgstalt* in Cello and Motive D in Violin

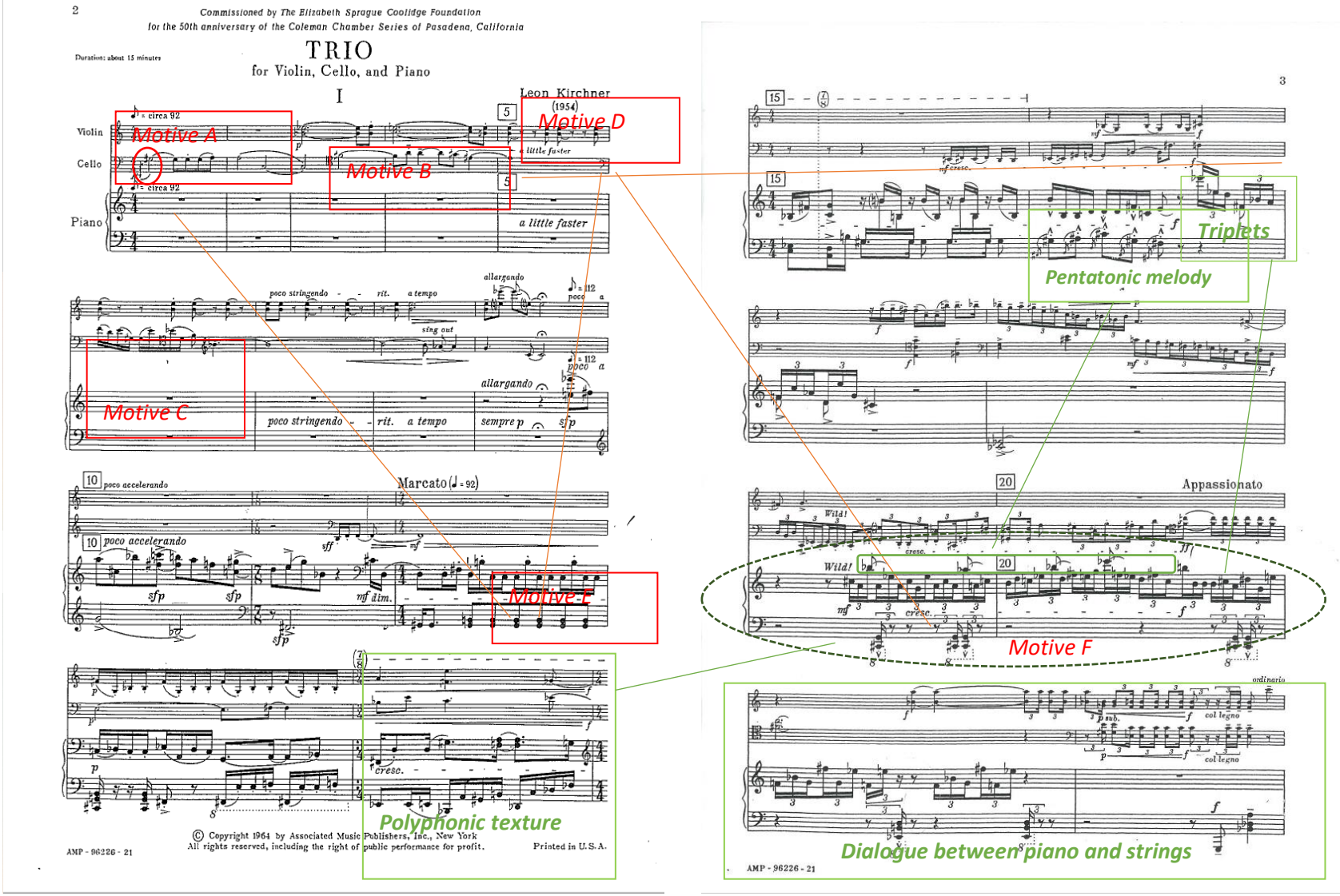
The *grundgestalt* ends on a descending fifth in measure 9, which does not echo the very beginning nor relate to any motive that appeared before. Also, the rhythmic Motive D in violin suddenly transforms into a polyphonic texture. Therefore, this ending does not grow out of the track of the sequential Development from one Motive F to another, so Exposition I reflects non-directed linearity.

Exposition II (measures 12-33): Several new motives develop upon those in the *grundgestalt* as the red notes in Example 4.2 shows: measures 12, Motive E in the piano consists of the interval of seventh in Motive A and the rhythm of Motive D; measures 16-7, the melody marked by *marc.* and *accent* highlights the shape of Motive B; measures 19-20, the figuration on piano combines Motive D with tritone. On the other hand, there are novel elements to the *grundgestalt* (green notes on the chart): the polyphony among three instruments in measures 14-16, the triplets in measures 16-17, and the dialogic texture between strings and piano in measures

21-22. Every new idea is independent of the others but too brief to stabilize itself as a norm but becomes a main source that receives abundantly varied in the future music.

Though Motive F is not at a place to divide sections, it functions as a watershed in the linear progression of this Exposition for the following reasons: 1) it collects multiple elements of the previous music[49]; 2) the rhythmic pattern of each individual voice is isolated from one to the other; 3) the eighth notes in the top voice do not land on the first note of each triplet consistently; therefore they highlight neither the rhythm of triplets nor the pulse of 4/4. The instability from Motive F affects the following music, and the rhythm and grouping of subdivisions are no longer restricted by the 4/4 meter. In short, Motive F leads to the first climax in measure 19 and transforms the previous rhythmic march to a flux of ever-changing texture in the adjoint passages in the rest of Exposition II. Therefore, this section is in goal-directed linearity up to the Motive F, followed by a Transition (mm. 23-24). Measures 25-33 extend the rhythmic liberation that Motive F evokes.

[49] The right hand synthesizes the polyrhythm and triplet from mm. 16-18; the eighth notes recall the pentatonic melody in the bass in m. 16; the rhythm of bass derives from Motive D; the intervallic pattern of triplets assimilates the tritone, big leaps, and series of skips in the *grundgestalt*.

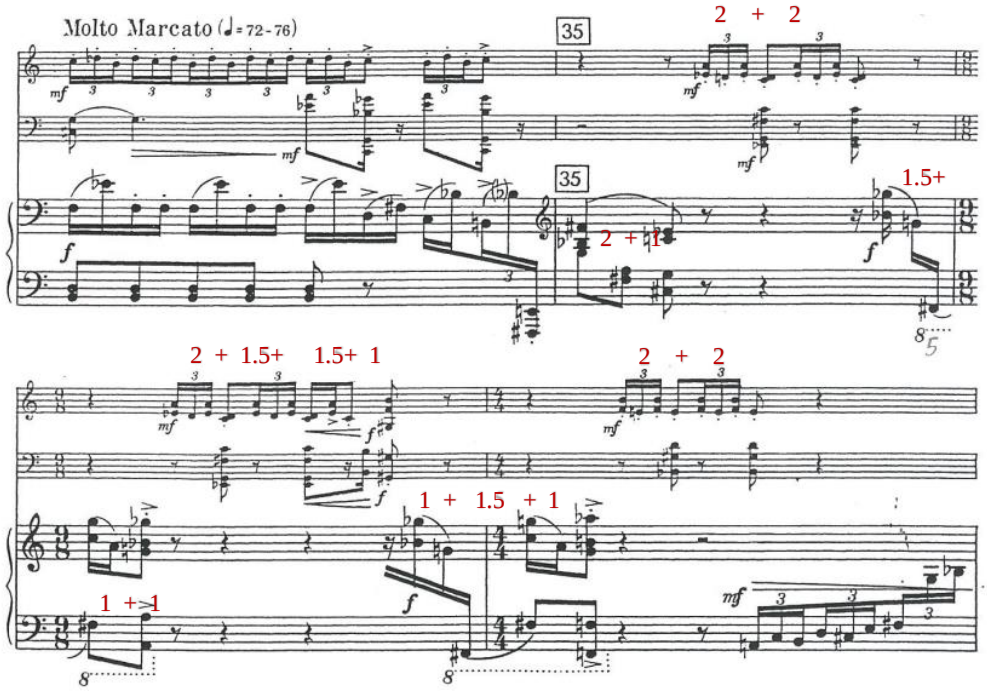


Example 4.2. Sequential Development from One Motive to Another

- Developing Variation (measures 34-59)

In the Development, Kirchner structures five subsections in a fast-slow-fast-slow-fast tempo arrangement. Within each subsection, one of the motives from Exposition II gets stabilized, developed, and transformed by combining with new materials:

- *molto marcato* (fast, measure 34): the Motive E in piano parallels the triplet (from Motive F) in violin. Then the fragments of both motives dialogue with each other and are punctuated by chords in the cello. The misplaced accents and irregular groups of beats (an eighth note counted as a beat) since measure 35, as marked in Example 4.3, make the triplets clearer but break the pulse of 4/4.

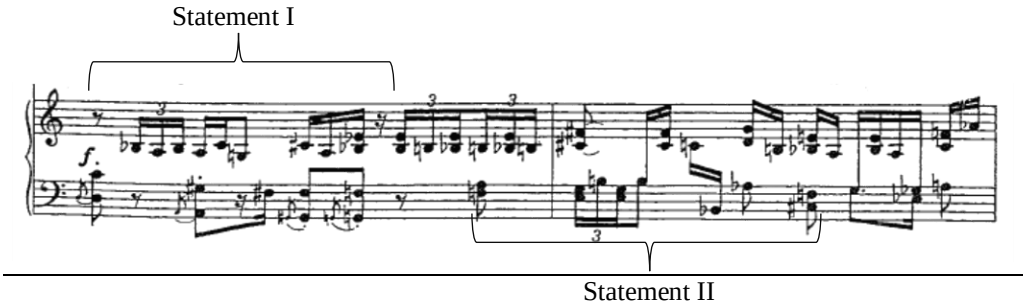


Example 4.3. Mm. 34-6, Irregular Number of Beats in Each Group

- *relaxed* (slow, measure 38): a continuous polyrhythmic texture replaces the previous dialogue between two instrumental groups; three instruments eventually reach accord on

the subdivisions and pulse at measure 40; the accelerated measures 41-42 prepare for the following intense section.

- *marcato* (fast, measure 44): in the first six measures, the textural contrast—a chordal Motive D in piano and the polyphonic writing in strings—strengthens the confrontation between two instrumental groups until measure 50, where the strings assist in highlighting the rhythm of the piano. Again, Kirchner uses irregular rhythmic grouping and misplaced accents to vary the motives.
- *calmo* (slow, measure 54): The Motive A of *grundgestalt* briefly returns in the cello with the accompaniment of Motive E in piano (m. 54). The short piano solo in the music that follows elaborates the interval of the seventh of Motive E.
- *marcato* (fast, measures 58-9): Compared to the previous subsections, the subject in this section has the remotest relationship with the *grundgestalt* and Exposition II because only the triplet rhythm—the last expository element from the show up of Motive F—explicitly remains. There are three other unusual aspects about this short imitative texture: 1) it is mainly for piano within a stable register; 2) both statements (the second one starts at the pickup to m. 59) share the same length and the number of beats, as show in Example 4.4; 3) Kirchner does not use octaves in the lower registers or different articulation to hinder the rhythmic flow.



Example 4.4. Mm. 57-8, Both Statements of the Subject in the Last Marcato (Same Rhythm and Length)

In general, the three *marcato* sections follow the path of developing variations. Kirchner straightforwardly uses confrontation between two instrumental groups to address the motivic contrasts, then varies this confrontation by adding beats and unpredictable accents. In the Transitions (slow sections) between every two *marcato* sections, motives/materials from the opposing instrumental groups eventually overlap, making the texture more fluid. This textural liquidity with an intensified rhythm close to the end always sets the stage for the following *marcato*. The marcato sections generally present a linear progression in which the motivic development gradually drifts further from the origin. Coinciding with the metrical analysis, the Transitions deliver a terraced shape to this progression. This section, therefore, reflects multiply-directed linearity.

Closure (measures 60-66): A passage with dramatic temporal fluctuation interrupts the last *marcato* section at measure 60. The triplets in measure 62 lead to successive figurations that recall the preparation for the original Motive F in measures 18-19. As expected, a Motive F is restated in measure 64, which provides the second peak of intensity and strongly concludes this movement's entire first half. But the ending of this Motive F links to a series of semiquavers with *allargando*. Unlike the unstable triplets before, the pattern of those semiquavers apparently supports the pulse in the 4/4 meter. It paves the way for the return of the lamenting character and the slow tempo of what follows.

So far, the motivic analysis displays some commonalities with the other two analytic approaches. Like the metrical elements, it contains a directed linearity up to measure 33 and unfinished multiply-directed linearity in the Development. Because the material in Exposition I (*grundgestalt*) has not recurred, neither motivic progression nor tonal area meets the criteria of directed linearity at measure 67. The temporality portrayed in the motivic progression, however,

is more distinct than in the other elements. Exposition II displays goal-oriented linearity by introducing the Motive F, which strongly distinguishes itself from Exposition I. The difference between the two Expositions plays a vital role in the comprehensive temporal analysis. In addition, the termination of multiply-directed linearity at measure 60 is more evident than it is in the other two analytical approaches. The clear division between sections avoids a progressive motivic connection from measures 59 to 60, so the closing function in the following music does not act on the interrupted multiply-directed linearity. Instead, it concludes the directed linearity that tracks back to the Expositions. In other words, it separates the music into different dimensions of temporality. This is crucial to understanding the temporality of the rest of the music and the comprehensive temporal structure.

- Bridge with Recapitulating Function (measures 67-95)

This part consists of a slow section (mm. 67-87) reminiscent of the lamenting character of the *grundgestalt* and a fast section (mm. 88-95) that reviews the fragments of Expository II materials. The recapitulating function in the slow section is explicit, but Kirchner avoids complete repetition of the original motives and texture. In comparison to the original *grundgestalt*, the pervasive smooth stepwise motion replaces the original arch-like melody so that every voice moves in a stable range instead of quickly shifting among different registers.[50] The piano and violin seamlessly continue each other's melody, creating a flowing texture without a division between phrases. In addition, tension is subtly built up through the accelerando (mm. 70, 80, 87), successively thicker texture, and more intervallic leaps toward the end.

[50] For examples: the melody in cello (mm. 67-68) preserves the step-motion but omits the interval of seventh; the melody in piano (mm.76-77) varies the Motive C in a narrower range.

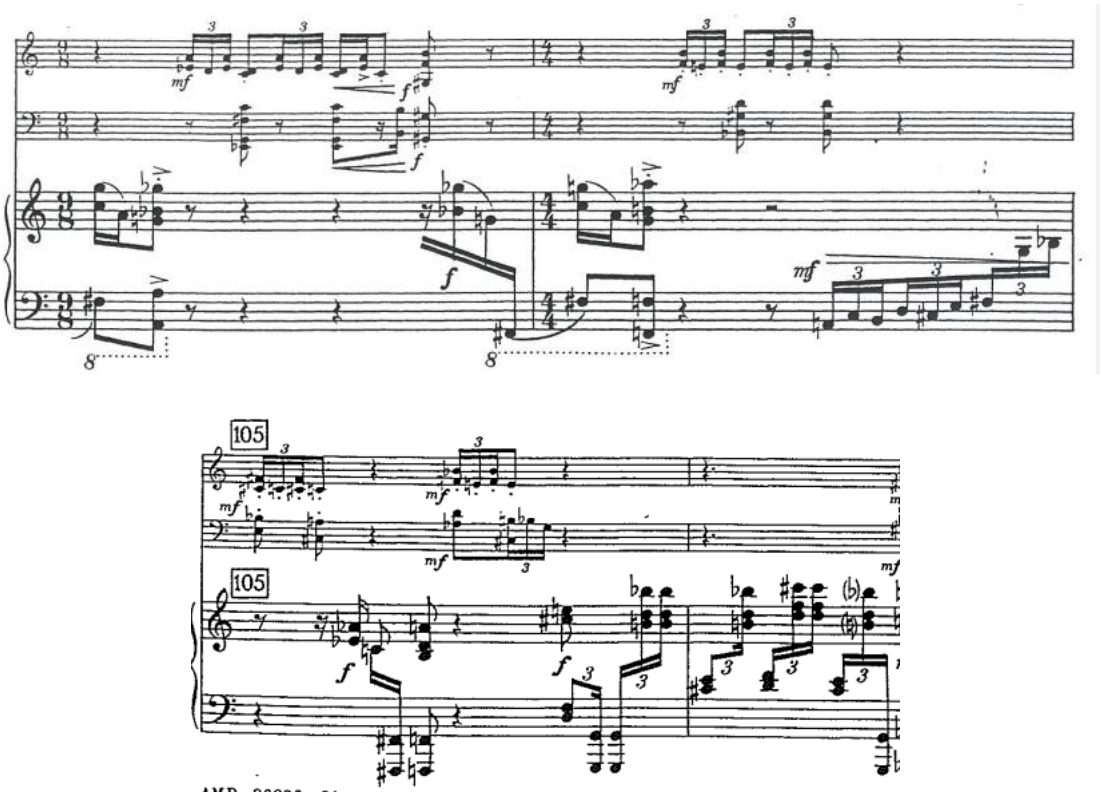
Right after the golden mean,[51] the intact Motives C and D return in measure 88 on a pitch that is a semitone lower than the one in Exposition I. Then Motive E follows up in measures 90-91 and remarkably drives the momentum within a short period. The triplet configuration in measures 94-95 emulates the one in measures 18 and 62 to raise an expectation of Motive F.

The expository fragments appear but must be more stable to form a stable return. This slow bridge is neither a self-contained section such as Recapitulation or Closure because the Motive F does not show up (the goal of mm. 94-95.) Additionally, it is not a destination of the unfinished multiply-directed linearity because the use of motives here does not link sequentially to the last *marcato*. Therefore, a transitional function, which strongly implies a closure (Motive F) of what follows, is more predominant than a Closure.

- Continuation of Developing Variation (measures 96-119)

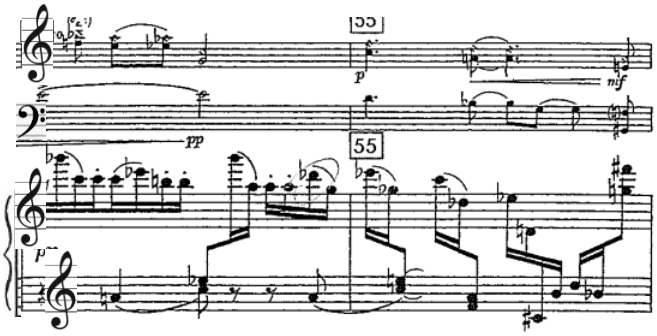
  - *marcato* (measure 96): The subject from the previous *marcato* section (mm. 58-59) replaces the expected Motive F to initiate this new section. The music intentionally emphasizes this thematic return by beginning each restatement on the downbeat of each measure, without variations or overlapping with each other. Such an explicit connection with the previous *marcato* well marks the resumption of developing variation. Measures 99-103 blend the fragments from those transition-like passages in the previous music, such as the repeated rhythm in strings from measures 22 and 42-43, and the broken chords in triplets in the piano, which emulate the similar figuration in measures 23-24.
  - *molto marcato* (measure 103): The texture of triplets integrates with the fragments from measures 30 and 35-37, as shown in Example 4.5.

[51] The golden mean lands at m. 86 as140 measures time 0.618.



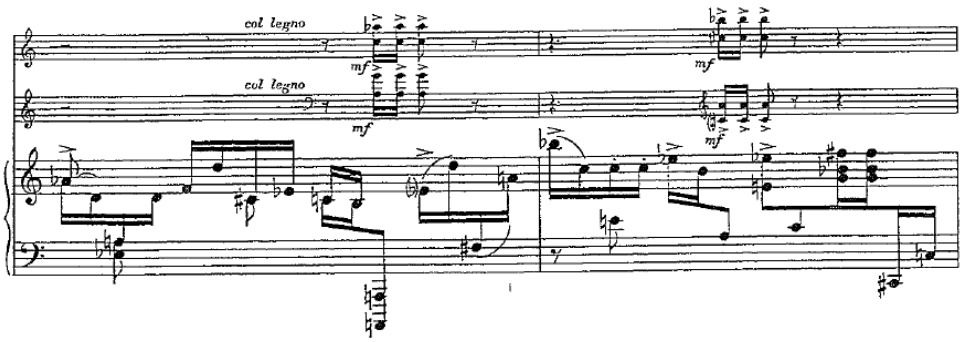
Example 4.5. Comparison of mm. 36-7 and mm. 105-6

- Measure 110: The piano part elaborates on the subject from measure 54 with swifter shifting among ranges while the strings occasionally interrupt the pulse, as shown in Example 4.6. This texture inversely recalls the relationship between two instrumental groups in measures 46-48. The rhythmic pattern of the last two beats of measure 119 parallels the last two beats in measure 57.



Mm. 54-5

Example 4.6. Comparison of mm. 54-5 and mm. 111-2



Mm. 111-2

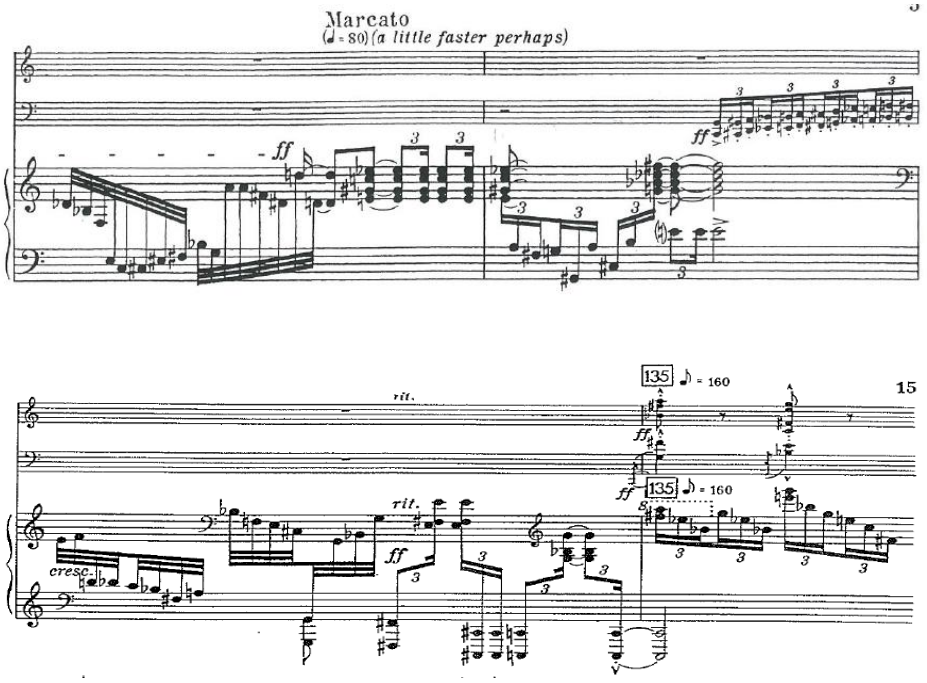
Example 4.6. Comparison of mm. 54-5 and mm. 111-2 (continued)

The function of this section leans toward but is debatable. For a development, it neither engenders any new material nor preserves the compositional device from the previous Development to vary a norm. For a recapitulation, the thematical restatements are too fragmented to settle and keep infusing with triplets. For a transition, it lacks frequent fluctuations in the rhythm but neatly displays three parts with a dominant character in each. Likely, Kirchner creates a growing intensity continuum to neutralize the long bridge's static and carefully claims its connection with the previous Development by addressing the imitative subject (mm. 96-7) and blending other developmental elements. In terms of temporality, the unfinished multiply-directed linearity returns without a terraced pattern. It undergoes a reconciliation among its internal materials with fewer interruptions. This reconciliation would eventually brush away the traits of multiply-directed linearity and transits to a new temporality.

- Recapitulation II and Closure (measures 120-140)

  - Measures 120-136: Kirchner intentionally avoids addressing the boundary between measures 119 and 120 and keeps their rhythmic similarity to weaken the arrival of this new section. The thematic return apparently defines a recapitulation, however, because the beginning four measures of Exposition II return intact (though on different pitches), contrasting to the thematic complexity of the previous section. It links a stormy cadenza in

measure 123 that recalls the transitional figurations in measures 25-33. Kirchner exaggerates the contrast between ranges and textures to a greater extent and forces the different thematic fragments quickly moving at a fast tempo to accumulate intensity until measure 134. In comparison to the driving momentum at the end of Exposition II (m. 33) as shown in Example 4.7, measure 134 dramatically delays the momentum. In the next measure, the chords in the strings highlight the arpeggios on the piano so that two instrumental groups align with the meter. If the instrumental confrontation in the two previous Developments is the main force to unfold the multiply-directed linearity, measure 135 marks the conclusion of this linearity with the rhythmic alignment among instruments. In measure 136, the scale in the piano and the tremolo in the strings combine with thirty-second notes so that all the instruments agree on the rhythm, pulse, and texture.



Example 4.7. Comparison of mm. 32-33 and mm. 134

- Measures 137-140: This Closure contains several thematical reconciliations: the co-appearance of Motives A, D, and F synthesizes the materials from both Expositions, and the adjusted rhythm of Motive F reconciles with the 4/4 pulse. As the earliest and the latest motives (Motives A and F) synchronize in the 4/4 pulse, the music undoubtedly reaches its destination. This movement's motivic progression is absolute goal-directed linearity as all the different temporalities experience interior and exterior synthesizing.
    - Measures 103-119: along with the internal synthesizing between the two contrasting characters of the multiply-directed linearity, the textural continuity prevails.
    - Measures 120-134: the ending of Recapitulation overlaps with the destination of the multiply-directed linearity in measure 134.
    - Measures 135-136: the textual continuity reaches its extreme as all the instruments agree on the pulse with thirty-second notes as subdivision.
    - Measures 137-140:
        - Interior synthesizing among two Expositions (nonlinear elements): Motive A represents an absolute nonlinear force because it is the most original motive. Motive F represents the extreme of linear force in Exposition II because it builds upon several motives. However, it turns to a nonlinear element on a macroscale because it does not receive (or receives very little) variations throughout this movement. Therefore, the first and the last nonlinear elements are synthesized.
        - Synthesizing the directed linearity (Motive F) and the multiply-directed linearity (thirty-second notes.)
        - Synthesizing the extreme of nonlinear element (Motive A) and the extreme of linear elements (thirty-second notes.)

Linear Progression in the Motive

The linear progression of motivic analysis shows a transformation from the juxtaposition of discrete materials to greater continuity in phrasing and texture with a division at measure 67. There are three different kinds of linearity in the first half: 1) the most simple and compact linearity of the *grundgestalt* in which an original motive is sequentially varied; 2) goal-oriented linearity of Exposition II where Motive F becomes a consequence as a series of material preparation; 3) the multiply-directed linearity during the developing variation with frequent interruptions. The restatement of Motive F in measure 67 terminates the generation of new motives and initiates a tendency of greater textural continuity with less contrast. The second half of this movement contains a Transition (mm. 67-94) and fast goal-oriented linearity (mm. 95-140). Both feature textural stability and fewer interruptions. In the second Development, Kirchner freely integrates the motivic fragments into the continuous texture and manages to sustain the ongoing tension on a large scale, if the music from measures 67 to the end is viewed as a big chunk with growing intensity throughout. By minimizing the boundary between measure 119 and Recapitulation, the growing intensity keeps influencing the tempo and phrasing of the Recapitulation. It finally gets released in measure 135, along with the destination of multiply-directed linearity. A series of thematical reconciliations follow in the last five measures to conclude the goal-directed linearity for the whole movement.

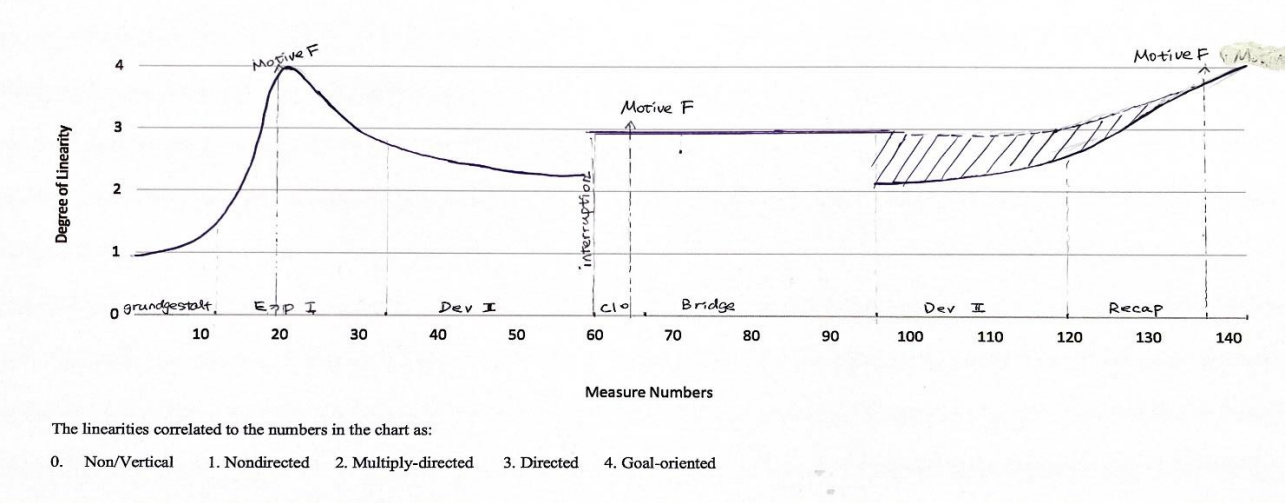


Figure 4.1. Temporality in the Motivic Analysis Approach

Tonal Area

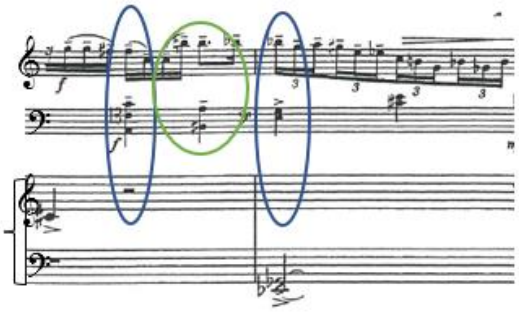
This analysis aims to explain the tonal arrangement in Kirchner's first movement of Piano Trio No. 1 at a more detailed level based on the so-called frame tonality.[52] Two questions guide the study. First, does the music lean to a tonal area and a diminished axis? Second, if there is a tonal centricity, is it linear or nonlinear - explicit or implicit?

- Exposition with Transition (measures 1-13, key of C): The theme on the cello blends the pitches from tonic, dominant, and subdominant axes. The chromaticism and dissonant intervals in the melody obfuscate the tonal center. However, a descending fifth G—C in measure 9 intriguingly brings a strong sense of diatonic C at the end of this theme. The stack of E to E-flat in the violin also confirms the key of C in the context of Kirchner's harmonic

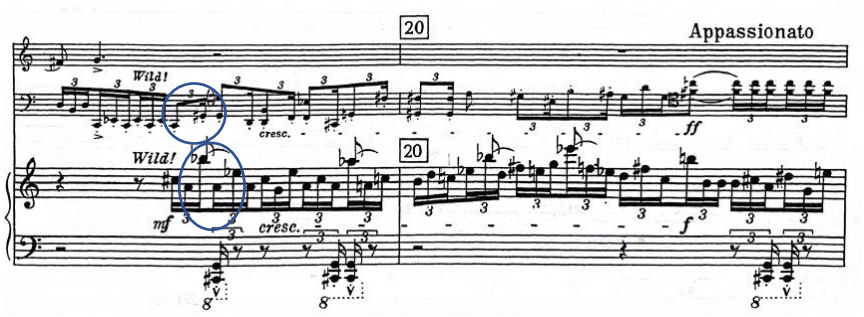
[52] According to Kramer's theory, tonal music has the natural goal-directed linearity while an atonal system needs an intentional design to render a progression of departure-return. It thus appears that a diminished axis could be both.

language. Other than the A-flat before the G, there is no more directed linear motion toward the cadence in C. As the transformation from the atonal effect to the cadence in C is quite unexpected, this beginning is nonlinear to C (with a subsequent transition). From measure 10, the dominant axis pitches eventually dilute C's centricity.

- Exposition II to Transition (measures 13-24, dominant axis to the tonic in C): Exposition II begins polytonally, as each instrument runs alongside the others in different axes. The pitches primarily mix dominant and subdominant axes with sprinkles of the tonic axis. Measures 17-18, shown in Example 4.8, show a progression of dominant-tonic-dominant that clearly defines goal-oriented linearity towards to dominant axis. After the bichord (an E diminished triad from the dominant axis and two pitches from the tonic axis in the bass) in measure 18, the dominant axis establishes its governing role in measures 19-20 (Example 4.9 Motive F). But the pitches from the other two axes keep competing with the dominant axis in measure 21-22 till the striking F-sharp in violin pulls the music back to the tonic in C. Therefore, unfolding the dominant axis is a goal-oriented progression (with the transition to C).



Example 4.8. Mm. 17-18, Progression of Dominant-Tonic-Dominant



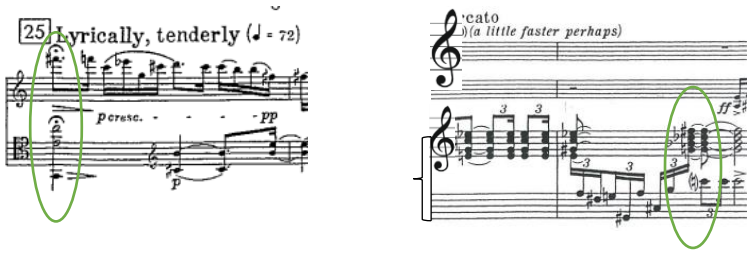
Example 4.9. Mm. 19-20, Dominant Axis Prevails in Motive F

- Closure (measure 25-33): As a tonic resolution, the C major triad with a fermata in cello relieves the dissonant sonority from Exposition II. Meanwhile, the F-sharp in the violin coappears with the tonic C at a prominent place. It confirms that the pitches E-flat and F-sharp are meant to indicate the tonic area in C (tonic references) as the hints on the last beat of measure 9 and the third beat of measure 17.[53] The phrase also ends in the tonic after a whole-tone melody in the violin with pedal point B and E in the cello. These successive reinforcements of C confirm the goal-oriented progression that could point back to the C cadence at the end of the *grundgestalt.* In comparison to the goal-oriented linearity to establish the dominant axis in Exposition II, the one in measures 10-33 to establish the tonal center in C covers a longer duration and aligns with the frame tonality.
- Measures 28-33 enrich the tonal centricity by building triads or bi-chords upon tonic references.[54] The bi-chord in measure 33, shown in Example 4.10, recalls the one in measure 18 as both measures share the similar pitches. But instead of promoting the dominant axis as the latter does, the outer voices of the former emphasize two tonic references. The cello

[53] The former directly extends from the tonic C and the latter battles with the pitches from the dominant axis in the surrounding (C-sharp to G on the third beat and the bichord combining tonic reference and dominant axis in the first beat of m. 18).

[54] Triads: G major, F-sharp major and E-flat major in m. 28; the quick passage outlines an F triad in m. 31. Bichord: mm. 32-33 on in treble clef

immediately accentuates the tonic C and leads to a new section by a chromatic scale. This section, therefore, is a tonic extension connecting to the Development.

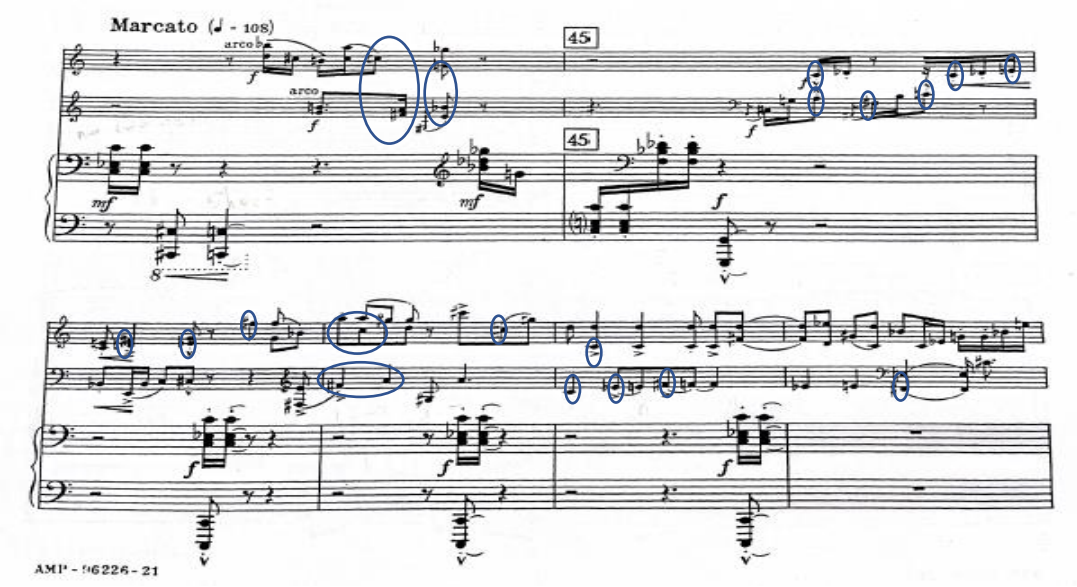


Example 4.10. Both Frame Tonalities in m. 25 and m. 33 Contain Tonic References

- <u>Development (measures 34-59, the weakening of tonal center in C)</u>: This Development contains three *marcato* sections, in each which a frame tonality appears at the end. As the change from one frame tonality to another, the tonic C undergoes declines while the dominant axis experiences growth:
  - *molto marcato*, measures 34-43: The tonic C from the previous measure is continuous in the violin, combining subdominant and dominant in harmony. The rest of this *marcato* section prolongs the tonic axis pitches, frequently appearing in the outer voices in a vertical sonority. The bichord on the last beat of measure 43 combines B-flat diminished triad from the dominant axis with the diatonic C with E as the pivot pitch.
  - *marcato*, measures 44-57: The harmonic intervals relating to the tonic axis are persistent in the strings while the piano repeats a C minor chord, as marked in Example 4.11 in blue.

    On the third beat of measure 57, all three instruments simultaneously address the key of G by means of the stack of G—B—B-flat—D. Even though the tonic references follow up in piano as the frame tonality of this section, pitch C is absent.

- *marcato*, measures 58-59: The tonic references are shattered among the tone clusters while the dominant references appear more concentratedly.[55]

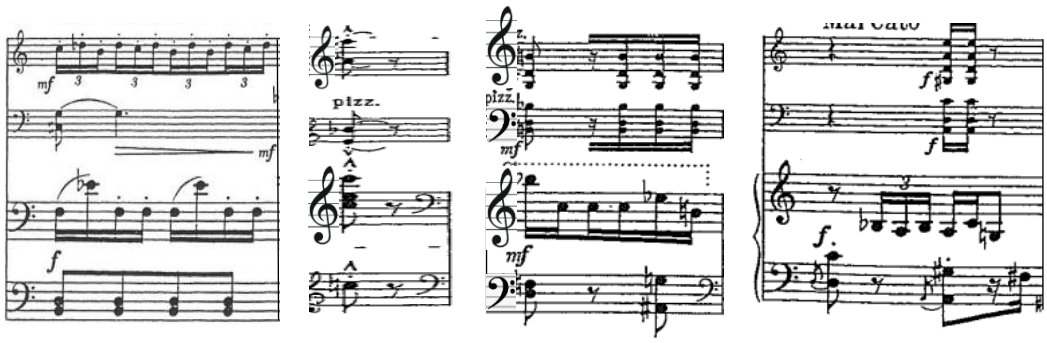


Example 4.11. Mm. 44-49, Pitches from the Tonic Axis

Example 4.12 shows the tonality transforms from the explicit tonic in C (including the diatonic mean and tonic axis) to an implicit dominant axis, during the Development. The latter strongly impacts the C but has not formed a prominent force in tonality.

- Transition (measures 60-66, return of dominant axis): This Transition consists of successive dramatic changes. Three bi-chords in measure 60 interrupt the previous *marcato* section and lead to a brief appearance of tonic C on the fourth beat of measure 60. Then the bi-chord on the downbeat in measure 61, consisting of two complete triads (F major and E-flat minor), elevates the tension dramatically, causing an absent-tonality mode by its pure clashing sound.

[55] The trill of B and B-flat in m. 58; the chords consisted of the pitches from the dominant axis in m. 59.



Example 4.12. Measures 34, 43, 56, and 57, Successive Weakening of Tonic C in the Frame Tonalities

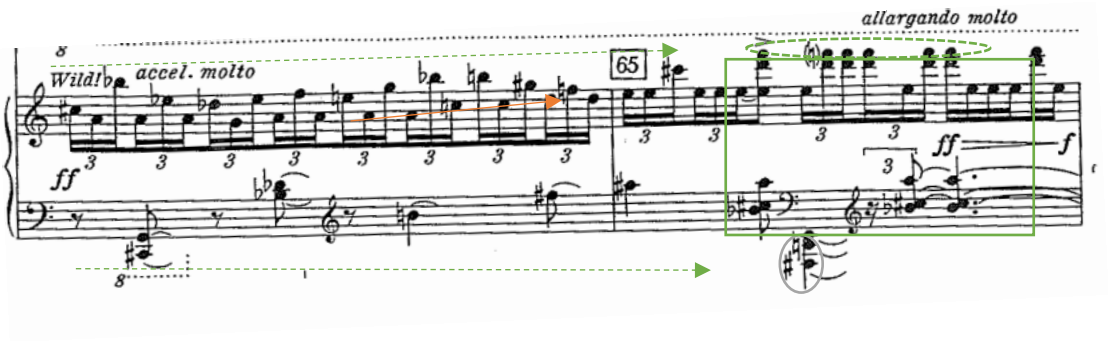
The notes "freely splash" among the axes, augmented chords, and octatonic scales within a short period until the cello hints at the diatonic G at the end of measure 63 with the sustained E—A on the violin. This seemingly urgent diatonic G paves the way for stabilizing the dominant axis at a further level.

As shown in Example 4.13, the final and most dramatic change happens in measure 65 where two outer voices of the Motive F respectively move towards opposite directions in the interval of a perfect fifth (B-flat to F, C-sharp to F-sharp) while the middle voice A moves up to E. Along with the other two pedal points (B-flat and D in the middle voices), all the pitches related to G form a striking tone cluster.[56] Two tonic references F-sharp—C parallel with the tone cluster but do not sustain as long as the pitches relating to the dominant area do. Therefore, after their confrontation in Development, the dominant reference prevails over the tonic C for its greater density and note value.

Despite the prominent dominant axis, an explicit indication of the tonic in G is still missing. If the tonic C, which receives support from traditional asymmetrical sonorities (C major and

[56] C-sharp-E—G—B-flat in the dominant axis, and B-flat—D in diatonic G; F can be an added tone of bichord.

C minor triads) and axis system (F-sharp), is the starting point in linearity in this movement, then having a "same weighted" destination is vital to complete goal-directed linearity.[57] The goal in the tonal linearity is therefore still uncertain, but the entire Transition functions as a structural pillar, so either tonal or/and linear change likely happens in the rest of the music.

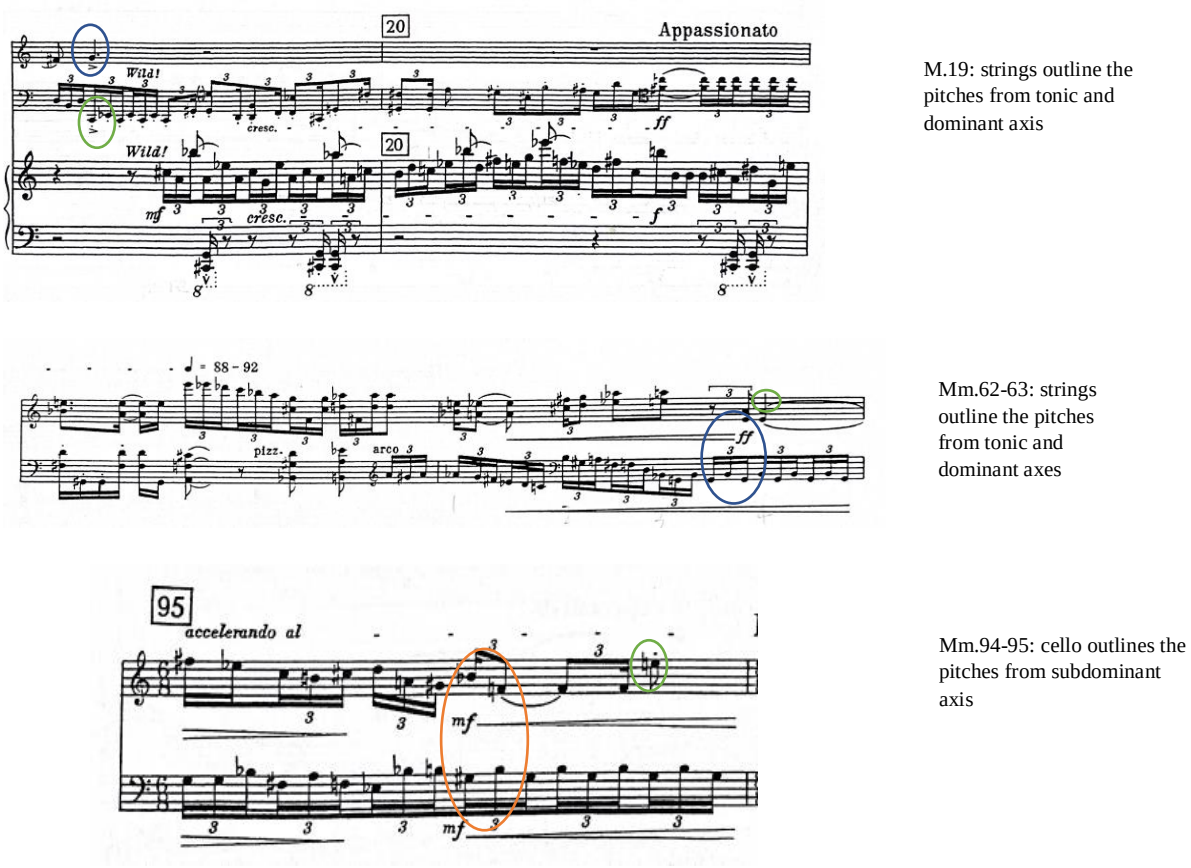


Example 4.13. Mm. 64-5, Confirmation of Dominant Reference at the End of the First Half of the Entire Movement

o Bridge (measures 67-95, unclear tonal center): The dominant reference A-sharp—D—E from the previous Transition directly links to the melody on strings in measure 67, and the *grundgestalt* briefly returns on the pitch a whole step higher than at the beginning. The tonal arrangement of this section is in a rough dominant-tonic-dominant-axis (mm. 67-76, 77-84, 85-93) order. The pervasive suspension and step-wise motion blur the division from one phrase to another. Combined with the slow tempo, this section is close to Kramer's description of vertical time.

As Example 4.14 shows, the music in measures 94 to 95 mimics the figuration on strings from measures 18-19 and measures 62-63. In the previous music, this figuration reflects the tonic and dominant axes. But the one in measures 94-95 outlines a subdominant axis.

[57] As discussed in Chapter 3, Kramer credits build-in goal-oriented linearity to the diatonic system for its obvious directionality in its harmonic language. For the atonal music, the non-pitch elements are needed to define a goal to compensate for the missing hierarchy among pitches.



M.19: strings outline the pitches from tonic and dominant axis

Mm.62-63: strings outline the pitches from tonic and dominant axes

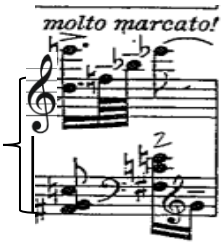
Mm.94-95: cello outlines the pitches from subdominant axis

Example 4.14. Comparison of the Preparation for Motive F in the Different Contexts

o Development II (measures 96-119, tonal center in C to the dominant axis): The object of measures 58-59 resumes at measure 96 but in an intriguing way: the pitch F in measure 96 appears on the cello, as the previous subdominant preparation implied, but it overlaps with the tonic reference in the violin. The return of tonic C is even more obvious as the octave C in bass and the renamed F-sharp and G-sharp.[58] Thus, both diatonic C and tonic axis reclaim their dominance. After the last frame tonality in measures 102 in Example 4.15, however, the governing role of tonic C keeps declining as it does in the first Development. All the signs

[58] The third to fifth beat (in the meter of 8/8) in m. 97 share almost the same notes as on the last two beats of m. 59. But the G-flat and A-flat are respectively revised as tonic reference F-sharp and G-sharp to strengthen the tonic in C. The G-sharp, pairing with the following G, could indicate the tonic reference E.

indicate that the interrupted non-directed linearity in the previous Development resumes, and the tendency to move away from C becomes more obvious.



Example 4.15. M. 102, Tonic References in the Piano Part

- *molto marcato* (measures 103-109): The tonality depends on the bass octaves in the piano because Kirchner uses a perfect fourth/fifth in stepwise motion to replace the diminished fifth in the upper voices. Overall, the pitches from the dominant axis (especially C-sharp) appear frequently.[59] The subdominant axis becomes a frame tonality, and the G-sharp settles in the bass in measure 109, in which a tonic reference E-flat becomes a passing tone leading to the D—F in violin. [60]
- Transition (measures 110-119): the pitches from the tonic axis (except C) briefly return, but then are interrupted by the combination of dominant and subdominant in measure 117 (broken E diminished triad with D). The tonal center in the following part is too ambiguous to define because of the use of the perfect fifths from measure 115. In the context of this music (see m. 54, m. 109), they are "non-chord-tones" for the less tonal

[59] C-sharp in m. 103; C-sharp—(E)—B-flat—G in m. 104; G in mm. 105-106; C-sharp in m. 107; E-flat (D-sharp) in m. 109.

[60] In m. 103, the E-sharp—G-sharp-B in the cello and piano with a pitch C in violin. In m. 109, a bichord consisted of all the pitches of the subdominant axis and C-sharp major triad.

directivity compared to the axes of diminished fifth or quasi-diatonic cadence. Along with the obscure tonality, C-sharp and F-sharp appear frequently.

As the music enters an absent tonic mode again, an explicit tonal confirmation is a legitimate expectation.[61] And as the previous dominant axis defines the temporality for the first half of the movement in measures 64-65, the upcoming tonal confirmation would also determine temporality at a structural level.

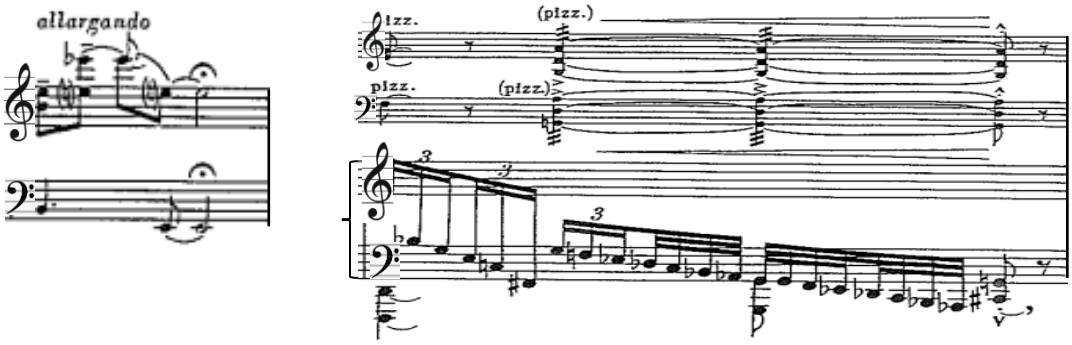
- Recapitulation to Closure (measures 120-140, the dominant axis with the tonal center in G):

  The Expository II theme returns intact in the dominant axis with the melody a minor sixth up than its origin. As the C-sharp frequently shows up in the bass, the dominant axis continues governing the tonal area, and a cadence in G explicitly appears at the end. Therefore, the whole movement displays a goal-oriented linear transformation from tonal center C to G/C-sharp (with interruption of vertical time). The final confirmation of the key of G is postponed to weaken its strength:

  - Measure 126-134 extends the dominant axis by emulating the tonic extension in measures 28-33. Unlike the assertive chordal texture in the tonic extension, however, measures 126-34 lack the vertical sonority to further confirm the dominant as a tonal center. Moreover, the tonic reference fleetingly interrupts the dominant continuum in measure 129. The C octave in measure 134 is deceptive as a cadence in C.
  - A cadence in G occurs in measure 136, where the descending fifth in the bass recalls the cadence in C in measure 11. The stack of D—A in the strings also assists to confirms G by the extension in the interval of the fifth (G—D—A). Example 4.16 presents a comparison between the cadence in C at the beginning and the cadence in G at the end.

[61] The first absent tonic mode in m. 61 appears before the conclusion of the dominant axis.

Unlike the clearness of the cadence in C at the beginning, the diatonic sense in G coexists with the overlapping of tonic and dominant axes on the first beat, the stack of perfect fifths in strings, and the scale of G Locrian in piano. This cadence in G also lacks the support from a B or B-flat, as the E and E-flat supporting C in m. 9. Thus, in the actual performance, the cadence in G is hard to project due to the thick texture and harmonic complexity.



M. 9. Cadence in C

M. 136. Cadence in G

Example 4.16. Comparison of Two Diatonic Cadences

- Closure (measures 137-140): Kirchner extends the G by placing it in the bottom of the returning *grundgestalt* a perfect fifth higher than its origin.[62] Currently, the diatonic in G reconciles with the dominant axis with C-sharp as a tonal center. The whole movement stops on the perfect fifth, along with two displaced tones A-sharp and D-sharp. Given the context, those two pitches might implicitly synthesize two tonal centers (E and D-sharp refer to C, B, and A-sharp refer to G).

Summary and Concerns Regarding the Tonal Arrangement

[62] If the original *grundgestalt* bases on the key of C, the last statement at the end could seem like a transposition in the key of G.

This movement displays a tonal transformation from C to C-sharp in goal-oriented linearity, as shown in Figure 4.2. The diatonic C is well established by goal-oriented linearity in Exposition I and Exposition II and prolonged in the Development. The dominant axis also firmly claims its expository role through a local goal-oriented progression in Exposition I. It progressively impacts the strength of the tonic during the Development until the dominant references slightly prevail in measure 65 (but the diatonic G is implicit.) After the Bridge (mm. 67-95) with an uncertain tonal center, tonic C temporarily returns during measures 96-104 as its last stable statement.[63] The proportion of dominant reference becomes greater, finally leading to an explicit cadence in G at the end of the Recapitulation. The final four measures synthesize the diatonic G and tonal center C-sharp so that both tonal systems reconcile on the dominant axis. The entire movement ends on a perfect fifth with two misplaced tones and no explicit tonal center. The whole movement is thus in roughly goal-oriented linearity, but the goal remains obscured until the establishment of the former dominant axis as the new tonic in the Recapitulation.[64]

Kirchner's different treatments of the two tonal centers pose a problem, however. To render a convincing conclusion at the end of a piece, composers tend to place the cadence, which contains the strongest power within a piece, both acoustically and theoretically, at the end. But the cadence in G, even though it appears at the end, does not receive the support from traditional asymmetrical major and minor triads that the one in C at the beginning does. The cadence in C would serve better as a destination for the entire movement when considering clarity, harmonic assistance, and the location of a phrase. On the other hand, the tonal center C-sharp experiences

[63] Because the decline of C returns as a norm in the second Development, the weakening of tonic becomes a general tendency instead of a sign of the vanishment of the tonal center. Thus, temporality leans toward directed linearity.

[64] At this moment, whether C or G is the destination remains unknown.

progressive growth in the second half of this piece, while the cadence in C at the beginning seems fairly premature. In short, the dominant axis's linear journey (statement-departure-return) makes the tonal center in C-sharp/G a legitimate destination, but the nonlinear elements to confirm this destination are not as strong as those of the cadence in C at the beginning. Regarding the concerns above, this chapter's comprehensive analysis of temporality will provide further explanation.

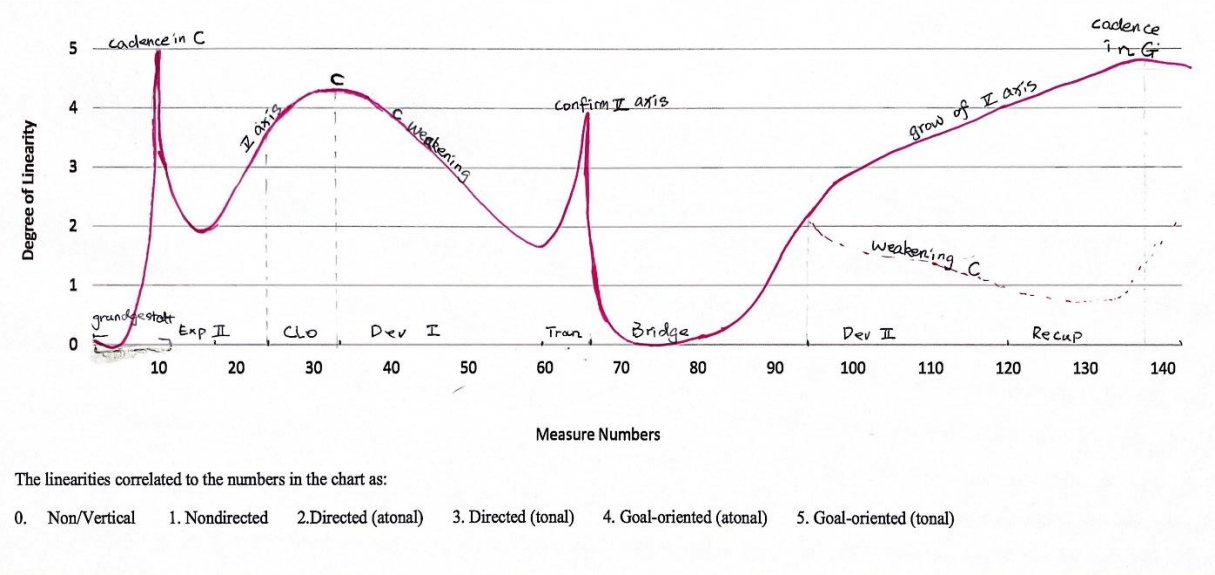
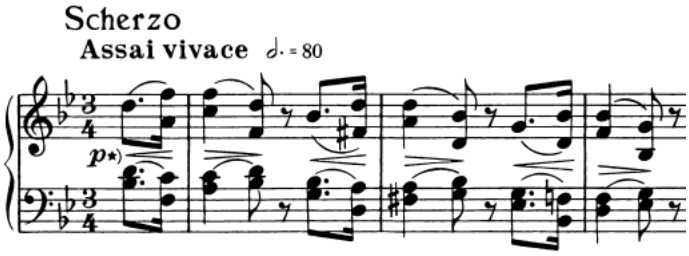


Figure 4.2. Temporality in the Tonal Arrangement of the First Movement of Piano Trio No. 1 by Kirchner

Meter and Tempo

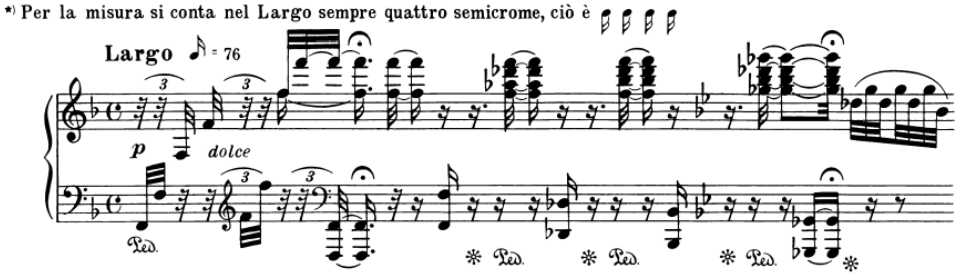
In music, a tempo mark and a time signature respectively indicate the performance speed and the basic pulse. By making subtle adjustments to those two signs, a sophisticated composer can accurately help the performers capture the most appropriate pulse and speed at a particular moment of a piece, which is vital for depicting musical style and character. In the second movement Scherzo of Piano Sonata Op. 106, shown in Example 4.17, Beethoven marks a dotted

half-note as a basic unit of the metronomic speed and the ¾ meter to drive the momentum and promote a brisk character.



Example 4.17. Beethoven opus. 106, Scherzo[65]

For the third movement, he marks the speed of a sixteenth note in a 4/4 meter to depict an improvisatory and profound character, shown in Example 4.18.



Example 4.18. Beethoven opus. 106, Largo[66]

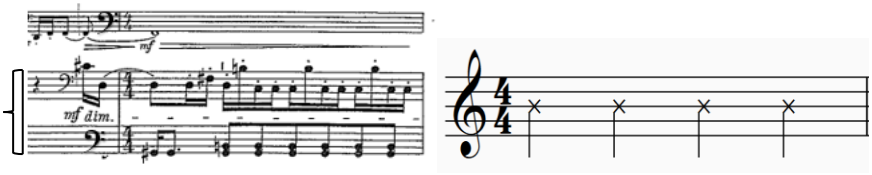
Kirchner's aesthetic choices are not a departure from the norms of the Classical-era composers. In the first movement of Trio No.1, he carefully combines tempo marks and meters to create a broad spectrum of musical characters and a roller-coaster intensity change.

- Exposition with Transition (measures 1-12): The combination of 4/4 meter and the tempo marking ♪=92 sets a lamenting mood for the *grundgestalt.* This character bears a slight

[65] Ludwig van Beethoven, *Piano Sonata Opus 106* from *Klaviersonaten, Band II*, ed. Bertha Antonia Wallner (München: G. Henle, 1976), 240.

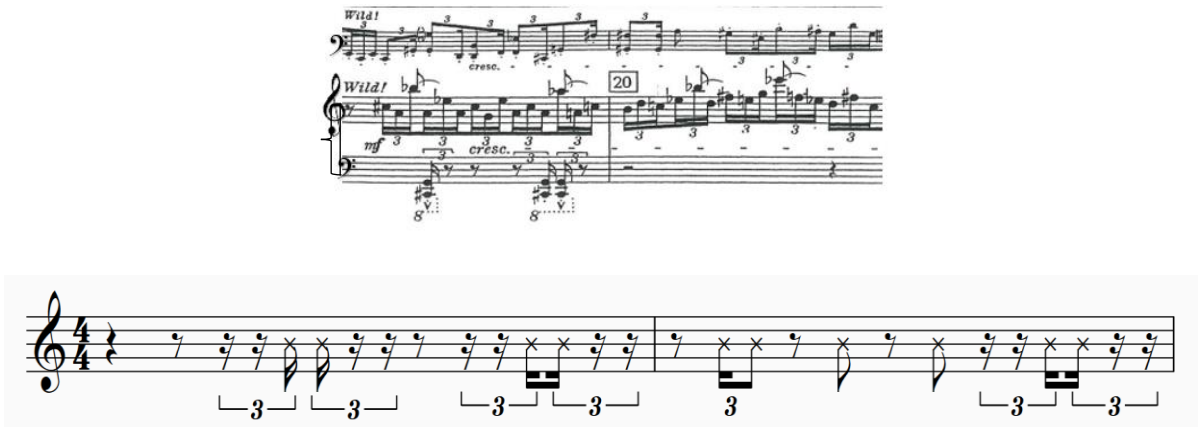
[66] Ludwig van Beethoven, *Piano Sonata Opus 106*, 256.

- fluctuation in the speed, but 4/4 pulse persists until the meter switches to 7/8 in measure 11. Since the new time signature appears unpredictably while the music hints at more intensity, this beginning is in non-directed linearity.
- Exposition II (measures 13-21): A new expository character contrasts the expressiveness of the *grundgestalt*. The novel tempo mark agrees with the meter of 4/4 on the quarter note as the basic pulse. This combination creates an energetic march-like character with assertiveness. But beginning in measure 19, the irregular pattern of triplets eventually dilutes the 4/4 pulse, and the meter no longer constrains the rhythmic group and subdivision. The music begins to display a tendency toward more intensity and rhythmic liquidity, contrasting with the stable pulse at the beginning of this section. Example 4.19 shows the comparison of the rhythmic patterns between measures 13 and 19. Measure 23 dramatically holds back the momentum to prepare for the return of the slow section. Although both Expositions are in non-directed linearity within each of their own sections, therefore, together they consist of directed linearity of slow-fast-slow tempo arrangement.



The Music in M. 12 and Its Pulse

Example 4.19. Comparison Between the Pulses of m. 12 and mm. 19-20



The Music in Mm. 19-20 and its Pulse

Example 4.19. Comparison Between the Pulses of m. 12 and mm. 19-20 (continued)

- Closure (measures 25-33): A short reminiscence of the lamenting *grundgestalt* juxtaposes with a fast passage with irregular pulses and flowing subdivisions at measure 26. In terms of linearity, this closure reflects the influence of all three thematic characters in the 4/4 meter, and foreshadows the multiply-directed linearity of what follows for the contrast between lyricism and intensity.
- Development (measures 34-59): This Development deconstructs and elaborates upon the materials in Exposition II. It features a terraced pattern in that the strong pulse in each *marcato* alternates with the rhythmic freedom in each transitional section. The alternations of characters display the traits of multiply-directed linearity because each individual section interrupts the previous one.
- Closure (measures 60-66): This section synthesizes two thematic characters in 4/4 meter. The ♪=66 tempo marking recalls the passive pulse of the *grundgestalt* then accelerates to the quarter notes with subdivision in a triplet (mm. 64-66, ♩ =88-92, *with accel. molto*). Unrestrained by meter, the free rhythmic pattern echoes the rhythmic fluidity in the second

half of Expository II. Thus, two thematic characters and their corresponding temporal elements have reached their first closure but without reconciliation. This closure confirms the linear progression as directed linearity trackable from the beginning, but without reconciliation, the multiply-directed linearity, which features the battle between two characters in the Development, has not reached its destination.

- Bridge (measures 67-87): The lamentation of the *grundgestalt* returns at a less flowing speed since the melody is heard in the quarter note with the tempo marking ♩=60, compared to the original ♪=92. Then the tempo speeds up through the subtle *accelerando* and subdivisions. Even though there is a connection with the *grundgestalt*, the temporality of this bridge is unclear.
- Transition (measures 88-95): The tempo mark switches to the eighth note with a faster speed. It is noticeable that this change of note value serves to propel the momentum rather than hold it back, as do the eighth notes do at the beginning of the *grundgestalt*. Then the accelerando prepares for the upcoming fast section, and the meter agrees with the tempo mark at 6/8 in measure 95. The importance of this Transition is that it initiates the tendency of blending the traits of the two opposing themes.
- Development II (measure 96-122): The tempo mark switches to ♩=80, which is in the same range as the previous developing variation (mm. 34-59), but the meter persists on the eighth note as the value of each beat. As a result, the pulse lands on alternating rather than successive eighth notes, effectively driving the momentum forward in the meter of 8/8. This effect features a greater cohesiveness from one beat to another without changing performance speed. Moreover, the terraced pattern from the previous Development is avoided by blending

the *marcato* material with the rhythmic fluidity from the Transitions.[67] All the signs suggest that this Development reconciles the contrasting themes of the prior Development while elevating the general intensity. In addition, the music from measure 110 raises tension due to a faster metronomic marking (♩ =108) and frequent accent. The duration and the pacing of building tension in measures 96-122 emulate a Transition (or a long dominant preparation) before a Recapitulation as in a classical sonata form (an archetype of goal-directed linearity). The music at this moment thus strongly hints at goal-oriented linearity.

- Recapitulation (measures 120-136): The expository marching character returns with its original meter (4/4) at measure 124, along with the increase of intensity. Then the tempo goes through a sudden slowing (mm. 128-9), a drastic accelerando (m. 131), and the final climax in measures 131-134, a furious passage urgently calls for a release. The final resolution arrives at measure 135 with alignment between the meter and rhythmic pattern. This moment signals the ending of multiply-directed linearity. If the music of measures 131-134 is the rewritten version of measures 26-33, the former initiates the terraced pattern (see analysis of Development I), while the latter leads to its destination after the last climax.
- Closure (measures 137-140): The dragging pulse of the *grundgestalt* and the swift rhythmic liquidity are reconciled. In measures 138-9, the metronomic marking of an eighth note in slow tempo blends with the quickest value of subdivisions in 4/4 meter. The grouping of those thirty-second notes—representing the highest intensity of the piece—supports the pulse of 4/4 instead of stratifying away from this meter as it does in the first bridge. The speed of the quarter notes in the cello's melody also balances the original tempo of the *grundgestalt*

[67] Mm. 110-122 reviews the material of mm. 44-54 without "*Calm*", which aims to weaken the contrast between characters as well.

and the stillness of the second bridge.[68] This convincing thematical reconciliation clearly confirms goal-oriented linearity that spans the whole movement.

Linear Progression in the Durational Elements

The temporal elements of the first movement of Kirchner's Piano Trio No. 1 display goal-oriented linearity with multiply-directed linearity embedded, as the diagram in Figure 4.3 shows. The three sections are divided by measure 34 and measure 66. A climax (the yellow hill-like shape) comes with the fastest subdivision within each section. The three climaxes are successively more powerful.

Each of the three sections displays a distinctive linear progressions. The latter two complete to conclude the linearity of each respective preceding section(s) to a successively intensity in the frame of 4/4: a lamenting *grundgestalt* with a dragging pulse (mm. 1-10), an energetic march with a strong sense of pulse (11-17); and the intense liquidity with flowing subdivision (mm. 18-23). Measures 24-33 fragmentedly synthesize the three characters above, so the first section reflects directed linearity. The second section (mm. 34-66) alternates the characters from Exposition II in a multiply-directed linearity and ends up with the return of the third character (mm. 60-66). The multiply-directed linearity remains unfinished, however, after being interrupted in measure 60.

The third section (mm. 67-140) displays growing intensity from the least forward momentum (mm. 67-87, where the speeds of meter, pulse, and subdivision are unified in a slow tempo) to the most remarkable climax of this movement (around mm. 135-6). In measures 137-140, the three thematic characters reconcile with the regular pulse in 4/4 meter. The linearity of

[68] If the notes are at the speed of 66 per minute (as 𝅗𝅥 =132), it is a median value on the slow side between 92 per minute in the beginning and 60 per minute in the second bridge.

metric elements thus issues from the original statement in the first section (directed linearity), a development and a return of the third thematic character in the second section (directed linearity for the first half of music with an unfinished multiply-directed linearity), and the thematic reconciliation after the sequential building of tension in the third section (goal-oriented linearity).

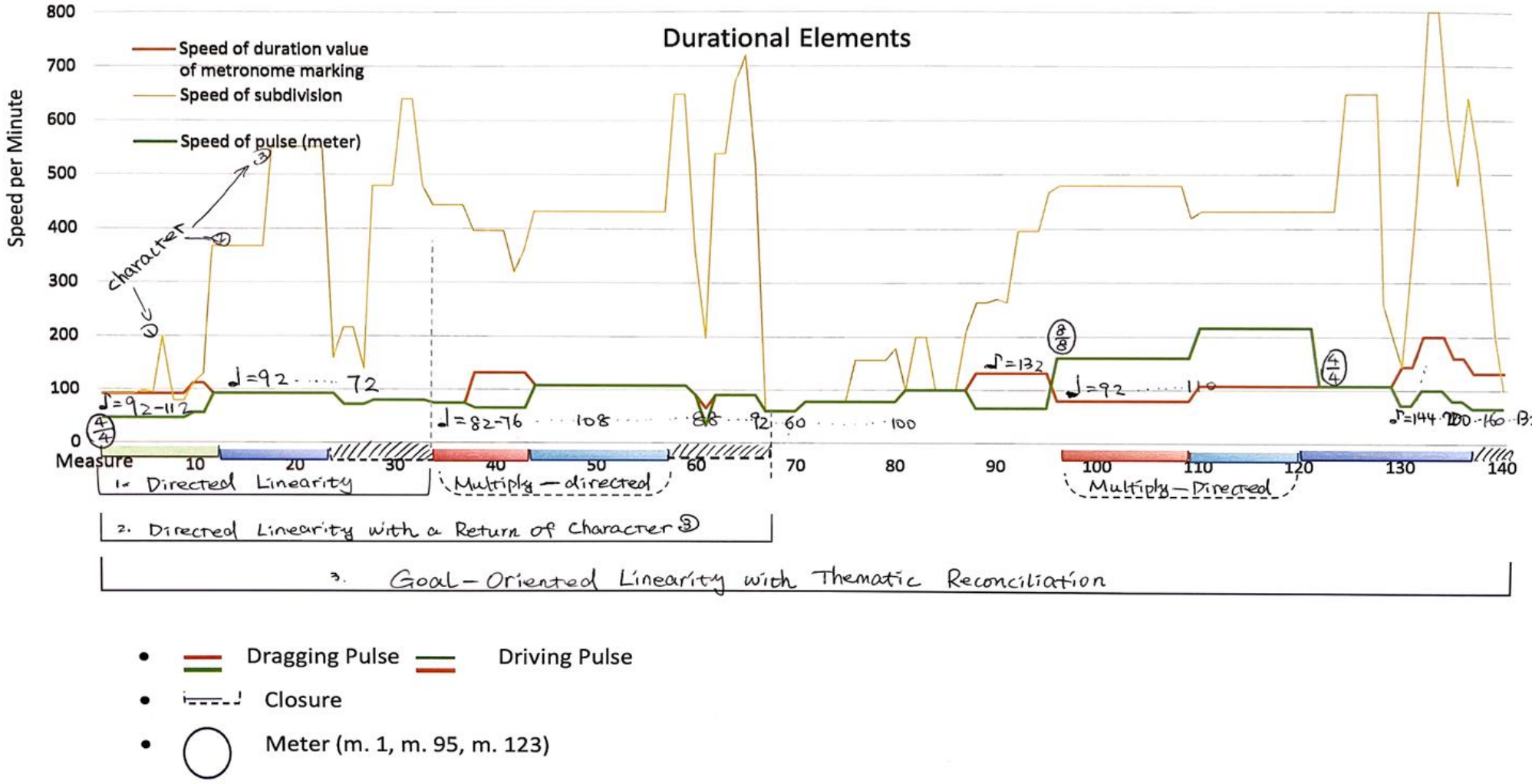


Figure 4.3. Temporality in the Durational Elements of the First Movement of Piano Trio No. 1 by Kirchner

A Comprehensive Temporal Structure

Given the formal analysis of the tonal area, metric and tempo markings, and motivic use outlined above, three main linear procedures are summarized here: the disagreement between the key of C and dominant axis to the reconciliation at tonal center C-sharp; the eventual consent between dragging and driving pulses in the frame of 4/4 meter; and the juxtaposition of contrasting characters replaced by the blended continuity.

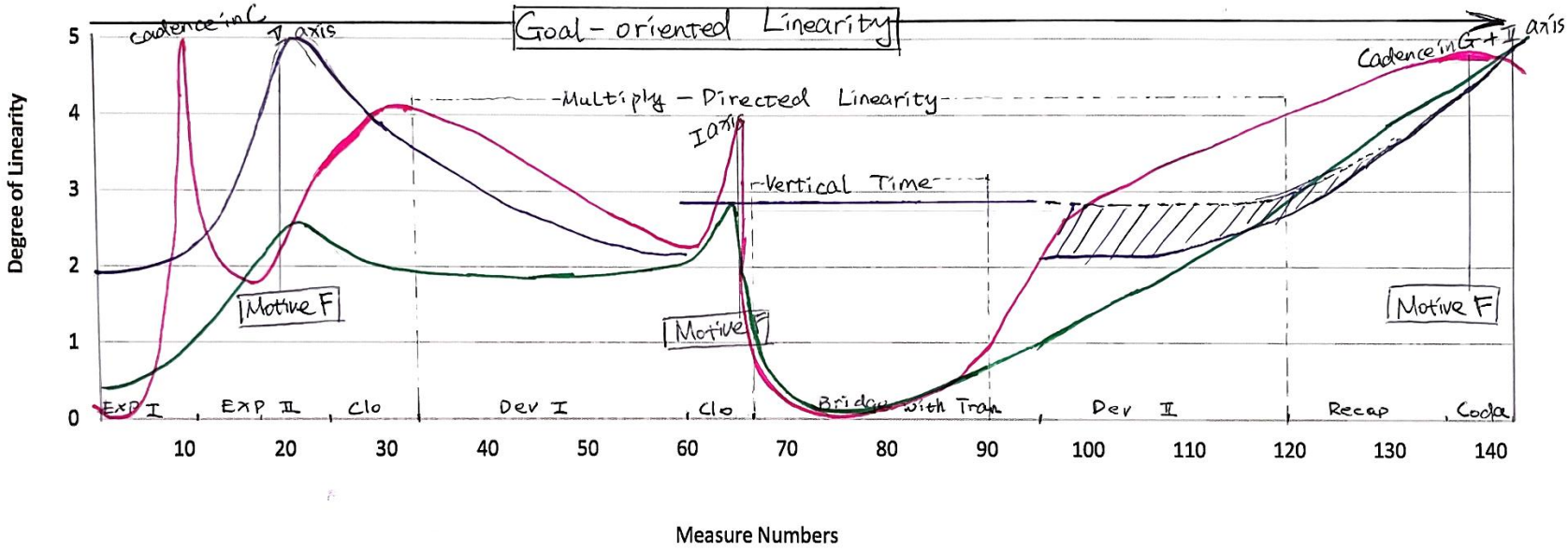
As Figure 4.4 shows, three analytical approaches agree on a binary form with a linear abruption in measures 62 to 67. In the early stage of each half of the binary form, every individual linearity develops in a way that deviates from the other two linearities. All three linear progressions then reconcile with each other in terms of linear direction and the level of Markov chain in the later stage. The linear reconciliation in the second half (mm. 96-140) is more obvious than in the first half.

The Exposition (mm. 1-24) features a distinctive phenomenon: each linearity reaches the first peak at a different time. Thus, it is crucial to understand the gestural time—the nonlinear function sense—of each element in the beginning section because it is possible to hear the entire movement as a linear consequence of this unstable Exposition.

The *Grundgestalt* and Exposition II (measures 1-33)

Conflict between Gestural time and Real time

Grundgestalt (measures 1-10): The *grundgestalt* functions like a theme I in a sonata form that displays the origin of future motives. On a larger scale, however, the proportion of the lamenting character from the *grundgestalt* is far less than the marching character from the *marcato* sections, and the few recurrences of grundgestalt are fragmentary. Moreover, a solid goal-



The linearities correlated to the numbers in the above chart:

0. Non/Vertical
1. Nondirected (tonal)
2. Directed (atonal)
3. Directed (tonal)
4. Goal-oriented (atonal)
5. Goal-oriented (tonal)

Figure 4.4. General Temporality in the First Movement of Piano Trio No. 1 by Kirchner

-oriented linearity, which contains a higher order of Markov chain in comparison to the directed linearity in the *grundgestalt,* appears with the marching character in the Exposition II. According to Kramer's theory, the materials in Exposition II experience a multiply-directed linearity—whose order of Markov chain is relatively high—in all three analytical approaches and reach their linear destination in the Recapitulation. In comparison, the *grundgestalt* relates to a lower order of the Markov chain in all three elements. The sudden goal-oriented linearity in the tonal area is due to the gestural time of C cadence in measure 9, which results in a markedly different effect than the unknown tonal center at the very beginning.

The issues mentioned above result in the first *marcato* section being heard as the authentic start of the complete movement. But taking the *grundgestalt* merely as a slow introduction is also inappropriate. Not only is the *grundgestalt* the root of the other motives, but it is also a self-contained section that finishes on a solid cadence, echoed by a G cadence towards the end of this movement. Rostkoski mentioned the structural uncertainty of this *grundgestalt* in his attempted analysis of this piece via traditional methods.[69]

In *Time of Music,* Kramer insightfully states that "in most tonal music, both a closing process and an ending formula are needed for closure," but "it is possible for the two definitions not to coincide."[70] In the first movement of Piano Trio No. 1, Kirchner distinguishes the cadence in C by intentionally avoiding the pitch G in the previous melody in order to form a descending fifth with the last C. Since Kramer separates the concept of real-time and gestural time as I describe in Chapter 3, this cadence strongly indicates the key of C, but the closing process is missing. The clarity of this cadential formula is at the most significant level compared to other

[69] Rostkoski, "The Piano Style of Leon Kirchner," 41-44.

[70] Kramer, *The Time of Music*, 144. A closing process refers to the linear process of all the previous tension coming to a resolution, and the tonic is achieved on all structural levels. An ending formula stands for an ending gesture, like a cadence in the home key of a piece of music.

cadence-like gestures I describe in the rest of the movement but appears unexpectedly as part of an atonal melody. Kirchner seems to have inserted a Closure at the beginning of a piece that results in the first and strongest case where the gestural time conflicts with real-time in the entire movement.

The following Transition also serves as a foil to the misplaced C cadence because it immediately resumes the atonal effect on new instrumentation. The Transition's motive and tempo prepare for the intense *marcato* rather than prolonging the key of C.

This analysis does not mean to correct the performance order by playing the *grundgestalt* at the end but aims to discover the actual motivation/conflict that drives the development of the rest of the music. As the music begins with a "wrong" gestural time, the rest of the parts may vary, exaggerate, and resolve this conflict until an actual ending that consists of both a closing process and a cadential formula.

Exposition II (measures 11-33): The order of Markov chain becomes higher in both motivic and durational elements as Motive F appears after a series of thematic preparation and eventually breaks the 4/4 pulse. On the other hand, as Motive F claims the governing role of the dominant axis, the order of Markov chain in the tonal area decreases because the system of axes cannot exhaustively convey a gestural time (as a diatonic system does) without support from non-pitch elements. In any case, Motive F plays a crucial role in structural temporality because it acts as a goal for the previous materials and influences the durational elements of what follows. The tonic reference F-sharp appears prominently in the violin in measure 23, however. Two measures later, the tonal center C unexpectedly concludes Exposition II as it is at the end of the *grundgestalt*.

The return of tonal center C at the end of Exposition II marks the second contradiction between gestural time and real-time. The contradiction between gestural time and real time in measure 9 is due mainly to the naturally high-order Markov chain in the C cadence rather than the interruption of the atonal effect. In comparison, the second time contradiction arises because the tonal center C replaces the new tendency brought by Motive F to finish Exposition II. The second time contradiction, therefore, shows that the gestural time begins to compromise the real time beginning at the arrival of the tonic in measure 24, releasing the tension that accumulates in the previous section and then gets prolonged in measures 26-33. In addition, due to the lack of a pitch G to form cadence, the order of Markov chain of tonic in C becomes weaker in measure 24.

Developing variation (measures 34-67)

Multiply-directed Linearity and Interruption

All three analytical approaches agree on the multiply-directed linearity in which two forces alternate. The first force, which carries on the tonic and the motives of Exposition II, reflects in each *marcato* section in which fragmented motives combine with new materials as variations. From one variation to another, the thematic motives eventually drift away from the original forms and tonal center C. The subject of the last *marcato* section is more stable in order to distinguish it from the previous variations because it terminates the creation of new material and would act as a signal to affect the temporality in the second half of this movement.

The second force appears in the Transitions between every two *marcato* sections. Each Transition begins by interrupting one *marcato,* then paves the way for an upcoming one. Within each *marcato* section, the instrumentational confrontation is set up by repeating contrasting figurations on opposing instruments. In these Transitions, the continuous texture on the piano,

with the occasional embellishment from strings, replaces the discrete patterns in the *marcato*. The rhythmic fluidity of small subdivisions recalls the turbulent rhythm after Motive F in Exposition II. In the context of the entire movement, these traits foreshadow the tendency toward greater continuity with fewer interruptions in the second half. In contrast, the repetition of discrete patterns in the *marcato* is closer to Kramer's description of moment time, where nonlinearity predominates, as in the discussion about Stravinsky's *Symphonies of Wind Instruments* on page 27.

It follows that the different compositional devices to construct *marcato* sections and Transitions deeply affect each force's individual temporality. The repetitive pattern in the *marcato* sections aims to preserve the themes in the moment time. The continuous texture with rhythmic fluidity in the Transitions draws attention to the general fluctuation of a musical phrase rather than to a particular motive. Also, the Transitions always end with growing intensity, inviting the expectation of the upcoming music and pulling the tonal center away from pitch C through frame tonalities. The alternation between two linearities forces listeners to switch between present-focusing mode (*marcato*) and expectation mode (Transition) until the last *marcato* is interrupted by three bi-chords.

Interruption and Closure (measures 60-67): Measures 60-67 constitute an unseparated linear progression in which all three linear procedures experience a linear elevation within a short time. In the motivic elements, particularly, a roller-coaster-like passage in measures 60-63 interrupts the multiply-linearity, leading to the return of Motive F, which is extended by the cluster of dominant references and further subdivided note values. The entire first half of this movement, therefore, presents a binary form (within the first half of the binary form over the whole movement) with a Motive F near to or at the actual end of each section.

This return of Motive F attempts a step forward in the reconciliation between gestural time and real time. In terms of motive, it completes goal-oriented linearity by departing from Exposition II, being varied in Development, and returning in measures 65-66. In terms of tonal area, after the weakening tonic C in the Development, the dominant axis gains supremacy as a matter of course and then gets prolonged. This return of Motive F, however, does not accomplish the linearity beginning at Exposition II. In comparison to the original Motive F in Exposition II, which appears after a series of motivic preparations, the restatement of Motive F comes by interrupting the last *marcato*. Such an interruption makes the second Motive F too hurried to act as a destination on a larger scale. Moreover, it strongly implies the G as a tonal center but fails to bring a confirmation that it has the same order Markov chain as the first C cadence. Thus, the return of Motive F does not solve the disagreement between gestural time and real-time at the background level.

So far, the comprehensive analysis is constructive for distinguishing the nonlinear elements in the music and defining the temporality for the second half of the music. It provides better evidence to prioritize an analytical approach when the three conflict. Firstly, the motivic element displays a more precise and more convincing linear progression than the one in the other two analytical approaches as the motive analysis of measures 60-67 shows. It is reasonable because the "developing variation," as commonly recognized in academic studies, is probably the only unoriginal device Kirchner uses in his composition. Thus, it is judicious to give priority to the motivic elements, especially those non-linear phenomena such as Motive F, to define temporality. Secondly, the linearity of the tonal area is another leading force for the general temporality because the cadence in C sets a standard of the level of Markov chain for defining a goal in the rest of the music. Considering that Kirchner uses the tonal system in an

unconventional way, however, the definition of a goal in the tonal area should not be confined to specific pitches. Thirdly, Motive F acts as a structural pillar (with high nonlinearity in all the elements) in each of whose statements all three progressions tend to reach accord in terms of the level of Markov chain. The intact reappearance of Motive F in measures 64-67 confirms a (partial) goal-oriented linearity for the first half of this movement, so it should mark a destination of the temporality in the second half. Thus, combining all three points discussed above, three prerequisites are needed to claim a goal-oriented linear destination for the entire piece: 1. a reconciliation between gestural time and real-time, as the closing process of closure, 2. a tonal confirmation that is equally strong as the beginning C cadence (a cadential formula), and 3. a restatement of Motive F.

Inserted Section with a Different Temporality (measures 67-95)

Analysis combining all three elements provides a better understanding of how this section fits into the temporal structure. The motive element carries on the linearity of the thematic return caused by the final Motive F. In contrast, the other two elements stay at the lowest order of Markov chain during the whole movement. As tonal and durational elements stay at a lower order of Markov Chain, the motivic elements draw the most attention, in which the fragmented *grundgestalt* is added upon continuous texture.[71] The length of this section allows the new norm to become a nonlinear certainty, producing a surprise once the nonlinear consistency is broken in measure 96, where the return of the last *marcato* section replaces the expected Motive F. Kramer discusses a similar case in Schubert's *Gretchen am Spinnrade* as an example in which the texture and rhythmic figurations are virtually constant while the pitch elements and

[71] In other words, as the durational elements do not reflect obvious fluctuation and lack a certain tonal center, the continuous texture with thematic fragments draws attention the most.

dynamics are linear.[72] Listeners would experience a linear surprise when Gretchen's voice and the repeated accompaniment pattern pause as she first remembers the kiss from Faust.

Even though Kirchner's music is different from Schubert's in many respects, Kirchner creates a linear surprise by breaking the nonlinear consistency as discussed above. Kirchner adds a nearly-vertical time bridge (nonlinearity dominant) to reset the listeners' attention. Consequently, the striking elevation of the order of Markov chain, which occurs in both tonal and durational elements in measure 87, would result in an undeniable linear sense expecting a return of Motive F.

Development II (measures 96-119)

Resumption and Reconciliation of Multiply-directed Linearity

As seen above, Motive F may act as a closure to reconcile gestural time and real time. The passage before measure 96 strongly hints at a return of Motive F. While Motive F does not return in measure 96, however, the subject of the last *marcato* section (measures 58-59) dose. At this moment, the reason for the special treatment of the last *marcato* section is seen in the resumption of the unfinished multiply-directed linearity. The following music gradually transforms into directed linearity as the two forces in the multiply-directed linearity begin their internal reconciliation, and the weakening C returns as a nonlinear norm. The driving pulse and acceleration in the durational elements assist this temporal transformation.

There is yet another synchronicity among all three analytical approaches. The fragments of the *marcato* sections are scattered into measures 103-109 and the materials of Transitions in Development I into measures 110-119. Also, the metronomic tempo becomes faster and the

[72] Kramer, *The Time of Music*, 42.

added perfect fifth dilutes a tonal area as discussed in the analysis of the tonal arrangement of this section. This arrangement brings the transitional function to a structural level as all three elements work together to raise the expectation of upcoming music for an extended duration.[73]

The multiply-directed linearity in both Developments is essential to the general temporality. It contains the majority of the three linear procedures. The two forces in the first Development—the preservation of discrete motive in the tonal center C versus the anticipation of continuous texture with an unclear tonal center—combined with each other in the second Development as the thematic materials are preserved in a continuous texture with fewer interruptions. Thus, the second Development solves its inner conflict of multiply-directed linearity and sets the stage for thematic reconciliation at the background level.

Recapitulation and Closure (measures 120-140)

Reconciliations between Gestural Time and Real Time

Recapitulation (measures 120-134): Kirchner minimizes the boundary from the Transition to the Recapitulation (m. 120) to sustain the ongoing continuity and intensity. The intensity keeps growing in measures 126-134, in which the different materials form a flux of ever-changing texture by repeatedly appearing at a speedy tempo. Weakening the arrival of a Recapitulation prevents a sense of a destination. Instead, the ever-growing intensity keeps drawing attention to what follows until measure 135.

Measure 134 echoes measure 33. The first passage initiates the Development of discrete motives, while the last one concludes this linear procedure.

[73] The duration of mm. 110-119 is relatively long compared to the transitional sections in Development I.

Closure (measures 135-140): The last six measures present a legitimate destination of goal-oriented linearity at the background level, fulfilling the three prerequisites mentioned on pages 73 to 74. Initially, in measures 135-136, the cadence in G, whose order of Markov Chain is almost at the same level as the one in the beginning C cadence, confirms the destination in the tonal area. Secondly, the final restatement of Motive F follows in measure 137, appearing along with the beginning three notes of the *grundgestalt*. This joint appearance denotes the thematic reconciliation that spans the largest scale within this piece so far. Thirdly, the conflict between gestural time and real time is resolved because the cadence in G has a far more effective closing process than the C cadence at the beginning does. This cadence in G comes after the dominant axis grows over an extended duration and the tonal center C experiences a sequential weakening. Additionally, the modified rhythm and tempo of Motive F effectively release the tension from the previous climax, and the dominant axis does not conflict with the tonal center C-sharp as it does in the Exposition with tonal center C.

Conclusion

This comprehensive analysis exhibits a linear procedure in which the gestural time and real time sequentially reconcile. This process consists of three hierarchic levels. First, the goal-oriented linearity dominates the whole movement that mainly reflects in the Exposition (mm. 1-33), Recapitulation, and Coda (mm. 120-140).[74] As the starting point and destination, these sections present the conflict and reconciliation between gestural time and real time, but also the initial and final forms of those nonlinear elements (thematic motives, dragging and driving 4/4 pulse, and different tonal area). In the rest of the music, goal-oriented linearity governs the

[74] Both Recapitulation and Coda form a big section.

development of other temporalities in the background. The Transitions in measures 60-67 and measures 88-95 also belong to the background level. Secondly, the multiply-directed linearity contains most of the three discrete linear procedures. The multiple-directed linearity is divided into two developmental sections (mm. 34-60, 96-119) in which the force of thematic preservation battles with and finally surrenders to a tendency of thematic integration. This process closely correlates to the need for goal-oriented linearity in the background. Thirdly, a bridge in nearly vertical time (mm. 67-86 with Transition) divides multiply-directed linearity. The presence of this bridge does not affect the reasonableness of the other two temporalities, but allows a relief from a relatively intense section and directs attention toward the greater linear information in the music that follows.

CHAPTER 5

PERFORMANCE ANALYSIS AND ANNOTATED SCORE

Chapter 4 describes the temporal structure in which three temporal modes operate hierarchically throughout the entire movement while the interaction among three horizontal linear procedures results in changing intensities. The following performance analysis (correlated to the letters in the score) and the annotated score are intended to guide performers' interpretations to reflect the relationship between individual linearity, or a local temporal mode, and the general temporal structure of the entire movement.

Grundgestalt and Exposition II (Measures 1-33)

Conflict between Gestural time and Real time

a. Measures 1 to 5: The lamenting *grundgestalt* calls for a singing tone with vibrato on the cello. A dragging pulse, as the meter and tempo markings suggest, could be delivered by exaggerating the different articulations. A violinist can take the *piano* softer than the cello with no vibrato to contrast with the *grundgestalt*.
b. To initiate the minor fluctuation in measures 6-9, both string players should simultaneously emphasize the first beat in measure 6.
c. During the *decrescendo* in the violin, the cello should intensify the B-flat to A-flat then both players should play the cadence in C with a blended sound in terms of both intonation and color. The *allargando* allows a violinist to project the tonic references E to E-flat clearly.
d. To create a sense of interruption, a pianist should break the harmonious effect of the cadence in C by using a more vertical touch on the top E-flat.

e. The G—B-flat—F-sharp should be emphasized with pedals in order to foreshadow the pitches of Motive E in the violin.

- Exposition II: David Rostkoski took Kirchner's *marcato* as "fast, intense."[75] Given the temporal analysis, however, the point of a section marked with *marcato* is to state the present motive(s), either an initial or a varied one. Thus, performers should ensure the tempo is not too fast to project the distinctive character of each motive effectively, at least for those *marcato* sections in the first half of this movement. In addition, performers should maintain consistent growth of tension dynamically and rhythmically as the music unfolds toward Motive F in goal-oriented linearity.

f. The piano sets up the regular 4/4 pulse with a drier touch while staying softer than the long F in the cello. This pulse continues in the violin's Motive E in measure 13 while the other two instruments remain softer.

g. The piano part in measure 14 needs to stay at *mezzo-piano* because the destination of the *crescendo* is in measure 16. The accent in measure 15 should not be overdone since it is merely to smooth the gap between loud and soft dynamics. Neither string player should not rush, as the rhythmic pattern on strings begins to interfere the regular 4/4.

h. Emphasize the eighth notes in the piano part in measures 16-17 as this pattern relates to Motive F.

i. Strings can slightly stretch the chord progression from tonic to dominant in order to prepare for the upcoming stormy triplets.

j. As the destination of the goal-oriented linearity in the motivic progression, the first statement of Motive F requires clarity to distinguish the different materials that have

[75] Rostkoski, "The Piano Style of Leon Kirchner," 49.

appeared previously. A pianist should pedal briefly along with the eighth notes on the top but keep Motive D in the bass rhythmic.

k. Though the music before Motive F should maintain a steady pulse, performers should not hesitate to proactively drive this phrase forward, as indicated by the composer himself in a master class in 1990.[76] The interval of the seventh in the violin part can be voiced with the frog close to the bridge in order to match the percussion-like articulation of the piano's chord.

l. The cellist should initiate the *allargando* in measure 24 for the other two instruments to follow.

m. The violinist may explore different ways to voice the last B-sharp in each group as it gradually transforms into tonic C.

n. Though a clear tone is needed in the Expositions in order to articulate the different motives, the coherence from one figuration to another on the opposing instrumentation should be prioritized in measures 28-32 as this closure overlaps a transitional function. The pianist should sustain the last chord of measure 28 until it links to the harmonic extension on strings.[77] Also, more pedaling in measures 28 and 31 will create an "impression of chaotic profusion"[78] until the *marcato* section in measure 32. In measure 30, the cellist should use a light bowing with *rubato* on the eighth notes to avoid a metronomic effect, which would conflict with the textural fluidity of this section.

o. A cellist should emphasize the tonic in C with the bow frog. At the same time, the accented E in the piano should not cover the low C in the cello.

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[76] Paul Hoffman, e-mail message to author, August 22, 2021.

[77] If the B—E on violin and the B-flat—E-flat on cello respectively prolong the 3rd of G major chord in the right hand and the E-flat octave in the left hand.

[78] True, "A Style Analysis of the Published Solo Piano Works of Leon Kirchner," 46.

Developing Variation (Measures 34-59)

Multiply-directed Linearity and Interruption

- Development: The multiply-directed linearity of this section requires distinguishing *marcato* and Transitions through different approaches. The task of those *marcato* sections is to project the nonlinear character of each motive so that it can be recognized in different contexts. The exaggerated articulation with a steady beat helps both establish and maintain an impression of a musical character. On the other hand, the *tempo rubato* with a non-vertical touch would be appropriate for those transitional sections as their linear function is to call attention to the general fluctuation over a long phrase with rhythmic fluidity.

p. Performers should insist on keeping a steady beat and the absolute evenness in subdivisions, as Kirchner described this *marcato* section as "heavy, plodding, militaristic."[79] String players should use a faster bow with full hair to add a necessary heaviness for the staccatos. The pianist should pedal briefly on the bass notes and slurs and use a tenuto-like touch on the accented eighth notes.

q. In addition to producing a singing tone in a softer dynamic, the violinist can slightly stretch on the first note in measure 38 to break the rhythmic strictness of the previous *marcato*. To produce a transparent sound effect typical of impressionistic music, both string players can move the contact points closer to the fingerboards and play with less hair, while the pianist can use a lighter touch with shallow but longer pedaling to blend the sound. All three parts gradually become more rhythmic beginning in measure 40, but should not crescendo beyond *forte*. This leaves room for a grander sound in the next *marcato* section.

[79] Paul Hoffman, e-mail message to author, August 22, 2021.

r. Given the tempo marking and Kirchner's indication of "dance," performers should take this *marcato* section on a faster side with a lighter timbre.[80] A pianist should use more pedaling for the first three octaves (for an effect similar to that in measure 28) in order to enhance the musical intensity, and less pedaling (to produce a more rhythmic effect) for the staccato octaves. In measures 46-49, both string players should fully articulate the rhythmic pattern of their own part to form a polyphonic texture with the rhythmic conflict between voices. This effect extends to the piano in measures 50-53 in which the pianist might imagine the two hands as representing two different instruments.

s. The cellist should use a wide and fast vibrato on Motive A to quickly switch to a singing tone. All the players should play with a rounder tone, with more pedaling on the piano.[81]

t. This subject signals the resumption of the multiply-directed linearity when it returns at the beginning of Development II; a slightly slower tempo will help draw attention to both the origin and the return of this subject, and deliver the subdivisions clearly. Also, the pianist should be aware that the last F—A in the left hand in measure 58 needs a tenuto-like touch to emphasize that it is not a pickup to the next measure, but the downbeat of the second statement of the subject.

- Interruption of Multiply-directed Linearity (measures 60-67): performers should view this transition as three stages to set off the expectation of Motive F.

u. Instead of abruptly interrupting the previous *marcato* section, the momentum of the three bi-chords should be moderately paced. The violinist may play the first G-sharp in measure 60 at the same dynamic level as the last A-flat in measure 59 so that this transition is an extension of the pitches of measure 59, but with a different tone quality.

[80] Paul Hoffman, e-mail message to author, August 22, 2021.
[81] Paul Hoffman, e-mail message to author, August 22, 2021.

v. Performers should take the *accel.* in measure 61 as a not-slower-than-before tempo to leave room for a more significant acceleration (from ❑=*88-92*) leading to the return of Motive F.

w. Kirchner addresses the seamless connection among instruments by indicating "piano should emerge under the strings and not overwhelm them." Those words partially confirm the discussion in the temporal analysis regarding the way in which Motive F and the previous measure form a convincing conclusion for the first half of the whole movement with an effect of undeniable linearity.[82] Compared to the restrained treatment of the initial Motive F, the chaotic effect here can be exaggerated by a nearly out-of-control speed and generous pedaling.

Bridge with Transition (Measures 67-95)

A Slow Section Between Two Intense Developments

- The linear function of this section dictates a sluggish pulse with minimal *tempo rubato*. For the subtle *accelerando*, performers may add momentum by emphasizing the articulations instead of actually taking a faster tempo.

x. The cellist may use narrow vibrato at the return of Motive A for expressiveness, but no *tempo rubato*. The following *accel.* must be as subtle as possible, as the "imperceptible" in measure 70 indicates, in order to keep the pulse slow. Kirchner's suggestion "strings overlap with piano on the third beat" in measure 76 results in pitch A on the second beat of the piano sustained on strings even until the piano reaches the loudest B-flat.[83] This treatment maintains textural continuity and weakens the excessive fluctuation caused by dynamic change.

[82] Paul Hoffman, e-mail message to author, August 22, 2021.
[83] Paul Hoffman, e-mail message to author, August 22, 2021.

y. Measures 77-81: The *flautando* suggests the violinist to play with less hair to mimic an ethereal color on a flute. Also, the violinist should articulate the two-notes slurs clearly in order to add appropriate momentum without changing the speed.

z. *Molto espressivo*: both string players can use sliding technique on the two-note slurs in order to create more sense of flowing beginning in measure 82. The pianist should carefully sustain a soft volume even though the texture becomes thicker.

- Transition

aa. Before the *subito piano* in measure 94: In order to link the Bridge and Transition, both strings players should treat the last two eighth notes in measure 87 as a pickup to measure 88, since the rhythmic pattern in both measures is at the same speed. All the staccatos should be played on the melodic side in order to extend the expressiveness from the previous Bridge.

bb. Measures 94-95: As the temporality in the upcoming section features an interruption at a structural level, a short pause before the *subito piano* in measure 94 helps draw attention to what follows. Performers must be aware that the music in measures 94 to 95 is meant to prepare for Motive F, instead of for what actually happens in measure 96. Thus, the extent of acceleration in measure 95 should not be limited by the tempo mark in measure 96.

Development II (Measures 96-119)

Resumption and Reconciliation of Multiply-directed Linearity

- As the multiply-directed linearity resumes in measure 96, performers can use the same treatment as in the previous Development, such as maintaining steady beats and clear

articulations. Beginning in measure 103, however, the dense notes without staccato should be grouped according to the rhythmic accent (which might be irregular) in order to actively add momentum.

cc. Measure 96 to the second beat of measure 103: performers can pause briefly before measure 96 to reset the tempo and emphasize the following downbeat together as the 4/4 pulse returns. Both string players may crescendo to the last note of tremolo in measure 96 to create a pickup-like motion to the returning C in measure 97. All the staccatos should be much shorter than those in the previous Transition.

dd. Performers should take the *molto marcato!* as a *subito allargando* in order to fully settle on the vertical sonority of the tonic references.

ee. Measures 103-109: This *molto marcato* combines the force of thematic preservation (in the strings mostly) and the continuous texture in a driven pulse. In the recording of Kirchner's performance, the eighth-note octaves are stretched slightly with heavy pedaling, so that the triplets almost turn into either a dotted eighth rhythm or one eighth plus two sixteenths.[84] The consequent rhythmic elasticity on the piano (a driven momentum) contrasts with the strict staccato on strings (thematic preservation.)

ff. Performers should pace this short transition in the 3/16 meter to highlight the step-motion B-flat—B—C-sharp—E-flat—A-flat in the violin.

gg. Measures 110-119: As the force of thematic preservation becomes even weaker, the task of the piano part in measures 110-114 is to prevent a metronomic effect in the speedy tempo, and to enrich the texture through sustaining the eighth notes, the accents, and

[84] Leon Kirchner, *Trio for Violin, 'Cello, and Piano (In Two Movements with Pause); Sonata Concertante: for Violin and Piano,* compact disc, Sony Classical, 886448200611, 2020.

different pedaling. In measure 115, the high E on the piano should link to the same pitch in the violin.

hh. Measures 116-118: The *crescendo* in the strings links to an arpeggiated E diminished/D in the piano in measure 117, the articulation of which requires heavy pedaling with a prominent G on the top. As with the similar chord in measure 118, both anticipate G as a tonal center.

Recapitulation and Closure (Measures 120-140)

Reconciliations between Gesture Time and Real Time

- The performers can refer to the treatment for similar materials in Exposition II, but with heavier pedaling and more significant fluctuation in tempo.

ii. The accent on the first beat of measure 120 should not be abrupt, as Kirchner intentionally blurs the boundary between transition and recapitulation. An effective *subito decrescendo* on the piano would set off the new tonal center C-sharp in the cello.

jj. Generous pedaling and a nearly out-of-control speed are necessary for this virtuosic cadenza. There should be no pauses between passages except for switching between registers. Both string players must carry on the intensity by adding a crescendo to the scale in measures 127 to 128 without slowing down.

kk. Measures 128-130: This three-measure deceleration consists of three stages: measure 128, simply holding back the momentum; measure 129, slower tempo at allargando with tenuto; measure 130, even slower tempo with legato sound without tenuto. The violinist should explore *rubato* or different tone quality to highlight the intervallic leaps in measures 129-

130 because they represent tonal centers C and G, respectively.[85] The cellist can should the E—G on the third beat of measure 130 and the following B-flat (with a C-sharp in the violin) as a melody to highlight the pitches of the dominant axis.

ll. Performers should seamlessly link their timbre to the surrounding passages and avoid a rhythmic approach (except on the staccatos). The pianist should pedal generously on the thirty-second notes.

mm. For the *rit.* in measure 134, the pianist should sustain the "chaotic profusion" with a slightly slower momentum instead of dramatically slowing down toward the speed indicated in measure 135.[86] This will leave room for the more significant *ritard.* in the Coda and prevents the last three octaves in C—G—C in measure 134 from appearing to be a cadence in C. The pianist should play the last octave in C together with the pickup on the cello in order to prevent the previous C octave sounds like a downbeat.

nn. The descending scale in the piano should be soft enough that the cadence in G is not overwhelmed.

oo. Measures 137-140: In order to help reconcile the durational elements before the momentum drastically decreases, the pianist should directly switch to a slower tempo instead of anticipating the *ritardando* in measure 138,. Dynamically, the pianist should carefully voice the intervals in the lower registers as they may interfere the horizontal lines on the strings. Kirchner's indication of "bringing out the top note in the last

[85] In m. 129, the melodic seventh G—F-sharp is similar to the B-flat—B in m. 130. The former is part of the tonic reference, while the latter is supported by pitches from the dominant axis.

[86] Leon Kirchner, *Trio for Violin, 'Cello, and Piano (In Two Movements with Pause); Sonata Concertante: for Violin and Piano,* compact disc, Sony Classical, 886448200611, 2020.

measure" sharpens the dissonant sound, which echoes the atonal effect at the beginning of this piece.[87]

[87] Paul Hoffman, e-mail message to author, August 22, 2021.

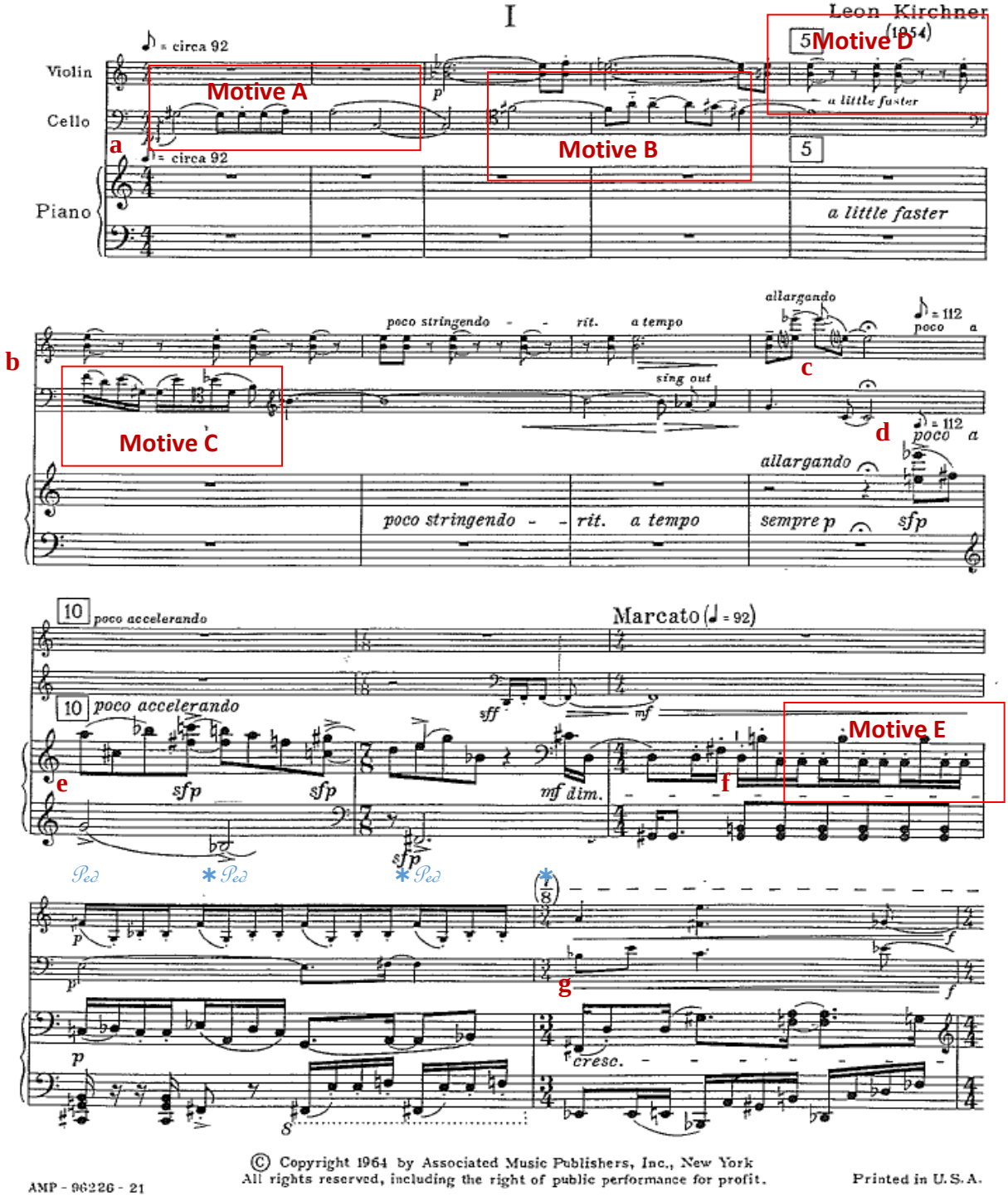
Commissioned by The Elizabeth Sprague Coolidge Foundation
for the 50th anniversary of the Coleman Chamber Series of Pasadena, California

Duration: about 15 minutes

TRIO
for Violin, Cello, and Piano

I

Leon Kirchner
(1954)



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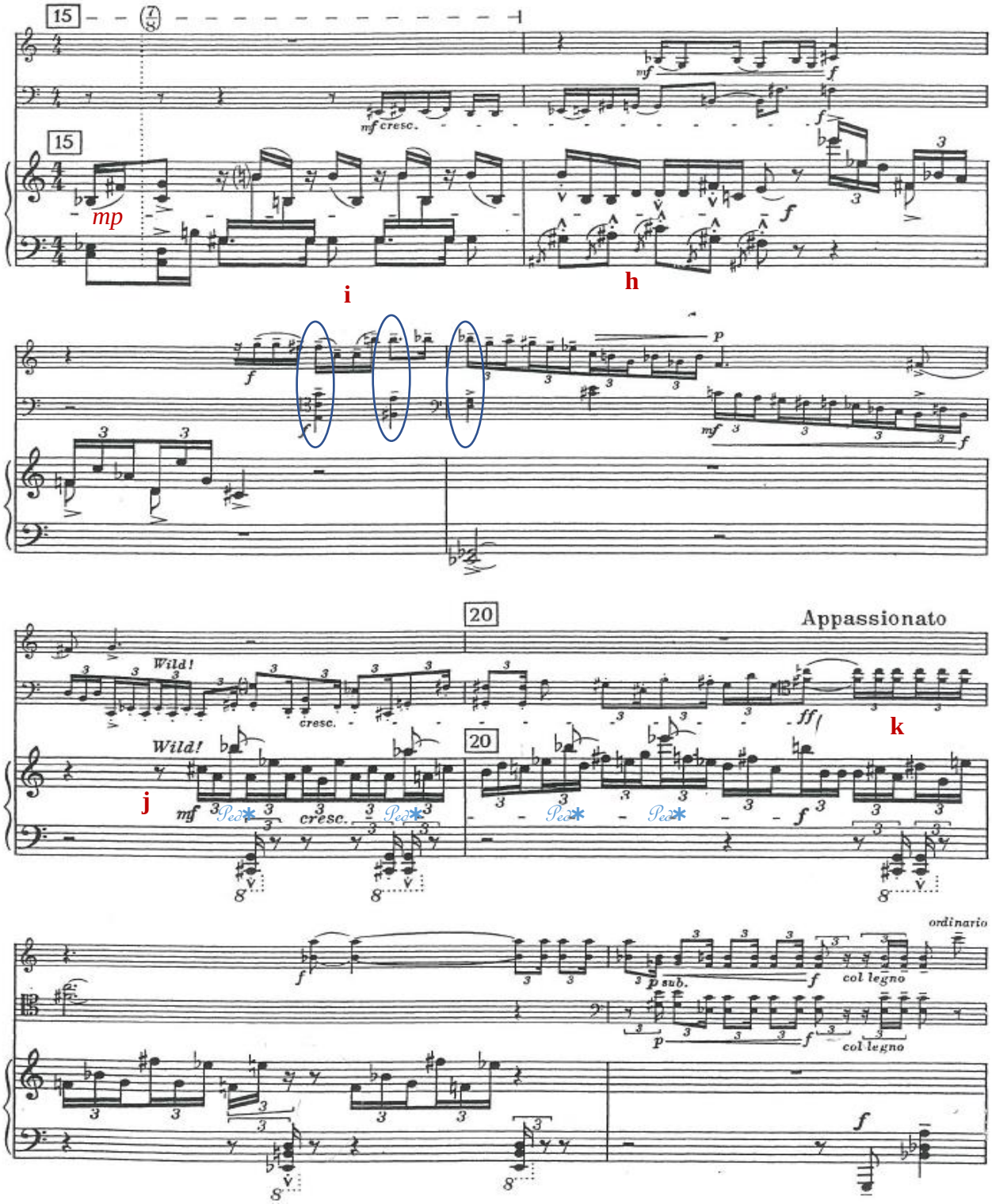
15
15
mp
mf cresc.
f
h
i
p
mf
20
Appassionato
Wild!
cresc.
ff
k
j
Ped.
20
ordinario
col legno
p sub.
col legno
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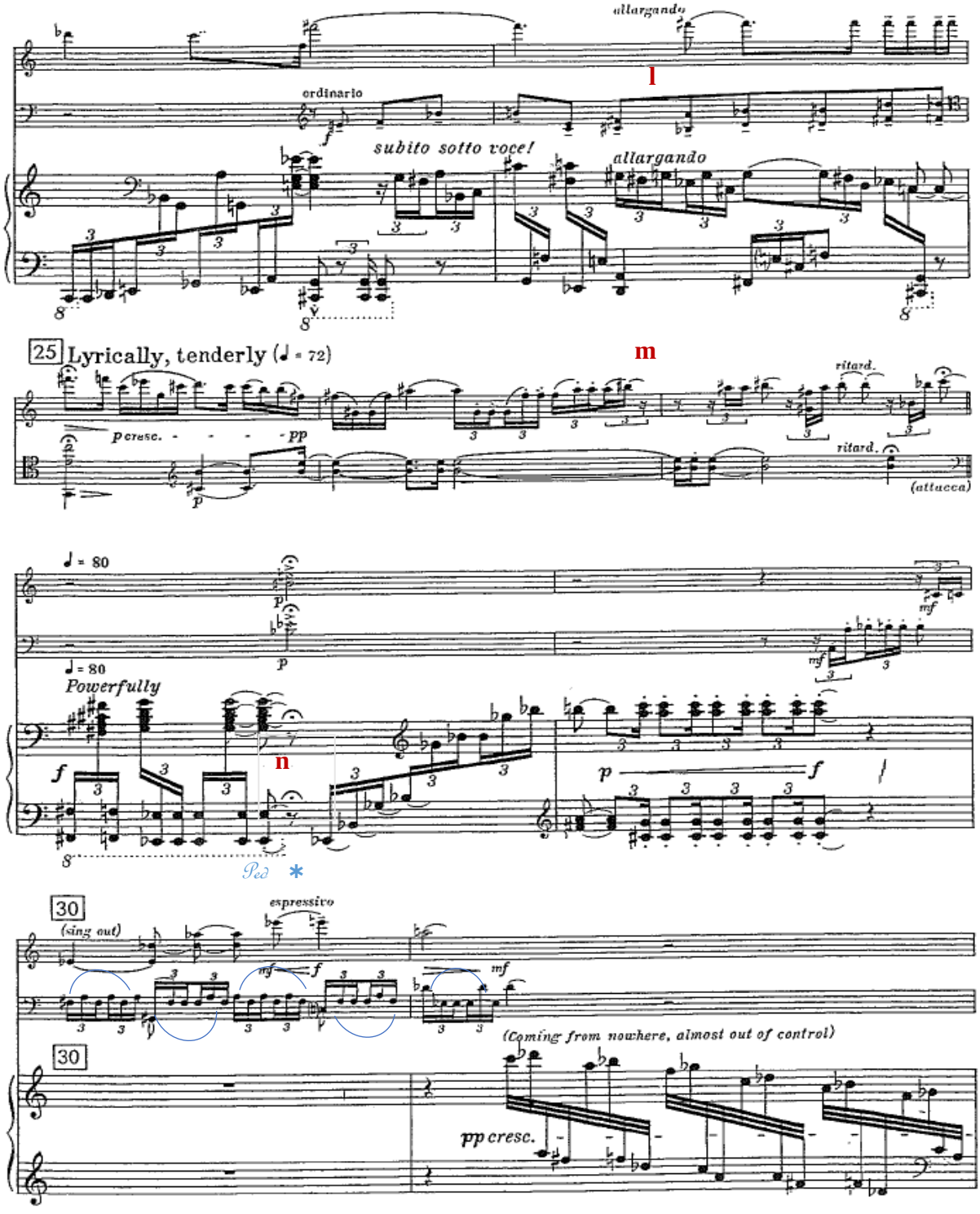
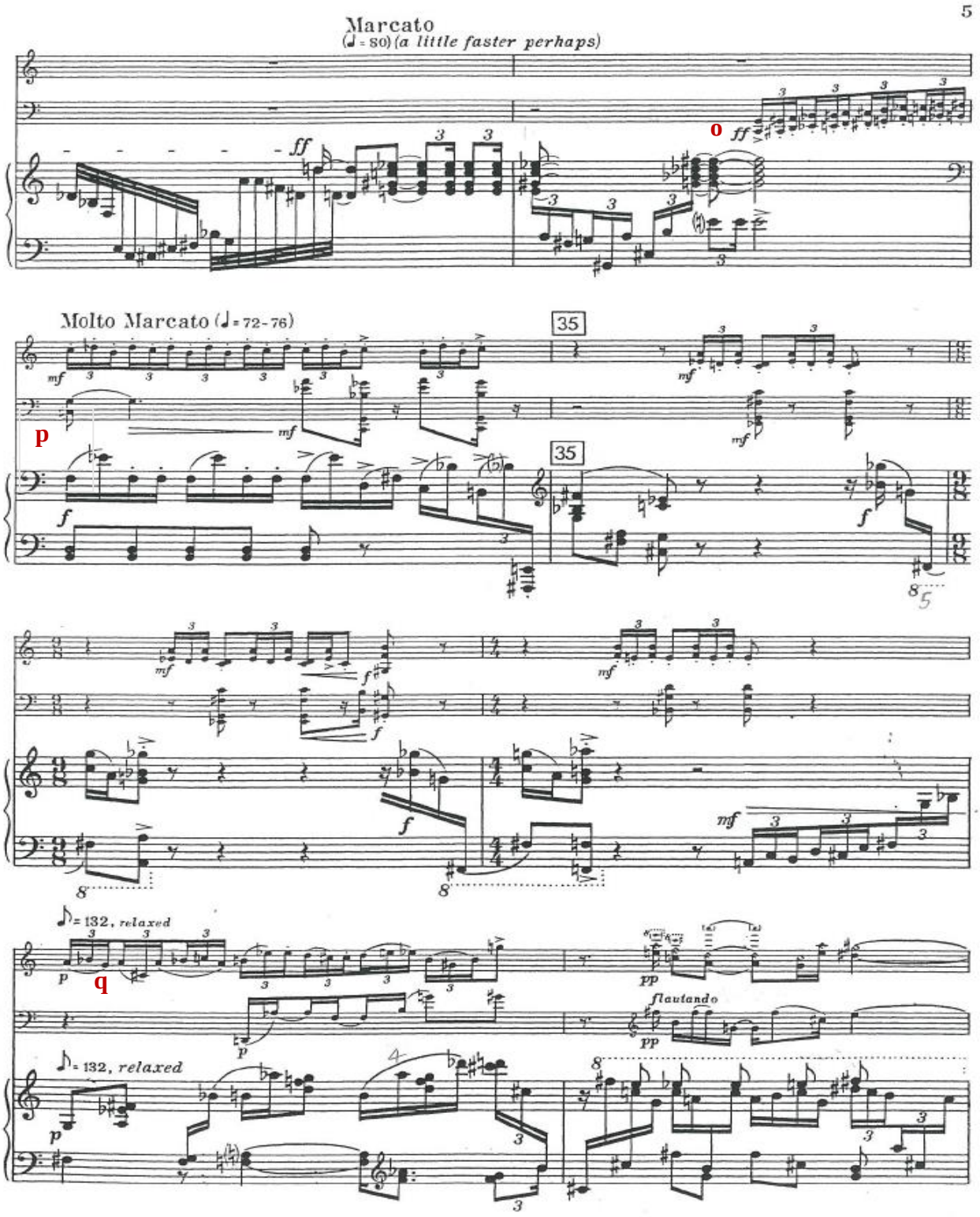
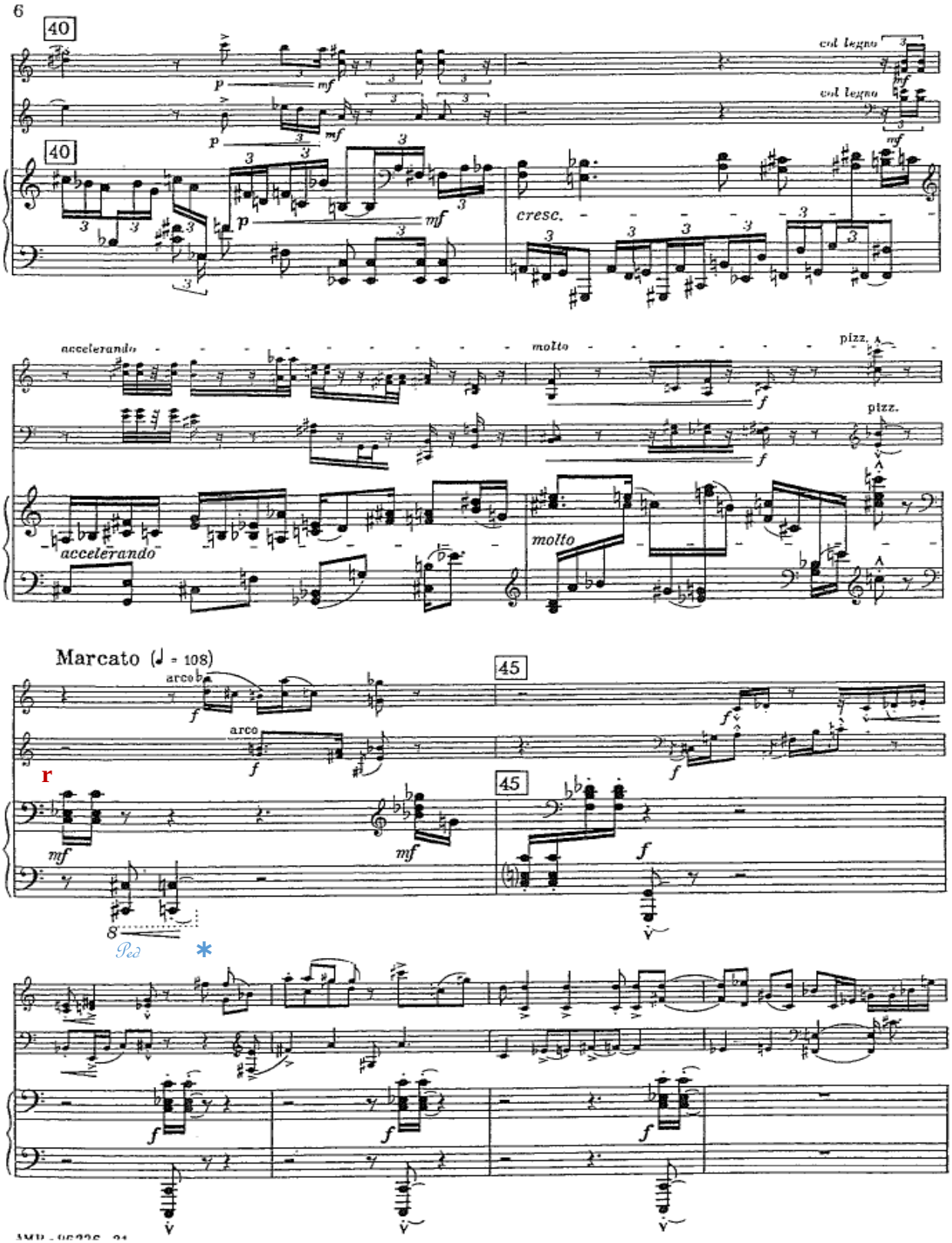
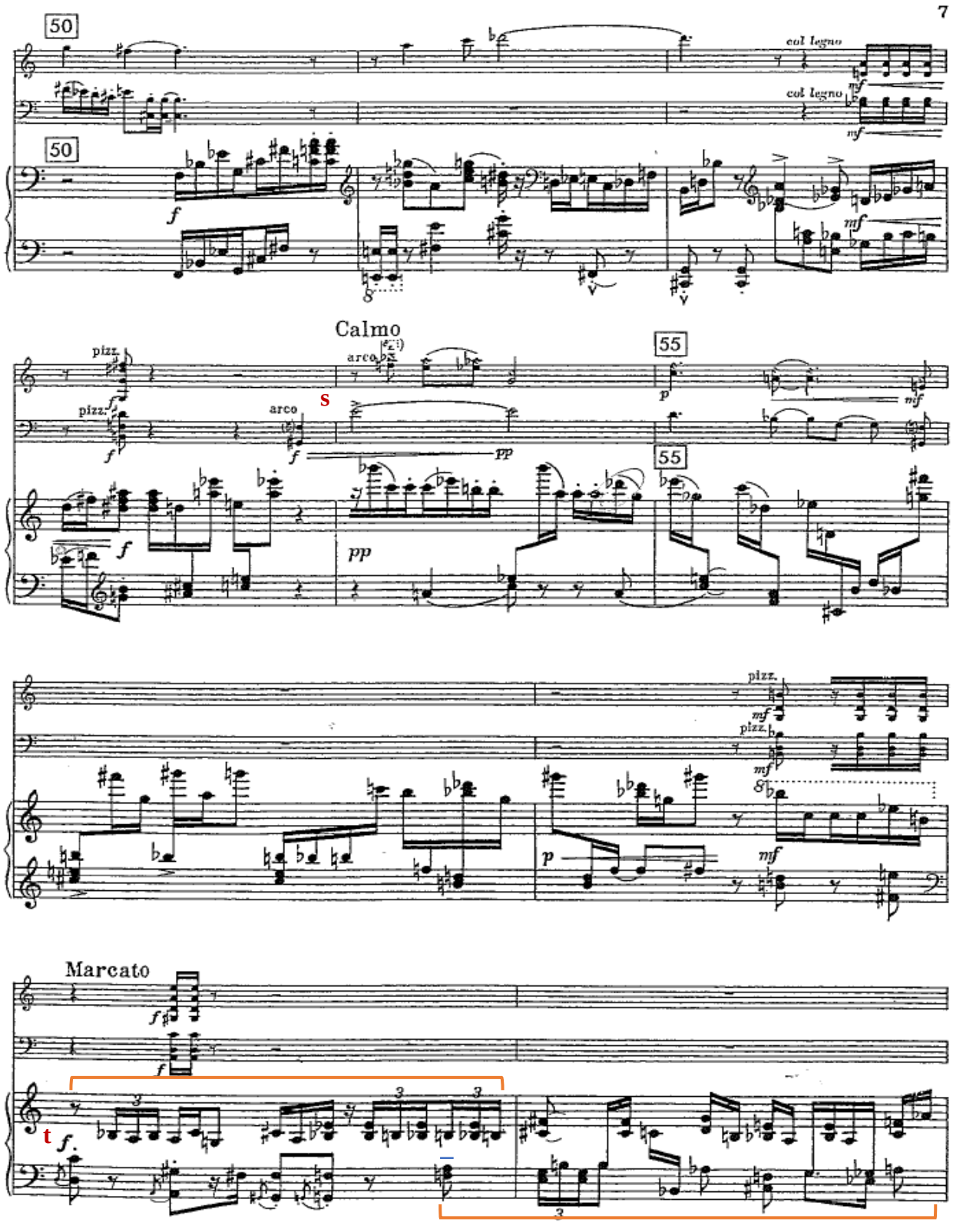
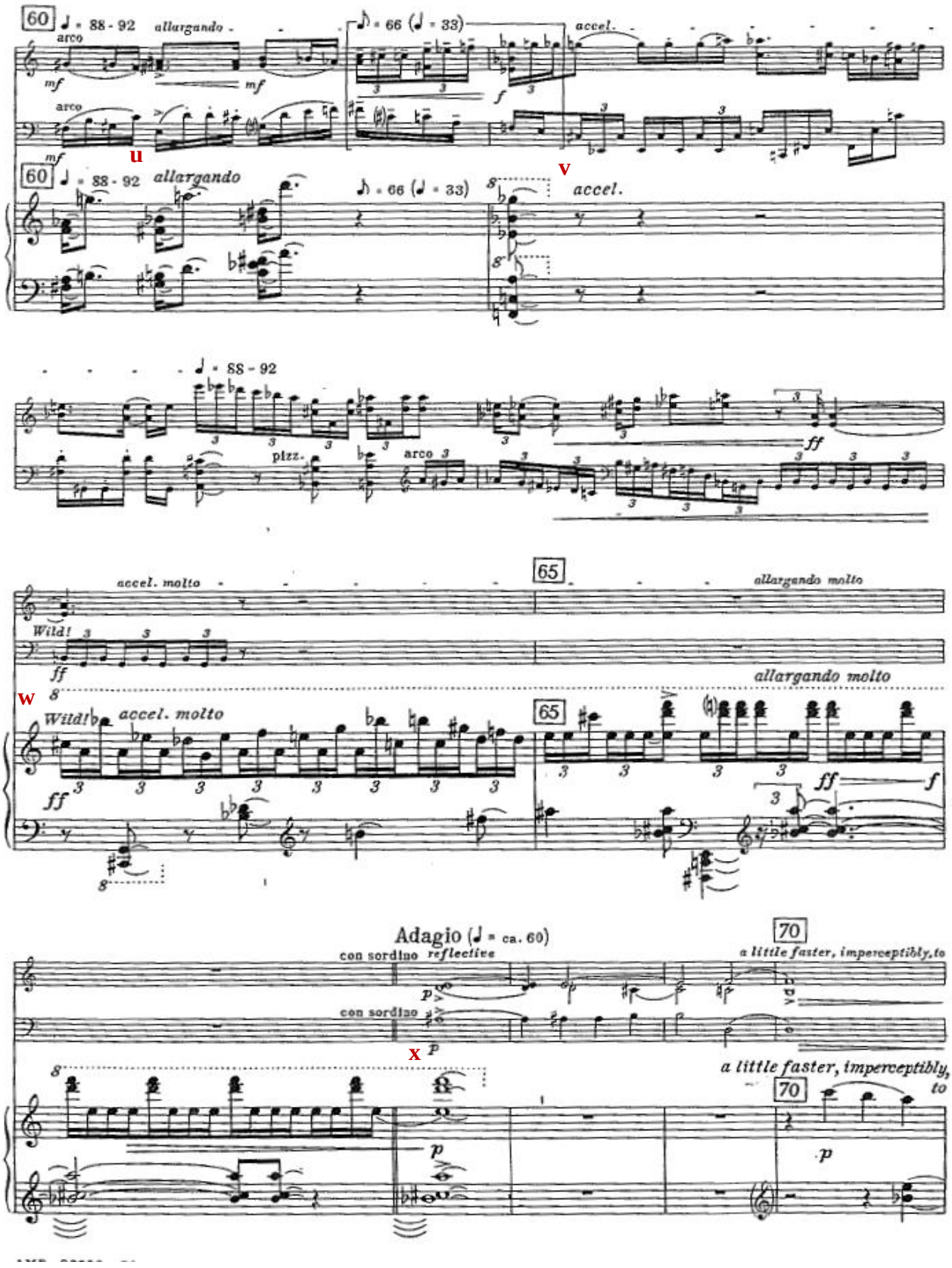
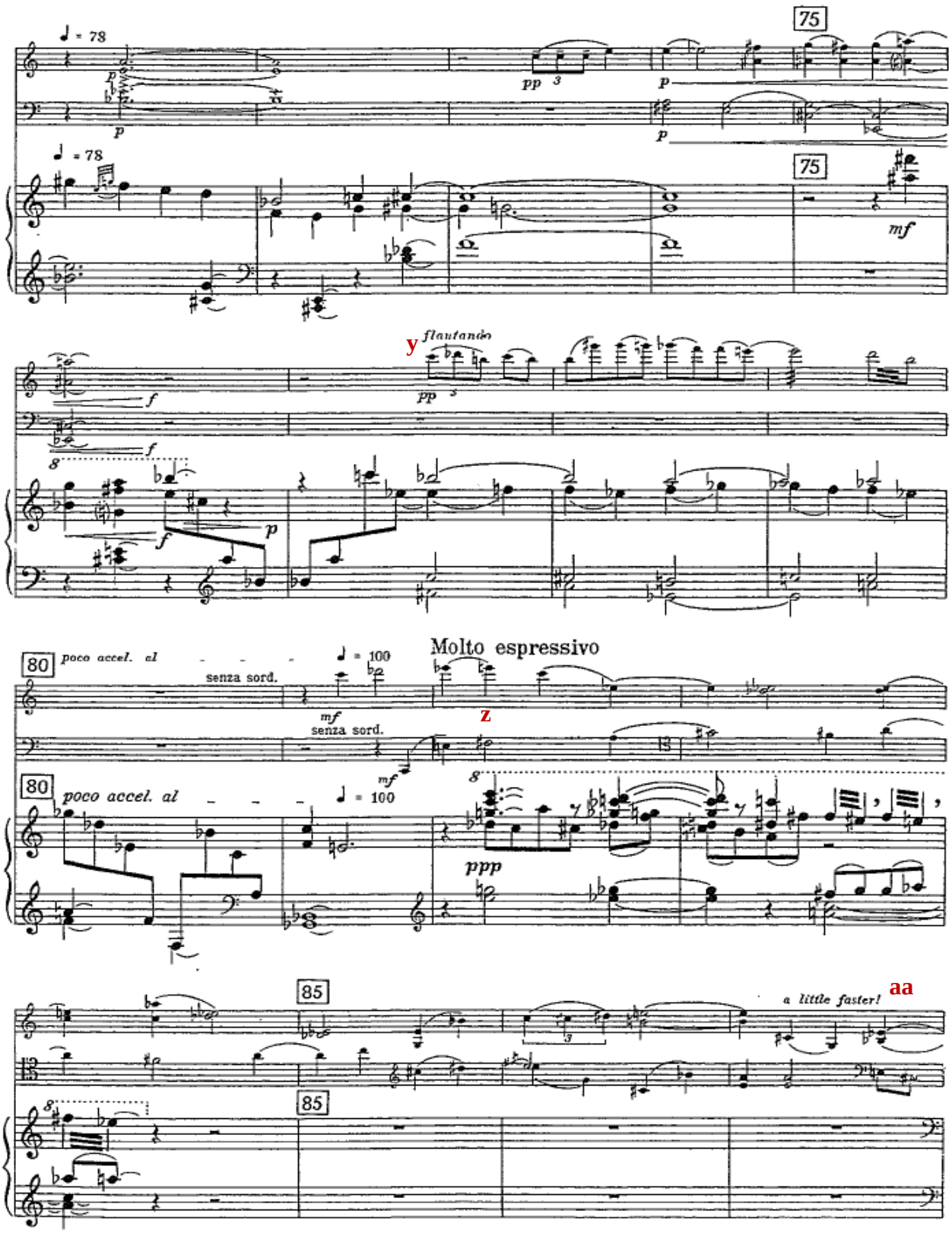

allargando
l
ordinario
subito sotto voce!
allargando
25 Lyrically, tenderly (♩ = 72)
m
p cresc. pp
ritard.
ritard.
(attacca)
♩ = 80
mf
♩ = 80
Powerfully
n
p
f
Ped *
30
(sing out)
espressivo
mf
f
mf
(Coming from nowhere, almost out of control)
30
pp cresc.


Marcato
(♩ = 80) (a little faster perhaps)
o
Molto Marcato (♩ = 72-76)
35
35
p
q
♪ = 132, relaxed
flautando
♪ = 132, relaxed


6
40
col legno
col legno
cresc.
accelerando
molto
pizz.
Marcato (♩ = 108)
arco
45
r
Ped
*


50
col legno
col legno
50
Calmo
pizz.
arco
55
s
arco
55
pizz.
pizz.
Marcato
t


60
arco
allargando
accel.
u
v
w
x
Wild!
accel. molto
allargando molto
65
Adagio
con sordino
reflective
a little faster, imperceptibly, to
70


75
♩ = 78
pp 3
p
mf
y
flautando
f
80
poco accel. al
senza sord.
Molto espressivo
z
ppp
85
a little faster!
aa

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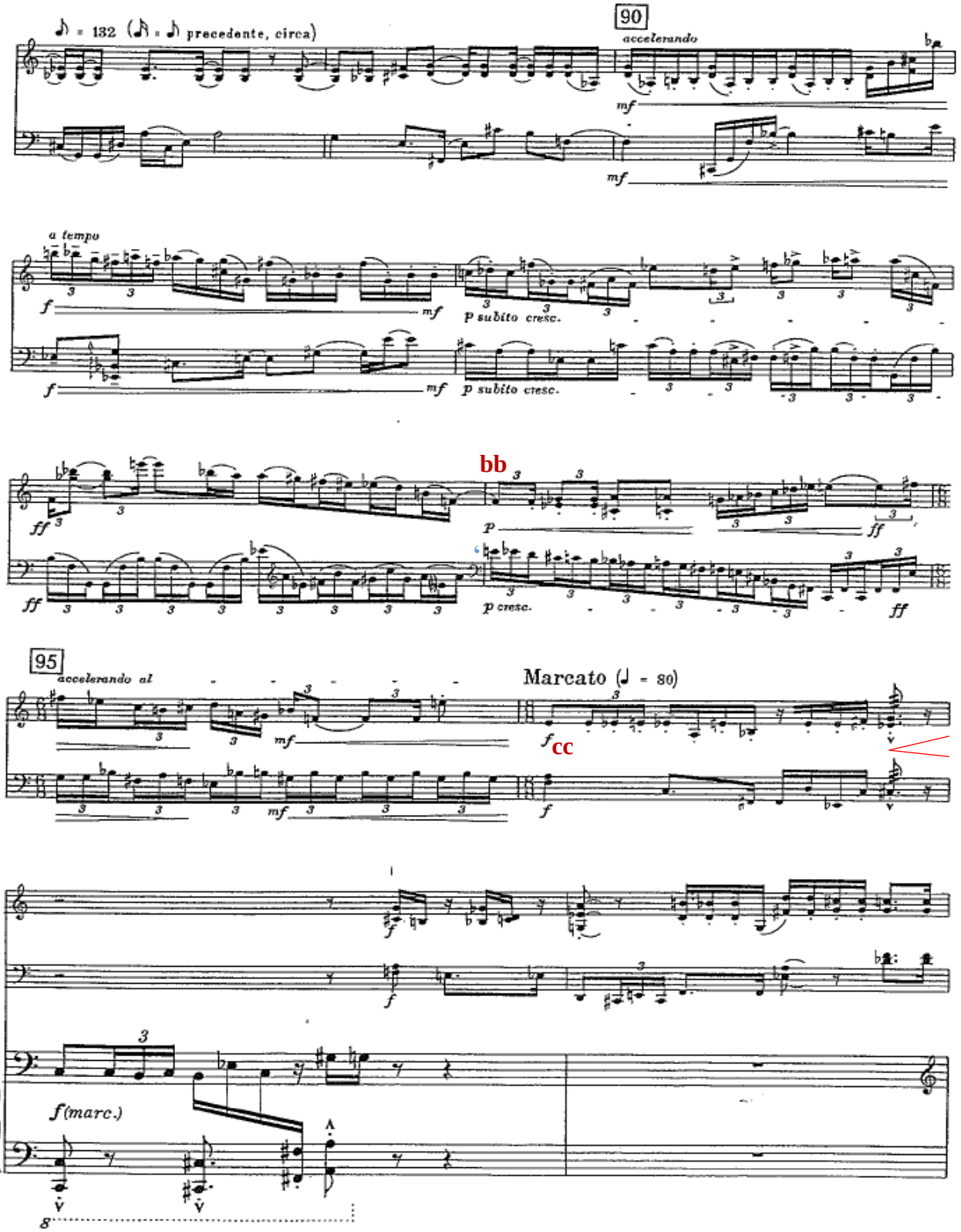
♪ = 132 (♪ = ♪ precedente, circa)
90
accelerando
mf
mf
a tempo
f
mf
p subito cresc.
f
mf
p subito cresc.
bb
ff
p
ff
ff
p cresc.
ff
95
accelerando al
Marcato (♩ = 80)
mf
fcc
mf
f
f
f
f(marc.)

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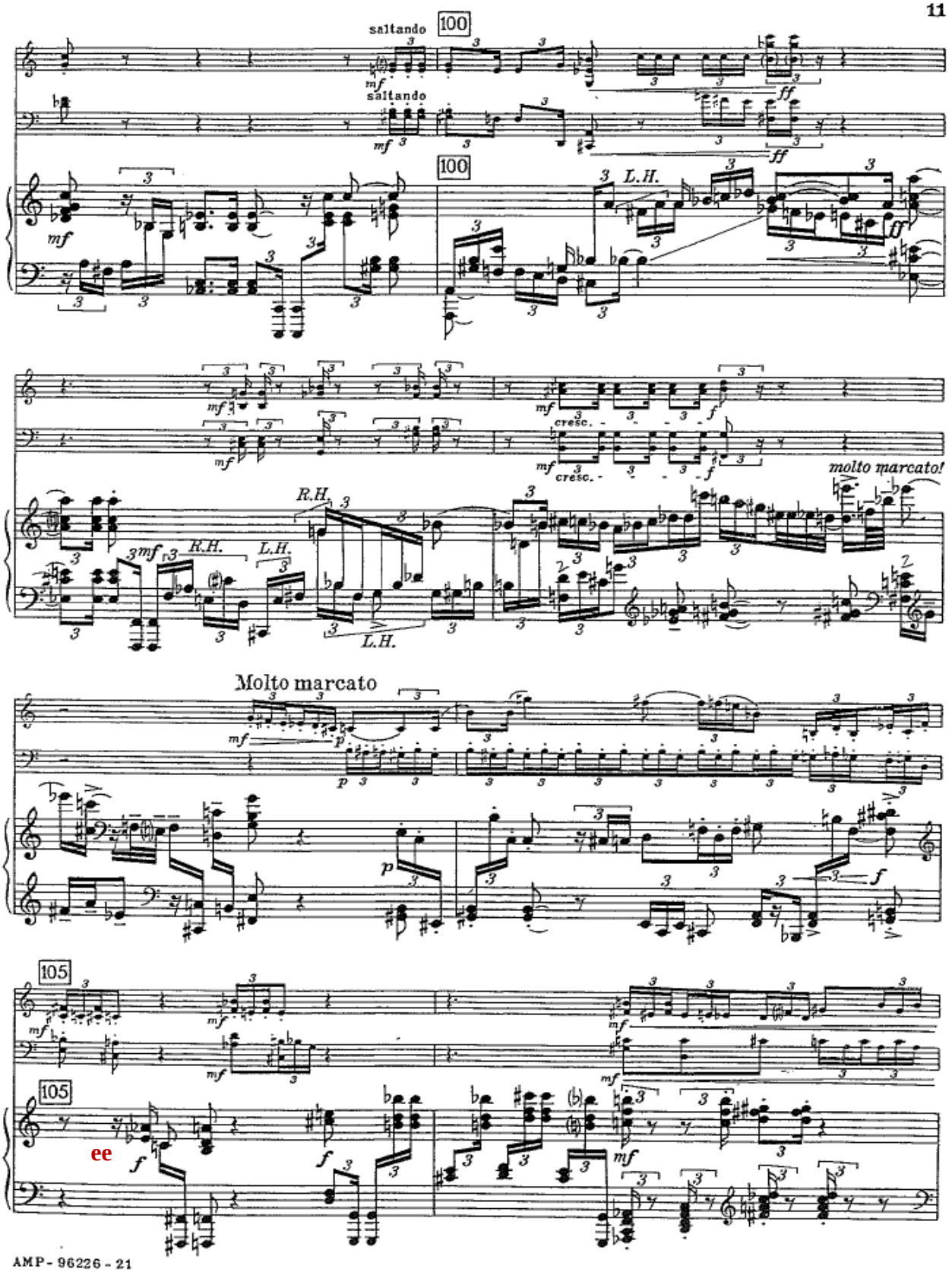
saltando
100
mf
saltando
ff
L.H.
cresc.
molto marcato!
dd
R.H.
Molto marcato
105
ee
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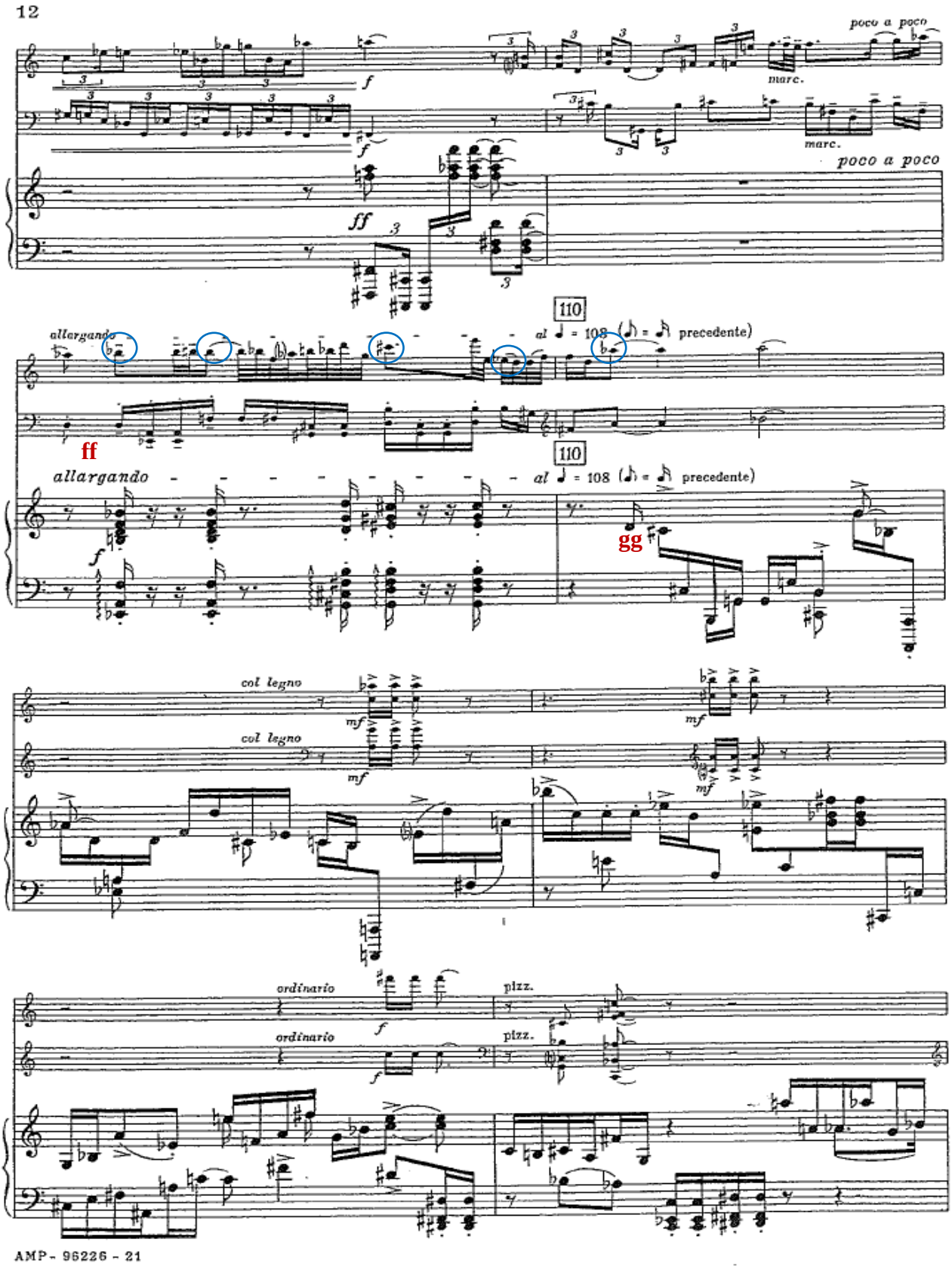
12
poco a poco
marc.
poco a poco
ff
110
allargando
al ♩ = 108 (♪ = ♪ precedente)
ff
110
allargando
al ♩ = 108 (♪ = ♪ precedente)
gg
col legno
col legno
ordinario
ordinario
pizz.
pizz.
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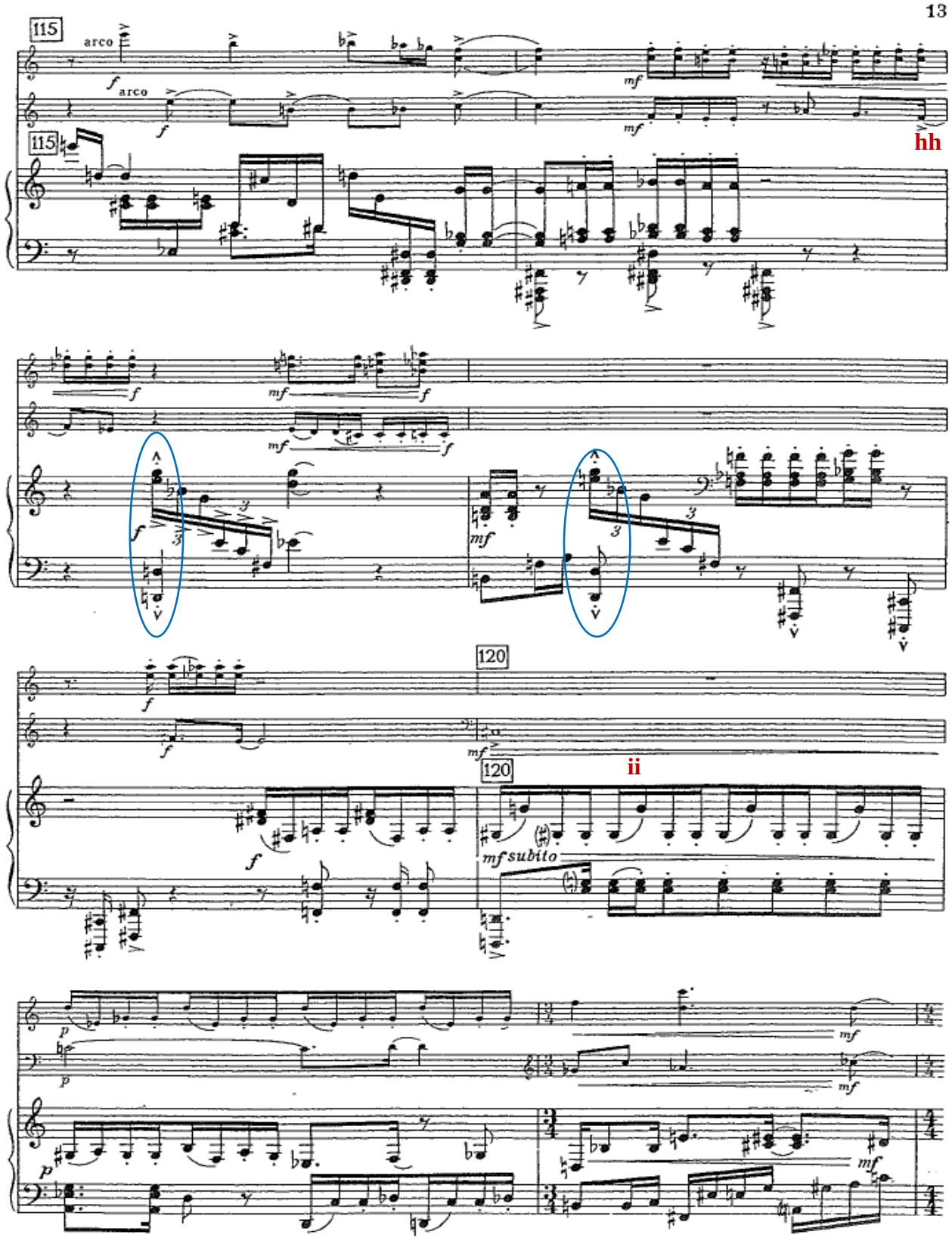
115
arco
f
arco
mf
115
hh
f
mf
f
mf
f
mf
f
120
f
mf
120
ii
f
mf subito
p
mf
p
mf
p
mf

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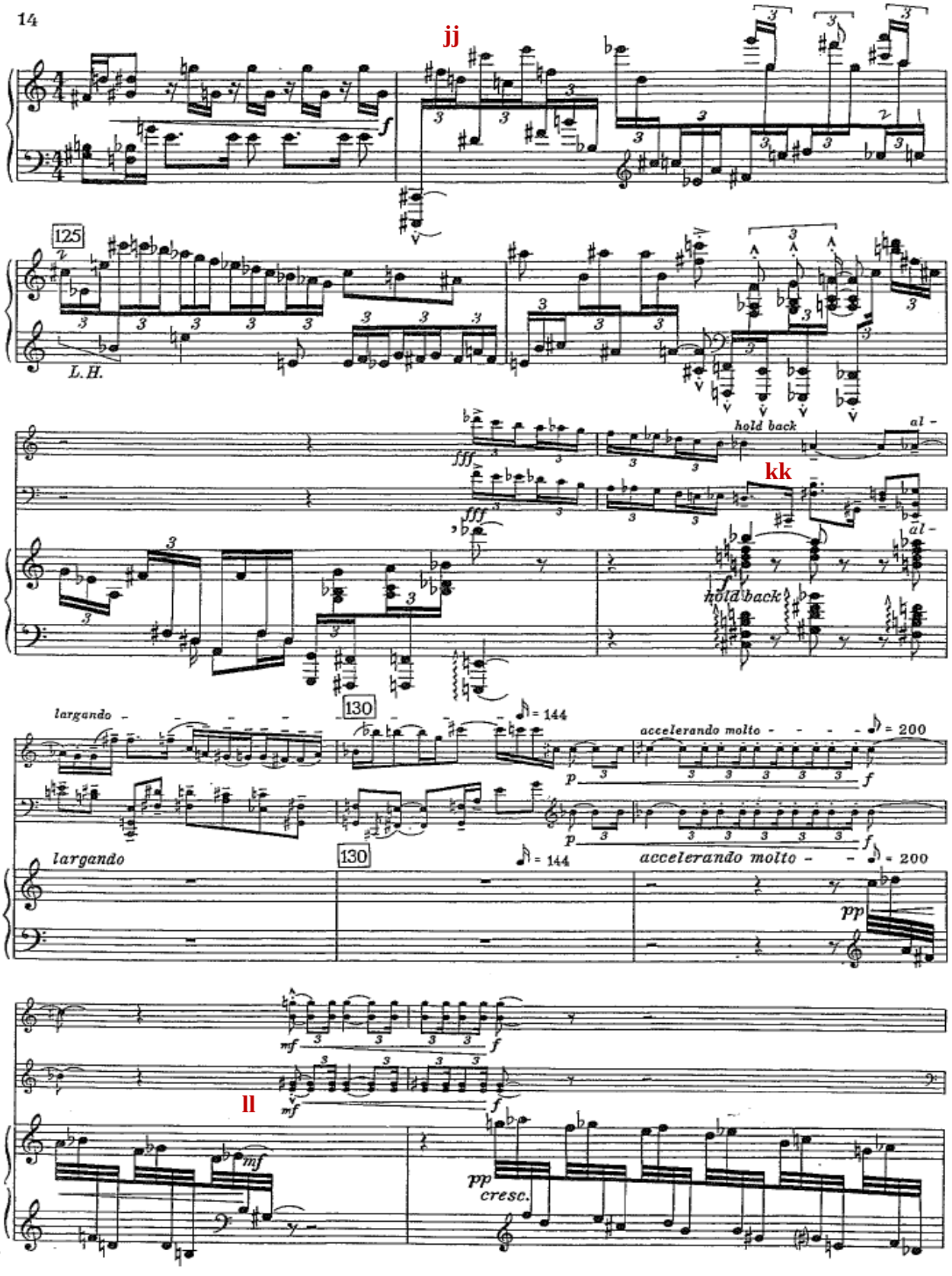
14
jj
125
L.H.
fff
hold back
kk
largando
130
= 144
accelerando molto
= 200
mf
ll
pp
cresc.
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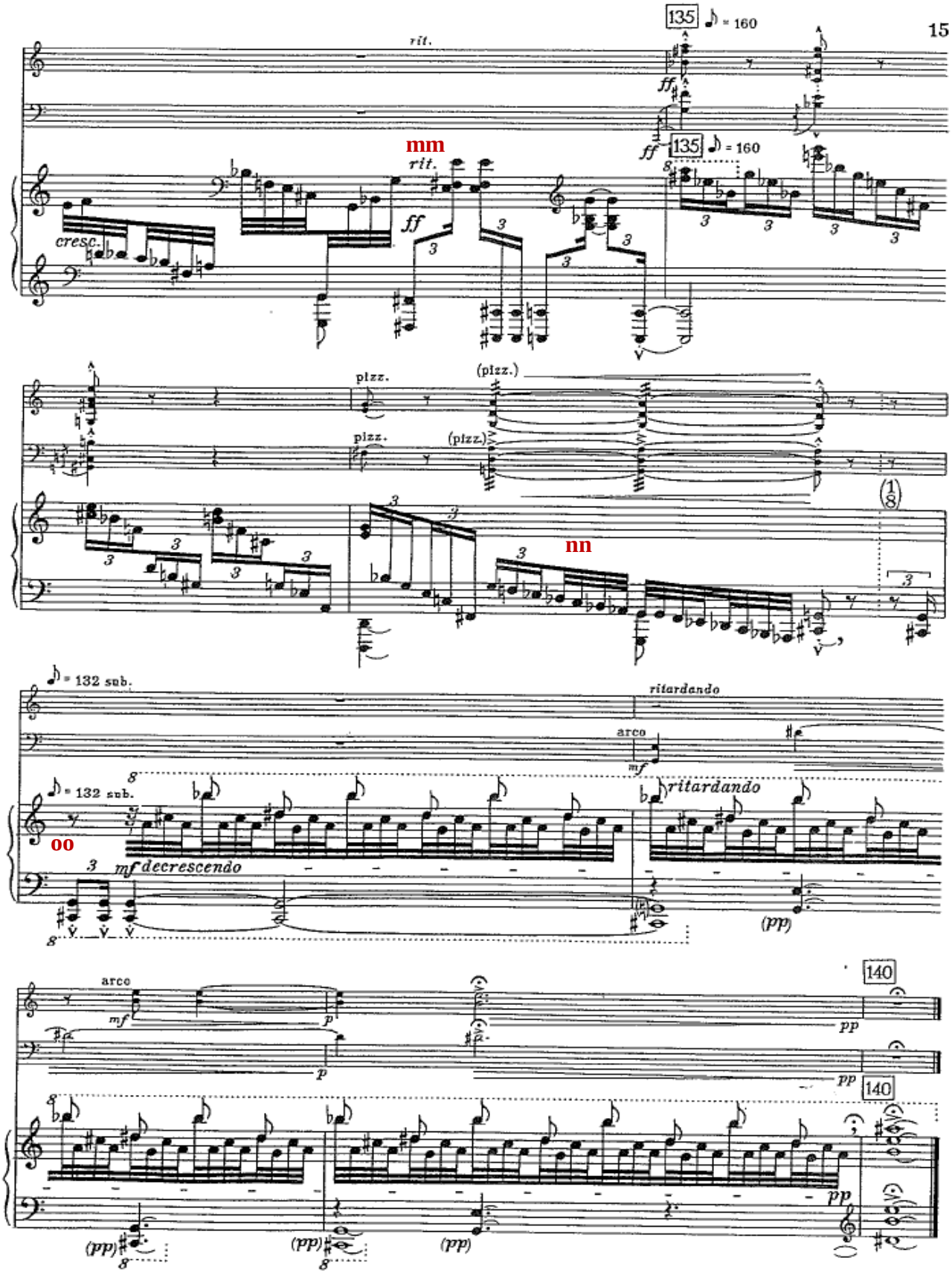
135 ♪ = 160
rit.
ff
mm
cresc.
pizz.
(pizz.)
nn
(1/8)
♪ = 132 sub.
ritardando
arco
mf
oo
mf decrescendo
(pp)
140
p
pp

CHAPTER 6

CONCLUDING REMARKS ABOUT TEMPORAL ANALYSIS

For a number of reasons, Kramer's approach to temporal study helps explain those contemporary musical works that seem persistently challenging conceptually and technically to classical musicians. First, Kramer's temporal theory is based on traditional analysis but not limited to conventional means of explaining the relationship between a section and the general structure. From the perspective of traditional harmonic analysis, the first movement of Kirchner's Piano Trio No. 1 seems too idiosyncratic to be a piece in binary (ABA'B') form because the strongest tonal confirmation appears at the end of part A (cadence in C), while the second strongest one appearing at the end of part B' (cadence in G) but not in the home key.[88] Additionally, the durational proportion between A and B is not balanced. A temporal analysis provides a satisfying explanation for these problems because it separates the gestural time of a musical passage from its structural function. As gestural time may conflict with real time, a composition that is too idiosyncratic from the traditional analytical perspective can be heard as a linear journey leading to the resolution of this conflict. In the first movement of Kirchner's Piano Trio No.1, if the motivic element is seen as an analogy to the noun in grammar, the unconventional tonal arrangement acts as an adjective, which does not interfere with the structure of a sentence. The tonal arrangement describes whether the gestural time of a motive(s) conflicts or agrees with real time rather than strictly determining the structure. Such a concept thus allows the performers to interpret those passages with a highly distinctive treatment in music.

[88] For a standard binary form, a tonal confirmation should appear at the end of each section B and both of them should be in the home key.

Secondly, understanding to what extent linearity reigns in a particular moment in a music work benefits performers' interpretation. In a large-scale music piece, the changes of tempos, dynamics, and subdivisions cause numerous fluctuations at different levels. A thorough understanding of the temporal structure assists performers in hierarchizing those fluctuations. According to the temporal analysis in this study, the two Developments in the first movement of Piano Trio No. 1 bear the linear functions of thematic statement and thematic integration, respectively. The second Development reflects a stronger linear sense due to the stage in the temporal structure of the whole movement. Such a distinction provides a convincing clue, in addition to the musical expression terms given by the composer, regarding why and how to distinguish between the two Developments in the performance.

Thirdly and carrying on the previous point, the temporality reflected in a performance influences the listening experience. Kramer points out that "the stronger the linearity the greater the effort a listener or performer must invest to deny it and to let such work's nonlinearity shine through unobstructed."[89] Without knowing the linear function of the first Development, performers might not intentionally highlight those discrete motives. Failure to do so could result in an ineffective thematic reconciliation in the second Development. Or, an expectation of what follows may not be successfully raised as the music moves toward to the climax in the second Development if the performers do not proactively project a driving momentum with a growing tension. An awareness of how listeners react to different temporal modes can improve the interpretive choice performers make, improving the musical experience for both performers and audiences.

[89] Kramer, *The Time of Music*, 60.

In addition to the paradoxes and difficulties inherent in Kramer's theory that were mentioned in Chapter 3, there are several concerns to note regarding the application. First, temporal analysis is not appropriately separated from traditional methods of analysis. The application of Kramer's temporal study should be based on a throughout understanding of the style of a piece of music and a composer's idiomatic devices, which must be acquired by traditional analysis. Temporal analysis assists in illuminating those issues that seem unclear in traditional analysis. Secondly, the categorization of temporalities varies depending on style, indeed, it is even relative from one event to another within a single piece. The benefit of temporal analysis lies mostly in visualizing the linear progression of a musical work and conceptualizing it as a specific temporal mode to improve interpretation. Indiscriminately using a linear progression from one composition to another piece is inappropriate, even though both pieces may be in the same kind of temporal mode.

Thirdly, the relationship between temporality and interpretation is as complicated as is defining temporality. In my analysis of the first movement of Kirchner's Trio No.1, the *marcato* sections preserve the nonlinear elements, while the transitions represent a linear force because they foreshadow tendencies that appear in the second half of the movement. The categorization of linear functions can directly guide different treatments in performance. In another case, however, the interpretation of Motive F cannot simply depend on which temporal mode each statement appears in. Motive F appears initially in Exposition II as a peak of the order of Markov chain (that is, it displays a high level of linearity) then becomes a nonlinear element when it reappears in a different context. A performance should still, however, emphasize the linear elements of a restatement of Motive F such as *crescendo, accelerando*, and the textural connection with the surrounding passages. The dramatic effect produced by those linear elements

is the key to a nonlinear impression related to Motive F. Performers should always emphasize the linear elements no matter what temporal mode a recurring Motive F represents.

In conclusion, Kramer's temporal study is helpful in illuminating those issues that seem unclear in traditional analysis. Confirming the exhaustive value of temporal analysis requires further study. The process of applying temporal study, however, can help performers explore additional interpretive possibilities for the particular pieces for which it is appropriate.

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VITA

Huan Yang made a concerto appearance with the Texas Christian University Symphony Orchestra in 2019 and participated in Piano Texas International Festival and Academy (Fort Worth, 2015) as a young artist. Yang also shared stages with renowned artists at the Tel-Hai International Masterclass (Tel-Aviv, 2013) and the Round Top Festival Institute (Roundtop, 2018) as a collaborative pianist. In addition, Yang received a three-year intensive training in piano pedagogy and taught piano courses at a collage-level in various settings.

Currently, Yang completed a Doctor of Musical Arts in Piano Performance under Herndon Professor of Music John Owings with a Cognate in Piano Pedagogy with Dr. Ann Gipson at Texas Christian University. She also serves as a part-time collaborative pianist at TCU and has maintained a piano studio with 20-30 students off-campus. Yang earned an Artist Diploma as a student of Prof. John Owings and the late Mr. José Feghali at TCU, a Master of Music as a student of Prof. Alan Chow at Northwestern University, and a Bachelor of Music as a student of Mrs. Huazhen Xie at Central Conservatory in Beijing. Other than music in the Classical era, Yang has gone on to experiment with other types of music, including church music in both traditional and contemporary styles and light jazz music, and performs regularly with jazz musicians from the University of North Texas at various events.

ABSTRACT

This study aims to take a step toward a precise understanding of the first movement of Leon Kirchner's (1919-2009) Piano Trio No. 1, especially in the arrangement of the pitch centers and the specific function of every section, by applying Jonathan Kramer's (1942-2004) temporal study in his book *Time of Music* (1988). Chapter 1 introduces the reason for this study, the methodology, the goal of this study, and the structure of this thesis. Chapter 2 briefly reviews Kirchner's compositional style, based on existing studies. Chapter 3 discusses the essential content of Kramer's theory and the terms that appear in the rest of the paper. Chapter 4 consists of a detailed analysis of three discrete elements and a comprehensive analysis of the temporal structure of the first movement of Piano Trio No.1 by Kirchner. Chapter 5 provides a performance analysis of this piece, guided by the results of the previous chapters. Chapter 6 concludes with the values and limitations of the application of temporal analysis. Practically, understanding the temporal structure of this idiosyncratic piece is essential for the performers in managing tempo, pacing climax(es), differentiating, and interpreting the characters of each subsection, and, thereby, cooperating with fellow performers.