THE USE OF IMITATION IN THE STRING QUARTETS OF BELA BARTÓK

THESIS

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CHAPTER I

BACKGROUND OF THE QUARTETS

Béla Bartók's six string quartets are generally regarded as the next most significant works in the medium after the quartets of Beethoven. Between the productive years in each of these composers' lives, there is a span of nearly a century. Accounting for the activity during this interim, Halsey Stevens writes that

> Few of the Romantics made significant contributions to the literature of the quartet, and with most of those who did write for the medium there is often a feeling of unwilling restriction: the limitations chafe, the sonorities threaten to burst their bounds and overflow into the orchestra (5, p. 170).

Stevens points out that although Brahms exercised more restraint than others of the period, he was not "entirely happy" in writing for the medium and that his Clarinet Quintet, Opus 115, "is more convincing as a chamber work than the three string quartets he allowed to survive" (5, p. 171).

Unlike some of his contemporaries in the field, e. g., Hindemith, Milhaud, and Schoenberg, Bartók's quartets are representative of his musical growth and, as such, are worthy of equal status with those of such recognized masters as Haydn and Mozart,

as well as Beethoven, according to Stevens (5, p. 171). David Ewen (3, p. 13) says that the Bartók quartets ". . . epitomize the creative evolution of the composer." After hearing the quartets performed, Milton Babbitt (1) stated, "For all that these works span an entire creative career, there is throughout, a single conceptual attitude, and, from the second quartet on, a personal sound is present through which this conception is disclosed."

First Quartet

Although Bartók wrote a quartet in 1899 of which he evidently did not approve, his authentic First Quartet, Opus 7, was completed in 1908 and went unplayed until 1910 when it was premiered by the Waldhauer-Kerpely Quartet in Budapest. It is within the tonal center, A, but is of such chromatic nature as to defy any traditional harmonic functions. This particular type of chromaticism, which Stevens (5, p. 176) calls "auxiliary chromaticism," is indigenous to the First Quartet (the other five containing "fundamental chromaticism"). This quartet is representative of Bartók's earlier romantic style, but as it was written soon after his initial work in the area of Hungarian peasant music, traces of this influential aspect are present, specifically in the last of the three movements.

Second Quartet

Like the First Quartet, the Second consists of three movements, but, unlike the First, it is in a more restrained mood, particularly in the first and last movements. The second movement, Allegro molto capricioso, provides a helpful contrast.

The Waldhauer-Kerpely Quartet, to which it is dedicated, first performed the Second Quartet in 1918, again in Budapest. It is said to be the most frequently played of the six and gives strong evidence, for the first time, of the results of the Hungarian folk song study which Bartok had done between the first two quartets. The Second shows harmonic advancement over the First, using major-minor tonalities simultaneously and parallel tritones, sevenths and ninths, whereas parallel thirds stand out in the First.

Third Quartet

Possibly due to its high technical demands, the Third Quartet, composed in 1927, is the least often played. This would not, however, be indicative of the quality of the piece. It tied for first prize in the competition of the Musical Fund Society of Philadelphia in 1927, to which it is dedicated. Although it is marked in three sections, "Prima parte," "Seconda parte," and "Ricapitulazione della prima parte," it is played as one continuous movement. Contrary to

the impression given by these markings, the quartet is not in a conveniently designated sonata form. While the third section uses material from the first part, it is done in such an unobtrusive manner that it is hardly recognizable. There is also a coda which reiterates the thematic material found in the second section. Thus, relationships exist between first and third sections and second and coda sections. Stevens (5, p. 183) believes this quartet to be in arch form, comprised of the first three sections, excluding the coda.

In the Third Quartet, Bartók begins to make greater use of such coloristic devices as ponticello, col legno, and glissando.

Fourth Quartet

Only one year following the Third Quartet, Bartók wrote his Fourth, which is in a convincing arch form. Of the five movements, the first and last use the same motivic material, as do the second and fourth movements. The third is the only one utilizing unrelated material. The work is believed to have first been played by the Pro Arte Quartet at the Festival of Liège and Brussels in 1930. It is dedicated to this quartet.

Instrumental effects in the Third Quartet are found in greater quantity in the Fourth. Pizzicato is used in several ways in addition to the conventional. Effective use is made of straight tone in alternation with vibrato in a few passages.

The Fourth is probably the most horizontally oriented of all the quartets, often at the expense of the consonance in vertical sonorities. Allen Forte (4) has regarded it as "Bartók's serial composition" in that it is so tightly knit and well organized. He says, ". . . the work testifies to Bartók's compositional prowess, for it offers cogent solutions to certain harmonic problems of non-triadic music, solutions matched only later by avowedly twelve-tone composers."

A very intense and exciting work to hear, "the Fourth Quartet comes close to being, if it does not actually represent, Bartók's greatest and most profound achievement" (5, p. 191).

Fifth Quartet

Commissioned by and dedicated to the Elizabeth Sprague Coolidge Foundation, the Fifth Quartet was written in the incredibly short space of one month, August 6 to September 6, 1934.

This quartet marks a definite relaxation of the dissonance pervading the Fourth, but still maintains the same horizontal approach and the overall arch form in a five-movement structure. The order of movement tempi is reversed from that of the Fourth. The work is tonally centered on B-flat, specifically in the two outer movements, and does not quite maintain the economy of thematic material of the Fourth Quartet.

The first and last movements are in sonata form, the second and fourth in ternary form, and the middle movement is a scherzo-with-trio. This middle movement is interesting because of its use of such Bulgarian rhythms as 4+2+3/8 and 3+2+2+3/8. Bartók also employs such rhythms in several other works.

The Fifth Quartet was premiered in 1935 by the Kolisch Quartet in Washington, D. C.

Sixth Quartet

Having been started in August of 1939 in Saaen, Switzerland, the Sixth Quartet was completed in November of that year in Budapest. Originally commissioned by Z. Szekely for the New Hungarian Quartet, it was finally dedicated to the Kolisch Quartet which premiered it in New York.

Unique to this quartet is the unifying theme which introduces each of the four movements, the last of which is based entirely on the theme. As was true of the Fifth Quartet, the dissonance factor is subdued in the Sixth, perhaps even more so than in the Fifth, and definitely more so than in the Fourth. This factor, along with a melodic flow, provides more warmth than has been present in the previous quartets. "In its basic idiom this is the most traditional of

Bartôk's quartets after the First" (2, p. 68). The arch form of the Third, Fourth, and Fifth Quartets is abandoned in the Sixth.

Bartôk continues to employ previously used effects and devices despite the generally restrained mood. A new device in the third movement (Burletta) is deliberate quarter-tone flatting in one of the violins while the other violin plays the true pitch of the same note and both instruments slide slowly upward, producing a humorous effect.

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CHAPTER II

EXPLANATION OF CONTRAPUNTAL DEVICES

In the process of listening to Bartók's six string quartets, the discerning listener is aware of the high degree of contrapuntal texture and the extensive use of imitation as a contrapuntal device. Upon examination of the musical score, the reality of this imitation is confirmed, and imitation not so audibly apparent can be seen. This study is the result of an analysis of all the imitation in these quartets with the intention of showing how Bartók utilized the device in his counterpoint.

In an analysis, imitative counterpoint should be qualified as being strict, free, single, double, inverted, canonic, in stretto, or in fugal treatment. Also noteworthy is the interval of imitation, the rhythm (whether exactly the same, altered, in augmentation or diminution), the duration of the imitative passage and the metrical distance between imitative voices. Other analytical aspects employed in this study include the relationship of the musical rest to imitation, the placement of imitation within or apart from compositional continuity, chordal imitation and inverse imitation. These four aspects bear further explication.

Rest Relationship to Imitation

Imitative passages immediately preceded by one or more rests are so indicated as a further means of qualification beyond the usual contrapuntal devices. In some instances, a partial number of voices is affected (See Fig. 1, violins and viola in measures 65 and 66), and

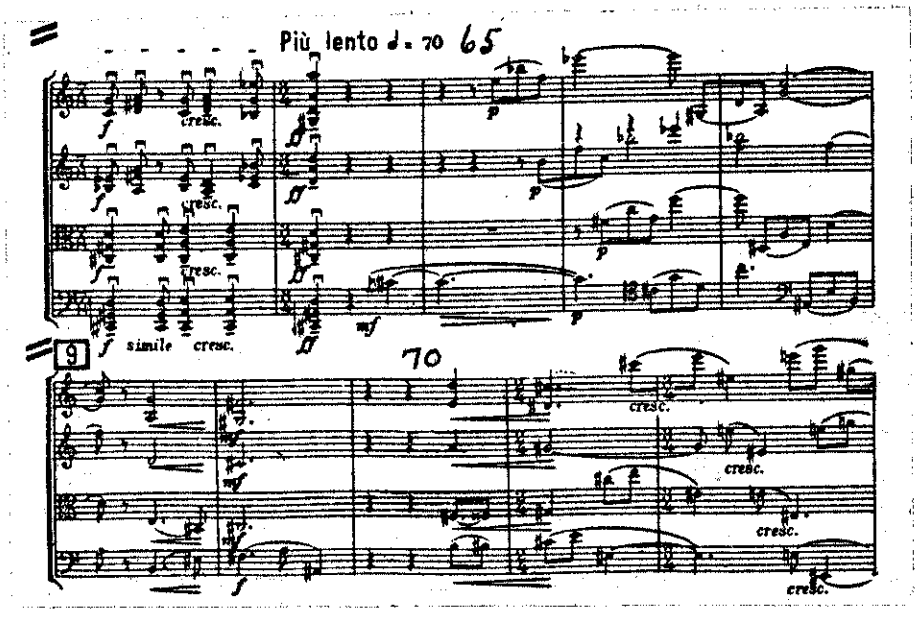

Fig. 1--Imitative voices preceded by rests. Quartet III, measures 65-68.

this distinction is noted in the table for each quartet (See Tables I-VI).

Imitation Within Continuity

The continuity referred to here is that of the rhythmical flow established by any or all of the four instruments. All imitation except that which begins immediately after an unquestionable break

in such rhythmical flow is deemed within continuity. (See Fig. 2, viola and cello, measures 223 and 224).

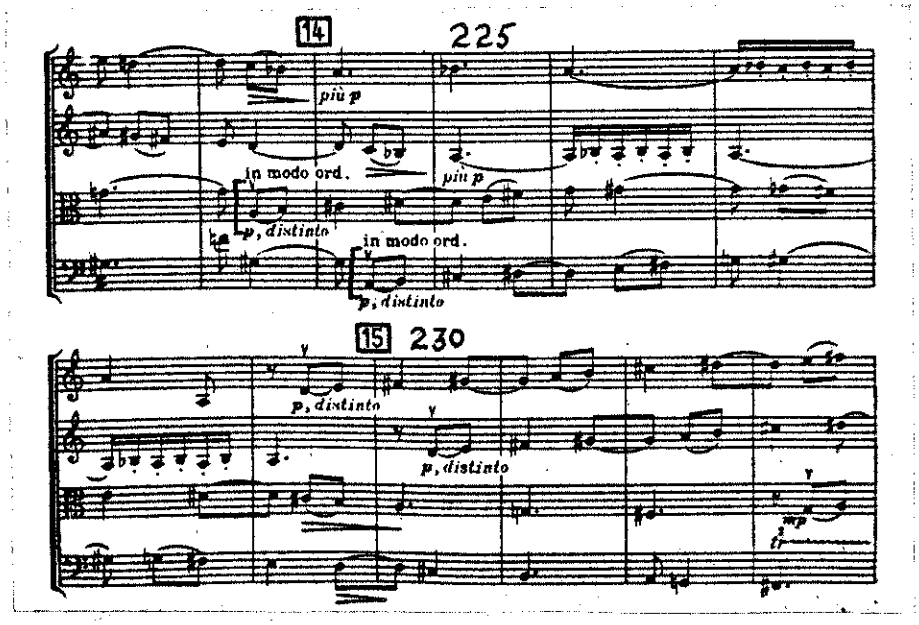

Fig. 2--Imitation within continuity. Quartet III, measures 222-233.

New Entrance

An imitative section which follows an obvious break or pause in rhythmic continuity of all four voices is indicated as a new entrance. At times this coincides with a new tempo marking (as in Fig. 3), but it also frequently occurs in less obvious places. It serves as the opposite of the term "within continuity."

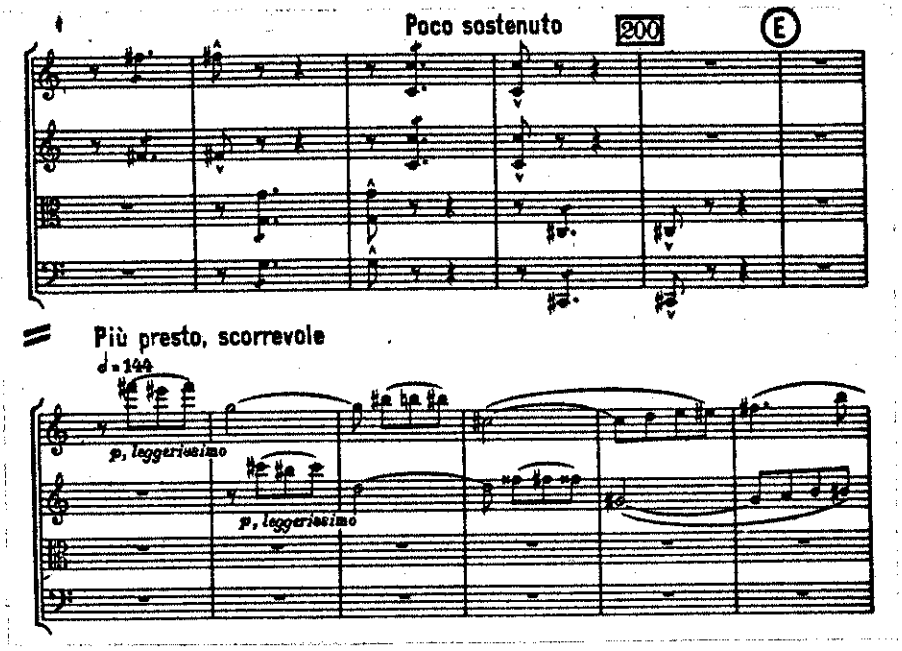

Fig. 3--Imitation at a new entrance (measure 202). Quartet V, 5th movement, measures 196-207.

Chordal Imitation

Although this element is used rather infrequently (See Table VII), it occurs often enough to warrant inclusion in analysis. In Fig. 4 appears an excellent example of genuine chordal imitation; but in well

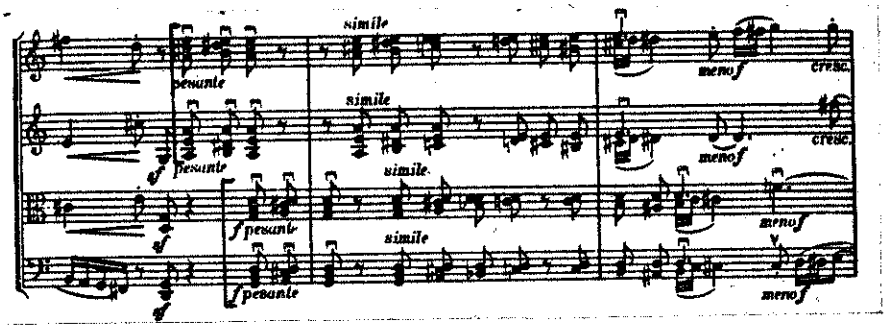

Fig. 4--Chordal imitation. Quartet IV, movement 1, measures 37-39.

over half of the occurrences, just two parts are present and therefore do not technically constitute a chord. However, such passages are included under this analytical heading and designated in each of Tables I-VI as being two-part. The two-part type is shown in Fig. 5.

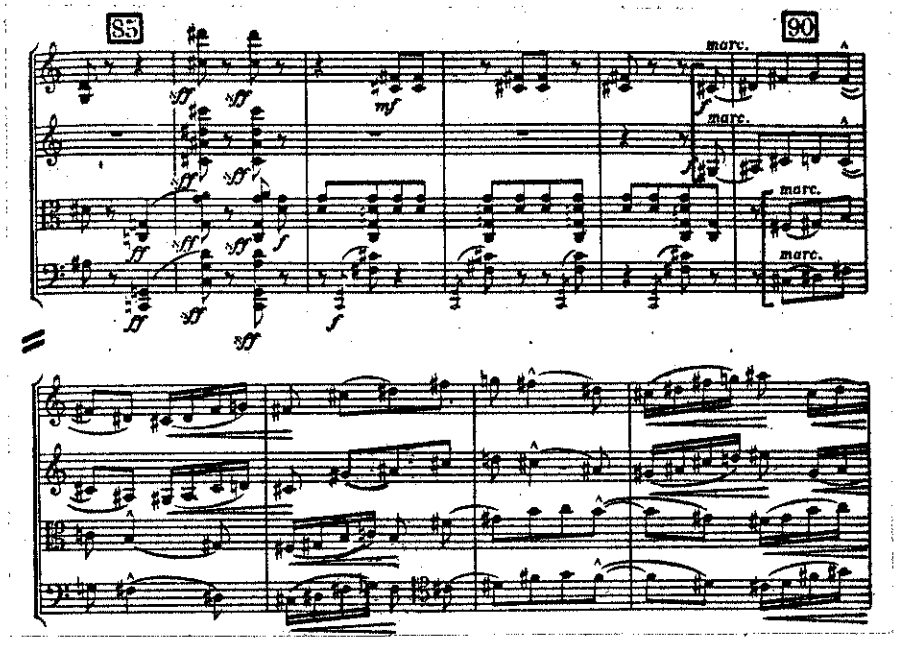

Fig. 5--Two-part chordal imitation (measures 89 and 90). Quartet IV, movement 5, measures 85-94.

Inverse Imitation

The term inverse is borrowed from a dissertation by Vernon H. Taylor (2) in which he uses it to describe inverted melodic material. However, in this study it is taken to refer to a combination of the terms inverted and reverse or the equivalent of retrograde-inversion. An example appears in Fig. 6.

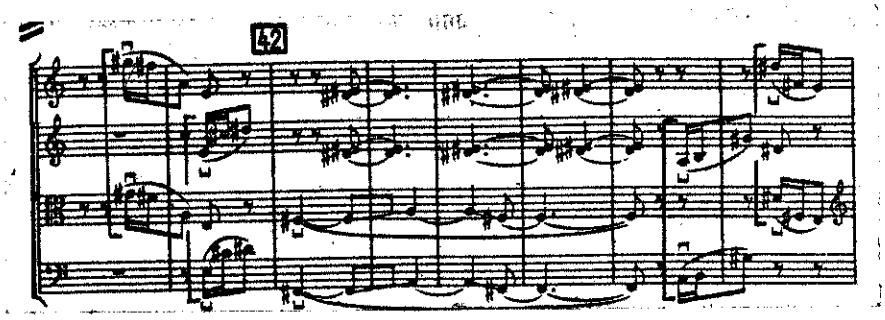

Fig. 6--Inverse imitation (measures 446, 447 and 452, 453). Quartet III, measures 446-453.

No explanation or illustration of the traditional elements of imitation (e. g., strict, free, stretto, etc.) will be offered except to qualify canon, fugato, and the compositional device, ostinato, as they are used in this analysis.

In order for a passage to be declared canonic, the initial voice must have some melodic semblance and not merely consist of a two- or three-note motive. Exception has been made to the definition that a canon must be strict, note for note, interval for interval (1, p. 43). Allowance is thereby made for free canonic imitation.

While the rhythm in Fig. 7 remains the same, the intervals change, resulting in free canonic imitation. The passage beginning at measure 31 (first violin) is less free than the one preceding it (measures 23-28) due to the consistent imitation of intervalic direction by the second violin (as opposed to a deviation in direction in measures

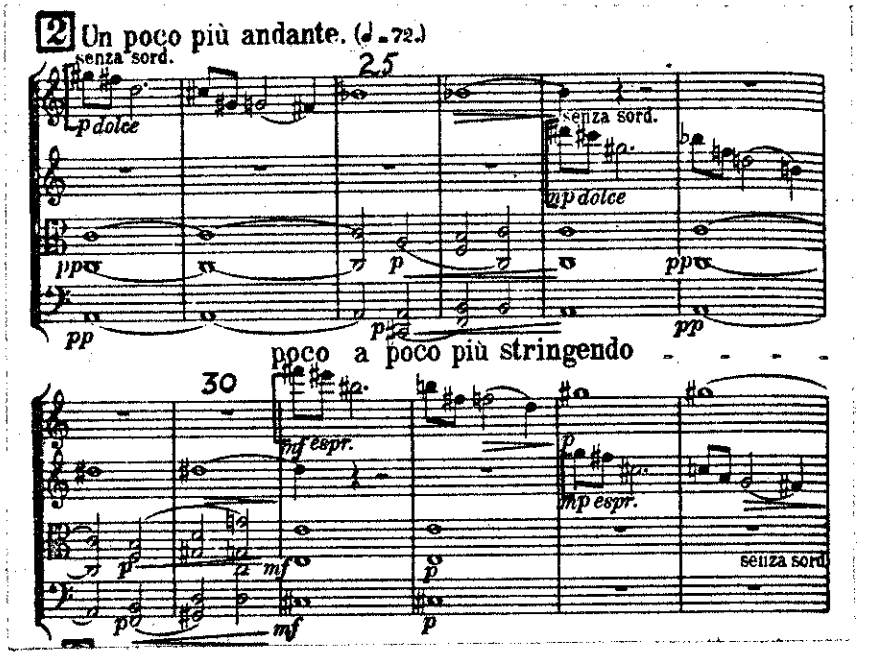

Fig. 7--Free canonic imitation. Quartet II, movement 3, measures 23-34.

27-29). It is assumed that strict imitation is also considered to be canonic.

The term fugato is applied to all fugue-like sections, of which there are only three in all six quartets. This is in slight disagreement with Taylor's analysis (2, p. 120) as he refers to a section in the last movement of the Fifth Quartet as a fugue. However, fugato would be the more accurate term according to definition, being only a section of a movement or work, rather than a complete piece in its own right.

Ostinati are noted only as they are involved with imitation. No fixed length of duration was set as a criterion, but passages which do

not endure to a convincing aural impression are not classified as ostinato.

Two terms resulting from necessity are "exchanging" and "joining" imitation. The former describes the passage in which the initial voice and its imitator exchange roles during the course of the passage, as illustrated below in Figure 8. In this example, the

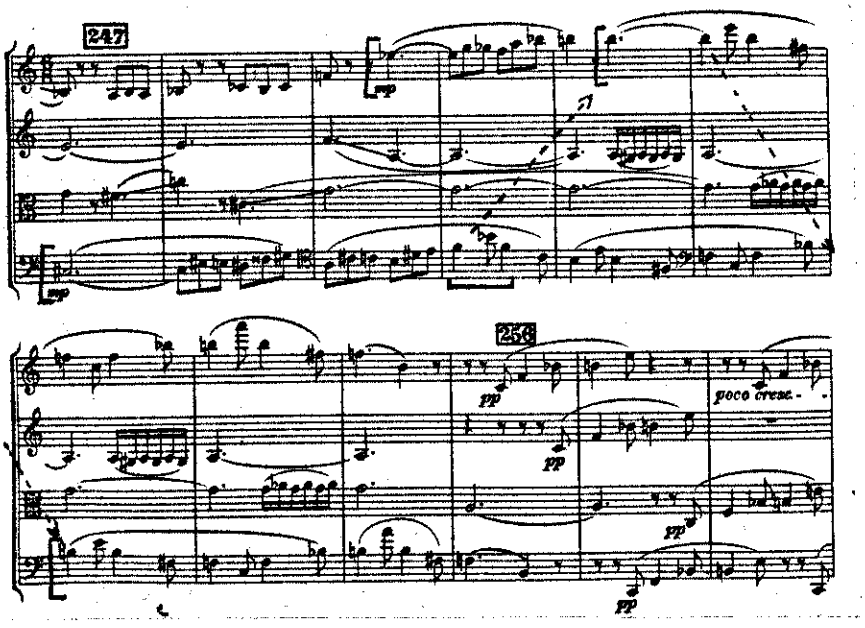

Fig. 8--Exchanging imitation. Quartet VI, movement 1, measures 247-258.

cello initiates a melodic line at measure 247 which is strictly imitated in measure 249 by the first violin at the interval of a diminished third. The imitation remains incomplete while the cello continues to a different motive in measure 250 which is echoed in free imitation by the first violin at 251-252. It is at measure 252 that the role of

initiator is assumed by the violin while at the same time imitating the cello. Strict imitation at the octave by the cello begins at measure 253 and remains rhythmically and melodically strict through measure 256.

"Joining" imitation explains the continuance of the initial voice (or voices) while the other voice (or voices) enters and joins with the first, as illustrated in Fig. 9. The cello in Fig. 9 continues the three-note motive begun at measure 569 while each succeeding voice joins with it at the octave and continues.

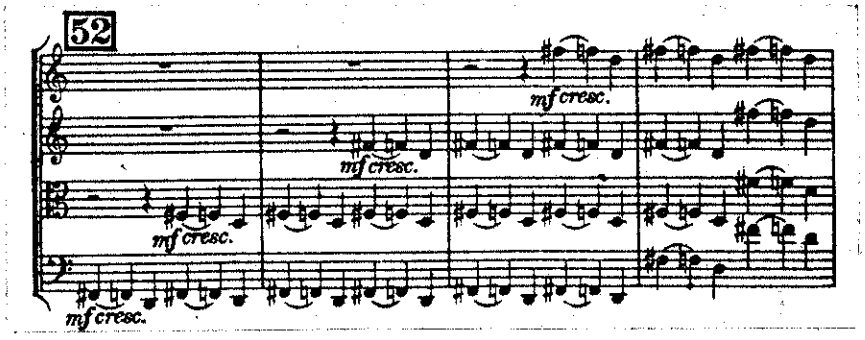

Fig. 9--Joining imitation. Quartet II, movement 2, measures 569-572.

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CHAPTER III

THE USE OF IMITATION IN BARTÓK'S STRING QUARTETS

Analysis of the use of imitative devices in the quartets is shown in Tables I through VI, which give a movement-by-movement tabulation of each quartet. It should be noted, regardless of the markings, "Prima parte," "Seconda parte," and "Ricapitulazione della prima parte," that the Third Quartet is treated as a single movement due to its performance as such.

The intervals in the second column of each table indicate the distance between the initial voice and imitating voices in each analyzed passage. Intervals larger than the tritone are included in the figures of their inverted counterparts. Likewise, all intervals larger than the octave are analyzed in reduced form within the octave. They are further designated as being strict or free. The sum of both strict and free intervals does not equal the number of analyzed passages since the number of intervals per movement is governed by the number of voices in each passage. For example, in the First Quartet, there is a total of fourteen strict imitative passages, containing a total of nineteen intervals in strict imitation.

Accompanying some of the figures in these tables are qualifications such as "(4 partially)" and "(2 slightly)," indicating the number

of instances in the total number of occurrences that are not completely representative of that particular device. Attention is directed to the category "Preceded by rest" as an example. As pointed out in Chapter II, there are passages in which not all voices are so preceded. These are qualified by the term "partially." This principle applies similarly when found in other categories.

The word "slightly" is used in conjunction with the category "Altered rhythm" to indicate a small deviation from the initial rhythm by imitative voices.

In regard to the area "chordal," the qualification "two-part" refers to the presence of only two melodic parts in two different instruments (and occasionally double-stops in one), as mentioned and illustrated in Chapter II.

Table VII is a summary showing the total number of each imitative and contrapuntal device for each quartet. This table provides the opportunity of comparing the quartets as to the total usage of any given device. It also shows the progression from one quartet to the next chronologically.

Table IX shows by movement and for each quartet the average duration of imitative passages (in beats), and the average distance (in beats) between imitative entries in a passage. The figure for average duration is not always indicative that most of the instances

in a movement are of that particular number of beats. Usually, the majority of instances fall within a certain area of the overall range of passage lengths, such as 2-13 beats in the first movement of the First Quartet, for example. Within this majority area, one particular duration figure, such as 4 beats (in the same quartet), outnumbers the other occurrences. When the passages are evenly dispersed over the entire duration-of-passage range, the average is taken to be duly representative; the entire range is given under "Majority area," and no one figure is predominant, indicated by "None" in the "Most Frequent Length in Majority Area" column. (See the third movement of the First Quartet.) Occasionally, there is a partial range in the "Majority Area" column with equal dispersement of passages and, therefore, "None" appears in the "Most Frequent Length in Majority Area" column. Movement One of the Second Quartet exemplifies this in Table IX. Averages for each quartet in these two columns were determined by tabulating all passage durations in the quartet, not by averaging the figures in the table for each movement. Likewise, this was the procedure in arriving at the figures at the bottom of the table in the same columns for the entirety of the quartets.

Table X shows the imitative passages of all the quartets according to the number of voices in each passage. It is taken for granted that there must be at least two voices present for imitation to exist, thus

the absence of "1" from the voice table. The term "voice" is not synonymous with "instrument" in this table. Many of the figures in the two-voice column include passages involving more than two instruments, such as the example in Fig. 10.

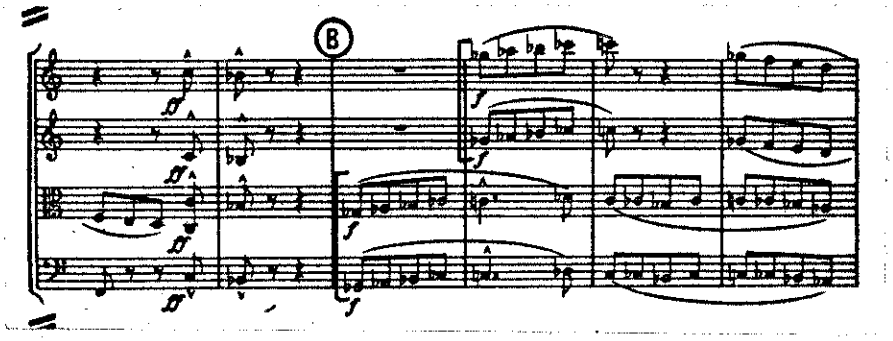

Fig. 10--Two-voice imitation involving more than two instruments. Quartet V, movement 5, measures 53-58.

Even though all four instruments are employed in the example in Fig. 10, they are paired in octaves, each pair constituting one voice. This is contrasted with Fig. 11, which also employs all four instruments and is four-voice imitation.

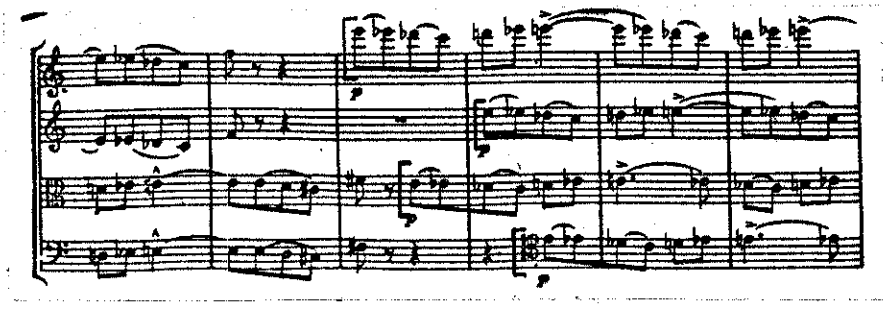

Fig. 11--Four-voice imitation using all four instruments. Quartet V, movement 5, measures 41-46.

First Quartet

The greatest amount of imitation in the First Quartet is free and single as shown in Table I. In most instances, it is found within continuity, and imitative voices maintain the same rhythm of the initial voice. Slightly over half the passages are in stretto and slightly less than half are canonic.

The first of the three fugato sections existing in all six quartets takes shape in the last movement of the First Quartet. In the exposition the subject is stated twice verbatim at the octave by the viola and first violin respectively, as is the answer by the second violin and cello. Of particular note is the answer at the upper fourth, which contains altered intervals and could therefore be regarded as a tonal answer.

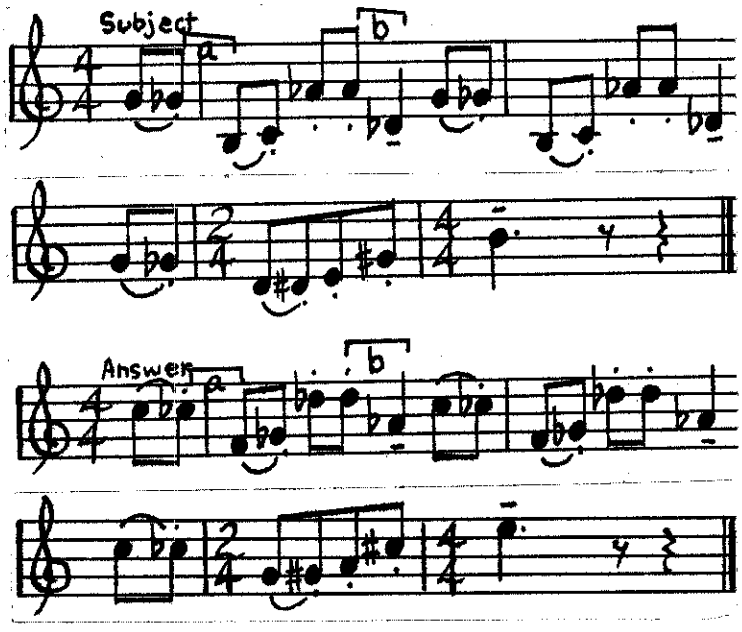

Fig. 12--Subject with tonal answer. First Quartet, third movement, measures 158-169.

The term "tonal" is used for lack of a better word, even though the harmonic idiom is not compatible with such a traditional contrapuntal term.

Although the first change of interval occurs at "a" in Fig. 12, the more significant difference is at "b." Whereas in the subject the interval at "b" is a fifth, it becomes a fourth in the answer at "b" causing the same notes A-flat and D-flat to be used in both places. It would then appear that Bartók wanted to keep the D-flat tonality in common with subject and answer.

Using the category "single" in Table I as an indicator (which is valid since all but four passages are included therein), a relatively even dispersement of imitative passages may be seen in the three movements of this First Quartet.

The most common interval of imitation in the first and third movements is the perfect fourth and in the second movement, the unison. Also, the major third and the major and minor second are prominent in the third movement.

Second Quartet

The nature and the amount of imitation in the Second Quartet are quite similar to the First Quartet, with a greater amount of strict imitation in the former as a notable exception, as can be seen in

Table II. An innovation in this quartet is invertible counterpoint involving imitation. It occurs once in each of the first two movements.

Rhythmically, there are five instances of diminution, four of which are found in the second movement, the other in the first. This contrasts with the First Quartet which contained no diminution.

On the basis of the number of imitative passages, the second movement has the most solid contrapuntal texture of the three, the third being noticeably lighter with only six passages.

Intervals of imitation most frequently found in the Second Quartet are the fourth, the major second, and the minor third. The unison and major third follow in order of frequency.

Third Quartet

Table III indicates that strict and free imitation are found in equal amounts in the Third Quartet, with a significant increase in total imitative passages over the first two quartets. Single imitation is predominant, comprising 72 per cent of all passages. Eighty per cent of the passages involved stretto and slightly more than 80 per cent maintained the same rhythm in each voice. Nearly two-thirds of the passages are found within continuity and 40 per cent contain inversion.

This is the first of the quartets to include inverse imitation (as defined and illustrated in Chapter II). It occurs only twice in this quartet.

Although not found in a fugato as in the First Quartet, another example of tonal imitation occurs in the Third. Conforming to eighteenth century practice, the initial fourth of melody (a) in Fig. 13 is answered

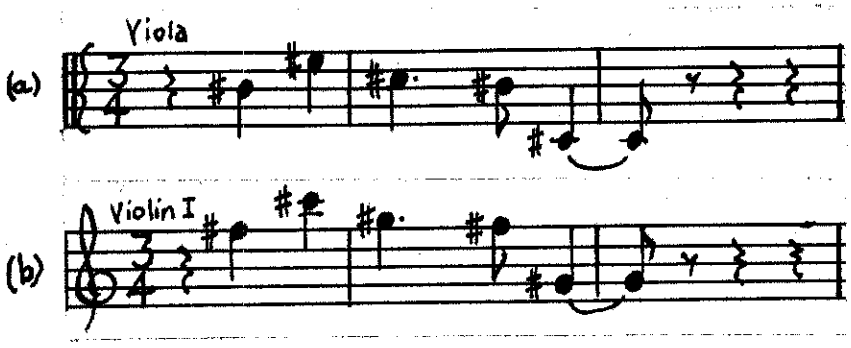

Fig. 13--Tonal imitation. Third Quartet, measures 27-30.

by a fifth in melody (b). This does not, however, serve to maintain any tonic feeling or avoid any sudden change between tonic and dominant keys as was the reason for the eighteenth century custom. In fact, the strong influence of the tritone throughout this particular passage causes a nebulous sense of tonality. This device, as used at this point by Bartók, has no apparent tonal function.

The Third Quartet contains the second of the three fugato sections in the six quartets. The subject is answered strictly at the

fifth by the cello and first violin after being stated by the second violin and viola respectively. The unique factor in this fugato is the derivation of the accompanying countersubject. The notes of the countersubject are the same as every other note of the subject beginning with the third note, up to the third measure of the subject (Fig. 14, measure 356). At that point, the pattern is broken, and the notes

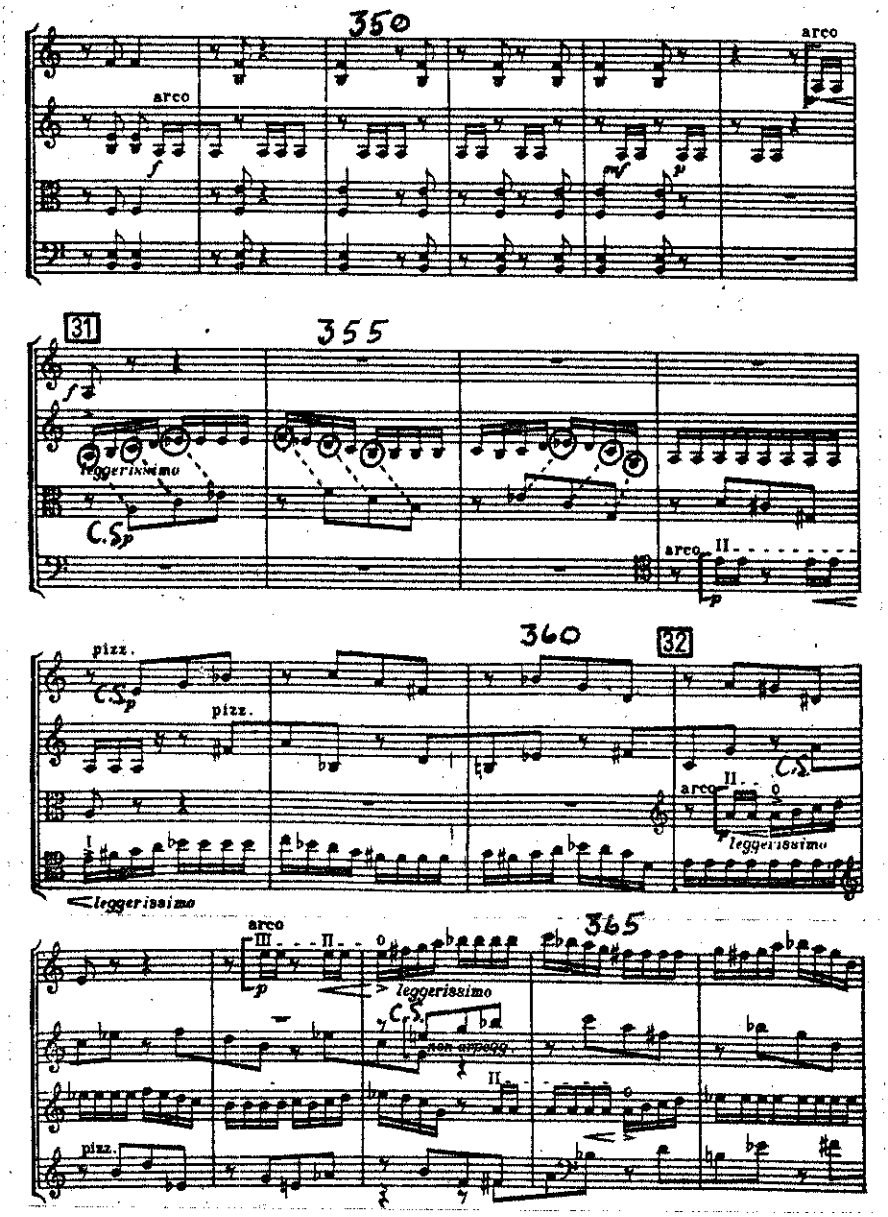

Fig. 14--Fugato exposition. Third Quartet, measures 353-366.

of the countersubject are taken from the second beat of measure 356. (See encircled notes in Fig. 14.) Rhythmically, the countersubject follows the subject by one beat (quarter note equals a beat), placing notes of the countersubject one half beat later than its corresponding note in the subject. The countersubject then is actually literal imitation of the subject and is consistently present with each statement of subject and answer in the exposition.

The Third Quartet is the first of the six to contain imitation of glissando, being also the first to use glissando to any extent compositionally. More of this type of imitation is used in the Fourth Quartet.

Imitation at the fourth is the most frequent to be found in the Third Quartet, with the unison in close proximity of frequency. All the other intervals, except the minor second and tritone, are found in almost equal quantity, but at half the percentage of the perfect intervals mentioned above.

Fourth Quartet

This study shows the Fourth Quartet to be statistically second to the Fifth Quartet in content of imitation (cf. Tables IV and V). However, there are several categories of imitation in which the Fourth surpasses the Fifth: stretto, retrograde imitation, diminution

of rhythm, chordal imitation, and double imitation. Likewise, the Fourth exceeds the other quartets in these categories.

The greatest amount of imitation in the Fourth Quartet is stricter, contrary to the trend established in the first three quartets. Seventy per cent of the strict passages are located in the first two movements, which along with the fifth movement account for eighty-six per cent of total imitative passages. Movements three and four are considerably less replete with imitation.

Canonic imitation in the Fourth Quartet is found more than twice as often as in the first three quartets. Equal amounts may be found in the second and fifth movements, representing the majority of instances according to comparison of movements.

A distinction belonging only to the Fourth Quartet is retrograde imitation, which is present in four instances, all in the fourth movement. The Fourth is also the first quartet containing exchanging imitation (as explained and illustrated in Chapter II). The single example is found in the fifth movement, measures 156-162.

Imitation at the major second, unison, and fourth occur most frequently in the Fourth Quartet. Next in order of frequency is the minor second, followed by the tritone and major third. It is significant that the major second outnumbers the unison and fourth, the second being a traditionally uncommon imitative interval.

Fifth Quartet

Regardless of the fact that the Fifth Quartet exceeds the other five in total measures, it is here recognized to be the most contrapuntal on the basis of imitative analysis as shown by Table V.

Strict and free imitation may be found in nearly equal amounts, the strict type prevailing slightly. Single imitation exists in eighty-six per cent of the total imitative passages. A slightly smaller percentage (eighty-two per cent) is found with rhythmic identity and within continuity. Sixty-nine per cent contain stretto, a fraction less than the amount in the Fourth Quartet. Canonic imitation occurs in thirty-nine per cent of the passages.

Unique in this quartet are two passages analyzed as triple imitation. They are so classified because of the presence of three separate imitated motives. Only one passage is shown for purpose of illustration (See Figure 15). The motives are labeled A, B, and C and can easily be traced due to the sparse texture of the passage.

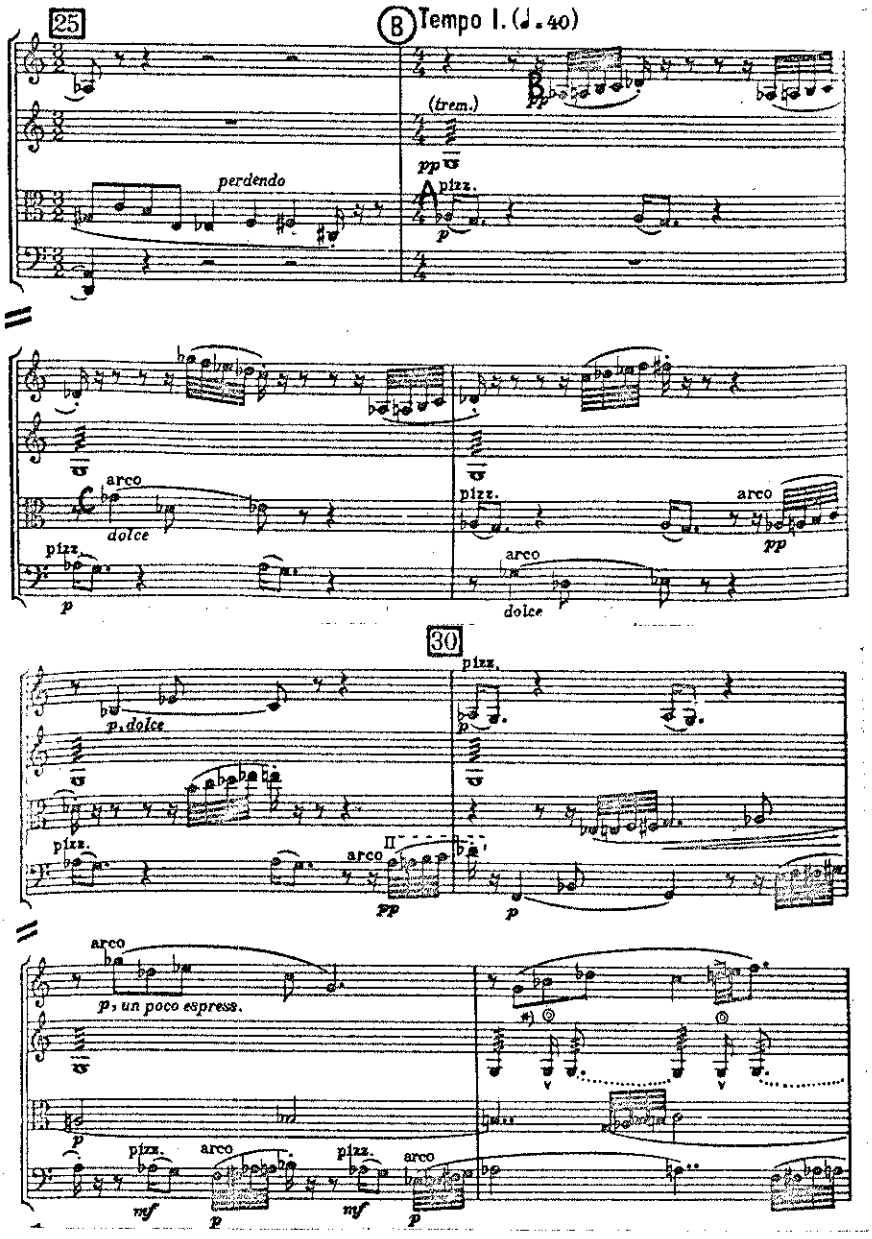

Fig. 15--Triple imitation. Fifth Quartet, movement two, measures 25-32.

The final fugato section to be found in the six quartets is located in the fifth movement of the Fifth Quartet (measures 368-467). Its primary distinction from the other two fugato sections is the presence of all four voices at the outset, a rather unusual practice in comparison

to the procedure in the Baroque period. Rather than a linear counter-subject per se, this fugato has an ostinato accompaniment. The cello plays a three-note moving motive while the violins repeat the same note on the downbeat of each measure, later becoming a perfect fourth in the first violin only. These figures, although not always in the same voices, last until a point very near the end of the section. The interval of imitation in the exposition is the tritone. Common to all three fugato sections is the use of stretto in the exposition, not merely on occasion, but with every entrance of subject and answer. Also common to each fugato is employment of all four instrumental voices.

Two devices occurring rarely throughout the quartets are present in the Fifth Quartet, i. e., inverse and exchanging imitation. The former is found once in the third movement and twice in the fifth. Exchanging imitation appears twice in the fifth movement.

By far the most frequent interval of imitation in this quartet is the unison, its use considerably surpassing that of the fourth, which is next in order of frequency. The minor third and second are also used often, but less frequently than the fourth. Although it is the least used interval in the Fifth Quartet, the tritone occurs in more instances here than in any of the other quartets.

Sixth Quartet

The most unusual facet of the Sixth Quartet is its sharp decrease in imitative content compared with the Fifth, thereby disrupting the pattern of successive increase from one quartet to the next. Otherwise, it contains no particularly distinctive elements from the previous five quartets.

Strict imitative instances slightly outnumber those which are free (See Table VI). Devices with unmistakable plurality of occurrences include single imitation, stretto, rhythmic identity, canonic imitation, and imitation within continuity.

Invertible counterpoint involving imitation, exchanging, joining, and inverse imitation are found in the usual small amounts.

The fourth is the most common interval of imitation, followed by the unison. Next in order of frequency is a group of three intervals: the minor third and the major second and third. A relatively even representation of intervals is found in the Sixth Quartet.

The first and second movements contain the majority of imitative passages and the fourth movement, which is considerably shorter than the other three, contains the least.

Duration of Passages and Distance between Entries

According to the information in Table IX, the average duration or length of imitative passages for all six quartets is 17.5 beats,

while eighty-five per cent of total passages fall within the span of 3-24 beats, with 8-beat durations most numerous within that span. Average distance between entries is 3.9 beats.

Averaging twenty beats per passage in duration, the Fifth Quartet sets the upper extreme in the rather limited range of quartet averages. Over half of the passages occur between eight and twenty-four beats, with a frequency of 8-beat passages in that majority area. At the lower extreme, the Fourth Quartet averages 13.3 beats-per-passage with a frequency of 4-beat passages in the majority area of 3-12 beats. In yet a narrower range, the Second Quartet leads the distance averages at 4.8 beats per passage, and the Fourth Quartet at 2.6 beats represents the lowest average.

The highest duration average according to movements is 39.3 beats in the third movement of the Fifth Quartet. The highest average distance of 8.7 beats is also found in this movement. The lowest duration average of 8.5 beats is in the second movement of this quartet, while the Fourth Quartet contains the lowest distance average of 1.6 beats in the first movement.

Imitation According to Number of Voices

The most obvious conclusion to be drawn from Table X is that two-voice imitative passages outnumber three- and four-voice passages

nearly three to one for the six quartets. As in several other analytical categories, the Fifth Quartet surpasses the other five in the amount of two-voice imitation, although the margin between the Fourth and Fifth Quartets is narrow. The Fifth is also outstanding in the amount of three-voice imitation, followed by the Third with a few more than half the number of passages.

The Fourth Quartet contains the most four-voice imitation with the Fifth next in succession.

Summary and Conclusions

The following graph (Figure 16) shows the relationship of the six quartets in the total number of imitative passages.

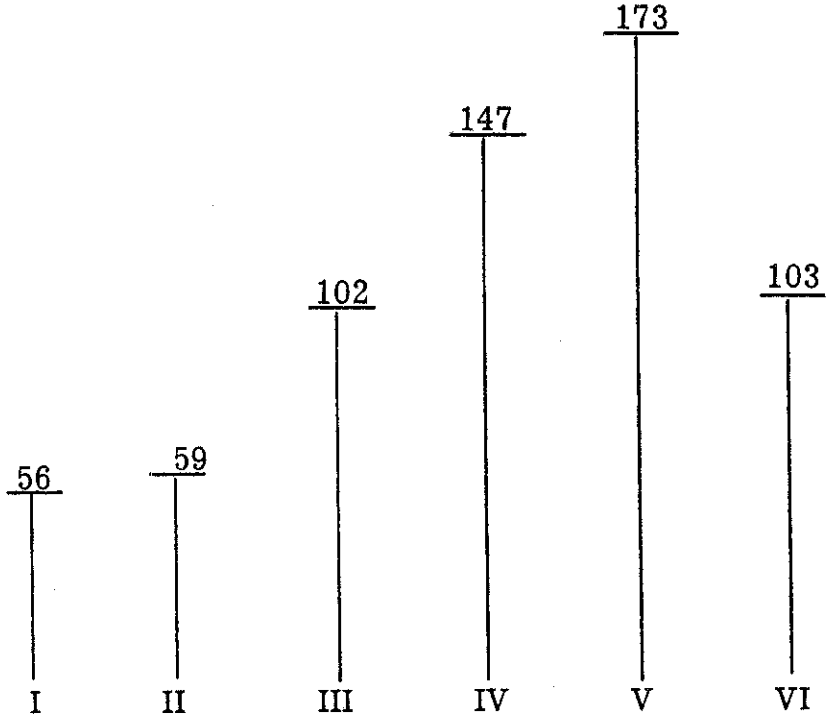

Fig. 16--Comparison of total imitative passages in each quartet.

Although not a true indicator of maximum contrapuntal content, successive increase in counterpoint may be seen from one quartet to the next (excepting the Sixth Quartet), on the basis of the progress of imitation.

Besides showing the progress of imitation, Figure 13 makes possible the pairing of the quartets according to total imitative passages as follows: First and Second, Third and Sixth, and Fourth and Fifth.

Based on the majority of instances of imitative devices found in this study and summarized in Tables VII and VIII, the following general conclusions are drawn regarding the use of imitation in the six Bartók string quartets.

The following are devices commonly used:

1. Single imitation
2. Imitation within continuity
3. Stretto
4. Imitation preceded by rest
5. Canonic imitation

Devices rarely used are as follows:

1. Triple imitation
2. Fugato
3. Imitation in retrograde
4. Inverse imitation

Devices used slightly more than rarely include

1. Imitation in invertible counterpoint
2. Chordal imitation
3. Double imitation
4. Ostinato in imitation.

The nature of imitative passages is as follows:

1. Average length--17.5 beats
2. Average distance between entries--3.9 beats
3. Two-voice imitation is most common
4. Rhythm of imitating voices is most commonly the same as initial voice
5. Augmentation and diminution are infrequent
6, Strict and free imitation used equally
7. Tonal imitation is very rare

On the basis of individual totals for all quartets in Table VIII, the fourth and unison are the most frequently used intervals of imitation. However, if the totals of these intervals are combined, this constitutes less than half of the total of all intervals used and therefore could not be declared the majority. This might be contrasted with the practice of J. S. Bach, the majority of whose imitation is definitely at the fourth and unison, particularly in his fugal writing. So it is significant that Bartok not only made use of these traditional intervals, but

also used the others extensively, as evinced by the totals of the major second and major and minor thirds.

One can tell by listening that Bartók's string quartets are part of twentieth century music. Yet, an integral part of his compositional technique in the quartets is imitative counterpoint, which dates back to the thirteenth century. With such exceptions as his use of chordal and his non-traditional tonality, this study shows that Bartók's imitation contains all the devices used in the eighteenth century, the zenith of contrapuntal writing, although obviously in different proportions. This could conceivably be one of the factors contributing to the feeling expressed in Chapter I that Bartók's quartets rank with those of the Viennese Classicists and Beethoven.

APPENDIX

TABLE I

ANALYSIS OF FIRST QUARTET

Movement	Interval of Imitation	Strict Intervals	Free Intervals	Total Intervals	Strict Passages	Free Passages	Single	Double	Fugato	Preceded by Rest	Augmentation	Rhythm		
												Diminution	Altered	Same
I	Unison	1	2	3										
	m2	0	0	0										
	M2	0	2	2										
	m3	0	3	3										
	M3	1	3	4										
	P4	0	9	9										
	TT	0	0	0	1*								1**	
	Total	2	19	21	2	15	15	2	0	4	0	0	6	11
II	Unison	5	6	11										
	m2	0	3	3										
	M2	0	6	6										
	m3	0	1	1										
	M3	1	4	5										
	P4	0	4	4										
	TT	0	2	2						10*			5**	
	Total	6	26	32	6	14	19	0	0	14	1	0	7	12
III	Unison	2	6	8										
	m2	1	9	10										
	M2	0	10	10										
	m3	0	9	9										
	M3	2	10	12										
	P4	4	16	20										
	TT	2	4	6						5*				
	Total	11	64	75	6	14	17	2	1	9	0	0	1	19
Totals		19	109	128	14	43	51	4	1	27	1	0	14	42

*Partially

**Slightly

TABLE I--Continued

Within Continuity	New Entrance	Canonic	Inverse	Inverted	Retrograde	Ostinato	Chordal	Invertible Counterpoint	Exchanging	Joining	Stretto
13	4	6	0	1	0	0	0	0	0	0	9
20	2	8	0	5	0	1	0	0	0	0	9
13	5	9	0	4	0	2	0	0	0	1	13
46	11	23	0	10	0	3	0	0	0	1	31

TABLE II

ANALYSIS OF SECOND QUARTET

Movement	Interval of Imitation	Strict Intervals	Free Intervals	Total Intervals	Strict Passages	Free Passages	Single	Double	Fugato	Preceded by Rest	Augmentation	Rhythm		
												Diminution	Altered	Same
I	Unison	8	2	10										
	m2	6	1	7										
	M2	0	5	5										
	m3	0	5	5										
	M3	0	5	5										
	P4	2	7	9	3*		14							
	TT	0	1	1	8					3*				2*
	Total	16	26	42			20	1	0	13	1	1	7	19
II	Unison	6	3	9										
	m2	1	4	5										
	M2	8	5	13										
	m3	5	5	10										
	M3	1	5	6										
	P4	8	7	15										
	TT	1	3	4	2*						14*			
	Total	30	32	62	20	14	29	3	0	23	0	4	7	25
III	Unison	0	0	0										
	m2	0	4	4										
	M2	0	0	0										
	m3	0	5	5										
	M3	0	3	3										
	P4	0	5	5										
	TT	0	2	2										
	Total	0	19	19	0	6	6	0	0	2	0	0	1	6
Totals		46	77	123	28	34	55	4	0	38	1	5	15	50

*Partially
**Two-part

TABLE II--Continued

Within Continuity	New Entrance	Canonic	Inverse	Inverted	Retrograde	Ostinato	Chordal	Invertible Counterpoint	Exchanging	Joining	Stretto
14	6	11	0	4	0	0	0	1	0	0	10
20	9	9	0	8	0	4* 5	2**	1	0	3	18
4	2*	4	0	2	0	0	0	0	0	0	2
38	17	24	0	14	0	5	2	2	0	3	30

TABLE III

ANALYSIS OF THIRD QUARTET

Movement	Interval of Imitation	Strict Intervals	Free Intervals	Total Intervals	Strict Passages	Free Passages	Single	Double	Fugato	Preceded by Rest	Augmentation	Rhythm		
												Diminution	Altered	Same
I	Unison	20	12	32										
	m2	4	7	11										
	M2	8	10	18										
	m3	6	15	21										
	M3	5	14	19										
	P4	26	19	45										
	TT	2	4	6						28*			2**	5*
Total		71	81	152	49	50	74	9	1	55	4	1	14	88

*Partially
**Slightly

TABLE III--Continued

Within Continuity	New Entrance	Canonic	Inverse	Inverted	Retrograde	Ostinato	Chordal	Invertible Counterpoint	Exchanging	Joining	Stretto
	1*					2*					
65	14	30	2	42	0	11	11	5	0	0	82

TABLE IV

ANALYSIS OF FOURTH QUARTET

Movement	Interval of Imitation	Strict Intervals	Free Intervals	Total Intervals	Strict Passages	Free Passages	Single	Double	Fugato	Preceded by Rest	Augmentation	Rhythm		
												Diminution	Altered	Same
I	Unison	7	2	9										
	m2	10	4	14										
	M2	14	5	19										
	m3	3	0	3										
	M3	6	4	10										
	P4	5	5	10										
	TT	1	4	5	6*			1*		14*				3*
	Total	46	24	70	33	17	45	4	0	40	1	6	16	32
II	Unison	5	1	6										
	m2	5	4	9										
	M2	11	3	14										
	m3	4	3	7										
	M3	6	1	7										
	P4	7	4	11										
	TT	0	1	1	1*	2*				9*				
	Total	38	17	55	26	11	27	7	0	32	0	0	1**	35
III	Unison	0	0	0										
	m2	0	1	1										
	M2	0	1	1										
	m3	0	0	0										
	M3	0	0	0										
	P4	0	1	1										
	TT	0	1	1										
	Total	0	4	4	0	5	5	0	0	2	0	0	2	3

TABLE IV--Continued

Within Continuity	New Entrance	Canonic	Inverse	Inverted	Retrograde	Ostinato	Chordal	Invertible Counterpoint	Exchanging	Joining	Stretto
38	12	12	0	23	0	5	11 8**	1	0	0	42
28	6	28	0	10	4	5	2	5	0	0	31
3	2	3	0	2	0	0	0	0	0	0	4

TABLE IV--Continued

Movement	Interval of Imitation	Strict Intervals	Free Intervals	Total Intervals	Strict Passages	Free Passages	Single	Double	Fugato	Preceded by Rest	Augmentation	Rhythm		
												Diminution	Altered	Same
IV	Unison	5	2	7										
	m2	0	1	1										
	M2	2	2	4										
	m3	0	1	1										
	M3	0	0	0										
	P4	1	5	6										
	TT	1	0	1	3*	3*				1*				1*
	Total	9	11	20	10	6	10	2	0	11	0	0	3	10
V	Unison	12	5	17										
	m2	2	1	3										
	M2	1	2	3										
	m3	1	0	1										
	M3	4	3	7										
	P4	2	7	9										
	TT	2	5	7	3*	1*				3*				
	Total	24	23	47	14	18	29	10	0	23	0	0	4	33
Totals		117	79	196	83	57	116	23	0	108	1	6	26	113

*Partially
**Two-part

TABLE IV--Continued

Within Continuity	New Entrance	Canonic	Inverse	Inverted	Retrograde	Ostinato	Chordal	Invertible Counterpoint	Exchanging	Joining	Stretto
8	3	12	0	5	0	2	0	0	0	0	12
32	6	29	1	7	0	10	5**	0	1	0	34
109	29	84	1	47	4	22	18	6	1	0	123

TABLE V

ANALYSIS OF FIFTH QUARTET

Movement	Interval of Imitation	Strict Intervals	Free Intervals	Total Intervals	Strict Passages	Free Passages	Single	Double	Fugato	Preceded by Rest	Augmentation	Rhythm		
												Diminution	Altered	Same
I	Unison	9	7	16										
	m2	6	6	12										
	M2	0	3	3										
	m3	2	2	4										
	M3	4	6	10										
	P4	3	6	9										
	TT	4	2	6	3*	4*		1*		3*				4*
	Total	28	32	60	22	18	30	7	0	15	0	1	15	23
II	Unison	5	3	8										
	m2	2	1	3										
	M2	2	0	2										
	m3	4	1	5										
	M3	1	1	2										
	P4	3	3	6										
	TT	1	1	2	5*	2*				4*				3*
	Total	18	10	28	11	8	15	2	0	12	1	1	3	15
III	Unison	4	5	9										
	m2	0	3	3										
	M2	1	7	8										
	m3	0	8	8										
	M3	1	7	8										
	P4	2	12	14										
	TT	1	1	2	1*	1*				5*				
	Total	9	43	52	7	21	27	1	0	23	0	0	1	26

TABLE V--Continued

Within Continuity	New Entrance	Canonic	Inverse	Inverted	Retrograde	Ostinato	Chordal	Invertible Counterpoint	Exchanging	Joining	Stretto
27	6	20	0	14	0	6	5** 8	2	0	0	28
13	5	6	0	4	0	3	3	2	0	0	8
24	3	14	1*	15	0	3	0	0	0	0	15

TABLE V--Continued

Movement	Interval of Imitation	Strict Intervals	Free Intervals	Total Intervals	Strict Passages	Free Passages	Single	Double	Fugato	Preceded by Rest	Augmentation	Rhythm		
												Diminution	Altered	Same
IV	Unison	6	4	10										
	m2	3	2	5										
	M2	0	0	0										
	m3	4	0	4										
	M3	0	0	0										
	P4	0	1	1										
	TT	0	1	1	1*	1*				1*				3*
	Total	13	8	21	11	9	17	2	0	14	3	0	6	11
V	Unison	24	9	33										
	m2	5	5	10										
	M2	7	7	14										
	m3	8	8	16										
	M3	3	1	4										
	P4	13	5	18										
	TT	3	6	9	20*	9*		1*		1*				6*
	Total	63	41	104	47	36	61	8	1	37	1	0	9	69
Totals		131	134	265	98	92	150	20	1	101	5	2	34	144

*Partially
**Two-part

TABLE V--Continued

Within Continuity	New Entrance	Canonic	Inverse	Inverted	Retrograde	Ostinato	Chordal	Invertible Counterpoint	Exchanging	Joining	Stretto
15	2	8	0	5	0	3	0	0	0	0	9
62	10	56	2	31	0	8	5** 6	4	2	0	61
141	16	104	3	69	0	23	17	8	2	0	121

TABLE VI

ANALYSIS OF SIXTH QUARTET

Movement	Interval of Imitation	Strict Intervals	Free Intervals	Total Intervals	Strict Passages	Free Passages	Single	Double	Fugato	Preceded by Rest	Augmentation	Rhythm		
												Diminution	Altered	Same
I	Unison	13	9	22										
	m2	5	7	12										
	M2	5	8	13										
	m3	4	4	8										
	M3	5	6	11										
	P4	6	11	17										
	TT	4	5	9	8*	1*				2*				6*
	Total	42	50	92	26	18	38	4	0	12	2	0	12	38
II	Unison	3	0	3										
	m2	0	2	2										
	M2	2	3	5										
	m3	11	4	15										
	M3	7	0	7										
	P4	3	8	11										
	TT	2	2	4	5*									
	Total	28	19	47	11	18	29	1	0	23	0	0	3	27
III	Unison	1	2	3										
	m2	1	0	1										
	M2	2	0	2										
	m3	4	0	4										
	M3	3	1	4										
	P4	5	1	6										
	TT	1	0	1	1*	1*				1*			3**	3*
	Total	17	4	21	14	5	16	0	0	8	0	0	7	14

TABLE VI--Continued

Within Continuity	New Entrance	Canonic	Inverse	Inverted	Retrograde	Ostinato	Chordal	Invertible Counterpoint	Exchanging	Joining	Stretto
34	9	34	1	20	0	4	1***	2	2	0	33
24	6	27	0	9	0	4	3*** 6	0	0	1	25
16	2	16	0	3	0	2	2***	0	0	3	10

TABLE VI--Continued

Movement	Interval of Imitation	Strict Intervals	Free Intervals	Total Intervals	Strict Passages	Free Passages	Single	Double	Fugato	Preceded by Rest	Augmentation	Rhythm		
												Diminution	Altered	Same
IV	Unison	0	3	3										
	m2	1	0	1										
	M2	2	1	3										
	m3	0	0	0										
	M3	1	0	1										
	P4	1	0	1										
	TT	0	1	1	3*					1*				1*
	Total	5	5	10	5	5	10	0	0	3	0	0	4	7
Totals		92	78	170	56	46	93	5	0	46	2	0	26	86

*Partially
**Slightly
***Two-part

TABLE VI--Continued

Within Continuity	New Entrance	Canonic	Inverse	Inverted	Retrograde	Ostinato	Chordal	Invertible Counterpoint	Exchanging	Joining	Stretto
8	2	9	0	3	0	0	0	1	1	1	8
82	19	86	1	35	0	10	9	3	3	5	76

TABLE VII

SUMMARY OF TYPES OF IMITATION

Types of Imitation	Quartet						Totals
	I	II	III	IV	V	VI	
Strict Passages	14	28	49	83	98	56	328
Free Passages	43	34	50	57	92	46	322
Single	51	55	74	116	150	93	539
Double	4	4	9	23	20	5	65
Fugato	1	0	1	0	1	0	3
Preceded by Rest	24	38	55	108	101	46	332
Augmentation of Rhythm	1	1	4	1	5	2	14
Diminution of Rhythm	0	5	1	6	2	0	14
Altered Rhythm	14	15	14	26	34	26	129
Same Rhythm	42	50	88	113	144	86	523
Within Continuity	46	38	65	109	141	82	481
New Entrance	11	17	14	29	16	19	106
Canonic	23	24	30	84	104	86	351
Inverse	0	0	2	1	3	1	8
Inverted	10	14	42	47	69	35	217
Retrograde	0	0	0	4	0	0	4
Ostinato	3	5	11	22	21	10	72
Chordal	0	2	11	18	16	11	58
Invertible Counterpoint	0	2	5	6	8	3	25
Exchanging	0	0	0	1	2	3	6
Joining	0	3	0	0	0	5	8
Stretto	31	30	82	123	121	76	463

TABLE VIII

SUMMARY OF INTERVALS OF IMITATION

Interval of Imitation	Quartet																		Total		
	I			II			III			IV			V			VI					
	Strict	Free	Total	Strict	Free	Total	Strict	Free	Total	Strict	Free	Total	Strict	Free	Total	Strict	Free	Total	Strict	Free	Total
Unison	8	14	22	14	5	19	20	12	32	29	10	39	48	28	76	17	14	31	136	83	219
m2	1	12	13	1	9	10	4	7	11	17	16	28	16	17	33	7	9	16	46	65	111
M2	0	18	18	14	10	24	8	10	18	28	13	41	10	17	27	11	12	23	71	80	151
m3	0	13	13	5	15	20	6	15	21	8	4	12	18	19	37	19	8	27	56	74	130
M3	4	17	21	1	13	14	5	14	19	16	8	24	9	15	24	16	7	23	51	74	125
P4	4	29	33	10	19	29	26	19	45	15	22	37	21	27	48	15	20	35	91	136	227
TT	2	6	8	1	6	7	2	4	6	4	11	15	9	11	20	7	8	15	25	46	71
Totals	19	109	128	46	77	123	71	81	152	117	79	196	131	134	265	92	78	170	476	558	1034

TABLE IX

DURATION OF PASSAGES AND DISTANCE BETWEEN ENTRIES

Quartet	Movement	Classifications			
		Average Duration (In Beats)	Majority Area (In Beats)	Most Frequent Length in Majority Area	Average Distance (In Beats)
I	1	18	2-13	4	4.5
	2	16	9-15	15	4.2
	3	20.7	2-40*	0	3.7
	Avg	18.2	4-15	0	4.1
II	1	24.5	9-18	0	3
	2	13.4	2-42*	0	6
	3	20.3	5-47*	0	5.5
	Avg	19.4	7-24	0	4.8
III	1	15.2	7-17	11	3.5
IV	1	9.2	3-5	5	1.6
	2	11.6	3-12	7	2.4
	3	12.4	6-22*	0	1.8
	4	21.2	8-12	8	4.7
	5	12.2	4-19	0	2.4
	Avg	13.3	3-12	4	2.6
V	1	21.3	5-84*	0	3.3
	2	8.5	7-20*	0	2.1
	3	39.3	8-106*	0	8.7
	4	11.4	3-9	0	2.1
	5	20.5	8-21	8	4.4
	Avg	20	8-24	8	4.1

TABLE IX--Continued

Quartet	Movement	Classification			
		Average Duration (In Beats)	Majority Area (In Beats)	Most Frequent Length in Majority Area	Average Distance (In Beats)
VI	1	13.6	4-27	0	2.8
	2	12.7	5-9	6	2.3
	3	16.6	9-16	0	4.5
	4	32.7	15-54*	36	8.1
	Avg	18.9	9-24	0	4.4
Total Quartet Averages		17.5	3-24	8	3.9

*Entire range of passages

TABLE X

IMITATIVE PASSAGES ACCORDING TO NUMBER OF VOICES IN EACH

Quartet	Movement	No. of Voices			Total Imitative Passages
		2	3	4	
First	I	14	1	2	17
	II	10	6	3	19
	III	8	7	5	20
	Total	32	14	10	56
Second	I	12	3	7	22
	II	12	10	9	31
	III	2	3	1	6
	Total	26	16	17	59
Third	Total	57	24	21	102
Fourth	I	29	6	17	52
	II	21	5	13	39
	III	5	0	0	5
	IV	7	2	3	12
	V	32	2	5	39
	Total	94	15	38	147
Fifth	I	24	4	8	36
	II	6	7	5	18
	III	12	11	4	27
	IV	14	2	2	18
	V	46	16	12	74
	Total	102	40	31	173
Sixth	I	25	12	8	45
	II	21	4	5	30
	III	15	1	2	18
	IV	6	3	1	10
	Total	67	20	16	103
Total		378	129	133	640

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