

THE PATHOTYPE MOTIVE AS A CONSTRUCTIONAL ELEMENT
IN THE SOLO VIOLONCELLO SONATAS OF
VAHRAM BABAYAN

by

HOVHANNES ALANAKYAN

CARLTON MCCREERY, COMMITTEE CHAIR
LINDA P. CUMMINS
ANDREW M. DROZD
SUSAN CURTIS FLEMING
JUBAL FULKS
MARVIN JOHNSON

A DOCUMENT

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Music
in the School of Music
in the Graduate School of
The University of Alabama

TUSCALOOSA, ALABAMA

2013

Copyright Hovhannes Alanakyan 2013
ALL RIGHTS RESERVED

ABSTRACT

This document investigates the extent to which the pathotype motive accounts for motivic, thematic, and harmonic relationships in the cello sonatas of the Armenian composer Vahram Babayan. A brief biography of the composer opens the work, followed by a discussion and examples of the pathotype motive in traditional literature. Warren Kirkendale identified the pathotype motive as consisting of “the fifth formed by first and fifth degrees, and the diminished seventh which lies a semitone outside these notes.”¹ Susan Tepping describes the pathotype motive as “a perfect fifth or fourth with each element embellished by a neighbor note.”² Archetypical examples of this type of motive in traditional literature are particularly well represented in the late string quartets of Beethoven (see op. 133, *The Grosse Fugue*), studied assiduously by Babayan, and Handel's Messiah (*And with His Stripes We are Healed*).

Babayan's compositional output is large and varied and demonstrates his thorough knowledge of the music of iconic Western European masters, particularly Beethoven. In addition to his technical mastery of the traditional constructional elements in Western music and the successful creation of large forms, his music is enriched on occasion by extra-musical symbols. For example, he reports that in his view intervals of the sixth are very full of energy and comparatively unstable while perfect fifths are relatively pure and consequently more

¹ Warren Kirkendale, *Fugue and Fugato*, 91.

² Susan Tepping, *Fugue Process and Tonal Structure in the String Quartets of Haydn, Mozart, and Beethoven*, 257.

stable, and that in his composition a combination of these two intervals can serve as a symbol of the crucifix with the perfect fifth as the stable vertical and the sixth as the supported less stable horizontal. This construction can be related to the pathotype motive especially in the solo cello sonatas. The main body of the paper examines the pathotype motive in Babayan's cello sonatas, using the pathotype motive and its derivatives as analytic paradigms.

DEDICATION

To my mother, Elionora Katvalyan, and my sister, Madlena Alanakyan, and in memory of my father, Grigory Alanakyan, who inspired me to be a musician and supported my musical career. I could never have finished this research without their encouragement. And to the composer Vahram Babayan.

ACKNOWLEDGMENTS

I would like to thank to Dr. Marvin Johnson, my adviser; without his help I would not have been able to write this document. Thanks also to my sister, Madlena Alanakyan, for all her help. I would especially like to thank to the composer Vahram Babayan, who consistently provided any kind of material and information I needed. Also, a special thanks to my teacher Professor Carlton McCreery, and to committee members Dr. Linda P. Cummins, Dr. Andrew M. Drozd, Dr. Susan Curtis Fleming, and Dr. Jubal Fulks.

CONTENTS

ABSTRACT	ii
DEDICATION	iv
ACKNOWLEDGMENTS.....	v
LIST OF FIGURES AND EXAMPLES.....	vii
PREFACE	1
Chapter I: A Brief Biography of Vahram Babayan.....	3
Chapter II: The Pathotype Motive in Traditional Literature	8
Chapter III: Examples of the Pathotype Motive in the Solo Cello Sonatas of Babayan	16
Chapter IV: Analysis of Representative Segments from the Solo Cello Sonatas of Babayan using the Pathotype Motive and Derivatives as Analytic Paradigms.....	25
BIBLIOGRAPHY	46

LIST OF FIGURES AND EXAMPLES

Example 1 Babayan Sonata no. 1, mm. 9-12	2
Example 2 A perfect or an imperfect cadence	8
Example 3 Monn: Quartet 5	9
Example 4 Gassmann Quartet TC 472	9
Example 5 Haydn, op. 20/5	9
Example 6 Mozart, K. 546	9
Example 7	
(a) Beethoven, op 132, movement I, cello mm.1.2	10
(b) Beethoven, op 132 movement V, violins, mm. 3-4	10
(c) Beethoven, op 132 movement V, violin 2, mm.111-114.....	10
(d) Beethoven, op.130, movement I, Violin 1, mm. 1-2	10
(e) Beethoven, op. 133, violin 1, mm. 4-10	10
(f) Beethoven, Quartet no. 14, op.131, movement I, mm. 1-9	11
Example 8 Handle's Messiah: <i>And with his Stripes we are Healed</i>	11
Example 9 Pathotype Motive in Handel and the Christian symbol of the cross.....	12
Example 10 Beethoven's Piano Sonata no. 12 in A-flat major, Op. 26.....	13
Example 11 B, A, C, H motive of J.S. Bach and Beethoven, <i>Grosse Fugue</i> , violin 1, mm. 26-29	13

Example 12 Schoenberg's <i>Sech Stücke Für Männerchor</i> , op. 35, no. 3, “Ausdrucksweise”	14
Example 13 Babayan Piano Sonata no.2.....	15
Example 14 Paradigm based on Example 8	15
Example 15 Babayan sonata no. 1 in mm. 67-68.....	17
Example 16 Babayan Cello Solo Sonata no. 1, mm. 96-97.	17
Example 17 Babayan Cello Solo Sonata no. 1, m. 109.....	17
Example 18 Babayan Cello Solo Sonata no. 1, m. 127.....	17
Example 19 Babayan Cello Solo Sonata no.1, mm. 208-209	17
Example 20 Babayan Cello Solo Sonata no. 2, mm. 17-20	18
Example 21 Babayan Cello Solo Sonata no. 2, mm.23-26	18
Example 22 Babayan Cello Solo Sonata no. 2, mm. 40-42	18
Example 23 Babayan Cello Solo Sonata no. 2, mm. 43-45	18
Example 24 Babayan Cello Solo Sonata no. 3, mm. 1-3	18
Example 25 Babayan Cello Solo Sonata no. 3, mm. 7-10	19
Example 26 Babayan Cello Solo Sonata no. 1, mm. 56-57.	19
Example 27	
(a) Babayan Cello Solo Sonata no.1 m. 65	19
(b) Babayan Cello Solo Sonata no.1 m. 84	19
(c) Babayan Cello Solo Sonata no.1 m. 110	19
(d) Babayan Cello Solo Sonata no.1 m. 128	19
Example 28 Babayan Cello Solo Sonata no. 1 m. 81.....	20
Example 29 Babayan Cello Solo Sonata no. 1, mm. 51-52	20
Example 30 Babayan Cello Solo Sonata no. 1, m. 69.....	20

Example 31 Babayan Cello Solo Sonata no. 1, m. 84	20
Example 32 Babayan Cello Solo Sonata no. 1, m. 134.....	20
Example 33 Babayan Cello Solo Sonata no. 1, mm. 199-200	20
Example 34 Babayan Cello Solo Sonata no. 1, m. 219.....	20
Example 35 Babayan Cello Solo Sonata no. 2, mm. 47-48	21
Example 36 Babayan Cello Solo Sonata no. 2, second movement, mm. 1 and 13	21
Example 37 Babayan Cello Solo Sonata no. 2, m. 93.....	21
Example 38 Babayan Cello Solo Sonata no. 3, mm. 17-18	21
Example 39 Babayan Cello Solo Sonata no. 3 mm. 63-67	21
Example 40 Babayan Cello Solo Sonata no. 1, mm. 240-241	21
Example 41 Babayan Cello Solo Sonata no. 3, mm 126-129	22
Example 42 Babayan Cello Solo Sonata no. 3, mm. 170-173	22
Example 43 Babayan Cello Solo Sonata no. 3, mm. 49-50	22
Example 44 Babayan Cello Solo Sonata no. 3, mm. 72-73	22
Example 45 Babayan Cello Solo Sonata no. 3, mm. 76-77	22
Example 46 Babayan Cello Solo Sonata no. 3, m. 74.....	22
Example 47 Babayan Cello Solo Sonata no. 3, m. 97-98	22
Example 48 Babayan Cello Solo Sonata no. 3, m. 92.....	23
Example 49 Babayan Cello Solo Sonata no. 3, mm. 142-143	23
Example 50 Babayan Cello Solo Sonata no. 3, m. 156.....	23
Example 51	
(a) Babayan Cello Solo Sonata no. 3, mm. 178-180.....	23
(b) Babayan Cello Solo Sonata no. 3, m. 189	23

Example 51 (cont.)

(c) Babayan Cello Solo Sonata no. 3, m. 205	23
(d) Babayan Cello Solo Sonata no. 3, mm. 201-204.....	23
(e) Babayan Cello Solo Sonata no. 3, mm. 212-213	23
(f) Babayan Cello Solo Sonata no. 3, m. 231	24
(g) Babayan Cello Solo Sonata no. 3, m. 305	24
(h) Babayan Cello Solo Sonata no. 3, m. 265	24
(i) Babayan Cello Solo Sonata no. 3, m. 280	24
Example 52 Babayan Cello Solo Sonata no. 3, m.310.....	24
Example 53 Babayan Sonata no. 1 Formal Design.....	26
Example 54 Babayan Sonata no. 2 Formal Design.....	28
Example 55 Babayan Sonata no. 3 Formal Design.....	29
Example 56 Babayan Cello Solo Sonata no. 1, mm. 67-68	31
Example 57	
(a) Haydn's String Quartet, op. 20, No. 5.....	33
(b) Extracts the perfect fifth, the diminished 7th	33
(c) The neighbor note, semitone relationships	33
(d) The cycle of fifths.....	33
(e.1) Defining intervals, perfect fifths and major sixths	33
(e. 2) Patotype motive [0, 1, 4, 5].....	33
(e.3) Third Order all-combinatorial hexachords	33
(f.1) [0, 1, 4, 5, 8, 9] hexachord in several possible representations.....	34
(f.2) Babayan Cello Solo Sonata no. 3, mm. 170-173	34

Example 58 3-11 trichord with the E and G of mm. 47 and 48	36
Example 59 The succession of pitches and rhythms in the first 89 mm. of Cello Sonata no. 1.....	37-40
Example 60 Set complex relations in Babayan's Solo Cello Sonata no. 1, mm. 51-89	41
Example 61 Set Complex Relations Babayan Cello Solo Sonata no.1	42
Example 62 3-11trichord of mm. 40-50 with the tetrachord of m. 51, set 4-18	43

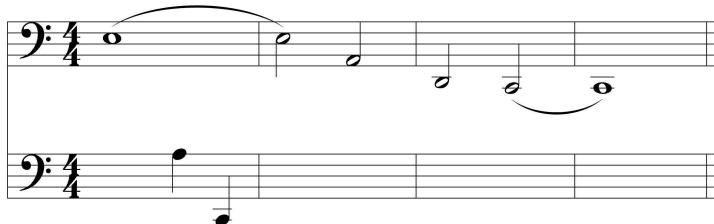
PREFACE

I first met Vahram Babayan in 1995 at my parent's home where he visited from time to time as he and they were piano teachers at the Chukhajyan music school Yerevan, Armenia. Babayan was well recognized in Armenian musical circles as an established composer and served at that time as Vice President of the Armenian Musical Assembly. I took the opportunity of our meeting to ask if he had written any compositions for cello and learned from his response that he had already written two works for solo cello. He graciously agreed to send scores for my review and study.

I was drawn to his music from the beginning and found it to be unique, rewarding for study and performance, and, though difficult, well-conceived for the instrument. Through this family association and my collaboration with him on his cello pieces, we became close friends. During his visits, I had many stimulating and informative conversations with him. Since that time I have played his music frequently. For Babayan's Festival in 1998 in Yerevan, Armenia, we played his second String Quartet and his Solo Cello Sonata no. 2. In 1999, he invited me to play his cello concerto with the Alan Hovhannes Chamber Orchestra of Yerevan, Armenia. In 2003 I left Armenia to study in the US. In preparation for my recital at East Carolina University in 2006, I contacted him to learn if he had any new pieces for cello. To my surprise and delight he said yes, and that his new Solo Cello Sonata no. 3 had been dedicated to me. Babayan's compositional output is large and varied and demonstrates his thorough knowledge of the music of iconic Western European masters, particularly Beethoven,

as well as more nationalistic figures such as Prokofiev and Shostakovich. In addition to his technical mastery of the traditional constructional elements in Western music and the successful creation of large forms, his music is enriched on occasion by extra musical symbols. For example, he reports that in his view, intervals of the sixth are very full of energy and comparatively unstable while perfect fifths are relatively pure and consequently more stable, and that in his compositions a combination of these two intervals can serve as a symbol of the crucifix with the perfect fifth as the stable vertical and the sixth as the supported less stable horizontal One such instance, occurs in the introduction to the first sonata.

Example 1, Sonata no. 1, mm. 9-12.



This construction can be related to the so-called pathotype motive especially in the solo cello sonatas. Archetypical examples of this type of motive in traditional literature are particularly well represented in the late string quartets of Beethoven (see op. 133, *The Grosse Fugue*), studied assiduously by Babayan, and Handel's Messiah (*And with His Stripes We are Healed*,).

Babayan's isolation and varied use of this basic motivic gesture in his solo cello sonatas serves as one of the principal focal points of this study.

CHAPTER I

INTRODUCTION

I love the human voice—the lonely human voice worn out by love, and raised above the disastrous Earth. The world must be released from the world's harmony and the nature's chorus for its own lonely note.

F.G. Lorca

Vahram Babayan was born in 1948 in Yerevan, Armenia.³ His father, Ohan Babayan, a musician and graduate of the Kharkov Conservatory, became his first teacher and mentor. Vahram began to show his musical abilities early; at age seven he wrote his first piece, the song *Spring*, a setting of lyrics written by his brother Arsen. Later, in his composition *Children's Album*, a cycle of twenty-four piano pieces, Babayan showed two distinguishing features of his compositional output: interest in a wide range of musical genres and ideas, and the ability to conceive and successfully compose large scale compositions.

At the age of nine, Babayan was enrolled in the Spendiarov School of Music where he remained until his graduation at age 16. Babayan remembered vividly a concert in the hall of the Union of Composers of Armenia, where he, as a small boy, performed an impromptu piano version of one of his early symphonies. Well-known Armenian composer Arno Babajanyan,

³ The following biographical information is summarized from Margarita Rukhyan, *Portrety Armyanskikh Kompositorov* [Portraits of Armenian Composers]. “Vahram Babayan,” (pp. 54-106)

who was also present at the concert, spoke highly of the youthful composer and foretold his future to Babayan's father: "Ohan your son will be a great composer."

Further professional development followed at Romanos Melikyan College, where he specialized in piano and composition. There his teachers were Irina Manukyan, with whom he studied piano, and Edvard Baghdasaryan—the famous mentor of many composers and a gifted composer in his own right. His posture as both composer and pianist coexist in a harmonious relationship fundamental to his professional stature. As a student he performed publicly and gave several solo piano recitals. His early compositions emphasize chamber-instrumental genres and works for the piano in particular. Among those of note are *Six Piano Pieces (Poem, Belfry, Fireworks, Little Madrigal, Dies Irae, and The Last Page)*, a Sonata for Violin and Piano, and two Concertos, one for piano and one for organ.

While at Melikyan College, Babayan began his long investigation of the symphonic genre. Completion of his Symphony no. 1 marked the beginning of a long path of development, informed by extensive study of the symphonic works of Beethoven, Tchaikovsky, Mahler and Shostakovich.

In the decade of the 1970s both Armenian and Soviet art forms were heavily influenced by Western ideas. Babayan's music reflected those influences and incorporated those ideas and techniques as his reputation expanded beyond national borders to Western Europe and beyond. This assimilation of ideas from other cultures was consistent with his conviction that the nationality of such masters as Lorca, Mahler, and Kafka, was secondary to their stature as great artists, suffering and loving, searching and thinking for the whole of mankind.

As he investigated several different then-current ideas and trends, including extended tonality, atonality, and serialism, and to some extent the aleatoric, he consistently developed his

own voice and nurtured the maturation of a personal style, all the while serving his perception that a work of art is essentially an act of self-expression, a bridge between the outer and inner worlds. One composition in particular from this formative period, the Sonata for Piano and Timpani, demonstrates his responses to these several divergent influences as it seems to challenge the entire academic musical culture.

On November 3, 1970, Babayan met with Dmitri Shostakovich at his residence in Moscow. During that meeting Shostakovich was able to review the Sonata for Piano and Timpani, a number of romances from the cycle *Four Yellow Ballads*, and the second string quartet. Shostakovich gave the young composer some practical recommendations and a favorable review of his work.

A long process of development and maturation in the evolution of his musical style began with his thesis composition, a third symphony titled *Abu-Lala Mahari*. Performance of this work by the National Philharmonic of Armenia in April, 1979 established his mastery of the symphonic medium. Since that time, and especially since 1975, when prominent lyrical elements began to appear in his music, his musical language has gradually moved away from the strong influences of Western European Schools of the twentieth century. An important stage in this progression is clearly perceivable in his third sonata for piano and a concerto for chamber orchestra titled *Pentimento (Repentance)*. During these years he wrote his first ballet, “*Pygmalion*” after the Greek legend of the same name.

In 1977 neo-romantic influences in the form of a clear lyric, dramatic trend appeared in his suite for soprano, bass, and piano (inspired by the words of E. Charents in his poem *The Poet's Birth*), *Three Retrospections for Violin and Piano*, a fourth symphony *Katharsis*, a

chamber ballet, *Pan* (according to the story by Knut Gamsun), and the chamber opera *To the Beloved Immortal* (after Beethoven's Letters).

These compositions set the stage for the next phase of his development, a phase in which the universality of his musical language gradually developed to crystallize in the production of a work for soprano and piano, *The Autumn Songs*, compositions based on the poems of medieval Japanese poets.

These poems have been well received and are heralded by many as representing a new voice in Armenian music. Shortly in succession thereafter, he wrote the first chamber symphony, the fourth string quartet, and the fifth symphony; the latter is significantly different from its immediate predecessors in its emphasis on orchestral tone color and broader large-scale formal scheme features consistent with the values and aesthetics of neo-romanticism.

In 1983 Babayan completed his Requiem.⁴ Later that year he had an accident in his home which required several surgeries and protracted hospitalization, first in Armenia and later and more successfully, in Moscow. He expressed appreciation to physicians at the hospital in Moscow by dedicating to them his *Romantic Concerto for Piano*, as he credited them with his eventual recovery.

Later on, his style took on a more personal stamp; he developed a passion for Eastern culture and the creation of works of a meditative-contemplative character. One notable composition which demonstrates these influences is *Mantra*, a sonata-like composition for soprano saxophone and piano, composed in cooperation with the French publishing company, Alphons Leduke. It was successfully performed in Lugano, Zurich, and Berne, Switzerland.

⁴ Babayan reports that he experienced episodes of anxiety while writing the Requiem because he kept recalling the fact that Mozart's last composition, also a Requiem, was written in the last year of his short life which ended at age 36. Babayan was 35 when he started his Requiem.

Other works which demonstrated his keen interest in Eastern philosophy and poetry were *Monad* for flute, oboe, and piano and *Silent Songs* for soprano, flute, oboe, French horn, and piano, both based on the aphorisms of Confucius. Another work, *Kiso*, for soprano and piano was based on the verses of Japanese medieval poets. These and other works reveal the diversity and breadth of his interest and knowledge of Eastern culture as well as his understanding and appreciation for the particular nature of diverse national characteristics.

In the last decade Babayan has embraced the challenges of creating larger forms in compositions such as the second choral symphony, *Grieving Armenia*, the oratorio *Jesus Speaks*, based on a verse by the French poet Charles Peggi, and the oratorio *Komitashiana*, based on the life of Christ. The Seventh Symphony in particular demonstrates his search for the monumental in music. Though this interest and dedication to larger forms continued, as evidenced by his production of the opera *Hamlet* (after Shakespeare's play of the same name), dedicated to his father, and the staging of his ballet *To the Light* (based on the story *The Sea-gull named Jonathan Livingston* by Richard Bach) in Baltimore and Washington, his interest in chamber music continued as evidenced by compositions such as *Three Introspections for Violin and Piano*, a work commissioned by the German violinist Brigit Muller.⁵

⁵ Telephone conversation with composer Vahram Babayan, 02/15/12.

CHAPTER II

Warren Kirkendale identified the pathotype motive as “a type of theme familiar from Bach’s Musical Offering through the late quartets of Beethoven”⁶ which “consists of the fifth formed by first and fifth degrees, and the diminished seventh which lies a semitone outside these notes.”⁷ The leap of a diminished seventh is characteristic, nearly always descending, with the leading note accented. Notes usually occur in the order 5, 6, 7, 1 or 5,1,6,7, harmonized I-IV-V (-I), by a perfect or an imperfect cadence” (see example no. 2).

Example 2.

5 6 7 1
i iv V i

or

5 6 7 1
i iv V i

⁶ Stephen Rumph, *Beethoven after Napoleon*, 81.

⁷ Warren Kirkendale, *Fugue and Fugato*, 91.

Selected examples from the literature are:

Example 3. Monn Quartet 5.

Allegro moderato

i iv V⁶

Example 4. Gassmann Quartet TC 472.

Allabreve

Example 5. Haydn, op. 20/5.

Example 6. Mozart, K. 546.

Allergro

In her dissertation, “Fugue Process and Tonal Structure in the String Quartets of Haydn, Mozart, and Beethoven,” Susan Tepping describes the pathotype motive as “a perfect fifth or

fourth with each element embellished by a neighbor note.”⁸ She identifies several variants of this motive in the late quartets of Beethoven (see example no. 7).

Example 7.

- a. Beethoven, op. 132, movement I, cello, mm. 1.2.



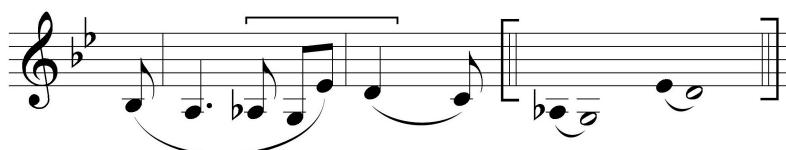
- b. Beethoven, op. 132, movement V, violins, mm. 3-4.



- c. Beethoven, op. 132, movement V, violin 2, mm. 111-114.



- d. Beethoven, op. 130, movement I, violin 1, mm. 1-2.



- e. Beethoven, op. 133, “Grosse fugue,” violin 1, mm. 4-10.



⁸ Susan Tepping, *Fugue Process and Tonal Structure in the String Quartets of Haydn, Mozart, and Beethoven*, 257.

f. Beethoven, op. 131, movement I, mm. 1-9.

Adagio ma non troppo e molto espressivo

Violin 1

Violin 2

Viola

Cello

Recurring representation of this motive in the traditional literature and in the late quartets of Beethoven in particular are frequently associated with serious themes and with fate.

One example from the traditional tonal literature which provides a basis for linking this motive with themes somber and grave is the great choral fugue from Handel's *Messiah*, "And with his Stripes we are Healed." (See example 8).

Example 8.

Subject P5

Tonal Answer P4

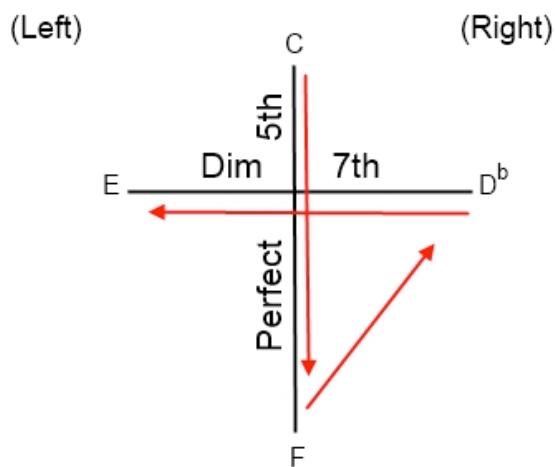
d7th

d7th

In example 8 above demonstrates the strong alignment between this succession and defining intervals of the pathotype motive abstracted somewhat from the subject/answer, tonic/dominant

relationship in the opening of Handel's "And With His Stripes." The possibility of recognizing such a derivation of perfect fifths and major sixths (enharmonically equivalent to a diminished seventh) to have symbolic meaning abstracted from the classic pathotype motive is encouraged in this case by direct testimony from Babayan himself who has declared these two intervals in particular have symbolic meaning. The sixth, according to Babayan, is unstable and suggests motion and the need for resolution, while the perfect fifth is stable and fixed in pitch space. In example 9 below, one possible association between the classic pathotype motive in Handel and the Christian symbol of the cross is exemplified⁹. (see example 9)

Example 9.



Stephen C. Rumph, in his *Beethoven after Napoleon: Political Romanticism in the Late Works*, discusses the grave connotation of the pathotype motive which makes an ideal symbol for the "Marcia Funebre" from Beethoven's Piano Sonata no. 12 in A-flat major, op. 26 (see example 10).

⁹ In the eastern orthodox tradition the sign on the cross is formed by touching the forehead, the navel, the right shoulder, and the left shoulder in that order.

Example 10.

MARCA FUNEBRE sulla morte dun Eroe.
Maestoso andante.

The idea of a pathotype motive generalized to describe a combination of two half steps and an intervening interval, not necessarily a diminished seventh or major sixth, can be found in the literature. Most notable perhaps is the B, A, C, H motive of J. S. Bach (see example 11).

Example 11.

Beethoven, op. 133,
"Grosse Fugue," violin 1, mm. 26-29

[0, 1, 3, 4] [0, 1, 4, 5] - Pathotype Motive!

Pitch class sets (normal order prime form)

Note: Successive tetrachords have different pitch class and interval content in spite of the fact that each is represented here as two successive semitones.

Other examples of this generic form of the pathotype motive may be found in more recent compositions. Notice in Example 12 below, Schoenberg's *Sechs Stücke Für Männerchor*, op. 35, no. III, "Ausdrucksweise,"¹⁰ the appearance of four-note units (tetrachords) containing two semitones such as the F[#]-G-A-B^b succession in the top voice or the C, B, C[#], D succession in the tenor. Other intervals¹¹ in the context of three note units (trichords) recall defining characteristics of the pathotype motive. For example E^b, B^b, A, a perfect fourth followed by minor second in the second tenor, or A^b, F, E, B, D, C[#], and G, B^b, A in the bass voice all of which are composed by E minor third followed by E minor second.

Example 12. Schoenberg, op. 35, no. III “Ausdrucksweise.”

Although in Babayan's works, the motive seldom appears in one of its more traditional representations (e.g. perfect fifth embellished by upper and lower neighbors to the dominant and tonic notes respectively) elements derived from such traditional models and their variants

¹⁰ From an unpublished article by Marvin Johnson, "Pitch Structure and Text in Schoenberg's op.35, no. III, 'Ausdrucksweise'."

¹¹ As will be discussed in greater details below, the pathotype motive predominated by perfect fifths, diminished sevenths (major sixths by enharmonic equivalence) and minor seconds and their inversions respectively.

abound. For example, his Piano Sonata no. 2 opens with a pathotype motive, although not one embellishing a perfect fifth in this case (see example 13).

Example 13.

In his cello sonatas instances of pathotype motives occur in different guises. In the beginning of Babayan's cello solo sonata no. 1, there are no semitone relationships for the first 50 mm. Instead, Babayan extracts and reiterates, in several representations, intervals basic to the pathotype motive, namely successions of perfect fifths and major sixths (enharmonically equivalent to the diminished seventh so integral to the classic pathotype motive). In mm. 10-12, a succession of perfect fifths begins with E then moves down to A, and then D followed by the pedal note C (see example 14).

Example 14.

Handel transposed to D minor.

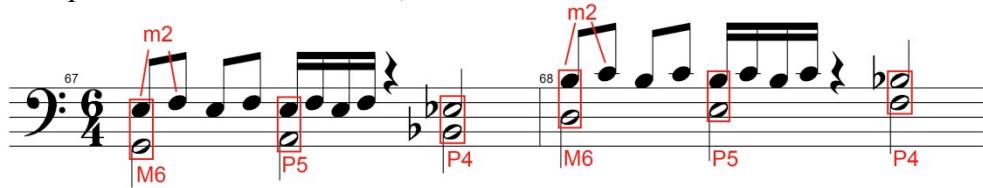
CHAPTER III

Chapter III will identify elements in Babayan's solo cello sonatas featuring the pathotype motive. It is not intended here to make a case that the pathotype motive and traditional tonal practices serve as a basis for understanding all aspects of these sonatas, as important elements in the music (notably pitch, structure, and form) require other concepts and approaches. In fact, there is strong evidence (in the music itself and in direct testimony from the composer) that Babayan has been influenced by several aspects of the Western European tradition in addition to these traditionally considered to be tonal, most notably the atonal practices of the Second Viennese School and nationalistic trends in the music of Russian composers such as Shostakovich. Even so, there is ample evidence in all three of these sonatas to justify the derivation of many features of the motivic and thematic material from the pathotype motive, either in one of its traditional forms as discussed above in Chapter II or in more abstract representations and their logical extensions such as those that follow.

Remember that principal intervals from the pathotype motive include perfect fifths, major sixths, minor seconds and their inversions, perfect fourths, minor thirds, and major sevenths respectively. (It is interesting to observe the extent to which many of the prominent melodic gestures in these sonatas can be understood in terms of those intervals).

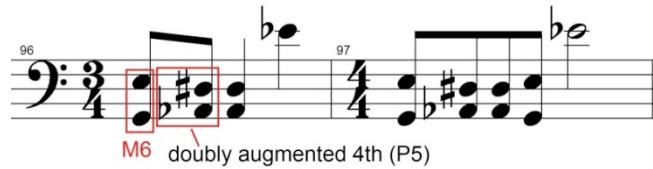
In example 15, the interval of a sixth is followed in succession by a perfect fifth and then by an upper neighbor note.

Example 15. Cello Sonata no. 1, mm. 67-68.

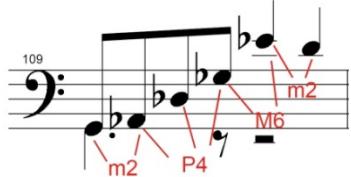


In example 16 beats 1 and 2 are composed of intervals from the traditional pathotype motive, compressed into two double stops.

Example 16. Sonata no. 1, mm. 96-97.

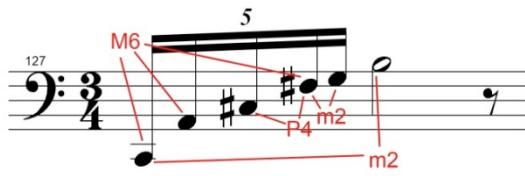


Example 17. Sonata no. 1, m. 109.

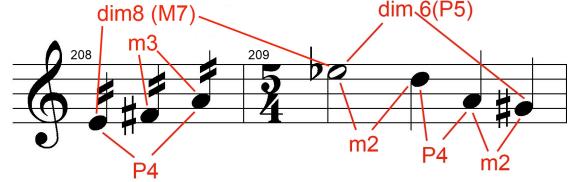


Notice in example 18 the embedded trichords from the introduction, C, A G, and a succession of fourths C[#], F[#], and B.

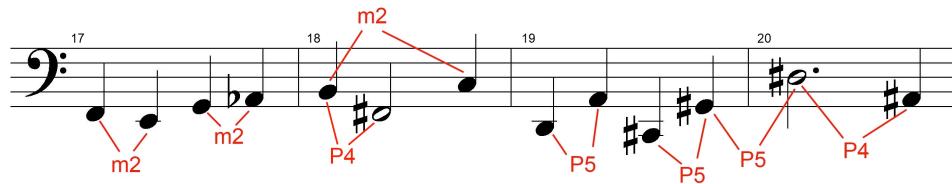
Example 18. Sonata no. 1, m. 127.



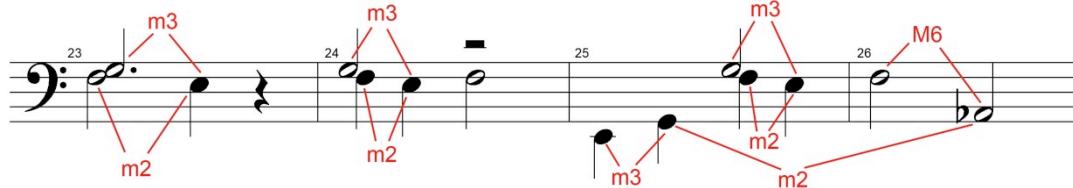
Example 19. Sonata no.1, mm. 208-209.



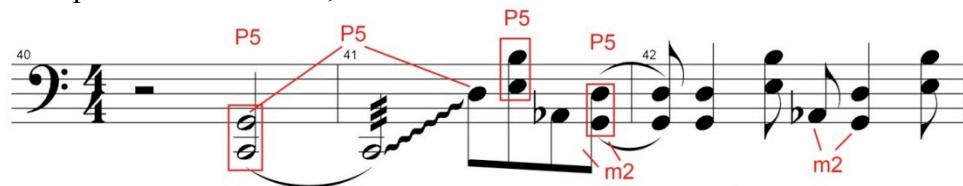
Example 20. Sonata no. 2, mm. 17-20.



Example 21. Sonata no. 2, mm. 23-26.

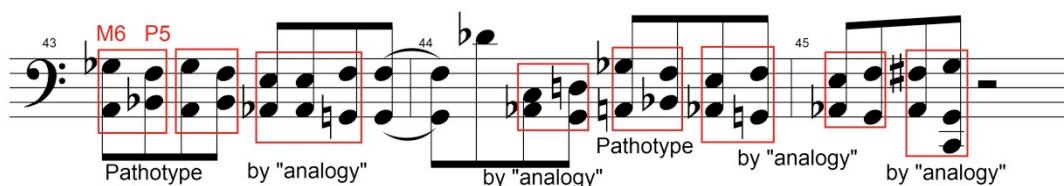


Example 22. Sonata no. 2, mm. 40-42.



In example 23 successive pathotype motives are formed, in the first case on beat one by a diminished seventh and a perfect fifth, then analogous by tetrachords composed of two semitones and a second interval, a non-semitone.

Example 23. Sonata no. 2, mm. 43-45.



Example 24. Sonata no. 3, mm. 1-3.



In example 24 the A which forms a perfect fifth with below D is displaced by A^b a minor second below.

In example 25, the theme in mm. 7 through 10 is written in chords composed of perfect fifths and major or minor sixths, the latter functioning as “pathotype sixth” by analogy.

Example 25. Sonata no. 3, mm. 7-10.

In addition to the examples above, which clearly contain elements from the pathotype motive, there are numerous other passages which use elements of the motive in less direct ways.

In mm. 56 and 57 of Sonata no. 1 for example, there are two semitones, A-B^b, and D-E^b. The latter connect two perfect fourths, A, D and E^b, A^b, all found in the pathotype motive.

Example 26. Sonata no. 1, mm. 56-57.

Examples 27. Sonata no. 1 mm. 65, 84, 110, and 128

Notice the saturation of the pathotype intervals in the following example.

a.

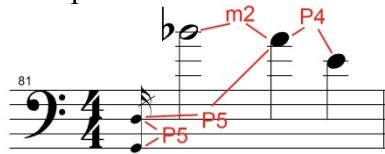
b.

c.

d.

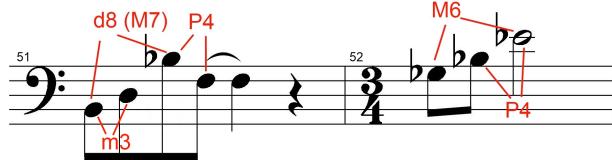
Many of the motives and gestures in Sonata no. 1 can be related to elements of the pathotype model and consequently to one another through this common reference point. To continue these comparisons, notice that the gesture in example 28 contains a succession of intervals as follows: G, D (perfect fifth), B^b, A, E (the same B^b as m. 65), minor sixth followed by a semitone and then another perfect fourth (perfect fifth by inversion).

Example 28. Sonata no. 1 m. 81.

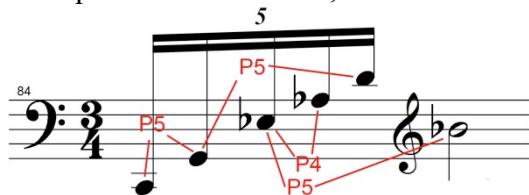


Additional examples follow all of which can be understood in terms of intervals from the pathotype motive or their inversions.

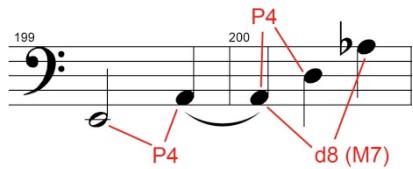
Example 29. Sonata no. 1, mm. 51-52.



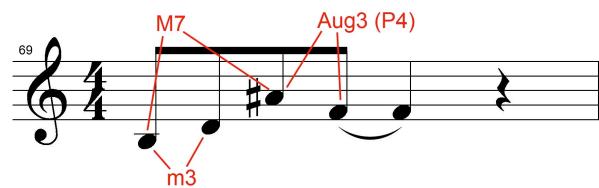
Example 31. Sonata no. 1, m. 84.



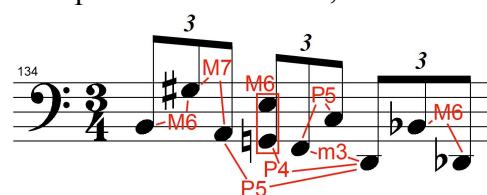
Example 33. Sonata no. 1, mm. 199-200.



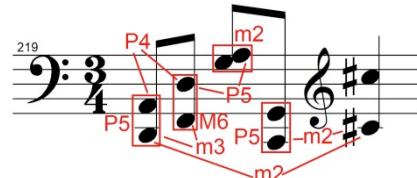
Example 30. Sonata no. 1, m. 69.



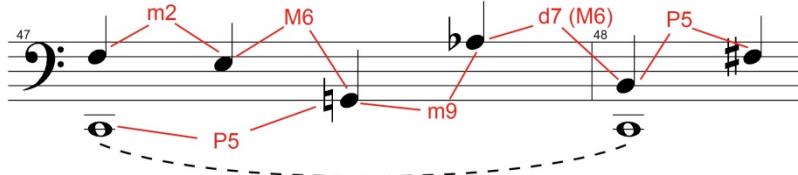
Example 32. Sonata no. 1, m. 134.



Example 34. Sonata no. 1, m. 219.



Example 35. Sonata no. 2, mm. 47-48.



In example 36, one m. paraphrases another.

Examples 36. Sonata no. 2, second movement, mm. 1 and 13.

Musical score for Examples 36 showing measures 1 and 13 of Sonata no. 2. The score is in bass clef. Red annotations indicate melodic intervals: m3, m2, P5, P4, and P5.

Example 37. Sonata no. 2, m. 93.

Musical score for Example 37 showing measure 93 of Sonata no. 2. The score is in bass clef. Red annotations indicate melodic intervals: m3, m2, M6, P5, and m3.

Example 38. Sonata no. 3, mm. 17-18.

Musical score for Example 38 showing measures 17 and 18 of Sonata no. 3. The score is in bass clef. Red annotations indicate melodic intervals: m10, m3, m2, Aug2 (m3), M6, and P5.

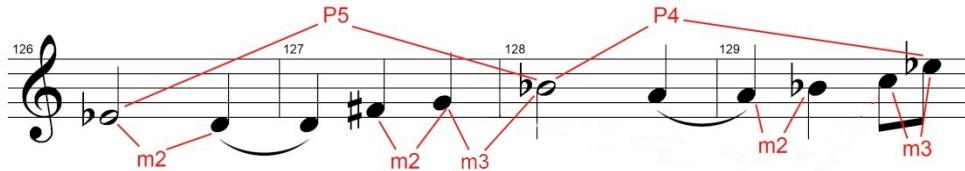
Example 39. Sonata no. 3 mm. 63-67.

Musical score for Example 39 showing measures 63, 64, 65, etc., 66, and 67 of Sonata no. 3. The score is in bass clef. Red annotations indicate melodic intervals: m2, m7, and m2.

Example 40. Sonata no. 3, mm. 82-84.

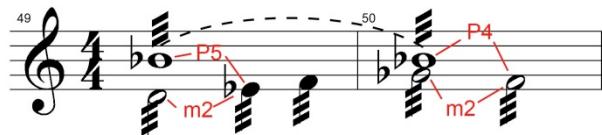
Musical score for Example 40 showing measures 82, 83, 84, and 85 of Sonata no. 3. The score is in bass clef. Red annotations indicate melodic intervals: m2, d7 (M6), m2, P4, and m2.

Example 41. Sonata no. 3, mm 126-129.



Example 42. Sonata no. 3, mm. 170-173.

Example 43. Sonata no. 3, mm. 49-50.



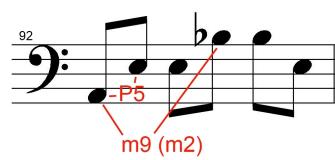
Example 44. Sonata no. 3, mm. 72-73.

Example 45. Sonata no. 3, mm. 76-77.

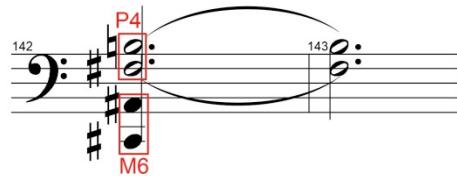
Example 46. Sonata no. 3, m. 74.

Example 47. Sonata no. 3, mm. 97-98.

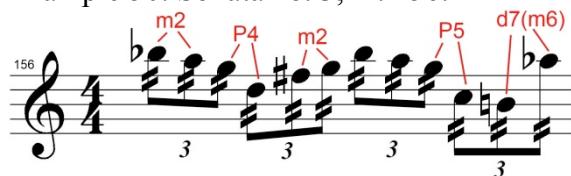
Example 48. Sonata no. 3, m. 92.



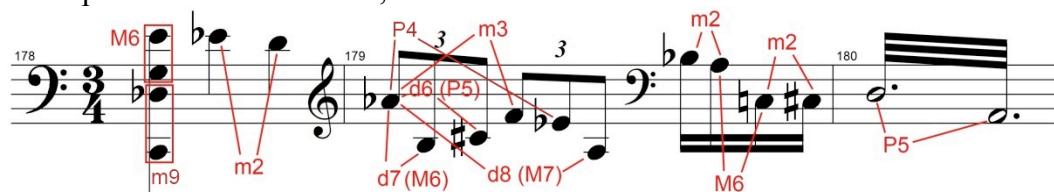
Example 49. Sonata no. 3, mm. 142-143.



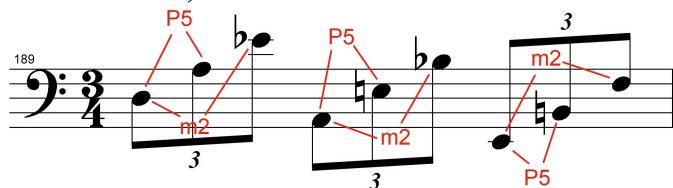
Example 50. Sonata no. 3, m. 156.



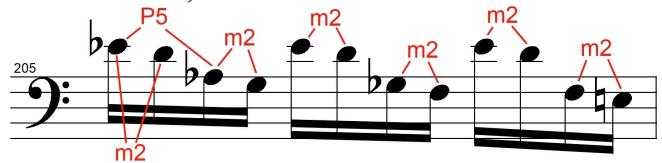
Examples 51. a. Sonata no. 3, mm. 178-180.



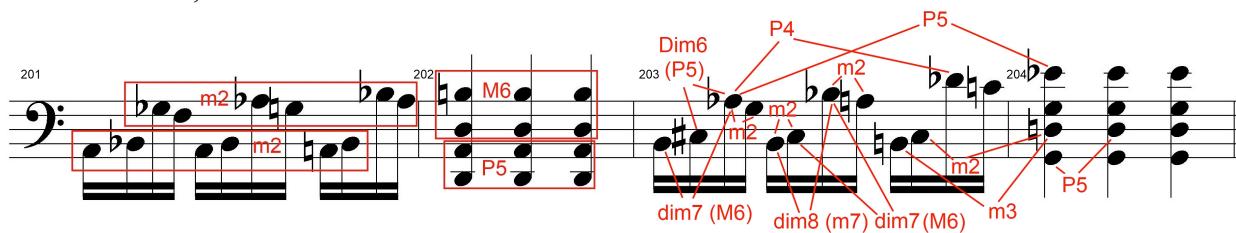
b. Sonata no. 3, m. 189.



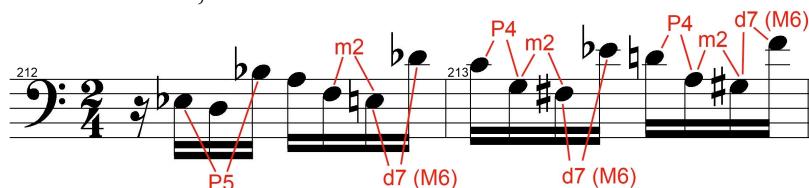
c. Sonata no. 3, m. 205.



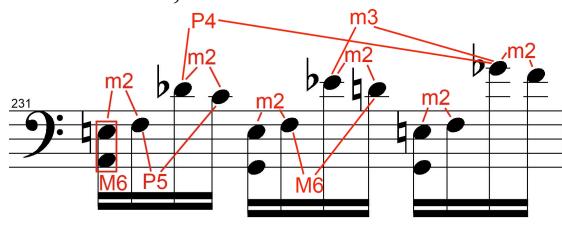
d. Sonata no. 3, mm. 201-204.



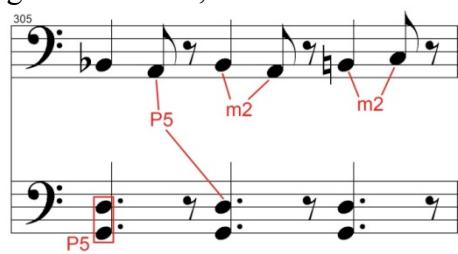
e. Sonata no. 3, mm. 212-213.



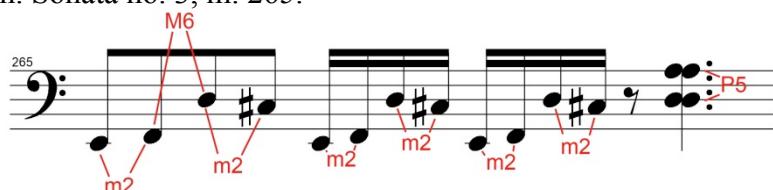
f. Sonata no. 3, m. 231.



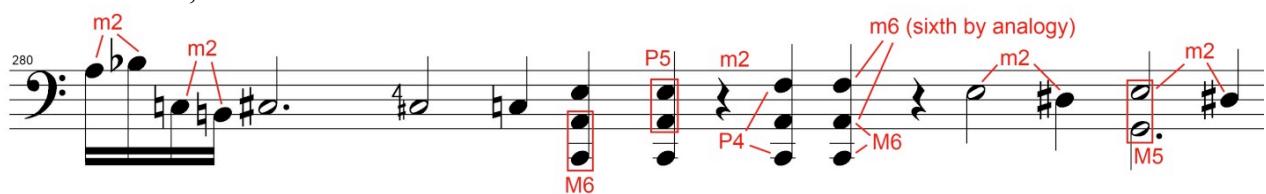
g. Sonata no. 3, m. 305.



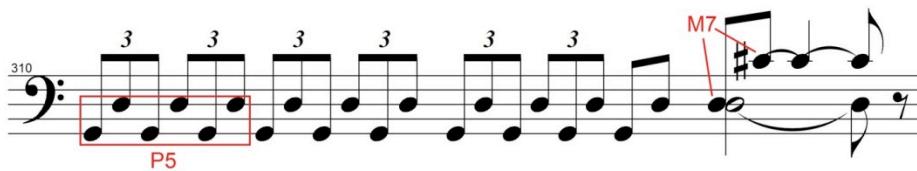
h. Sonata no. 3, m. 265.



i. Sonata no. 3, m. 280.



Example 52. Sonata no. 3, m.310.



Chapter IV

Numerous examples of the pathotype motive in all three sonatas account for important motivic and thematic relationships, many of which delimit the succession of phrases and larger design features of the formal schemes described below.

The following abbreviations will be used in the form charts below.

Char	Character	Rep	Reprise
Cl Sec	Closing Section	Res	Restatement
Dev	Development	Seg	Segment
Exp	Exposition	ST	Secondary Theme
Imp	Improvisatory	Tm	Theme
Intr	Introduction	Tr	Transition
Mvt	Movement	VR	Varied Repetition
PT	Prime Theme		

The overall formal design of sonata no.1 is A-B-B'-A, introduction-exposition-reprise-coda (with repetition of material from the introduction). Example 53 (below) gives a diagram of this work. The composition begins with the introduction (mm. 1-50). Thereafter the exposition extends from mm. 51 to 105, with the primary theme in mm. 51-85, a transition from mm. 86-89, and a secondary theme from 90-105. The development begins with the secondary theme material in m. 106. Later in the development, the first theme occurs (m. 129). A new section in mm. 165-200 creates a connection from the development to the reprise. Thematic material in the reprise occurs in reverse order. This section in the passage starts with a motive that was first introduced in the development of the secondary theme in m. 110. Here in m. 201 it is transposed up

a diminished fifth. In m. 214, the first theme from the introduction progresses to the same material that was used in the climax of the sonata (m. 139).

The passage from mm. 234 to 252 functions as a transition that connects to the coda, which, at that point, initiates a restatement of the introduction.

Example 53. Sonata no. 1.

Form Mm. Pitch	1 Intr A C	51 Exp PT A	69 Exp VR of PT 8 ^{va---} G	86 Exp of Tr to ST C
90	Exp ST C	106 Dev ST	109 Dev VR of PT A	139 Dev Cl Sec C [#] , A, A ^b , C, G
165	Rep C	201 Rep VR of PT G [#]	214 Rep C [#] , C	252 Rep Cl Sec C, G, D
253	Coda A C			

Sonata no. 2 has two movements and both exhibit features of sonata form. See Example 54 below for the form of the first movement. The first movement is in three parts: A mm. 1-59, B mm. 60-109, C mm. 110-131. The first segment, mm. 1-16, begins on F. A second segment, also centered on F, follows in mm. 17-22. In m. 23 material from m. 5 occurs an octave higher. A third segment lasts from mm. 28-36. Notably, mm. 34-35 from that segment, use the same material as m. 5, transposed down a perfect fifth. In m. 37, two segments are developed, the first from mm. 1-16 and the second from mm. 17-22. In mm. 46-52, a transposed version of segment 1 is restated. In m. 53 a transition to the development

section begins. The first section of the development, part two, begins in m. 60 and extends to m. 79, where a second segment, mm. 79-88, begins.

This whole B section has a more improvisatory character. From m. 89 the melodic contour of the first segment of part B is mirrored. This B material, derived from the same first segment, is developed further in m. 93. From m. 110, the first segment of part C connects to the reprise of the first segment of part A (in m. 132), which is itself a mixed reprise of the first segment, the second segment, and the third segment. The second segment of part B recurs in mm. 160-170 as a reprise. The coda begins in m. 171. It begins on the same tone, C[#], which began the second segment of part C.

The form of movement II is also diagramed in example 54. In this second movement there are two parts (A-B). The first theme begins in m. 1. The first segment (mm. 1-6) is built on the pitch succession: B, A, A[#], G^b, B. In this section the interval of a major seventh is emphasized. The second segment of part A starts in m. 10 and is developed in mm. 15-17. Part B starts in m. 18 and contains 2 segments (mm. 18-22 and mm. 23-27). In m. 28 similar ideas from the beginning of the second movement (ascending motion) are stated. At the same time this section connects to the reinstatement of part B. Material from mm. 15-16 is repeated in mm. 37-38 but inverted in melodic contour. In mm. 52-63 there is a reinstatement of part B, with rhythmic changes. In m. 64, a segment from part A of the first movement leads to m. 69, which contains a segment from the very beginning of the second movement, (mm. 1-2). The section from m. 67 to m. 86 serves as a connection to the coda. The coda, which is a reinstatement of the beginning of part B, leads to the final cadence.

Example 54. Sonata no. 2, 1st Mvt.

Form Mm. Pitch	1 Exp 1 st seg of PT F	17 Exp 2 nd seg of PT F	23 Exp 1 st seg of PT F	28 Exp 3rd seg of PT F
34	Exp VR of PT C	Exp 1 and 2 seg of PT F	Exp VR of PT C	Tr to Dev VR of PT C
60	Dev ST D	Dev VR of ST C	Dev. VR of ST A	Dev. ST C
104	Tr. to 3 rd Tm	Tr 3 rd Tm G [#]	Rep Seg 1,2 of PT F	Rep Seg 3 of PT F
153	Tr. to VR of ST C	Coda VR of ST C	Coda C [#]	

2nd Mvt.

1	PT C	10 Tr to VR of PT	13 VR of PT D	15 Tr ST G
18	ST	28 VR of PT	32 ST	37 Tr to ST D, G
52	ST	64 Res. PT of 1 st mvt F	69 VR of PT C	87 Coda

Sonata no. 3, a single movement work, is in three parts (see example 55). The primary motive appears as an open fifth in mm. 1-6. The same idea is continued in mm. 7-10 but with one more voice added, creating a full texture of fifths and sixths, combining to form trichords [0, 3, 7]. In m. 7, the succession of fifths (supporting a succession of sixths), clearly derived from the pathotype motive, recurs as a series of harmonics in mm. 19. In m. 37 (tempo I), the closing material of this phrase (mm. 39-40) is derived clearly from mm. 17-18. In m. 41, the

development section begins with a new idea based on the inversion of the theme in m.15. The second part of the development begins in m. 63 *Allegretto*. This second part is divided into 3 sections: first the *Allegretto* (m. 63), second the *Limpido* (m. 88), and third the *Andantino* (m.156). Beginning with material strikingly similar to m. 81 in Sonata no. 1, mm. 15-18 lead to a restatement of material in m. 19. Part two, which begins in m. 63, exhibits a more lyrical style. After two measures, there is a rapid progression of motion followed by a succession of quadruple stops in m. 76. In the second section of part two, there are some elements which are centered around pitches A, D, G, C, the open strings on the cello. This passage develops to a climax in m. 155. The third section of part two begins in m. 156. The structure here is similar to that of the second section and has motivic elements from part two. In m. 206 the *Animato* begins and, little by little, leads to the climax of the entire sonata in mm. 238-245. Here the familiar quadruple stop chords appear marked *Acuta, ma altero* and *sforzando fortissimo*. The last note of part two in m. 246 is the first note of part three. This third part, written in a slow tempo (*Andantino*) is improvisatory in character and notated *senza metrum* from mm. 260 to the end. The coda begins at *con calma, arco*.

Example 55. Sonata no. 3.

1	Exp 1 st seg of PT D	7	Exp 2 nd seg of PT D, G	15	Exp 3 rd seg of PT A	19	Tr 1 st PT C
23	Exp VR of seg 2,3 of PT D, B	37	Res 3 rd seg of PT	41	Dev 3 rd seg of PT A, D	63	Dev to 2 nd sec of ST A
88	Rest VR of 3 rd seg PT A	156	Dev of VR 2 nd , 3 rd seg of PT	170	Dev VR of ST D	206	Dev D, C, G, A
246	Rep Imp Char	310	Coda				

In spite of the strong presence of the pathotype motive and its role in the identification of phrase structure and formal divisions, important questions remain about thematic and motivic materials, which do not derive so directly from this motive, as well as still deeper questions about structural relationships, which support the formal designs described above. While a comprehensive examination of these less direct and deeper relationships lies outside the scope of this paper to a degree, some consideration of such matters is necessary for a broader understanding of Babayan's compositional methodology and the music which results. For example, the opening 50 mm. of Sonata no. 1 are composed entirely of pitch classes C, D, E, G, and A, a pentatonic scale in that order, or in another order, a succession of fifth relationships: C, G, D, A, E (open strings of the cello and violin combined). The sections following however are thoroughly chromatic, as is the remainder of the sonata except for the coda in m. 253, where these same five pitch classes dominate the texture until the very end. As discussed above, many components of the intervening sections, though thoroughly chromatic, retain characterizing elements of the pathotype motive, particularly perfect fifths, major and minor sixths, and semitones. Deeper structural relationships seem to rely on bass oriented, traditional tonal structures, particularly those related by fifth. For example, notice the prominent role of the bass note C in the first fifty measures. In similar, though more elaborate ways, fifth relationships predominate pitch structure throughout. Notice in particular the emphasis on the great G in mm. 65-81, the dramatic double stop C-G in m. 80, the double stop G-D in m. 81, with the low G embellished by an upper neighbor A^b or in m. 82, then the return of the prominent low C in mm. 89-105.

Subsequent passages continue to emphasize fifth relationships in various combinations until the low C is reaffirmed in m. 222. For example, in m. 109, the first and last notes, G and D,

are related by a fifth, as D is related to the first note A, in m. 10. A^b in m. 109, the familiar upper neighbor to G, is followed by its own fifth succession (D^b, G^b). The E^b, part of the previous fifth cycle (E^b, A^b, D^b, G^b) serves at the same time as a neighbor to the D. In m. 110, the G[#] (lower neighbor to the previous A) is followed by the fifth succession D[#], A[#], similar to the way A^b in m. 109 precedes the fifth succession D^b, G^b.

This survey, abbreviated as it is, suggests ways of understanding deeper structural relationships in Sonata no. 1 in terms of the pathotype motive, which after all is itself preeminently tonal with its tonic dominant pitches embellished by lower and upper neighbor notes respectively (see example 56).

Example 56. Cello Sonata no. 1, mm. 67-68.



In fact, if one archetypical example of a pathotype motive is selected (Haydn, op. 20/5) and subject elements extracted from that motive are subjected to modest extensions by transposition and neighbor embellishment, we can derive configurations which coincide in interesting ways with prominent features of the music in all three sonatas.

Example 57a is taken directly from Haydn's String Quartet, op. 20, No. 5, example 57b extracts the perfect fifth, the diminished 7th (major 6th by enharmonic equivalence) and the 3rd which fleshes out the tonic triad. Example 57c demonstrates the neighbor note, semitone relationships, and example 57d the cycle of fifths collection of the opening of Sonata no. 1, including by analogy a possible “minor version”.

It is interesting to notice in example 57e.1 that displacement of each pitch of the triadic, triple stop (perfect fifth supporting a major or minor sixth) which occurs as an important motive throughout, first in the very opening of Sonata no. 1, with the opening E supported by the rapid pizzicato G, C, and later in other notable places such as the succession of triple stops in m. 9 of Sonata no. 3, by one half step (C to B, G to A^b, and E to E^b) produces the same configuration in inversion (C, G, perfect fifth and G, E, major sixth becoming E^b, A^b, perfect fifth, and A^b, B, diminished seventh or major sixth by enharmonic equivalence). The resultant hexachord (B, C, E^b, E, G, A^b), the so called “Third Order, All Combinatorial Hexachord” ([0, 1, 4, 5, 8, 9] in numeric notation), has special properties which have earned it a prominent place in the atonal literature.¹² While this particular hexachord has not emerged as a constructional element in this investigation, the particular combination of half step and perfect intervals (more generally any non-half step) afforded by its several possible melodic configurations align themselves in interesting ways with prominent features of all three sonatas, but particularly Sonata no. 3. Example 57f contains [0, 1, 4, 5, 8, 9] hexachord in several possible representations, as well as quotes from Sonatas no. 3.

The attempt to link the pathotype motive, its representation in the classical literature, particularly in the late string quartets of Beethoven, with representative literature of the second Viennese School and eventually with Babayan's compositional practice and his solo cello sonatas, is consistent with the composer's account of important influences in his musical life and, as this investigation has revealed, with defining features of his music. This connection with the Second Viennese School and its influence prompts another look at certain features in the

¹² The [0, 1, 4, 5, 8, 9] hexachord is the first hexachord in the twelve-tone set of the Concerto for 9 instruments by Anton Webern.

music, particularly middle ground features which have not been addressed thus far.

Example 57.

a. Derivation from the literature Haydn op. 20/5 See Example 4.

b. Extraction of principal intervals and triad

c. Extraction of linear half steps

d. Cycle of fifths and analogy in minor

Note: Extraction of the perfect fifth and cycle of fifths (aligned with open strings of cello) produces the pentatonic collection of the opening 4 mm. of Cello Sonata no. 1.

e.1. Defining intervals, P5 and M6 e.2. Pathotype Motive! e.3. Third Order All-Combinatorial Hexachords (Webern op. 24, Concerto for Nine Instruments.)

Note: e.1. A combination defining intervals, perfect fifths and major sixths, displaced by half step to produce an inverted version of the opening sonority, C, G, E.

f.1. Various reorderings of semitone relationships.

f.2. Sonata no. 3, mm. 170-173.

Note: f.1. Various reorderings of semitone relationships produce different intervals between semitone dyads.

f.2. As is clear from example 42, Babayan extends the possibilities demonstrated above to produce succession of semitone dyads which are not separated by intervals directly derived from the pathotype motive.

As I have pointed out above, the opening fifty mm. of Sonata No. 1 are composed of five pitch classes only. The following section, mm. 51-89, is suddenly much more complex in pitch structure and on first impression, quite different from the introduction. In spite of this seeming discontinuity, a closer investigation reveals that mm. 51-57 contain the remaining pitch classes of the chromatic scale, in other words “the complement” of the opening pentad. Only pitch classes D and A (adjacent elements in the cycle of fifths and a representation of the opening section) are duplicated in this passage. Complementation, the process of completing sets by filling in the missing elements, whether or not they are twelve-tone sets or those of lesser cardinality, is a process fundamental to much atonal music. At a more local level, we face the

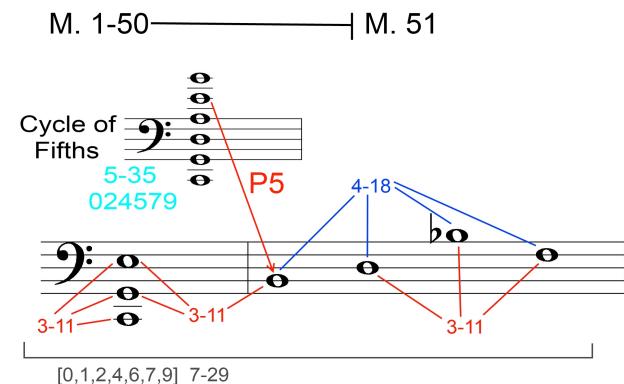
challenge of understanding the succession of motivic and thematic elements, and at deeper levels to the extent possible, organizing principles and relationship in larger-scale pitch structures. For example, the very opening of section 2 begins in m. 51 with a tetrachord (B, D, B^b, and F). This four note unit recurs frequently, sometimes at pitch and sometimes transposed in pitch level and permuted in interval succession (see mm. 51, 55, 59, 69, 77, 82-83) throughout this first section (mm. 51-89), in later sections (mm. 139, 141, 142, 151-152) and in the return at the beginning of section 4 (mm. 214, 215, and 216). Its central role in the motivic and thematic organization of the entire composition requires that we understand its relation, not only to subsequent sections but to the introduction which precedes it, and even, indirectly perhaps, to any connections we may be able to trace to the pathotype motive. To investigate such matters in a more rigorous way and in greater detail, I have adopted an analytic approach based on the theoretical ideas and analytic techniques of Alan Forte.¹³

Closer investigation of the opening fifty mm. reveals not only the diatonic character but the importance of trichords, particularly prominent instances of trichord 3-11 (see Forte, 179) which opens the introduction as the small E supported by Great G forming a major sixth, in turn is supported by Great C a perfect fifth below. Of course the major sixth (by enharmonic equivalence with the diminished seventh) and the perfect fifth are prominent intervals in the pathotype motive.

Significantly, the same 3-11 trichord, a “C-major triad,” closes the introduction and in so doing provides a vital link with the section which follows, as the first note of m. 51 is a B forming another 3-11 trichord with the E and G of mm. 47 and 38. (See Example 58)

¹³ Forte, *The Structure of Atonal Music*.

Example 58.



Furthermore, the implicit cycle of fifths collection in the first 50 mm. (C, G, A, D, E) simultaneously expands to generate a B in 51, the very pitch class which initializes Section 2 and forms the 3-11 trichord with the previous E and G. Notice that the remaining three pitches in the opening tetrachord motive of m. 51, D, B^b, and F, form still another 3-11 trichord, thus linking the two sections with three successive instances of the same basic set.¹⁴

Example 59 replicates the succession of pitches and rhythms in the first 89 mm. of Cello Sonata no. 1. The succession of pitches has been segmented to identify pitch class sets which provide a basis for the analytic discussion which follows. All pitch classes have been included in this process. These segments are partitioned deliberately to follow as closely as possible the motivic and thematic relationships, phrase structures, cadence points, etc. which have provided the basis for previous discussion. Composite segments and imbrications¹⁵ spanning or dividing further such foreground divisions have not been identified here, with one or two notable exceptions (e.g. discussions about overlapping trichords which link the Introduction and Section I), not because such partitions are not possible or potentially revealing, but because that

¹⁴ In set theoretic terms, major and minor triads are equivalent. C-major in mm. 47-48, E-minor in mm. 47-51, and B-flat major, the last three pitches of the tetrachord in m. 51 then, are all 3-11 trichords.

¹⁵ See Forte, pages 83-85.

level of investigation goes beyond the agenda of this discussion, intended to be indicative, not exhaustive.¹⁶

Example 59.

The musical score consists of five staves of music for bass clef, 4/4 time. The notes are numbered 1 through 30 above each staff. Red lines connect specific notes to labels indicating pitch class sets. In the first staff, notes 3, 11, 5, 7, and 11 are labeled 3-11. Note 5 is also labeled 3-7. In the second staff, notes 8, 9, 10, 11, 12, 13, 14, and 15 are labeled 3-7. Note 11 is also labeled 3-11. In the third staff, note 16 is labeled 3-11. In the fourth staff, notes 25, 26, 27, 28, 29, and 30 are labeled 3-11. Note 28 is also labeled 3-7. A blue bracket spans notes 11, 12, and 13, with the labels 4-22 and 0247 positioned above them.

¹⁶ Pitch class sets have been labeled according to their assigned position and designation in Forte's *Structure of Atonal Music*, 179, Appendix 1: Prime Forms and Vectors of Pitch-Class Sets.

Example continued

2

The musical score consists of six staves of music. Annotations include:

- Blue markings:**
 - Staff 1: Measure 31, note 0247; Measure 32, note 4-22.
 - Staff 2: Measure 38, note 0358; Measure 39, note 4-26.
 - Staff 3: Measures 44-47, note 0147; Measures 52-53, note 0147; Measures 54-55, note 0147.
 - Staff 4: Measures 57-60, note 0146.
- Red markings:**
 - Staff 1: Measures 32, 34, 35, 37, 39, 40, 41, 42, 43, 47, 48, 49, 50, 51, 53, 54, 55, 57, 58, 59, 60.
 - Staff 2: Measures 37, 38, 39, 40, 41, 42, 43.
 - Staff 3: Measures 44-47, 52-53, 54-55.
 - Staff 4: Measures 57-60.
- Other markings:**
 - Staff 1: Measure 33, note 3-11.
 - Staff 2: Measure 40, note 3-11.
 - Staff 3: Measure 48, note 3-11.
 - Staff 4: Measures 57-60, notes 01267, 5-7, 02358, 5-25, 023568, 6-Z23.
 - Staff 5: Measure 51, text "Cycle of Fifths" with diagram showing 024579.

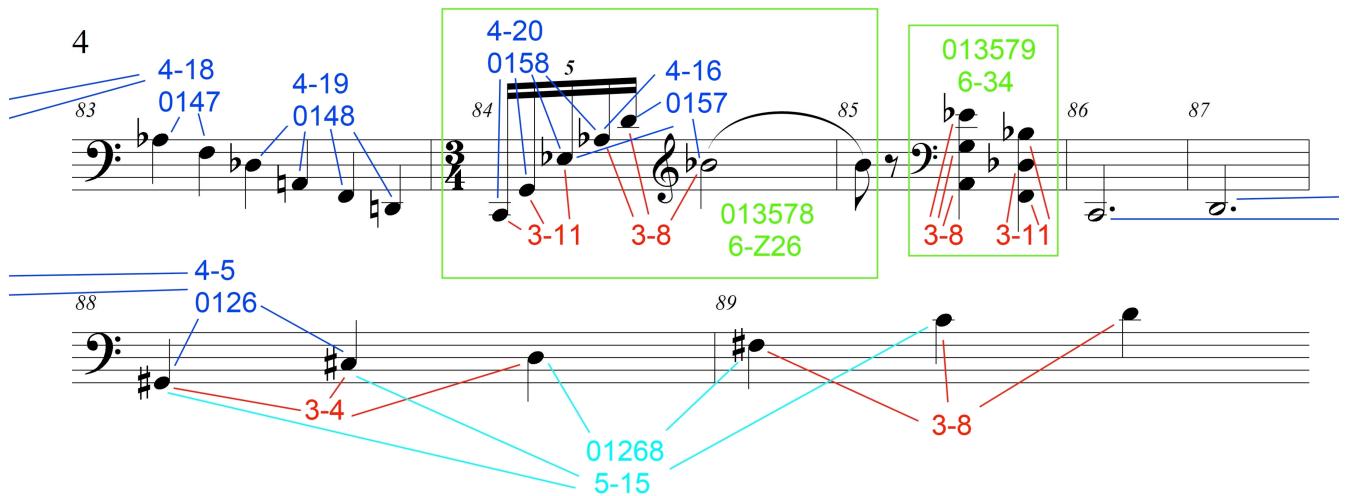
Example continued

3

The musical score consists of ten staves of music. Annotations include:

- Staff 1 (Measures 61-65):** Measures 61-62 show single notes. Measure 63 has a bass note with a 3-11 label. Measures 64-65 show chords with 3-11, 01469, 5-32, 311, 01357, 5-24, and 3-11 labels.
- Staff 2 (Measures 66-70):** Measures 66-67 show chords with 4-23, 0257, 012578, 3-7, 3-11, 6-18 labels. Measures 68-70 show chords with 4-11, 0135, 5-7, 01267, 012467, 6-Z12 labels.
- Staff 3 (Measures 71-73):** Measures 71-72 show chords with 4-18, 0147, 5-Z18, 01457, 013478, 6-Z19, 3-9, 3-4 labels. Measure 73 shows a bass note with a 3-4 label.
- Staff 4 (Measures 74-79):** Measures 74-75 show chords with 02479, 5-35, 3-7, 01368, 5-29, 3-11, 3-9 labels. Measures 76-77 show chords with 013578, 6-Z26, 3-11, 3-8 labels. Measures 78-79 show chords with 4-18, 0147, 3-10, 3-10, 014679, 6-Z50, 4-Z29, 0137, 4-18, 0147, 3-5, 013478, 6-Z19 labels.
- Staff 5 (Measures 80-82):** Measures 80-81 show chords with 4-26, 0358 labels. Measures 82 shows chords with 3-11, 01368, 5-29, 3-5 labels. Measures 82 shows chords with 3-7, 01256, 5-6 labels.

Example continued



In Example 62 (on page 43) I have identified a group of pitch class relationships which indicate the presence of deeper structural relationships linking the succession of motivic and thematic elements identified in chapters II and III. This example plots a network of pitch class relationships in the introduction and in section I of Sonata no. 1 which propose levels of integrity in middle ground and background pitch relationships not apparent in previous discussions. Links in this case between sets in this diagram have been limited to those described by Forte as Kh relationships¹⁷ and in one or two cases to similarity relations regarding both pitch and interval content.¹⁸ If the interval vectors (enumerations of the number of distinct interval types within inversion, measured in equal tempered semitones 1-6, where 1 represents both 1 and 11, 2 represents both 2 and 10, etc. and 6 inverts to represent itself) are identical in four of the possible

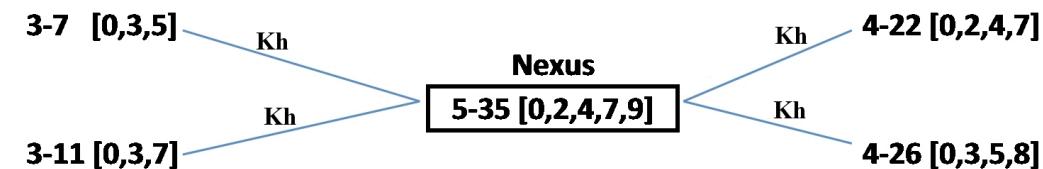
¹⁷ Two sets of different cardinality are said to be in a relationship Kh if, to within inversion and transposition, the first contains or is contained by the second and the first contains or is contained by the complement of the second. See Forte, pages 96-97.

¹⁸ If two sets of the same cardinality in normal order (ascending order with the smallest interval between the first and last elements), prime form (the normal order with 0 as the first element), are identical except for the difference of a single integer, they are said to be maximally similar regarding pitch class or in a relationship called Rp. See Forte, pages 46 and 47.

6 categories, but different in two, and those two are also identical in value but in correspondingly opposite order positions in the list of possibilities (e.g. if one set has two minor seconds, intervals 1, and three minor thirds, intervals 3, and the second set three minor seconds, intervals 1, and two minor thirds, intervals 3), they are said to be maximally similar in interval correspondence or in an R1 relationship. If the same conditions hold except that the exchange feature e.g. intervals not identical in type do not exchange value and position in the list, the sets are said to be maximally similar without the interchange feature and described as being in an R2 relationship. Forte cautions against assigning too much value to Rp relations as they occur frequently in the universe of sets and consequently may have limited analytic significance, especially among sets of low cardinality such as trichords and tetrachords where they are particularly numerous.

Example 60 then demonstrates one possible way of describing the interrelationship of sets in the Introduction and the extent to which they can be linked in Kh relationships to the five-note diatonic or “pentatonic” collection C, D, E, G, A, described here as pitch class set 5-35 (see example 59, mm. 1-50). The term “Nexus” applied here to set 5-35 and to other sets of notable structural importance in examples below, has been coined by Forte to describe sets which link networks to form complexes of analytic significance, in this case sets held in Kh relationships to that Nexus set.

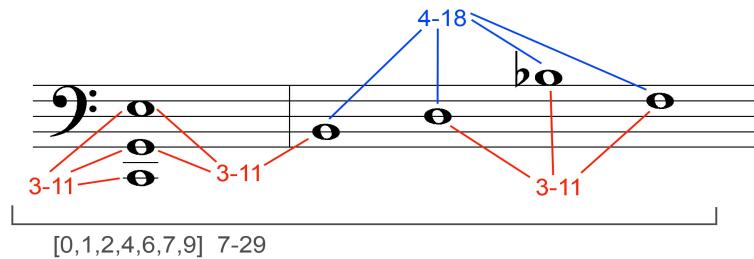
Example 60. Set Complex Relations: Babayan Cello Solo Sonata no. 1.



Example 61 revisits the passage linking the Introduction and Section I by combining the 3-11 trichord of mm. 40-50 with the tetrachord of m. 51, set 4-18. The resultant septad, set 7-19 [0, 1, 2, 4, 6, 7, 9] is of particular interest in that its complement, set 5-29 [0, 1, 3, 6, 8] occurs in a prominent position in m. 81. Such a relationship, aligned as it is with characterizing features of the foreground of the music, suggests that the identification other such combined structures may lead to similar revealing insights, though such a protracted, in-depth study of structural relations lies beyond the scope of this paper.

Example 61.

7-29 0,1,2,4,6,7,9
Compliment
5-29 [0,1,3,6,8]
See m. 81

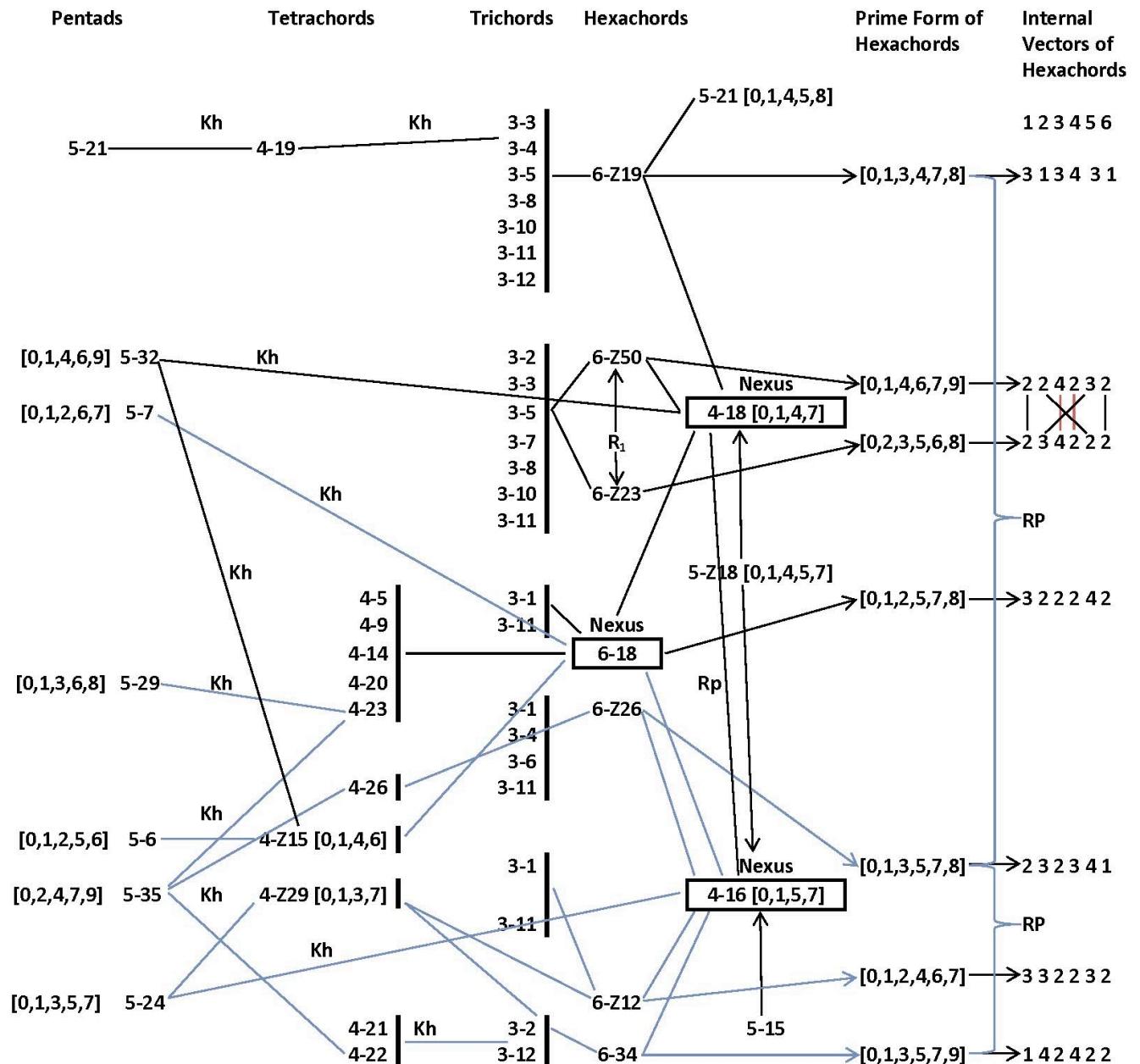


Example 62 is a graphic representation of all the sets of mm. 51-89 identified in Example (59) and the Kh relationships which interconnect them as part of a pitch class set complex. Primary significance is assigned to hexachords which are listed from top to bottom in the center of the sketch. The sketch identifies two groups of hexachords, the first of which is 6-Z19, 6-Z50, 6-Z23, and 6-18, three of which (6-Z19, 6-Z50, and 6-18) are in a Kh relationship with the tetrachord 4-18. 6-Z23, while not in a Kh relationship with 4-18 is in an R1 relationship (maximally similar in terms of interval content) with 6-Z50 which is in a Kh relationship with 4-18. Thus, three of the hexachords are linked directly to the tetrachord 4-18 (principal tetrachordal motive introduced on beat 1 of m. 51) by Kh relationships.

Example 62.

Set Complex Relations in Babayan's Solo Cello Sonata no. 1, mm. 51-89.

Example XC set complex relations in Babayan's Solo Cello Sonata no. 1, mm. 51-89



The fourth, 6-Z23, is linked less directly to this complex by an R1 relationship with 6-Z50. The second group includes 6-18 as well as 6-Z26, 6-Z12, and 6-Z34, all of which are in Kh relationships with the tetrachord 4-16, less prominently represented in the music (mm. 65 and 84 in the section under review) but similar to 4-18 as they are in the relationship Rp. The central position of the two tetrachords is recognized by their identification as Nexus sets. More significance still is assigned to the hexachord 6-18, first appearing dramatically in m. 66, as a third Nexus set through which these two hexachordal complexes are linked and as such becomes a candidate for the structural point of the entire section.

To the right the specific pitch class content of each hexachord is listed and to the right of that the interval vector itemized. Notice similarity relations among the hexachords 6-Z19 and 6-Z26, 6-Z50 and 6-Z12, 6-18 and 6-Z26, 6-34 and 6-Z26, each pair of which is in a relationship Rp with its partner. In addition, as I discussed above, the only hexachord not in an Rp relationship, 6-Z23 is in an R1 relationship with 6-Z50 by virtue of the strongest possible similarity in interval content. Trichordal sets are numerous and are in strong Kh relations with one or more of the hexachords. While such links may be held less significant because they tend to be so numerous, they seem particularly notable in this context because of their prominent motivic position, first in the introduction as formative elements and later throughout the movement in various recurring thematic roles.

Pentads, though less obviously integral to the set complex formation in mm. 51-89 do have an important role, first as the nexus set of the Introduction, 5-35, or later, as set 5-29, the complement of the composite set 7-29 from mm. 50 and 51, emerges prominently in m. 81 in direct association with seminal trichords from the introduction 3-11 in 81 and 3-7 immediately following in m. 82. It is especially notable that set 5-Z18 [0,1,4,5,7] which appears prominently

in mm. 145 and 146, is in Kh relationship with nexus tetrachords 4-18 [0,1,4,7] and 4-16 [0,1,5,7], and notably, in a Kh relationship with tetrachord 4-7 [0,1,4,5], the pathotype tetrachord, itself making an appearance intact in mm. 96 and 97.¹⁹

In summary, I can report that this study has revealed the extent to which Babayan's compositions incorporate, not only features of the Pathotype Motive, but broader aspects of pitch organization and form characteristic of the Western European tradition. At the same time these compositions exhibit stylistic features which link them in poignant ways to the personality of Babayan himself and his cultural and musical roots in Armenia and Russia. These latter considerations have not been addressed here in any detail as such concerns lay beyond the intended scope of this paper; however, a next step in this study might well include a closer review of just such cultural and musical forces and their influence on Babayan's life, education, and compositional output.

¹⁹ For an introduction to Forte's concept of pitch-class set complexes, see his *The Structure of Atonal Music*, pp. 93-104. For an introduction to his concept of similarity relations within the set complex see pp. 108-113.

BIBLIOGRAPHY

- Ananyan, Armen. "Vahram Babayan—Second Symphony." *Handbook for the Symposium in Tribute to Fifteen Years of Education in the Soviet Union*. Yerevan, Armenia: Union of Armenian Composers, 1972.
- . "In the Rhythm of Time." *Communist* (Yerevan, Armenia), 22 May 1984.
- . "The Success of a Concert." *Komsomolets* (Yerevan, Armenia), 16 May 1985. [About the composer and his works.]
- Berko, M. "Musical Culture of the Armenian SSR." In *Musical Culture of the People of the USSR*. Moscow: *Muzika*, 1985.
- Dzhagatspanyan, K. "His Own Language in the Symphony of the World." *Voice of Armenia* (Yerevan, Armenia), 4 November 2008. [60–year anniversary of Vahram Babayan].
- Forte, Allen. *The Structure of Atonal Music*. London: Yale University Press, 1973.
- Kirkendale, Warren. *Fugue and Fugato in Rococo and Classical Chamber Music*. Translated by Margaret Bent and the author. Durham, N.C.: Duke University Press, 1979. Originally published as *Fuge und Fugato in der Kammermusik des Rokoko und der Klassik* (Munchen: H. Schneider, 1966).
- Meier, Kshishtof. "Musical Life in Armenia—Striking Phenomenon." *Armenia Today*, no. 2 (1980): 32-33.
- "Opera about Beethoven." *Komsomolets* (Yerevan, Armenia), 17 Feb. 1983. [About the composer Vahram Babayan and his opera "The Letters of Beethoven."]
- Rahn, John. *Basic Atonal Theory*. New York: Longman Inc., 1980.
- Kahn, Robert S. *Beethoven and the Grosse Fuge: Music, Meaning, and Beethoven's Most Difficult Work*. Lanham, Md.: Scarecrow Press, 2010.
- Rukhkyan, Margarita. *Portrety Armyanskikh Kompositorov* [Portraits of Armenian Composers]. Yerevan, Armenia: Nairi, 2009.

- . “V. Babayan–Symphony no. 3.” *Handbook for the Symposium of the Union of Armenian Composers in Tribute of the Art of Young Composers*. Yerevan, Armenia: Union of Armenian Composers, 17 Apr. 1979: 4.
- , “The Time Factor in the Armenian Symphony.” Yerevan, Armenia: *The Art Institute*, 1987: 136-137. [Also on Symphonies Vahram Babayan]
- . “Hope Never Dies.” *New Time* (Yerevan, Armenia), November 3, 1998.
- . “Ecology of the Mind - It Largely Forms the Modern Professional Music.” *Voice of Armenia* (Yerevan, Armenia), 15 Dec. 2005
- Rumph, Stephen. *Beethoven after Napoleon: Political Romanticism in the Late Works*. Los Angeles, California: University of California Press Berkeley, 2004.
- Sarkisyan, Svetlana. “Becoming: About Composer Vahram Babayan and His Works.” *Communist* (Yerevan, Armenia), 21 Oct. 1982: 4
- . “Joy of Discovery.” *Komsomolets* (Yerevan, Armenia), 8 Apr. 1978: 4
- . “Cycle, the Birth of the Poet.” *Handbook for the VI Symposium for Management Board of Union of Armenian Composers dedicated to Creativity of Young Composers*. Yerevan, Armenia: Union of Armenian Composers, 19 Apr. 1979: 5
- . “Creative Portraits. On the Work of Young Armenian Composers.” Kiev, Ukraine: *Muzichna*, 1982: 154-160. [About Vagram Babayan]
- . “Author's Evening of Vahram Babayan.” Yerevan, Armenia: *Musical Life*, no. 18, 1985: 22
- Straus, Joseph N. *Introduction to Post-Tonal Theory*. Upper Saddle River, N.J.: Prentice Hall, 2005.
- Tepping, Susan E. *Fugue Process and Tonal Structure in the String Quartets of Haydn, Mozart, and Beethoven*. Ann Arbor, MI: U.M.I. Dissertation Services, 1993.
- “The Smell of Roses.” *Voice of Armenia*, (Yerevan, Armenia), 2 Dec. 2010: 7. [About the Composer Vagram Babayan, in Particular, of his Third Sonata for Solo Cello]
- Zolotova, Irina.” Reflections: The Sixth Symphony Vahram Babayan.” *Communist* (Yerevan, Armenia), 7 Jan. 1987.