John Cage, John Coltrane, Morton Feldman and the Liberation of Sound: A Study of New Structural Potentialities For Musical Composition

by

Timuçin Şahin

A dissertation submitted in partial fulfillment

of the requirements for the degree of

Doctor of Philosophy

Department of Music

New York University

September, 2019

Louis Karchin Brigid Cohen

ACKNOWLEDGEMENTS

I would like to thank to each of my committee members for their longstanding support. In particular I would express my heartfelt gratitude to my advisers Louis Karchin and Brigid Cohen for enriching this project with their deep knowledge of musicological and compositional scholarship. Without their generous support, I would not have been able to reach this milestone. I am equally grateful for Maureen Mahon's belief in this project. Her ideas on issues of race and genre made me look at real-time generation of musical utterance with a broader perspective.

The intellectual and musical exchanges I had with Martin Daughtry both as his teaching assistant and his student contributed a great deal not only to this project but also to my teaching. Elizabeth Hoffmann's detailed reading of my Coltrane chapter brought new insights to my arguments.

The resources of New York University's MacCracken Fellowship and Global Research Initiative Fellowship were crucial to this project. The opportunities to work in Berlin and Washington, D. C. were invaluable for this endeavor.

This dissertation would never have come into existence without Dr. Nils Vigeland's teachings, care and encouragement to pursue doctoral studies at NYU. Not only was I gaining first hand information about John Cage and Morton Feldman through his knowledge, but he also brought an indispensable voice of encouragement to my musical life.

ABSTRACT

Taking Edgar Varese's thought-provoking article "Liberation of Sound" from 1936 as a starting point, this dissertation is a study of three remarkable figures: John Cage, John Coltrane and Morton Feldman, and analyzes the innovations that sent their music in vastly different but new and unexplored directions, with the common thread being their incorporation of real time compositional techniques.

I focus on Cage's innovations in instrumentation, Feldman's notational advances, and Coltrane's idiosyncratic real-time compositional designs. These advances re-defined the "means" needed to make compositional decisions, and enabled new structural potentialities to come into existence.

I also aim to contribute to the recalibration of the idea of the "avant-garde" by the inclusion of Coltrane's music along with that of his more concert music-oriented colleagues. I apply the same analytic framework to all three creators in order to avoid previous dichotomies and to open up new avenues for interpreting their work.

My dissertation also includes musical analyses of 4 pieces: *Amores* and *String Quartet in Four Parts* by Cage, *The Father and the Son and the Holy Ghost by* John Coltrane and *Crippled Symmetry* by Morton Feldman. It concludes with three of my original compositions, all influenced by the work of the three master composers described above.

TABLE OF CONTENTS

LIST OF FIGURES

INTRODUCTION

Edgar Varèse's thought-provoking article "Liberation of Sound,"[1] written in 1936, was a highly outspoken critique of Western music's predicaments. According to Varèse, classical music was moving down a dead-end street with its logic, rhetoric, discourses, and performance-related domains. While suggesting ways to reconstruct and resurrect Euro-American music, he strongly emphasized the importance of inventing new instruments, devising new notational systems, and exploring new musical forms. He further asserted that music should find its place again as a science, expressing his longing for the times of quadrivium.[2]

In addition to these points, Varèse declared it was time to acknowledge a pressing socio-musical issue in Western Music – the exclusion, denial, and dismissal of Afro-American and non-European improvisation-based musical utterance from the cultural, social, and intellectual history, the so-called "Western tradition."

The decline and near-disappearance of improvisation in European classical music from the late 18th to mid-20th century, and the exclusion of improvisational musical utterance by the accounts that shaped the Western tradition created an asymmetry between the evolution of the musical-belief systems and the actual evolution of the sound by the creators.

Varèse's very telling reference in *Liberation of Sound* to the beginning of two eras

[1]Edgard Varèse and Chou Wen-chung, "The Liberation of Sound "*Perspectives of New Music* Vol. 5, No. (Autumn - Winter, 1966): 11-19.
[2] A medieval university curriculum involving the "mathematical arts of arithmetic", geometry, astronomy, and music.

became the main motivation for writing this dissertation:

> And here it is curious to note that at the beginning of two eras, the Medieval primitive and our own primitive era, (for we are at a new primitive stage in music today) we are faced with an identical problem: the problem of finding graphic symbols for the transposition of the composer's thought into sound.[3]

The motivation for writing this dissertation lay in the question: how much has changed since Varèse's article? Have we left that primitive era, or are we caught in its afterlife, still struggling with its derivatives and the predicaments that Varèse and all other sound-revolutionists challenged? To what extent have we incorporated the modernist forms of knowledge, aesthetics, and the heightened awareness of sound and space that have been added to our musical rhetoric, discourse, performance and educational domains?

The door to sound liberation was opened by Stravinsky, Schoenberg, Ives, and Debussy at the beginning of the 20th century. Varèse, Messiaen, Ravel, and later Iannis Xenakis, Karlheinz Stockhausen, Gyorgy Ligeti, and the European serialists entered that door to search for different routes for their expressive systems. The arrival mid-century of American indeterminists and musicians playing African-American improvisatory forms of jazz not only accelerated the sound liberation but completely challenged the prevalent musical thinking through a renewed investigation of real-time forms of musicality that had been eliminated from the Western tradition for more than a hundred and fifty years.

Yet despite the two new streams of sound and thought, it is disappointing to see their suppression by a rigid and imprisoned understanding of music influenced by the 18th and 19th-centuries' legacy and notion of musical autonomy. The eminent musicologist Carl Dahlhaus's

[3]Varèse, Wen-chung "The Liberation of Sound", 12.

widely accepted definition of composition from 1979 captures many of the assumptions that governed the performance of art music in the past hundred and fifty years, and clearly proves the persistent disavowal of improvisation by the Western concert-music tradition.

In formulating his definition, Dahlhaus situates the dialectic between composition and notation as the critical feature in his argument. According to him, a composition is an individually completed structure in itself ("*ein in sich geschlossenes, individuelles Gebilde*").[4] ; and this structure has to be fully worked out ("*ausgearbeitet"*)[5] and notated in a fixed form ("*schriftlich fixiert*").[6] The composed work thus constitutes an aesthetic object that communicates with the consciousness of the listener. Here we see that a musical piece has to be created by an autonomous, individual creator. This definition immediately excludes all the real-time musical discourses that have any collective characteristics in their creative mechanism, such as jazz and improvised music. Dahlhaus does not bother to support his view of why only individually created musical work qualifies as a composition and why musical philosophies that produce a collective creation do not.

Dahlhaus also stipulates that an individually created piece has to be completed, fully worked out and notated in a fixed form. This leaves out all experiments with aleatory forms and American indeterminism, personally expressive systems of graphic notation, a great deal of technology-driven electro-acoustic music that has interactive characteristics, and any kind of vernacular musical work that employs improvisation.

---

[4]Carl Dahlhaus, *"Was heisst Improvisation?"* in *Improvisation und Neune Musik: Acht Kongrebreferate*, ed. Reinhold Brinkmann (Mainz: Schott, 1979), 9-23.
[5]Ibid.
[6]Ibid.

This logic – which can no longer account for the full range of thought, practice and forward motion that have characterized sound liberation – is still very potent today. Its impact has resulted in a huge disconnect between the tradition and the new musical lexicons/practices. The hegemonic accounts of Western tradition have not even bothered to develop any critical apparatus or any kind of contextual framework for exploring the history of real-time-composition practices. In addition, the absolute systems concerning harmony, melody, form, and orchestration that are employed to make analytical sense of music forms still dominate not only the discussions of musical parameters, but also the thinking about music and sound. The explication of classical-music works through extensive utilization of self-similarity, default frameworks, and long-standing theories constitutes the musical education provided for the future generations.

The conservatories are built on the notion that the music written in Europe from 1700 to 1900 is the epitome of music ever written anywhere, that it will never be improved, and the whole function of music educators is to keep the performance of this repertoire dominant. Even though we have brilliant and original educators in conservatories, once they are in the classroom, their mission is to present that music without apology, deconstruction, or re-contextualization, and to assume its superiority *a priori.* It is possible to have a teaching life outside of classical-music institutions, but it is not one that is easy to sustain; and it is one in which most of the time the teacher is considered to be an outsider with inferior talent or knowledge. The propagation of the monolithic logic embodied in Dahlhaus's description has not only shaped the tradition of Western music education and performance but also largely defined the culture, leaving little room for innovation or criticism.

In the light of these realities, my aim is not solely to make an assessment but also an

analytical contribution to real-time musical utterances through the contemplation of certain concepts that were crucial in the generation of works by the late John Cage, Morton Feldman, and John Coltrane. Taking Edgar Varèse's thought-provoking article *Liberation of Sound* as my point of departure, this dissertation is the study of these three remarkable figures. It analyzes the innovations that sent their music in vastly different, new, and previously unexplored directions, with the common thread being their incorporation of real-time compositional techniques, either in notation or response to notation.

Scrutinizing the Musical Concepts that Led to New Structural Potentialities

As an analytical engine, the reinvestigation of musical structure has been a key component in the exploration of new and inclusive ways to discuss music and articulate the aspects that Cage, Coltrane, and Feldman utilized to make it. I focus on Cage's innovations in instrumentation, Feldman's notational advances, and Coltrane's idiosyncratic real-time compositional designs. These advances redefined the means needed to make compositional decisions and enabled new structural potentialities to come into existence.

I also devote a great deal of attention to the concepts of "*multiplicity*, *reiteration*, and *density* as a formative means of expression" in my Coltrane chapter, and "reiteration and silence as a formative means of design" in my Feldman chapter. I believe that the inclusion and reevaluation of these concepts is extremely vital to understanding the activity of sound in these creators' works. These concepts have been truly formative, especially in Coltrane's and Feldman's late works, and they are in active dialogue with Cageian aesthetics. I also aim to contribute to the recalibration of the idea of the "avant-garde" by the inclusion of Coltrane's

music along with that of his more concert-music-oriented colleagues. I apply the same analytic framework to all three creators in order to avoid previous dichotomies and open up new avenues for interpreting their work.

STRUCTURE: "Morphology of Continuity"

One of the most neglected aspects of music pedagogy is analysis of the continuation of musical compositions (sounds and silences). The way music unfolds has been considered of secondary importance rather than the nature of the material. Most of the time, in both classical and jazz music, the morphology of the continuity is pre-structured (sonata forms, ABA forms, etc.), which impacts the listening experience in predictable ways. Works with unconventional forms and those employing real-time generation, as those I analyze in this dissertation, need especially detailed attention to their "morphology of continuity."[7]

Music that Continues by Self-Similarity and Music that Continues by Opposition

A great deal of twentieth-century music, whether chromatic or diatonic in nature, as well as technology-driven electro-acoustic works, can no longer be approached using tonality, pitch structure, or other conventional analytical models. However, certain commonalities in the unfolding of their textural behaviors is a link we can use to further organize our thoughts and create critical apparatuses.

If a succession of musical behaviors does not result in articulating a system, or become

[7]Cage, "Silence," 18. For Cage, the material and method construct the form. In the Cageian sense, form is a dynamic element that focuses on the morphology of moving the sounds. I want to make a clear distinction between his and the common notion of a musical form of composition, which is a static and commonly pre-structured phenomenon.

conceivable through long-standing traditions, one useful way to examine those musical behaviors is to identify their self-similar and oppositional characteristics. Even though one cannot objectify these pieces through the existing critical apparatuses, she/he can at least designate them as self-similar.[8]

One can look at *The Father and the Son and the Holy Ghost, Crippled Symmetry*, or *Amores* and at least say that each piece is like itself, even if she/he might not be able to describe what that self is. The pieces that unfold in self-similarity do not oppose themselves by going into a completely different musical behavior. Once into a zone, they proceed in similar ways, even when some of the parameters change on micro levels.

Music that develops by opposition uses different kinds of elements in its construction and continuation. This fact is my primary point of departure in looking at the structural characteristics of such pieces using my analytical engine. The common and opposite musical behaviors and qualities set the stage for structural analyses that can respond to these new musical languages.

Of the three composers that I analyze in this dissertation, Feldman proceeds by self-similarity. His student Nils Vigeland lays out this fact as a key component of his compositional quality:

> Feldman utilized a wide vocabulary of tonal and instrumental combination unconfused by polyphonic, dynamic or sequential alternation/interruption. In general his music is exceedingly straightforward in its procedure – choose a sound, then another and follow this example without recourse to events which would imply an opposition. By and large, he was true to this technique his entire

[8]Self-similarity is a phenomenon that is present in nature and used in many branches of science. The most commonly recognized science that utilizes the concept of self-similarity is geometry, for example, in the analysis of fractals. http://www.stsci.edu/~1bradley/seminar/fractals.html

life. [9]

Crippled Symmetry proceeds in this manner. Vigeland also characterizes this behavior using an analogy of a "steady state,"[10] which I will also be using in my discussion. However, Feldman's graph pieces *Out of Last Pieces* (1961), *Intersections 3* (1953), and *Projections 4* are non-steady-state pieces that proceed by both opposition and self-similarity. The main reason for this is his sui-generis usage of graphical notation.

Cage is essentially a composer who proceeds by opposition. This fact is especially evident in all of the works after he stopped writing scores and began notating everything in parts, which is essentially all of the music he wrote after 1951. After Cage challenged the timbral element of music, the next thing he tackled was its notation. In order to force the player outside his/her comfort zone, Cage redefines and somewhat eliminates his notation. Just as Coltrane gets rid of the unified-metric foundation, Cage gets rid of the bar line.

While Coltrane frees up the "time" element from music by the act of playing, Cage does it basically by eliminating the concept of synchronized parts. Cage's point is this: in music as in life, things are happening simultaneously, often without mutual causality. This opens the door to music not composed by the causality of shared elements.

---

[9]Liner notes of music CD by Feldman in the *American Masters* series on the CRI label (CRI CD 620). The CD includes recordings of "The Viola in My Life," parts 1, 2, and 3, "False Relationships and the Extended Ending," and "Why Patterns?" All performances involve Feldman himself, either as conductor or pianist.

[10]"Steady-state" is a term used in fields such as chemical engineering, physics, and mathematics to designate a system, operation, mixture, rate, etc., that does not change with time, or that maintains a relative state of equilibrium even after transformations.
"Non-steady state" (aka "non-equilibrium state") is used to describe systems that do not maintain a relative state of equilibrium. http://www.physicallensonthecell.org/chemical-physics/non-equilibrium-steady-states

String Quartet in Four Parts is one of his early attempts in this manner. Even though it has triadic materials and discernible melodies, it doesn't sound neo-classical at all. He fully realizes this concept in his later period with radical examples such as *Apartment House 1776*, an opera made out of chance operations on pre-existing music; the Duration pieces, which are tonal but non-melodic; and the *Musicircus* pieces, which proceed with no idea about what is going to happen or when. Long silences followed by a Loony Tune, the exposition of a single sound on 70 instruments, or the disproportionate usage of all possible musical parameters can happen in these pieces, which are clear examples of music that continues by opposition. There is also a certain level of violation of taste in his approach with these pieces. While the listener thinks that the musicians are playing from the same playbook, Cage finds a way to destroy the self-similarity, or he asserts that the playbook has integrated the coexistence of different kinds of musical elements. While his music unfolds by opposition, its continuity can contain both steadiness and non-steadiness in different parts.

Coltrane's latest music, such as *Father* and *Interstellar Space,* is developed mainly by self-similarity. *Father,* despite the complex, dense, multiple materials, proceeds in the same manner until the end, even though new notes and figures emerge, vanish, or are retrieved, and musical events might be altered on micro levels. However, his music allows for different kinds of musical elements, such as the clear triadic characteristic in Coltrane's part that coexists with noise and raw texture. In this regard, *Father* moves by self-similarity and opposition at the same time. It is in a non-steady state at all times.

Both in Feldman's *Crippled Symmetry* and Coltrane's *Father,* reiteration manifests itself as the most formative element fueling the self-similarity. The utilization of high density in

combination with reiteration in *Father* and the combination of silence with reiteration in *Crippled Symmetry* are formative in the construction of the structural foundations of these pieces. In *Crippled Symmetry*, the most central aspect of structure on macro levels is notation. In *Amores* and *String Quartet in Four Parts*, the key component of the textural structure is instrumentation. These groundbreaking facets of composition will be explored in depth in the following chapters.

CHAPTER 1

A Revolution in Thinking: John Cage's Innovative Compositional Practices

1.1 John Cage's Innovations in Instrumentation: "New" Instruments and "Unsuspected Sounds"

> Ladies and Gentlemen, One's first reaction on hearing about John Cage's prepared piano might well be curiosity verging on amused skepticism. Some demented inventor can easily be pictured, a "piano de-tuner" doing his best to clothe the strings with metallicizing vegetation. More seriously, one thinks of a cuddle and ingenious sound smith, drawing new possibilities from the percussive aspects of the piano. The reality has more to do with questioning acoustic ideas received in the course of the evolution of Western music, ideas on which most radical and challenging works are still based. Instead of giving what might be called pure sounds-fundamental and natural harmonics- John Cage's prepared piano supplies us with complexes of frequencies. Moreover, we can find a precedent for this use of complex sounds in Central African instruments called sanzas. Immediately, a primordial question arises; does the traditional education which we have received-or submitted to-deprive us of a more acoustic sense? The logic of the path that Cage has followed lies in his refusal to accept the currently received acoustic system as definitive, when the problem of how to create music arises.[11]

The above quote is from Pierre Boulez's introductory speech at a performance of John Cage's *Sonatas and Interludes* for prepared piano at Suzanne T'ezenas's salon on June 17, 1949. Boulez, fascinated by Cage's prepared piano experiments, was one of the first to recognize that

[11] Nattiez, Jean-Jacques and Samuels Roberts eds (1993). The Boulez-Cage Correspondence (Cambridge: Cambridge University Press), 27

Cage's new approach to the instrument could send music in a new direction. Boulez's search at that time for non-tempered sonic material intersected with Cage's innovations. The two composers enjoyed a deep friendship for 5 years. The remarkable letters they exchanged between 1949-1954 were inspirational to Boulez.

Behind the innovative use of non-tempered musical material was a basic idea: find the instrument first and the frequencies after. In the classical approach to composition, it is the other way around: one creates the primary structure of the counterpoint with pitches, rhythms, and voices regardless of the instrumentation (e.g. Bach's "Art of the Fugue"). Techniques of orchestration, instrumentation, and arranging are utilized to serve harmonic implications and purposes, highlighting the core characteristics of the style, rather than as fundamental to the concept of the composition. The general tendency: the composer finds the notes first and then distributes them among instruments.

Cage's refusal to accept traditional limitations such as the narrow concept of instrumentation was part of a sense of intellectual responsibility he shared with other forward-looking creators such as Varèse, Boulez, and others of the New York School. While Varèse triggered the idea of creating new instruments by employing electroacoustics, Cage went further and considered *"*all audible phenomena as material proper to music,*"*[12] removing demarcations

[12] John Cage, *Silence* (Middletown: Wesleyan University Press, 1961), 84. While Cage considered Varèse an artist of the past, he admired and acknowledged his historical importance as the father of noise. Varèse had a large influence on Cage and Feldman: "Recently (1957-1958) Varèse has found a notation for jazz improvisation of a form controlled by himself. Though the specific notes are not determined by him, the amplitudes are; they are characteristic of his imagination, and the improvisations, though somewhat indeterminate, sound like his other works. In these respects Varèse is an artist of the past. Rather than dealing with sounds as sounds, he deals with them as Varèse. However, more clearly and actively than anyone else of his generation, he established the present nature of music. This nature does not arise from pitch

between musical sounds and noise.

"Complexes of frequencies*"* – the term used by Boulez in his introductory remarks to describe the sounds coming from Cage's prepared piano – come into existence when the resources of "fundamental and natural harmonics" are complicated and transfigured.

Boulez approached instrumentation as an acoustic phenomenon, but Cage undertook a multifaceted process of analysis. Even though acoustic phenomena were certainly of interest to Cage, he shifted his focus to other aspects of instruments. In doing so, instrumentation became one of the primary elements in his body of works, and at times its most important creative driver. This raises an important question: what does it mean to approach music through the instrument first?

One aspect of the logic of Cage's approach recognizes the instrument as the necessary source of musical "material."[13] The musical instrument co-creates the sound together with the performer, lending the resulting sound a characteristic texture and color. The life and discontinuity of the sound are experienced through the physicality of the instrument. Even preceding the room or the hall, the instrument is the first acoustic space through which the sound comes into existence. Whether it is a string that vibrates, the tube of a woodwind instrument or

---

relations (consonance-dissonance) nor from twelve tones nor seven plus five (Schoenberg-Stravinsky), but arises from an acceptance of all audible phenomena as material proper to music. While others were still discriminating 'musical' tones from noises, Varèse moved into the field of sound itself, not splitting it in two by introducing into the perception of it a mental prejudice. That he fathered forth noise – that is to say, into twentieth-century music – makes him more relative to present musical necessity than even the Viennese masters, whose notion of the number 12 was some time ago dropped and shortly, surely, their notion of the series will be seen as no longer urgently necessary."

[13] Ibid. For Cage material in a musical piece means sounds and silences.

the inside of a conch shell that resonates with blown air, the instrument is the uterus, the place where life truly begins. This aspect of instrumentation is to a certain extent a given, a basic fact of any acoustic music-making. But to recognize this fact and take it as the basis for new creation can be as liberating as the harmonic and contrapuntal approaches (and notions of musical autonomy) that were the legacy of the 18th and 19th centuries. Cage's approach offers a set of potentialities that is different than the order of notes and their melodic and harmonic relationships. Cage emphasizes that the way the sound operates is a part of the way nature itself operates: *"*The function of Art is to imitate Nature in her manner of operation. Our understanding of "her manner of operation," changes according to advances in the sciences.*"*[14]

It takes more than one factor for an object to come into existence in nature, and while the relationships of artwork's components seems to be normative for the material in 19th-century thought, understanding the material is the question that Cage contemplates. By removing the boundaries between musical sounds and noise, he not only expanded his sound palette but also accepted that any sound – whether as complexes of frequencies or as fundamental or natural harmonics – can coexist with another sound without "needing its permission." This opened endless possibilities of instrumental and structural combinations, as well as of vertically and horizontally structured musical events. A radio broadcast can coexist with a piano part, and a tape of sounds of nature can intersect with a string section in his music.

This idea of instrumentation is so wide that it impacts structure directly. As the instrumentation becomes freer and more complex, it communicates with the morphology of the

[14] David Rothenberg and Marta Ulvaeus, *The Book of Music and Nature: An Anthology of Sounds, Words, Thoughts* (Middletown: Wesleyan University Press, 2013), 42.

continuity in a more direct and determinate way. For instance, his composition *Concert for Piano and Orchestra* (1958*)* has an open-ended instrumentation, of which the total instrumental resources are: any solo or combination of piano, flute, clarinet, bassoon, trumpet, trombone, tuba, 3 violins, 2 violas, cello, and double bass, with a conductor optional.

The musicians are allowed to make any choice from the above set; each variation reveals different musical combinations in terms of material, method, structure, and form.

The piano solo part is comprised of 63 pages, to be played in whole or part, in any sequence, and involves 84 "types" of composition. The piece can be performed with any duration, with any number of the above performers, as a solo, chamber ensemble, symphony, concert for piano and orchestra, aria, etc. The *Concert for Piano and Orchestra* does not have a traditional score, but Cage provides highly detailed parts written in an idiosyncratic notational fashion. Each instrument's part is designed as if it could be performed solo. Cage explains: "The part for the pianist, for example, is an aggregate of 84 different kinds of notation, written on 63 pages, and composed using 84 different compositional techniques. The pianist may play the material in whole or in part, choosing any notations, elements, or parts, and playing them in any order. " [15]

In these ways, not only the instrumentation but also the musicians take on a primary rather than secondary role with respect to musical structure. With these new potentialities in mind, the question we raised above – "What does it mean to approach music through the instrument first?" – leads us to another set of questions: Who is/are playing the instrument(s)?

[15] John Cage Thrust" accessed August 2, 2019 https://johncage.org/pp/John-Cage-Work-Detail.cfm?work_ID=48

Does approaching music through the instrument offer the possibility of reconnecting composition with performance/improvisation? Within such a wide range of possibilities that Cage creates for a piece to come into existence, there's a remarkable level of responsibility that he allocates to the performer through the freedom of musical choices. In this situation, the performer co-creates the music. The "performer supplied"[16] aspect to the composition is so prominent at a level that it inevitably makes one think of the importance of the performer in jazz music. What Cage suggests for his performers is similar to how musicians in Coltrane's *Father and Son and the Holy Ghost* collective improvisation would operate. In both cases the relationship of a (jazz) musician to her/his instrument situates them way beyond a "performer": rather as a co-creator of the music piece.

This approach to instrumentation impacts the structure of the music in several ways:

1. Most obviously, the number of instruments affects the texture.

2. The variability of instruments fundamentally challenges the notion that statements of sonic material should be constrained to fit an ideal number of voices, such as in Bach's Fugues.

3. The extreme flexibility with respect to duration and the number of participants creates an analogy to the unpredictability of environmental sounds as well as our attention to them.

In these ways, instrumentation begins to take on a primary rather than secondary role

[16] George E. Lewis, "Improvised Music after 1950's: Eurological and Afrological Perspectives," *Black Music Journal,* 16 (1996), 91. George Lewis coins the terms "composer specified" and " performer supplied" while explaining how composers began to designate the salient aspects of a composition after 1950s in his influential article. I found these extremely vital terms for a profound understanding of real-time generation of musical structure, especially in the creation of the musical material. Furthermore these terms responds perfectly to not only to African-American Perspectives of Musicality, but also the Indeterminacy of New York School as the composers and performers partake in the creation of musical materials in both musical streams.

with respect to musical structure. With these new potentialities in mind, the question we raised above – "What does it mean to approach music through the instrument first?" – leads us to another set of questions:

Who is/are playing the instrument(s)? Does approaching music through the instrument offer the possibility of reconnecting composition with performance/improvisation? I will elaborate and respond to these questions at the end of my analysis of *Amores* and *String Quartet in 4 Parts*.

In this chapter, I will demonstrate how Cage arrived at a broadened concept and practice of instrumentation.

1.2 Percussion: Gateway to New Music!

"Percussion music really is the art of noise and that's what it should be called"[17]

Henry Cowell was one of several early experimentalists who influenced Cage's tendency toward noise/percussion. Cage's studies with Henry Cowell surely influenced his experiments with expanding the palette of the piano through novel forms of performance and sound production. In addition to their work together, Cowell may have had another decisive effect on Cage. He arranged for Cage to study with Adolph Weiss (a pupil of Arnold Schoenberg) in order to prepare Cage to study with Schoenberg, studies which would take place between March 1935 and the summer of 1937.

Cage attended Schoenberg's classes from 18 March 1935 until January 1937 on counterpoint and analysis at USC and UCLA. Schoenberg, however, refused to accept him as a

[17] Cage, *Silence*, 11.

composition pupil, and his time under Schoenberg's tutelage was full of conflict.

Schoenberg's criticism targeted Cage's disengagement from traditional structural functions; tonality was the main site of battle between the two. It was clear that Cage would have to choose his own path in order to develop his compositional rhetorics – a path that would be a radical departure from the traditional structures of classical music:

> When Schoenberg asked me whether I would devote my life to music, I said 'Of course.' After I had been studying music with him for two years, Schoenberg said, 'In order to write music, you must have a feeling for harmony.' I explained to him that I had no feeling for harmony. He then said that I would always encounter an obstacle, that it would be as though I came to a wall through which I could not pass. I said, 'In that case I will devote my life to beating my head against that wall.'[18]

Even though Schoenberg pointed to Cage's limitations, Cage himself seems to have drawn a positive interpretation – a new identity (beating his head against that wall) – from the encounter. On the other hand, he had influences that were more positive from his visual-artist acquaintances. Cage cites Oscar Fischinger as an important influence – an abstract filmmaker who engaged Cage to compose music for his works. His interactions with Fischinger directly motivated his new path of exploring percussion and utilizing noise in musical composition: "When I was introduced to him, he began to talk with me about the spirit which is inside each of the objects in this world. So, he told me, all we need to do to liberate that spirit is to brush past the object, and to draw forth its sound. That's the idea which led me to percussion."[19]

---

[18] Ibid. 261.

[19] Don Russel Baker, *The percussion ensemble music of Lou Harrison* (Urbana-Champaign: University of Illinois, 1985), 57.

Cage established the first known percussion ensemble in America in the mid-1930's. His early ensemble members consisted of dancers and bookbinders; apparently he could not interest the professional percussionists of the time. Most of the instruments he used were found objects, likely another impediment in engaging professional musicians.

Nonetheless, the success of his concerts in Seattle, Washington, in 1939 encouraged him to request the composition of works for percussion by composers such as Henry Cowell, Lou Harrison, Johanna M. Beyer, and William Russell. He made this medium a focus, composing 15 works over a period of eight years (1935-1943). Among them were those of his "Constructions" series (1939-42), pieces scored for unorthodox percussion set-ups. These pieces are considered classics today, part of the repertoire of percussion ensembles around the world.

Of the pieces in this series, *Third Construction* strikes me as an example of his process of instrumentation in transition from the older, traditional concept to what we know as "Cageian" concepts. Its characteristics will be described below.

The integration of found objects with the percussion set of instruments not only expanded Cage's sound palette, but also opened the territory of "noise" as a new resource. During this time he began to allow anything that generated a sound to be considered as an instrument. The demarcation between "complexes of frequencies" and "fundamental and natural harmonics" began to blur.

What makes *Third Construction* unique in the percussion music repertoire is its instrumentation. George Anthiel's *Ballet Mecanique* and Amazon Roldan's *Ritmicas* were also expressive pieces featuring percussion in the 1930's. Probably the most remarkable percussion music of the same period, however, as far as its impact and historical importance, is *Ionisation*

by Varese. *Third Construction* is a successor to these pieces, coming from a similar philosophy, but exploring untouched sonic avenues through its distinct instrumental design. It conceived of a percussion ensemble in a new way, as a composite instrumental organism.

The instruments of *Third Construction* are as follows:

Player I: Northwest Indian wooden rattle, 5 graduated tin cans, 3 graduated drums (tom toms), claves, large Chinese cymbal (suspended), maracas, teponaztli;

Player II: 3 graduated drums (tom toms), 5 graduated tin cans, claves, 2 cowbells, Indo-Chinese wooden rattle with many separate chambers, lion's roar;

Player III: 3 graduated drums (tom toms), tambourine, 5 graduated tin cans, quijadas, claves, split bamboo cricket callers, conch shell;

Player IV: tin can with tacks (rattle), 5 graduated tin cans, claves, maracas, 3 graduated drums (tom toms), wooden ratchet, bass drum roar.

Cage created a unique combination of traditional orchestra instruments, ethnic instruments, and found objects to use as percussion instruments. Most of these are not part of standard classical percussion set-ups. The choice of "supposedly exotic" instruments such as the Northwest Indian wooden rattle and the teponaztli from Mexico (an instrument whose usage dates back to the Aztec civilization) creates a sound world that is specific to the particular music piece and free from associations with the dominant musical value systems.

Historical associations as well as forced detachments from musical discourses were not in the decision-making mechanism of the New York School. Morton Feldman pointed out the core philosophy of the New York School composers' line of thought.

> Now let us make clear that to identify with history does not necessarily refer to the past. It can refer equally to the newest and most extreme developments in

> art… When Schoenberg, for instance, formulated his principle of composition with the twelve tones, he predicted this would extend the Germanic tradition of music for another hundred years. His greatest satisfaction in having devised something new seems to be that he extended something old. And for many, Schoenberg holds the key to going backward culturally, yet appearing to move forward artistically… For ten years of my life I worked in an environment committed to neither the past nor the future. We worked, that is to say, not knowing where what we did belonged, or whether it belonged anywhere at all. What we did was not in protest against the past. To rebel against history is still to be part of it. We were simply not concerned with historical processes. We were concerned with sound itself. And sound does not know its history.□[20]

Reading of Feldman's words carefully is essential to further illuminate Cage's ongoing sonic explorations, which were not dictated by stylistic concerns. One of the reasons that New York School composers could fearlessly explore new avenues in their sound production was that they were willing to operate as phenomenologists within the activity of sound. The sound is not interested in its history. The world that it inhabits is to come into existence, leave its resource and no physical barrier can stop neither its existence nor discontinuity. The nature of sound is already liberated. To assemble the technology that will produce the sound itself, namely instruments, could also be liberated from historical and stylistic norms.

In that regard, the inclusion and organic blending of objects such as tin cans and a conch shell with traditional and "supposedly exotic" instruments is a remarkable cornerstone not only in the history of instrumentation but also as a direct response to the musical value systems that were upholding the legacy of classical music. Cage's instrumental point of departure is remarkably free from any form of exoticism or cultural appropriation. The music world had no

[20] Morton Feldman and B. H. Friedman, *Give My Regards to Eighth Street: Collected Writings of Morton Feldman* (Cambridge: Cambridge Press, 200), 120.

significant historical usage of these instruments. The Indian wooden rattle, Mexican *teponaztli*, and graduated tin cans are integral parts of the 55 instruments of *Third Construction*, co-existing with the bass drums and tom-toms without revealing their historical usage or origin.

With percussion, one is immediately placed into the territory of noise. This must have been intriguing for Cage. Maybe the art of percussion suggested an almost ideally neutral area for Cage from which to contemplate and create his new music. In later years, his structural explorations exhibited a notion of hybrid forms involving the use of multiple media and disciplines. For instance, *Inlets* (1977) is a piece for any length of time for 4 players, and every one of them is given conch shells of 4 different sizes. The piece is combined with a tape part that consists entirely of a field recording in which Cage set a pile of pine cones on fire.

Pieces from this period operate in a similarly broad spectrum of imagination in terms of structure and instrumentation. In *Child of Tree* (1975) and *Branches* (1976), the time structure is organized by the I-ching method, and each performer improvises with plant materials (cactus, pod rattle, leaf, and branch). These pieces radically confronted the commonplace understandings of a musical composition with their instrumentations and structural developments.

Percussion in the early 20th century was just beginning to be taken more seriously as a source of sound for purposes other than accentuation. The number of instances in classical music where percussion determines the primary motivic or timbral character of a piece is fairly few.

John Cage accelerated the vital role of percussion, not just by liberating it from its common role of an accentuation of other instruments, but by putting forward the compositional idea that all other instruments could be treated as percussion by unifying their timbre and pitch palettes. Instead of thinking that percussion was deficient, Cage reversed the formula, positing

that percussion simulated the essential quality of all sound in that timbre and frequency is the same thing.

Cage revolutionized the concept of instrumentation by turning found objects into instruments, and through exploring his long-lasting piano preparations, turned the piano into a percussion orchestra.

1.3 Timbre and Pitch are the Same Thing!

The onset of this great discovery was the following idea: if you have a percussion instrument such as a triangle or a woodblock, the note and instrument are the same thing. So, if a different sound is required on a triangle, another triangle must be found. Percussion made no distinction between timbre and pitch. This very characteristic had been viewed as the poverty zone of percussion in general. Cage's entire genius came from applying the idea that what percussion instruments have by nature, other instruments should emulate; and from this idea percussion's poverty zone became its richest asset, creating a new way of writing music. In his prepared-piano works and later applications like *String Quartet in Four Parts*, Cage clearly turned non-percussion instruments into percussion orchestras by simultaneously fixing pitch, register, and instrument.

1.4 *Amores* (1943)

Cage started to compose parts of this piece around 1936, then revised it some years later in 1943.[21] The piece was choreographed by Merce Cunningham in 1949.

[21] John Cage Thrust" accessed july 15, 2019 https://johncage.org/pp/John-Cage-Work-

Amores contains four movements:

1. Solo for prepared piano

2. Trio for 9 tom-toms and a pod rattle

3. Trio for 7 wood blocks

4. Solo for prepared piano

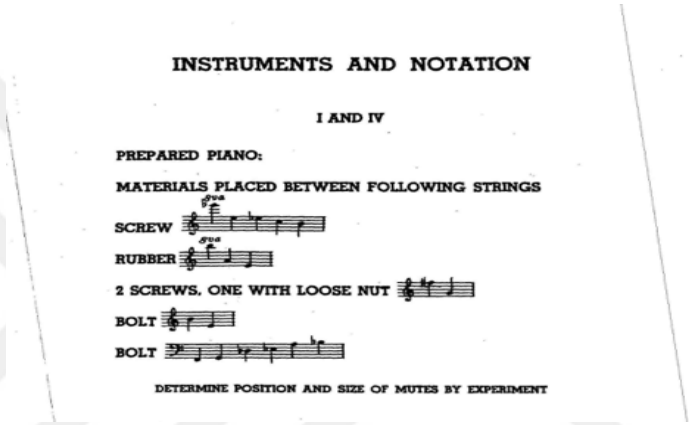


Fig. 1- ***Amores*** **Piano Preparations**

In total 18 keys are affected by piano preparations. Cage provides detailed instructions about the placement and size of modifications, as well as solutions to potential problems in the procedure. When we look closely at the prepared keys, we can see that the register is very determinate in the ways he invents these new sounds. While the majority of the composers of that period focused on pitch, Cage and especially Feldman were focused on other aspects, with register being the most central concept shaping the characteristic of a sound.

The 5-note group that represents the highest register shares the same substance (screw),

---

Detail.cfm?work_ID=26

placement, function (mute), and has a common characteristic quality of sound (a resonant sound that is rich in harmonics).

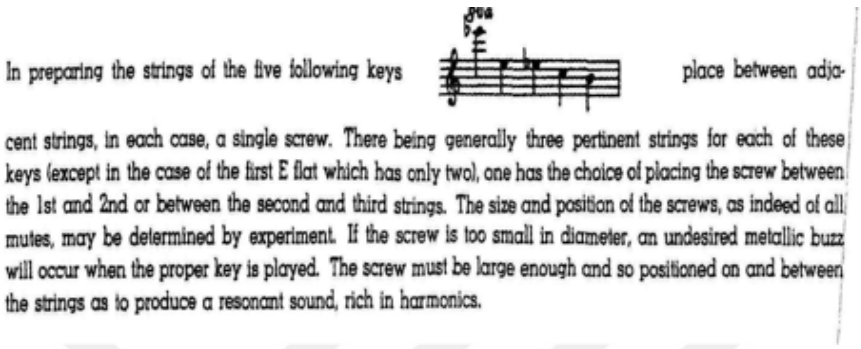

In preparing the strings of the five following keys place between adjacent strings, in each case, a single screw. There being generally three pertinent strings for each of these keys (except in the case of the first E flat which has only two), one has the choice of placing the screw between the 1st and 2nd or between the second and third strings. The size and position of the screws, as indeed of all mutes, may be determined by experiment. If the screw is too small in diameter, an undesired metallic buzz will occur when the proper key is played. The screw must be large enough and so positioned on and between the strings as to produce a resonant sound, rich in harmonics.

Fig 2- *Amores* 5-Note Grouping, High Register

The 2-note group that is in the mid-high register also shares the same size and kind of material (somewhat smaller screws and 1 nut), placement, and characteristics (a resonant sound with a metallic rattling quality).

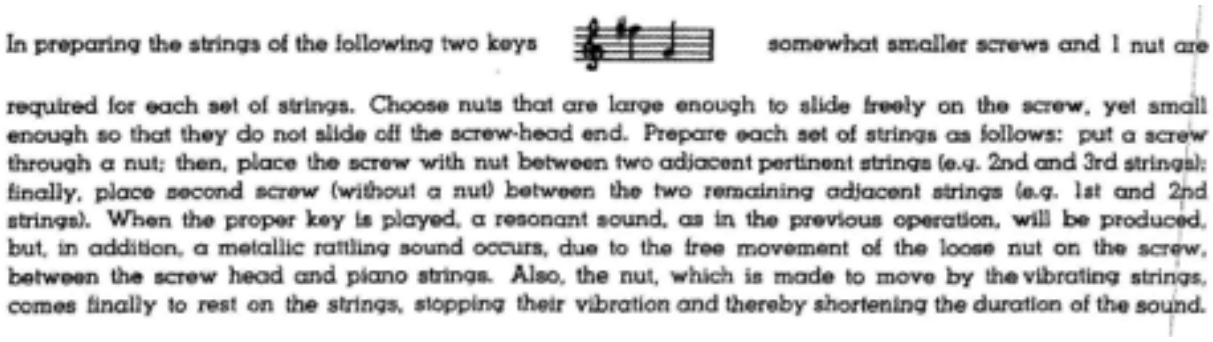
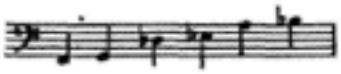

In preparing the strings of the following two keys somewhat smaller screws and 1 nut are required for each set of strings. Choose nuts that are large enough to slide freely on the screw, yet small enough so that they do not slide off the screw-head end. Prepare each set of strings as follows: put a screw through a nut; then, place the screw with nut between two adjacent pertinent strings (e.g. 2nd and 3rd strings); finally, place second screw (without a nut) between the two remaining adjacent strings (e.g. 1st and 2nd strings). When the proper key is played, a resonant sound, as in the previous operation, will be produced, but, in addition, a metallic rattling sound occurs, due to the free movement of the loose nut on the screw, between the screw head and piano strings. Also, the nut, which is made to move by the vibrating strings, comes finally to rest on the strings, stopping their vibration and thereby shortening the duration of the sound.

Fig. 3- *Amores* 2-Note Grouping

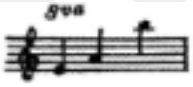
The 6-note group that is in the lowest register also shares the same material (bolts), placement, and has the same quality (resonant sound, rich in harmonics, and free of any metallic buzzing).

In preparing the strings of the eight following keys  use bolts,

one for each set of pertinent strings. Otherwise the operation is similar to that described above for screws. Bolts are used in this lower register, rather than screws, because of their greater diameter, necessary in muting their longer strings to achieve the desired result: a sound resonant, rich in harmonics and free of any metallic buzzing.

Fig. 4- *Amores* 6-Note Grouping

The same goes for the 3-note group that has wide spacing in the high register. Notice how specifically Cage details the quality of sound so as to be different from other resonant outcomes. The sound produced is dull and thud-like, rather than rich.

The strings of three keys  are prepared by placing in each case one end of a

strip of rubber (approximately 4" x 1" x ⅛") between two adjacent strings (e.g. 1st and 2nd), then the other end between the remaining adjacent strings (e.g. 2nd and 3rd), and, finally, pressing the rubber firmly down against and between the strings. The rubber may then be pushed into such a position along the strings that it will produce harmonics when the proper key is played. Because of the nature of the material, however, the sound produced is dull, thud-like, rather than rich. If rubber cannot be obtained, absorbent paper or cloth, folded several times, may be substituted.

Fig. 5- *Amores* 3-Note Grouping

"The total desired result has been achieved if, on completion of the preparation, one may play the pertinent keys without sensing that he or she is playing a piano, or even a prepared piano. An instrument having convincingly its own special characteristics, not even suggesting those of a piano, must be the result."[22]

Even the sounds we encounter in our musical activities might have felt too domesticated

[22] Cage John. *Amores,* (Henmar Press Inc.: New York Ltd., 1943)

by tradition for Cage. His approach was to embrace and evolve them into new identities where the established social codes did not dictate their perception. Transfiguring the instrument and making the performer unpredictable enabled Cage to avoid the default states of performance and listening.

1.5 Instrumental Homogeneity

Each prepared piano key becomes a meta instrument that hasn't existed before, rather than another frequency on a normal piano. The careful consideration of the register is the key to Cage's piano preparations.

The preparations directly impact the physical properties of the keys, especially the timbre. In Movement I, we encounter 2 keys that are not prepared, one in the opening chord, and one in the closing section. The E6 and A5 keys are the only unprepared ones. The opening chord which combines both prepared and unprepared keys is a good example of "sonic aggregates," a term coined by Boulez for sound structures that don't have harmonic structural functions:

> More recently, the chord having gradually lost its structural functions has become a sonic aggregate; it is chosen for its own sake, for its internal capacities of tension or relaxation, according to its registral disposition and the intervals it puts into play. Thus its structural function is both diminished and sharpened, which tends to demonstrate that the truly harmonic era of Western European Music is at an end.[23]

The transformation of a chord into a sonic aggregate allows its existence for its own internal timbral capacities, not for harmonic implications or other reasons. Complexes of frequencies and aggregates are discrete sound objects that Cage derives through his instrumental

[23] Pierre Boulez, Paule Thévenin, and Robert Piencikowski, *Stocktakings from an Apprenticeship* (Oxford: Clarendon Press, 1991), 281.

inventions. While these discrete sound objects manifest themselves as brand new instruments, we can certainly speak of a special kind of instrumental homogeneity in his prepared piano. The piano undergoes a metamorphosis and becomes a hybrid percussion orchestra with a unique blend of acoustics.

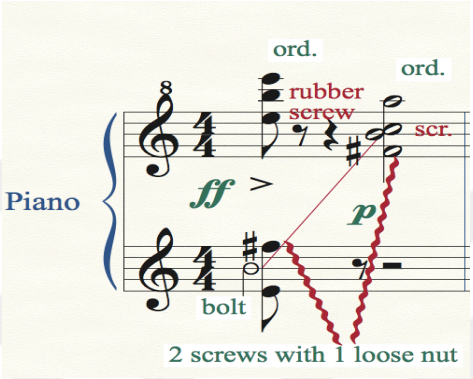


Fig 6- *Amores* 1st Aggregate

The 1st movement is 15 bars, and the next unprepared key comes in the last two measures of the piece (G5 and B3).

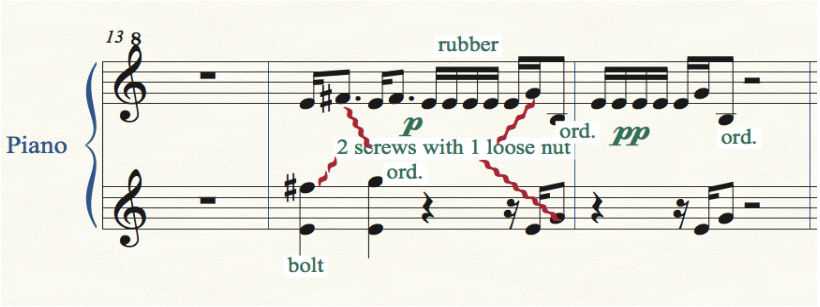


Fig. 7- *Amores* 1st Movement, Last 2 Measures

Otherwise in the 1st movement, Cage utilizes only the prepared keys, creating a metallic and wooden blend in different gradations of resonance. One way to approach Cage's compositional rhetoric in this piece is to observe how he structures the music through phrase

divisions, and how he designs the sonic content of each division by complexes of frequencies.

1.6 The Impact of Instrumentation on the Structure of *Amores*

Proportional phrase divisions of Movement I in *Amores*:

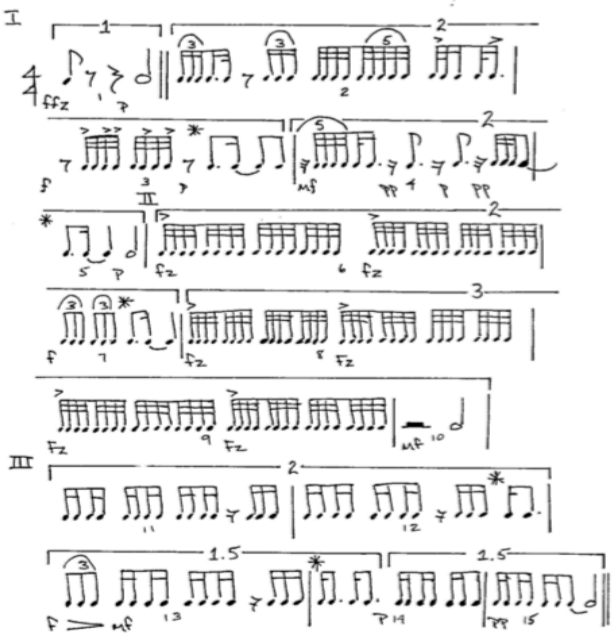


Figure 3-1. Rhythmic reduction of Amores, movement I, showing proportional phrase divisions 1:2:2/2:3/2:1.5:1.5.

Fig. 8- *Amores* 1st Movement's Phrase Divisions

The figure above[24] is from Brian Michael Williams' dissertation, written in 1993, which explores the rhythmic divisions of *Amores*. As Williams points out, Cage's phrase divisions are proportionally structured. Movement I consists of 15 measures of 4/4 bars, and it has 3

[24] Brian Michael Williams, *The Early Percussion Music of John Cage* (PhD diss., Michigan State University, 1990), 63-64.

divisions. Cage used a square-root formula in many of his pieces of that period. But in *Amores*, he utilized the following pattern of divisions: 1:2:2/2:3/2:1.5:1.5.

If we look at the instrumentation and the proportional phrases above, we see that Cage has combined the proportional frame with the instrumentation. Each proportion is constructed through a timbral quality. Also, the beginning and the end, the two shortest proportions, are assigned combinations of prepared and unprepared sounds. Cage is almost like a serialist here as he designs his instrumentation with regard to structure. We have 5 and 2-note families that belong to particular registers together, and then the balanced introduction and exploration of other keys in a fairly short amount of time. Proportions are determinate in the progression and the change in acoustic information of the movement through instrumentation.

The first proportion is 5 bars, divided 1:2:2. The 1 is a mixture of prepared and unprepared sounds. The 2's utilize middle (2 notes) to high registers (5 notes), a 7-note group in total. These registers use similar materials (bigger screws in the high registers, smaller screws and 1 nut in the middle registers), placement, and function (mute). The combination of these instruments (the keys are now individual instruments since they all have a different timbre) creates a sound world that is resonant and rich in harmonics, with a metallic rattling quality. This proportion introduces the instruments in a broad yet pointillist fashion. Cage fills the space with various levels of density.

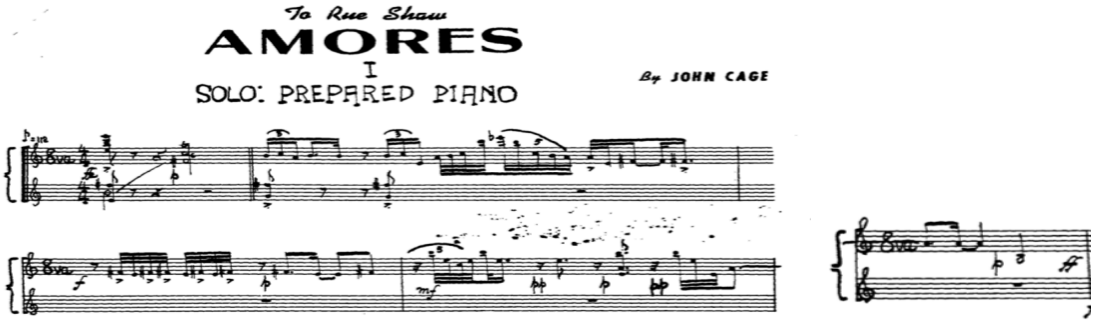


Fig. 9- *Amores* 1st Movement, 1st 5 Measures

The second proportion is from measures 6 to 10 and is divided 2:3. This part utilizes a similar register with a new emphasis on E6; remarkably, it has an instant physical anatomy that works off the tension/release dialectic in a proportional fashion. The 32nd-note phrases are doubled in length during measures 8 and 9 after the contrasting release on bar 7.

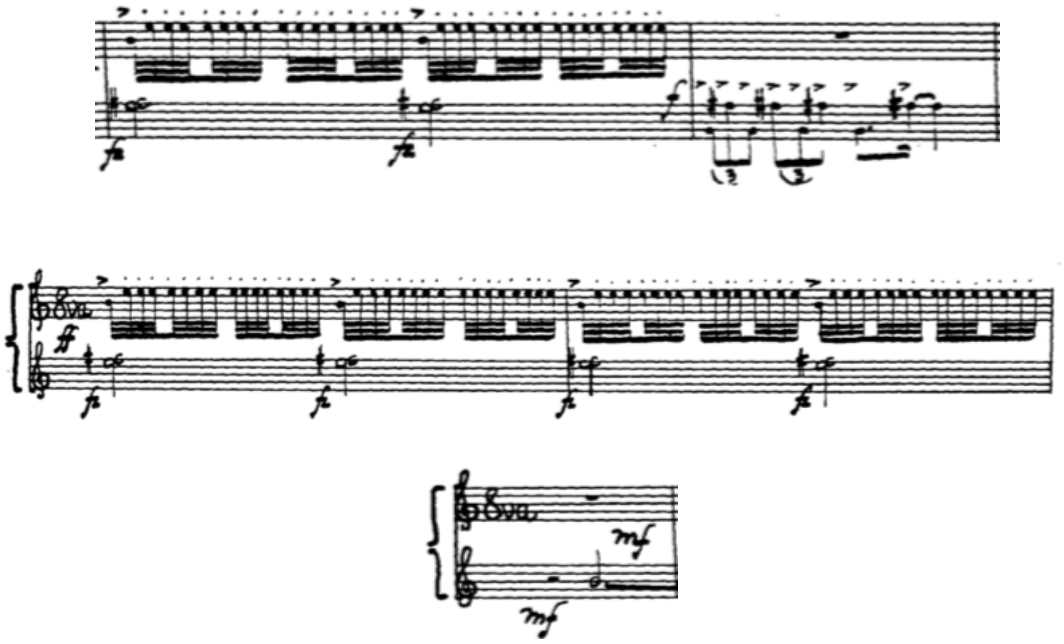


Fig. 10- *Amores* 1st Movement, Measures 6-10

The last proportion is from measures 11 to 15 and is divided 2:1.5:1.5. Notice the forward-moving characteristic of measures 11 and 12, which introduce rubber material on E5, A5 and F#5. Also, the 1.5's utilize both prepared and unprepared keys. This section has a linear characteristic with a discernible melodic content. With dynamic consistency, the unfolding sound-event of measures 11 and 12 gains enhanced momentum with the triplet figure in measure 13, and the piece is concluded.

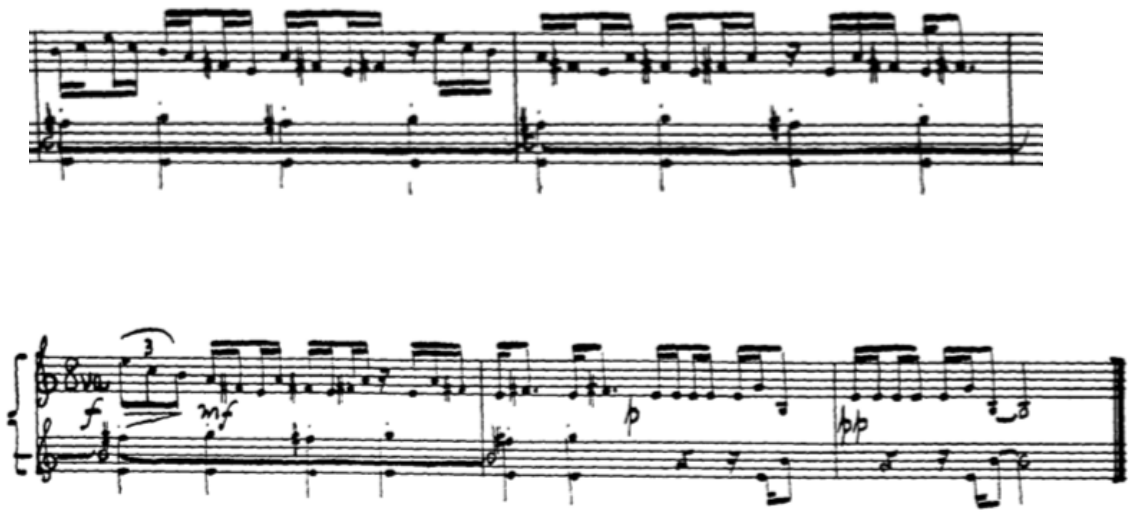


Fig 11- *Amores* 1st Movement, Measures 11-15

When we hear the movements of *Amores* in succession, we are saturated with a multifaceted auditory experience. While the particular preparations emphasize the metallic quality significantly, our ears also detect the wooden sonic characteristics that join to create a unique acoustic blend.

Movements: I. Solo for Prepared Piano; II. Trio (9 tom-toms, pod rattle); III (7 woodblocks); and IV. Solo Prepared Piano, which is transformed into (can be heard as):

a. hybrid metals, b. skins, c. woods, and d. hybrid metals again. .

In addition to the piano preparations, the type of phrasing employed also enhances the percussive quality. The pulse-driven, forward-moving, repetitive and persistent phrases demonstrate clear directionality and bridge the 1st and 4th movements to the 2nd and 3rd, composed for skins and woods.

Cage solidified his experiments with percussion and prepared piano with *Amores*. Then he dedicated the following year, 1944, to the prepared piano. He wrote nine pieces that year in total, of which eight were for prepared piano.

1.7 String Quartet in Four Parts

String Quartet in Four Parts (1950) is one of the last pieces that Cage composed as a through-composed piece without any aleatoric characteristics. From an instrumentation point of view, notation for percussion instruments on a string-quartet piece is one of the most unique qualities of this work. The chief novelty (again from the instrumentation point of view) is the application to a group of four string instruments of the one-on-one relationship of pitch to timbre inherent in unpitched percussion instruments and the prepared piano. Just as in *Amores*, Cage's gamut technique (a predetermined assortment of melodic notes and chords that are sounded one at a time without a sense of progression) is introduced right at the beginning in the instructions. Cage starts off by listing all the notes that each instrument is going to play on each string.

The string and the manner of playing is also indicated. This list gives all the sounds that

listeners will hear in the piece. However, these sounds will be combined to yield other possibilities. As with a percussion orchestra, the piece is "limited" in the sounds and registers that can be made by the sounds produced. The old idea with non-percussion instruments was, all the sounds of the tempered scale are at the composer's disposal. By treating acoustic tempered instruments as percussion instruments, as though they were not chromatic, Cage opens up an idiosyncratic way of thinking.

In the prepared-piano pieces, he fixed the timbre and pitch by preparations, which resulted in the invention of new instruments from the piano keys. He does a similar thing in *String Quartet*, treating other non-percussion instruments as percussion instruments.

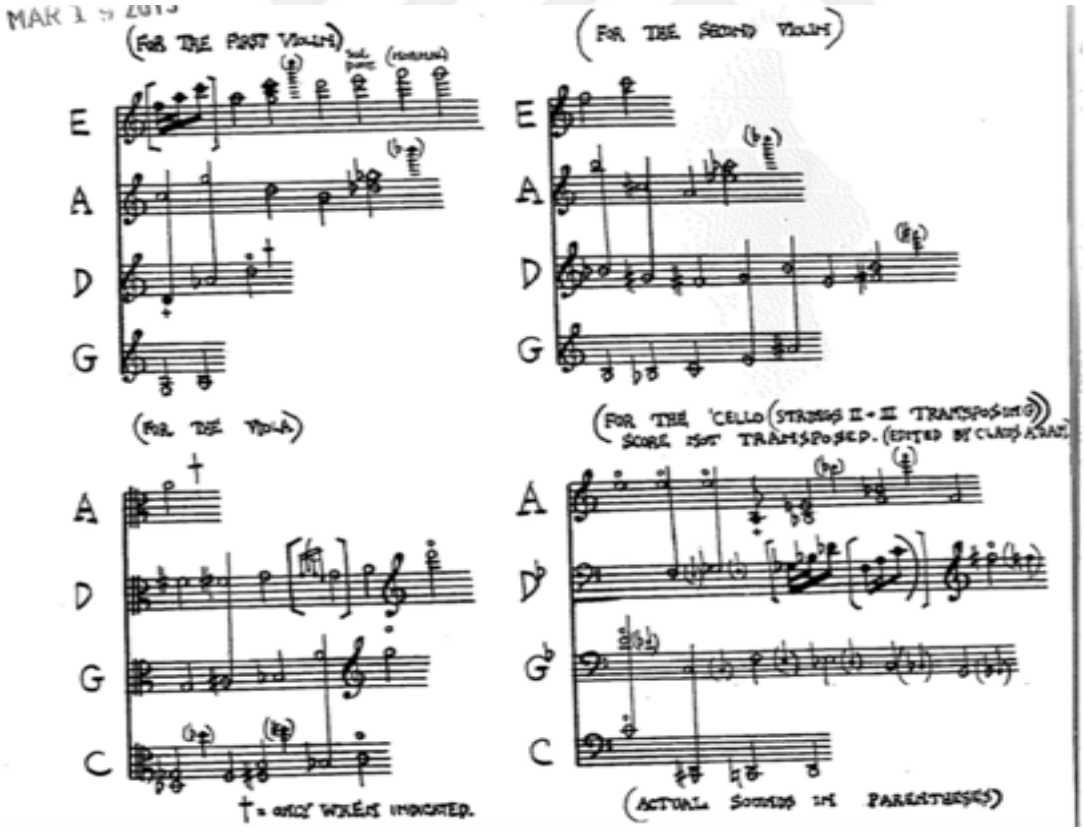


Fig 12- *String Quartet in Four Parts*, Complete List of Sounds

This page resembles the listing of instruments in a percussion ensemble piece. Cage specifies each note on each string and the manner in which it is to be played.

The first violin has 10 notes (in fixed position on the E string), and all pitch content has to be played in this designated fashion. The first 3-note group in brackets appears only in the written rhythmic configuration – 2 sixteenth notes and one eighth note. Strikingly, this figure appears in the first few seconds of the piece, is then transposed down 2 octaves in the cello, and never appears again in the entire piece.

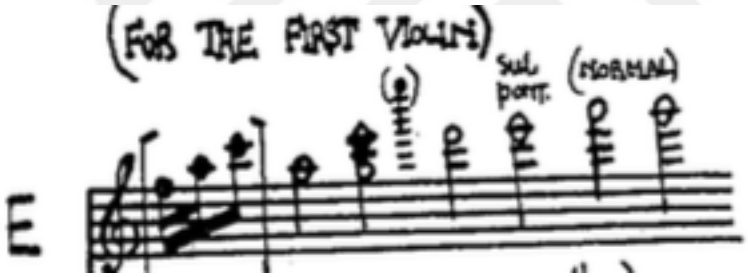


Fig 13- *String Quartet in Four Parts* E String for Violin

The string player has no choice in how to produce those notes except in the way Cage indicates. This makes for awkward string crossings at times, which contributes another element to the unique sound of the piece. The absence of vibrato is also striking.

Further, he combines strings to create 2-note aggregates that always appear together in the piece:

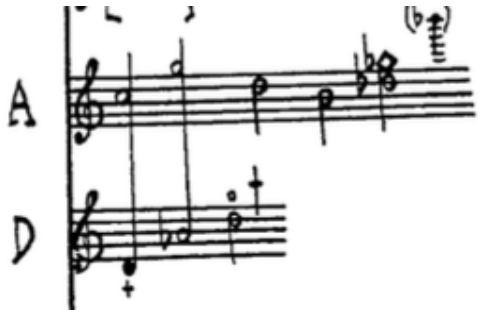


Fig 14- *String Quartet in Four Parts*, 1st Violin A and D Strings

Notice that d4 on the D string and c5 on the A string form a disparate unit, with d4 being played *pizzicato* and c5 *normale.* This aggregate appears 10 times in the first movement, 16 times in the 2nd, 18 times in the 3rd, and 21 times in the 4th, always in the same exact combination, regardless of all other variables such as tempo, dynamic, or rhythmic configurations. This timbral specificity comes directly from percussion writing.

Another distinct unit is the combination of a flat 4 on the D string and g5 on the A string that appear together as a double stop. This unit does not exist at all in the 1st, 2nd, or 4th movements, but it appears 45 times in the 3rd. Cage designed certain sound objects for certain movements in the music. The 3rd movement, for which he indicates "Nearly stationary" symbolizes winter. (These sections will be analyzed further in the section on Structure). It is the longest movement, and makes extensive use of double-stop units for each instrument, in a non-directional, "stationary" way.

The 2nd violin's double-stop unit b flat 4 on the D string and b5 on the A appears 13 times in the 1st movement, 27 times in the 3rd, and is non-existent in the 2nd and 4th:

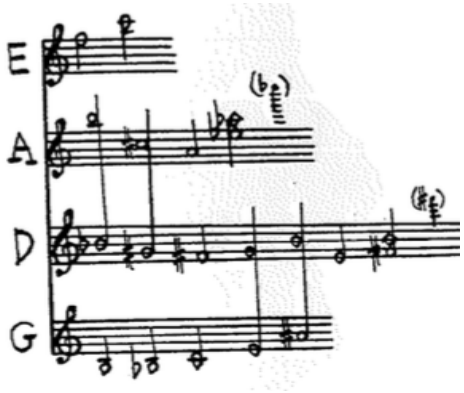


Fig 15- *String Quartet in Four Parts*, 2nd Violin Double Stops

The entire piece operates through this instrumental ideology, and this application of sound production dictates all the parameters regarding performance. The way the string players operate in this piece is identical to how percussion players operate. The sounds and their colors are fixed in advance, and they can only be produced at unchangeable physical locations throughout the entire piece.

Thus, one can see that these sound objects are at the same time the instruments, generated by the combination of the timbral qualities of the strings and their frequencies. The permanent quality of these aggregates and their interwoven relationship with the strings transform the sounds from pitch material to sound objects that can only exist in their specific physical locations.

Percussion's unique one-on-one relationship of pitch and timbre is applied here to strings by constraining the way sounds come into existence. The same note on another string has a different timbre and identity that reveals other sonic information. By deliberately choosing the combination of a particular string and note, Cage prioritizes color, creating unique instruments

out of these sound objects.

The string instruments that were designed to play every note in the tempered scale have been treated as though they are not able to do this. In other words, Cage has transformed these chromatic instruments into "broken" instruments. This treatment of instruments, together with his usage of a proportional square-root strategy, determines the structure of the piece.

1.8 Structural Divisions of *String Quartet in Four Parts*

The relationship of micro and macro structural units in this piece exemplifies Cage's manner of operation in terms of form and structure, until his following period, where he turns to chance operations. The number of measures of micro units in *String Quartet in Four Parts* dovetails with the macro units in the piece.

There are 22 sections divided by double bars and each section is 22 measures in length. The piece exhibits a durational structure articulated by the following numbers: 2.5, 1.5, 2, 3, 6, 5, 0.5, 1.5 = 22:

1st Movement	2nd Movement	3rd Movement	4th Movement
"Quietly flowing along"	"Slowly rocking"	"Nearly stationary"	"Quodlibet"
Summer	Fall	Winter	Spring
2.5+1.5 = 4	2+3 = 5	6+5 = 11	0.5+1.5 = 2
4x22 measures	5x22	11x22	2x22
Half note = 54	Half = 54	Half = 54	Quarter =112-120

The first 22 measures of the first movement illustrate the proportion on the microstructure level. Changes in dynamics, articulation, and musical material coincide with the predetermined phrase structure. Cage starts out with this proportional principle but then deviates from it. As we will see in the Feldman chapter, this is a characteristic of New York School composers. Rigid principles of application are sometimes erased.

2.5 1.5

/————————————————————————————————/————————————————

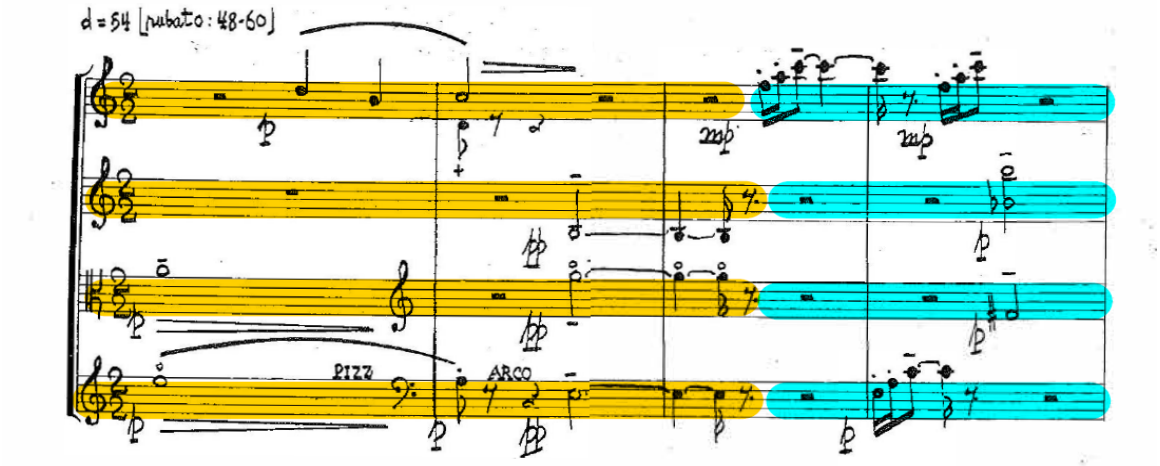


Fig.16- *String Quartet in Four Parts*, 1st Movement Phrase Divisions

After adding 2.5+1.5, Cage multiplies the result by 22. Four episodes of 22 measures results in 88 total measures. We can observe how Cage introduces his distinct sound objects here, gamuts. He presents them vertically and horizontally. The vertical coincidence of aggregates is analogous to a percussion idea. For instance, if a triangle and a bass drum are part of an ensemble, there are 2 separate sounds. But if they are played together, a 3rd sound will emerge. Overlapping gamuts of different string instruments reveal other sonorities, but each gamut's unchanging nature mimics the acoustic information that one would perceive from a percussion ensemble. The chart[25] below is taken from James Prichet's analysis of Cage's gamuts for the 1st movement.

[25] James Prichet, The Music of John Cage (Cambridge University Press, 1996), 51.
This chapter's focal point is Cage's instrumentation innovations. The way I situate Cage's gamuts would be in relation to the instrumentation. There's a large amount of research on Cage's gamuts, James Prichet's book is good example.

Vertical and Horizontal Gamuts of 1st Movement

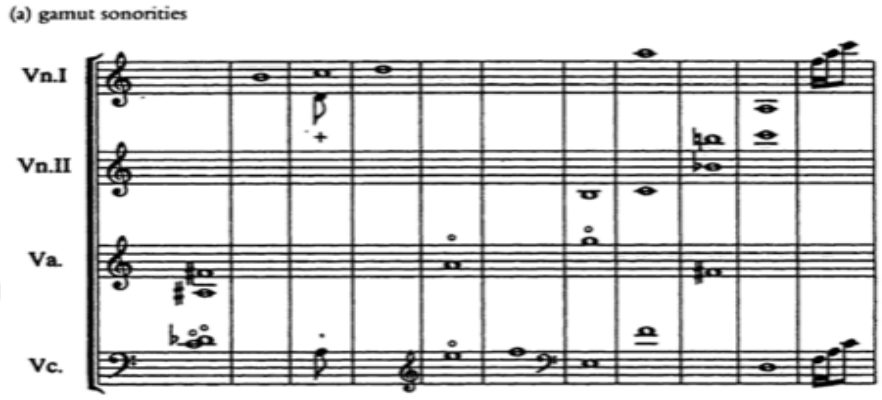


Fig 17- *String Quartet in Four Parts*, Vertical Gamuts of 1st Movement

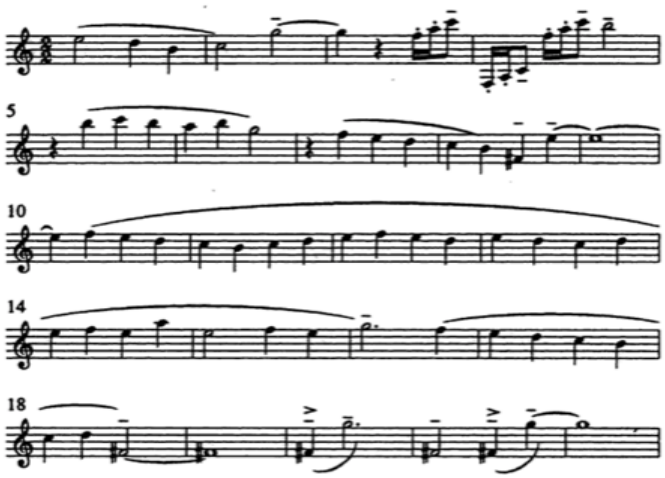


Fig.18- *String Quartet in Four Parts,* Horizontal Gamuts of 1st Movement

He follows this procedure for the 2nd movement by adding 2+3 in the sequence, for a sum of 5. Multiplying 5x22 yields 110 measures of length, with 5 episodes of 22 measures each. He applies the same process for all of the movements.

The 3rd movement has 6+5 durational proportions, which is 11 episodes, and 11x22 = 242 measures. Composing in reference to pre-structured proportions inevitably sends the musical thinking in a vastly different direction. Cage's approach to duration is similar to a painter's approach to her/his canvas. One of the first things that a painter decides is the size of the canvas. Just like a painter, Cage determines the duration first, and fills it with the material. The idea that the duration of the piece is not immediately conditioned by the material, but abstractly selected, is quite a novel phenomenon to classical music. In classical composition, we are used to thinking that the length of the piece will be determined by the nature of the material, including importantly the number of instruments or voices. If the composer is writing a symphony, it is likely to be longer than a 2-part invention. But the concept of duration – as we will discuss in more depth in the Feldman chapter of this dissertation – is liberated from those default conventions by creators like Cage, Varese, Feldman and Coltrane, among others.

Ionisation (1931) by Varese, for example, which is only 4.5 minutes long, with 105 instruments and 14 players, was a very novel idea at the time, with its brief duration.

Crippled Symmetry by Feldman is a trio that is 80 minutes long. John Coltrane's *Interstellar Space* is full album of 40 minutes, with only 2 performers.

The 3rd Movement's Durational Phrase Divisions (6+5)

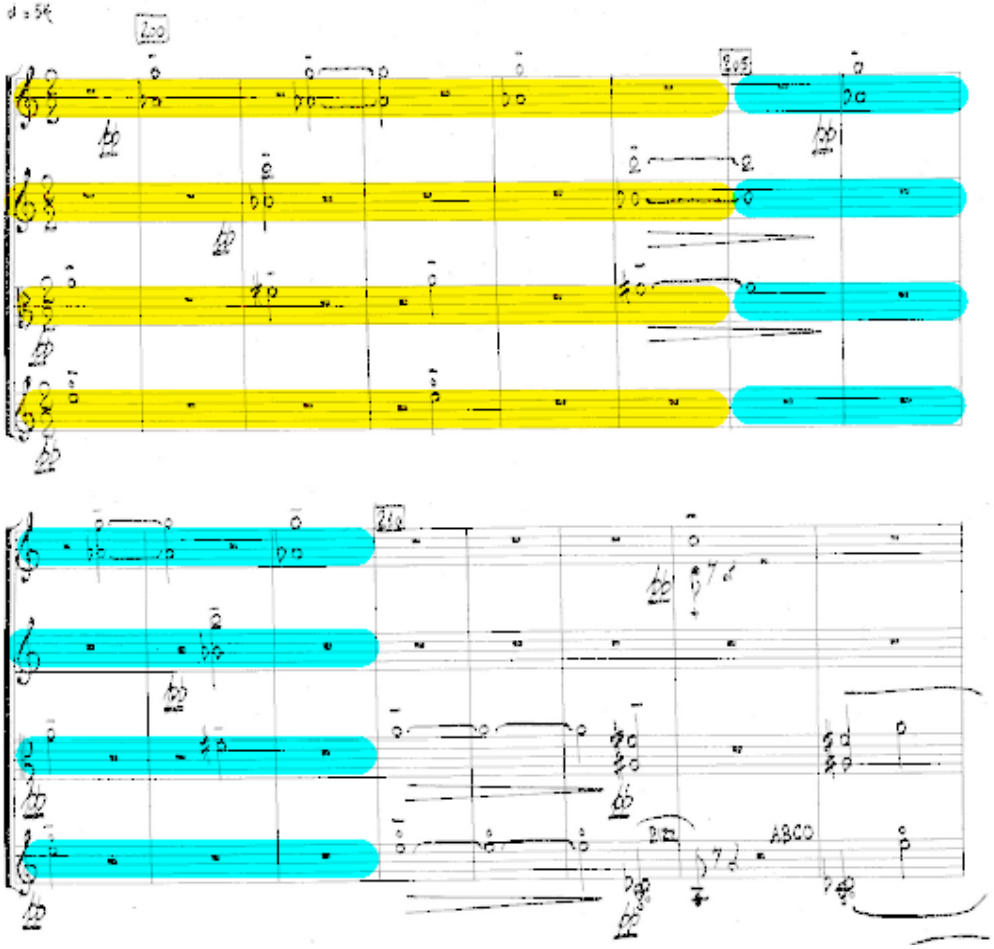


Fig 19-*String Quartet in Four Parts*, 3rd Movement's Phrase Divisions

There is another aspect to this complex structure, though – as the movements proceed, Cage creates the distinct feeling that the music is slowing down. While the half note remains consistently equal to 54 in the first 3 movements, Cage moves to longer rhythmic values. As the movement subtitles indicate, the piece moves from "quietly flowing" to "slowly rocking" to "nearly stationary…" When we arrive at the 3rd movement, the music becomes distinctly slower.

Also, the notated length of the 3rd movement is equal to the combined length of the rest of the movements (11x22).

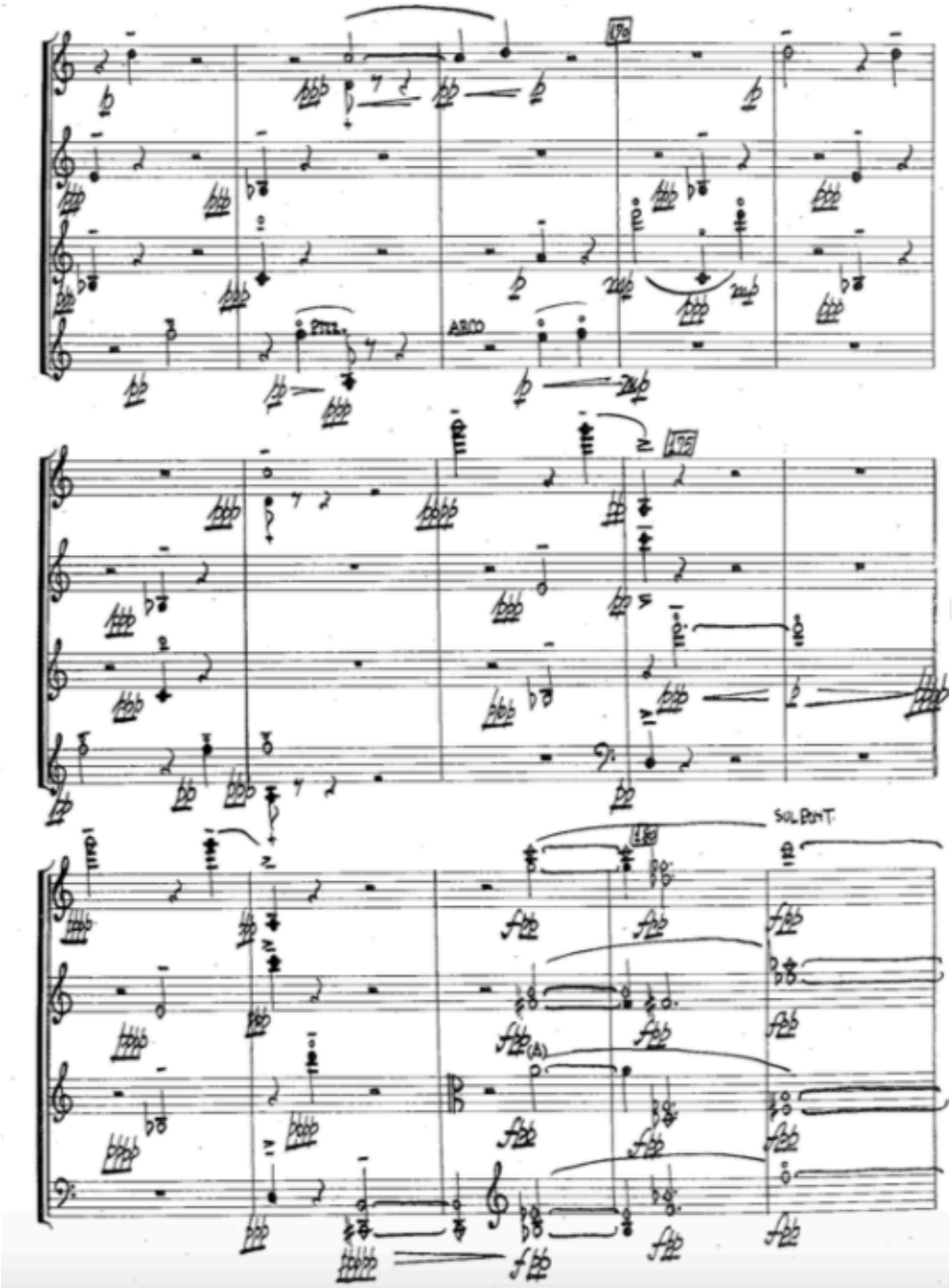


Fig 20- *String Quartet in Four Parts*, 3rd Movement, page 17

The change in the texture and voicing is clear at times, while at other times such changes are neither clear nor audible. The systems that Cage invented allowed him to break connection with the past. But he did this in a way that did not necessarily rely on audible patterning. A criticism on this point came from Steve Reich, who, in his article *Music as a Gradual Process* (1968), wrote:

> Musical processes can give one a direct contact with the impersonal and also a kind of complete control, and one doesn't always think of the impersonal and complete control as going together. By "a kind" of complete control I mean that by running this material through the process I completely control all that results, but also that I accept all that results without changes.
>
> John Cage has used processes and has certainly accepted their results, but the processes he used were compositional ones that could not be heard when the piece was performed. The process of using the I Ching or imperfections in a sheet of paper to determine musical parameters can't be heard when listening to music composed that way. The compositional processes and the sounding music have no audible connection. Similarly in serial music, the series itself is seldom audible. (This is a basic difference between serial [basically European) music and serial (basically American) art, where the perceived series is usually the focal point of the work). What I'm interested in is a compositional process and a sounding music that are one and the same thing.[26]

The lack of structural audibility in process music without steady rhythm and modality to which Reich refers is descriptive of many of Cage's works, as well as the late works of Coltrane and indeterminate pieces by Feldman.

The processes by which the composer constructs the piece may not be perceivable at the global or local level. Reich's criticism to Cage's use of aleatoric processes could apply to the durational proportions of *String Quartet in Four Parts*. While we can hear large formal breaks at the 22 measure marks, the inner subdivisions of each movement lack clarity of arrangement. But

[26] K. Robert Schwarz,"Steve Reich: Music as a Gradual Process: Part I." Perspectives of New Music 19, no. 1/2 (1980): 373-92. doi:10.2307/832600.

Cage was after a way to free himself from the tools he had been given, in order to write a music that had never been written before. His processes were not so much about creating new forms of audible patterning, but rather new forms of freedom from what he called "limitations of taste and habit."[27] This is closely related to his ongoing search for the answers to the following question: How do you make compositional choices if you give up classical means of organization? Some of the choices he came up with seemed inaudible to composers like Reich, but through those choices Cage was able to find the way to a music he could not otherwise create.

When we arrive at the 3rd movement, we encounter almost only combinations of vertical gamuts. In this movement we do not hear individual sounds and the music becomes totally vertical.

The last movement, *Spring,* is the shortest of the 4 movements, with 2 episodes of 22 measures. In this section, the tempo goes from 54 = half note to 120 = quarter note; the rhythmic values become shorter and denser, and the dynamic suddenly turns into *forte*. Cage lets go of the minor seconds, and the sonorities are either triadic or major-second dissonances. Just like in *Amores*, the interiority of the sound architecture is predetermined and then filled with discrete objects.

[27] "Exhibitions", Goethe Institute, accessed August 5, 2019, http://www.goethe.de/ins/et/add/pro/Exhibitions%20Text_Addis%20Abeba_John%20Cage.pd In a letter from 1951 to Pierre Boulez, the patron of the CAGE100 Festival, he wrote: "I freed myself from what I thought to be freedom, and which actually was only the accretion of habits and tastes."

1.9 Impacts of Instrumentation on the Musical Structure

a) The number of instruments affects the resulting texture

In the 1st movement of *Amores,* 18 prepared keys and 4 unprepared keys are used. The prepared keys are individually struck, never as chords, other than in the first and last measures, where they are aggregates containing simultaneous sounding prepared and unprepared keys. Including these 8 aggregates, there are in total 30 hybrid instruments.

In *String Quartet in Four Parts* something different happens: There are 19 gamuts for the 1st violin, 16 for the 2nd violin, 16 for viola, and 25 for cello. That makes 76 gamuts. But in the 3rd and the 4th movement, with the inclusion of the vertical gamuts, the possibilities are doubled. *Amores* transforms the piano from being a solo instrument to being a 30 piece percussion orchestra, fixing the timbre and the pitch by the preparations. In the *String Quartet* this idea is reversed. Cage reduces the number of available notes but makes each one unique in timbres, thus creating a unique texture for each piece. To see this we need to step back. If we take a traditional approach to writing for the symphonic orchestra, the raw material at our disposal is the 12 divisions of the octave played by all the instruments: a complete harmonic vocabulary whose instrumentation is secondary. If we begin with a percussion orchestra, then the idea of the vocabulary of the sound is vastly different because percussion instruments have a more limited number of possibilities.

Although a string quartet can have such a complete harmonic vocabulary, Cage treats it like a percussion orchestra by omitting a great deal of the harmonic vocabulary. While this limitation contributes to the uniqueness of the sound, the vertical and horizontal combinations of gamuts impacts both the “still texture” and the morphology of the continuity.

b) The variability of instruments fundamentally challenges the notion that statements of sonic material should be constrained to fit an ideal number of voices, such as in Bach's Fugues.

Both the transformation of the 88 key piano to an instrument of 30 different voices, and thinking of a string quartet as 76 hybrid instruments challenges the notion of ideal number of voices in a so called "traditional" instrumentation setting. Both of these constructed instrumentations function in a predetermined proportional framework that sets the stage for the morphology of the continuity. This is a distinct change from the continuity of traditional counterpoint. The still images in the *String Quartet*'s 3rd movement blur the audible patterning greatly and disconnect the fluidity of the structure. In both pieces, the continuous focus on the texture and the immediacy of sound takes precedence over hearing the formal development of contrapuntal voices.

c) The extreme flexibility with respect to duration and the number of participants creates an analogy to the unpredictability of environmental sounds as well as our attention to them.

*Amores'*s use of noise-blended sonorities, as well as the aggregates created through an unconventional combination of fixed physical locations in the *String Quartet,* function as a pendulum that swings between different kinds of sound worlds. The result is that the listener's primary focus will be on the detail of sound production.

Cage's creation of instruments influenced like-minded composers in subsequent years. German composer Helmut Lachenmann found it essential for every composer to create their own

instrument for each piece, and that a string quartet could be thought of as single 16-string meta instrument:

> The second point concerns immediate creative practice, by which I mean the concrete process of composition i.e. the temporally articulated handling of sound resources and/or sound matter. Composers dabbling in philosophy, and finding themselves presumably out of their depth, can most readily make authentic statements in this context. This second point addresses the necessity of establishing a new system of categories in every work as a 'syntactical blueprint.[28]

Cage would certainly agree with Lachenmann that the handling of sound resources leads the composer to the immediate creative practice. Creating your own instrument is a direct response to the necessity of establishing a new system of categories. Cage did that with the majority of the music he wrote. Whether creating meta-instruments from piano keys, as in *Amores* or by his idiosyncratic applications for existing instruments, as in *String Quartet in Four Parts,* he created "syntactical blueprints" for them in terms of their sound world and structure.

[28] Helmut Lachenmann, "Uber das Komponieren," in *Musik als existenzielle Erfahrung* (Wiesbaden: Brietkopf & Hartel, 1996) 73.

CHAPTER 2

2.1 John Coltrane: A Different Conception of Musical Liberation

When I talk about "liberation of sound" in this dissertation, I am acknowledging two competing conceptions of liberation that are tied to different histories. On the one hand, Cage and Feldman took the handcuffs off of sound by tackling the generic constraints of the Western musical tradition, challenging the ideology of the stable work, and by dissociating it from certain historical compositional rhetorics. Concerning the other major history, the African-American community did not have the luxury of thinking of freedom as a phenomenon that could spawn something genuinely new. If one's history has been and continues to be systematically erased, the new is not as important as holding onto and transforming the old. George Lewis's influential article "Improvised Music after 1950's: Eurological and Afrological Perspectives" explores this problematic situation profoundly and in detail:

> African-American improvisers, coming from a legacy of slavery and oppression, cannot countenance the erasure of history. The destruction of family and lineage, the rewriting of history and memory in the image of whiteness, is one of the facts with which all people of color must live. It is unsurprising, therefore, that from an ex-slave's point of view an insistence on being free from memory might be regarded with some suspicion – as either a form of denial or of disinformation.[29]

Black conceptions of freedom thus tended to feed and revitalize themselves by practicing a concept of tradition that allows individuality and collectivity to coexist in an artistic domain. Ethnomusicologist Portia Maultsby wrote: *"*Because music exists as a functional entity within

[29]George E. Lewis, "Improvised Music after 1950's: Eurological and Afrological Perspectives," *Black Music Journal,* 16 (1996), 109.

Black America, the creation of new styles discloses shifts in values, attitudes, and social needs. These styles do not evolve independently of existing traditions, but rather, they evolve out of them."[30] This fact played a crucial role in my choice of John Coltrane as a sound liberator from the avant-garde of the 1950's and 1960's, the so-called "Free Jazz" era.

The musicians who innovated in the Bebop era, such as Charlie Parker, Dizzy Gillespie, and Thelonious Monk, came from very different points on the geographic and personal artistic spectrum, but they were all jazz musicians who grew up listening to the same music, and they could play together. The three major figures in the avant-garde – Cecil Taylor, Ornette Coleman, and John Coltrane – also came from different places musically. Cecil Taylor had classical and jazz foundations. Ornette Coleman had a rhythm-and-blues foundation and the sound of the Texas saxophone. Coltrane was the one who came straight out of jazz. He apprenticed under jazz musicians such as Johnny Hodges and Dizzy Gillespie.

Taylor and Coleman were so far out of the average creative mold, almost from the moment they arrived on the scene, that they could not even apprentice with more conventional musicians. They had to forge schools around themselves; as did Coltrane, who, I assert, is the ultimate example of a musical figure who successfully realized a musical revolution by starting with tradition and transforming its improvisational and compositional contexts.

Coltrane's music moved persistently forward in aesthetics and coherency in all three of his discernible periods. From his early period with Gillespie and Hodges, to his middle period with Miles and Monk, to his classic quartet, his quest to free up boundaries in music's tonal and

[30]Portia Maultsby, "The Role of Scholars in Creating Space and Validity for Ongoing Changes in Black American Culture," in *Black American Culture and Scholarship: Contemporary Issues*, ed. by Bernice Johnson Reagon (Washington, D.C.: Smithsonian Institution Press, 1985), 28.

harmonic dimensions was evident. Particularly, Monk's unconventionally jarring dissonance and his final collaborations with Miles Davis provided impetus for "Trane" to push the envelopes of the harmonic and melodic dimensions of jazz.[31] However, in his last period, from 1965 to his death in 1967, Coltrane realized one of the most abstract temporal approaches to jazz music by liberating time.

Coltrane's liberation of and deconstruction of time will be the main focus of this chapter. I will trace his process of thought through his late period, highlighting one of his extended collective improvisational works, *The Father, and the Son and the Holy Ghost*, from the album *Meditations*.

As Coltrane's musical vocabulary developed, and the unified metric phenomenon present in his music initially yielded its place to a multiplicity of rhythmic entities that were independent from one another, the gaps between his music, audience, and music critics became impossible to bridge. It is worth noting, however, that this was nothing new for him, since throughout the 1960s, his music baffled many critics. Despite the fact that he was acknowledged many times (*DownBeat* magazine Jazzman of the Year Award in 1961, *DownBeat* International Critics Poll and Reader's Poll Awards for best tenor saxophonist and miscellaneous instruments (soprano saxophone), and his group voted the *DownBeat* New Star Combo), many Downbeat-affiliated

[31]One historic collaboration was that of Thelonious Monk and John Coltrane at New York's Five Spot, beginning in the summer of 1957, followed by a recording session – "Thelonious Monk with John Coltrane" – by Riverside Records. Also, there's a partially documented Carnegie Hall concert from November 29, 1957. Working with Monk made Coltrane contemplate music in different ways. It was in this period that Coltrane began to experiment with his "sheets of sound," a term coined by *Downbeat Magazine* critic Ira Gitler in the liner notes of "Soultrane" in 1958. His technique was mainly thinking in multiple groupings of notes and superimpositions in combination with his matrix. These so-called "Coltrane changes" started with "Bags and Trane" and "Giant Steps," and are found in everything he played afterwards. Monk triggered and accelerated his harmonic and melodic inventions, and Miles offered him a musical habitat where he could explore new techniques on the bandstand.

critics found his music "superficial," "surreal," "neurotic," or "angry."[32]

So, when Trane pushed the envelope even further in his last two years and went avant-garde, he and like-minded listeners, artists, and musical collaborators were expecting the disdain and negation that he would receive for his last outstanding works. His wife and musical collaborator Alice Coltrane recalls: "When he became 'avant-garde,' as they termed it, he lost many people, many followers. They didn't like it; they didn't approve of it; they didn't appreciate it. And there was no way he could go back; there was no road to return on. It was his commitment; it was his decision."[33]

One criticism of his last works was that they operated in the absence of shared metric foundations, and that Coltrane was thus abandoning his cultural heritage by dismissing the defined metric framework inherent in the central rituals of African-American music. This is an inaccurate and oversimplified critique of Trane's complex sound world, which is an amalgam of the traditional and new, based on the characteristics of collective memory, but reflects them in ways that no one has done before.[34]

---

[32]Leonard L. Brown, **"**In His Own Words: Coltrane's Responses to Critics," in *John Coltrane, and Black America's Quest for Freedom: Spirituality and the Music,* ed. Leonard L. Brown (Oxford: Oxford University Press, 2000), pp.11-31. Leonard Brown's illuminative article includes a letter that Coltrane wrote in response to a gift from Don DeMicheal (editor of *DownBeat)*, a book by Aaron Copland titled *Music and Imagination*. This letter provides very important insights into Coltrane's views and consciousness about himself as a black American, his continued strivings for freedom, his feelings about critics, and his role and responsibility as an artist.

[33]James C. Hall, *Mercy, Mercy Me: African-American Culture And The American Sixties*. (New York: Oxford University Press, 2001),145.

[34] Brown, "In his Own Words," 12-13. "In the November 23, 1961, issue of DownBeat, John Tynan, then associate editor, labeled Coltrane's and Eric Dolphy's music as "anti-jazz." Tynan, who had previously written very negatively about Coltrane's music, said that he felt Coltrane and Dolphy were intent on destroying swing, and he labeled their music "nonsense." "They seem bent on pursuing an anarchistic course in their music that can be termed anti-jazz."

As I pointed out in my chapter on Cage, percussion became one of the most important gateways to new music in the 20th century. This also applies to John Coltrane's body of work and the development of his musical utterance. Just as Cage could, Trane was able to hear beyond rhythmic percussion. As he developed his distinct vocabulary, his springboard remained the West-African musical heritage, especially the West-African drumming in which he took tremendous interest.

Like many black artists who embodied African-American cultural practices, Trane made rhythm the most generic element in his music. It was a rhythmic generic-ness not limited to the rhythmic materiality or ideas of the music, but rather, it served as a multi-directional vision that structurally shaped the music. This underlying feature was in dialogue with other aspects, such as multiplicity, reiteration, and density, as formative means of expression and design. In investigating the evolution of the rhythmic concepts in Coltrane's music from post-modern jazz to free jazz, we zoom in on Coltrane's relationship with drums and percussion, and his interactions with Elvin Jones and Rasheed Ali, two incomparable drummers who co-abstracted with Trane a sense of musical time.

Before discussing musical analysis, though, let us investigate the aforementioned aspects of Coltrane's style and how they manifest themselves as creative forces in Trane's music, in conjunction with the prolific West-African drumming that remained Trane's inspiration throughout his life.

2.2 Multiplicity

Coltrane recorded Meditations a year and a half before his death in 1965. It features Pharaoh Sanders and Coltrane on tenor saxophone, Elvin Jones and Rashied Ali on drums, McCoy Taner on piano and Jimmy Garrison on bass. This is the last John Coltrane recording that his long time partners Elvin Jones and McCoy Tyner appear. The recording consists of 5 tracks; *The Father and the Son and the Holy Ghost*, *Compassion, Love, Consequences,* and *Serenity*. The recording situates itself as a remarkable cornerstone because it reassures that Coltrane's last musical transition has taken off and he is delving deep into creating new concepts of avant-garde and experimentalism.

The sonic environment of *The Father And The Son And The Holy Ghost* comes into existence through the generation of complex interactions between musicians as well as their independent musical behaviors. This amalgamation of attitudes requires two juxtaposed performance skills from its musicians: "dialogical real-time interactions" and "improvisation as an independent musical entity without interaction with others." The first part of this unusual – perhaps paradoxical – combination is unquestionably rooted in the African-American cultural heritage; the second part intersects with the indeterminacy of Feldman and Cage. *The Father And The Son And The Holy Ghost* is a unique example in this realm because it holds on to the core of the tradition yet transforms it with a new understanding. This duality is the nucleus of Coltrane's late works.

In Feldman's graph pieces, free durational pieces and pieces in which each part is written out with the absence of synchronization (such as *Crippled Symmetry*, also analyzed in this

dissertation), parts move independently from one another. The same procedure is also evident in Cage's pieces that are notated in parts. The notion of everybody moving to the same time point at the same time is broken in a great deal of works of Cage and Feldman. The "music in parts" phenomenon, which is explored in depth in chapter three responds to Coltrane's *Father and Son and the Holy Ghost* regarding its sonic outcome, even though the music is not notated.

Coltrane had already detached himself from the traditional jazz conventions such as the cyclic proportions known as "chorus", the accompaniment and soloist dichotomy, and conventional harmonic thinking, before *Meditations*. But this is one of the first studio recordings where he organizes a musical structure with little to no fixed relationships between the players in terms of "time" and their "musical function". This is one of the primary structural intersections between Coltrane's *Father* and Feldman's *Crippled Symmetry*. The employment of multiple musical functions in the absence of shared metric framework is formative for Feldman in the manner of Coltrane's operation.

The particular concept which I term "multiplicity" is central to *Father*, and it is evident as one of the defining characteristics of the West-African cultural heritage. In "Africanisms in American Culture," Portia Maultsby illustrates how rhythmicity, density, reiteration, and variation engender the sound world of African-American music:

> In both African and African-American music, rhythm is organized in multi-linear forms. Different patterns, which are repeated with slight, if any, variation, are assigned to various instruments. The combination of these patterns produces polyrhythms. Polyrhythmic structures increase their overall intentions of musical performances because each repetition produces added rhythmic tension. At the same time, the repetition of patterns in one part allows for textual and melodic

variation in another.[35]

While formalizing African-American aesthetics, critics and historians who are experts in African-American expressive systems have emphasized the use of multiple artistic parameters not only in West-African visual arts, but also in music. Robert L. Douglas draws concrete analogies between visual and musical elements in his essay "Formalizing African-American Aesthetics," and concludes by stating that *"the multiple use of colors in intense degrees, or the multiple use of textures, design patterns, or shapes"*[36] are also present in African musical works. American art historian Robert Farris Thompson strongly emphasizes the two key components of Mande artistic traditions that help us see Trane's late period in a different light:

> Two of the most important Mande artistic traditions disseminated by Mande warriors and traders were cone-on cylinder architecture and the making of multi-strip textiles in vibrant colors – with the main accents of one strip staggered in relation to those of an immediately adjoining one but coordinated with those of another and so on. These aspects made Mande visual tradition survive – indeed still thrive – in certain regions of the Americas, where they were first introduced by slaves from Mande to Mande-influenced regions in West Africa. Moreover, they have been blended with local elements and improvised upon for so long that in most cases the practitioners of these traditions have no specific memory of Mande origins.[37]

While reading the above statement from Thompson, we should consider that the word "art" does not exist in African languages. Nor do Africans necessarily divide art into categories. Unlike in Western-European tradition, art is not an autonomous social domain – it is always

---

[35]Portia Maultsby, "Africanisms in African-American Music", in *Africanisms in American Culture,*ed. Joseph E. Holloway (Bloomington: Indiana University Press, 2005), 193.
[36]Robert L. Douglas, "Formalizing an African-American Aesthetic," *New Art Examiner* (June/Summer 1991), pp. 18-24
[37]Robert Farris Thompson, *Flash of the Spirit: and Afro-American Art and Philosophy* (New York; Vintage, 1983), 197

connected with all phases of life. There are not clear divisions between how visual and aural creative activities are perceived. Like other art forms, African music manifests itself as a form of expression and a generic unit that is in dialogue with nature and social life. Mural drawings, dance, music, and architecture are interwoven with each other and share aesthetic qualities. Thus, when we translate Thompson's statement into the African way of music-making*; "cone-on cylinder architecture"* represents the essence of the African rhythm and style of drumming, which is rounded and has cyclic characteristics: the beginning and the end of the rhythmic idea can be anywhere in the measure, and it cannot be conceived without what comes before and after it in the instrumentation setting. If you ask a native African drummer who has no Western musical education about the rhythmic material that he is playing, s/he will likely respond with a series of oral phonemes that represent the instrumentation and phrasing at the same time. This "ball-like" musical characteristic is brought to life by multiple drums in complementary ways, with specific accents placed in different places of the beat. Combined with singing, dance, and other instruments, its manner of operation resembles "the making of multi-strip textiles in vibrant colors – with the main accents of one strip staggered in relation to those of an immediately adjoining one but coordinated with those of another and so on."

Rhythmic unity is the main element that is "coordinated with those of another" in jazz music. By giving up the main element of coordination, which is arguably the most fundamental element of this music, Coltrane clearly faced a high risk of losing the mutual flow of the music.

To this situation "Trane" added another major musical innovation – a highly dense, multi-directional expansion of instrumentation. His music started to flow even more in the absence of a shared metric framework. One of the factors that made these innovations effective

was the coexistence of multiple performers phrasing individual flows in high density. The simultaneous musical occurrences have no foreground/background hierarchy, and they tend to recur slightly differently in developmental manners. The overlapping textures that are inflected through expressive instrumental techniques with several individual flows result in a dynamic, vibrant wall of sound that moves forward with a "propensity of multiple meter."[38]

Coltrane longed for a multiplicity of textures in his music. He added a 2nd drummer, Rashied Ali, to the group. Ali had a vastly different approach than Elvin Jones, and Coltrane utilized this opportunity in a rather unique way. In the liner notes to *Meditations*, he stated: "I feel the need for more time, more rhythm around me. And with more than one drummer, the rhythm can be more multi-directional. Someday I may add a conga drummer or even a company of drummers."[39]

It is not the first time that one hears two drummers in a jazz/improvised setting. The most prominent free jazz recording in history, *Free Jazz* by Ornette Coleman, recorded 5 years before Coltrane's *Meditations*, utilizes two drummers, Ed Blackwell and Billy Higgins; but there is a huge difference between the musical behaviors of Ornate Coleman's two drummers and John Coltrane's. In *Free Jazz* by Coleman, both Blackwell and Higgins are playing in time throughout the entire recording, and the music moves in a shared metric framework. In "*Father*," time is totally de-constructed, and Ali and Jones do not play anything in a shared metric framework until 12 minutes and 30 seconds into the work, where the piece segues into the track *Compassion.*

---

[38]Ibid.

[39]John Coltrane, "Meditations," in accompanying booklet, John Coltrane, *Meditations*, recorded November 23, 1965, Impulse AS-910-A, 1966, LP.

.

A similar comparison can also be made with other instruments. The horn players in Ornette's group – Eric Dolphy (bass clarinet), Don Cherry (pocket trumpet), Freddie Hubbard (trumpet), and Ornette Coleman (alto saxophone) – utilize discernible rhythmic qualities of jazz phrasing extensively and imply a certain kind of swing, even though they release themselves from it at times. In contrast, in *Father*, Pharoah Sanders and John Coltrane, both on tenor sax, use sheets of sound, squeaks, cries, compound sounds, and an abundance of inflections and expressive techniques. There's no so-called "melodic" jazz phrasing, no implication of metric unity, and the music moves *multi-directionally.*

When we compare these two different musical styles performed with similar types of instrumentation, Coltrane's philosophy is seen to employ a richer type of multiplicity, one not bound to the quantity of performers, but to their function.

2.3 Looking at *Father* through Multiplicity*: "*Keeping multiple things happening all through*"*

"You can go into that later. But I think it'd be better if we keep it pressing, so just keep a thing happening all through …But you can go through in the way you feel it; let it happen. Ready?"[40]

Coltrane said the above words to pianist McCoy Tyner in one of the rare studio chatters that were caught on tape during the recording session of *Sunship* on *Dearly Beloved*. While showing a great deal of trust in his band members, he was vocal about the fact that music should be open and happen in the moment. If a musical idea were to come into existence collectively or

[40] John Coltrane, *Sun Ship*, recorded August 26,1965, Impulse AS 9211-A, 1971, reissued 2013, compact disc.

individually, that was a great reason to be persistent and give life to it; and the coexistence of their individual lives and ideas that arose spontaneously and kept happening all through a performance would be formative aspects that shaped Coltrane's late works.

In *Father* we hear this persistency on multiple levels. If we focus on layers (each performer individually, or in combination), we hear the collective work created through the overlapping textures. In the opening part, Trane and Sanders have identical musical behavior, generating multiphonic colors centered around the notes Ab and Eb. This unity dissolves quickly when Trane starts playing major triads at 0'54 second. We see a sudden shift from a blended-noise characteristic of sonic quality to the simplest and clearest tonal reference in Trane's part, while Sanders is "keeping the (multi-phonic) thing happening."[41]

Just as Sanders does this, McCoy, Garrison, Jones and Ali retain their personal roles after Trane comes in with triadic melodies. They stay with what they have been doing and do not interact with the sonic vocabulary that Trane introduces. This is a new direction in Trane's music. The earlier tendencies of Coltrane's classic quartet would have been to interact with the discernible melodic material in rubato, and to trace and reside in a similar harmonic/melodic habitat. Coltrane divorces from that old habit in this opening.

This absence of a tonal/non-tonal dialectic is instructive. It shows that Trane operates within a wide range of musical vocabulary that has room for multiple sonic universes, from very dissonant to consonant sounds that may or may not be blended with noise or other expressive elements of performance. (This is also common in Feldman's and Cage's music. In Feldman pieces such as *For Philip Guston,* a highly clustered vocabulary coexists with diatonic sounds.

[41] Ibid.

Cage and Feldman do not think of music in terms of dissonance/consonance; and for Cage, there are no clear demarcations between "musical sounds" and noise.)

Elvin Jones, on the right channel of the recording, Sanders in the stereo panorama, and Rasheed Ali on the left channel, use the entire drum set, creating textures on cymbals and skins with sticks and soft mallets. Elvin does rolls on the floor tom and crashes the cymbal; Rashied is on the bass drum and does crashes with the hi-hat. As the piece progresses, metrical ambiguity becomes the norm, with both drummers using their entire sets, creating the temporal elasticity.

As unclear as McCoy's part sounds from the recording session, we can at least extract that he approaches the beginning with a rubato, almost "solo piano," attitude, with sequential single lines combined eventually with sound structures of medium density. After the 2nd minute we do not hear single lines at all: he begins to play occasional sound structures (non-conventional chords), then what is being played around him increases in intensity and density. We notice a sequential exposition of these sound structures that creates consistent pulse implications for some time. He repeats this process many times with different sequences in different pulses. I want to emphasize the avoidance of playing single lines in his part except for the last 15 seconds of the piece from 12' 35" until 12' 50", where we hear the retrieval of the opening part played by Sanders and Coltrane. McCoy is in his own space with his dense voicings, while coexisting with the other musicians in the "heterogenous sound ideal"[42] throughout the whole piece.

The same behavior is evident in Jimmy Garrison's part: single lines and double stops

[42]African-American composer Olly Wilson defines "heterogeneous sound ideal" as a common approach to music-making in which a range of dramatically contrasting qualities of sound (timbre) is sought after in both vocal and instrumental sounds: the desired sound is a combination of sound timbres.

move freely with unpredictable motion in the beginning. Again, as the piece progresses, he employs high density. It is very hard to distinguish what Garrison plays from the recording, but unlike Sanders and Coltrane, he remains in the pitch territory rather than employing extended techniques; even the usage of arco (often utilized in a free jazz setting) is non-existent. Overall, he forges the low end of the sound wall in the sonic spectrum, punctuating his playing with forward motion.

2.4 Looking at *Father* through Structure

As I state in the Introduction, the Euro-Western concert-music tradition did not really acknowledge or even bother to describe real-time-generated musical works in depth, while devoting a substantial amount of attention to "through-composed" musical structures in the education and performance domains. This fact inevitably served to create a large asymmetry in the analysis, research, and production of texts for "improvised" vs. "through-composed" music. This asymmetry is especially evident in the teachings of compositional subjects, with structure being the most obviously problematic parameter.

Structure has always been one of the most potent concepts in music pedagogy. Since it has long been taught using a coded set of symbols, harmonic progressions, and concepts based on the "self-similar" characteristics of particular styles, discourses on it were wholly based on traditionally notated musical works. George Lewis, in his afterword for *Voyager* points out this discriminatory problematic that the dominant culture has put forward for decades through the disavowal of improvisation in educational domains. Lewis profoundly explains the biased line of

thought that supports the notion that an improvisational work is unstructured, therefore does not deserve analytical attention:

> 'Structure,' as we understand it in music pedagogy, is highly desirable. On the other hand, at the same time that most students learn fairly early on that 'jazz' (whatever that might be) is improvised, the dominant culture informs them, in myriad ways that are continually reinscribed across the breadth of daily experience, that 'improvised' is a synonym for 'unstructured.' In apparently welcome contrast, we are provided with the role of the 'composer,' which can be usefully summarized as 'bringer of structure.' The structure inevitably arrives in the form of a written text, a coded set of symbols, intended for realization in performance by a 'performer.'[43]

Members of the New York school suffered from similar predicaments in generating their musical works. Cage's disagreements with his teacher Schoenberg became irreconcilable, forcing him to invent other routes in his search to articulate his musical concepts. The following quote on structure clearly displays his frustrations:

> What struck me all the more was Schoenberg's insistence on teaching tonality as structure, as a structural means. When you think about it, composing with 12 tones is only a method. But I found the obligation to continually submit to that theory to be exaggeratedly constraining…I only detached myself from Schoenberg's teachings on the structural character of tonality once I began to work with percussion. Only then did I begin to make structures. But the structure became rhythmic; it was no longer a tonal structure in Schoenberg's sense.[44]

For Cage, "structure" meant "the division of a whole into parts." In the overall organization of a musical work, structure could not be conceived without method and materials. Hence, all of the components of material were central to structure, with duration being the most crucial one. Not only the presence but also the absence of sounds were equally constitutive of

---

[43]George E. Lewis, "Too Many Notes: Complexity and Culture in 'Voyager,' "
Leonardo Music Journal, Vol. 10 (2000), pp. 33-39

[44]John Cage, "Silence," *Lectures and Writings* (Middletown; Wesleyan University Press, 2010),67

structure. In discussing "the division of time by conventional metrical means,"[45] Cage advocated inclusion of all frequencies, including non-musical sounds and noises, as acceptable scales and instruments.

Cage's wide range of thought inspired me to look at the structural qualities of *Father* in a different way and to designate the events that created its non-sectional structural unity. The forward motion of multiple levels results in a non-segmented sound world that is one of the most deeply underlying aspects of the structure. Despite the diversity and complexity of the material – frequency complexes, discernible pitch structures, and multiple expressive utterances that never operate in a shared metrical framework – the decisive and explosive wall of sound never loses its intensity for a single second.

The immediacy of the sound is another remarkable component and sets the stage for the constant forward motion of the music. Within the very first second, a sense of urgency arises. There is absolutely no introduction, nor are we prepared for something that will happen later in the piece. There's a strong non-sectional structural unity in which the music progresses uninterruptedly.

In his transitional works from *A Love Supreme* (1964) to *Brazilia* (1965) in the last period of the classic quartet, the idea of a rubato "intro" followed by a kind of music that was different than the introduction prevailed. This tendency was enhanced by his affinity for Indian Music. Works such as *Song of Praise* (1965), *Wise One (1964),* S*piritual* at the Vanguard Sessions (1961), and others utilize this structural element, influenced by the "alap"[46] concept of Indian

[45]Ibid,19.

[46]The *alap* is the opening section of a typical Indian Music piece which is a form of melodic improvisation that introduces and develops a raga. The *alap* may vary in length from a few

music. These loose rubato openings with the use of bourdon or drone-like accompaniment were employed to create an atmospheric effect and to introduce some of the melodic material of the composition. This was done through an emphasis on individual notes, and it became a significant part of the transitional works from his modern jazz to free periods. From a listener's perspective, this was an explicit signal that something else (predominantly in a shared metric framework, often as a swing) would be happening right after the intro. *Father* was the first collective improvised piece that did not have this structural predictability.

This non-sectional structural unity and immediacy of sound are key characteristics of Feldman's music as well. In any given piece by Feldman, from the first note on, the listener enters into a listening experience that has "continuously unfolding unanimity of purpose."[47] An interesting listening experiment is to sample the first 30 seconds of *Father* by Coltrane and (the opening of) *Coptic Light,* an orchestra piece by Feldman, back to back to assess their immediacy of sound.

---

se-conds to over an hour. Coltrane's interest in Indian spirituality and music began in late 1950's. In early 1960's, his friendship with the legendary Hindustani singer Ravi Shankar- who was a pivotal figure in the popularization of Indian music in the United States - became a factor for him to further deepen the culture. His pieces such as *India* (1963) and *Om* (1965) are directly inspired by broad spiritual and musical concepts of Indian music.

[47]Eminent composer and pianist Nils Vigeland who studied with Feldman and later toured with him for eight years as "Morton Feldman and Solists", performing the extended length works for flute, percusion and piano that Feldman composed for them, emphasizes the straightforward procedure that Feldman's music in the liner notes of *the CD of music by Feldman in the "American Masters" series on the* CRI *label (CRI CD 620).* The CD includes recordings of *The Viola in My Life* parts 1, 2 and 3, *False Relationships and the Extended Ending* and *Why Patterns?,* all in performances involving Feldman himself, either as conductor or pianist.

2.5 *Father* at Event Level

Stereo panorama: Coltrane plays exclusively on the left channel with Rasheed Ali. The right channel features Pharoah Sanders along with Elvin Jones on drums. McCoy Tyner on piano and Jimmy Garrison are on both channels.

In this piece we hear obvious behavioral commonalities: sound cues, matching portions of high intensity, isolation, the reiteration of pitches, and "complexes of frequencies".[48] It is the multiplicity itself that is the key parameter that facilitates these musical behaviors and thereby creates the music's temporal elasticity. The instrumentation also becomes a key component for the organization of these behaviors.

In the beginning of the piece, the musical behaviors of Coltrane and Sanders would lead us to think of them as a unified entity since they start playing the multiphonic figure (Figure 24 on the next page) as a unit. This lasts only until minute 0'49" where Coltrane shifts to another musical event. They do not play anything in unison or in a synchronized fashion until the retrieval of the same material which comes back at the end of the piece. The scale of dependency in terms of instrumentation or musical function is almost non-existent. But structurally, each instrument is integral to the sound palette and its presence is indispensable. While Coltrane and Sanders coexist while interchanging roles and presences, Ali and Jones are both present at all times. Garrison and Tyner are in their own space as two separate identities, and also present at all

[48]This is one of the terms that was coined by Pierre Boulez in order to describe the sound structures in the prepared piano works of Cage. The production of complex sounds through piano preparations fascinated Boulez, and he started to contemplate new thoughts about describing these unconventional sounds. In *Father*, by admitting raw, so-called "un-beautiful" saxophone sounds, Coltrane creates different kinds of complexes of frequencies.

times.

The musical behaviors of the tenor saxophone players will be my focus in developing my structural arguments at the event level.

Event 1: Minute 0'00-2'08

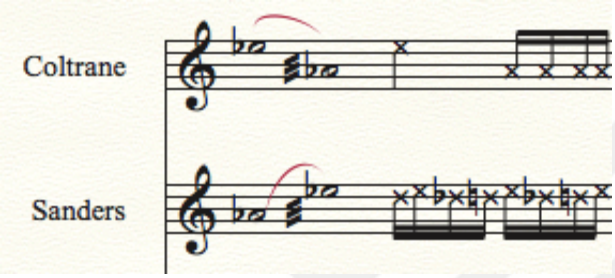


Fig. 21- *Father*, Event 1 (transcription by the author)

The multiphonic colors center around Ab and Eb with noise manipulations forming the first and the only shared event by the two tenor saxophones. They share the same part in a symbolic way until 0.49 seconds, when Coltrane starts Event 2, while Sanders continues Event 1.

Event 2: Minute 0’49-1’56

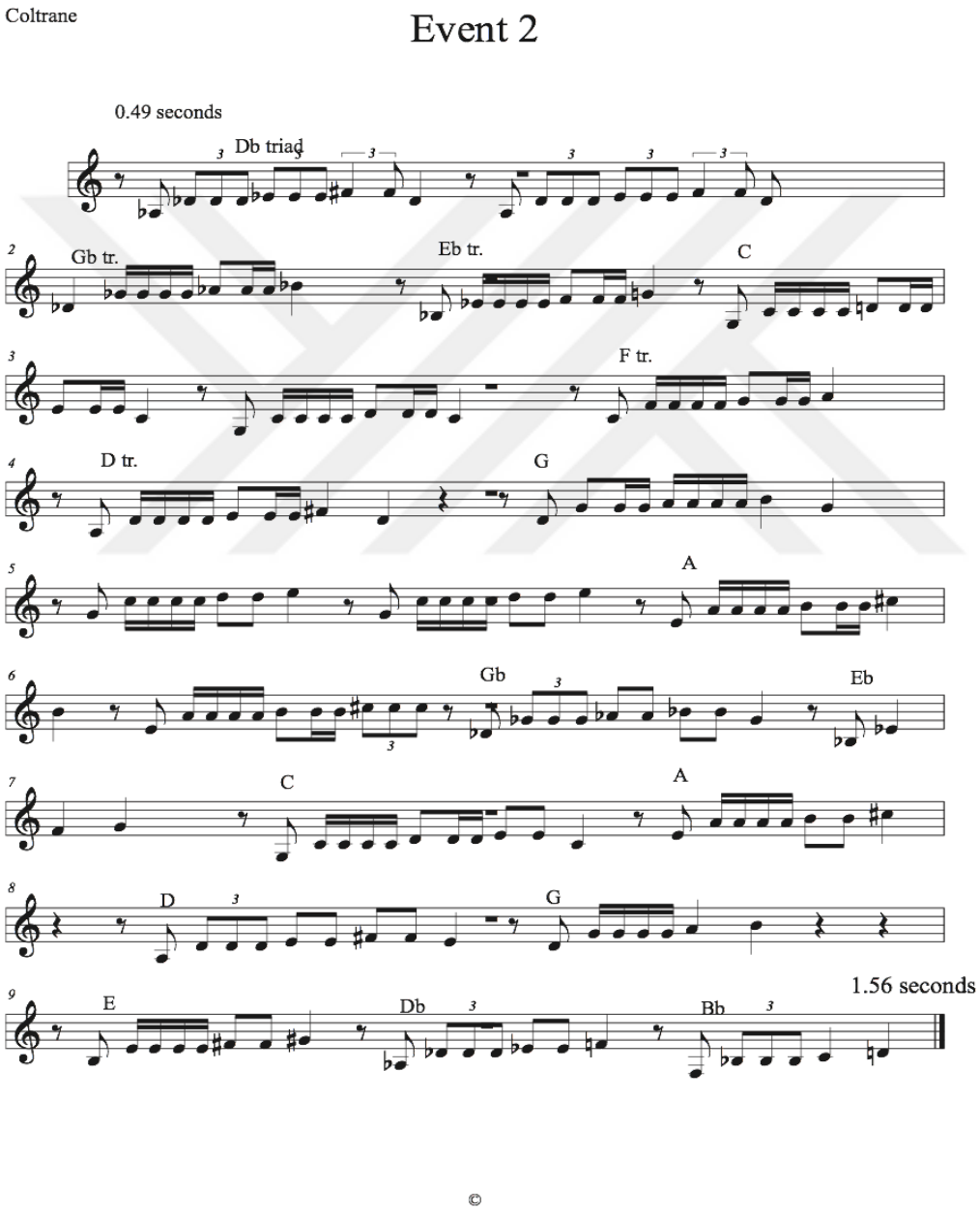


Fig. 22- *Father*, Event 2 (transcription by the author)

This triadic exposition in Coltrane's part, which descends in major thirds except for a few cycles of fifths, is the most explicit form of tonality that appears in the piece.

Even though their nuclei are vastly different, Events 1 and 2 are the only events that will be reiterated later. Event 1 comes back at 10'31'' in both tenor saxes. Sanders retains his role till the end at 12'51"; Event 2 appears again in Coltrane's part from 10'53"-11'22", when he goes back to Event 1.

The explicit triadic material of Event 2 stands in clear opposition to the rest of the material, which is predominantly dissonant, with noise-blended characteristics made by instrumental inflections.

Overlapping events and continuously unfolding unanimity of purpose.

Event 3: Minute 2'10 Coltrane's Part

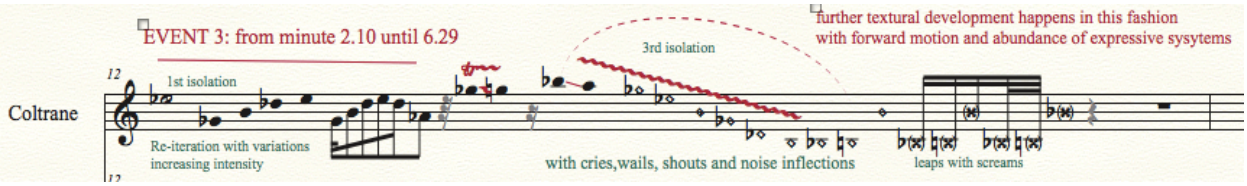


Fig. 23- *Father*, Event 3 (transcription by the author)

With the entrance of Event 3 (minute 2.10), listeners may think that Coltrane begins to play a solo with multiple instruments interacting with him as his background. He enters a somewhat non-transcribable pitch structure with great rhythmic freedom, but very soon we understand that a unique concept is about to emerge. When Sanders puts his horn down, he picks up a tambourine and sleigh bell and joins the percussion section, where Ali and Jones accelerate,

already in multiple tempos and projecting a high degree of density, turning the wall of sound into a volcano.

Most if not all of the materials in this piece grow directly out of high levels of spontaneity, combustion, ignition, and motivation in all of the parts, and utilize a wide range of instrumental expression. This results in a sound world full of expressive techniques, such as saxophone wails, cries, shouts, and rolling arpeggios. Even though we perceive pitches at some level, they come into existence through the isolation of groups of notes that are reiterated with variations, varying emphases, and accentuations. Timbre becomes unified with the pitch structure when the expressive techniques and instrumental inflections increase, which happens almost constantly. Expression through reiteration is the ultimate musical tool here.

When we listen closely to each event, we hear the isolation of groups of notes. These reiterations are intensified through variations and transformations as a formal means of expression and design. Gradations and the rate of change are made more complicated by the succession of events that take place while the sounds continue. What makes this structure unique is the simultaneous utilization of density and reiteration. Density[49] is constructed not only through the quantity of the notes or events, but through multiplicity, and the overlapping of events.

[49] Coltrane's *Father,* Feldman's *Crippled Symmetry*, and a great deal of Cage's music after 1950 are good examples of "music in parts." While Trane does not notate his music at all in *Father,* its structural nature is the same as that of *Crippled Symmetry*. While Coltrane uses reiteration together with density, Feldman utilizes reiteration with silence. Although Cage uses reiteration occasionally, it is not a structural component of his music. His music after 1950 utilizes silence and density in disproportionate levels.

Event 4: Minute 6'32

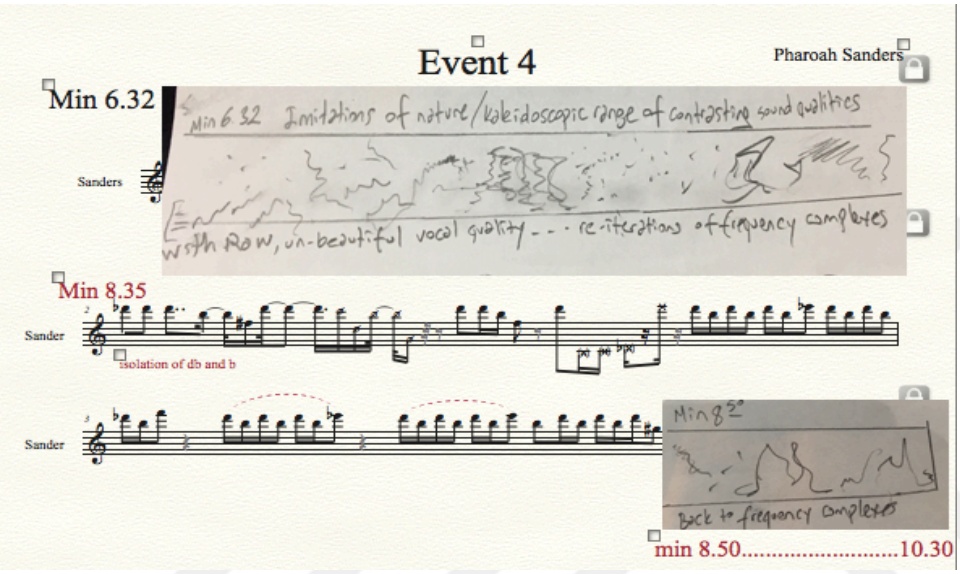


Fig. 24- *Father*, Event 4 (transcription by the author)

The forward motion in this music reaches the maximum level that one can imagine when Sanders plays again at minute 6'32" and phrases with all of the expressive systems available in his tenor-saxophone arsenal. Notice a kind of cross-fade between Coltrane's departure and Sanders's entrance that creates a 12-second simultaneity with both horns, then Sanders becomes the "horn in charge", utilizing even more radical musical utterances. His part consists solely of strained cries, shouts, non-discernible lines, imitations of nature, wild animal sounds, and beyond. His avoidance of any discernible conventional line is remarkable. Overall, Event 4 is constructed by complexes of frequencies that are continuously intensified by expressive systems with high emotional content, except for the 15 seconds between minute 8'35"-8'50". In these 15

seconds that you can see at Figure 27 above, Sanders utilizes a discernible pitch structure in the midst of frequency complexes in a remarkable way. This segment again reassures us that *Father* is constructed out of distinct musical elements.

Event 5 overlaps Event 4: Minute 9'07-10'31

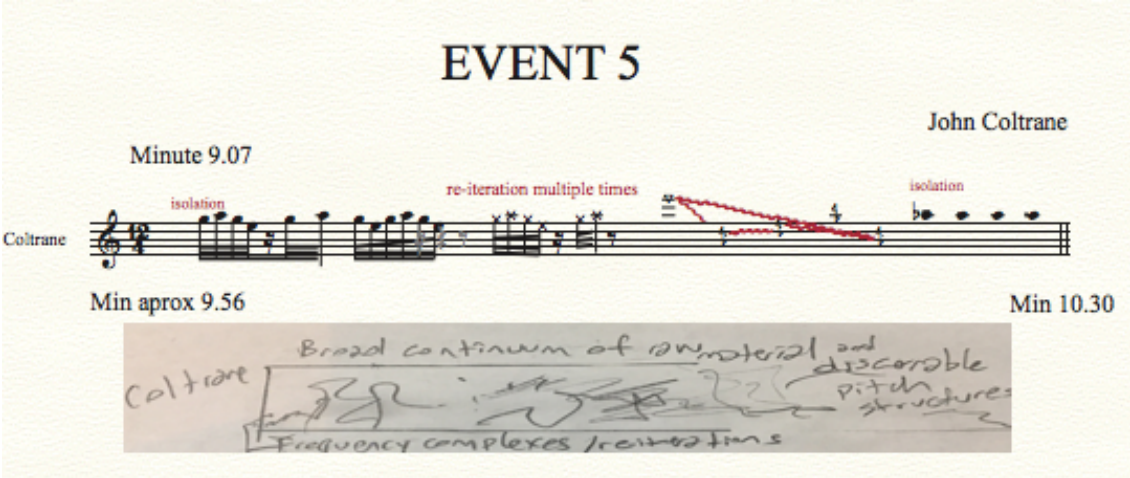


Fig. 25- *Father*, Event 5 (transcription by the author)

Coltrane joins Sanders at minute 9'07, and there is a clear distinction in his attitude. This makes his entrance a new event, not a continuation of Event 3. Event 5 comes into existence by Coltrane hearing and interacting naturally with Sanders's Event 4. Coltrane also utilizes the concept of "complexes of frequencies" in overlapping with Event 4. The overlapping of events is a typical African-music characteristic: the heterogenous textures that coexist in overlapping are not only accepted, but expected in African music.

The Retrieval: Minute 10'31

Both horns go back to Event 1 at minute 10.31. This is a remarkable moment, a true retrieval of musical material that is a mixture of frequency complexes and discernible pitch structure. Twenty-three seconds later, Event 2 reappears in Coltrane's part while Sanders stays with Event 1, similar to the beginning. This retrieval of musical material is the result of reiteration, interaction, and collective musical memory. The rhythm section goes into an African groove in 12 eighths, but since there's an abrupt cut in the recording right after it starts, and also it bleeds through the 2nd track, *Compassion* in the record. Therefore I am basing my analysis on what happens before 12.30.

Structurally, *Father* employs density as a formal means of expression, and its design is enhanced through reiteration and multiplicity. It is remarkable to notice that there is not a single second without sound. It is a piece of music that is designed with discrete musical elements. It utilizes a wide range of musical and instrumental imagination, from conventional, discernible triadic melodies to complexes of frequencies and highly dissonant sound structures. This creates a kind of oppositional quality in its musical language, but the morphology of the continuity, and the generation and development of the materials are self-similar. Considering this fact, we can conclude that *Father* moves forward by self-similarity. With its extreme forward motion, it has a "non-steady-state" structure.

2.6 Reiteration and Density As Formative Means of Expression and Design

African-American composer Olly Wilson's notion of a ''heterogeneous sound ideal,''[50]

[50] Olly Wilson, "Black Music as an Art Form," in *The Jazz Cadence of American Culture,* ed. Robert G. O'Meally, (New York: Columbia Univ. Press, 1998), pp. 82-101

which proposes a common preference for certain sound combinations and timbres in the African and African-American musical traditions, has been cited quite often in the academic domains, with good reason. In his 1983 article "Black Music as an Art Form," Wilson makes profound observations about the conceptual approaches to African-American music-making and lays out six key characteristics of all African-American music:

1) The approach to the organization of rhythm is based on the principle of rhythmic and implied metrical contrast. There is a tendency to create musical structures in which rhythmic clash or disagreement of accents is the ideal; cross-rhythm and metrical ambiguity are the accepted and expected norm.

2) There is a tendency to approach singing or the playing of any instrument in a percussive manner; a manner in which qualitative stress accents are frequently used.

3) There is a tendency to create musical forms in which antiphonal or call-and-response musical structures abound. These antiphonal structures frequently exist simultaneously on a number of different architectonic levels.

4) There is a tendency to create a high density of musical events within a relatively short musical time frame – a tendency to fill up all of the musical space.

5) There is a common approach to music making in which a kaleidoscopic range of dramatically contrasting qualities of sound (timbre) in both vocal and instrumental music is sought after. This explains the common usage of a broad continuum of vocal sounds from speech to song. I refer to this tendency as 'the heterogeneous sound ideal tendency.'

6) There is a tendency to incorporate physical body motion as an integral part of the music

making process.[51]

Obviously the 4th tendency points directly to density, but also the 1st, 3rd, and 5th tendencies are density-related, in combination with multiplicity, which enhances the impact of both concepts exponentially. In *Father* there is no single second without sound. The overwhelming continuum of the material unfolds continuously in architectonic levels. The persistent intensity is also remarkable, since performance of this dense material that is inflected with expressive instrumentation techniques demands unbelievable stamina from the performers, who have to keep generating more and more material as the piece unfolds.

In this regard, reiteration comes into the picture and becomes the key component that ties density to multiplicity. The "antiphonal or call-and-response musical structures" that Wilson points out in the 3rd tendency are an integral part of *Father*'s musical vocabulary. They are reiterative by nature. My analysis of *Father* at the event level reveals that reiteration is highly present in all events. Sometimes we see a whole event reiterated multiple times, such as Events 1 and 2. Other times events are constructed through reiterations; for example, pitches are isolated, then reiterated with expressive musical utterances in various ways before motivic developments are employed.

As Lewis wrote, being free from memory cannot be an option from the ex-slave point of view, as it might be regarded as a form of "denial or disinformation". [52] That is probably one of

[51]Ibid,3.

[52]Lewis, "Improvised Music", 91-122. "On the other hand, the African-American improviser, coming from a legacy of slavery and oppression, cannot countenance the erasure of history. The destruction of family and lineage, the rewriting of history and memory in the image of whiteness, is one of the facts with which all people of color must live. It is unsurprising, therefore, that from an ex-slave's point of view an insistence on being free from memory might be regarded with some suspicion-as either a form of denial or of disinformation."

the main reasons that African-American musical utterances utilize reiteration in all genres. Reiteration does not manifest itself as a musical convention or norm here, but a vital expressive and developmental force.

Reiteration is formative in all African-American music, from earliest forms of rhythm and blues to the most complicated musical structures, such as *Father*. Amiri Baraka creatively labels reiteration as "changing same" and profoundly relates it to the racial memory. Baraka states:

"The line we could trace, as musical "tradition," is what we as a people dig and pass on, as best we can. The call and response form of Africa [lead and chorus) has never left us, as a mode of (musical) expression. It has come down both as vocal and instrumental form….Blues (Lyric) its song quality is, it seems, the deepest expression of memory. Experience re/feeling. It is the racial memory, it is the "abstract" design of racial character that is evident, would be evident, in creation carrying the force of that racial memory."[53] For Lewis and Baraka, reiteration is needed in music as a way to remember and hold on to what has been taken away from them by the destruction of their lineage and history.

However, in *Father* and Coltrane's other late works, such as *Interstellar Space,* reiteration is also transformational. Combined with density and expressive musical utterances, reiteration becomes a developmental and transformational tool, clearly different than repetition. While the nucleus of the musical idea remains, not only variation of the material, but also its transformation is expected in Coltrane's music. This transformation usually presents itself on a motivic developmental level by transpositions, but it is always accompanied by fluctuations of speed and intensity, register jumps, and inflections through the use of frequency complexes.

[53] Amiri Baraka, "The LeRoi Jones/Amiri Baraka Reader", ed.William Jay Harris (New York: Thunder Mouth Press, 1991), 186-189

In McCoy's part, reiteration and density are formative yet more abstract than the tenor saxophone parts. After the 2nd minute, when McCoy increases the density of the sequential exposition of sound structures, his reiteration occurs on the rhythmic level to pulse implications. The voicing is reiterated and re-voiced on the micro level also, but he obviously feels a need to bring some pulse into his part as the time element is deconstructed. He realizes this through reiterating the tempos and repeating this process.

Overall, in the constitution of "the heterogeneous sound ideal tendency," reiteration serves as the fuel that feeds both of the engines of "multiplicity" and "density."

CHAPTER 3

3.1 Morton Feldman's Notational Advances

> The new painting made me desirous of a sound world more direct, more immediate, more physical than anything that had existed heretofore. Varese had elements of this. But he was too 'Varese.' Webern had glimpses of it, but his work was too involved with the disciplines of the twelve-tone system. The new structure required a concentration more demanding than if the technique were that of still photography, which for me is what precise notation has come to imply.[54]

The imagery that Feldman depicted for his own sound world was directly influenced by painters at the forefront of abstract expressionism such as Mark Rothko, Philip Guston, Jackson Pollock and others. That imagery was expressed in his music notation, either graphically or traditionally. The great "*new concentrated structure*" he was after came into existence partly through his notational characteristics.

In his graph pieces composed from 1950 to the end of the 1960's, Feldman avoided the traditional symbols of sound through indeterminacy. At times he left particular parameters – rhythm, melody, or duration – up to the performer. At other times, by neglecting conventional notation, he left lots of room for personal expressiveness in the dynamics. This elasticity impacted the structural parameters of his music, with pitch being the most obvious one.

Historically, notation's function was only to provide a visual representation of the music. Its first and foremost objective was to allow the creator to communicate directions to the performers in written form. Once composers started to deviate from traditional notational

[54]Walter Zimmerman and Morton Feldman, *Essays* (Kerpen: Beginner Press, 1985), 38.

practices and explore graphical means, they found ways to tell their performers not only what to play, but also how to think. In other words, graphical notation opened new doors, and when combined with indeterminacy, endless structural possibilities became available.

These possibilities were realized through a balance of "Composer Specified"[55] "Performer Supplied"[56] musical materials, as opposed to the well-worn idea that the composer lays everything out on the score and the performer has to dutifully perform what is on the page. Feldman situated notation as one of the most critical features in the creation of his music structure after 1950. In his body of work, we can encounter many pieces whose form is produced through the notation, whether graphical or traditional. In this chapter, I will focus primarily on one of his remarkable pieces, *Crippled Symmetry*, which employs traditional notation; but to observe how he achieved his objectives through flexible notation, it is important to elaborate on some of his graph pieces before delving into *Crippled Symmetry*.

Feldman dedicated almost a decade to developing his musical structures through graphical means of notation. With *Out of Last Pieces*, *Projections*, *Intersections*, and several free-durational works such as *Piano Four Hands,* each has a roadmap that contains distinct notational characteristics.

---

[55] George E. Lewis, "Improvised Music after 1950's: Eurological and Afrological Perspectives," *Black Music Journal,* 16 (1996), 91. George Lewis coins the terms composer specified and performer supplied while explaining how composers began to designate the salient aspects of a composition after 1950s in his influential article. I found these extremely vital terms for a profound understanding of real-time generation of musical structure, especially in the creation of the musical material. Furthermore these terms responds perfectly not only to African-American Perspectives of musicality, but also the indeterminacy of New York School as the composers and performers partake in the creation of musical materials in both musical streams.

[56] Ibid.

While there are some shared characteristics in the notations of his graphical works, each piece has its own specific set of notational characteristics. In *Projections* and *Intersections*, the time domain is represented by space, in which positioned boxes specify only instrument, register, number of simultaneous sounds, mode of production, and duration. Each box equals a unit of time. Here is *Projection 4 for Violin and Piano* (1951):

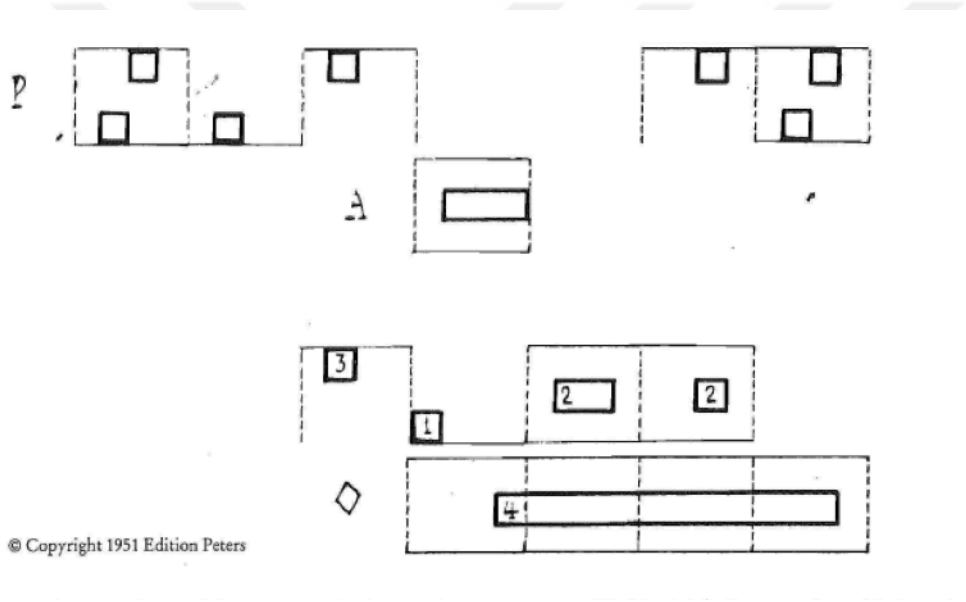
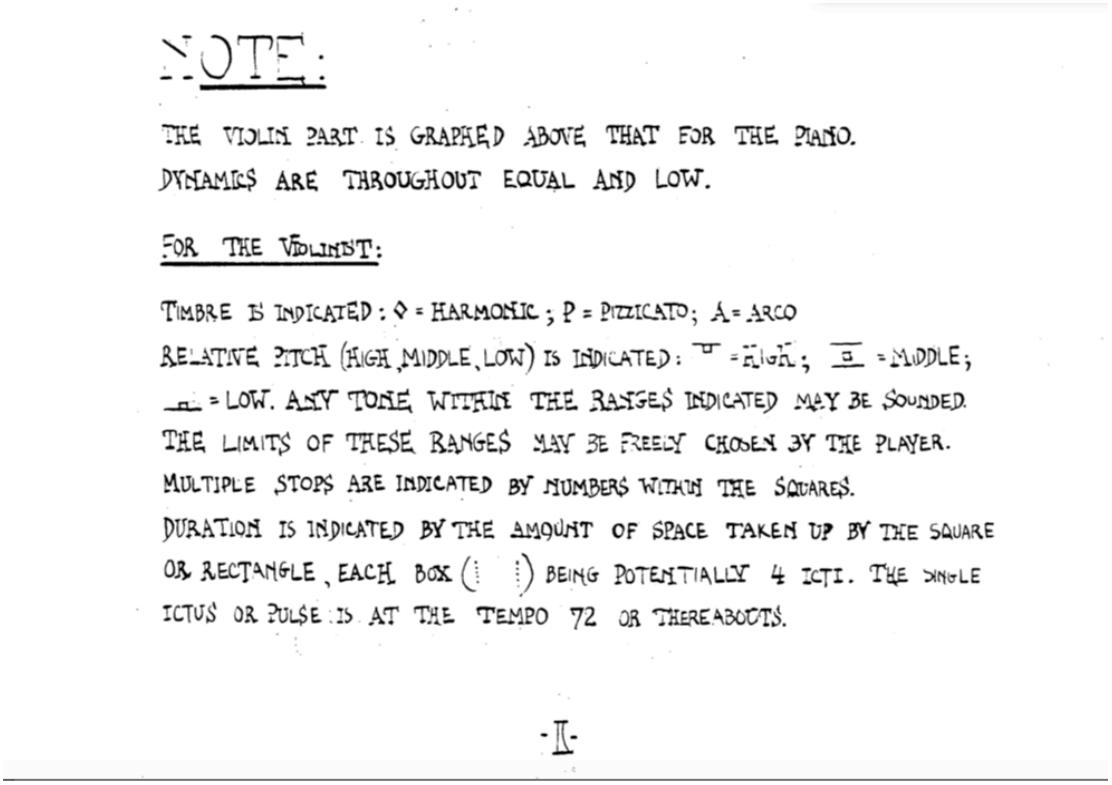


Fig. 26 *Projection 4*, Page 1

The instructions give us an idea about Feldman's structural objectives for *Projections 4*. His priorities are instrumental color by indicating the timbre, various levels of density by making sure more than one note is attacked at times, register, and duration. Leaving certain musical parameters up to the performer does not imply that those parameters are his secondary concerns. On the contrary, engaging the performer with the issue of duration, pitch or other musical concept, Feldman raises the awareness of the necessity of these aspects in the music in the

performers' temporality. By actively sharing the responsibility of structural construction of music, Feldman takes the performer out of her/his default state of performing music.



NOTE:

THE VIOLIN PART IS GRAPHED ABOVE THAT FOR THE PIANO.
DYNAMICS ARE THROUGHOUT EQUAL AND LOW.

FOR THE VIOLINIST:

TIMBRE IS INDICATED: ◊ = HARMONIC; P = PIZZICATO; A = ARCO
RELATIVE PITCH (HIGH, MIDDLE, LOW) IS INDICATED: ⊓ = HIGH; ⊟ = MIDDLE;
⊔ = LOW. ANY TONE WITHIN THE RANGES INDICATED MAY BE SOUNDED.
THE LIMITS OF THESE RANGES MAY BE FREELY CHOSEN BY THE PLAYER.
MULTIPLE STOPS ARE INDICATED BY NUMBERS WITHIN THE SQUARES.
DURATION IS INDICATED BY THE AMOUNT OF SPACE TAKEN UP BY THE SQUARE
OR RECTANGLE, EACH BOX (⋮ ⋮) BEING POTENTIALLY 4 ICTI. THE SINGLE
ICTUS OR PULSE IS AT THE TEMPO 72 OR THEREABOUTS.

-II-

Fig. 27 *Projections 4*, Instructions

For the pianist: ◊ indicates playing without sounding (for the release of harmonics). Pitches, their numbers, and durations are indicated as for the violinist.

Intersection 3 for Piano (1953):

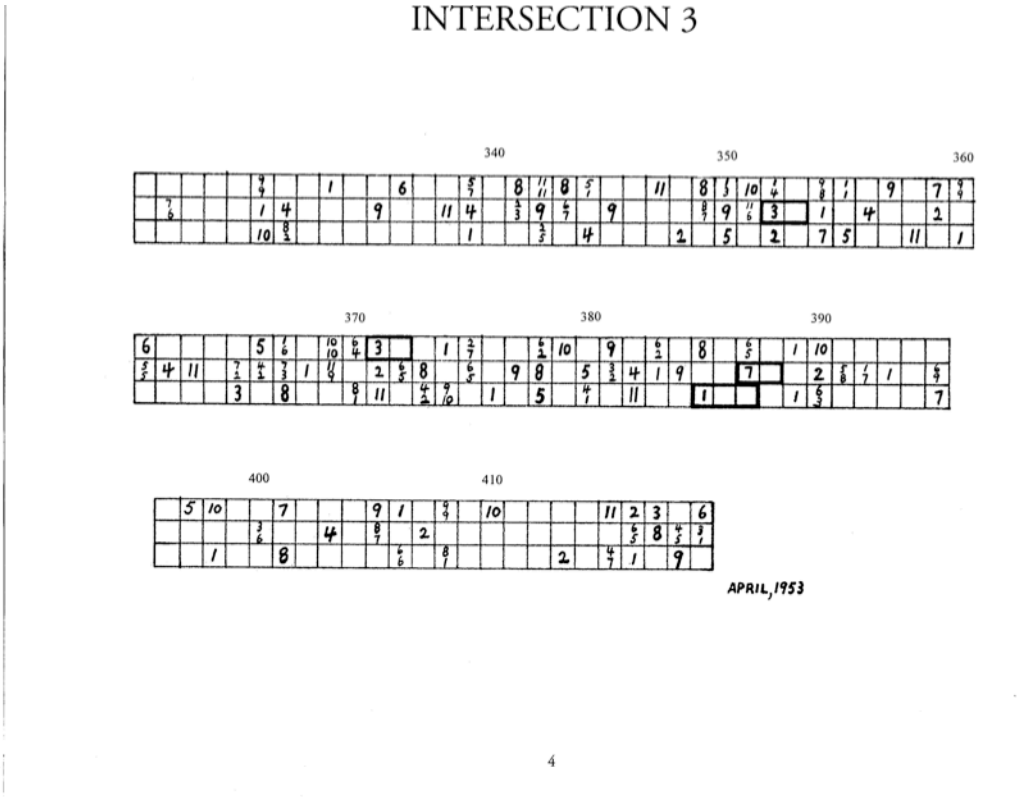


Fig. 28 *Intersection 3*

Each box is equal to MM = 176. Each system is notated vertically as regards pitch: high, middle, or low. The numbers indicate how many keys one plays. Where there are two numbers for one register, any part of the register can be used. The player is free to choose any dynamic and to make any kind of rhythmic entrance at any time in a given situation. Sustained sounds once played must be held to the end of the notated duration.

Australian musicologist, composer, and pianist Alistair Noble's analysis of *Intersection 3*

reveals that while Feldman was operating through a scale of densities in order to move the sounds within the interior architecture of his sound world, he made sure that his cluster vocabulary was present at all times in regard to pitch. Noble explains, "Delving a little more deeply into Intersection 3, the numbers indicate the density of sounding pitches are 1-11, which together with the empty square as 0 gives the significant number 12. Radically, the fundamental material used to compose the work is a chromatic set of 12 densities, rather than 12 pitch classes."[57]

It can seem counterintuitive to think graphic notation and indeterminacy are employed to organize parameters such as pitch, since by utilizing indeterminacy, the composer always gives up the control of some musical parameters; but this case is a good example of how Feldman employs notation to achieve his structural objectives and shape his textural characteristics and indeterminacy, to create different sound colors in every performance.

Projections 4 and *Intersections 3* sound vastly different than his traditionally notated works. Both pieces are non-steady state and move both by opposition and self-similarity. The notation directly decides the structure. It is as if the composer employs notation to compose the music, rather than composing it first and then putting it on paper.

The notational innovations of Feldman changed the performer's role and the composer-performer relationship. The performer became an active supplier of music content. Another performer meant "other" music. Music-making became an act of discovering the music together instead of the composer showing his or her discovery. Feldman's experiments with notation continued in the 1960's. In *Piano Four Hands* (1962), below, the pitches are determinate, but

[57] Noble, A., *Composing Ambiguity: The Early Music of Morton Feldman* (2013), 153

their duration and vertical relationship are up to the performer:

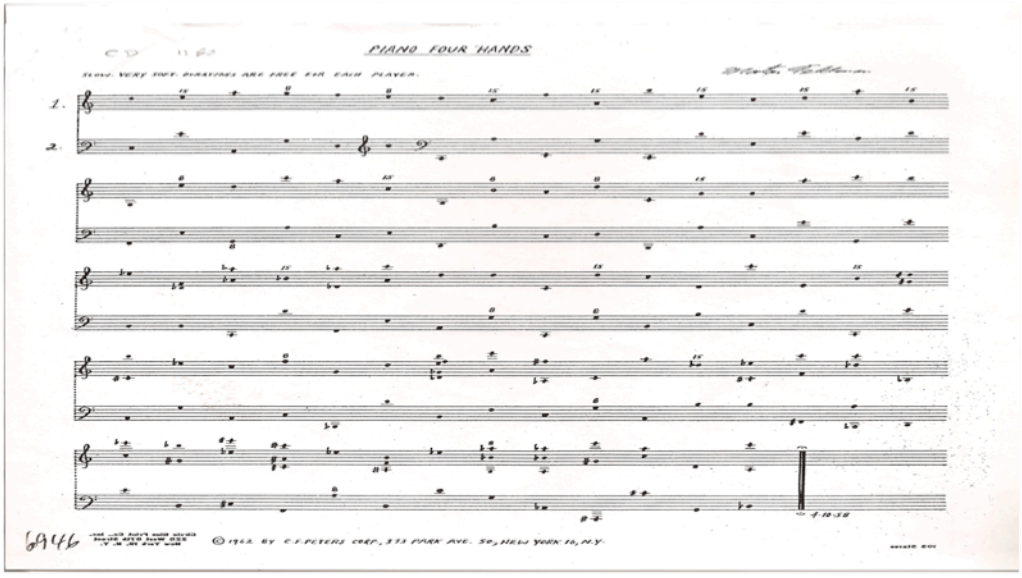


Fig. 29- *Piano 4 Hands*

The only instructions for the two players are "Slow – very soft." It is known that during the rehearsals, Feldman asked the performers to use the sustaining pedal as much as possible. It is important to note what Cage observed about Feldman, with regard to his graph versus conventionally notated music: *"*Feldman's conventionally notated music is himself playing his graph music.*"* [58]

Piano Four Hands preserves his same values and sounds in a way much closer to that of his traditionally notated pieces. The main reason for this is the absence of indeterminacy in regard to pitch. Feldman provided his own sounds and let the performers provide the

[58] O'Hara, Frank, *New Directions in Music: Morton Feldman* (1959), 216

morphology of the continuity. Also, by stating “slow – very soft,” Feldman made sure that the rate of change and pacing moves a lot like his through composed works where the focus is on the decay of the sounds.

For Feldman, creating different possibilities for moving sounds and how they co-exist became a central objective in his graphically notated pieces. In each graphically notated piece, he was operating directly on architectonic levels, which naturally led to inherent, highly differentiated sound qualities that he did not want to systematize.

Feldman was greatly inspired by how abstract expressionist painters utilized the canvas in new ways, and this became the main impetus for developing his notational style. His encounter with Jackson Pollock greatly influenced his graphic works in the 1950’s. He called Pollock the inspiration for his "allover" approach to the time-canvas:

> In thinking back to that time, I realize now how much the musical ideas I had in 1951 paralleled his mode of working. Pollock placed his canvas on the ground and painted as he walked around it. I put sheets of graph paper on the wall; each sheet framed the same time duration and was, in effect, a visual rhythmic structure. What resembled Pollock was my "allover" approach to the time-canvas. Rather than the usual left-to-right passage across the page, the horizontal squares of the graph paper represented the tempo — with each box equal to a pre-established ictus; and the vertical squares were the instrumentation of the composition.[59]

When Feldman resumed conventional rhythmic notation by the end of 1960’s, he still used notation as a key structural device. The time-canvas idea and utilizing a specific ictus for a particular instrumentation remained as components in his traditionally notated works. *Crippled Symmetry* from 1983 is an excellent example of this notational transformation.

[59]Morton Feldman and B. H. Friedman, *Give My Regards to Eighth Street*: *The Collected Writings of Morton Feldman* (Cambridge, 2000), 147.

The rest of this chapter will be dedicated to the structural characteristics of *Crippled Symmetry* that emerged through notation, reiteration and silence.

3.2 Music in Parts: Looking at *Crippled Symmetry* through Notation:

"I enjoyed painting flowers, not bouquets, but a single flower at a time, in order that I might better express its plastic structure."

– Mondrian[60]

There is a reason that Feldman starts his essay *Crippled Symmetry* (*Give My Regards to Eighth Street: The Collected Writings of Morton Feldman*) with the Mondrian quote above. The crucial relationship between Mondrian's quote and notation and structure is found in the phrase *"not bouquets, but a single flower at a time,"* which translates to "music in parts." Music in parts is a score with no fixed relationships between the parts, specifically, one in which the vertical synchronization is not expressed in a coordinated time grid. It is a notational and compositional choice most utilized by John Cage.

Cage gave up score writing after 1954 and composed almost all of his works in parts for the rest of his life. Music in parts, where there is no synchronization among the musicians, still exists as an abstract phenomenon in today's act of music making. This is not just a notational technique but a radical choice by the composer that demands laser-like focus from the performers. The absence of a score can leave the musicians feeling like lonely marathon runners. The shared experience and sudden comfort of playing in a synchronized fashion never happens. The customary knowledge of your part's function and connection with the rest of the material is

[60] Ibid., 134

replaced by vulnerability to unknown possibilities.

The challenge of this complexity exemplified in the works of Cage and later Feldman triggered a change of mind, provided models of both individual and collective creativity, and challenged performers, composers, and listeners alike to fearlessly allow themselves a richer musical experience. Performers such as David Tutor, Eberhard Blum, Nils Vigeland, Jan Williams, and others partook in co-creating a completely new kind of music. In this regard, I find *Crippled Symmetry* played a seminal role.

When we look at *Crippled Symmetry* (1983) for flute, piano/celesta, and vibraphone/ glockenspiel, we see three independent layers at totally different speeds and pacings. While the speed of the quarter note is common, each part moves in its own cycles with its own rates of change. We can also see that Feldman used the page to create disproportionate symmetry, just as a painter utilizes a canvas. In addition, notation has a crucial grid function which is central to the structural process of the piece.

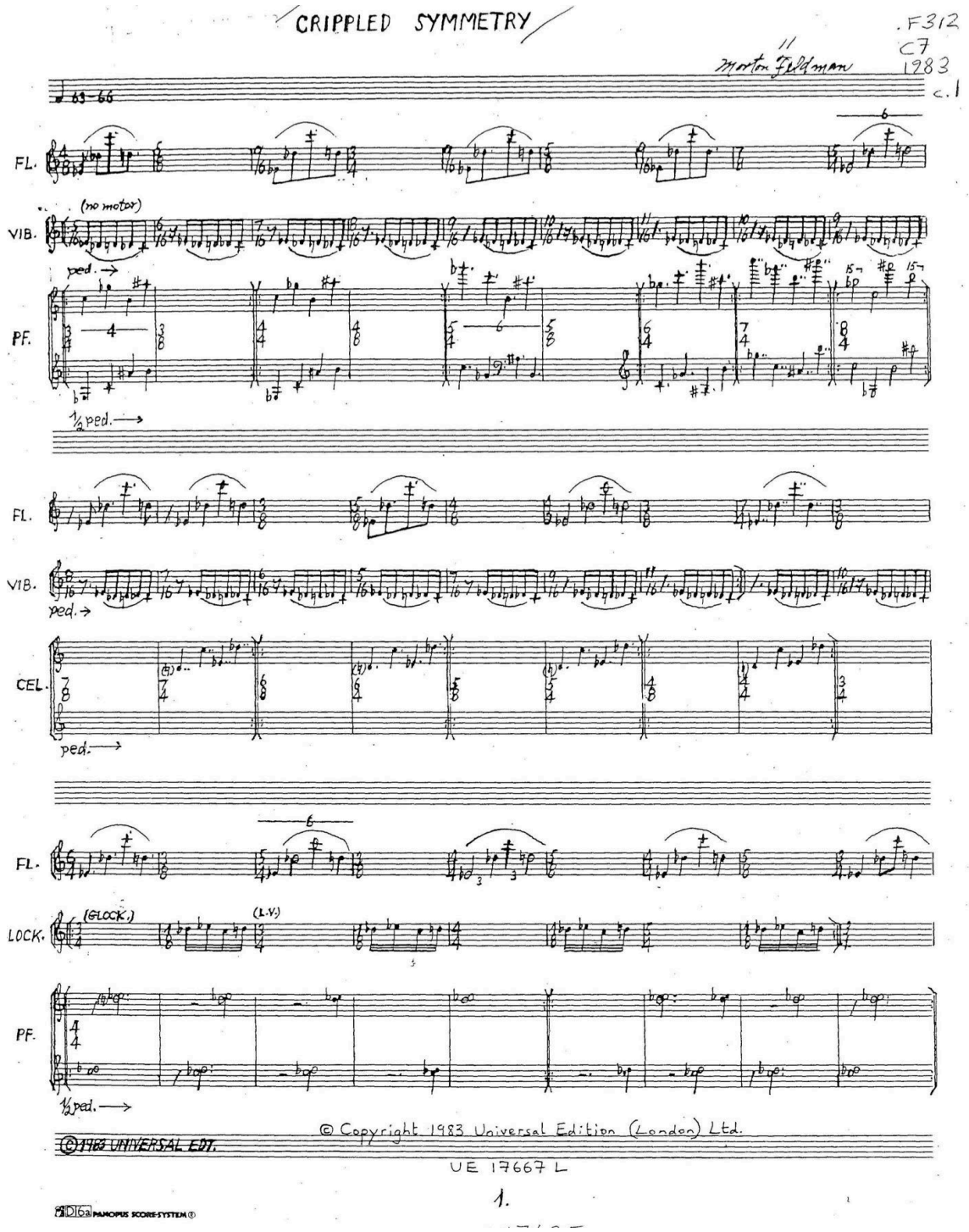


Fig. 30-*Crippled Symmetry*, 1st Page

3.3 Grid in Lieu of a Shared Metric Framework

We can clearly see that each system is 9 measures for the entire piece. Also, the measure sizes are identical no matter what their duration is. Just by looking at the first page, we see how metrically independent the individual parts are. Sonically, the parts are independent, but visually, all instruments share the same grid and fit in the same staff systems:

Player 1 (flute):

The way the flute moves in the first system: 4/8, 5/8, 9/16, 3/4, 9/16, 5/8, 9/16, 7/8, 5/4.

In the second system: 5/4, 5/4, 3/8, 5/8, 4/8, 4/2, 3/8, 7/4, 3/8.

In the third system: 6/4, 3/8, 5/4, 3/8, 4/4, 5/8, 4/4, 5/8, 3/4.

Total duration for Player 1, first page = 170.5 eighth notes.

Player 2 (vibraphone and glockenspiel):

Vibraphone: (5/16, 6/16, 7/16, 8/16, 9/16, 10/16, 11/16, 10/16, 9/16, 8/16, 7/16, 6/16, 5/16, 7/16, 9/16, 11/16), repeated twice = 128 eighth notes;

11/16, 10/16, then shifts to glockenspiel and carries on (3/4, 1/8, 3/4, 1/8, 4/4, 1/8, 5/4, 1/8), repeated twice = 78.5 eighth notes.

Total duration for Player 2, first page = 206.5 eighth notes.

Player 3 (piano and celesta):

The first system: (3/4, 3/8), repeated twice; (4/4, 4/8), repeated twice; (5/4, 5/8), repeated twice, then (6/4) twice, (7/4) twice, and (8/4) twice.

The second system shifts to celesta: (7/8, 7/4) twice, (6/8, 6/4) twice, (5/8, 5/4) twice, (4/8, 4/4) twice, and 3/4 once.

The third system shifts to piano: 5 bars of 4/4.

Total duration for Player 3, first page = 334 eighth notes.

As we see, Player 3 on piano and celesta has the longest duration (334 eighth notes) on the first page, so this part moves slowest, while the flute has the shortest duration (170.5 eighth notes). It moves almost twice as fast as the piano. In another words, the flute player arrives on the third page while the vibraphone player is still on the second and the piano player is still on the first.

While Feldman chose a very disproportionate pacing, his choice for notation aimed for visual unity. This is remarkable, since the parts move independently, and one might think that visual coordination has no sensible objective. However, the combination of disproportionate pacing with visual coordination creates suspense in the performers' temporality. As they read the music from a page where the instruments look perfectly lined up with each other, they are constantly reminded of the absence of the other parts. Additionally, the suspense is enhanced when Players 2 and 3 alternate the instrumentation according to the staff system. In other words, Feldman does not change or combine instrumentation in the middle of the system.

On page 1 above, PF shifts to celesta in the second system, and back to PF in the third. The vibraphone player shifts to the glockenspiel in the third system. Feldman follows a similar principle when he combines instruments in each part. On page 7 Player 2 plays the vibraphone and glockenspiel simultaneously for the first time. That occurs at the beginning of the system, and continues through page 9. This combination does not return until page 17, but remains

consistently present on pages 17, 19, 22, 23, 24, 32, 33, 34, 36, and concludes the piece on page 38. For Player 3, simultaneous performance on both piano and celesta occurs much less than for Player 2 (p. 9, presented below). The combination starts on page 9, continues on and off on page 10, and runs through pages 11 and 12. It appears again on pages 19 and 22. On pages 9, 19 and 22, visual unity with combined instrumentation reinforces suspense in the performers' temporality.

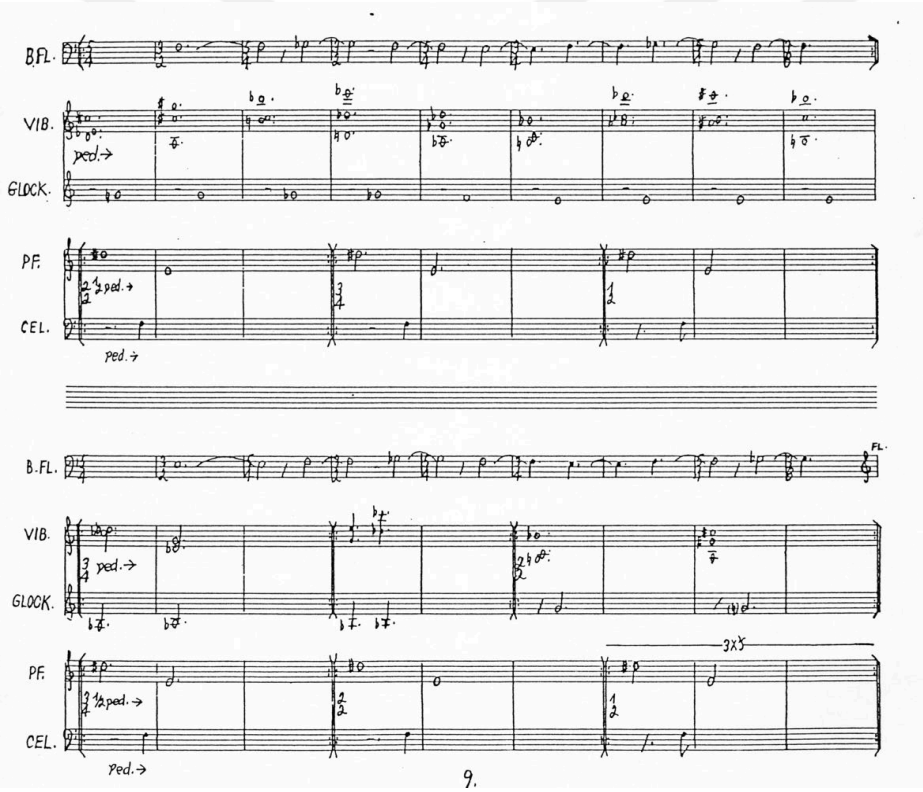


Fig. 31- *Crippled Symmetry*, Page 9

Feldman's painting-driven way of thinking determines the length and proportion of each

part of his grid. In order for him to place his *"still photography"*[61] in reiterations, he creates his canvas in ways that allow a multiplicity of musical behaviors.

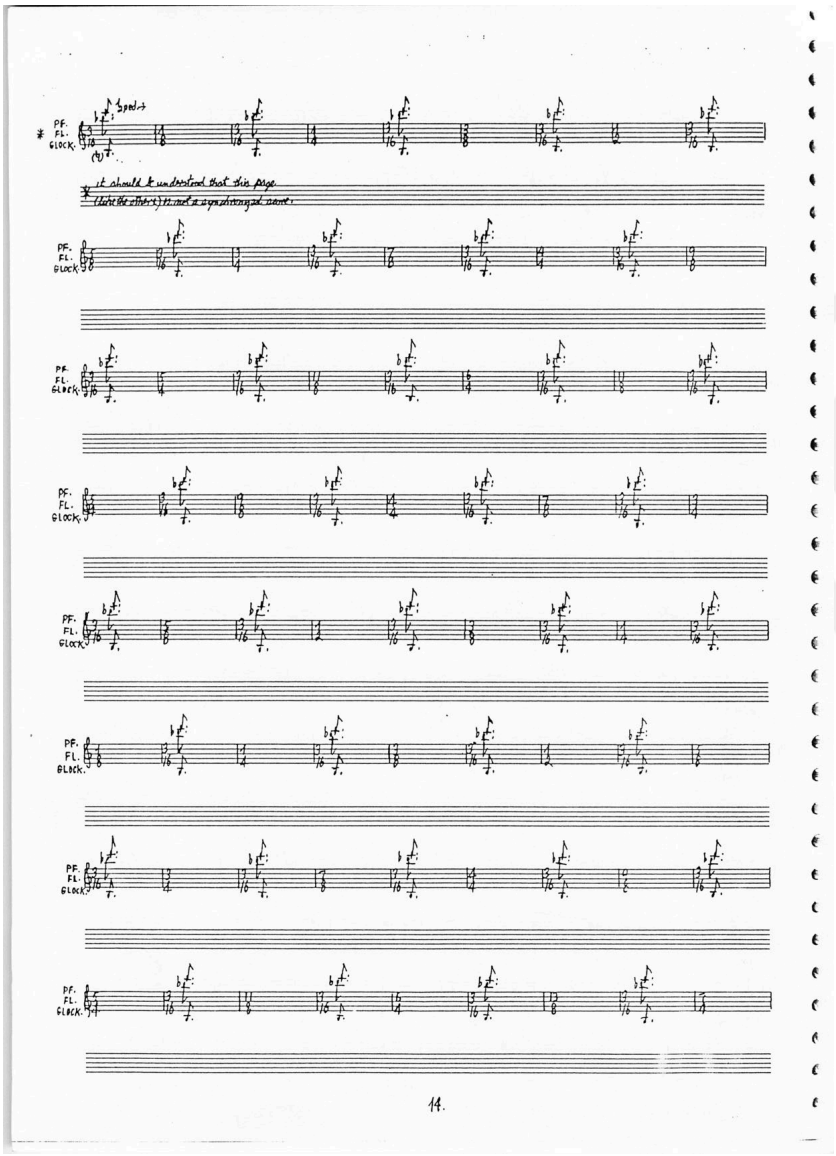


Fig 32- *Crippled Symmetry*, Page 14

One of the most important musical and notational moments in the piece is page 14 above.

61 *"The new structure required a concentration more demanding than if the technique were that of still photography, which for me is what precise notation has come to imply"*:
Zimmerman, Walter, and Morton Feldman, *Essays* (Kerpen, Beginner Press, 1985), 38.

For the first time, the three parts are reduced to only one staff and each instrument plays only one note. Everyone reads from the same staff. Note that the 3-note cluster (B, Bb and C) does not change at all through the entire page. Visually, it gives the impression that everyone is playing at the same time in rhythmic unison. But because of what has happened before, they do not arrive at this point at the same time. Note that Feldman emphasizes and even warns the performers by putting a note on the page, that even though the parts look synchronized, the auditory result is not: *"It should be understood that this page (like others) is not synchronized."*[62]

One of the most remarkable results of this page is: as more time elapses (and the material gradually becomes rather simple with each instrument playing one note), the listener hears the different points of entry but realizes that each player is doing the same gesture, even though they don't play the same notes or line up rhythmically. This is how Feldman activates the memory of the participants in the music – composer, performers, and listeners: reiteration on the micro level throughout the piece gets the memory involved. Then, by applying different pacing for each part that arrives at a visually perfect rhythmic unison, Feldman impacts their memory on the macro level.

Feldman always puts himself in the shoes of the listener, whether he composes, performs, or listens to music. The reflections of the compositional decisions on the listeners' temporality and psyche are what really matter to him. That is why he thinks of memory as one of the most central structural mechanisms in music, and strives for multi-level reiterations that hold the listeners' attention for long periods, rather than predictable sectional repetitions or symmetrical musical events. In his Darmstadt lecture of 1986, while elaborating on structural and formal

[62] Feldman, Morton, *Crippled Symmetry, Universal Edition* (London Ltd., 1983)

problems in music, he raised questions that lead to further contemplations of form, reiteration and memory:

> And then I felt that the memory forms in music were primitive. That they were based on small attention. They were based on a convention. They were based on things that worked, and they worked beautifully. I mean, I did say to my own students, say, the slow movement of the Debussy quartet, the 'A-B-A' construction. And Debussy is very interesting in his 'Piano Etudes'. There's one piece where the 'B' has nothing to do with the 'A'. It's just a marvelous piece in relation to what you can do in terms of the relationship of an 'A-B-A'. They work. They're wonderful. And I said, 'What would happen if you got rid of the "A-B-A" forms? What happens? [63]

On page 15, the flute is separated from the unit, but Players 2 and 3 not only remain visually bonded through the entire page, but also the notes that they play (b and c) do not change. A new page, and a new instrumental combination appears with an oblique musical behavior. The flute introduces a new 3-note reiteration on a local level, with silences of different lengths between the reiterations. The piano and vibraphone continue longer-term, more global reiterations.

Feldman treats each individual page as a new canvas that determines the magnitude and dimensions of his artwork, while planting new seeds into the listeners' memory by combining new and old reiterations on micro and macro levels. He stays consistently loyal to his canvas by letting every structural decision happen through his grid.

[63] Zimmerman and Feldman, *Essays*, 40.

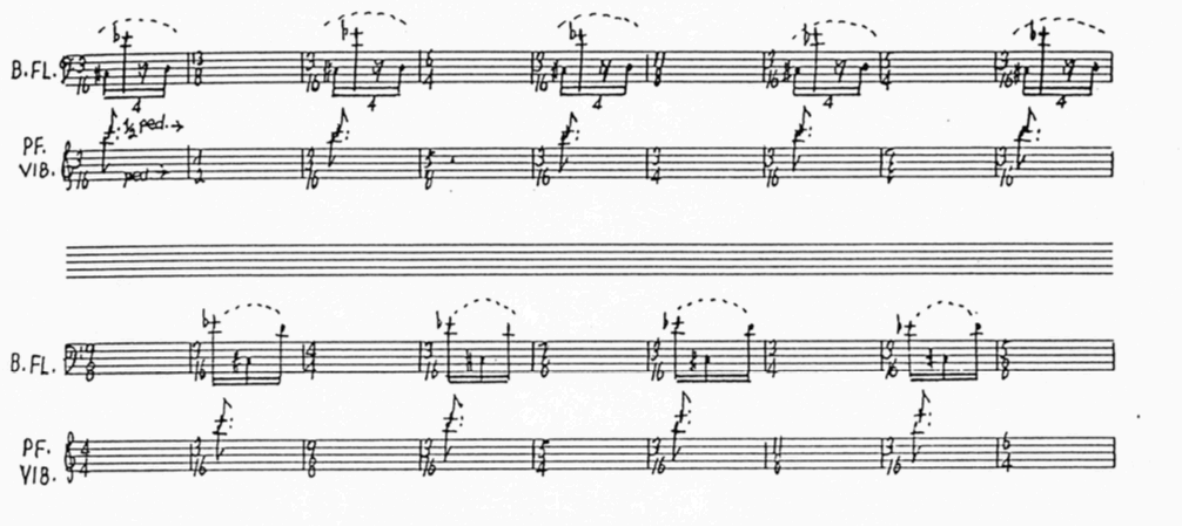


Fig 33- *Crippled Symmetry*, Page 15

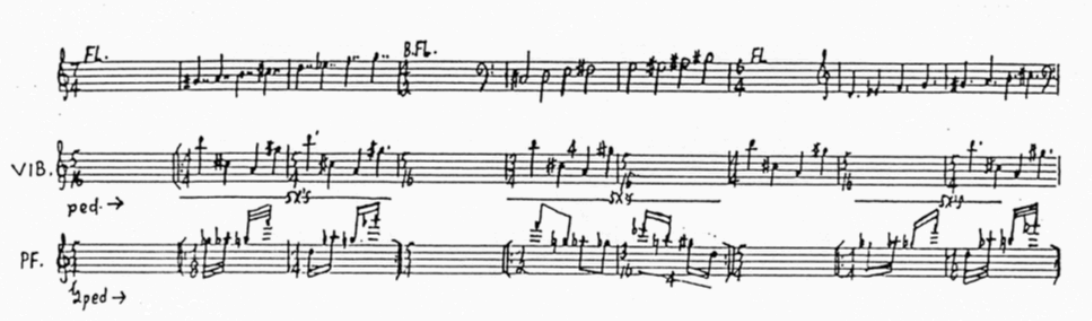


Fig 34- *Crippled Symmetry*, Page 16

Page 16 above is a new design with totally different musical behaviors. This is another unique moment in the piece since the piano utilizes a systematic expansion and contraction of 4-note phrases, reiterating them 5 times, which leads the piece steadily forward with a solid yet unpredictable layer. Note that Feldman goes mostly from reiterated figures of 1 to 4 notes, and uses silences with complex meters between them. These figures do not exceed 5 notes throughout the piece if played in relatively fast tempos. The first reiterated figure that is longer than 5 notes happens on this page in the flute part: it is an 8-note reiterated figure that is much

longer in length but also much slower in speed. There's a reason for this kind of choice in length: even when Feldman complicates the reiterations and creates multiple levels of rates of change, he still aims for memory retention. He limits the faster reiterated figures to smaller quantities. Their attacks are stronger, more percussive in nature. Their decay bleeds into the area of rest in their parts but also blends with the musical events of the other instruments. The way they are engraved into the memory is more direct, and the retained iterations clearer. The longer reiterated figures such as the flute part on page 16, are all ascending in nature, which creates a slight natural crescendo even though Feldman does not notate it. Because of the clear directionality of these phrases, the listeners' experience also receives a kind of anticipation together with the memory.

From page 16, each page is a new design; Feldman introduces a musical idea in the first system and carries it through the entire page.[64] Note that the piano speeds up in its figures while the flute and vibraphone slow down, meaning that the piano has the shortest durations on page 16, with a total of 258 eighth notes. The flute (a total of 552 eighth notes) and vibraphone (553.5 eighth notes) have almost equal amounts of durations. In the beginning this was totally opposite. I will talk about the construction of the piece's durations in relation to its notation in depth later in the chapter.

[64] For space reasons, I have included entire pages only a few times in this chapter. Feldman stays consistent throughout the page with the first system he starts on it.

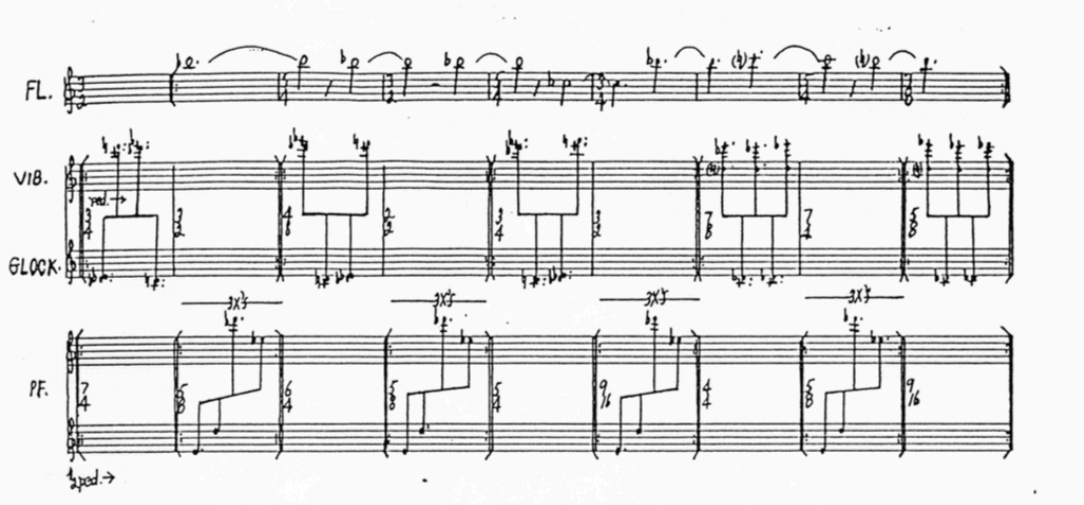


Fig 35- *Crippled Symmetry*, Page 17

The layer created by the piano that functions as a frame on page 16, evolves into another figure on page 17. Here it is iterated four times with different lengths of silence between each statement. Player 2 plays a different yet similar figure with combined glockenspiel-vibraphone instrumentation and that is heard sometime later, repeated twice each time. Derivatives of this musical idea span the entire piece. These formative gradational changes in both figures and silences engage the listeners' memory at all times

The fine balance between repetition and variety; how many times a figure or chord is reiterated with the different-length silences in between, has been one of Feldman's trademarks. Feldman goes back and forth reconstructing the reiterations in the latter stages of his compositional process. He calls this reconstruction a constant attempt to formalize a disorientation of memory, when writing about his other masterpiece *Triadic Memories*:

> The reciprocity inherent in scale, in fact, has made me realize that musical forms and related processes are essentially only methods of arranging material and serve no other function than to aid one's memory. What Western musical forms have become is a paraphrase of memory. But memory could operate otherwise as well. In "Triadic Memories", a new piano work of mine, there is a section of different

> types of chords where each chord is slowly repeated. One chord might be repeated three times, another, seven or eight – depending on how long I felt it should go on. Quite soon into a new chord I would forget the reiterated chord before it. I then reconstructed the entire section: rearranging its earlier progression and changing the number of times a particular chord was repeated. This way of working was a conscious attempt at 'formalizing' a disorientation of memory.[65]

In my opinion, the most mysterious pages of the piece are 25 and 26, where the whole piece is reduced to 1 staff, with one note for each of the instruments. The notes do not change for the entire page. Only the durations, attacks, and silences between them change. It is also significant that while the players are not aligned in the sense of motivic identity when arriving at page 25, the vertical metrical grid is the same for all three from here to the conclusion of the piece. A strong shared sense of pulse rests.

[65] Feldman, Morton, and B. H. Friedman, *Give My Regards to Eighth Street: The Collected Writings of Morton Feldman* (Cambridge, 2000), 136

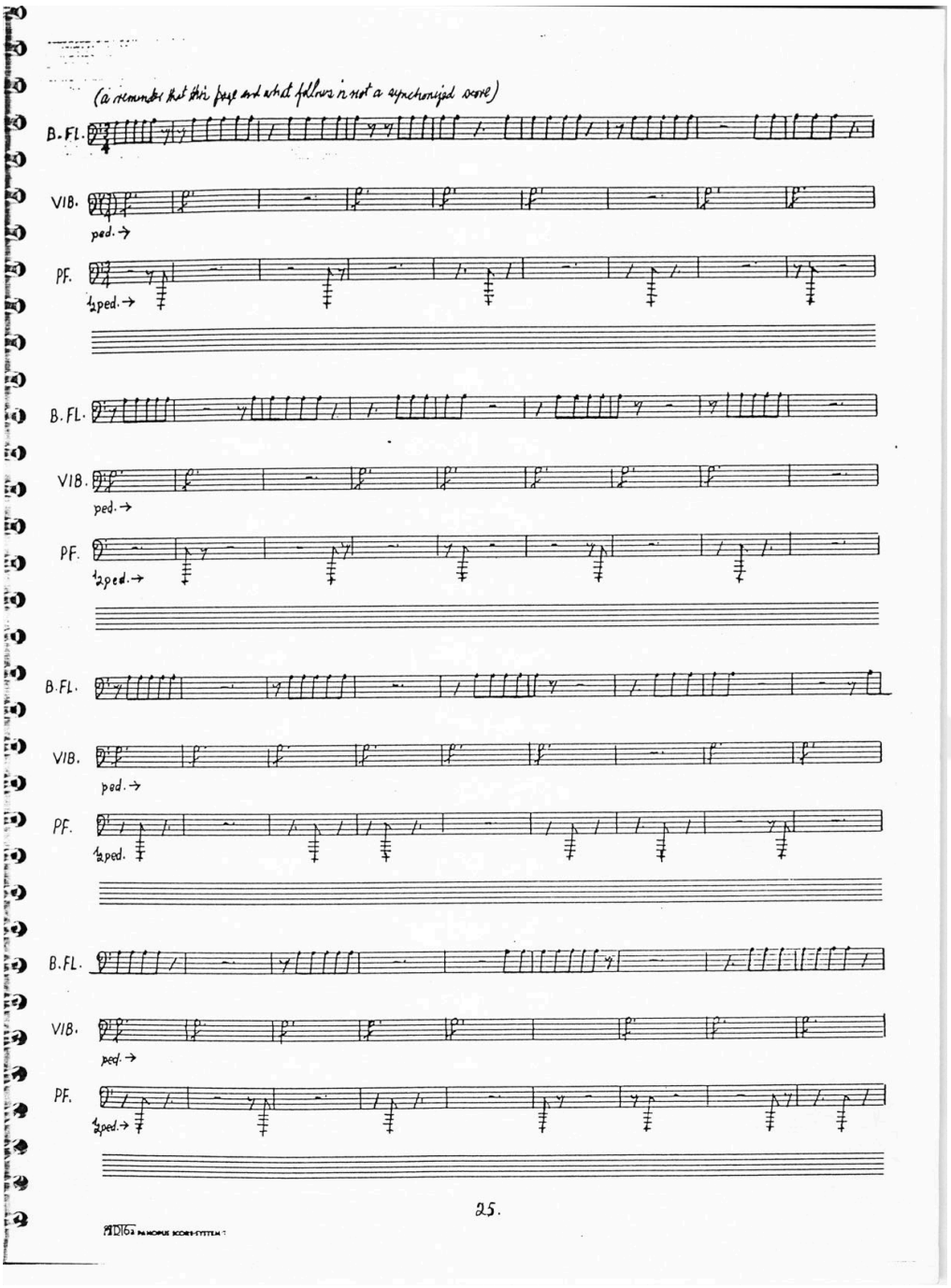


Fig. 36- *Crippled Symmetry*, Page 25

The notation once again gives the impression that it's all happening at the same time.

There are only a few parameters that are changing – duration, attack, and silence between them. But of course they don't arrive at the same time, as Feldman confirms one more time at the top of the page: *"It should be understood that this page (like others) is not synchronized."*[66]

The actual event is notated in the score to last for a long time. However, only a small portion of it is realized because of the pacing. Instead of hearing the parts together, we hear each part happening with other musical events. This sophisticated overlapping is the result of the notated flexibility.

The visual unity carries on until page 30, concluding with a unique figure that looks like like a rhythmic unison, but because of the pacing, the listener will hear the figure three times with different materials. Once again, what seems like a local reiteration on the micro level ends up impacting a larger musical area, and the coexistence of a multiplicity of reiterations with different materials leads to a rich listening experience.

Page 30

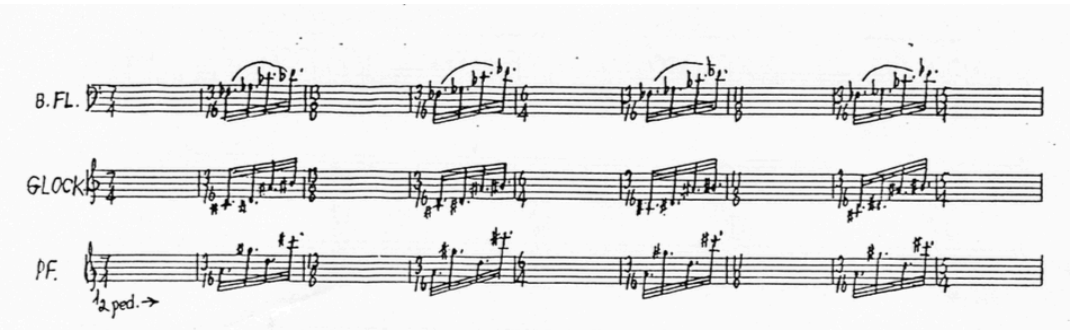


Fig. 37- *Crippled Symmetry*, Page 3

[66] Feldman, Morton, "Crippled Symmetry, Universal Edition" (London Ltd., 1983)

3.4 The Durations of *Crippled Symmetry*: "Stretching the Canvas"

Duration was always a central musical concern of Feldman's. His concept of duration was always in dialogue with the concepts of scale and control. In 1960-1961, he composed a series of 5 indeterminate works entitled *Durations*. One of the shared concerns of those pieces with *Crippled Symmetry* is the closer alignment of the parts. Composer Frank Denyer wrote the following in the liner notes to the "Durations I" recorded by Barton Workshop: "... in performing Durations Feldman was anxious that individual players should never get too far ahead or behind each other."[67] If *Crippled Symmetry* continued at the same rate as the first page, with the piano having 334 eighth notes, the vibraphone 206.5, and the flute 170.5, the piano would be far behind; and the flute would finish the piece much earlier than the rest.

When we look at the end of the piece, the flute ends on the 37th page, while player 2 and 3 still have some music to play on the 38th, the last page. With this kind of notation, though, one can never be sure of how a piece will unfold without calculating the durations or listening to performances. In fact, Feldman added repeat marks to the glockenspiel to insure that it would always end the piece.

When I added up all the durations for each part and page to find out about the pacing of the music, I discovered how the interior architecture of Feldman's sound palette controlled the time domain, and how his compositional process went hand in hand with his notational choices.

Durations in eighth notes, first 5 pages:

Page 1	Page 2	Page 3	Page 4	Page 5

[67] Feldman, Morton, "Durations I" (Barton Workshop, c. James Fulkerson, ETCETERA KTC 3003, 1997)

Player 1: (flute)	170.5	159	235.5	297	278.5
Player 2: (vib., glock.)	206.5	188.5	235.5	294	408
Player 3: (piano, celesta)	334	264	309.5	266.5	35

When we look at the tabulation of the durations of the first 5 pages, we certainly see fluctuations in each part; but the most remarkable asymmetry happens in the piano durations between page 4 and page 5. Also, a considerable difference in the durations of player 2 (114 eighth notes) catches our attention.

At the end of the first 4 pages, player 1 has 816.5 eighth notes in total, player 2 has 985, and the piano has 1174. Consequently, Feldman adds only 35 eighth notes to the piano on page 5. This speeds up the piano a great deal. On page 5 player 2 gets 408 eighth notes. At the end of page 5, we know that the flute has the fewest notes (1095.5 eighth notes); so it is at the forefront, followed by the piano (1209 eighth notes), which was way behind early on. Player 2 (1393 eighth notes) is behind them. Feldman employs these adjustments throughout the piece.

Durations in eighth notes, pages 6 to 10:

	Page 6	Page 7	Page 8	Page 9	Page 10
Flute:	175.5	238	399	305	286
Player 2: (vib., glock.)	142.5	211	396	432	396

Player 3: 195 195 344.5 336 342

(piano, celesta)

We can also notice how durations are disproportionately distributed among the pages. Pages 8, 9, and 10 have many more than 6 and 7. At the end of the page 10, the flute is still at the forefront (with 2499 eighth notes), followed by the piano (2621.5), and then the vibraphone/glockenspiel (2979.5). As the parts grow farther apart, Feldman goes back to adjust them through shortening or lengthening. Some parts slow down, and others speed up, so they become closer in alignment. My composition studies at the Manhattan School of Music and particularly conversations with Dr. Nils Vigeland[68] propelled my analysis. Not only did I gain firsthand information about compositions and performances from Dr. Vigeland, but he also offered invaluable insights on how Feldman designed his pacing. Dr. Vigeland remembered: "I once asked Feldman how he arrived at the pacing of *Crippled Symmetry,* as the duration of each instrument on the pages is different, until the time signature becomes equal about halfway through the piece. He replied that after writing four or five pages, he would make a rough count of the duration of each instrument, and from that determine which of them needed to slow down or speed up so that the distance between them was made more equal."

In Feldman's musical thinking, visual art became an indispensable source of inspiration. Feldman was not only able to draw correlations but also directly emulate the ideas and adopt the construction techniques of the visual domain. The way he adjusted the durations, as described above by Dr. Vigeland, is very similar to ways abstract-expressionist painter Mark Rothko

[68] Nils Vigeland is an eminent composer and pianist who studied with Feldman and later toured with him for eight years as "Morton Feldman and Soloists," performing the extended-length works for flute, percussion, and piano that Feldman composed for them.

adjusted his canvases. For Feldman, a painting's canvas corresponded to the time domain in music:

> I was once in Rothko's studio when his assistant re-stretched the top of a large painting at least four times. Rothko, standing some distance away, was deciding whether to bring the canvas down an inch or so, or maybe even a little bit higher. This question of scale, for me, precludes any concept of symmetry or asymmetry from affecting the eventual length of my music. As a composer I am involved with the contradiction in not having the sum of the parts equal the whole. The scale of what is actually being represented, whether it be of the whole or of the part, is a phenomenon unto itself. The reciprocity inherent in scale, in fact, has made me realize that musical forms and related processes are essentially only methods of arranging material and serve no other function than to aid one's memory.[69]

It is remarkable how Feldman conceptualizes all of these terms, and makes notation and memory part of the same process. A part of his genius lies in the way he redefines musical forms that had long been described formulaically and processed with rigid parameters. Thinking of memory as the main filter that communicates with symmetrical and asymmetrical musical events coexisting in vertical and horizontal relationships brought new meanings to structure and form.

The crux of Feldman's approach to *"the contradiction in not having the sum of the parts equal the whole"* lies in the definition of what the *sum* is. With *Crippled Symmetry*, Feldman's acceptance of the variability of this difference indicates that the sum is not only greater, but also wider. The fact that a page can represent 5 minutes of music for 1 player and 1 minute for another, and yet be presented as though both are happening simultaneously, breaks down the notion of everybody being in the same time span moving to the same time point. With music in parts, we know that each individual can have their own pacing, but the distinctive quality of

[69] Feldman, Morton, and B. H. Friedman, *Give My Regards to Eighth Street: The Collected Writings of Morton Feldman* (Cambridge, 2000), 137

Crippled Symmetry is that all the parts are presented as if they line up. It is known that Feldman never made parts for this piece – the performers always just read from the score. This is the integral part of the strategic experiential reason that puts the performer in suspense.

Besides organizing his instrumentation, and balancing his reiterations and silences through his grid, Feldman adjusted his canvas by going back every 4 to 5 pages to ponder the possibilities of the sum-whole relationship.

Durations in eighth notes, pages 11 to 15:

	Page 11	Page 12	Page 13	Page 14	Page 15
Flute:	315	325.5	382.5	316	237.5
Player 2:	294	279	414	316	233.5
(vib., glock.)					
Player 3:	336	324	339.5	316	233.5
(piano, celesta)					

Unit of measurements is eight notes in all tabulations.

Notice that all durations are equal on page 14, where the three parts are reduced to only one staff, and each instrument plays one note in unison with the others (only visually). On page 15, player 2 and player 3 still have same number of eighth notes since they continue to have visual rhythmic unison. But even though the flute player has diverged, she/he has only 4 eighth notes more than the others. At the end of page 15 player 1 is still up front (4075.5 eighth notes), and Player 2 is way behind (4516), while Player 3 is in between (4170.5).

Durations in eighth notes, pages 16 to 28

	P.16	P.17	P.18	P.19	P.20	P.21	P.22	P.23	P.24	P.25	P.26	P.27	P.28
Player 1: (flute)	552	417	353.5	316	337	613	320	234	168	216	216	432	216
Player 2: (vib., glock.)	553.5	404	390	358	432	627	340	234	153	216	216	432	216
Player 3: (piano, celesta)	258	401	330.5	340	334	627	372	234	153	216	216	432	216

Feldman adjusts the durations on page 21 considerably for each instrument. On pages 23, 25, 26, 27, and 28, each instrument has equal durations. Page 23 is unique because even though the notation is not visually synchronized, each instrument has the same number of durations (234 eighth notes).

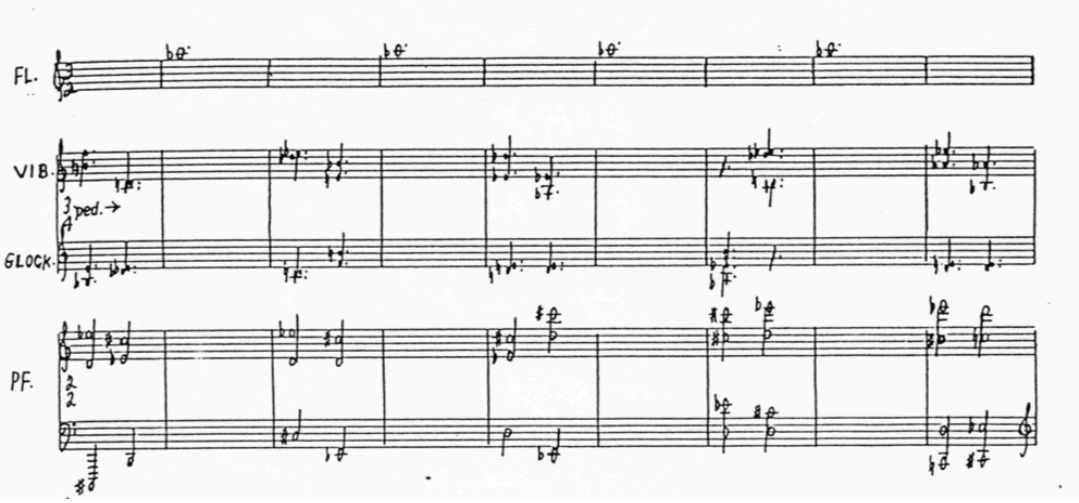


Fig 38- *Crippled Symmetry*, Page 24

On page 24, Players 2 and 3 have the same lengths of time. On pages 25, 26, 27, and 28 the players naturally have equal durations since they have synchronized notations. At the end of page 28, Player 2 has the longest durations with 9087.5 eighth notes, so they are way behind. Player 1 on the flute has 8466 eighth notes, and Player 3 on the piano is up front with 8300 eighth notes.

Durations in eighth notes, pages 29 to 38

	P. 29	P. 30	P. 31	P. 32	P. 33	P. 34	P. 35	P. 36	P. 37	P. 38
Player 1: (flute)	348	170	252	216	162	216	216	216	216	0
Player 2: (vib., glock.)	348	170	252	216	162	216	216	216	216	216
Player 3: (piano,celesta)	306	170	252	216	162	216	216	216	216	216

Final duration totals:

Player 1 (flute): 10,478 eighth notes

Player 2 (vib./glock.): 11,125.5 eighth notes

Player 3 (PF/celesta): 10,486 eighth notes

From the two-thirds point of the piece to the end, we see many visually synchronized pages that utilize the same meters. The result of having different pacing for each part for close to an hour up to this point was that Feldman could make combinations of different notation designs for

duration. Because of what has happened musically before, these visually synchronized pages look and sound utterly different.

In stretching his canvas back and forth in three dimensions for about an hour, to the fluctuation in the lengths of the parts he adds another global multiplicity of musical behaviors. A player can play fast figures for a while, and can have long meters on another page with longer notes and rests. The parts are moving towards different points at different times, and variation in their speeds impacts the rate of harmonic change on macro levels. Feldman is demonstrating the utmost degree of an organic musical structure, where notation becomes a compositional tool to construct the morphology of the continuity.

We see that Feldman outlined the visuality of the last 10 pages in three ways:

1) The model for pages 31-37 shows all three players in the same meter visually, so naturally their durations are the same.

2) Pages 29 and 30 are variations of pages 31-37. On page 29, while all three players are in the same meter visually, players 1 and 2 have 348 eighth notes, but player 3 has 306 eighth notes. Feldman differentiates the length of durations by going back to the parts and adjusting the number of iterations as he composes. The last page, 38, is similar, but with a drastic difference: Players 2 and 3 have 216 eighth notes while Player 1 has finished her/his part.

3) Page 30 is not only visually synchronized – all 3 players are in rhythmic unison as well.

Feldman wanted to end the flute part before the last page. Players 2 and 3 share the music visually on the last page. Sonically it is about 1 minute and 6 seconds. (In the performance of the IXION Ensemble on this link,[70] the last flute note is played at 1 hour, 15 minutes, and 18

[70] https://www.youtube.com/watch?v=9dN0kLBHk1A

seconds. The last piano chord is struck at 1:16:23. The last note of the piece is executed by Player 2 on the glockenspiel at 1:17:46. He/she is closing almost 80 minutes of music with a solo of approximately 2 minutes and 23 seconds (79.5 eighth notes). Of course, each performance of this notation will be different, so all of these details are particular to this performance only. The ending is also an exceptional moment in the piece. The self-similar musical behaviors that carry out for an extended duration inevitably runs the risk of predictability, but Feldman masterfully provides a rich listening experience. Dynamics at stable levels, intricate reiterations bleeding into the silent measures, decays of one part overlapping with the attacks of the others in various densities and speed forms the normative of the structure. When the music arrives towards the end, the listener cannot predict whether this section is coming to an end or more materials would be generated. Similar kinds of suspense that Feldman creates in performers' temporality with his notation is in effect in the listener's auditory world. There's no retrieval of any material, the anticipation of an end is non-existent, and the immediacy of sound is present until the last note is executed.

Crippled Symmetry (1983) at approximately 80 minutes long, belongs to Feldman's later-period works of extended duration, such as the 80-minute-long *Piano and String Quartet* (1985), the 4.5-hour-long *For Philip Guston* (1984), the 1.5-hour *Triadic Memories* (1981), and the almost 6-hour-long *String Quartet No. 2* (1983). Feldman wrote long pieces in the last ten years of his life, and he felt that his music was evolving more with the extended lengths:

> My whole generation was hung up on the 20 to 25 minute piece. It was our clock. We all got to know it, and how to handle it. As soon as you leave the 20-25 minute piece behind, in a one-movement work, different problems arise. Up to one hour you think about form, but after an hour and a half it's scale. Form is easy

> – just the division of things into parts. But scale is another matter. You have to have control of the piece – it requires a heightened kind of concentration. Before, my pieces were like objects; now, they're like evolving things.[71]

It is remarkable how Feldman linked duration with form and scale. Being one of the members of the NY school and creators of indeterminacy, Feldman wrote a great deal of music with notated flexibility. However, the concepts that guided his control of the material were exceptionally deep. In order for his music to evolve, Feldman needed a kind of space which was not only long, but also deep, where he could constantly redefine the dichotomy of the sum of the parts versus the whole.

This was a space that was not just divided into parts because it was the norm, but one that required a heightened awareness of sounds and silences from its citizens. Notation became a key component that he used in creating this space, because the size and shape of his canvas determined the evolution of his material. His method of control was to work carefully with memory through a multiplicity of reiterations in this long, wide, deep and multi-directional space.

3.5 Reiteration and Silence as Means of Design: "Formalizing a Disorientation of Memory"

I have written a substantial amount on musical reiteration as a technique and how Feldman associates it with memory. In Feldman's implementation of a grid, we see systematic or "crippled" symmetrical silences interspersed in instances of reiteration. After 1979, Feldman notated all his music with nine measures per system. Thus, there could be a variety of locations for the silences in the various reiteration patterns. The barring of every page of *Crippled*

[71] *Universal Edition* brochure (1994)

Symmetry in a part establishes either a measure with notes followed by a measure with rests, or systematic contractions and expansions of phrases and silences. The logic employed in the opening page spans the entire piece; future strategies for subsequent patterns derive in some way from this first instance. The opening system of the flute part contains a measure of notes followed by a measure of silence.

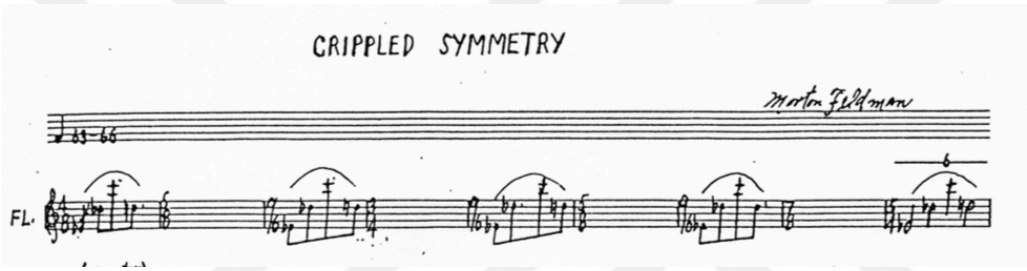


Fig. 39- *Crippled Symmetry*, Flute 1st system

One might think that this would go on in a systematic way, but in the second system Feldman starts out with two measures containing notes (this time both measures start with a quarter-note rest), followed by a measure of silence, but then immediately goes back to one measure of notes followed by one of complete silence.

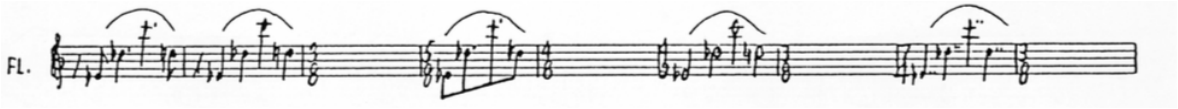


Fig. 40- *Crippled Symmetry*, Flute 2nd system

The third system follows the pattern of the first one: a measure with notes alternating with one with silence.

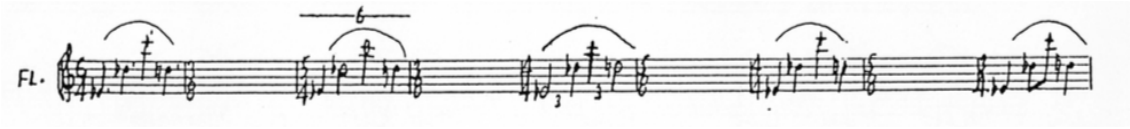


Fig. 41- *Crippled Symmetry*, Flute 3rd system

If we look at the pitches, the flute utilizes only four: Eb4, Db5, C6, and D5. Their register does not change anywhere on this page, but their durations do. The durations are different in each reiteration. This kind of rhythmic fluctuation also applies to the measures of silence. The meter and duration of the empty measures vary in most cases, contributing to a heightened sense of anticipation or suspense.

For Player 2, on vibraphone, the reiteration design encompasses more than the nine measures of a single system. The first sixteen measures are repeated, followed by two additional measures.

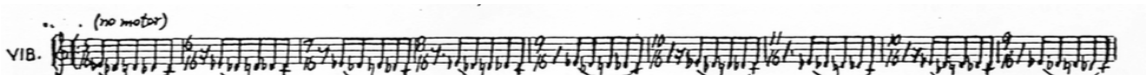


Fig. 42- *Crippled Symmetry*, vibraphone 1st system

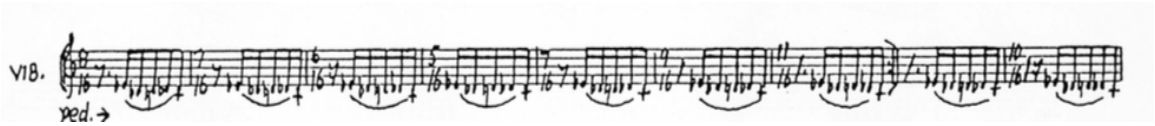


Fig. 43- *Crippled Symmetry*, vibraphone 2nd system

The first measure of the vibraphone part contains five sixteenth notes with no rests. Beginning in the following measure, the durations of each bar expand by a sixteenth rest. The five-sixteenth-note figure (Eb4, Db4, D4, Db4, C4) remains intact, but is increasingly delayed by the additional sixteenth-note rest. This continues until measure 7, when the process reverses itself. Now the duration of the rest shortens by 1 sixteenth note. The process – expansion and

then contraction of the rests – initially appears palindromic. The duration of the rests expands from 0 to 6 sixteenth-note rests and then returns to 0, but the symmetry is crippled in the end, with additional rests of 2, 4, and 5 sixteenth-note rests. The whole repeated cycle has the following sequence of sixteenth-note rests: [0, 1, 2, 3, 4, 5, 6, 5, 4, 3, 2, 1, 0, 2, 4, 5].

In addition to this, the lengths of the meter also expand and contract symmetrically [5/16, 6/16, 7/16, 8/16, 9/16, 10/16, 11/16, 10/16, 9/16, 8/16, 7/16, 6/16, and 5/16, until Feldman breaks the pattern by adding 3 more bars: 7/16, 9/16, and 11/16]. After this the cycle is repeated, with only 2 added measures having meters of 11/16 and 10/16.

Player 2 switches to the glockenspiel in system three. This time the pattern alternates between a measure of rest and a very fast figure in a 1/8 bar.

Fig. 44- *Crippled Symmetry*, Player 2 on glockenspiel, 3rd system

Notice the pitch set [Db, Eb, C, D] is the same, but the spacing, order, and register are new. Again the figure remains intact for an 8-bar cycle, while the durations of the silences (provided by the empty bars) change: 3/4, 3/4, 4/4, and 5/4. After the cycle is repeated there is a measure of rest in 3/1.

Player 3's (the pianist's) part further confirms the appropriateness of the title. The first system's symmetry is broken half-way through.

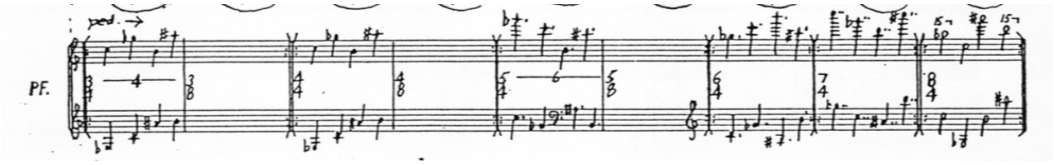


Fig. 45- *Crippled Symmetry*, PF 1st system

The system begins alternating between a measure with a figure and a measure with rests. This symmetrical pattern is aborted, however, when Feldman inserts three measures of 6/4, 7/4, and 8/4, each bar being repeated without any silences between them. Furthermore, the internal structure of the first five measures is itself asymmetric, even though it includes direct repetitions: [a 3/4 measure followed by a 3/8 rest] x 2, [a 4/4 measure followed by a 4/8 rest] x 2, and [a 5/4 measure followed by a 5/8 measure of silence] x 2.

Player 3 shifts to the celesta in the second system with reverse or palindromic musical behavior: [a 7/8 measure of silence followed by a 7/4 of sounds] x 2, [a 6/8 of silence, then a 6/4 of sounds] x 2, [a 5/8 of silence, then a 5/4 measure of sounds] x 2, and [a silent 4/8, then a 4/4 measure with sounds] x 2. An additional 3/4 measure of rest that is not followed by a 3/8 measure breaks the symmetry.

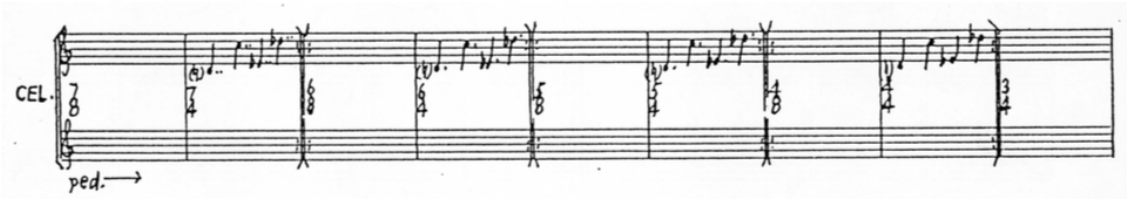


Fig. 46- *Crippled Symmetry*, Player 3 on celesta, 2nd system

The third system is unique in that its patterning occurs primarily at the level of graphic design rather than as a rhythmic idea, since the symmetry is visual and not with the number of beats or rests. Again, just as it appears that a clear pattern has been established, the composer cripples the symmetry. The visual relationship occurs on the diagonal. (It can also be seen as a canon.)

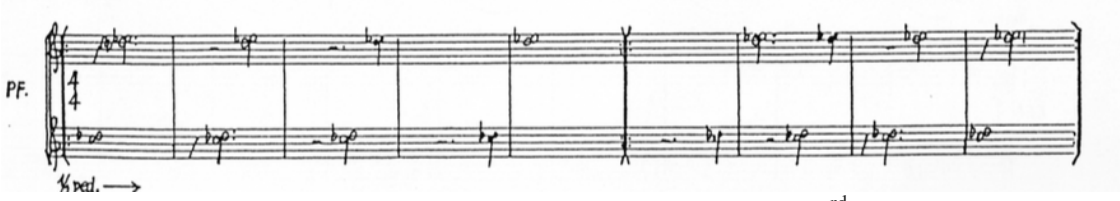


Fig. 47- *Crippled Symmetry*, Player 3 on PF, 3rd system

When we look at the first five-bar repeated section diagonally, we see that the right hand of the first measure is identical to the left hand of the second measure, the right hand of the second to the left hand of the third, the right hand of the third to the left hand of the fourth, and the right hand of the fourth to the left hand of the fifth (see colored chart).

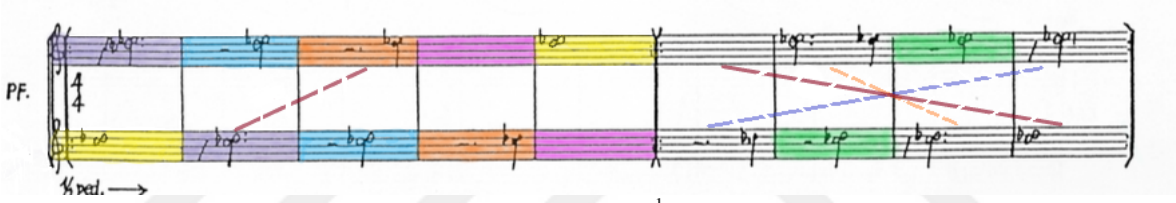


Fig. 48- *Crippled Symmetry*, PF 3rd system-diagonal

In addition, we see that the left hand of the first measure is identical to the right hand of the fifth measure, but the opposite coupling is not a match. However, if we analyze the nonmatching diagonal measures, we see that the left hand of measure 2 has a unique relationship with the right hand of measure 3. It is a retrograde from the durational point of view. A quarter rest followed by a dotted half double stop (C5, Db5) becomes a dotted half rest followed by a quarter double stop (C5, Db5). We see the derivatives of this implementation in the following 4 bars.

Feldman interchanged three diagonal durations in the next repeated 4-bar section. For the right hand of measure 6 and the left hand of measure 9 he swapped the durations of the sounds

and silences, whereas for the left of 6 and the right of 9 he interchanged the durations of the sounds and rests after they were retrograded. The left hand of measure 8 is the retrograde of the right hand of measure 7 with the only alteration being that Feldman chose a quarter rest instead of the quarter-note double stop.

The diagonal relationships in the piano part bring to mind another key visual inspiration of Feldman, which are Anatolian rugs. In many of his writings Feldman revealed a fascination with them, drawing correlations to sounds and considering them a vital branch of the visual arts. His musical thoughts were especially influenced by their diagonal figures, characterized by distinctly disproportionate symmetry:

> I'm being distracted by a small Turkish village rug of white tile patterns in a diagonal repeat of large stars in lighter tones of red, green, and beige. Though David Sylvester* is right in commenting that our appreciation of rugs such as this was enhanced by our exposure to modernistic Western art, still, this 'primitive' rug was conceived at almost the same time that Matisse finished his art training. Everything about the rug's coloration, and how the stars are drawn in detail, when the rectangle of a tile is even, how the star is just sketched (as if drawn more quickly), when a tile is uneven and a little bit smaller – this, as well as the staggered placement of the pattern, brings to mind Matisse's mastery of his seesaw balance between movement and stasis. Why is it that even asymmetry has to look and sound right? There is another Anatolian woven object on my floor, which I refer to as the 'Jasper Johns' rug. It is an arcane checkerboard format, with no apparent systematic color design except for a free use of the rug's colors reiterating its simple pattern. Implied in the glossy pile (though unevenly worn) of the mountainous Konya region, the older pinks, and lighter blues were my first hint that there was something there that I could learn from, if not apply to my music.[72]

The first page of *Crippled Symmetry* already reveals that for Feldman there was an important connection between design symmetry and rhythm. Furthermore, it was not only the

[72] Feldman, Morton, and B. H. Friedman, *Give My Regards to Eighth Street: The Collected Writings of Morton Feldman* (Cambridge, 2000), 138

designs of the "primitive" rugs that impacted Feldman – to him they were much more than rugs – they were liberated objects from which one could posit a better model for the natural asymmetries of life. He favored *the unevenness of tiles, staggered patterns, apparent absence of systematic color design, and free use of colors reiterated in their simple patterns* to monolithic logic, as I showed in my introduction by Dahlhaus's description of composition.

Feldman's design of disproportionate symmetry was surely a response to his need to break up the continuity of sound associated with classical music. Antecedent/consequent building blocks and other typical applications for the development of phrases, motives, and sequencing are nonexistent in *Crippled Symmetry.* Just as we cannot imagine a musical composition in the classical music genre creating basic material out of alternating measures of silence and figures, we cannot imagine motivic development in Feldman's music. He avoided such tools by a disproportioned usage of reiteration and silence, an approach which he described as his "conscious attempt at 'formalizing' a disorientation of memory.*"*[73]

Like Cage's, Feldman's complex music can only be understood globally, as a music that demands something other than what the conventional disciplines of composition, performance, and listening do. At the same time, it offers a music that is much more inclusive, *"pulsating with life"*[74] and nature.

Feldman's adoption of *Crippled Symmetry* from Anatolian rugs as a deep compositional metaphor – a "primitive" alternative to proper art – can be compared to the elevated role of noise and "background" sound for Cage, as for instance when Cage contrasted listening to Beethoven

[73] ibid,137.
[74] Varese, Edgard, and Wen-chung Chou, "Perspectives of New Music," Vol. 5, No. 1 (*Autumn-Winter*, 1966), pp. 11-19

and Mozart with listening to the traffic on 5th Avenue in New York City:

> When I hear what we call music, it seems to me that someone is talking. Talking about his feelings, relationships. But when I hear traffic, I don't have the feeling that anyone is talking. I have the feeling that the sound is acting, and I love the activity of sound. What it does is, it gets louder, quieter, higher and lower, it gets longer and shorter…it does all these things that I am completely satisfied with that I don't need sounds to talk to me… The sound experience which I prefer to all others, is the experience of silence. And the silence almost everywhere in the world now is traffic. If you listen to Beethoven, or to Mozart, you see that they are always the same. But if you listen to traffic, you see it's always different.[75]

If we watch traffic for some time, we will notice certain kinds of activity, but we will not be able to predict how many people will cross the street, or how many busses will go by. Even though there are generalities in the way things behave, they are not predictable on a local level. In the processes of nature, for instance, studying raindrops will not suffice to teach us about rain. We can only get a sense of rain by observing its activity, which again will not be predictable on a local level. Not only the behaviors of nature, but also its materials are *sui generis*. Raindrops have commonalities, yet each of them is original. This principle is valid in the process of their creation, their life, and their discontinuity. That's how Feldman treated each sound, each register, each reiteration, each instrument. He completely changed the musical thinking by redefining the notation. He designed the occurrence of his musical events in the ways things overlap in life and nature – not like an artificial system where everything goes in the same direction. His notation and reiterations allowed things to coexist and move multi-directionally. He imagined his notation as his canvas, and the coexistence of his sounds was his imagined Anatolian rug.

While 19th-century music became a succession of conventions that followed the same manner of operation, Feldman aimed for a more profound experience:

[75] John Cage interview on YouTube: https://www.youtube.com/watch?v=pcHnL7aS64Y

What links Mondrian, Rothko and Guston? An unyielding tenacity that suggests nature more than man's inventiveness. What keeps their work from becoming a self-contained object is that each painting gravitates toward the other, either in memory or in anticipation. Again as in nature the experience is in depth, and not a surface to be seen on a wall.[76]

[76] Zimmerman and Feldman, *Essays*, 40.

CONCLUSION:

Evolution of *The Liberation of Sound*

Varese's 1936 article "Liberation Of Sound" inspired me to write this work. In searching for the overlaps and divergences between three figures—Cage, Coltrane, and Feldman—I've not only deployed concepts that initially grew out of Western art music, but also strived to create a new analytical language that would enable the listeners and students of music to gain deeper perspective on the structural evolution of musical composition.

This dissertation scrutinizes Varèse's, Cage's, Coltrane's, and Feldman's soundwords and concepts of liberation through principles of self-similarity, opposition and other musical parameters within my analytical framework. In the process of doing so, one of the most fascinating and dynamic aspects of the study involved taking the unusual move to study John Coltrane's concepts and music in the same breath of Varese, Cage and Feldman.

On one level, the distinctions between these figures became blurred and demonstrated philosophical continuity. I find this remarkable since these figures have not been placed closely to one another as members of the same musical species in existing histories. Yet the three share important, unique threads of continuity such as: reiteration and memory in both Feldman's and Coltrane's works, the impacts of instrumentation on the structure of that both Cage's *Amores* and *String Quartet in Four Parts* and Coltrane's *Father*, and a "music in parts" phenomena that unites all three composers as well as their idiosyncratic experimental spirit. In addition to these

threads, the absence and/or the transfiguration of notation, structuring the music through "composer specified" and "performer supplied" materials and redefining composer/performer dichotomy are central in shaping all three composers' music. These continuities set the stage for my analytical framework.

On another level, there is one distinction which is impossible to blur and needs to be highlighted. As an African American improviser within the jazz tradition, John Coltrane did not have the luxury of liberation from the history like other figures did. The Varèsian concept of liberation meant to release oneself from the historical, structural musical constrains in pursuit of the new. By including Coltrane in this context, the Varèsian liberation expanded by a great deal and evolved into a richer concept that includes a kind of spiritual liberation where the old and new constantly remain in dialogue. This brought forth the dynamic relationship of captivity and liberation as a very potent focal point for this study.

We have grown up with the idea that liberation is a positive concept and the opposite of it is captivity. Late Coltrane works in particular are either ignored or analyzed only through the lens of liberation. Much of the discourse deals with his detachment from jazz forms, his "going free," his leaving the audience behind, all in the direction of liberation. Yet through attention to sound itself, this dissertation aims to demonstrate that Coltrane's music holds captivity together with a unique kind of beholden-ness to history. Also different kinds of captivities are cryptically present in Feldman's and Cage's works which leads their music to structural liberations in their sound world.

Dr. Martin Daughtry, an eminent ethnomusicologist at NYU and a member of my dissertation committee, brought to my attention another facet of Coltrane's concept of liberation

through the resemblance of the 1957 performance of John Coltrane's *Lush Life* and 1965 performance of *Father.*

Coltrane's triadic exploration, which I call Event 2 in this dissertation, happens to be the quotation of *Lush Life.* Coltrane is performing th*e Love Supreme* permutation as a nearly direct quotation of the head of *Lush Life* down to the word breaks and key. This is not a simple contrafact.

By staying loyal to my own theoretical apparatus, I felt the need to apply Lush Life's lyrics as well as the musical material to my concepts of self-similarity and opposition.

LUSH LIFE lyrics by Bill Strayhorn:

I used to visit all the very gay places,
Those come-what-may places,
Where one relaxes on the axis,
Of the wheel of life,
To get the feel of life,
From jazz and cocktails.

The gals (girls) I knew had sad and sullen gray faces,
With distingué traces,
That used to be there.
You could see where,
They'd been washed away,
By too many through the day.
Twelve o'clock tales.

Then you came along,
With your siren song,
To tempt me to madness.
I thought for awhile,
That your poignant smile,
Was tinged with the sadness,
Of a great love for me.
I guess (Ah, yes,) I was wrong.
Again, I was wrong.

Life is lonely again,

And only last year everything seemed so sure.
Now life is awful again.
A troughful of hearts could only be a bore.

A week in Paris might (will) ease the bite of it.
All I care is to smile in spite of it.
I'll forget you I will,
While yet you are still,
Burning inside my brain.

Romance is mush,
Stifling those who strive.
I'll live a lush life,
In some small dive.

And there I'll be,
While I rot with the rest,
Of those whose lives are lonely, too.
Lush life.

These lyrics that Bill Strayhorn wrote when he was a teen are about worldliness. It is a particular type of world-weary life, which manifests itself in myriad ways as profane. Coltrane seemingly takes this icon of the profane and places it within the context of what for him is sacred music. Coltrane's ability to transform the profane right into the sacred, by placing *Lush Life* in *The Father and the Son and the Holy Ghost* in an album called *Meditations,* a spiritual project, is similar to his ability to utilize a triadic musical material in the middle of noise and cluster vocabulary.

Throughout the dissertation I've utilized self-similarity, and opposition to sound as a generative principal. However, the application of the same concept on the ethos would reveal deeper understandings of the spirit of the music. The ethos between *Love Supreme* and *Meditations* is self-similar. For John Coltrane, they belong to the same project, the same quest.

The compositional and improvisational materials are oppositional. And yet, for Coltrane there is a self-similarity between both in their shared spiritual project. While the sound worlds of *Love Supreme* and *Meditations* are oppositional, their shared ethos demonstrates a self-similarity that transcends sound.

The heads of Coltrane's performance of *Lush Life* from 1957, and of *Father* from 1965 are self-similar in Coltrane's part only. While the melody exhibits a huge opposition to the rest of the musical material in *Father,* it is self-similar with the rest of the material in *Lush Life.* But the ethos between *Father* and *Lush Life* remains oppositional.

Coltrane's encouragement and his multifaceted utilization of musical and extra musical material along with Cage's and Feldman's experimental spirit in their body of works opened up new areas for me to apply and develop this new analytical apparatus in extremely broad philosophical, technical, sonic and spiritual fields.

MUSICAL WORKS

Strings Between K and Mk and *Nothing bad can happen III* were written primarily with classically trained musicians in mind. For each piece, the point of departure was composed materials; these enabled performers to grasp certain aesthetic qualities that I desired. As each piece progresses, it begins to employ a high level of real time generation (improvisation) as a critical feature.

Strings Between K and Mk utilizes a wide dynamic spectrum and encourages highly expressive and highly rhythmic realizations in both its "composer specified" and "performer supplied" sections. The work employs three kinds of notation. Measures 1 to 9 operate in the absence of time signature and pulse. The order of the events is indicated by the dotted lines, and the approximate speed of the phrases is denoted with metronome markings, valid only for the particular phrase in question. There is importance in the ordering of these discrete sound objects or phrases, and each event functions as a trigger for a subsequent event.

The piece enters into traditional notation from measure 9 until 44. From measure 44, a multiplicity of events follow. Each member of the string quartet is given discrete musical ideas, sound objects, and complexes of frequencies. Each event is reiterated a certain number of times. In this section, each performer operates within his or her own individual universe, but follows instructions to reiterate particular cells, each time changing one or more parameters. The last four minutes of the piece references Cage's model of "improvisation without listening". Also in terms of notation, this section echoes Cage's *music in parts*.

Nothing bad can happen III (2014) is a large ensemble piece and the forces are divided

into four smaller groups along with individual functioning solo instruments that at times connect up with one group or another. Different combinations of instruments weave in and out guided through my cues. The guitar part serves as a kind of cantus firmus with the possibility of its joining various groups. Another significant feature of the piece is the effect of the disposition of the orchestra and spatiality. Notationally this piece is an amalgam of the techniques of Cage's *music in parts,* combined with traditional notation.

There are moments of synchronization and the four divided groups behave as units within themselves. Some instruments, notably guitar, belong to more than one set of groups. Trombone has a featured solo and has dialogical gestural interactions with the guitar. When the piece arrives at the two-thirds mark of its duration, it employs real-time generation through what I call "cells" just as in *Strings Between K and MK*.

I have performed in this piece as soloist, with 2 different orchestras; ensemble mise-en in 2013 and with the Orchestra of the League of Composers in 2014. With the experience of the two performances and corresponding sets of rehearsals, I had the opportunity to experiment with both spatiality and form. I also used parts of this work in jazz and improvised musical settings with smaller sets of musicians.

Each of these experiments revealed different kinds of musical structures. For instance, in the third music file accompanying this dissertation, one can hear my jazz quartet *Flow State* performing its own version of *Nothing bad can happen*. The piano player is making an interpretation of the violin part, the double bass player uses the bass part, and I use the guitar part as a point of departure. All of the versions were influenced by *music in parts*, and the open-ended instrumentation of Cage. The versions operate at times in the presence of a shared metric

framework, and other times without one.

Tikiti 2015 (Hundred Days in a Weekend) is performed by eminent improvisers and has a high level of openness in its structure. The players achieved in no time a high level of excellence both in the performance of the indeterminate sections and in achieving accuracy in the through-composed parts, and their musical personalities became evident in the sound, phrasing and other parameters of interpretation, especially those related to time.

An important aspect of all three of the works is my involvement as performer. I performed (without improvisation) in *Strings between K and MK*; was performer and improviser in both *Hundred Days in a Weekend* and *Strings between K and MK*; and was performer, improviser and conductor of *Nothing Bad Can Happen III.* All these levels of participation provided me with a broader understanding of the responsibility and also of the freedoms of a composer, conductor, performer and improviser. This process helped me contemplate essential factors, such as the absence of the composer-performer hierarchy and the wider definition of "freedom" granted by these musical agendas.

Strings between K and MK (2011) was composed for the Mivos String Quartet and Timucin Sahin and premiered in April, 2011 at the Tenri Institute in New York City.

Nothing Bad Can Happen III (2013-2014) was composed for ensemble mise-en, and modified later for the Orchestra of the League of Composers. It was premiered in Drom/NYC in May, 2013 by mise-en, and at Merkin Hall/NYC May 2014 by the Orchestra of the League of Composers.

Hundred Days in a Weekend (Tikiti2015) was composed for the Improvising Quartet, and was recorded and released by Challenge Records in 2017. The composition is included in an

award-winning disc, “Timucin Sahin’s Flow State, Nothing Bad Can Happen” (2017 Honorable Mention Award by NYC Jazz Record).

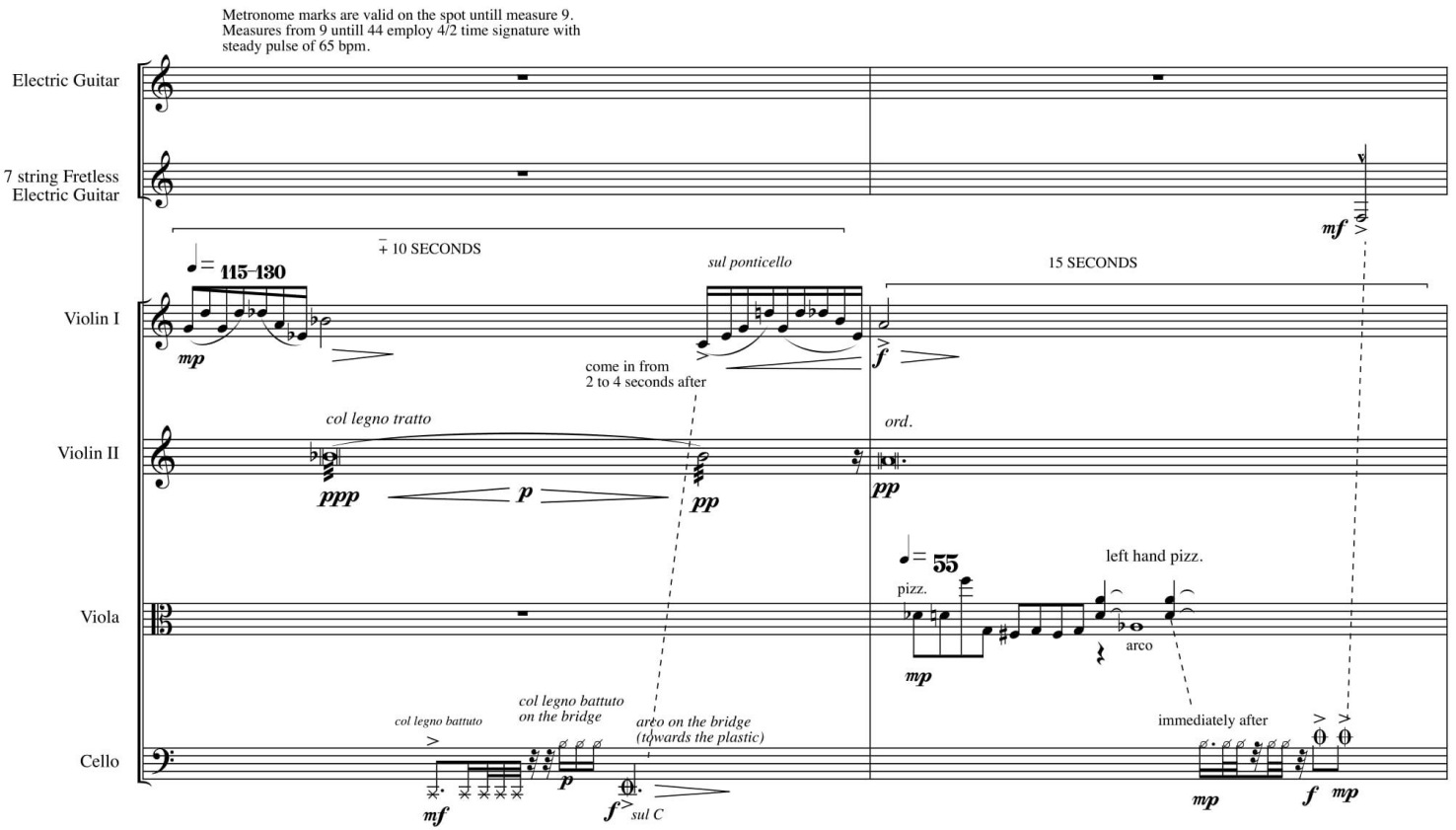
TİMUÇİN ŞAHİN

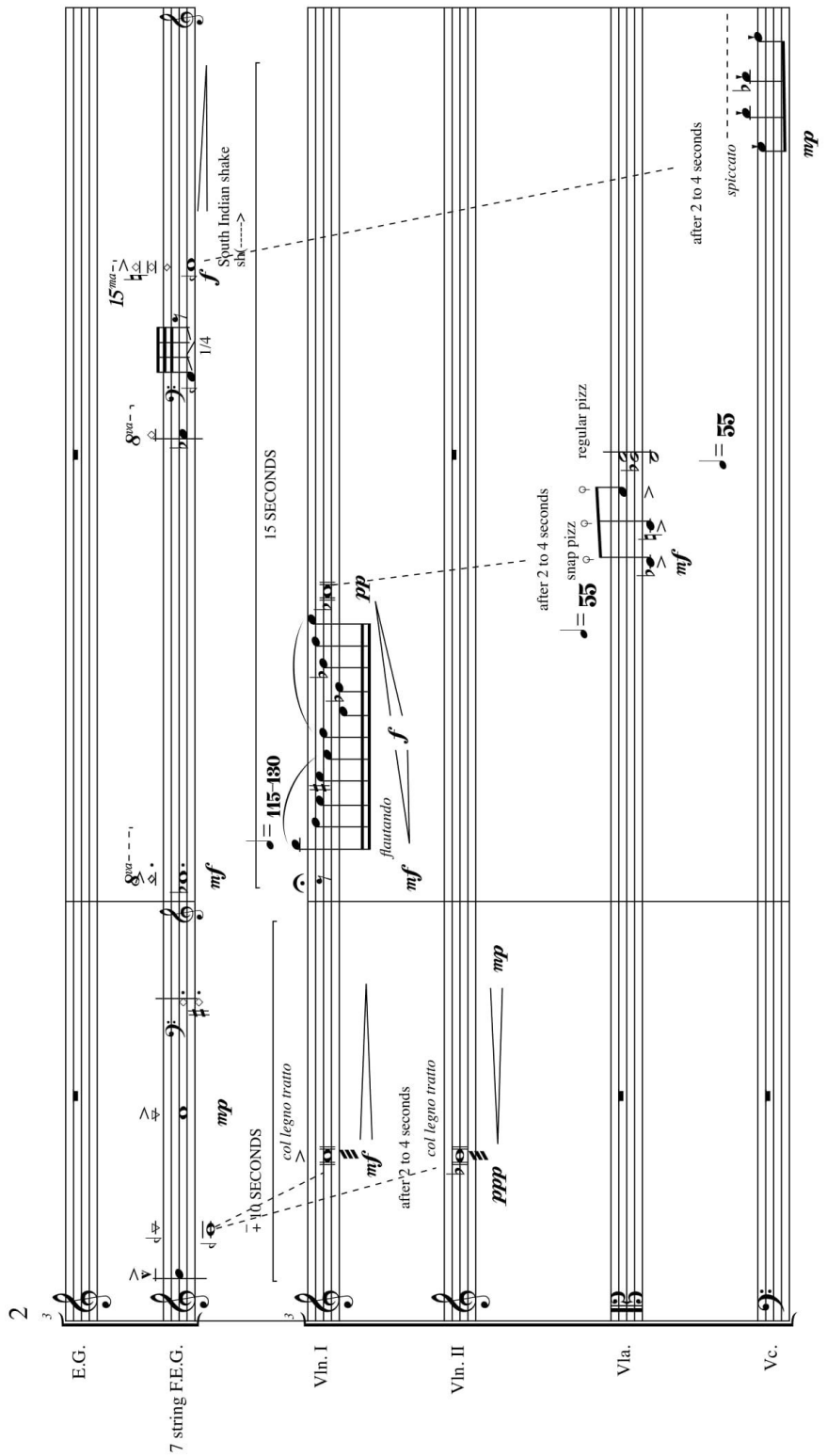
STRINGS BETWEEN K AND MK (2011)

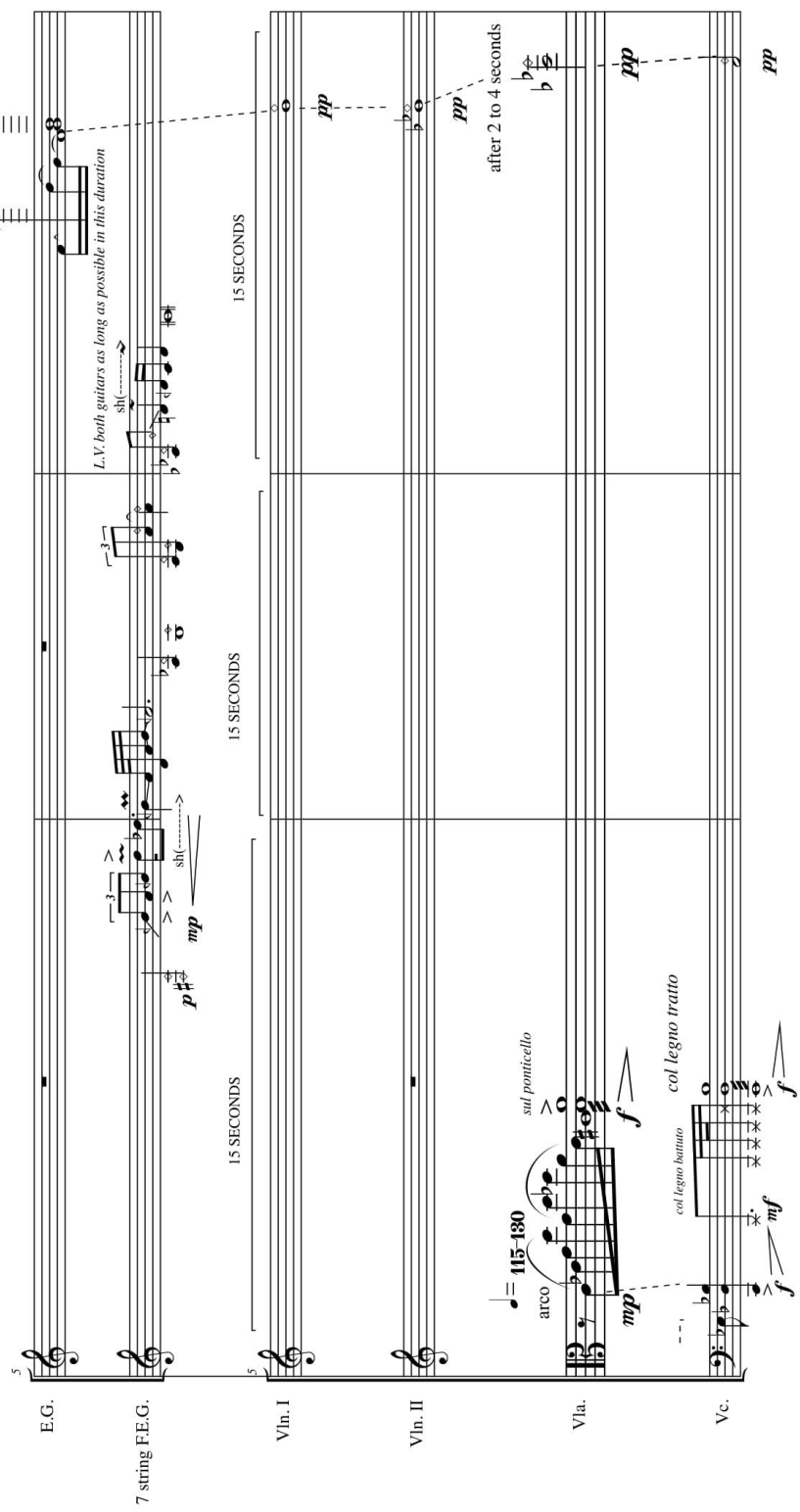
Piece for String Quartet and Double-neck electric guitar (7 string fretless & 6 String fretted)

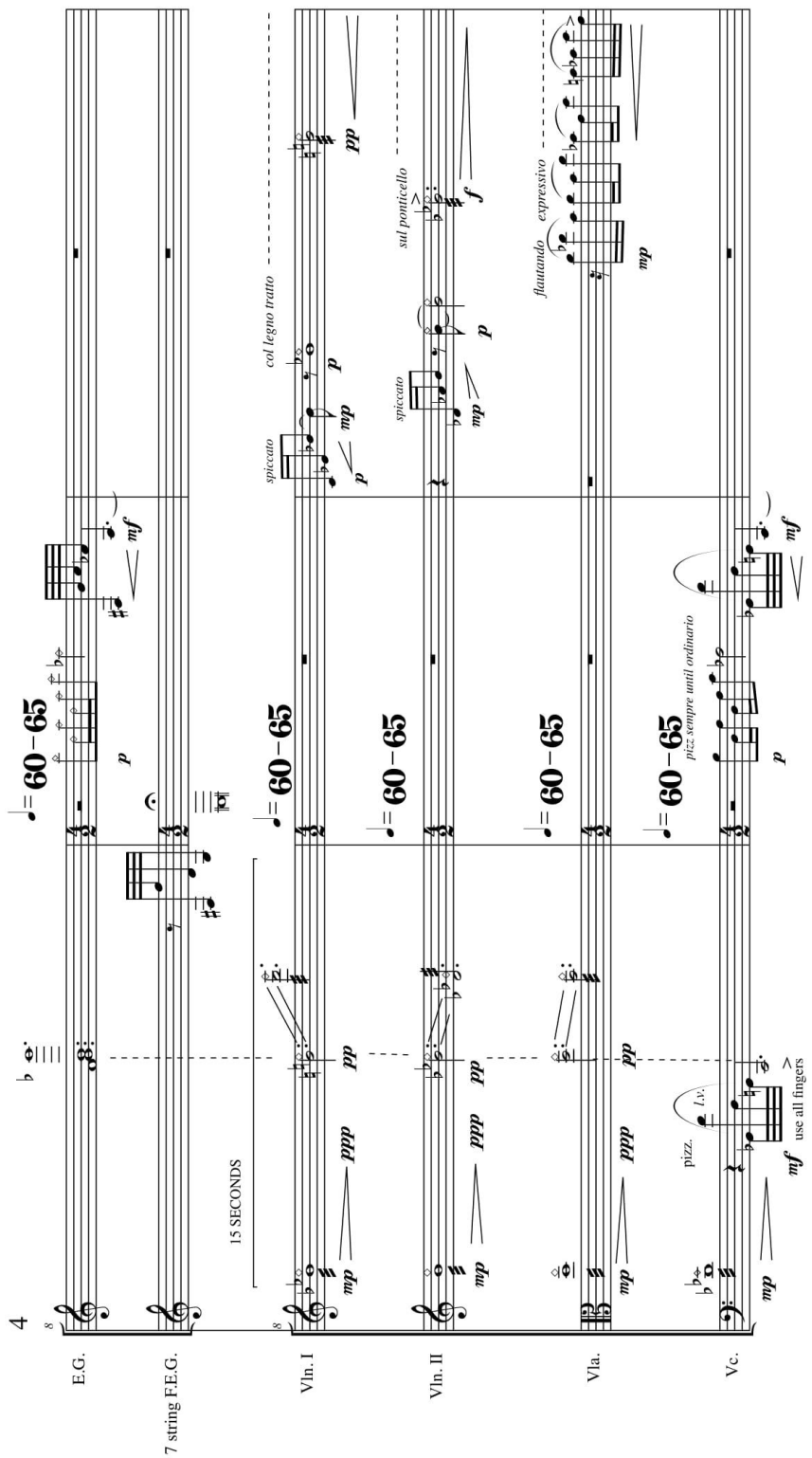
Score

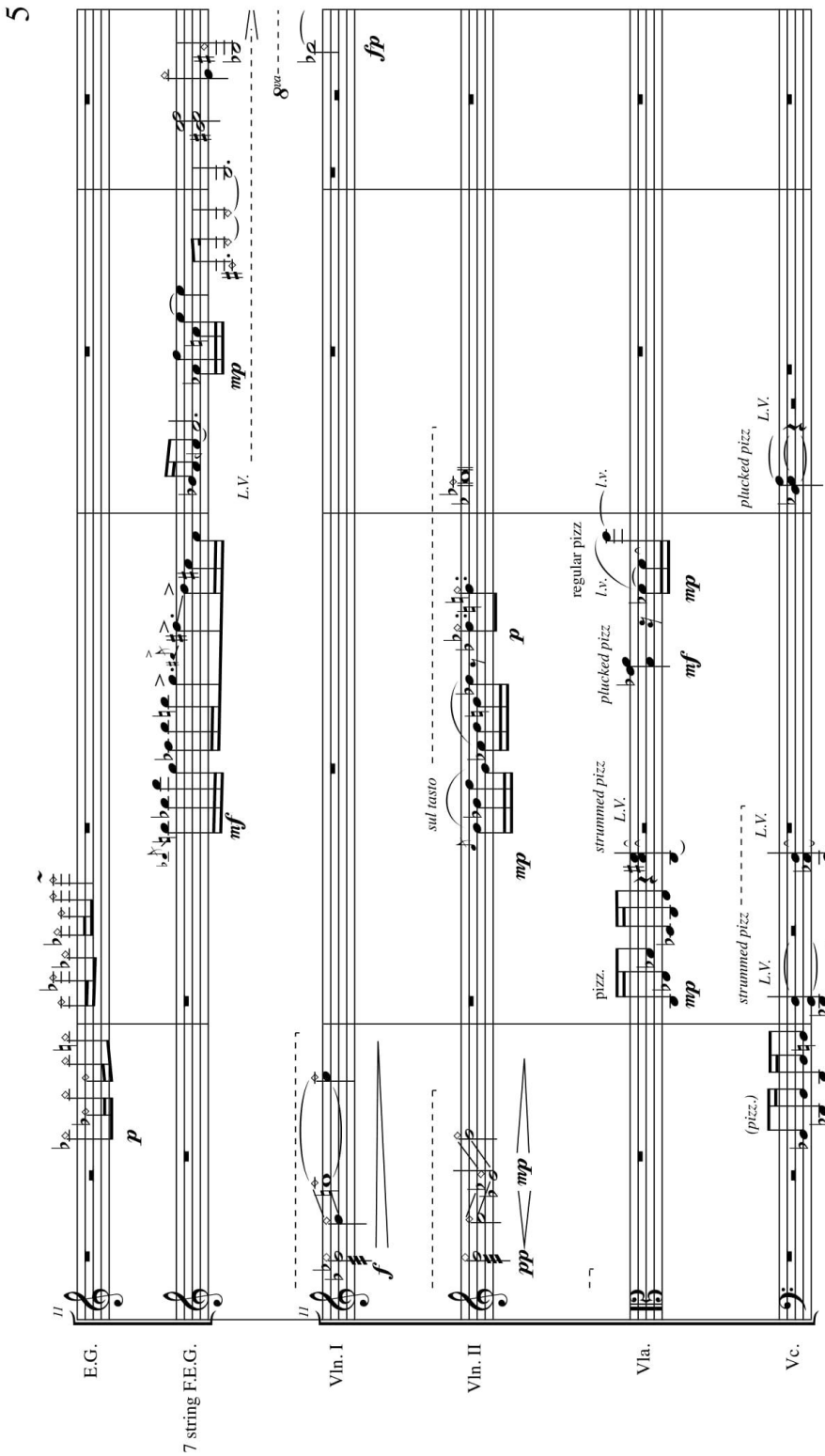
Strings Between K and MK

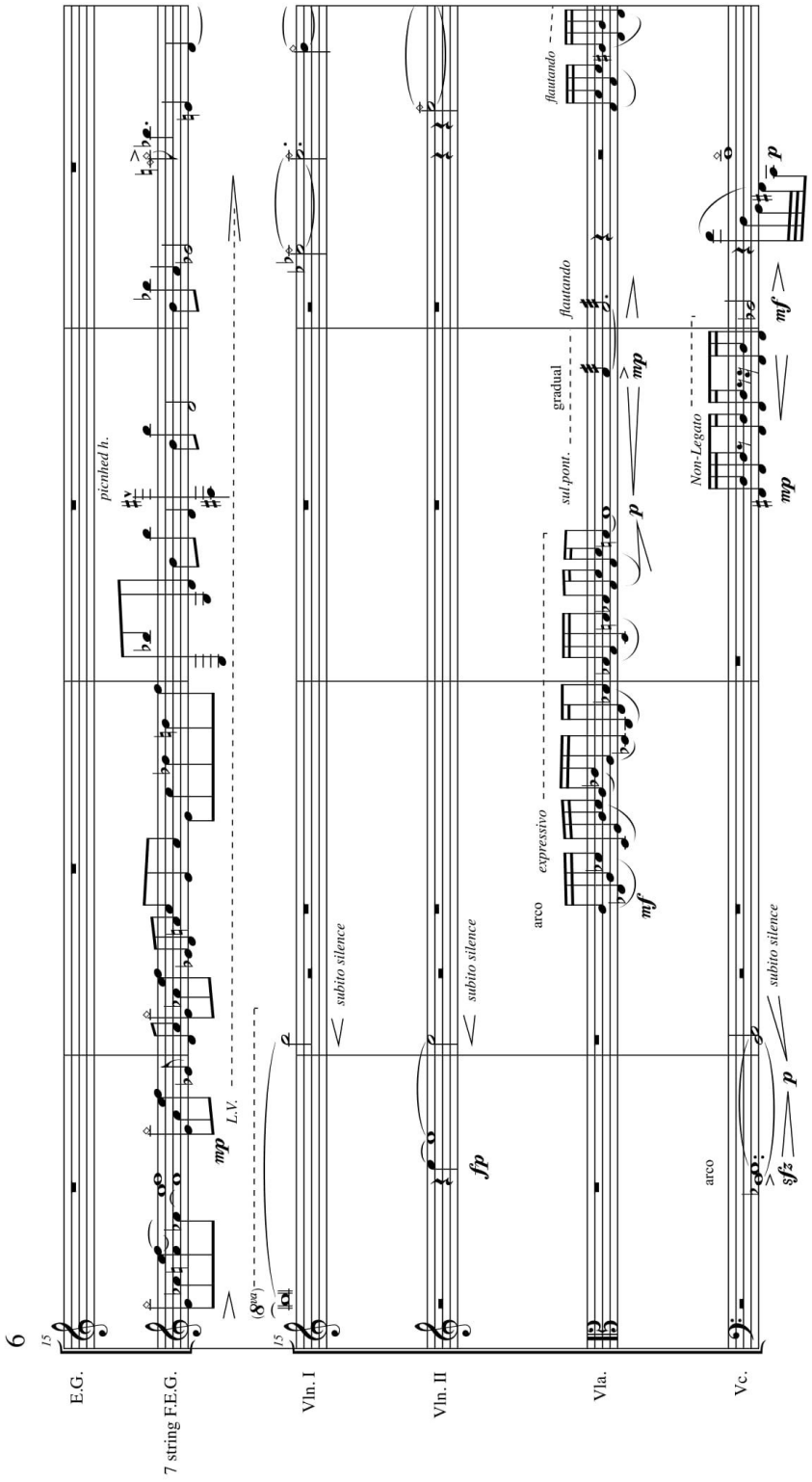


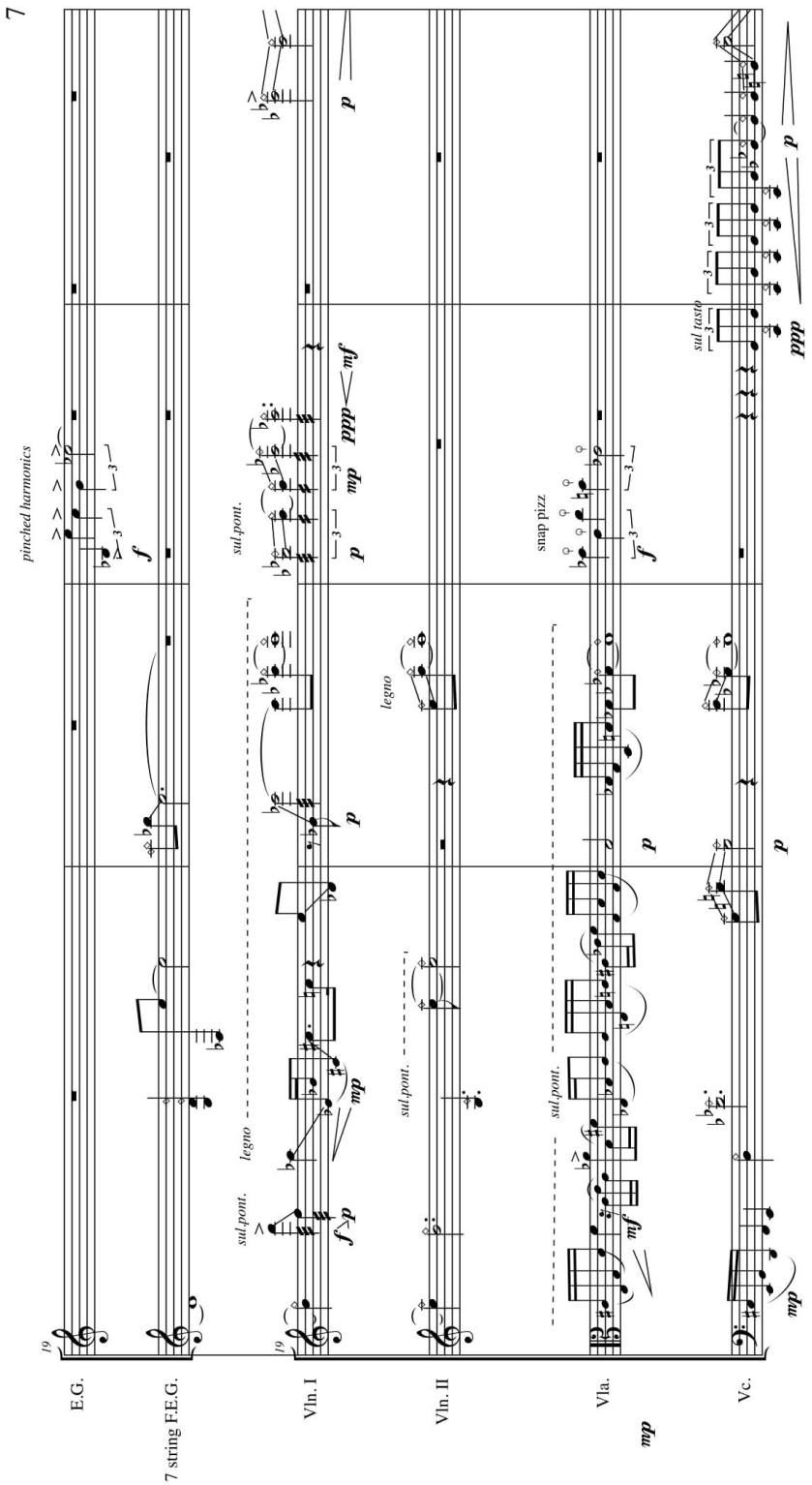

Strings between K and MK
2
E.G.
7 string F.E.G.
Vln. I
Vln. II
Vla.
Vc.
15 SECONDS
+ 10 SECONDS
col legno tratto
after 2 to 4 seconds
flautando
South Indian shake
snap pizz
regular pizz
spiccato

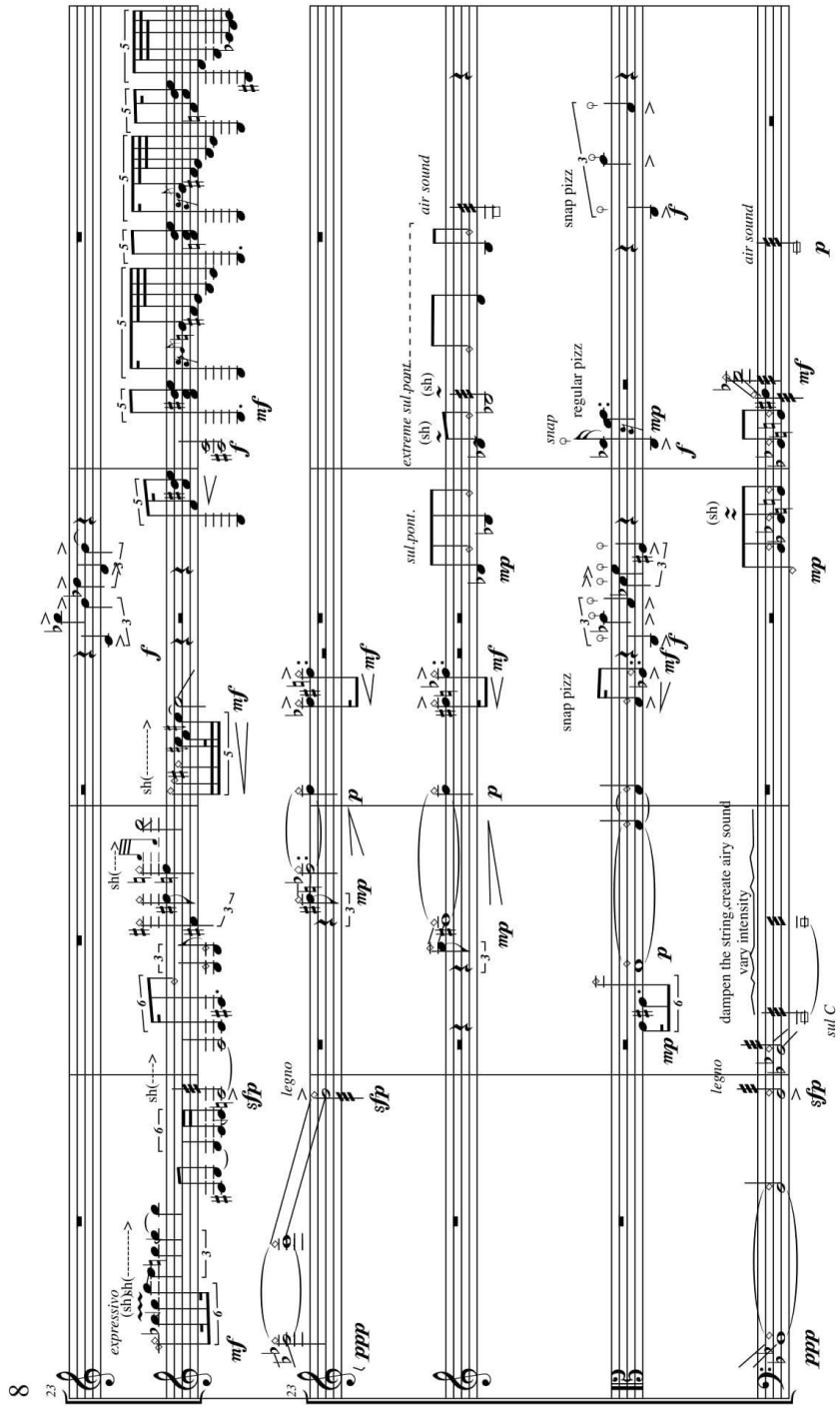

Strings between K and MK
3
E.G.
7 string F.E.G.
Vln. I
Vln. II
Vla.
Vc.
L.V. both guitars as long as possible in this duration
sh(
15 SECONDS
after 2 to 4 seconds
sul ponticello
arco
col legno tratto
col legno battuto

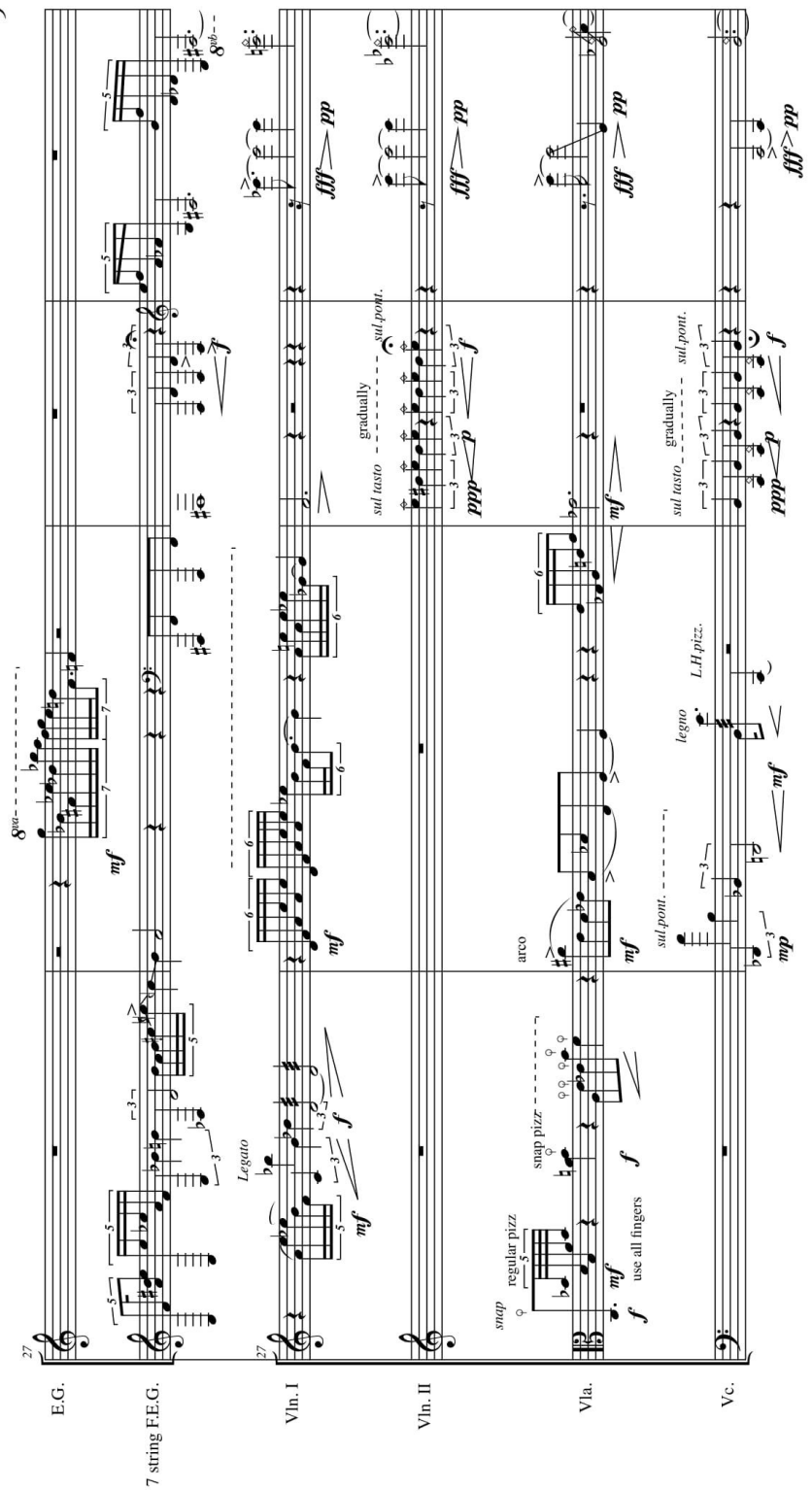

Strings between K and MK
4
E.G.
7 string F.E.G.
Vln. I
Vln. II
Vla.
Vc.
♩= 60–65
15 SECONDS
spiccato
col legno tratto
sul ponticello
flautando
expressivo
pizz. sempre until ordinario
pizz.
l.v.
use all fingers

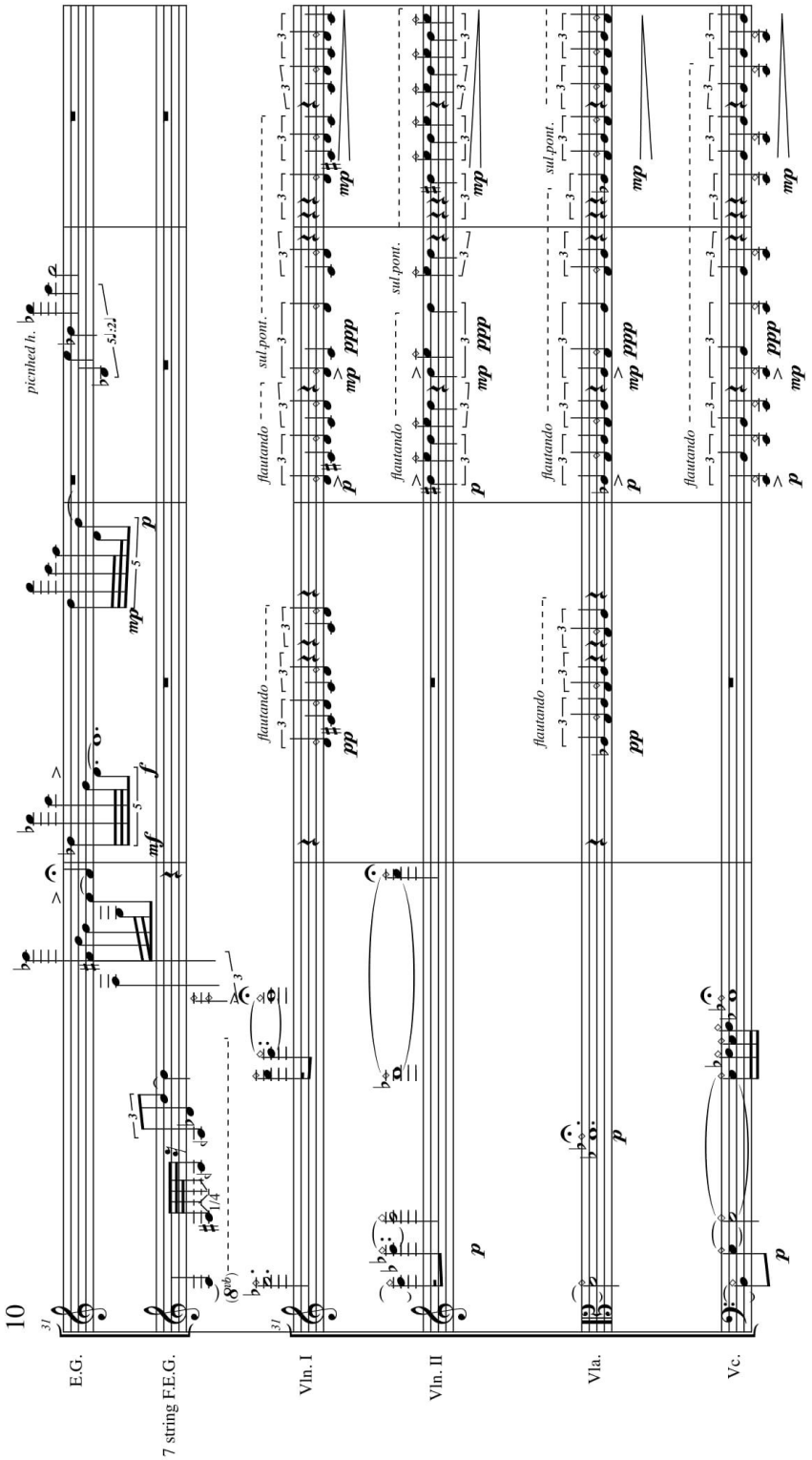

5
E.G.
7 string F.E.G.
Vln. I
Vln. II
Vla.
Vc.
p
mf
mp
L.V.
8va
fp
f
pp
sul tasto
pizz.
strummed pizz
plucked pizz
regular pizz
l.v.
(pizz.)

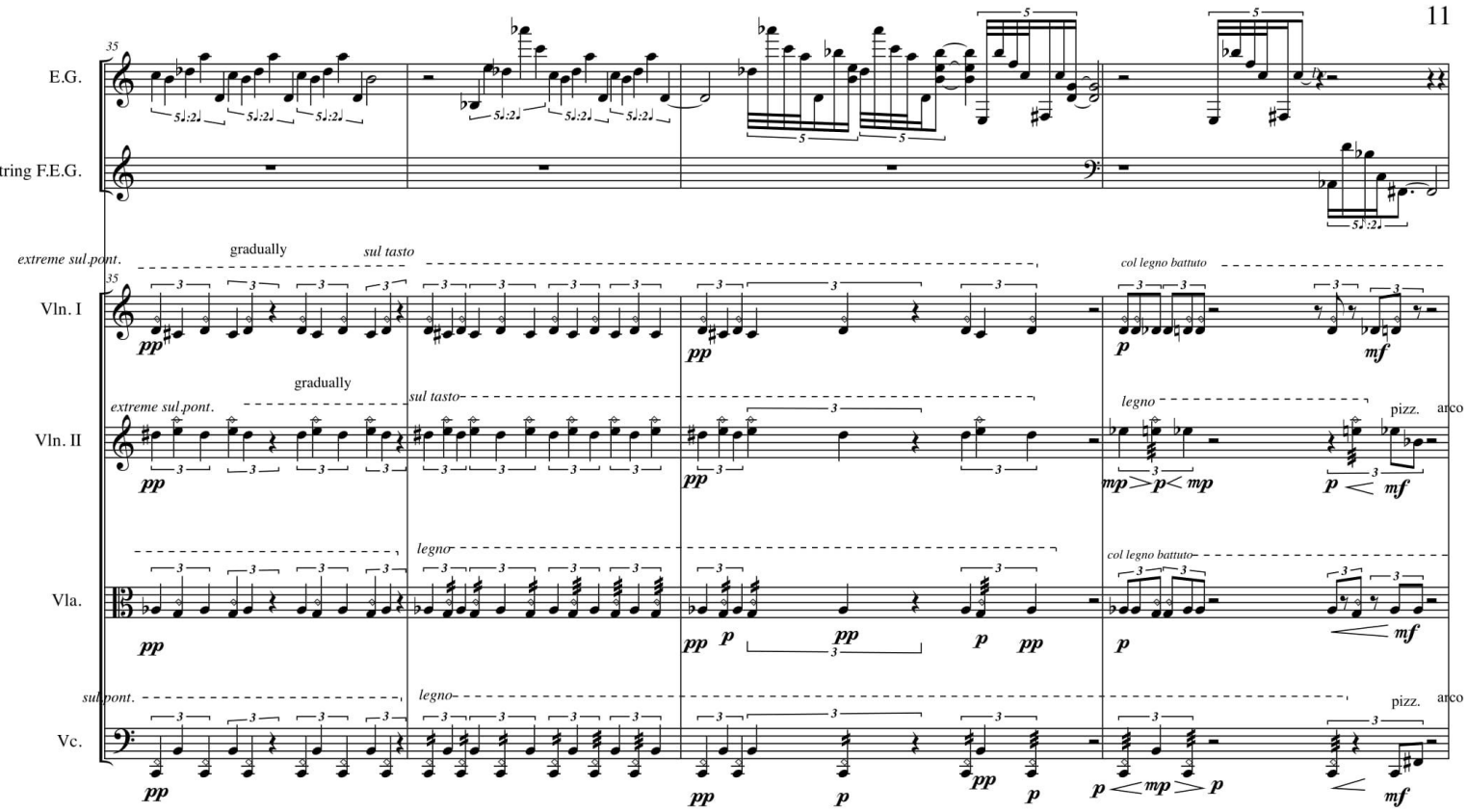

6
E.G.
7 string F.E.G.
Vln. I
Vln. II
Vla.
Vc.
picnhed h.
mp
L.V.
(8va)
subito silence
fp
arco
expressivo
sul pont.
gradual
flautando
mf
p
mp
Non-Legato
sfz
mf

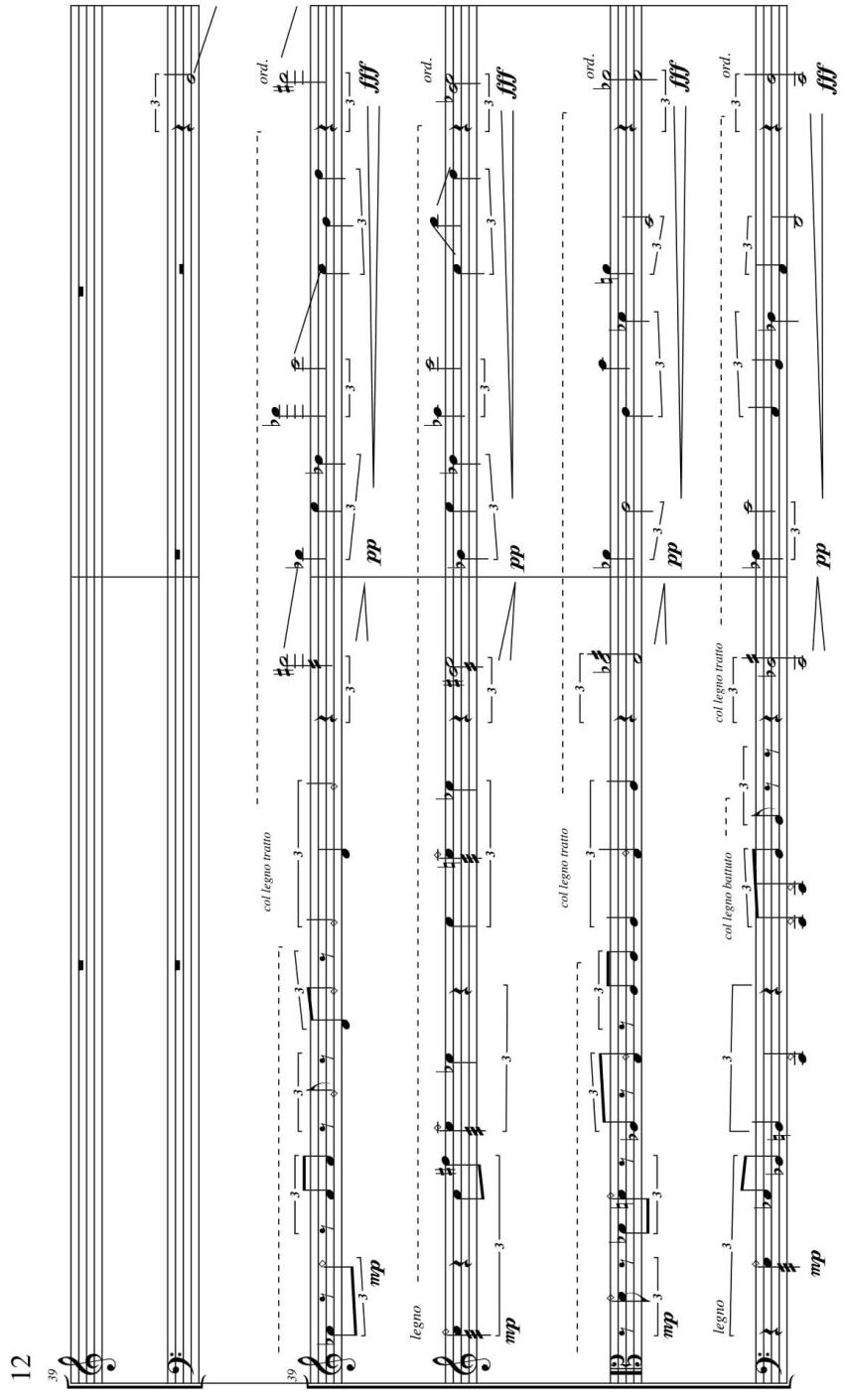

7
pinched harmonics
E.G.
7 string F.E.G.
Vln. I
Vln. II
Vla.
Vc.
sul pont.
legno
snap pizz
sul tasto

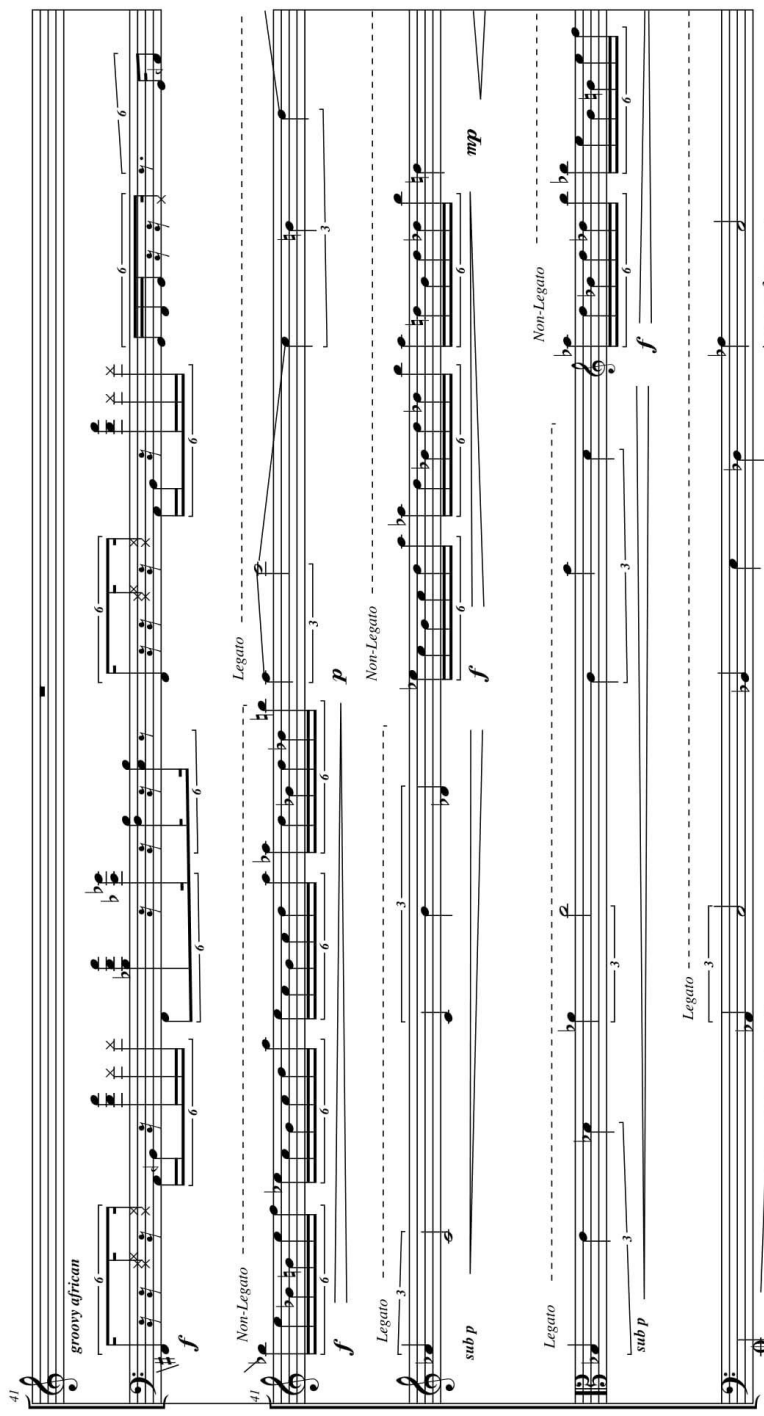

8
E.G.
7 string F.E.G.
Vln. I
Vln. II
Vla.
Vc.
expressive
(sh)sh(-------->
sh(-->
sh(-------->
legno
sul pont.
extreme sul pont.
air sound
snap
regular pizz
snap pizz
(sh)
dampen the string,create airy sound
vary intensity
sul C

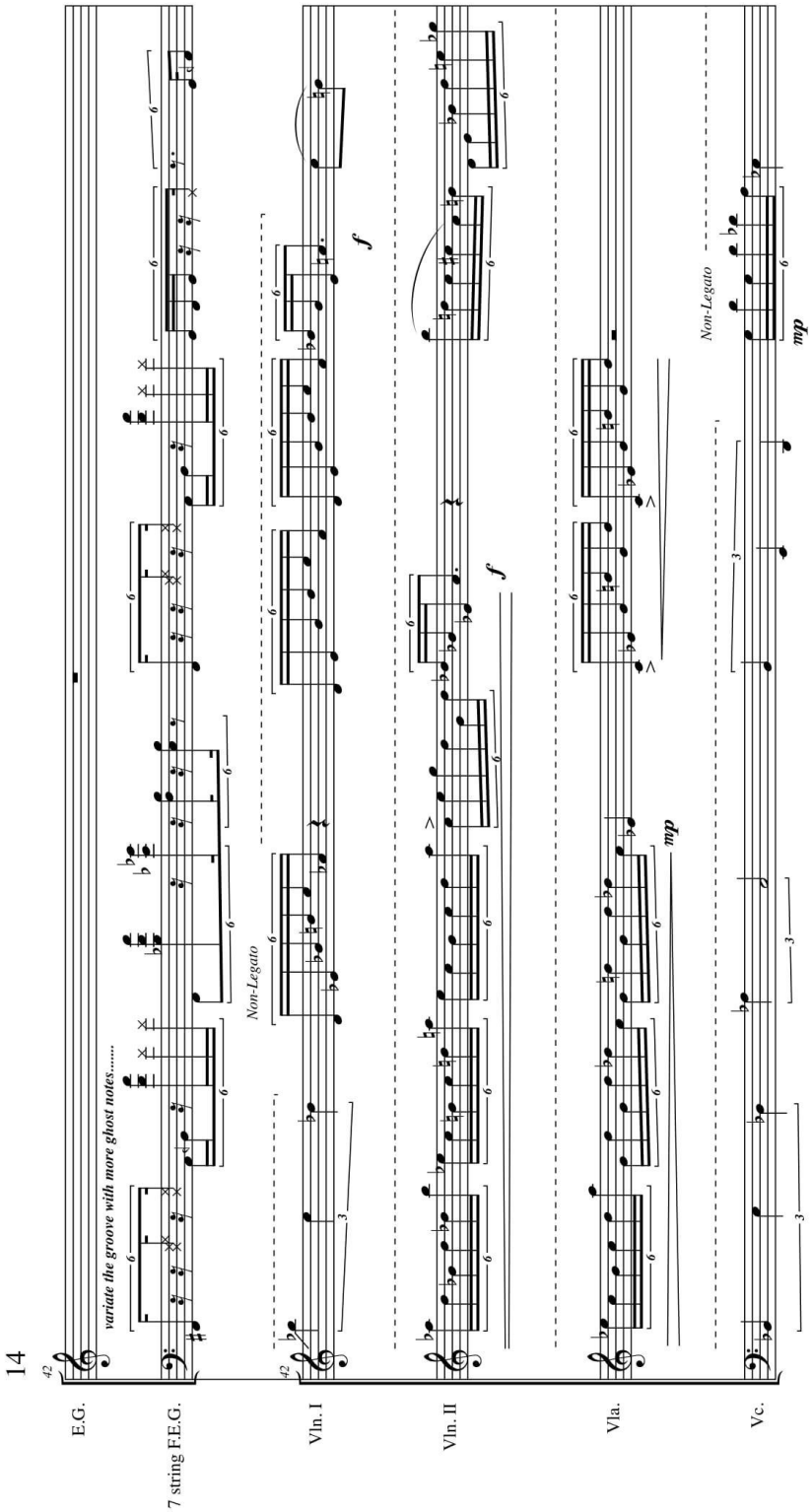

9
E.G.
7 string F.E.G.
Vln. I
Vln. II
Vla.
Vc.
8va
mf
Legato
f
snap
regular pizz
use all fingers
snap pizz.
arco
sul tasto
gradually
sul pont.
fff
dd
LH pizz.
legno
mp

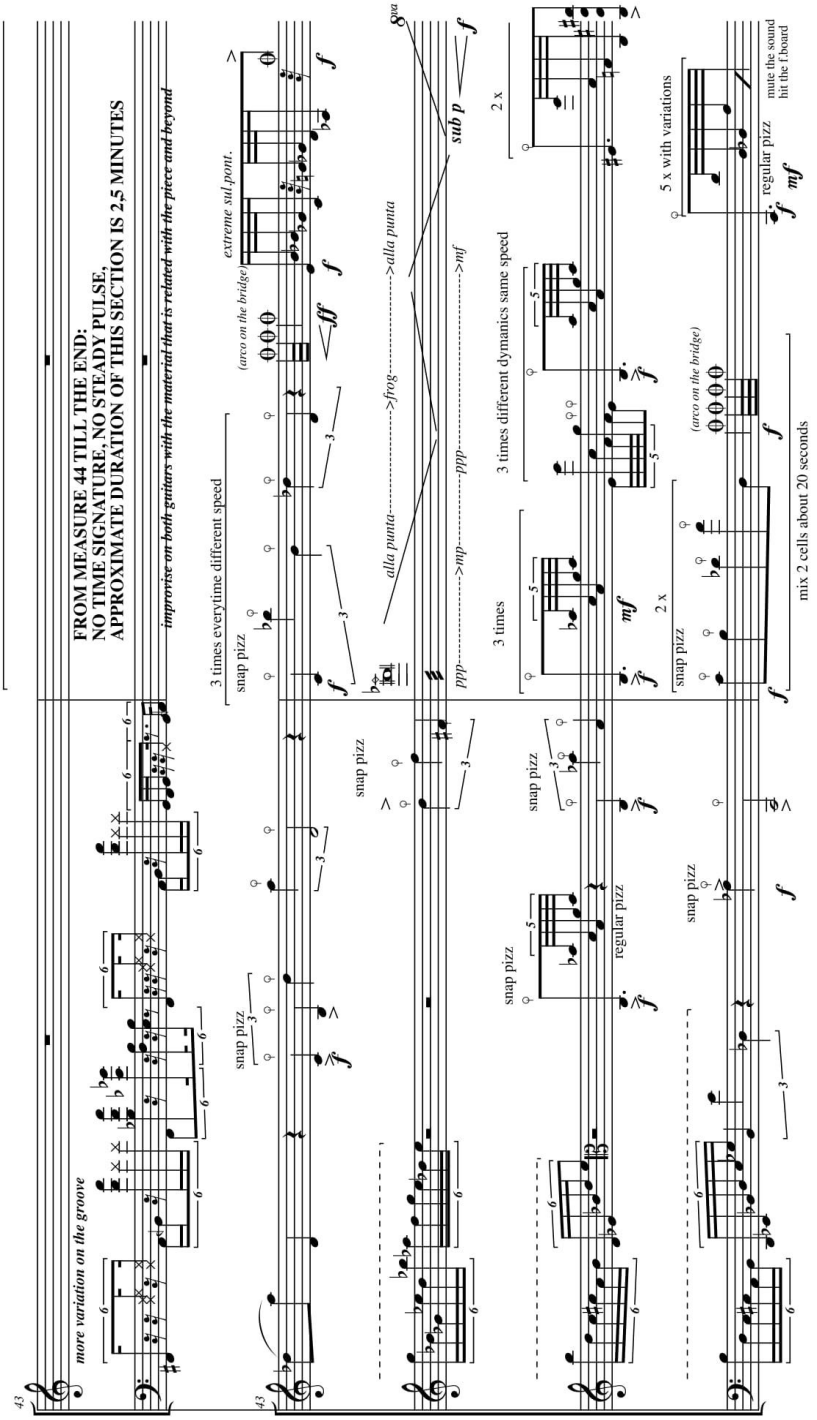

10
E.G.
7 string F.E.G.
Vln. I
Vln. II
Vla.
Vc.
picchied h.
flautando
sul pont.


35
E.G.
7 string F.E.G.
extreme sul.pont.
gradually
sul tasto
col legno battuto
Vln. I
pp
p
mf
gradually
extreme sul.pont.
sul tasto
legno
pizz.
arco
Vln. II
mp
p
mf
legno
col legno battuto
Vla.
pp
p
mf
sul.pont.
legno
pizz.
arco
Vc.
pp
p
mp
mf

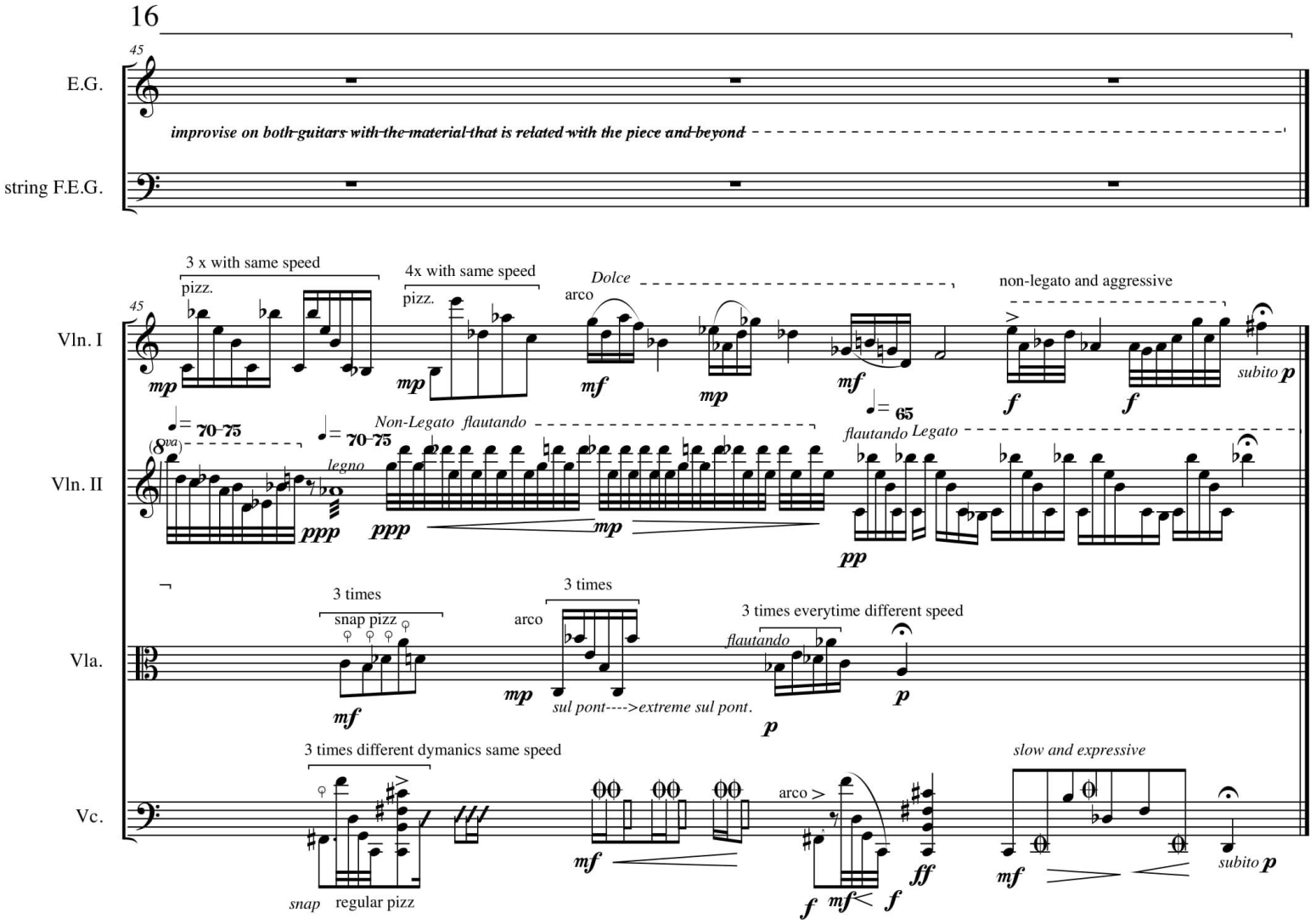

12
E.G.
7 string F.E.G.
Vln. I
Vln. II
Vla.
Vc.
col legno tratto
legno
col legno battuto
ord.
mp
fff


13
E.G.
7 string F.E.G.
Vln. I
Vln. II
Vla.
Vc.
groovy african
f
Non-Legato
Legato
p
mp
sub p


14
E.G.
7 string F.E.G.
Vln. I
Vln. II
Vla.
Vc.
variate the groove with more ghost notes.....
Non-Legato
Non-Legato
f
f
mp
mp


15
E.G.
7 string F.E.G.
Vln. I
Vln. II
Vla.
Vc.
more variation on the groove
improvise on both guitars with the material that is related with the piece and beyond
FROM MEASURE 44 TILL THE END:
NO TIME SIGNATURE, NO STEADY PULSE,
APPROXIMATE DURATION OF THIS SECTION IS 2,5 MINUTES
3 times everytime different speed
snap pizz
(arco on the bridge)
extreme sul.pont.
alla punta
frog
3 times
3 times different dynamics same speed
2 x
5 x with variations
regular pizz
mute the sound
hit the f.board
mix 2 cells about 20 seconds

16


45
E.G.
improvise on both guitars with the material that is related with the piece and beyond
string F.E.G.
45
Vln. I
3 x with same speed
pizz.
4x with same speed
pizz.
Dolce
arco
non-legato and aggressive
mp
mf
mp
mf
f
f
subito p
Vln. II
= 70-75
= 70-75
Non-Legato flautando
flautando Legato
= 65
(8va)
legno
ppp
ppp
mp
pp
Vla.
3 times
snap pizz
3 times
arco
3 times everytime different speed
flautando
mf
mp
sul pont---->extreme sul pont.
p
p
Vc.
3 times different dymanics same speed
slow and expressive
arco
mf
ff
mf
f
mf
f
snap
regular pizz
subito p

TİMUÇİN ŞAHİN

NOTHING BAD CAN HAPPEN III

For Chamber Orchestra and 7 string fretless & 6 string fretted guitars, Contrabass, Cello, Viola, 2 Violins, Marimba, Vibraphone, Percussion set-ups, Trombone, Trumpet, Clarinet, Horn, Oboe, Piano

PERFORMANCE NOTES

Nothing bad can happen III (2014) is a large ensemble piece and has 4 divided ensembles along with individual functioning solo instruments that at times connect up with those ensembles. Different groupings of instruments weave in and out through my cues. Guitar belongs to multiple ensembles and also forms a duo with the trombone part and a trio with two percussionists. The guitar part serves as a kind of cantus firmus with the unpredictability of its combining different sections. Another significant feature of the piece is the effect of the disposition of the orchestra and spatiality.

DIVIDED ENSEMBLES:

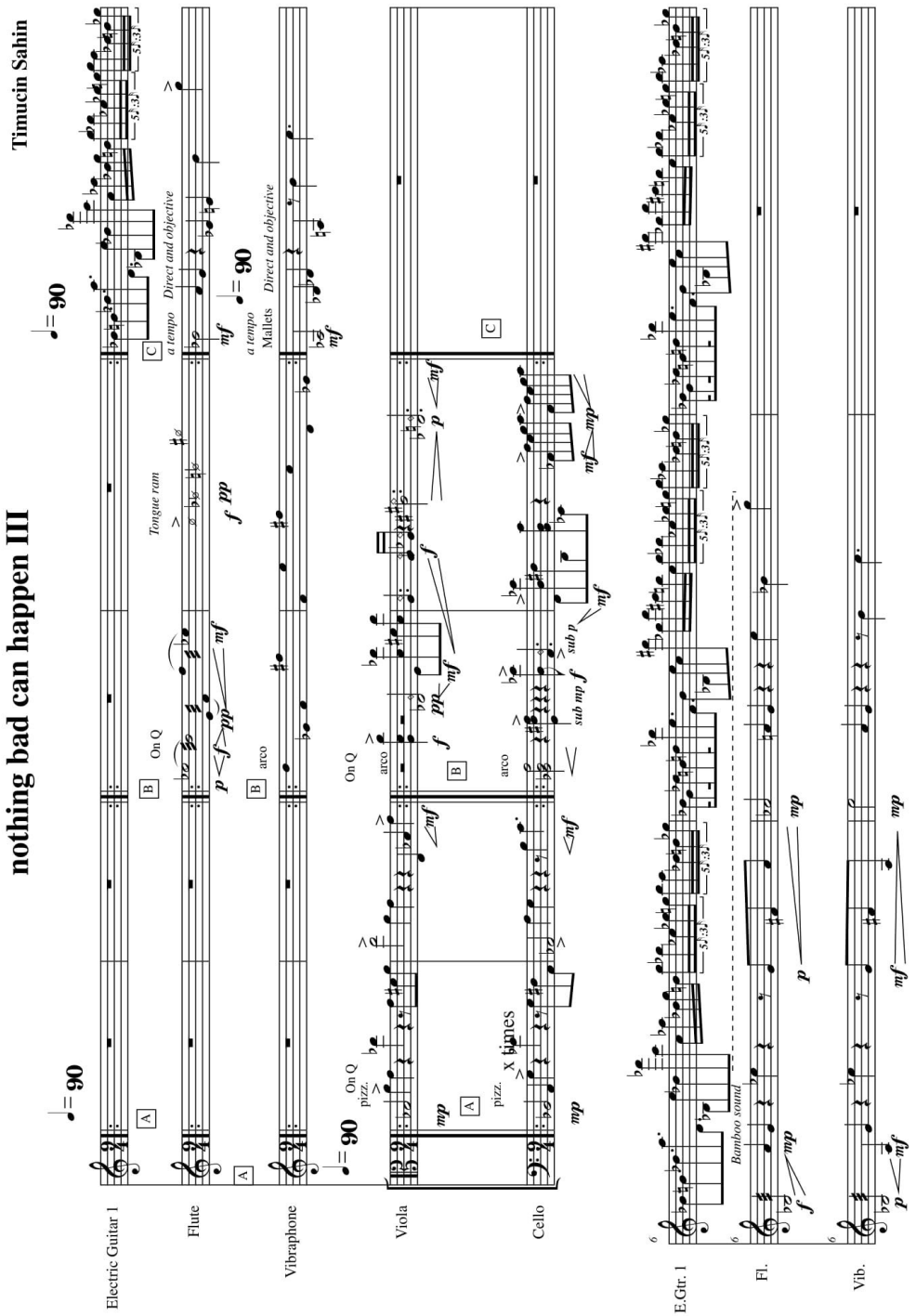
ENSEMBLE 1: Flute, Vibraphone, Viola, and Cello

ENSEMBLE 2: Violin, Double Bass

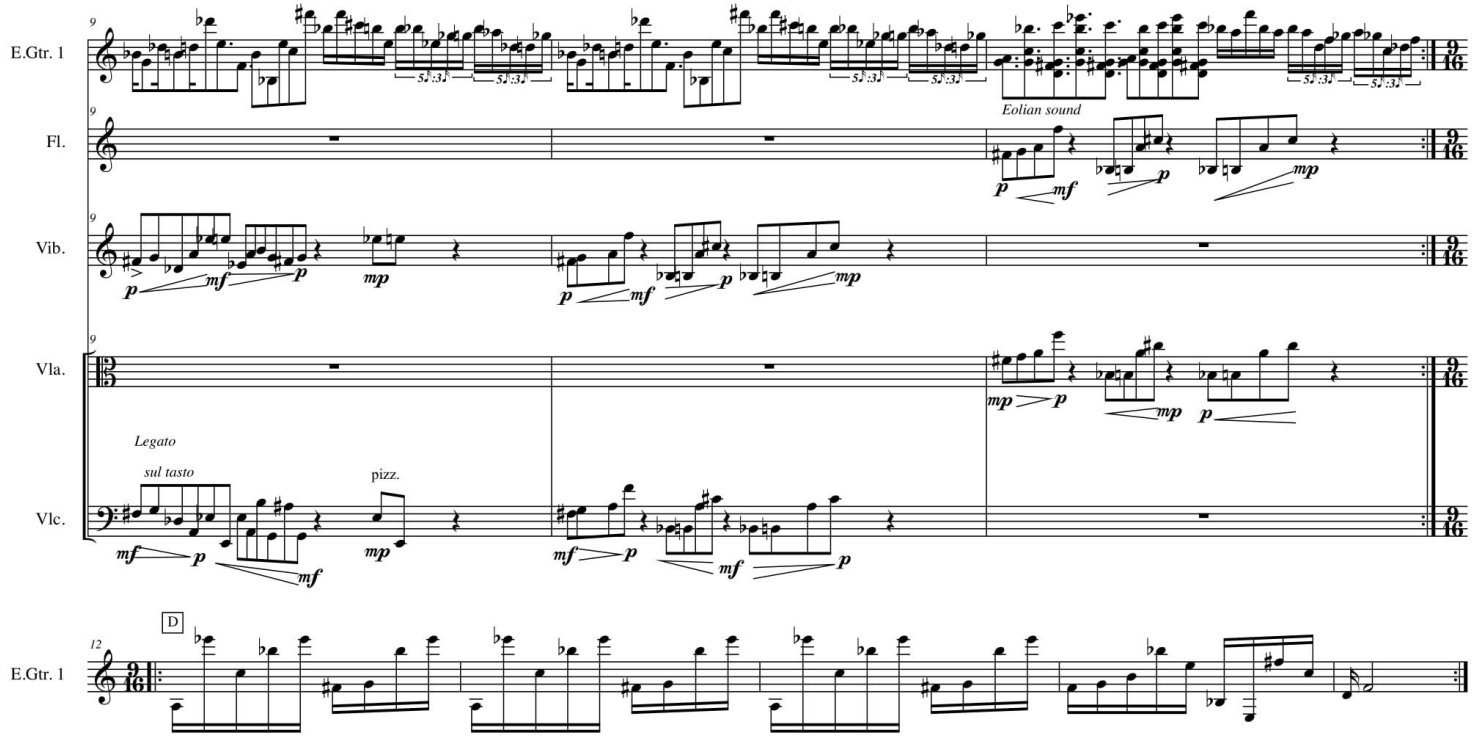
ENSEMBLE 3: Tenor Saxophone, Clarinet, F Horn, Trombone, and Percussions

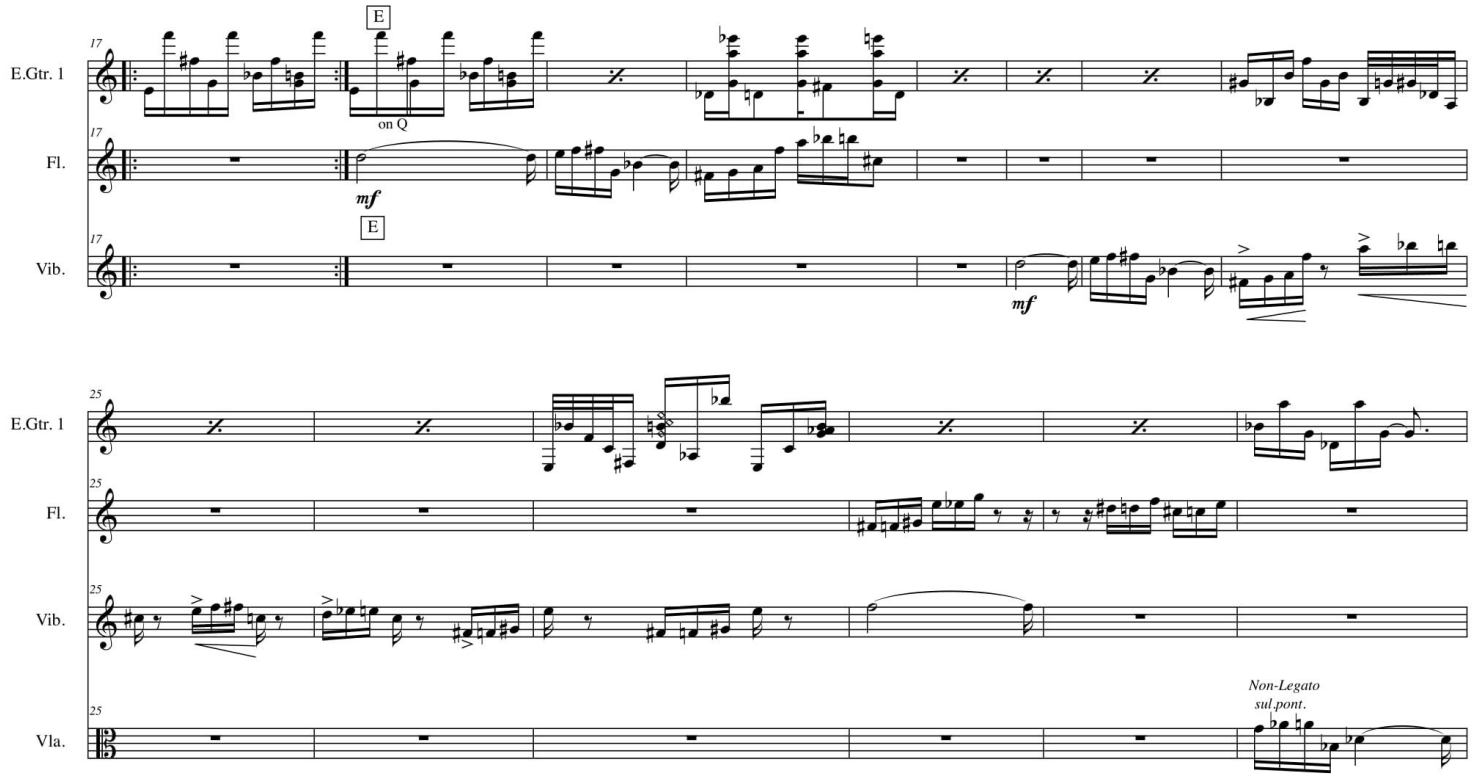
ENSEMBLE 4: Oboe, Violin and Piano

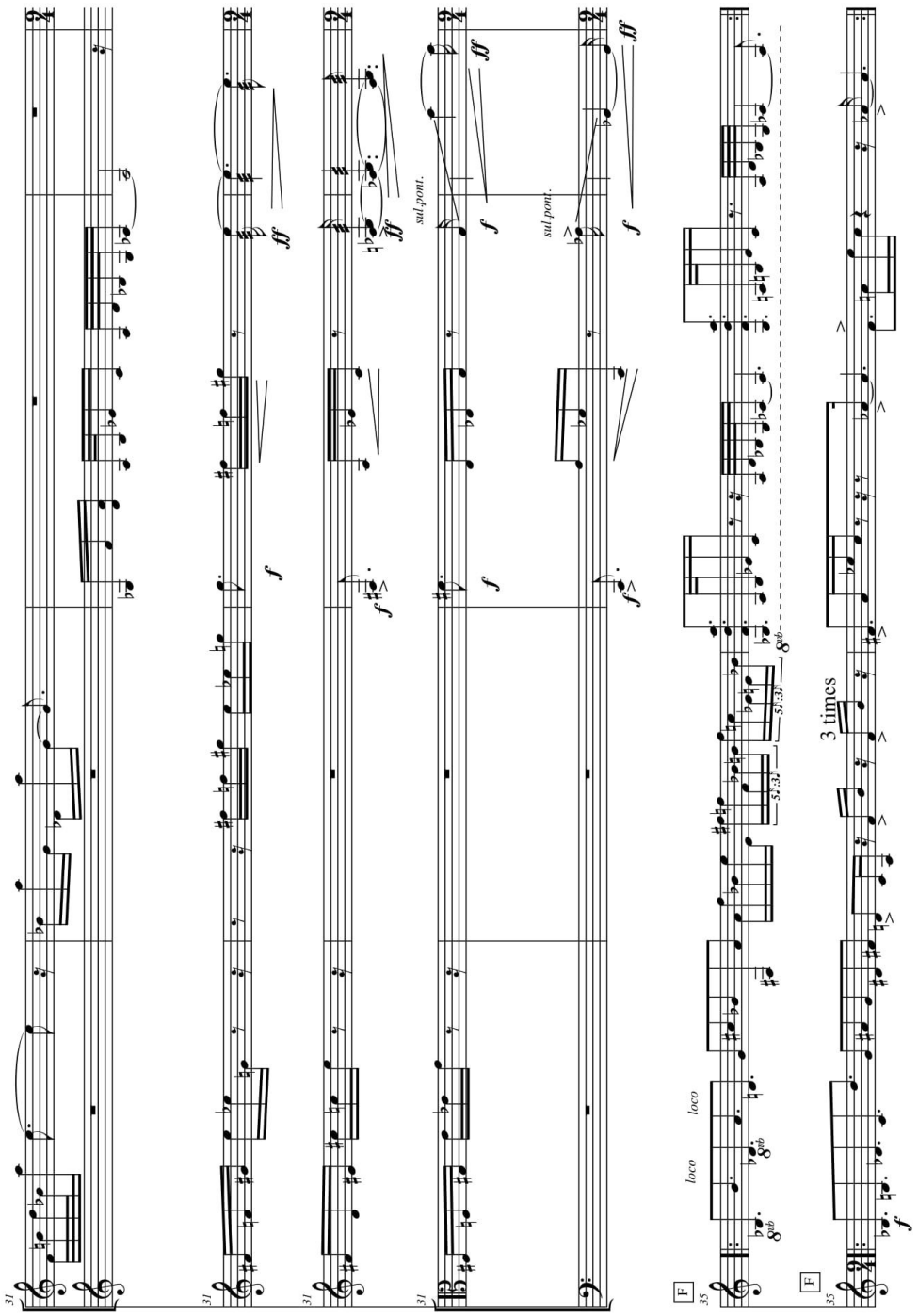
ENSEMBLE 1: Flute, Vibraphone, Viola, and Cello

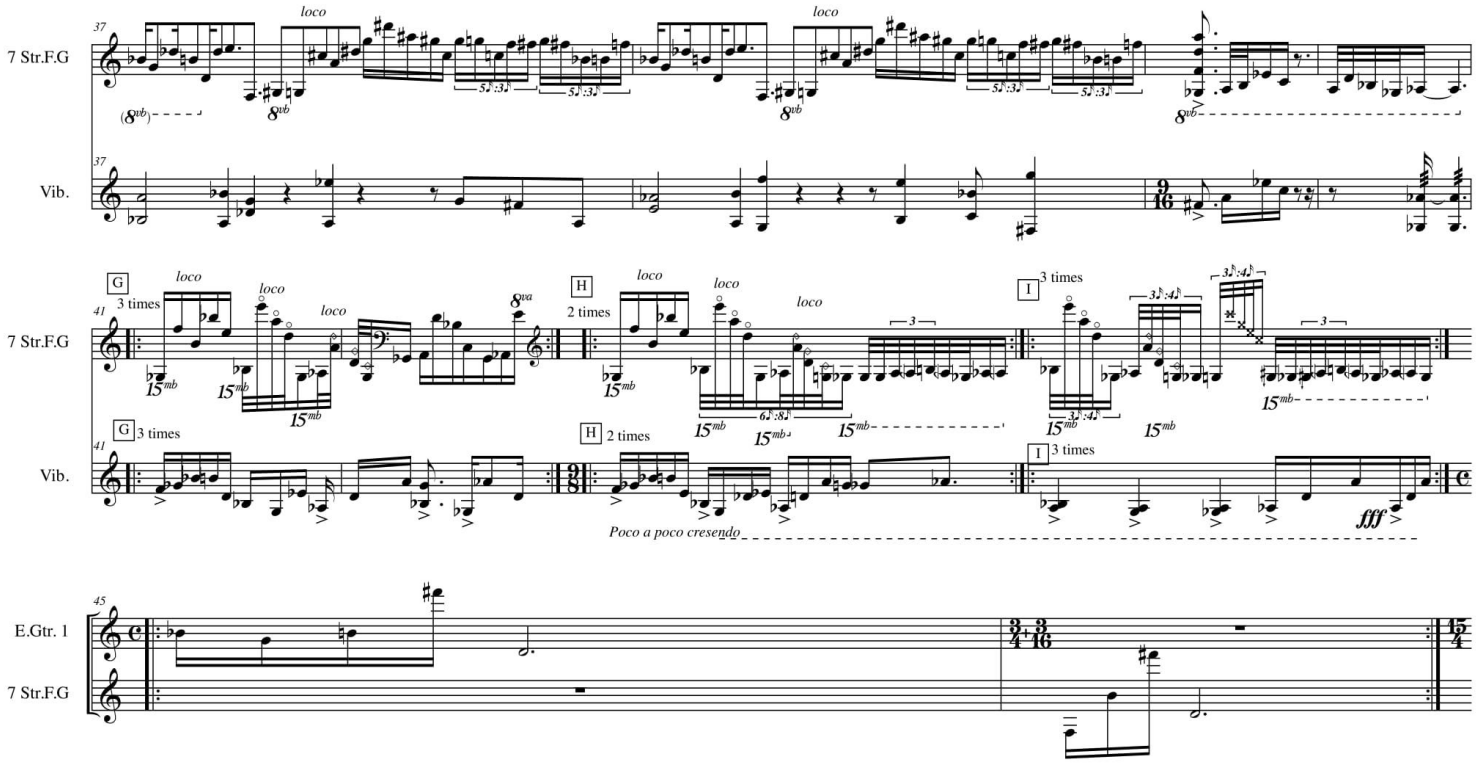


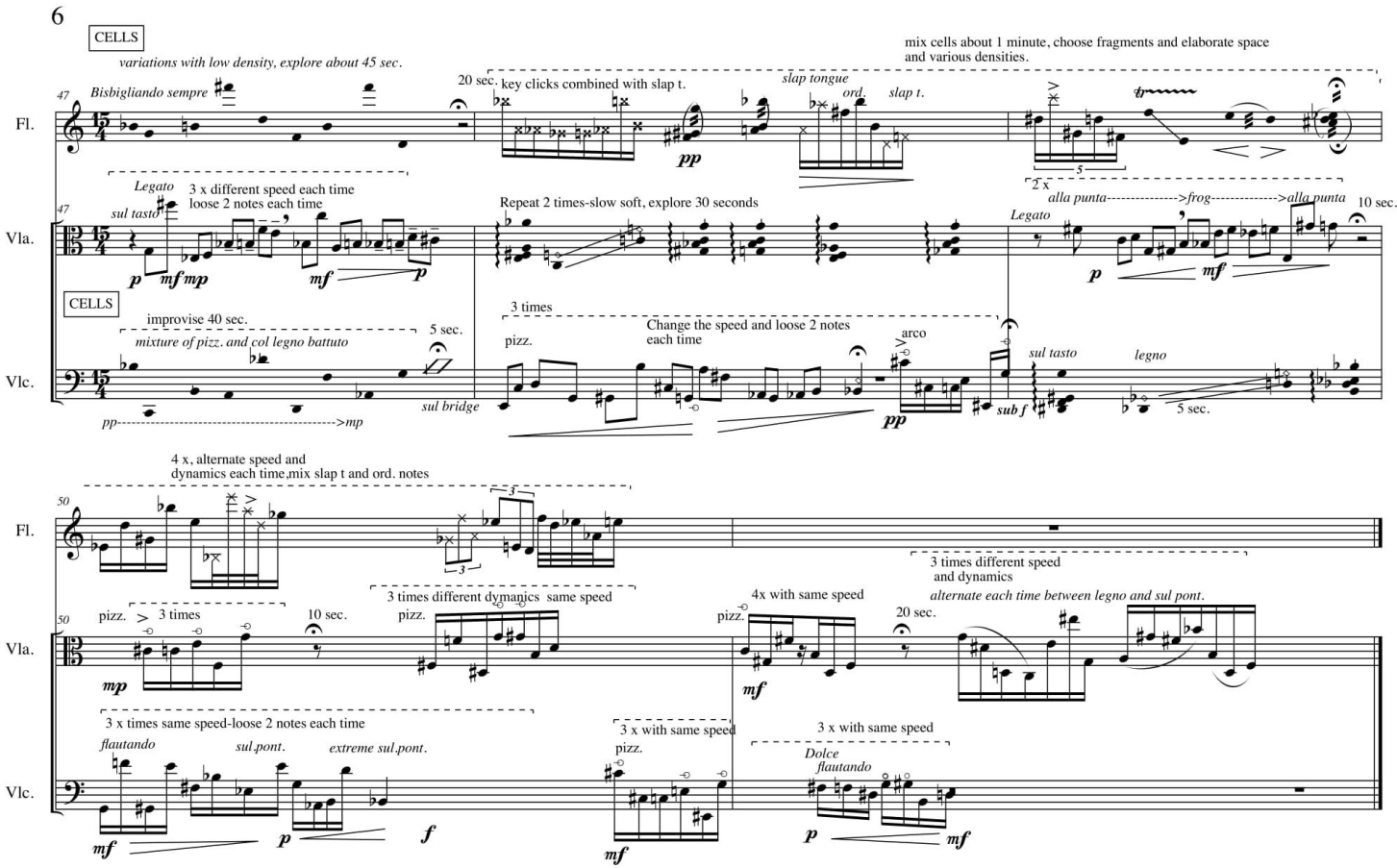
2


E.Gtr. 1
Fl.
Vib.
Vla.
Vlc.
E.Gtr. 1
Eolian sound
Legato
sul tasto
pizz.
D

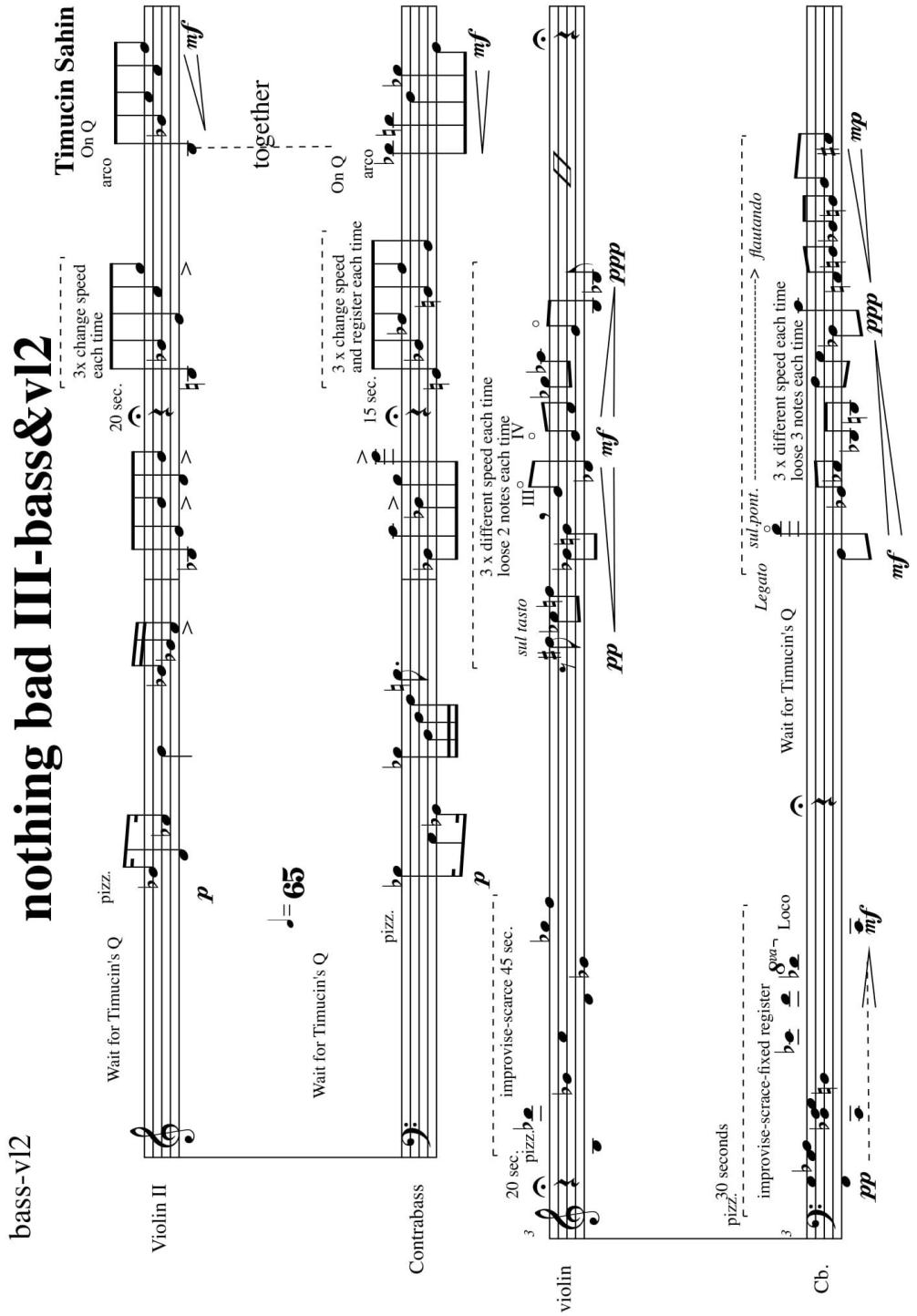

E.Gtr. 1
Fl.
Vib.
E
on Q
mf
E
mf
E.Gtr. 1
Fl.
Vib.
Vla.
Non-Legato
sul.pont.

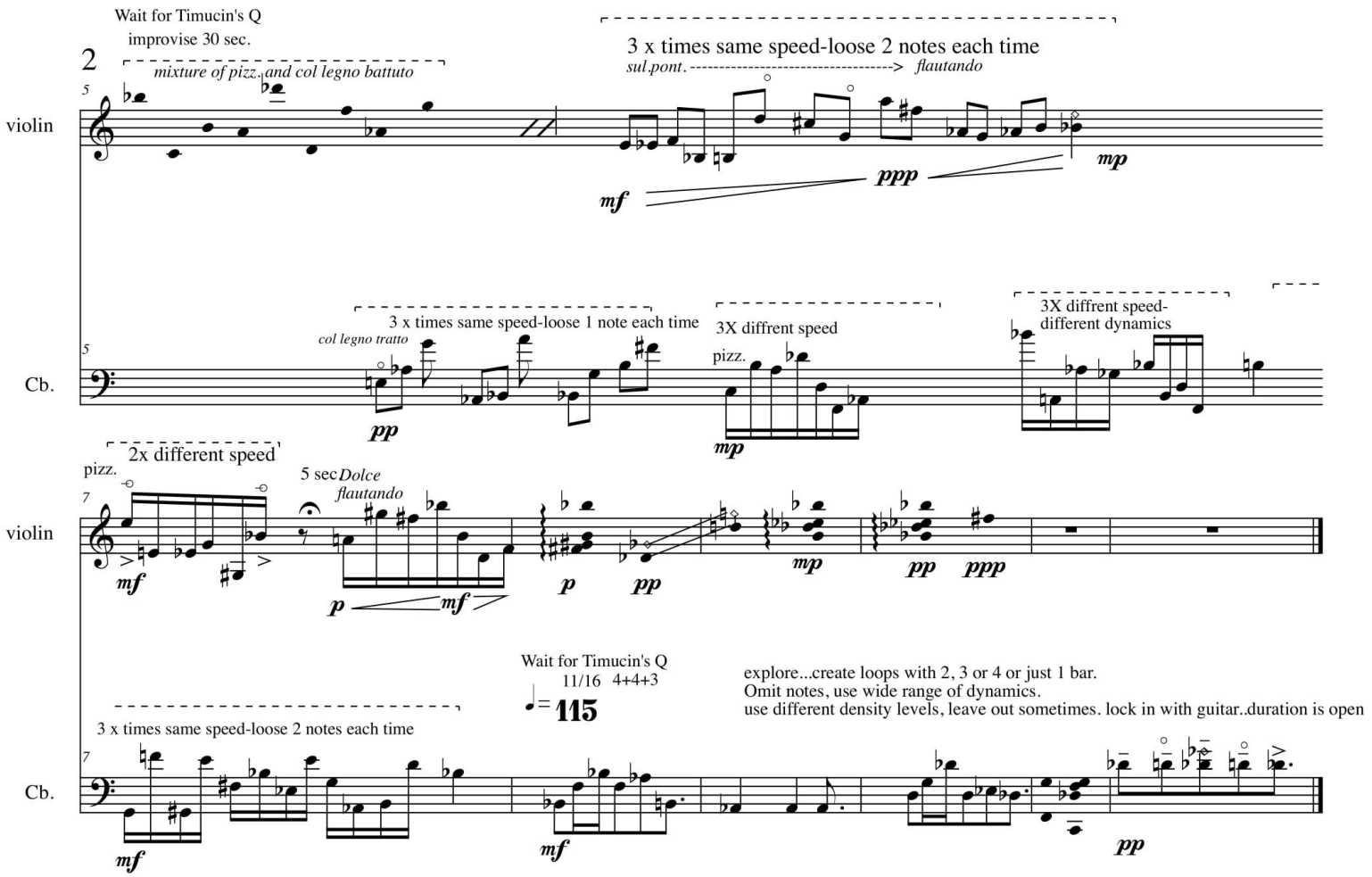

4
E.Gtr. 1
7 Str.F.G
Fl.
Vib.
Vla.
Vlc.
7 Str.F.G
Vib.
sul.pont.
sul.pont.
loco
loco
3 times


37
7 Str.F.G
Vib.
loco
8vb
41
G
3 times
H
2 times
I
3 times
8va
15mb
Poco a poco cresendo
fff
45
E.Gtr. 1
7 Str.F.G

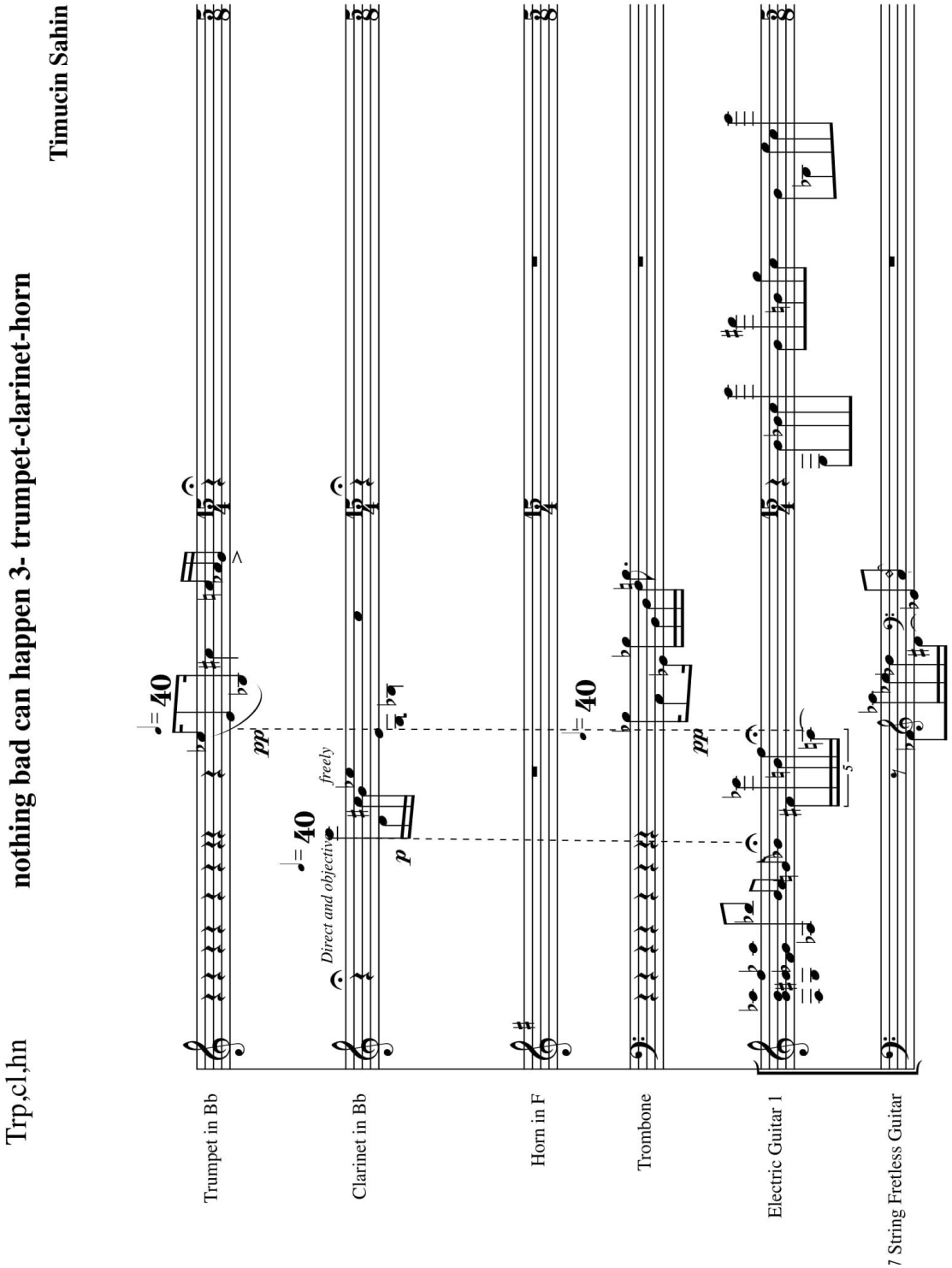

6
CELLS
variations with low density, explore about 45 sec.
Bisbigliando sempre
20 sec.
key clicks combined with slap t.
slap tongue
ord.
slap t.
mix cells about 1 minute, choose fragments and elaborate space and various densities.
Fl.
Legato
sul tasto
3 x different speed each time
loose 2 notes each time
Repeat 2 times-slow soft, explore 30 seconds
2 x
alla punta----------->frog----------->alla punta
10 sec.
Legato
Vla.
CELLS
improvise 40 sec.
mixture of pizz. and col legno battuto
5 sec.
3 times
Change the speed and loose 2 notes each time
pizz.
arco
sul tasto
legno
sul bridge
pp----------->mp
sub f
5 sec.
Vlc.
4 x, alternate speed and dynamics each time,mix slap t and ord. notes
3 times different dymanics same speed
4x with same speed
3 times different speed and dynamics
alternate each time between legno and sul pont.
pizz.
3 times
10 sec.
20 sec.
Fl.
Vla.
3 x times same speed-loose 2 notes each time
flautando
sul.pont.
extreme sul.pont.
3 x with same speed
Dolce
flautando
Vlc.

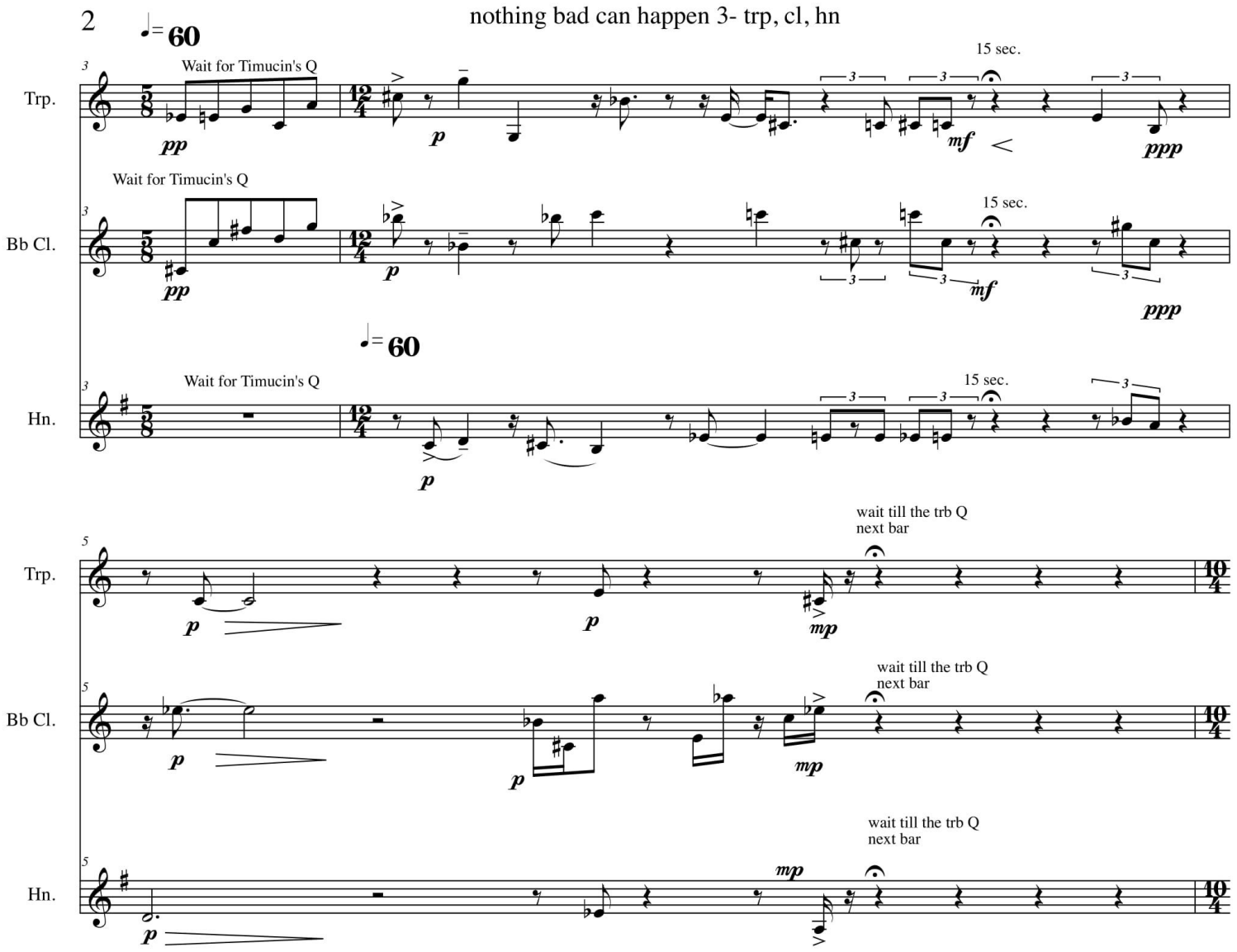
ENSEMBLE 2: Violin, Double Bass

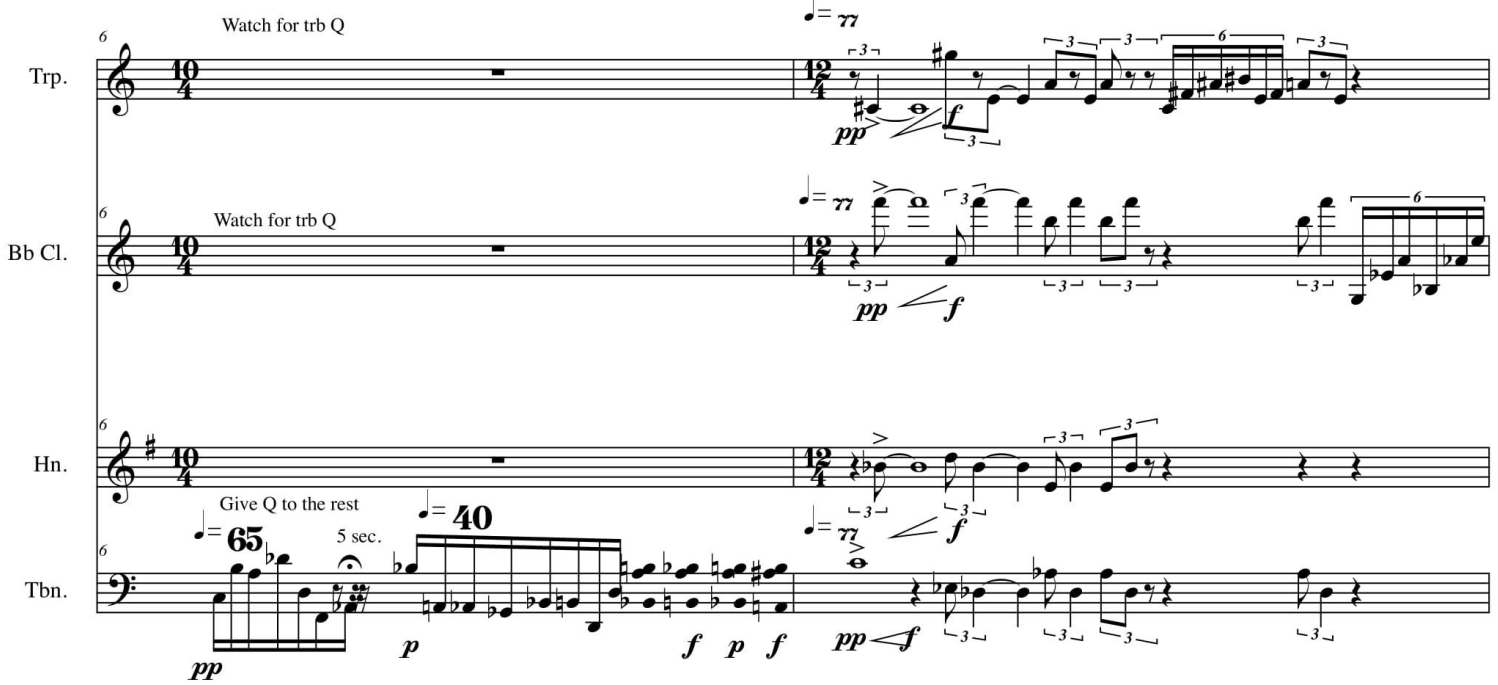


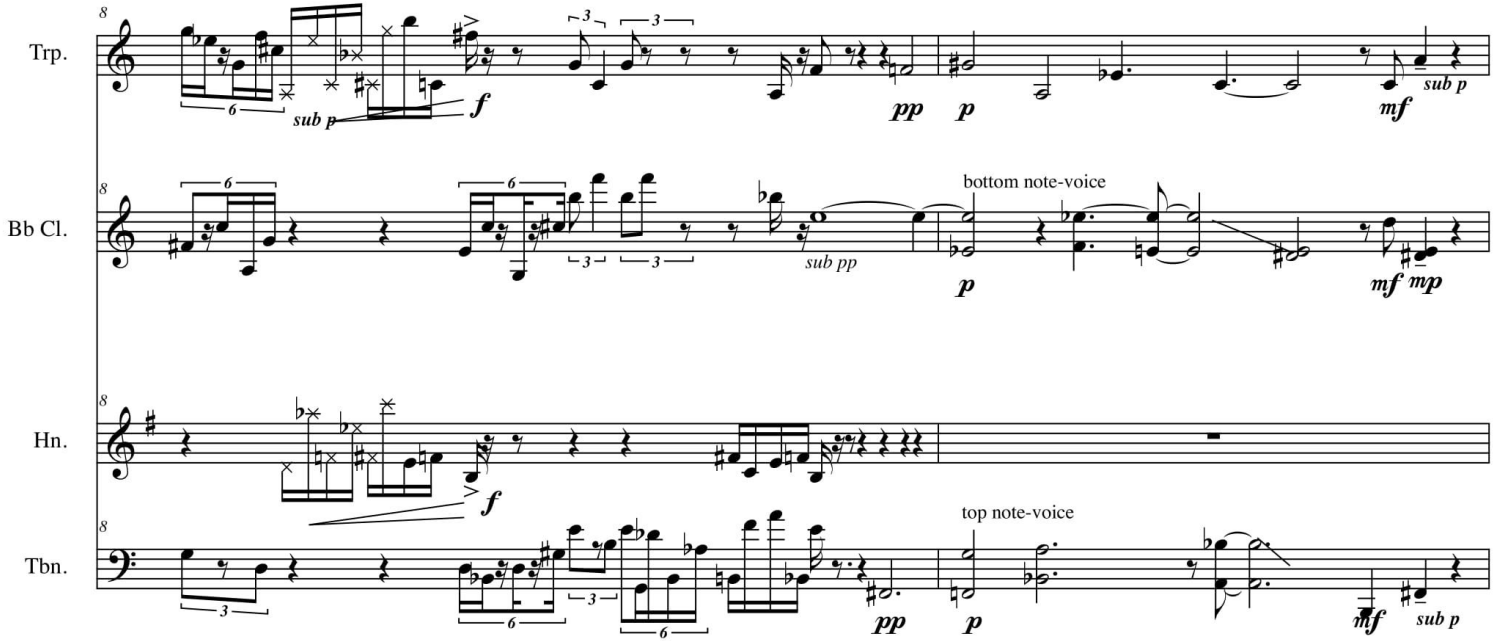

Wait for Timucin's Q
improvise 30 sec.
2
mixture of pizz. and col legno battuto
3 x times same speed-loose 2 notes each time
sul pont. ----------> flautando
violin
mf
ppp
mp
3 x times same speed-loose 1 note each time
col legno tratto
3X diffrent speed
pizz.
3X diffrent speed-
different dynamics
Cb.
pp
mp
2x different speed
pizz.
5 sec
Dolce
flautando
violin
mf
p
mf
p
pp
mp
pp
ppp
Wait for Timucin's Q
11/16 4+4+3
= 115
explore...create loops with 2, 3 or 4 or just 1 bar.
Omit notes, use wide range of dynamics.
use different density levels, leave out sometimes. lock in with guitar..duration is open
3 x times same speed-loose 2 notes each time
Cb.
mf
mf
pp

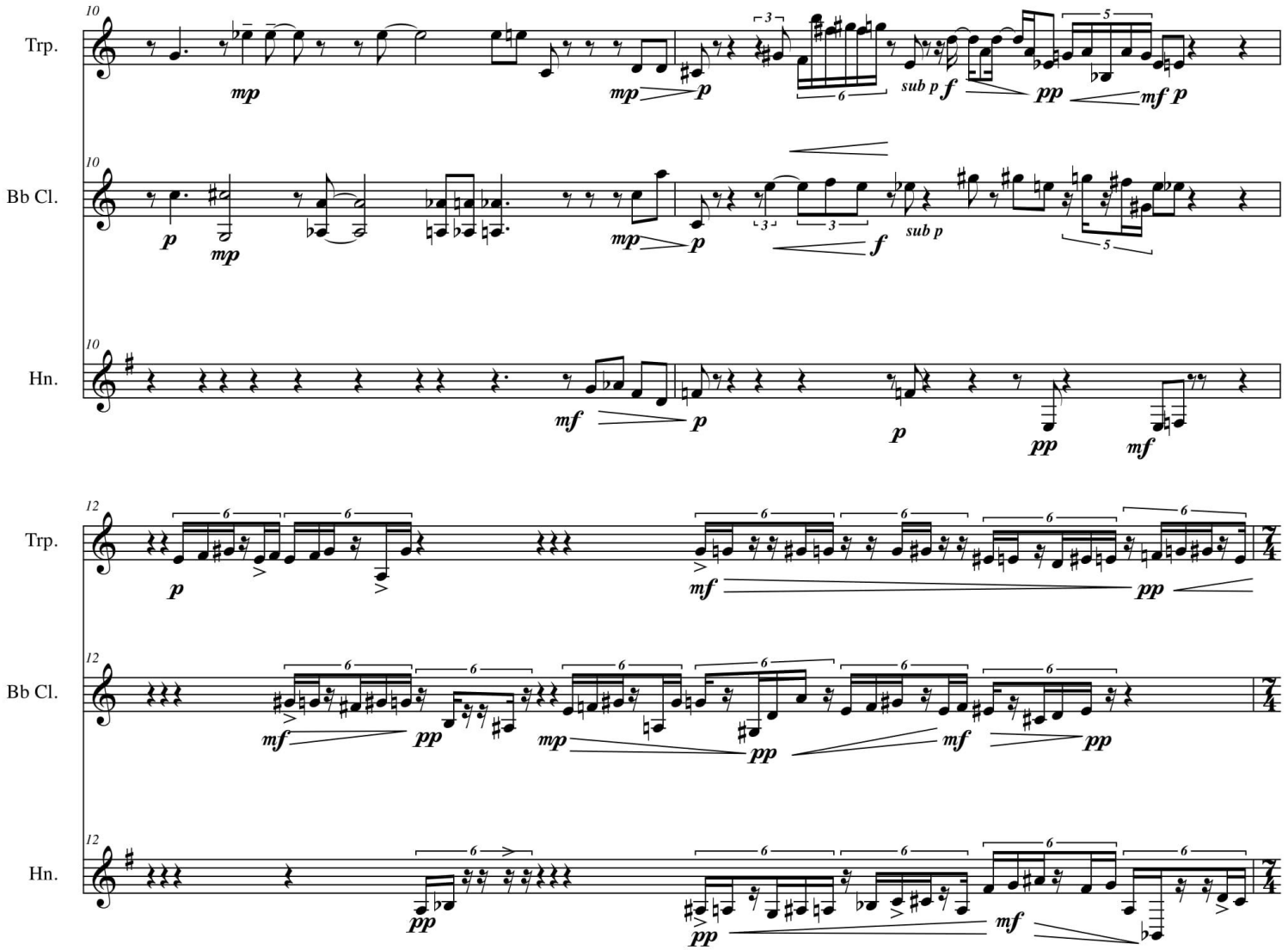
ENSEMBLE 3: Tenor Saxophone, Clarinet, F Horn, Trombone, and Percussions

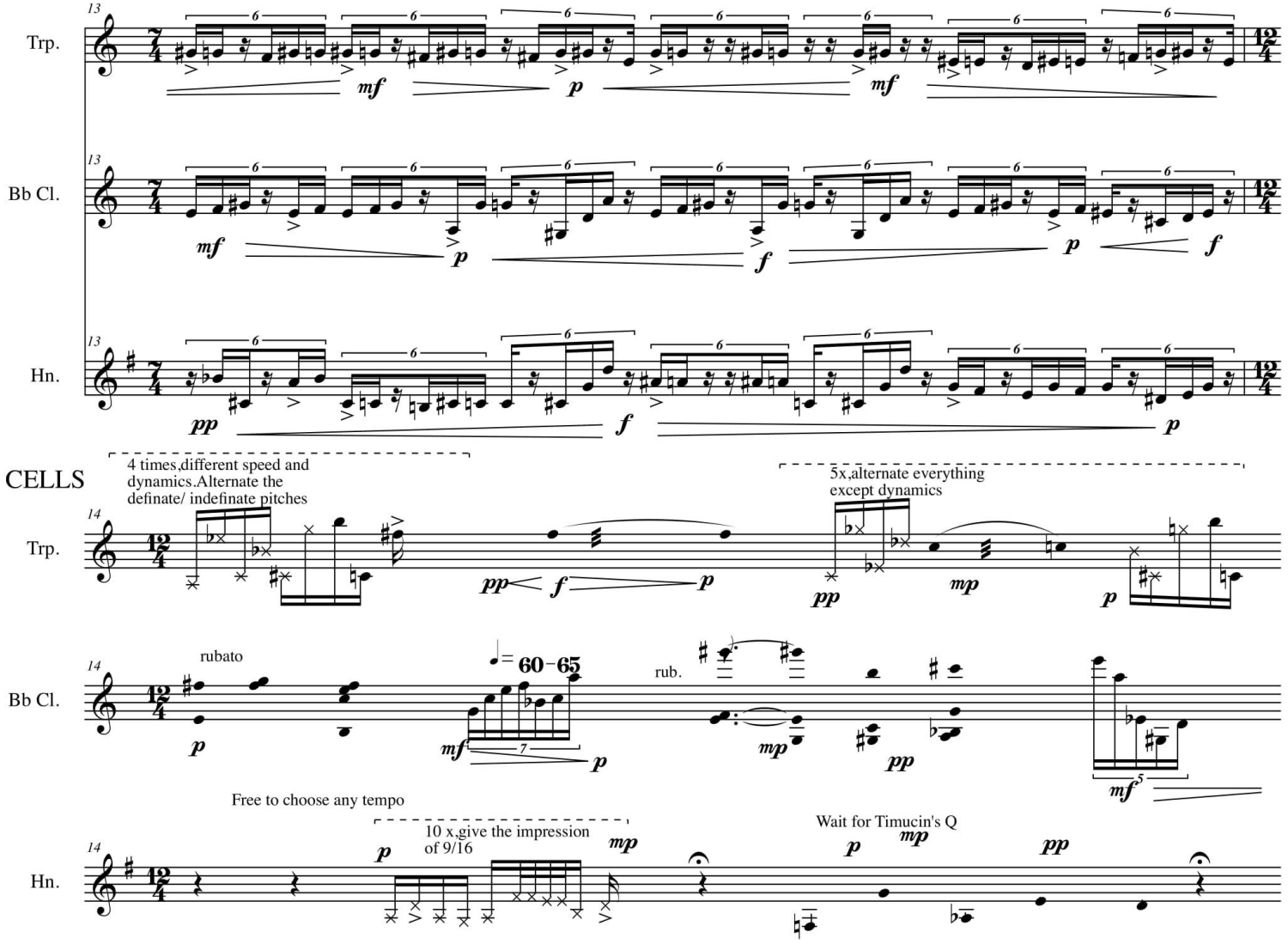


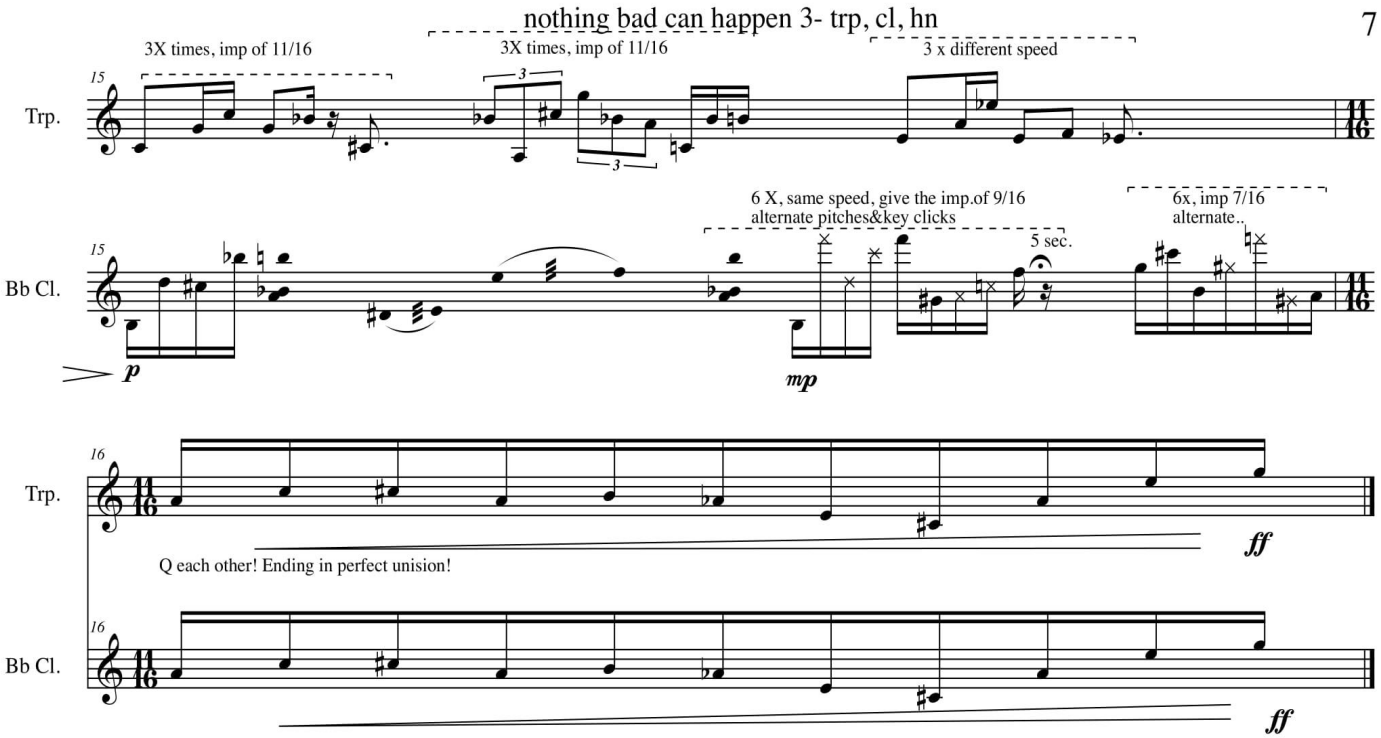

2
nothing bad can happen 3- trp, cl, hn
♩= 60
Wait for Timucin's Q
15 sec.
Trp.
Bb Cl.
Hn.
pp
p
mf
ppp
wait till the trb Q
next bar
mp


Watch for trb Q
Trp.
Watch for trb Q
Bb Cl.
Hn.
Give Q to the rest
5 sec.
Tbn.

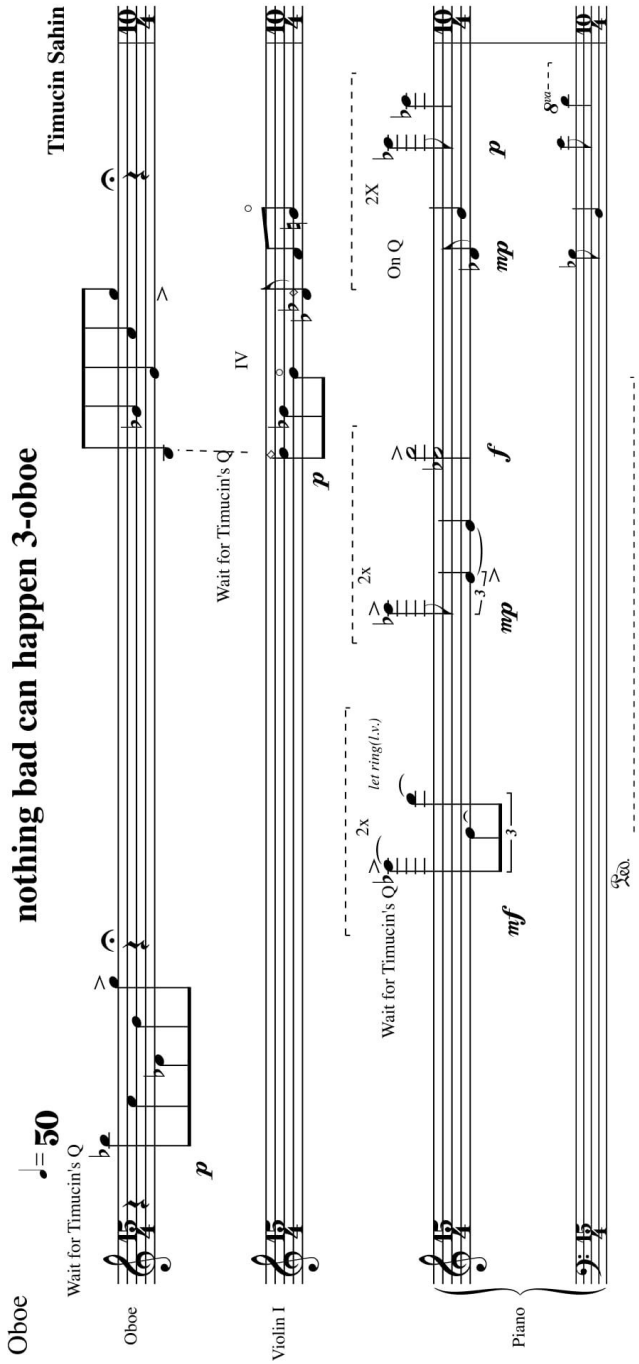

Trp.
Bb Cl.
Hn.
Tbn.
sub p
f
pp
p
mf
sub p
sub pp
bottom note-voice
mf
mp
top note-voice

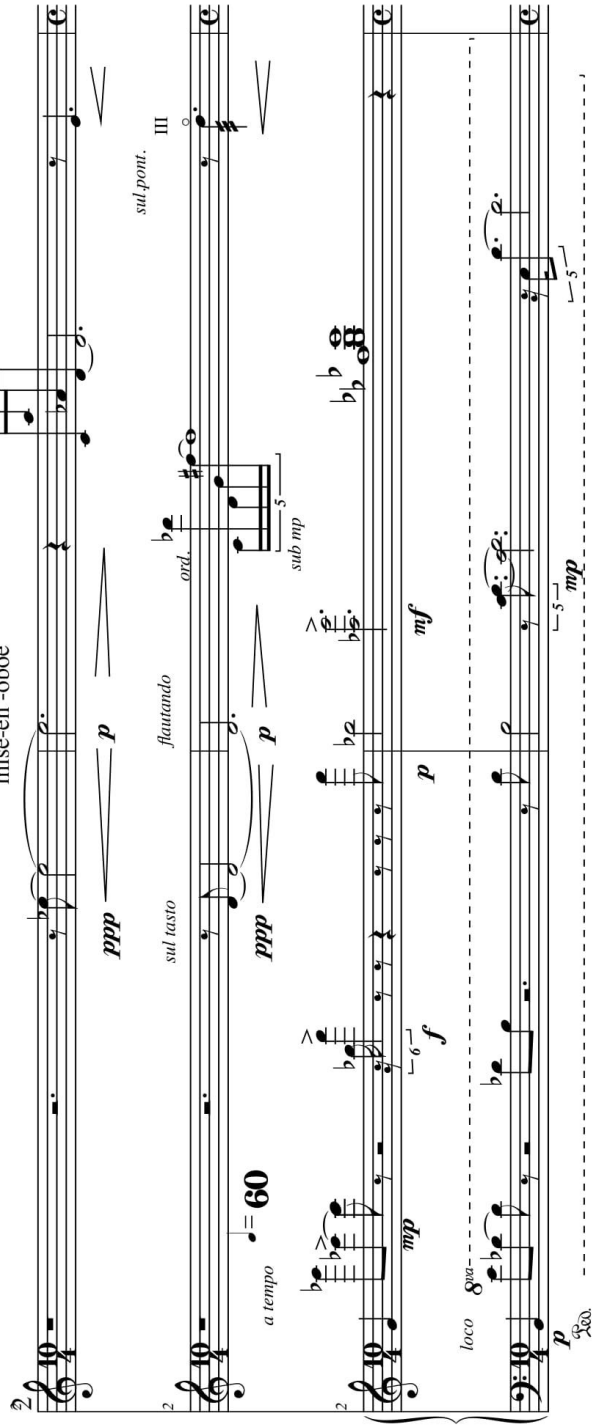

Trp.
Bb Cl.
Hn.
Trp.
Bb Cl.
Hn.

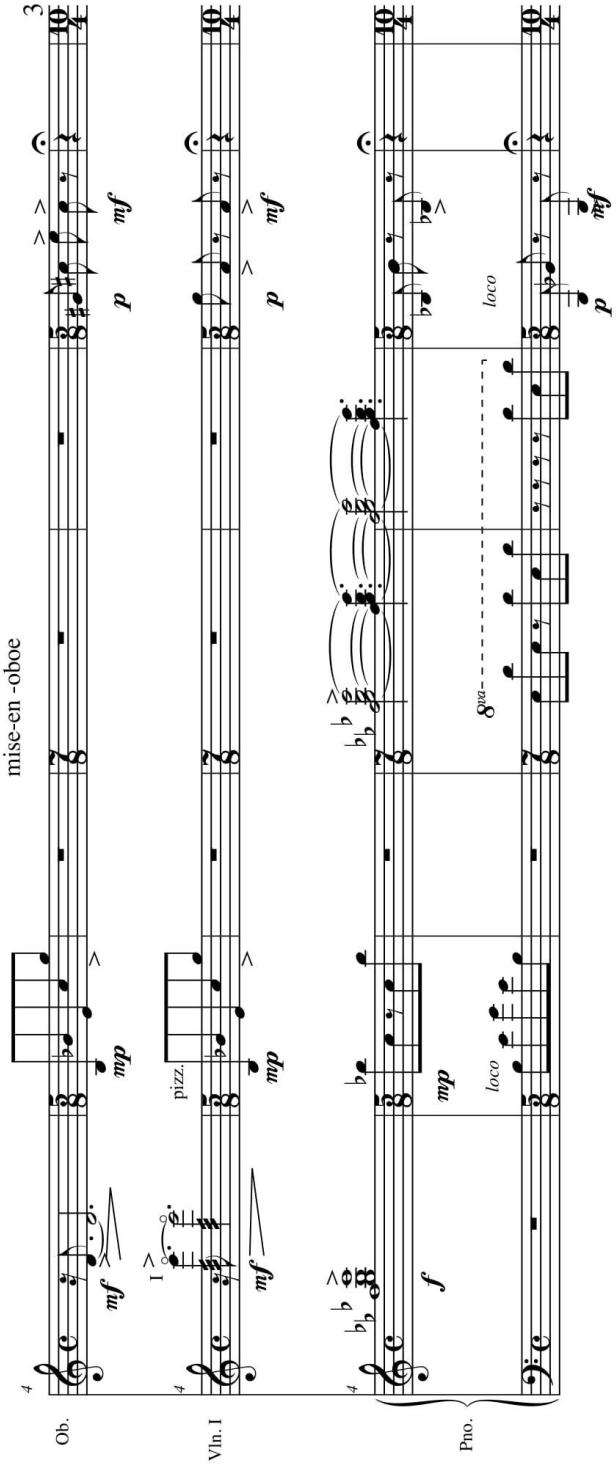

Trp.
Bb Cl.
Hn.
CELLS
4 times,different speed and dynamics.Alternate the definate/ indefinate pitches
5x,alternate everything except dynamics
rubato
60-65
rub.
Free to choose any tempo
10 x,give the impression of 9/16
Wait for Timucin's Q

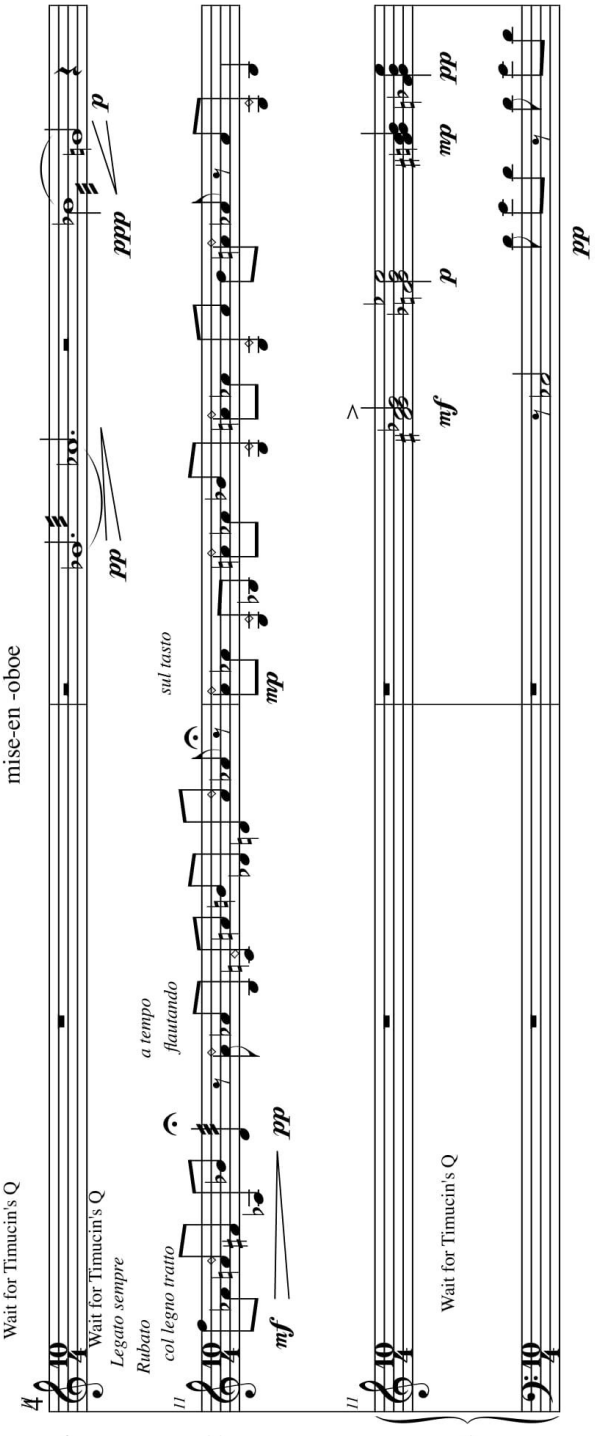

3X times, imp of 11/16
3X times, imp of 11/16
3 x different speed
15
Trp.
15
Bb Cl.
6 X, same speed, give the imp.of 9/16
alternate pitches&key clicks
5 sec.
6x, imp 7/16
alternate..
p
mp
16
Trp.
ff
Q each other! Ending in perfect unision!
16
Bb Cl.
ff

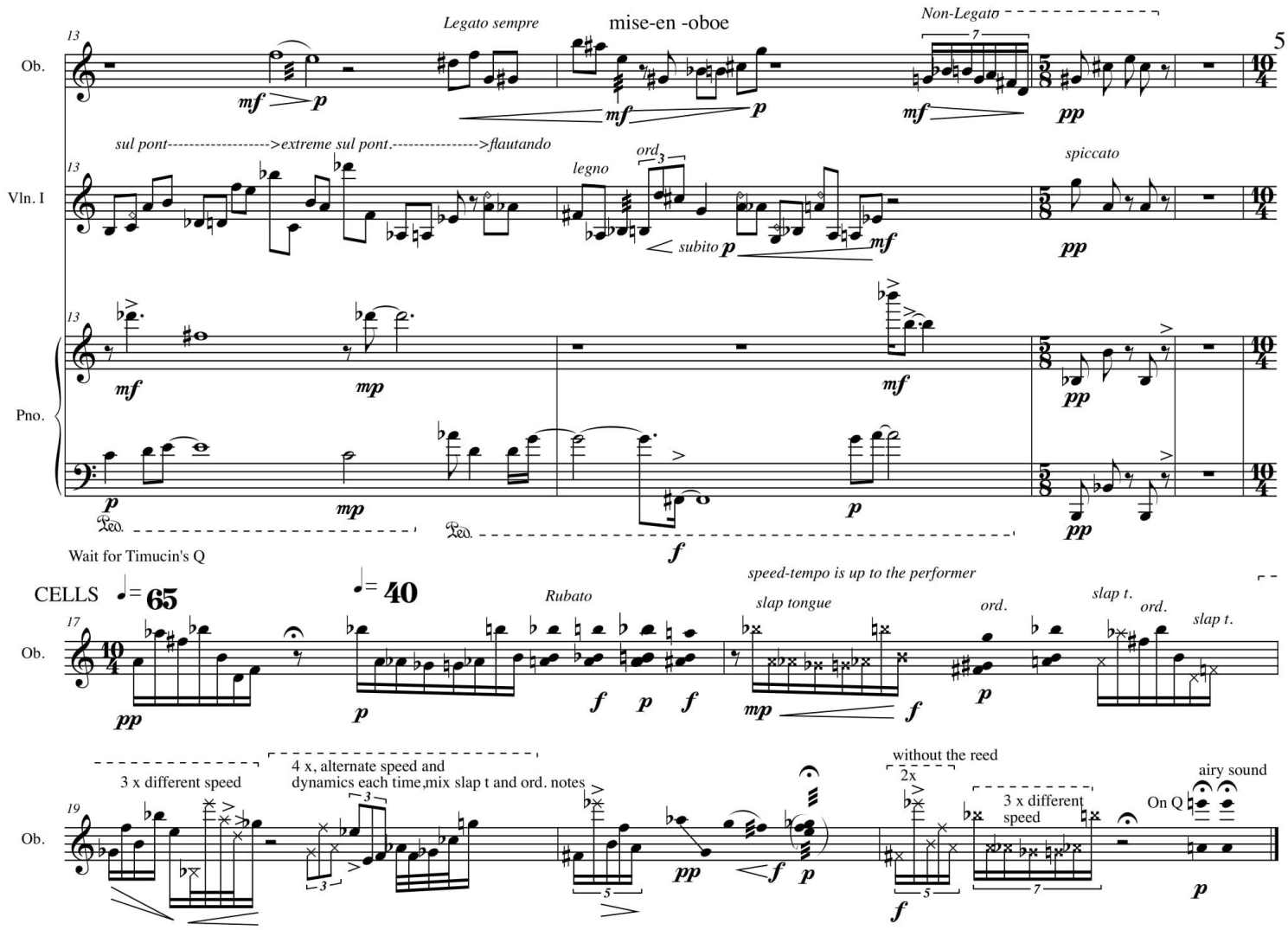
ENSEMBLE 4: Oboe, Violin and Piano



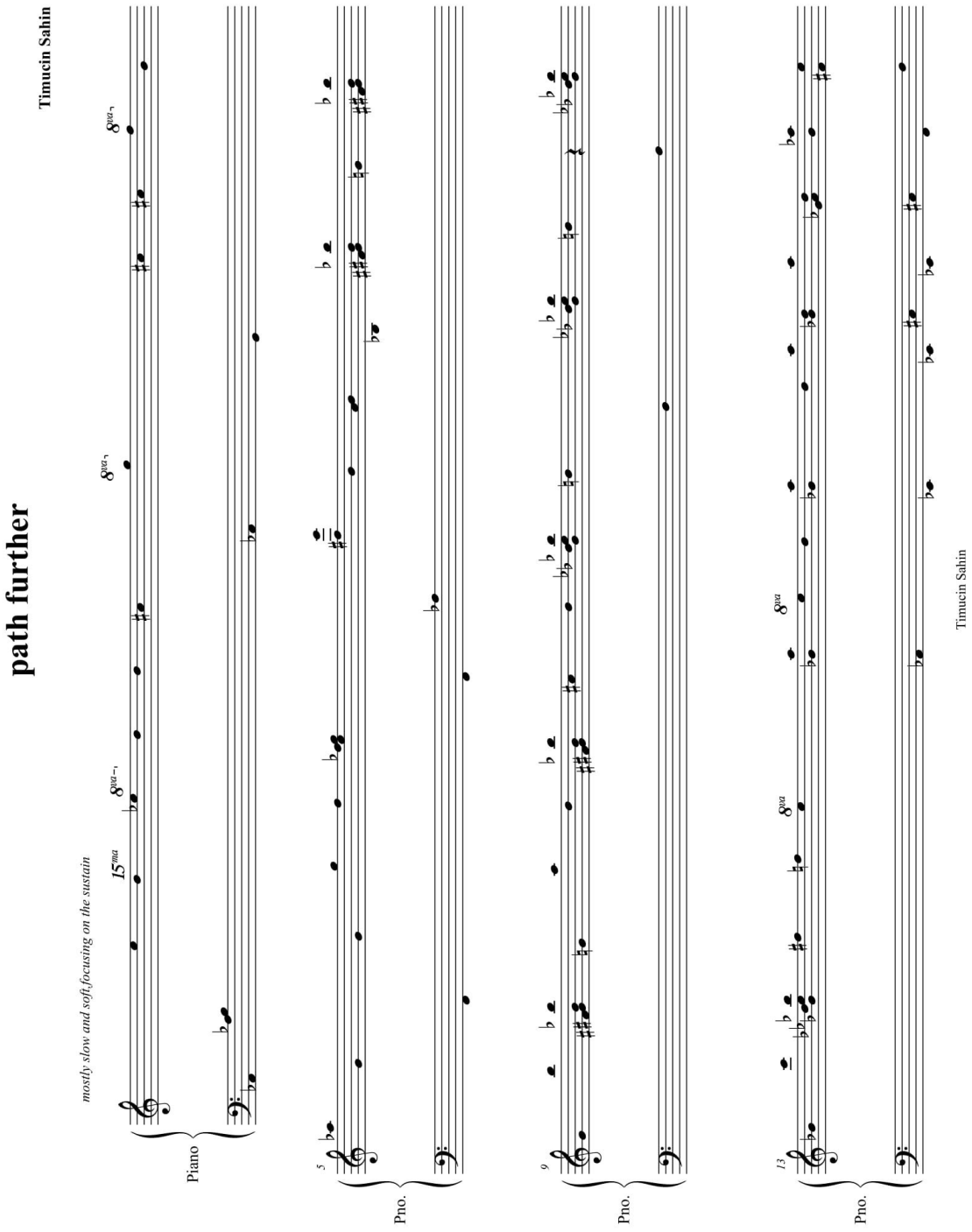

Ob.
Vln. I
Pno.
mise-en -oboe
ppp
p
sul tasto
flautando
ord.
sul pont.
III
sub mp
ppp
p
a tempo
= 60
mp
f
p
mf
laco
8va
p
mp


3
mise-en -oboe
Ob.
Vln. I
Pno.
pizz.
loco
8va

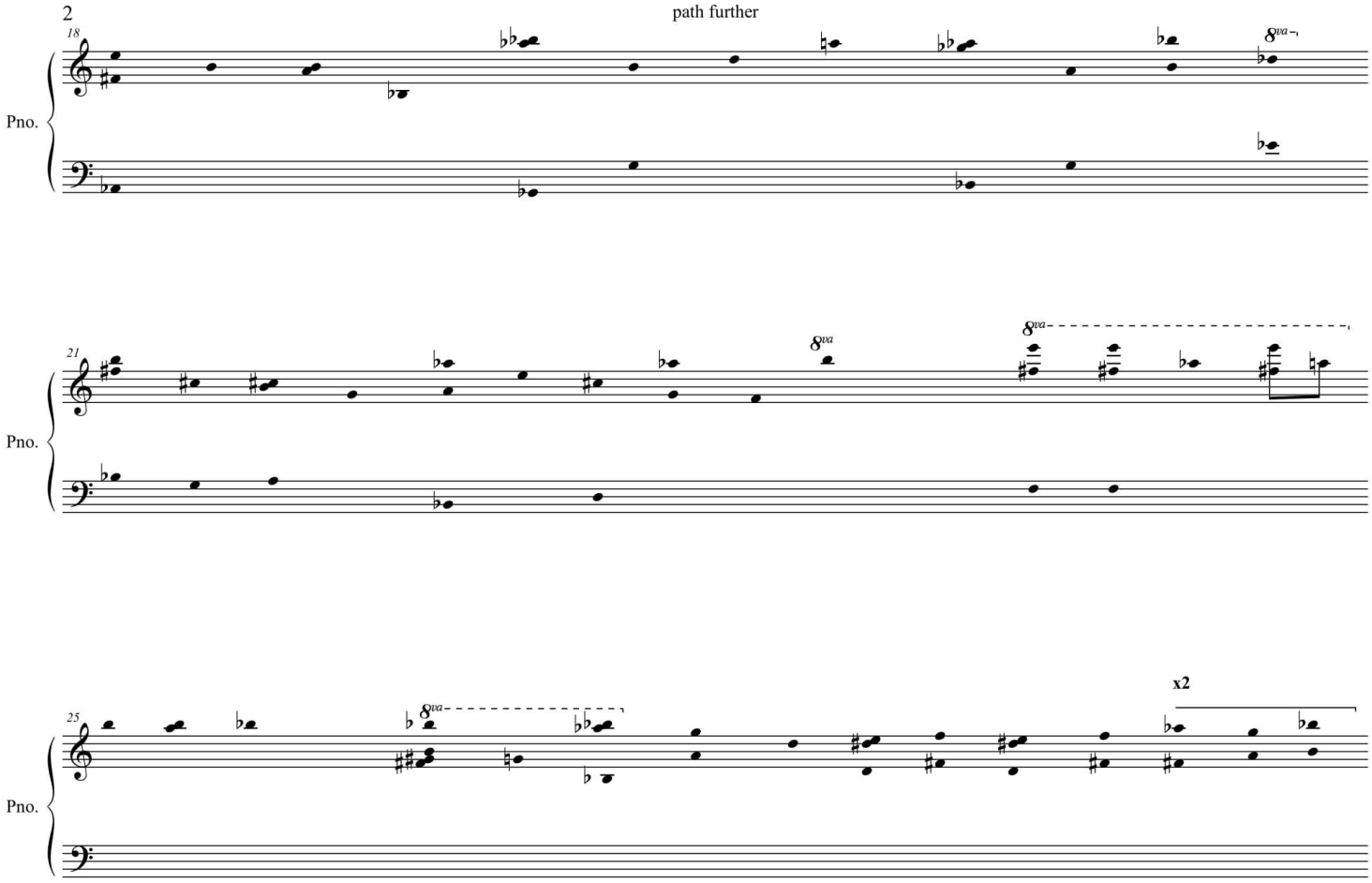

mise-en -oboe
Wait for Timucin's Q
Ob.
Wait for Timucin's Q
Legato sempre
Rubato
col legno tratto
Vln. I
a tempo
flautando
sul tasto
Wait for Timucin's Q
Pno.


Ob.
Legato sempre
mise-en -oboe
Non-Legato
5
Vln. I
sul pont----------->extreme sul pont.---------->flautando
legno
ord.
subito
spiccato
Pno.
Wait for Timucin's Q
CELLS
speed-tempo is up to the performer
Rubato
slap tongue
ord.
slap t.
3 x different speed
4 x, alternate speed and
dynamics each time,mix slap t and ord. notes
without the reed
2x
3 x different
speed
airy sound
On Q

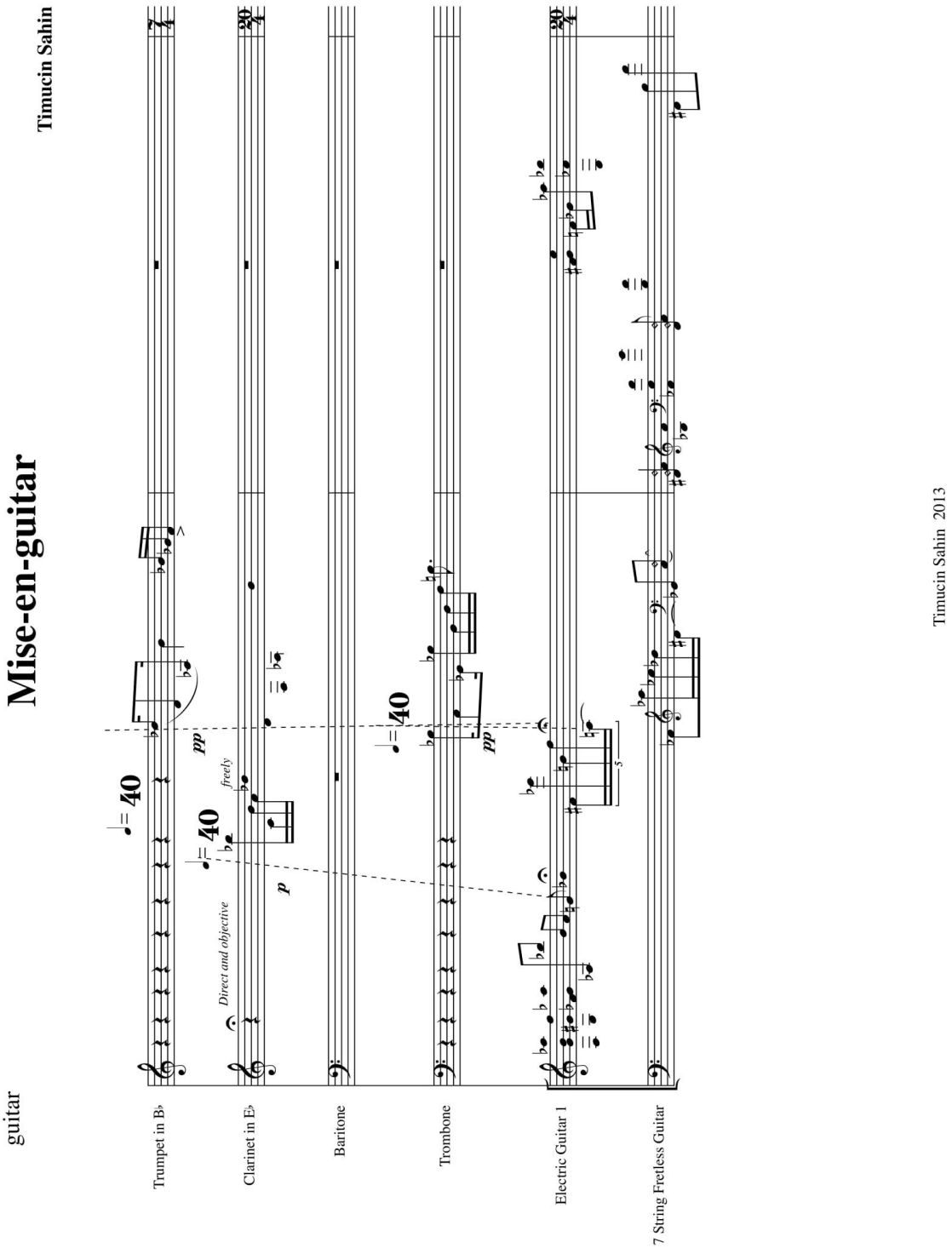
Piano Solo for the End

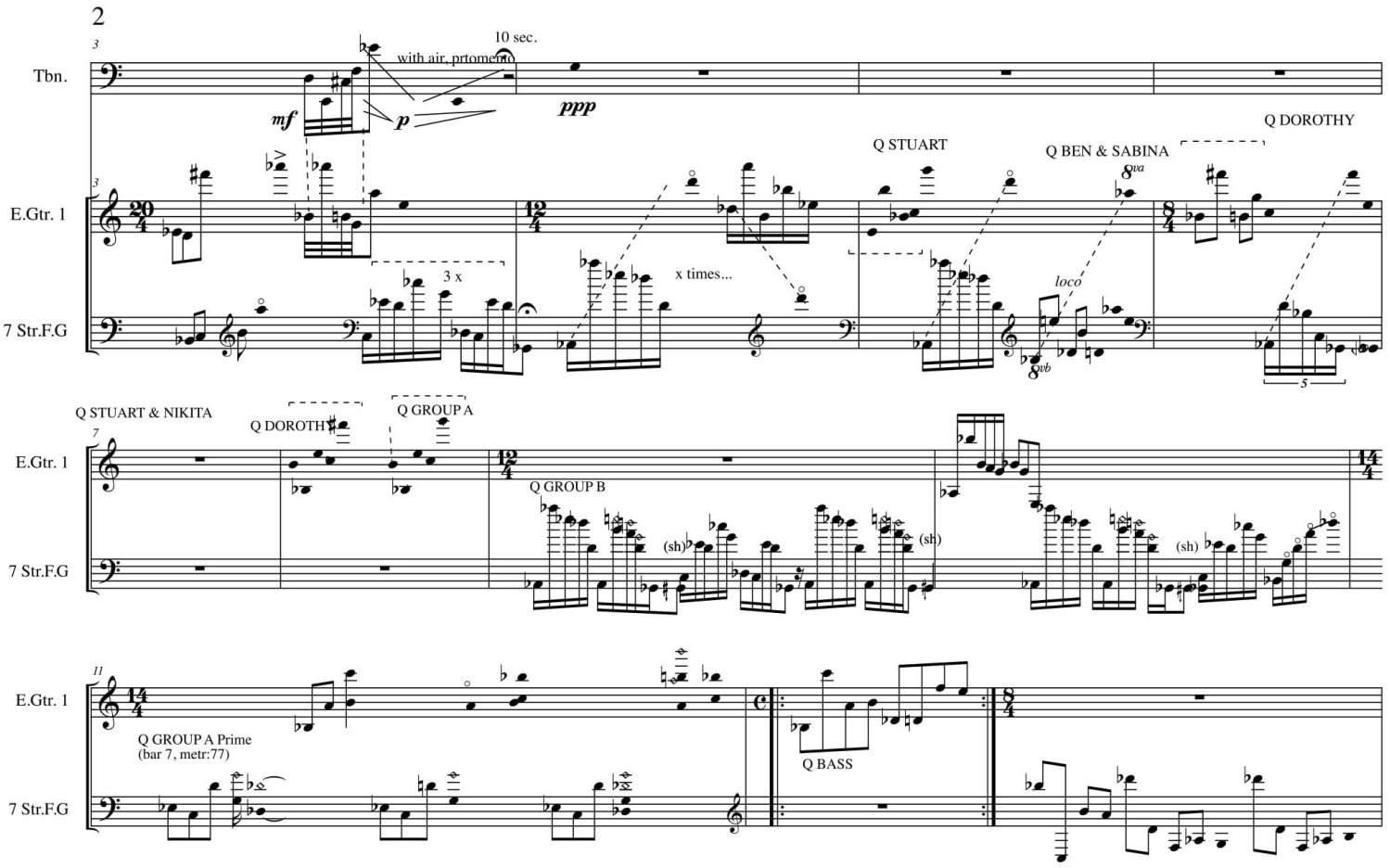


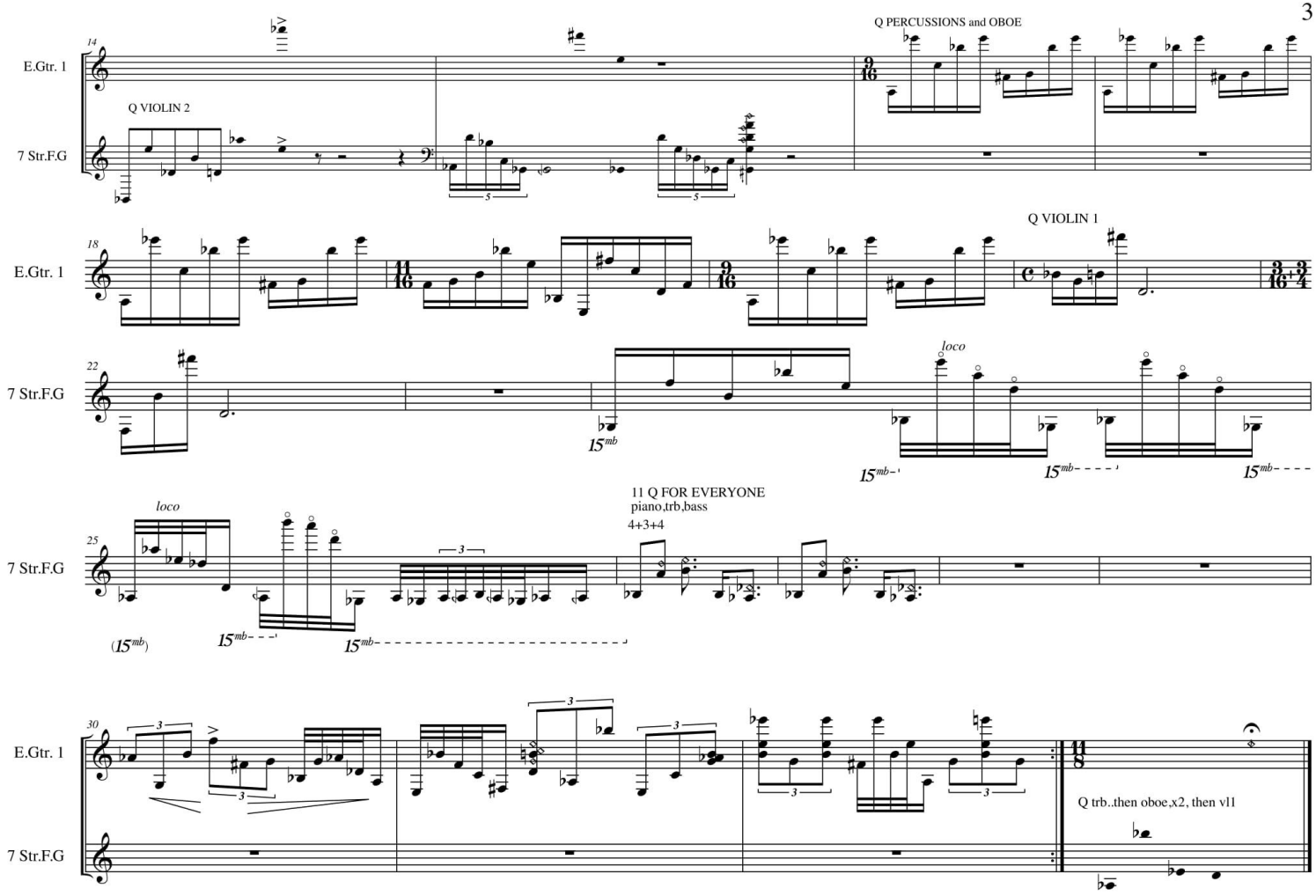
path further



7 String Fretless and 6 String Fretted Guitar Part




2
Tbn.
E.Gtr. 1
7 Str.F.G
mf
p
ppp
with air, prtomento
10 sec.
3 x
x times...
Q STUART
Q BEN & SABINA
Q DOROTHY
loco
Q STUART & NIKITA
Q DOROTH
Q GROUP A
Q GROUP B
(sh)
Q GROUP A Prime
(bar 7, metr:77)
Q BASS


14
E.Gtr. 1
7 Str.F.G
Q VIOLIN 2
Q PERCUSSIONS and OBOE
18
E.Gtr. 1
Q VIOLIN 1
22
7 Str.F.G
loco
15mb
25
7 Str.F.G
loco
(15mb)
11 Q FOR EVERYONE
piano,trb,bass
4+3+4
30
E.Gtr. 1
7 Str.F.G
Q trb..then oboe,x2, then vl1

TİMUÇİN ŞAHİN

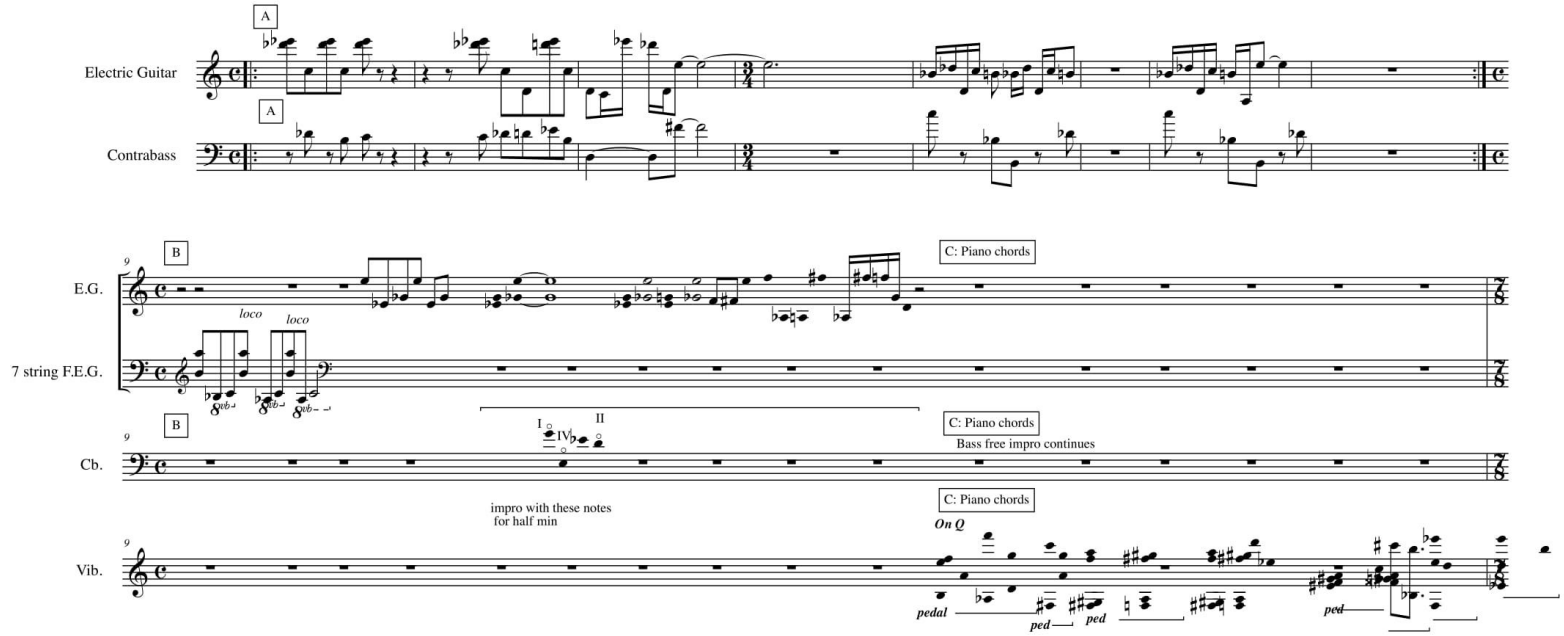
ONE HUNDRED DAYS IN A WEEKEND (TIKITI 2015)

For Improvising Quartet: 7 String Fretless & 6 String Fretted Guitars, Drums, Double Bass, Vibraphone

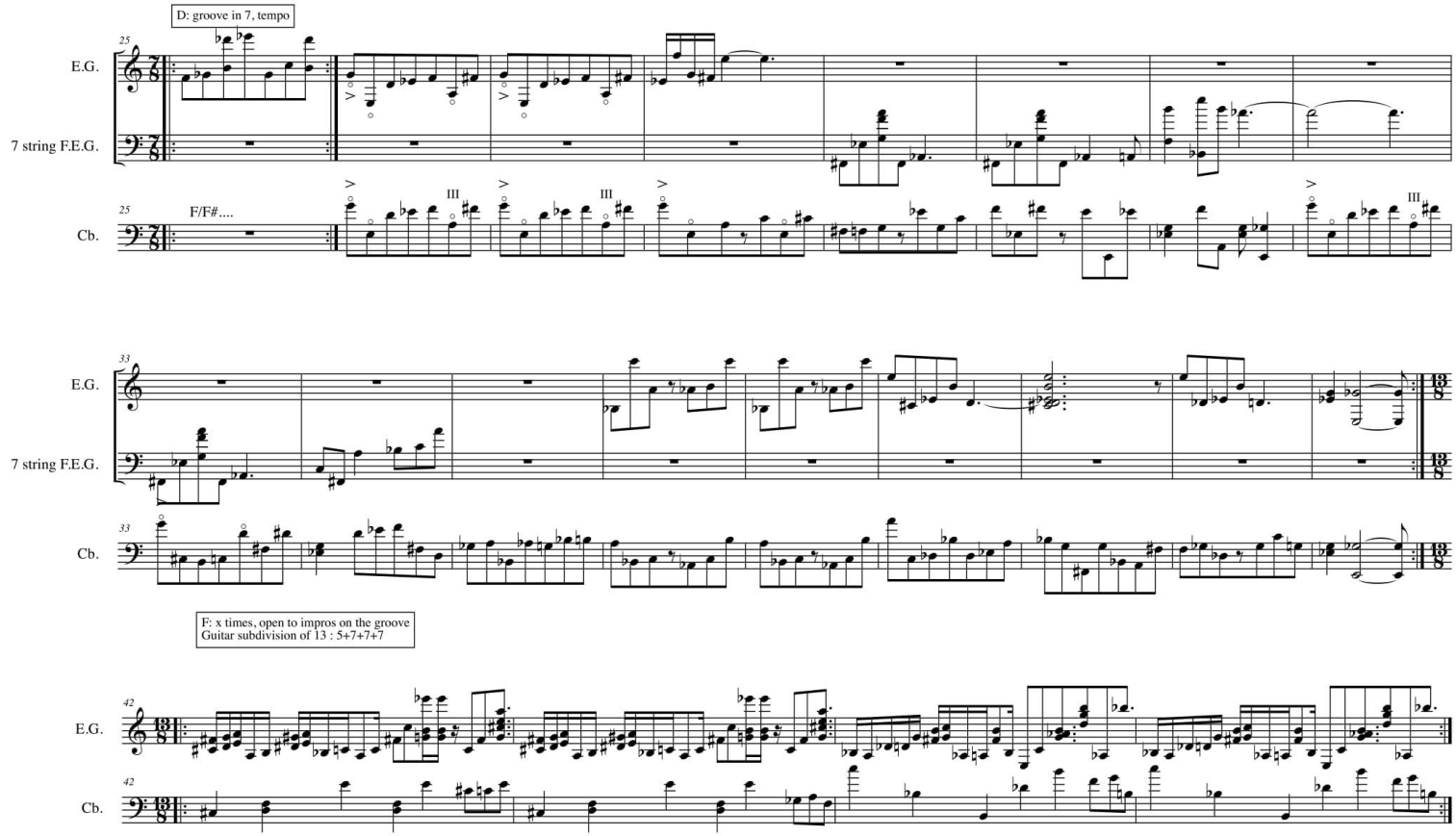
Score

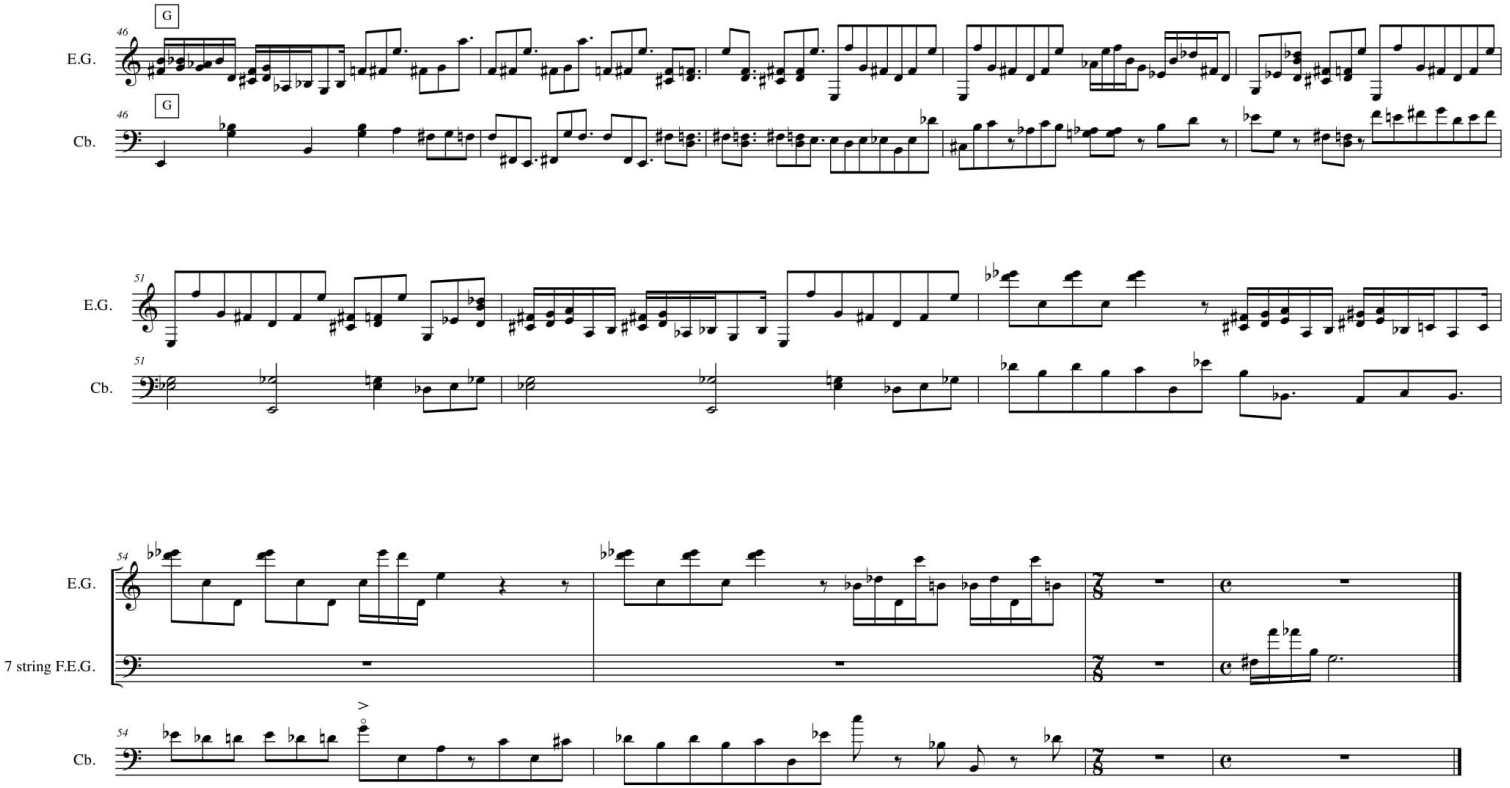
TIKITI 2015

Timucin Sahin



TIKITI


D: groove in 7, tempo
E.G.
7 string F.E.G.
Cb.
F/F#....
F: x times, open to impros on the groove
Guitar subdivision of 13 : 5+7+7+7


46
G
E.G.
Cb.
51
E.G.
Cb.
54
E.G.
7 string F.E.G.
Cb.

BIBLIOGRAPHY

Baker, Don Russel. *The Percussion Ensemble Music of Lou Harrison*. Urbana-Champaign: University of Illinois, 1985.

Baraka, Amiri. "The LeRoi Jones/Amiri Baraka Reader", ed. William Jay Harris. New York: Thunder Mouth Press, 1991.

Borchert, James. "Africanisms in American Culture: Joseph E. Holloway" *Winterthur Portfolio*, Vol. 26, No. 2/3, Summer-Autumn, 1991.

Boulez, Pierre, Paule Thévenin, and Robert Piencikowski. *Stocktakings From An Apprenticeship*. Oxford: Clarendon Press, 1991.

Bourdieu, Pierre. *Outline of a Theory of Practice*. Cambridge: Cambridge University Press, 1977.

Cage John. *Amores*. New York: Henmar Press, 1943.

Cage, John. *Silence*. Middletown, Connecticut: Wesleyan University Press, 1961.

Cage, John. *Lectures and Writings by John Cage: Silence*. Middletown, Connecticut: Wesleyan University Press, 2010.

Cage, John. *Interview on YouTube.* https://www.youtube.com/watch?v=pcHnL7aS64Y, accessed on 31 July, 2019.

Cage, John. *Thrust.* https://johncage.org/pp/John-Cage-Work-Detail.cfm?work_ID=48, accessed on 2 August, 2019.

Cage, John. *Exhibitions*. Goethe Institute, http://www.goethe.de/ins/et/add/pro/Exhibitions%20Text_Addis%20Abeba_John%20Cage.pd , accessed on August 5, 2019.

Cohen, Brigid. "Diasporic Dialogues in Mid-Century New York: Stefan Wolpe, George Russell, Hannah Arendt, and Historiographies of Displacement" *Journal of the Society for American Music 6*, no. 2, 2012.

Cohen, Brigid. *Stefan Wolpe and the Avant-Garde Diaspora*. New York: Cambridge University Press, 2012.

Coltrane, John. *Sun Ship*. Recorded on August 26,1965, compact disc.

Coltrane, John. "Meditations," in *accompanying booklet: John Coltrane, Meditations*. Recorded on November 23, 1965, Impulse AS-910-A, 1966, LP.

Dahlhaus, Carl. "Was heisst Improvisation?" in *Improvisation und Neue Musik: Acht Kongrebreferate*, ed. Reinhold Brinkmann. Mainz: Schott, 1979.

Douglas, Robert L. "Formalizing an African-American Aesthetic," *New Art Examiner,* June 1991.

Feldman, Morton, and B. H. Friedman. *Give My Regards to Eighth Street: Collected Writings of Morton Feldman*. Cambridge: Cambridge Press, 2000.

Feldman, Morton. *Crippled Symmetry*. London: Universal Edition, 1983.

Feldman, Morton and Iannis, Xenakis. *Edited Transcript of Conversation*. http://ada.evergreen.edu/~arunc/texts/music/xenakisFeldman.htm, accessed on June 31,

2012.

Fischlin, Daniel, Ajay Heble, and George Lipitz. *The Fierce UrgencyOf Now: Improvisation, Rights, and the Ethics of Cocreation*. London: University Press, 2013.

Friedman, B.H. *Give My Regards to Eight Street Collected Writings of Morton Feldman.* Cambridge: Cambridge Press, 2000.

Goehr, Lydia. "The Agon of Improvising—on Broken Strings: Toward a Theory of Fit and Wit." in *The Oxford Handbook of Critical Improvisation Studies,* eds. George E Lewis, and Benjamin Piekut . New York: Oxford University Press, 2016.

Hall, James C. *Mercy, Mercy Me: African-American Culture And The American Sixties*. New York: Oxford University Press, 2001.

Lachenmann, Helmut "Uber das Komponieren", in: Musik als existenzielle Erfahrung Wiesbaden: Brietkopf & Hartel, 1996)

Landgraf, Edgar. *Improvisation as Art: Conceptual Challenges, Historical Perspectives.* London: Continuum Press, 2011.

Lewis, George E. "Too Many Notes: Complexity and Culture" *Leonardo Music Journal*, Vol. 10, No.1, 2000.

Lewis, George. "Improvised Music After 1950: Afrological and Eurological Perspectives," in *The Other Side of Nowhere*, eds. Daniel Fishlin, and Ajay Heble. Middletown, Connecticut: Wesleyan University Press, 2004.

Lewis, George. *A Power Stronger than Itself: The AACM and American Experimental Music*. Chicago: University of Chicago Press, 2009.

Monson, Ingrid. “Oh Freedom: George Russell, John Coltrane, and Modal Jazz” in *In the Course of Performance: Studies in the World of Musical Improvisation*, ed. Bruno Nettl. Chicago: University of Chicago Press, 1998.

Moore, Robin. "The Decline of Improvisation in Western Art Music: An Interpretation of Change" *International Review of the Aesthetics and Sociology of Music,* Vol. 23, No. 1, June, 1992.

Nattiez, Jean-Jacques, and Samuels, Roberts. *The Boulez-Cage Correspondence*. Cambridge: Cambridge University Press, 1993.

Noble, Alistair. *Composing Ambiguity: The Early Music of Morton Feldman.* New York: Ashgate Publishing, 2013.

Prichet, James. *The Music of John Cage*. Cambridge: Cambridge University Press, 1996.

Rothenberg, David and Marta, Ulvaeus. *The Book of Music and Nature: An Anthology of Sounds, Words, Thoughts.* Middletown: Wesleyan University Press, 2013.

Ryle, Gilbert. "Improvisation." *Mind, New Series,* Vol. 85, Issue 337, January 1976.

Schwarz, K. Robert. ”Steve Reich: Music as a Gradual Process: Part I" *Perspectives of New Music 19*, No. 1/2, 1980.

Thompson, Robert Farris. *Flash of the Spirit: and Afro-American Art and Philosophy,* New York: Vintage Publishing, 1983.

Varèse, Edgard and Wen-chung, Chou. "The Liberation of Sound" *Perspectives of New Music* Vol. 5, No. 1, Autumn - Winter, 1966.

Williams, Brian Michael. *The Early Percussion Music of John Cage* (PhD dissertation), Michigan State University, 1990.

Wilson, Olly. "Black Music as an Art Form," in *The Jazz Cadence of American Culture*, ed., Robert G. O'Meally. New York: Columbia University Press, 1998.

Zimmerman, Walter. *Morton Feldman Essays.* Kerpen: Beginner Press, 1985.