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Aspects of meter and accent in selected string quartet movements by Beethoven and Bartok

Clifford, Robert John, M.M.

The University of Arizona, 1990
ASPECTS OF METER AND ACCENT IN SELECTED STRING
QUARTET MOVEMENTS BY BEETHOVEN AND BARTOK

by

Robert John Clifford

A Thesis Submitted to the Faculty of the
SCHOOL OF MUSIC
In Partial Fulfillment of the Requirements
For the Degree of
MASTER OF MUSIC
WITH A MAJOR IN MUSIC THEORY
In the Graduate College
THE UNIVERSITY OF ARIZONA

1990
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This thesis has been approved on the date shown below:

J. Timothy Kolosick
Professor of Music

Date
ACKNOWLEDGMENTS

I would like to express my appreciation to Dr. Kolosick for his support and encouragement during my course of study. His assistance in the writing of this thesis has been invaluable. Also, many thanks to Dr. Murphy for his support and guidance in my academic endeavors. Finally, I would like to express my appreciation to my wife Cathy, without whose support and encouragement this thesis could not have been written.
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ABSTRACT

Various approaches to rhythmic analysis have been produced by recent research. Many of these are most suitable for tonal musical compositions; when other methods of tonal organization are present, these theories are less useful. This study uses accent based criteria in order to establish a set of analytical procedures which are applicable to a wide range of musical compositions. Four accent types (contour, agogic, dynamic, and motivic) are identified in two string quartet movements. These are Beethoven's Op.18, No.1, movement four, and Bartok's String Quartet No.4, movement five.

The study finds great differences in accent placement between the two works. In both works accents affect phrase grouping and meter. Accent patterns and composite accent profiles, which represent all the accent types in a particular passage, are compiled for important themes. Large fluctuations in accent use are evident between the formal sections of each work.
CHAPTER ONE
INTRODUCTION AND INTENT OF STUDY

Recent research has produced a variety of approaches to meter and rhythmic analysis. Some theorists prefer broad definitions of rhythm and include numerous musical elements as contributors to the overall rhythm of a composition. These elements include tempo, changes in density, harmonic rhythm, and metric grouping. Rhythm has also been defined very narrowly as the grouping of accented and unaccented notes into units of two or three notes based on their musical relationship to each other.

Other rhythmic theories suggest that events in the middleground levels of harmonic structure are important organizing factors. According to these theories, a harmonic prolongation or important melodic progression exerts a strong influence on the rhythmic foreground. Many parts of these theories are most applicable to the harmonic and melodic structure of tonal music. When these harmonic functions are absent, the usefulness of these theories is substantially decreased.

One point of agreement among these theories concerns those accents which occur regularly within the meter of a composition. Metric accents, unlike the elements discussed above, do not require a musical event to occur. Once a meter is established, metric accents can occur during
periods of silence, i.e., during rests. This suggests that these accents are a psychological phenomenon in the mind of the performer and listener.¹

Before this phenomenon can occur, a meter must be established by accents which are a result of the composer's organization of sounds. In *The Rhythmic Structure of Music*,² Grosvenor Cooper and Leonard Meyer describe these composed accents as notes that are "marked for consciousness in some way."³ When these accented notes are in strong metric position, they establish and support the notated meter. This study will focus on these accents which are a result of the compositional process.

**Contrast of Rhythmic Theories**

Joel Lester, in *The Rhythms of Tonal Music*,⁴ defines rhythm as the "durational aspect of music." Within his definition of rhythm he specifies smaller elements which contribute to rhythmic organization, one of which is accent. He calls accents "points of initiation" because the phenomenon occurs at the beginning of a musical event.


³Ibid., 8.

⁴Lester, 1986.
A variety of different events can cause an accent, such as dynamic stresses, notes of longer duration than those which precede them, and changes of timbre or register. These events cause the notes associated with them to be stressed relative to their musical context.

Wallace Berry, in *Structural Functions in Music*, also defines rhythm broadly and includes accent as an element within it. Berry states that changes to a faster tempo, pronounced pitch change, a change to a denser texture, and harmonic rhythm all cause accents and contribute to the ordering of pitches into metric associations.

The effectiveness of many of these composed accents is often independent of harmonic or melodic characteristics. A note which is accented because of longer duration or added dynamic stress will be so whether or not it is in a tonal setting. This is not to say that these accents are not enhanced by harmonic characteristics (e.g., a note of long duration that is also a suspension) but they do not entirely depend on them.

In contrast to this, rhythmic theories based on the theoretical principles of Heinrich Schenker place great importance on tonal characteristics as a basis for explaining metric organization. Schenker describes three

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levels of musical structure. The background level contains the fundamental harmonic structure upon which a composition is based, while the foreground level comes closer to a representation of the complete composition. The middleground contains intermediate levels of structure between the background and foreground.

Maury Yeston, in *The Stratification of Musical Rhythm*,\(^6\) suggests that these middleground harmonic structures interact with the basic pulse to create meter. In his analysis of the fifth of Bach's *Twelve Little Preludes*, he identifies the recurring \(d^1\) on the first beat of each measure as the third middleground level (C, figure 1).

\[ \text{Fig. 1. Middleground Levels, Bach}^7 \]

---


\(^7\)Figures 1 and 2 copyright by Maury Yeston, 1976.
The first middleground level (A) is the arpeggiation of the tonic triad. Yeston explains that these two levels, A and C, interact to establish and justify the 3/4 meter.\(^8\)

If figure 2 is analyzed by identifying accents defined by both Lester and Berry, a different interpretation results. The beginning of each three note pattern would cause a motivic accent, and the prominent melodic contour of the leap to the second eighth note in the pattern produces an accent on that note (figure 2).

![Motivic Accents](image)

![Contour Accents](image)

Fig. 2. Motivic, Contour Accents, Bach

The combination of motivic and contour accents places an emphasis on the first two notes of each three note group. This results in a weaker position for the third note (compared with Yeston's interpretation) and suggests a grouping more appropriate to a 6/8 meter. This reveals a metric conflict in this example. In Yeston's view, the middleground arpeggiation of the tonic triad is important in establishing the metric grouping. When the motivic and contour accents are considered, a grouping results which

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\(^8\)Yeston, 68-70.
places more emphasis on events within the musical texture.

Analyses based on such accent criteria can achieve results even when harmonic structures are not present. Howard Smither, in his article "The Rhythmic Analysis of 20th-Century Music,"\(^9\) suggests that the personal element of interpretation can interfere with an objective rhythmic analysis. In order to minimize this element, his analytical technique is based on an examination of notated accents of "length, intensity, timbre, harmonic progression, and melodic change of pitch."\(^10\)

Smither's method of analysis produces interesting results. In one of his examples, notes of longer duration than those around them (agogic accents) are ranked in intensity by expressing their length relative to the adjacent notes. This gives a series of numerical proportions by which to determine their importance to the rhythmic organization of the piece. By basing his analysis on the accentual properties of agogic accents, he avoids a dependence on harmonic characteristics.

When determining suitable criteria with which to analyze music which uses contrasting principles of tonal organization, consideration must be given to the applicability of the theories discussed above. The principles


\(^10\)Smither, 61.
expressed by Yeston are useful when applied to tonal music, but less so when atonal or extended tonal characteristics are present. The same is true when using theories of harmonic rhythm, which require that chord progressions based on functional harmony be present in a work. A criterion based on accent is not dependent on the presence of tonal characteristics and as such is suited for application to music where clear harmonic functions might not be present.

**Intent of the Study**

The intent of this study is to analyze two works, one with clear functional harmony and one which uses other methods of tonal organization, using an analytical technique based on the examination of certain composed accents. The methodology will be drawn from the theories discussed above and will be applied to movement 4 of Beethoven's Op.18, No.1, and movement 5 of Bartok's Fourth String Quartet.

The finales from these Beethoven and Bartok works were chosen for analysis for several reasons. The two meters are the same, and both movements use primarily an eighth note subdivision. Both composers use melodic sequences, motivic fragments, and imitative passages, all of which affect patterns of accent.

Though similar in meter and texture, the movements differ in their harmonic language. Beethoven's Op.18, No.1 contains the functional harmony typical of the Classical
period. In contrast, Bartok's Fourth String Quartet is thought to be structured with symmetrical "cells" or sets of pitches.\textsuperscript{11} By applying analytical techniques that do not depend on the presence of specific tonal characteristics to determine rhythmic organization, comparable results can be achieved despite the differences in harmonic language in the two works. The study will concentrate on each composer's use of accent within the musical texture. These accents will be identified and analyzed to determine their contribution to rhythmic organization.

CHAPTER TWO

THE ANALYTICAL PROCESS

The first step in the analytical process is to identify notes which are accented within the selected works according to specific analytical criteria. Accents considered in this study are categorized into four groups. These are:

1. Contour accents (c)
2. Agogic accents (a)
3. Dynamic accents (d)
4. Motivic accents (m)

Letters in parentheses are the abbreviations by which these four accent types will be identified in charts and tables. Because both movements under discussion feature a 2/4 meter with eighth note subdivision, the four eighth notes in each measure will be referred to as subdivisions one through four.

Contour Accents

Contour accents are created when a change of direction occurs in a melodic line. The notes associated with these changes are accented because of their prominent position in the melodic contour. Lester considers these accents to be "points of initiation"\(^1\) because they begin a new melodic

\(^1\)Lester, 33.
direction. Theoretically, every change of direction causes this type of accent, but some are more prominent than others. A contour accent which occurs in a high register can be easily perceived because it is less likely to be obscured by accompanying voices. A note approached by an ascending leap will also result in a prominent contour accent.²

An analysis of every contour accent in a movement might include many that are insignificant. In order to include accents which make a definite contribution to the rhythm, only those caused by an upward leap of a third or more followed by a melodic change of direction have been included in the analysis (figure 3).

The leap and resolution must occur in a continuous melodic line unbroken by rests. Contour accents have been analyzed in all melodic lines. Although an Alberti style bass line would seem to cause continuous contour accents, the rapid alternation tends to neutralize the effect and for

²Berry, 339.
³Beethoven examples copyright E. Eulenburg, 1970.
this reason has not been included for analysis.\(^4\) When a melodic line is doubled or harmonized below, only contour accents in the upper line have been considered.

The primary focus is contour accents in melodic lines, but two exceptions are made. In figure 4, the second of each group of three notes leaps a large interval. Even though these are accompanying lines, they are prominent because they contain the highest sounding pitches for much of this section and function similar to a melodic line. Because of this, the highest pitch in each three note group has been analyzed as a contour accent.

Fig. 4. Contour Accents, Bartok, m. 106-108\(^5\)

The other exception is shown in figure 5. In this case, the large leap followed by the long unbroken descending line distinguishes this accompanying line from the alternation of an Alberti bass or arpeggiated chord. For this reason, the note which initiates this line has been analyzed as a contour accent.

\(^4\)Lester, 35.

\(^5\)Bartok examples copyright Boosey & Hawkes, 1956.
analyzed as a contour accent.

![Fig. 5. Contour Accents, Beethoven, m. 166-169](image)

**Agogic Accents**

An agogic accent occurs on notes of longer duration than their predecessor(s), shown in figure 6.

![Fig. 6. Agogic Accent, Beethoven, m. 215-219](image)

According to Lester, the effect of this accent is retroactive, since at the attack point of the longer note, the listener has no way to determine its length. Only after its length exceeds that of the previous note is it perceived as accented. Each time a particular composition is heard, the patterns of duration become more familiar, and the agogic accents become more effective.\(^6\)

These accents occur in a variety of musical contexts.

\(^6\)Lester, 3.
In figure 7, a series of grace notes causes an agogic accent on the following note of longer duration.\(^7\)

![Fig. 7. Agogic Accents, Bartok, m. 151-155](image)

Syncopated notes create another type of agogic accent. In this situation the accented note is not necessarily longer than the previous one, but each is accented because its duration exceeds the length of the metric pulse on which it begins (figure 8).\(^8\)

![Fig. 8. Syncopation, Beethoven, m. 175-177](image)

Agogic accents can be effective in either melody or accompaniment. A longer note on a downbeat in accompanying voices can do much to confirm the existing meter since it would probably agree with the metric pulse. Similarly, a syncopated note in a melodic line can also be effective in contradicting that meter.

---

\(^{7}\) Berry, 342.  
**Dynamic Accents**

Dynamic accents are perhaps the simplest to identify. They are sudden dynamic stresses indicated by the composer, such as single accent and marcato markings.

![Dynamic Accents, Bartok, m. 316-317](image)

Fig. 9. Dynamic Accents, Bartok, m. 316-317

Indications for larger sections (e.g., a passage marked marcato) have not been included in the analysis since their use is considered to set a norm against which other accents occur.

Other types of sudden dynamic change also cause this type of accent. The most obvious is the entry of a section marked forte immediately adjacent to one marked piano. The reverse, shown in figure 10, also creates an accent, since the sudden piano is contrary to the listener's expectations and therefore "marks" the note.

![Dynamic Accent, Beethoven, m. 131-133](image)

Fig. 10. Dynamic Accent, Beethoven, m. 131-133
Gradual dynamic changes, such as in the first two measures of figure 10, do not cause this type of accent and have not been analyzed as such.

**Motivic Accents**

Motivic accents are associated with the entry of a prominent motive or sequence.

![Motivic Accents, Bartok, m. 162-65](image)

Fig. 11. Motivic Accents, Bartok, m. 162-65

A melodic sequence, as shown in figure 12, produces a motivic accent at the beginning of each repeated pattern.

![Motivic Accents, Beethoven, m. 23-24](image)

Fig. 12. Motivic Accents, Beethoven, m. 23-24

Motivic accents are unlike the other three accent types because they do not occur through rhythmic performance, but come about through the listener's recognition of melodic
units. When a composer introduces a motive, he is providing musical information to the listener. When that information returns in another line or later in the composition, its familiarity causes the entrance to be "marked." Such musical experiences include hearing a fugue subject appear in other voices after its initial introduction or listening to a work that makes use of much motivic repetition, such as the first movement of Beethoven's Fifth Symphony.⁹

According to Lester, the entries shown in figures 11 and 12 result in accents, as does the entrance of any voice after a silence.¹⁰ As with agogic accents, familiarity with a work increases the effect of these accents. For this study, only entries of prominent motives, themes, or melodic sequences will be considered accented. These include the first note of a theme or motive which enters after a silence, or the initial note of each repeated sequential pattern.

Accent Simultaneities

Often two or more accents occur simultaneously on the same beat. An agogic accent can be very effective by itself, but is more prominent when another type of accent occurs simultaneously in the musical texture (figure 13).

⁹Lester, 30.
¹⁰Ibid., 30, 37.
For purposes of calculating accent totals in this study, each accent type is counted and categorized separately, whether or not they occur simultaneously with another accent type. Accent simultaneities are recorded separately and noted where significant amounts occur.

**Accents in Musical Context**

The accents discussed above must be placed within the context of a complete musical entity. Without the different accents, changes in pitch, patterns of durations, and all the elements that contribute to rhythm, music would be an "uninterpreted (i.e., without internal accents) and monotonous pattern, unsegmented and presumably of little rhythmic significance."\(^1\)

For example, imagine a continuous series of eighth notes, all equidistant and all the same pitch and timbre. It is difficult to impose any type of grouping on such notes. Now consider figure 14.

\(^{11}\)Yeston, 35.
At first glance all notes appear to be equally stressed. But notice the slight changes in pitch which occur. Also, the barlines and note beaming implies a certain metric organization. Now consider figure 15.

As they were in figure 14, the notes are of equal duration, but their interpretation differs. There are now leaps to different pitches, and the harmonic changes occur on the second eighth note rather than the first. The
recurring dynamic accents impose a sense of order which corresponds to the harmonic changes but conflicts with the metric grouping implied by the barlines. Note also the grouping implied by the beaming and the point of change from a four to a three voice texture. All these elements create rhythmic sub-patterns and contribute to the interpretation of the musical information present.

Accent Tabulation

When analyzing a musical composition, it is necessary to take into account accents present in all contributing voices. Each line contains its own sequence of accents which combines with those of other lines present to create accent patterns associated with the complete musical experience.¹²

The method of tabulation to be used in this study is as follows:

1. When an accent occurs in an independent line, even if it is doubled or harmonized by other voices, it will be considered as one accent.
2. If more than one line contains musical material that makes it function as a single entity, an accent that occurs in those lines will also be considered as one

¹²Lester, 256.
accent. For example, in figure 15, one dynamic accent is counted on the second subdivision of each measure.

3. When all accents in a passage have been determined by this method, the combination of all accents present produce the pattern associated with the passage.

It is important to point out that this study does not attempt to establish relative values of intensity for the different accent types. For example, is one dynamic accent equivalent to the intensity of two agogic accents? These levels might possibly vary with every performance and would be extremely difficult to determine. This study only locates occurrences of these accent types and comments upon their effect on musical rhythm.

Accent Patterns

Once all the accents have been counted for a passage, a pattern of accents becomes clear which is associated with that particular passage. In this study, the term accent pattern will refer to these distinctive patterns which are created by the musical texture of the passage.

To demonstrate this, note the passage in figure 16. Each of the three motives cause an accent when they enter. The third eighth note in each of the repetitions causes an agogic accent, and the $e_b^3$ in the third measure results in a contour accent.
There are also agogic accents in figure 16 caused by the syncopated quarter notes in the viola line. Since this is heard simultaneously with the upper voice, the two accent patterns are integrated into one. Finally, the first quarter note in all voices in the fifth measure causes an agogic accent. All these elements combine to form an accent pattern that is associated with this particular passage (figure 17).

![Diagram of Beethoven's music notation for measures 247-252 with agogic accents indicated.]

**Fig. 16. Accents, Beethoven, m. 247-252**

**Fig. 17. Accent Pattern, m. 247-252**
Composite Accent Profiles

At times it is advantageous to represent an accent pattern in a different manner. A composite of the pattern is compiled to indicate only where stresses occur relative to their location in a measure. If two accents occur simultaneously, only one point of stress will be indicated on that subdivision. To illustrate this, the composite accent profile for figure 16 is shown below (figure 18).

Fig. 18. Composite Accent Profile, m. 247-252

Since accents are points of initiation, eighth notes will be used to represent the point of emphasis, even if the accented note is sustained.

Variation of Accent Patterns

A motive or theme consists of a pattern of pitches and durations which is recognizable in the context of the composition. A pattern of accents is also associated with each motive, as shown in figures 17 and 18. Just as patterns of pitch can change when motives or themes are
varied, so can the patterns of accents which are associated with them.

Figure 19 shows the accent pattern associated with a particular theme.

![Image of Figure 19: Accent Pattern, Bartok, m. 15-18]

Fig. 19. Accent Pattern, Bartok, m. 15-18

But themes are heard in a variety of musical contexts throughout a composition. This can mean a change in the accent pattern that we associate with them. For example, the theme in figure 19 is initially accompanied by a strong ostinato with a distinctive pattern of accent (figure 20).

![Image of Figure 20: Theme and Ostinato, Bartok, m. 15-18]

Fig. 20. Theme and Ostinato, Bartok, m. 15-18
We associate the combination of the two patterns with the theme in this particular setting. As the movement unfolds, this theme is presented in a variety of different contexts, each of which combines its own unique pattern of accents with that of the theme.

Evaluation of Data

The data is evaluated with the following steps:

I. Number and Metric Position of Each Accent Type

Each accent is categorized according to its type and position in a measure. This yields information about the total number and typical placement of each type of accent, and will reveal which subdivisions tend to be accented. This data is then applied to specific musical examples to illustrate its relationship to the metric organization of the movement.

II. Accent Patterns

The data is then applied to important themes and motives within the movements. Often a slight rhythmic change in the accompaniment will cause a melody to be perceived differently, even though the pitches remain the same. By examining an important theme or motive throughout a movement, changes in accent patterns and composite accent profiles can be compared and evaluated.
III. Accent Use Within Formal Sections

Data concerning the use of these accents is assembled and compared within the boundaries of the formal divisions. In order to yield comparable data despite the differences in length of these formal sections, the number of measures in each section is divided by the number of accents of each particular type in that section. This distributes the number of accents equally over the section and results in a figure which represents average frequency of use expressed in terms of number of measures between accents. A high number indicates a large number of measures between accents and therefore a low frequency. Similarly, a low number represents less distance between accents and a higher frequency of use.

It would be erroneous to assume that these four accent types are the only elements which affect musical rhythm. There are many more, such as changes in density or timbre, but an attempt to analyze all types of accent and their effect on rhythm is beyond the scope of this thesis. The analysis of these two works in terms of the accent types outlined above will give insight into their rhythmic construction in comparable terms, despite their differences in tonal language. It will also establish a basis for further work in this area of study.
CHAPTER THREE
BEETHOVEN'S OP.18, NO.1, IV

Historical Background

When Beethoven wrote the Op.18 quartets, he had already written several chamber works, among them the three trios for piano and strings (Op.1), and the two sonatas for piano and cello (Op.5). Sketches for the six quartets were begun as early as 1794, although the finished works were not published until 1801.

The Op.18 quartets display the "energy and confidence of a youthful vitality" and have been described as an "extension and intensification" of the quartets of Haydn. It is also said that this opus represents a "summing up" of the Classical string quartet. Op.18, No.1 is a complete reworking of an earlier version, and perhaps for this reason is "the most varied in expression, and the most masterly in overall design" of the six quartets.

Michael Broyles writes of two styles associated with

---


the Classical genre at the end of the eighteenth century. One was the sonata style, characterized by an attention to detail and a high level of elaboration. Cadences were clear, and were heard as definite divisions between sections. Melodic nuance and rhythmic subtlety were typical of this style.⁵

Also in widespread use was the symphony style. Melodies in this style tended to be simple and rhythmically active. The cadences were likely to overlap, and motivic activity generally contributed to the drive towards these cadences. Heinrich Koch wrote that the melodies of a symphony "must distinguish themselves through inner power and strength."⁶

In the 1790's, the symphony style became the predominant style, so much so that it was "synonymous with the high Classical style."⁷ During this period Beethoven maintained the use of both styles. In the Op.18 quartets, No.1 is written in the symphony style, while No.2 is closer to the sonata style. This pairing is common in Beethoven's early works of more than one composition.⁸

⁶Ibid., quote by Heinrich Koch, 14.
⁷Ibid., 39.
⁸Ibid., 47.
The first movement of Op.18, No.1 is based on a concise, rhythmic motive.

Fig. 21. Motive, Beethoven, I

This motive is used throughout the movement. It shares a rhythmic characteristic (the attack point rhythm of the final three notes) with the main theme of the finale. The second movement of the quartet is considered to be an example of Beethoven's Italianate style and was reported to be inspired by Shakespeare's Romeo and Juliet. This is followed by a scherzo similar in mood to the minuet of Beethoven's First Symphony.9

The final movement is a lively sonata rondo and is the focus of this chapter. Both the initial A and B sections return completely, and the C section is a contrapuntal development featuring a variation of the rondo theme and a contrasting inversion of a closing theme from the B section. The second A section is not a complete recapitulation of the first. Only the first twelve measures are from the opening section; the remaining measures are a transition. The final return of A is contained in the coda.

9 Radcliffe, 27.
Fig. 27. Form, Op.18, No.1, IV

**Metric Position of Accents**

In this movement Beethoven's use of accent both supports and contrasts with the 2/4 meter. When metric stability is desired, accent placement emphasizes subdivisions one and three. This establishes clear quarter note metric units. Subdivision two is often accented to create rhythmic tension by delaying the expected strong beat by one eighth note. Smaller shifts are also produced by accenting notes between the eighth note subdivisions.

1. Contour Accents

Contour accents appear consistently throughout the movement, except in the second A section, where there is only one occurrence in twenty six measures. They account
for 19.4% of total accents present. There is a high incidence of contour accents on subdivision two, and about 25% of them occur between the four subdivisions. Contour accents are used in this movement both to support and contradict metric grouping.

Subdivision 1...22.7%
Subdivision 2...26.6%
Subdivision 3...5.8%
Subdivision 4...20.1%
Other...........24.7%

Fig. 23. Contour Accents-% per Subdivision

In figure 24, the contour (and motivic) accents confirm the meter because of their placement on the downbeat of each measure.

Fig. 24. Contour, Motivic Accents, Beethoven, m. 67-68

In figure 25, the melodic contours contrast with the metric pulse by creating conflicting patterns of emphasis. A contour and dynamic accent emphasize the second subdivision of the measure, an accent placement which is
typical for this movement. In the latter two measures, melodic contours accent the second, fourth, sixth, and eighth sixteenth notes of each measure.

Fig. 25. Contour Accents, Beethoven, m. 71-74

The strong contour accent combined with the dynamic accent (and agogic in the viola) does not agree with the 2/4 meter because the strongest emphasis occurs on subdivision two, not on the downbeat. The contour accents in the latter two measures also contradict the meter because of their placement between the eighth note subdivisions. The accents suggest two patterns of emphasis, both of which contrast with the expected metric pulse.

The contour accents in figure 26 also create rhythmic tension, due to their position between the subdivisions. The triplet passages produce motivic accents on the downbeat, followed by prominent melodic contours.
The triplets represent a quickening of rhythmic activity compared to the sixteenth notes which precede them. The contour accents occur at regular one measure intervals, but they are not synchronized with the metric pulse, as are the other lines. The increase of motion and slight disagreement with the metric pulse result in rhythmic tension which is finally resolved on the downbeat of the penultimate measure of the movement.

2. Agogic Accents

Agogic accents account for 41.4% of the total accents present in the movement. Their position in an average measure is most often on subdivisions one and three.
Subdivision 1...56.5%
Subdivision 2...9.7%
Subdivision 3...26.4%
Subdivision 4...7.3%

Fig. 27. Agogic Accents-% per Subdivision

Often in this movement, agogic accents provide metric stability in important themes. For example, a recurring agogic accent is found in the rondo theme, shown in figure 28. After a mostly descending line of triplets, an eighth note follows on the downbeat of the next measure.

![Fig. 28. Rondo Theme, Beethoven, m. 1-4](image)

This eighth note causes an agogic accent, and when combined with the motivic accent present on the initial note of each motive, an alternation of these two accents occurs which emphasizes each downbeat. This accent pattern is associated with this theme throughout the movement and helps establish a firm 2/4 meter in the opening measures.

In the theme from the B section, agogic accents occur on each downbeat, shown in figure 29.
Often agogic accents combine with those in another line to produce metric support.

In figure 30, agogic accents occur in the upper line on each downbeat until the last measure, where they occur on subdivisions one and three. They occur in the lower line on subdivision three of each measure. The accents of both lines combine to form a pattern of accent which emphasizes the quarter note metric unit.

Figures 28, 29, and 30 illustrate the use of agogic accents to support the meter, but these accents are also used in this movement to create rhythmic tension. The syncopated note in the cello line, figure 31, contrasts with the 2/4 meter because of its position on subdivision two.
This agogic accent is especially prominent because of the dynamic accent which occurs simultaneously with it.

Fig. 31. Agogic Accents, Beethoven, m. 109-112

This emphasis on subdivision two is typical of Beethoven's use of accent in this movement. The accented entries of the upper lines, at quarter note intervals, agree with the meter, since they coincide with the quarter note metric units. This is not true of the agogic accent on subdivision two. It is in conflict with the meter and with the three accented entries of the upper instruments as well. Had the agogic accent occurred on the downbeat, the distance between all four accented notes would have been equal and in agreement with the meter of the movement.

3. Dynamic Accents

Dynamic accents account for only 8.3% of the total
accents analyzed, and are heard simultaneously with other types 72.7% of the time. This suggests that Beethoven uses dynamic accents to support other accent types in this movement. The percentage of use on subdivision one is roughly twice that of subdivision three. They occur almost as often on subdivision two as one, infrequently on subdivision four, and never between the eighth note subdivisions.

Subdivision 1...39.4%
Subdivision 2...36.4%
Subdivision 3...21.2%
Subdivision 4...3.0%

Fig. 32. Dynamic Accents-% per Subdivision

In this movement, dynamic accents often emphasize a prominent entry. In figure 33, the entries of the subject and countersubject are accented with sforzandi. In addition to the emphasis on the entries, a sforzando also accents the downbeat of the third measure. Note that all accents support the meter in this example.
Dynamic accents are used in figure 34 to emphasize a change of texture.

The sudden change to forte (from piano) is followed by an agogic accent on the downbeat of the next measure, which is made more prominent by the sforzando occurring simultaneously with it. This provides a dramatic emphasis for the unison scale passage which follows.

4. Motivic Accents

Motivic accents account for 30.9% of the total accents present. The metric placement of motivic accents is
similar to that of agogic accents. They occur primarily on subdivisions one and three; the total on the downbeat is almost three times that on subdivision three.

Subdivision 1...66.1%
Subdivision 2...2.0%
Subdivision 3...22.9%
Subdivision 4...4.1%
Other..........4.9%

Fig. 35. Motivic Accents-% per Subdivision

Because of their placement on subdivisions one and three, motivic accents provide strong metric support. In figure 36, a four note motive is repeated every two measures. Each of these is accented.

![Motivic Accents, Beethoven, m. 253-256](image)

Fig. 36. Motivic Accents, Beethoven, m. 253-256
Note also in figure 36 the entry of the answering motive in the viola. Because of its exposed position in a new timbre, it also produces a motivic accent, which occurs simultaneously with the agogic accent at the end of the sequential motive. Together the motivic accents form a quarter-quarter-half note grouping which emphasizes each downbeat.

This type of accent also occurs in this movement due to fragmentation of larger motives. In figure 37, the final three notes of the rondo theme are separated and repeated. Even though some are inverted, they are still recognizable as a fragment of the theme and each results in a motivic accent.

Fig. 37. Motivic Accents, Beethoven, m. 103-107

The composite rhythm here consists of continuous eighth notes. But this example occurs in a transition section and, due to its texture, sounds rhythmically active. The regular
pattern of motivic accents (and the recurring rests) contribute to this activity. Note again the strong metric support.

In this movement, motivic accents occur most frequently on subdivisions one and three, but they create rhythmic tension when placed between the eighth note subdivisions. In figure 38, a sequential motive (see figure 36) is presented in the first measure. In the second and third measures the initial note of this motive is omitted.

![Fig. 38. Motivic Accents, Beethoven, m. 274-276](image)

This causes the motivic accents to be delayed by one sixteenth note compared to those in the first measure. The original distance between each accent is maintained but it no longer agrees with the metric grouping present in the first measure.

In summary, Beethoven makes use of all four accent types to support the 2/4 meter in this movement. Motivic and agogic accents most often contribute to this stability because of their frequent position on subdivisions one and three. When rhythmic tension is desired, accents appear frequently on subdivision two or less frequently between the
eighth note subdivisions. Accents in strong metric positions within important themes contribute greatly to rhythmic stability in the movement.

**Accent Patterns**

When a composer uses a recurring theme in a composition such as a rondo movement, there is the danger that the theme might become less interesting to the listener as the movement proceeds. Many variation techniques are available for avoiding monotony, such as diminution, inversion, and transposition. Even if the melody itself is repeated verbatim, the musical context in which it is heard can be changed or made more interesting harmonically or rhythmically.

In developmental sections, variation techniques are also used, often to create interest or to build to a climactic point in the composition. A motive can be fragmented and repeated, or phrases can be reduced to shorter and shorter lengths.

The use of these techniques to create variety and interest can also affect accent patterns present in the work, resulting in much rhythmic diversity. A change in accompanying voices will affect the context in which a theme is perceived, since the accents for the theme and accompaniment will combine to form a new entity. Similarly, a small shift of a dynamic or agogic accent can increase
rhythmic tension.

The first two measures of the rondo theme are repeated many times throughout the movement. In its initial form, the accent pattern associated with it is quite simple, an alternation of motivic and agogic accents (see Fig. 28). The second time the theme is heard, shown in figure 39, a fragment of the theme causes a motivic accent when it enters. This changes its accent pattern, adding new rhythmic activity to the texture.

![Fig. 39. Rondo Theme, Beethoven, m. 9-12](image)

When the theme reappears in a retransition to the third A section, it is presented in a four-voice texture and its accent pattern is slightly altered by two agogic accents in an accompanying line (figure 40).
When the rondo theme returns in the coda, it is combined with a new theme, shown in figure 41. The first two measures of this appearance create the same accent pattern as the initial appearance of the rondo theme, due to the sustained notes in the new theme. In the second two measures a strong accent occurs when dynamic, agogic, and contour accents occur simultaneously in the new theme. This combines with the pattern of alternating motivic and agogic accents associated with the rondo theme.

![Fig. 40. Rondo Theme, Beethoven, m. 219-220](image)

![Fig. 41. Rondo Theme, Beethoven, m. 350-353](image)
In its final appearance of the movement, shown in figure 42, the rondo theme is combined with only the first two notes of the new theme appearing in figure 41. Since the lines are continuous here, the melodic leap to the first note of the themes produces a contour accent (violin I) in addition to the motivic accent which results from the introduction of the theme.

![Fig. 42. Rondo Theme, Beethoven, m. 358-362](image)

When the rondo theme occurs the second time, it is accompanied by a repeated fragment of itself. The strong accent simultaneity associated with the complete version of the new theme is no longer heard.

Despite the increased accent activity, all the versions of the rondo theme shown above maintain regular accents on the downbeat of all four measures. The original alternation of motivic and agogic accents is always present. Even though the melodic characteristics of the theme remain the
same, this variety maintains the listener's interest as this familiar thematic material appears in new musical contexts.

The variation of accent patterns occurs with other themes in this movement. The C section begins with the introduction of a new theme in d minor. A variation of the rondo theme is presented with it as a countersubject. These themes, shown in figure 43, produce an accent pattern which varies as the section progresses.

Within this pattern is a smaller sequence of accents (in brackets) which will be referred to as accent motive X. As the large pattern changes, this accent motive remains relatively constant and can be identified throughout the section. Note that accent motive X is a product of both melodic lines.

![Fig. 43. Accent Pattern, Beethoven, m. 117-121](image)

When the themes enter the second time, a slight change in the accent pattern occurs, shown in figure 44. The early entry in the fourth measure adds emphasis to the accent
pattern. Motive X remains unchanged.

Fig. 44. Accent Pattern, Beethoven, m. 121-125

The third appearance of these subjects, figure 45, is again slightly different. Now thematic entries occur after a half measure, causing motivic and dynamic accents. Motive X is still present but another agogic accent, on subdivision two in the lower instruments, is added to it.

Fig. 45. Accent Pattern, Beethoven, m. 129-132
In the three examples above, the pattern of accent changes slightly. Each phrase remains four measures long but is changed enough to alter the rhythmic perception of it. Only the last, in figure 45, contains an accent which contrasts with the metric pulse.

When the composite accent profile is compiled for figure 45, it shows strong metric support. Only the accent on subdivision two of the third measure breaks the pattern of support.

Fig. 46. Composite Accent Profile, m. 129-132

These entries, in the order presented, build to a climax which is followed by a quiet presentation of a closing theme from section B. After this, the development of this theme continues. In the climax of this second development area, a fragment of the subject is repeated at half measure intervals, shown in figure 47.
The composite accent profile for this passage reveals rhythmic tension. Only two of the downbeats are accented, and the repetitive fragment produces emphasis on subdivision two of each measure. Note that the pattern of emphasis in this profile can be grouped into two-measure units.

Accent activity has increased greatly compared to the beginning of this section (figure 43). As the climax approaches, accents contribute to rhythmic interest by occurring more frequently and by regularly emphasizing subdivision two.
Accent Use Within Formal Sections

Beethoven's use of accent is strongly linked to metric stability in this movement, but the four accent types are not equally present throughout. Accent use varies greatly as a result of changes in character and texture in each section. Because of this, certain areas (e.g., transitions and developments) tend to contain high levels of accent use. Figure 49 shows the average frequency of the four accent types within the formal divisions of the movement.

<table>
<thead>
<tr>
<th>Section</th>
<th>Contour</th>
<th>Agogic</th>
<th>Dynamic</th>
<th>Motivic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>A 1-42</td>
<td>25</td>
<td>1.7</td>
<td>32</td>
<td>1.3</td>
</tr>
<tr>
<td>B 43-90</td>
<td>33</td>
<td>1.5</td>
<td>53</td>
<td>0.9</td>
</tr>
<tr>
<td>A 91-116</td>
<td>1</td>
<td>26.0</td>
<td>19</td>
<td>1.4</td>
</tr>
<tr>
<td>C 117-234</td>
<td>19</td>
<td>6.2</td>
<td>111</td>
<td>1.1</td>
</tr>
<tr>
<td>A 235-278</td>
<td>29</td>
<td>1.5</td>
<td>32</td>
<td>1.4</td>
</tr>
<tr>
<td>B 279-326</td>
<td>33</td>
<td>1.5</td>
<td>53</td>
<td>0.9</td>
</tr>
<tr>
<td>A 327-381</td>
<td>13</td>
<td>4.2</td>
<td>29</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Column A-Total Accents
Column B-Average Number of Measures Between Accents

Fig. 49. Average Accent Frequency, Op.18, No.1, IV
Of the four types, agogic and motivic accents are most consistently present throughout the movement. The average distance between agogic accents varies only by one measure, from a low of .9 (and therefore a high use) to a high of 1.9. Motivic accents also show little fluctuation in average frequency.

When examining the presence of these two types in the complete movement, a consistent pattern is apparent. If the central C section is considered an axis, the frequencies for these two types are roughly symmetrical in relation to it. Note that this does not always hold true with the accent totals, since the length of each section is factored into the rate of average frequency.

Contour and dynamic accents are less consistently present in the movement. Both types show fairly large fluctuations in average frequency between formal sections and neither exhibits the symmetrical pattern noted for agogic and motivic accents. Note the high frequency of dynamic accents in the second A and C section, due to the many accented imitative entries which occur there.

The data in figure 49 shows that the average frequency of the four types of accents can fluctuate greatly within the formal boundaries of the movement. But there are even greater fluctuations between smaller divisions of the formal sections. In this movement these smaller sections are usually delineated by textural or thematic changes.
The highest frequency of dynamic and motivic accents occurs in the second A section. This section begins with the rondo theme, and the first 12 measures contain the metric stability of the initial measures of the movement. But this is followed by a transition to the C section, and accent frequency changes greatly (figure 50).

<table>
<thead>
<tr>
<th>Measure</th>
<th>Contour</th>
<th>Agogic</th>
<th>Dynamic</th>
<th>Motivic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>91-102</td>
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<td>12.0</td>
<td>11</td>
<td>1.1</td>
</tr>
<tr>
<td>103-108</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>109-116</td>
<td>---</td>
<td>8</td>
<td>1.0</td>
<td>9</td>
</tr>
</tbody>
</table>

Column A-Total Accents
Column B-Average Number of Measures Between Accents

Fig. 50. Accent Frequency, Second A Section, m. 91-116

(--- means no accent present in this category)

In the first part of the transition (m.103-108) only motivic accents occur, but at the highest average frequency of the entire movement. This is due to the motivic fragmentation and repetition that occurs there (see figure 37). In measures 109-116, dynamic accents occur at their highest frequency of use as a result of imitative entries accented with sforzandi (see figure 31). Accents in this
section also create metric instability by emphasizing subdivision two. Since this transition follows the rondo theme (with its pattern of accent on each downbeat), this high level of accent activity provides great contrast and a preparation for the rhythmically active C section.

The highest average frequency of contour and agogic accents occurs in the latter part of the B section. This smaller section, measures 71-90, is divided into two parts, as shown in figure 51.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Contour</th>
<th>Agogic</th>
<th>Dynamic</th>
<th>Motivic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>71-78</td>
<td>20</td>
<td>.4</td>
<td>6</td>
<td>1.3</td>
</tr>
<tr>
<td>79-90</td>
<td>1</td>
<td>12.0</td>
<td>22</td>
<td>.5</td>
</tr>
</tbody>
</table>

Column A-Total Accents
Column B-Average Number of Measures Between Accents

Fig. 51. Accent Frequency, m. 71-90

In measure 71 to 78 the high incidence of contour accents is a result of the rapid sixteenth notes which are present there (see figure 25). These contour accents produce metric instability in these measures. In measures 79-90, agogic accents occur frequently. This is a result of their presence in two separate voices which together create
a regular pattern of accent on every quarter note (see figure 30). The metric instability of measures 71-78 is contrasted with the regular pattern of accent in measures 79-90, which prepares the listener for the entry of the rondo theme in measure 91.

The accent use in this movement provides strong support for the meter, but can also create rhythmic instability when the musical texture changes suddenly. These small areas contrast with those around them, and prepare the listener for changes of texture and accent which mark the boundaries of the large formal sections.

Findings

I. Metric Position of Accents

In this movement, accent use tends to support the conventional structure of 2/4 meter. More accents are present on subdivisions one and three, which suggests a strong beat/weak beat orientation. Of the other subdivisions, two is most often accented. Many times in this movement Beethoven uses various types of accent (frequently dynamic) to emphasize subdivision two. This causes the strongest beat in the measure to fall temporarily on subdivision two rather than the downbeat, which results in a grouping of notes that does not agree with metric grouping (see figures 15, 25, 31).
II. Accent patterns

In order to maintain interest in the themes of this movement, Beethoven changes the various settings in which they appear. Sometimes a countersubject or slight change in rhythmic emphasis (such as a syncopated note in the accompaniment) is added. By fragmenting themes, melodic familiarity is retained while accent activity is quickened.

Accent motive X is present in this movement and is associated with the theme in the C section. It remains intact through most of the section.

III. Accent Use Within Formal Sections

There are fluctuations in the consistency of accent presence between formal sections of the movement. The accent frequency of agogic and motivic accents exhibits a pattern of use throughout the movement which is roughly symmetrical. Sections of sudden texture change cause differences in accent use, and connect larger sections by providing rhythmic contrast with them.

In transitions, accent activity is high. Melodic contours are more uneven and in general more of the lines participate in the rhythmic activity in these sections. Sometimes in a transition section all four accent types will be present within a short time span (see figure 25).

The central C section also contains much accent activity. There is much imitative writing there, and
dynamic accents are often used to emphasize entries. This section also contains two buildups which make use of motivic fragmentation to increase rhythmic activity.
CHAPTER FOUR

BARTOK'S FOURTH QUARTET, V

Historical Background

The chamber works of Bartok, in particular the string quartets, are considered to be of great significance. Janos Karpati views the quartets as the "framework for the whole life-work."¹ Halsey Stevens writes that they mark "successive culmination points" in Bartok's career.² From a broad viewpoint, they are seen as "compress(ing) within themselves the most characteristic achievements of the first half of the twentieth century."³ The Fourth Quartet "marks the summit of his constructive genius."⁴

The Fourth String Quartet was composed in 1928. Bartok wrote it without the benefit of first hearing the Third Quartet, unusual since he considered this crucial to the compositional process.⁵ It is viewed as a tonal work in the sense that certain pitches are used as reference points. For example, the quartet is considered to be on (not in) C.

¹Janos Karpati, Bartok's String Quartets (Budapest: Corvina Press, 1975), 7.
³Karpati, 8.
⁴Stevens, 186.
The first and last movements feature this pitch in strong positions, but not as a tonic established by traditional harmonic function.

There are various interpretations of the compositional techniques used in the Fourth Quartet. One opinion is that Bartok employs "serial" techniques, not strictly, but in the sense that he "deploy(s) the twelve notes in a comprehensive and systematic way." For example, in the opening of the work there are several two- or three-bar segments from which smaller "scales" are derived. The first of these segments contains all but one of the twelve pitches of the chromatic scale.

Another view is that the quartet is composed with four-note "cells," X, Y, and Z, that are built around a

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6 Walsh, 5.
7 Ibid., 51-53.
symmetrical axis. These cells are used alone and also combined to form scales or larger symmetrical sets of pitches.  

![Fig. 53. Cells X, Y, and Z](image)

The quartet is structured in a five part cyclic form. The outer movements share the same thematic material, and the fourth movement is described as a "free variation" of the second. The slow third movement is the "kernel" of the work, and the others are the inner (II and IV) and outer (I and V) "layers" around it. The movements are also related by their general harmonic characteristics.

Movements I and II are chromatic in nature and are balanced by the more diatonic IV and V.

The finale, the focus of this analysis, shares thematic material with the first movement, but the themes do not have the same significance in both movements. The main theme of movement five is derived from a principal motive in the

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8Antokoletz, 69-72.

first movement, shown in figure 54.

![Fig. 54. Theme, Bartok, I, m. 7](image)

It has been suggested that this motive and its derivations show "Arab influence . . . in both the first and last movements," probably a result of Bartok's visit to Algeria in 1913.\(^{10}\) Further support for this idea lies in the driving ostinato, which accompanies the theme in the fifth movement. Accents group the ostinato into a 3+3+2 pattern, which is a typical Arabic rhythmic pattern represented in Bartok's collections from Algeria.\(^{11}\)

The theme in the second part of the fifth movement also comes from movement one, where it was a transition theme (figure 55).

![Fig. 55. Theme, Bartok, m. 41-42](image)

The principal motive (figure 54) appears in the fifth

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\(^{10}\) Karpati, 77.

\(^{11}\) Ibid., 78-79.
movement, but only in the second part. It does not dominate until the final nineteen measures, which is virtually identical to the end of movement one.

The finale is structured as a three part form with coda. Part one features a variation of the principle motive of movement one. In part two, the former transition theme appears, along with the principle motive from movement one. This is followed by what the composer calls a "free recapitulation" of part one. After this is the coda which contains the repetition of the ending of movement one.

152-237: Part Two. Theme appears, measures 156-163.
343-364: Transition.
365-392: Coda.

Fig. 56. Form, Bartok, Movement V

Metric Position of Accents

As shown by the analysis in Chapter Three, accent placement strongly influences metric organization. In the Bartok movement, metric support is less evident. Bartok's accent placement results in an even distribution over the

\[12\] Bartok, "Structure," 413.
four eighth note subdivisions and in many areas fails to produce a clear metric pulse. Accents produce a strong disruption of meter by suggesting phrase groupings which contrast with metric units.

1. Contour Accents

Contour accents account for 14% of the total accents present. Their position in a measure is more often on subdivisions one or three, but not by a significant percentage. The movement contains a fairly even distribution of contour accents among the four subdivisions.

<table>
<thead>
<tr>
<th>Subdivision</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subdivision 1</td>
<td>28.8%</td>
</tr>
<tr>
<td>Subdivision 2</td>
<td>23.7%</td>
</tr>
<tr>
<td>Subdivision 3</td>
<td>25.2%</td>
</tr>
<tr>
<td>Subdivision 4</td>
<td>22.3%</td>
</tr>
</tbody>
</table>

Fig. 57. Contour Accents-% per Subdivision

In this movement, the strong metric position of an accent can be made less effective by adjacent accents. In figure 58, a contour accent emphasizes the downbeat of the second measure. The entry of the theme produces a motivic accent, and there are agogic and dynamic accents on the last eighth note of the second measure. When the accents in the ostinato are considered, only two subdivisions in these
first two measures are unaccented. This combination does not provide metric support but instead is ambiguous.

Fig. 58. Contour Accent, Bartok, m. 31-33

Often contour accents emphasize metrically weak subdivisions. In figure 59, a contour accent appears at the beginning and end of the theme. These accents emphasize subdivision four of their respective measures. Only the agogic accent in the fifth measure emphasizes a downbeat.

Fig. 59. Contour Accents, Bartok, m. 62-67

In figure 60, a contour accent occurs on the second note of a repetitive motive. Due to the three note span of this motive, the contour accents do not regularly occur in strong metric positions.
As shown in figures 58, 59, and 60, contour accents do not always provide metric stability in this movement. When these accents are placed in strong positions, often other accents obscure their metric support.

2. Agogic Accents

Agogic accents account for the highest percentage of the total accents in the movement, 38.6%. Like contour accents, agogic accents are evenly distributed among the four subdivisions.

Subdivision 1...31.0%
Subdivision 2...25.5%
Subdivision 3...20.6%
Subdivision 4...22.9%

Agogic accents often produce rhythmic groupings which do not coincide with the barlines. In figure 62, the opening chords of the movement delineate a strong quarter note
pulse. This is altered by the tied notes in the third measure. These notes produce agogic accents and change the grouping from two quarter notes to three, causing a slowing of rhythmic activity and a disruption of the initial metric pulse.

Fig. 62. Agogic Accents, Bartok, m. 1-6

Part one of the movement contains a strong ostinato of continuous eighth notes, figure 63. The brief grace notes cause agogic accents on the following eighth notes. Note the increase in density and change of articulation which occurs simultaneously with the agogic accents.

Fig. 63. Agogic Accents, Ostinato, Bartok m. 76-77
These accents group the ostinato into a 3+3+2 pattern and create a two-measure unit. The initial downbeat is emphasized, but only the final two-note group could be placed within a quarter note pulse. This two-measure group often begins on other subdivisions, resulting in metric instability.

3. Dynamic Accents

Dynamic accents make up 26.1% of the total accents. They are heard simultaneously with other types of accents 74.2% of the time. As was evident in the Beethoven movement, dynamic accents are used here to provide support for other accent types. They most often appear on the downbeat, although the percentages show a fairly even distribution over the four subdivisions.

Subdivision 1...30.4%
Subdivision 2...25.4%
Subdivision 3...25.0%
Subdivision 4...18.8%
Other.......... 0.4%

Fig. 64. Dynamic Accents-% per Subdivision

Dynamic accents in this movement frequently establish rhythmic groupings. In figure 65, accents occur at the
beginning of each second group of sixteenth notes. The first two accents fall on the downbeats of their respective measures and set up a pattern of metric support. But the number of three-note groups increases by one each time, which causes the third accent to break this pattern of emphasis.

Fig. 65. Dynamic Accents, Bartok, m. 141-145

In figure 66, sforzandi emphasize the chords and establish a grouping of three eighth notes. When the texture changes, dynamic accents are present in the melody, but on subdivisions two and four. The accents strongly delineate these patterns of emphasis, but neither gives support to the 2/4 meter.
4. Motivic Accents

Motivic accents are 21.3% of the total number of accents. Their placement in the measure differs somewhat from the other categories because of the high percentage of accents on subdivisions two and four. This marks a striking difference in accent use when compared to the same category in the Beethoven movement. There, motivic accents occur predominantly on subdivisions one and three, and provide strong support for the 2/4 meter.
Subdivision 1...11.8%
Subdivision 2...35.4%
Subdivision 3...10.8%
Subdivision 4...39.2%
Other......... 2.8%

Fig. 67. Motivic Accents-% per Subdivision

In this movement, motivic accents often contribute to metric instability. In figure 68, motivic accents are produced by the short repeated motive. These accents (and the note beaming) suggest three-note units.

Fig. 68. Motivic Accents, Bartok, m. 102-104

Another grouping is implied by the accents in the accompaniment in figure 68. The contour accents in the viola line emphasize successive downbeats. This contrasts with the three-note groups initiated by the motivic accents.
and creates rhythmic tension.

Often in this movement, accents create several different phrase groupings simultaneously. In figure 69, the final notes of the main theme are separated and repeated, each one resulting in a motivic accent. The eighth note at the end of the motive causes an agogic accent. The alternation of these two accents suggests a grouping of three eighth notes (1).

Fig. 69. Motivic Accents, Bartok, m. 95-98

But there are other groupings also implied in figure 69. The motive is present in the lower lines, but it follows the upper motive by two eighth notes. The combination of the motivic and agogic accents in the upper and lower motives results in an accent on every eighth note (2). The motivic and agogic accents which occur
simultaneously also repeat every three eighth notes, which presents another possible grouping for this passage (3). None of these groupings regularly emphasizes the downbeat.

In summary, the accents in this movement often fail to delineate a regular metric pulse. Units of two measures are formed, but do not always function in support of the meter. Accents in the Beethoven example provided a strong sense of meter. Here, accents contribute to metric ambiguity.

Accent Patterns

In the Beethoven movement, themes were accompanied by an increase of accent activity as they were developed. These changes created new rhythmic perceptions of familiar thematic material. Bartok also uses familiar themes throughout the movement, but his approach differs. When themes are developed in this movement, they often appear in an imitative context. With each subsequent theme entry, accent activity increases due to the overlap with previous entries. This leads to the "integration of all the multiple accentuations" present in the texture.13

This integration can be illustrated with the main theme of the movement, which produces a particular pattern of accents (figure 70). Subdivision four is emphasized twice, and subdivision one only once.

13Lester, 254.
In figure 71, the theme is presented in an imitative setting. The second entry occurs one half measure after the initial entry.

The accent pattern which results combines the accents of both entries.

![Figure 70. Theme, Bartok, m. 15-18](image)

Fig. 70. Theme, Bartok, m. 15-18

![Figure 71. Theme, Bartok, m. 89-92](image)

Fig. 71. Theme, Bartok, m. 89-92

The accent pattern which results combines the accents of both entries.

![Figure 72. Accent Pattern, Bartok, m. 89-92](image)

Fig. 72. Accent Pattern, Bartok, m. 89-92
This pattern now produces regular emphasis on subdivisions two and four, and in measure 91 all subdivisions are accented.

Themes in imitative settings are sometimes combined with the ostinato accompaniment heard in much of the first part of this movement. Figure 73 shows a mirror inversion of the theme preceding it. Two theme entries follow the initial one at half measure intervals.

![Fig. 73. Theme and Ostinato, Bartok, m. 62-67](image)

When each theme enters, its own accent pattern is combined with those of the other voices.

![Fig. 74. Composite Accent Profile, m. 62-67](image)
The composite accent profile for the passage shows a recurring two-measure unit. Two downbeats are accented, and subdivisions two and four are emphasized throughout; the last measure contains accents on all subdivisions.

Other regular patterns of emphasis are produced by imitative passages. In part two a theme from the first movement appears. This theme, shown in figure 75 with its inversion, is prominent in this part of the movement.

Fig. 75. Theme, Bartok, m. 183–186

The accent pattern of this theme is straightforward. In figure 76, the theme is extended by two eighth notes and presented in an imitative texture.

Fig. 76. Theme, Bartok, m. 186–190
In figure 76, each entry heard alone would produce the same accent pattern. But with each subsequent entry here, an increasingly complex accent pattern results. When the composite accent profile is shown, another regular pattern is revealed.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{fig77.png}
\caption{Composite Accent Profile, m. 186-190}
\end{figure}

The composite reveals a pair of two-measure units, and again subdivisions two and four are emphasized. But the second group contains twice the accents and all subdivisions are emphasized.

In summary, the composite accent profiles which result from thematic development in this movement often reveal regular patterns of emphasis. The frequent placement of motivic accents on subdivisions two and four contributes to this regularity. These accent patterns can often be grouped into two-measure units. This suggests metric organization, although the units do not support conventional 2/4 metric grouping.
Accent Use Within Formal Divisions

When examining the average frequency of accent in this movement, it appears that accents are spread rather evenly over the work. The amount that any of the totals in a particular category vary is small, from .4 to 1.8 measures between accents. Since three of the sections here are quite lengthy (these are Bartok's divisions), the totals in figure 78 provide a very general overview of the movement.

<table>
<thead>
<tr>
<th>Section</th>
<th>Contour</th>
<th>Agogic</th>
<th>Dynamic</th>
<th>Motivic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Part 1</td>
<td>63</td>
<td>2.4</td>
<td>152</td>
<td>.9</td>
</tr>
<tr>
<td>1-151</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part 2</td>
<td>25</td>
<td>3.4</td>
<td>105</td>
<td>.8</td>
</tr>
<tr>
<td>152-237</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recap</td>
<td>38</td>
<td>3.3</td>
<td>95</td>
<td>1.3</td>
</tr>
<tr>
<td>238-364</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coda</td>
<td>12</td>
<td>2.3</td>
<td>28</td>
<td>1.0</td>
</tr>
<tr>
<td>365-392</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Column A-Total Accents
Column B-Average Number of Measures Between Accents

Fig. 78. Accent Totals and Average Frequency

Greater fluctuations in average accent frequency occur
between smaller sections of the formal divisions. Bartok specifies measures 1-151 as part one of the movement, but within this are musical events which create divisions. For example, measures 1-101 of the movement all contain variations of the main theme accompanied by the ostinato. Beginning in measure 46, the theme is extended and inverted. At measure 102, the ostinato disappears and a short repeated motive is prominent. From measure 121 to the end of the section, there is a return to the dense chords from the initial measures of the movement. All these textural or thematic changes result in divisions of the larger section (figure 79).

<table>
<thead>
<tr>
<th>Section</th>
<th>Contour</th>
<th>Agogic</th>
<th>Dynamic</th>
<th>Motivic</th>
</tr>
</thead>
<tbody>
<tr>
<td>A B</td>
<td>A B</td>
<td>A B</td>
<td>A B</td>
<td>A B</td>
</tr>
<tr>
<td>1.1-45</td>
<td>4 11.3</td>
<td>59 .8</td>
<td>59 .8</td>
<td>4 11.3</td>
</tr>
<tr>
<td>2.46-101</td>
<td>34 1.6</td>
<td>82 .7</td>
<td>54 1.0</td>
<td>49 1.1</td>
</tr>
<tr>
<td>3.102-120</td>
<td>25 4.0</td>
<td>--- ---</td>
<td>--- ---</td>
<td>9 11.2</td>
</tr>
<tr>
<td>4.121-151</td>
<td>--- ---</td>
<td>11 2.8</td>
<td>12 2.6</td>
<td>11 2.8</td>
</tr>
</tbody>
</table>

Column A-Total Accents  
Column B-Average Number of Measures Between Accents

Fig. 79. Accent Totals and Average Frequency, Part 1

As in the Beethoven movement, changes in texture can
affect accent presence greatly. A contrast in texture occurs in measures 102-120 (section three in figure 79). Neither agogic nor dynamic accents are present here, due to the absence of the ostinato from sections one and two. The frequency of motivic and contour accents declines because of the sparse texture in this section (see figure 68). In section four of figure 79, contour accents are absent. Since the chords from the opening measures of the movement return here, there are fewer melodic contours to produce these accents.

These fluctuations are evident in the recapitulation. The last twenty-two measures of this section have been labeled by the composer as a transition, and the rest of the section can be divided as well (figure 80).

<table>
<thead>
<tr>
<th>Section</th>
<th>Contour</th>
<th>Agogic</th>
<th>Dynamic</th>
<th>Motivic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>1.238-299</td>
<td>14</td>
<td>.4</td>
<td>47</td>
<td>1.3</td>
</tr>
<tr>
<td>2.300-316</td>
<td>16</td>
<td>.9</td>
<td>26</td>
<td>.7</td>
</tr>
<tr>
<td>3.317-342</td>
<td>6</td>
<td>4.3</td>
<td>18</td>
<td>1.4</td>
</tr>
<tr>
<td>4.343-364</td>
<td>2</td>
<td>11.0</td>
<td>4</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Column A-Totals Accents  
Column B-Average Number of Measures Between Accents

Fig. 80. Accent Totals and Average Frequency, Recap
The first three sections in figure 80 reflect the textural changes which occur there. Sections one and three contain the main theme and opening chords. Because of this, their accent activity is almost identical. Section three (m. 300-316) separates these two sections. There is a sudden change to a four part imitative texture, and repetitive motives produce high levels in three accent categories. In section four (transition, m. 343-364) the texture becomes sparse. Repetitive three-note motives account for the high number of motivic accents.

Findings

I. Metric Position of Accents

In this movement accents occur almost equally on each of the four subdivisions of the measure. The meter is 2/4, and although it might be expected that accents would be present more often on subdivisions one and three, the data does not suggest standard metric accents. This tends to give an equal importance to each subdivision. It is more common in this movement for accent placement to produce metric ambiguity.

Accents affect phrase groupings to a great extent. Often there are several different interpretations of rhythmic activity possible for a particular passage, none of which agree with the anticipated metric pulse. Accent patterns of melody and accompaniment in the same segment
frequently conflict with each other.

II. Accent Patterns

The development of themes and motives results in changes to their accent patterns. The greatest change in accent activity occurs when imitative entries overlap. Each entry produces more rhythmic activity, but often the composite accent profile reveals a regular emphasis within this activity. These patterns of accent sometimes form two-measure units, although these do not always align with metric divisions. Patterns of accent within these two-measure units frequently emphasize subdivisions two and four.

III. Accent Use Within Formal Sections

Few large fluctuations of accent frequency occur between large formal sections. The division of these sections into smaller components reveals greater changes in average frequency. These fluctuations are closely linked to contrasts in texture which occur between these sections.

The different levels of frequency are produced by various musical factors. The presence of the ostinato accompaniment increases the number of accents present in a particular section. When a section contains much imitative writing, particularly when all four voices participate, the frequency of accents generally increases. Areas without the
opening chords are more melodic or contrapuntal in nature and generally contain more accent activity.
CHAPTER FIVE
COMPARISON AND CONCLUSION

Metric Position of Accents

A comparison of accent placement reveals the most striking difference between the two movements. In the Beethoven rondo, accents are placed predominantly on subdivisions one and three, with over half of the total accents occurring on the downbeat. This strongly supports the 2/4 meter and gives the movement much metric and rhythmic stability. The third highest total occurs on subdivision two, which is typical for this movement since many syncopated notes and dynamic accents are positioned there. Figure 81 shows the percentages for all accent types.

<table>
<thead>
<tr>
<th>Subdivision</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>51.5%</td>
</tr>
<tr>
<td>2</td>
<td>12.8%</td>
</tr>
<tr>
<td>3</td>
<td>20.9%</td>
</tr>
<tr>
<td>4</td>
<td>8.4%</td>
</tr>
<tr>
<td>Other</td>
<td>6.3%</td>
</tr>
</tbody>
</table>

Fig. 81. Total Accents per Subdivision, Beethoven

The meter is also 2/4 in the Bartok movement, but accent placement differs greatly. The totals reveal that
the percentage of accents present on the four subdivisions in a measure are more evenly distributed. Only seven percent separates the highest and lowest totals, and neither the first nor the third subdivision is the most frequently accented.

<table>
<thead>
<tr>
<th>Subdivision</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>26.4%</td>
</tr>
<tr>
<td>2</td>
<td>27.3%</td>
</tr>
<tr>
<td>3</td>
<td>20.3%</td>
</tr>
<tr>
<td>4</td>
<td>25.2%</td>
</tr>
<tr>
<td>Other</td>
<td>0.7%</td>
</tr>
</tbody>
</table>

Fig. 82. Total Accents per Subdivision, Bartok

The data suggests a contrast in metric organization between the two movements. In the Beethoven work, important themes or motives contain accents in strong metric positions. When additional accents are produced by variation techniques, often they remain in support of the meter. Since a strong meter is established and maintained throughout the movement, any shift in metric grouping is heard as a temporary contradiction of that meter. This produces areas of rhythmic tension, but does not negate the metric accent.

A strong metric grouping also begins the Bartok movement (measures 1-6), but it is not maintained. After the
first six measures, agogic accents and regular emphasis on subdivision four begins to disrupt this grouping. Even though regular metric emphasis occurs in other areas (part two, m. 152-180), the meter in much of the movement is unsupported.

This occurs for several reasons. Accents in strong metric position are made less effective by other strong accents which occur close to them. Phrases grouped by accents often fail to support metric grouping due to their many possible interpretations. As a result, irregular groupings are heard as separate entities rather than contradictions of a firm metric accent.

Although both works contain an eighth note pulse, the accents in the Beethoven movement establish and support the 2/4 meter by grouping this pulse into quarter note units. In the Bartok movement, although the meter is supported in certain areas of the work (the opening measures), it is not maintained by regular accentuation throughout the movement. The eighth note pulse is not consistently grouped into larger units of equal duration.

Accent Patterns

This different treatment of meter is also reflected in the data concerning accent patterns. In the Beethoven work, accents are often in strong metric position within important themes. When the subject and countersubject are heard
together in the C section, the accents associated with them occur at half or whole measure intervals. Often when the accents of two lines combine, the resulting pattern is metrically strong. Disruptions of these patterns are most likely the result of the composer's effort to create rhythmic tension.

In the Bartok movement, accent patterns also produce regular emphasis, but in weak metric positions. When motives are presented in an imitative texture, often the resultant patterns combine to form regular accentuation on subdivisions two and four. Although composite accent profiles sometimes reveal recurring two-measure units, they do not always align with the notated measure and for this reason do not support metric grouping.

**Accent Use Within Formal Sections**

Both works exhibit fluctuations in average accent frequency which are related to textural changes. In the Beethoven movement, large differences occur between the formal sections, and even greater fluctuations occur between smaller divisions of these sections. The accent use is closely tied to changes in texture, with the highest levels occurring in transition or development sections.

The Bartok work also exhibits these fluctuations, but the differences are not as great between the formal sections. Large differences are evident between smaller
sections distinguished by textural contrast. The highest levels of use are in areas of imitative texture.

**Conclusion and Suggestions for Further Study**

The analysis of these two movements with accent-based criteria has established similarities and differences between these two works. This has been accomplished despite the differences in tonal organization. Insight has been gained regarding meter, phrase grouping, and overall accent use in the movements. A valid attempt has been made to effectively contrast works from two highly different periods.

A study of textural accents would be greatly enhanced by a method of determining a hierarchy of accent intensity. Smither classifies the relative effectiveness of agogic accents according to their relative durations. He also suggests that contour accents become more effective as the leap which precedes them increases.\(^1\) The determination of these relative intensities could be used to investigate an accent-based hierarchy, where accents of a certain high intensity exhibited a long range influence over the musical foreground.

Since a metric pulse is thought to be a psychological phenomenon, a study of the mental reactions of a listener to

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\(^1\)Smither, 62-68.
pronounced rhythmic changes would be enlightening. At what point does a listener "lose" perception of a metric pulse? How does the brain react to a sudden change of metric grouping? Can these rhythmic changes produce actual physiological changes in a listener and if so, are they measurable with modern scientific equipment?

All of these studies could have a definite affect on the way we think about and perceive rhythm. Their diversity is indicative of the many elements which contribute to musical rhythm. As the musical knowledge grows, our theoretical principles and methods of analysis will reflect that increased understanding.
SELECTED BIBLIOGRAPHY


