

Beethoven's Path Toward Large-Scale Rhythmic Development: The Exposition of the First Movement of Opus 18, no. 1

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In a footnote in his book Explaining Music, Leonard B. Meyer has written "if theories can explain why a composer made the changes he did--or in an ideal case, even predict from a sketch or autograph what changes seem likely, and check these with a score--then our theories would have received a kind of objective confirmation."¹ By looking at the sketches for the exposition of the first movement of Beethoven's String Quartet Op. 18 no. 1², I hope to first, give a degree of objective confirmation to my exploration of what for Beethoven might have constituted a "viable rhythmic framework," through analyzing the large-scale operations of meter and grouping; and second, give some credi-

¹Leonard B. Meyer, Explaining Music (Chicago: University of Chicago Press, 1973), p. 78.

²Sketches are found in five sources: two are located in the Deutsche Staatsbibliothek in East Berlin, namely Grasnick 1 and Artaria 166, and three in the Staatsbibliothek Preussischer Kulturbesitz in West Berlin, namely Grasnick 2, autograph 19e, and Landsberg 7. Sketches specifically for the first movement occur extensively in Grasnick 1 and Grasnick 2. Grasnick 2 is published with a transcription by William Virneisel, Beethoven: Ein Skizzenbuch zu Streichquartetten aus op. 18, Bonn 1874.

bility to a theoretical discussion of these two facets of rhythm, proposing two hypotheses which could form the basis for further study. The exploration of the Beethoven sketches will take us through two continuity drafts (found on pp. 1 and 2 of the sketchbook Grasnick 2), the first version which Beethoven handed to his friend Karl Amenda,³ and the final version. To this extent I intend to expand upon the work on the first and final versions already undertaken by Janet Levy in her valuable book Beethoven's Compositional Choices: The Two Versions of Opus 18, No. 1, First Movement.⁴ The analytical representation of grouping and meter that I will employ derives from the first two components described in Lerdahl and Jackendoff's recent book A Generative Theory of Tonal Music,⁵ in that I use brackets for groups and dots for beats.

I will look at just three of a number of problems with which Beethoven evidently struggled. The first problem relates to the transition to the second subject; the second, to the close of the first key area before this transition, and the last, to the measures immediately following the statement of the second subject. These areas show that Beethoven was not solely troubled with the material and its melodic or harmonic configuration, but, in adding or subtracting measures from one draft to another, he was consciously molding the subject matter into a comprehensible rhythmic framework. In many cases we shall see that sequences of groups containing three, five, or seven measures are altered to conform to a more regular two, four, or eight measure sequence of groups. In describing these changes I

³The facts determining that the quartet referred to in the letter is op. 18 no. 1 are related by Ludwig Nohl in the Neue Zeitschrift fuer Musik, vol. lxxviii, pp. 46, 55 and 66 (reprinted in Beethoven, Liszt, Wagner Vienna 1874, pp. 89-95). In this article Nohl states that he has seen the parts which Beethoven handed to Amenda on the latter's departure from Vienna on June 25th, 1799, for the parts still belong to the Amenda family. Publication of these parts was slow, excerpts appearing in 1904 (Carl Waack, "Beethovens F dur Streichquartet Op. 18 no. 1 in seiner ursprunglich Fassung," Die Musik, iii, pp. 418-420), and the first version not published in its entirety until 1922 (H. J. Wedig, "Beethovens Streichquartet Op. 18 no. 1 und seine erste Fassung," Veroffentlichungen des Beethovenhauses, ii, Bonn 1922).

⁴Janet Levy, Beethoven's Compositional Choices: The Two Versions of Opus 18, No. 1, First Movement (Philadelphia: University of Pennsylvania Press, 1982).

⁵Fred Lerdahl and Ray Jackendoff, A Generative Theory of Tonal Music (Cambridge: MIT Press, 1983).

do not wish to suggest that no deviation from what has been called a quadratic syntax is desirable; on the contrary, rhythmic boredom would soon be apparent if such were the case. Rhythmic interest is generated by deviations in what would otherwise be an unblemished hierarchy, but these deviations must be set against a regular rhythmic framework for them to have meaning.

Examples 1, 2, and 3 relate to the first problem of the transition between the first and second subject areas. Each example is a transcription of the sketches covering a similar portion of the exposition, from the last four measures of the opening twenty-measure period in the tonic key to the first measure of the second subject. Example 1 is part of the first continuity draft on p. 1 of Grasnick 2, Example 2 is from a revision on the bottom of this page, and example 3 is from the second continuity draft on page 2.⁶

Major difficulties arise in the first continuity draft (Example 1) concerning its length (54 measures, compared to the sligher 20-measure opening period), its retention of the tonic at m. 44 (uncharacteristic of a transition), and its irregular and ambiguous rhythmic structure, which is my primary concern. Example 1 illustrates, by means of a metric and grouping analysis, the lack of rhythmic regularity in this section. Above each system is presented a possible metric analysis on three levels, the lowest being the beat perceived at the beginning of each measure. Each beat at each level is represented by a dot. Hence, the second level shows the beat at the two-measure level, and the third the beat at the four-measure level. Irregularities in the structure are understood through the lack of arrival on a beat when expected at its respective level as determined by the content of the music, e.g. at the two-measure level, a beat is expected after two measures. Lack of a beat arrival is shown by a circle and an arrow indicating where the beat expected actually arrives, whether it is delayed or anticipated. Below each system is presented a possible grouping analysis on just two levels: the first representing two-

⁶Notes on my transcriptions: figures within square boxes represent the line of the respective page of the sketchbook. Measure numbers are included in the examples, but are merely for easy reference. Anything within brackets, particularly accidentals, is what I believe is implied by Beethoven, but which he omitted. For easier reference, I have normally placed the sketches on two staves, treble and bass, either when Beethoven has specifically notated the clef, or when he has not. Stems of notes have been adjusted to conform to normal notation. A question mark indicates a problem in realizing the sketch on my part.

Example 1 (continued)

The musical score is presented in three systems, each consisting of a treble staff and a bass staff. The first system covers measures 30 to 40. The treble staff contains the melody with various ornaments and slurs. The bass staff shows accompaniment with slurs and ties. The second system covers measures 45 to 50. It features a triplet in the bass staff and a trill in the treble staff. The third system covers measures 55 to 60, including a trill in the treble staff and a triplet in the bass staff. The score includes various musical notations such as slurs, ties, and fingerings.

measure groups, or their expansion or contraction, and similarly for the second level, four-measure groups.

I can explain the irregular rhythmic structure through consideration of either the grouping or metric structures, for they are unquestionably connected, although each has its individual functions. The grouping structure, for instance, is infiltrated by three and five-measure groups, creating syntactical problems with respect to levels, for an acceptance of the hierarchical nature of grouping implies the incorporation of, for example, groups at the two-measure level into those at the four-measure level without ambiguity. Are mm. 10-11, therefore, to be part of the preceding five-measure group at the four-measure level, or the following five-measure group? In each case, a seven-measure group is created, further establishing a highly irregular rhythmic framework. Similar difficulties of grouping at the four-measure level arise at mm. 26-27 and mm. 45-47. When considering the meter of this passage, there are two possible arrangements, either the first beats of each group are accented and so there is no regular alternation of strong-weak beats established, or metric regularity is preserved and the groups become an unsettling succession of beginning, middle and end-accented groups. I adversely criticize this highly irregular rhythmic structure because it is not set against a regular framework.

Example 2 shows the radical revision made by Beethoven to the first continuity draft, in which he begins to tighten the rhythmic structure. For example, the cut in length and the pervading rhythmic regularity give much power to the anticipation in m. 12. This anticipation is generated by the elision of the resolution of the two-measure cello motive set up from m. 5, and the immediate repetition of the motive shifted up a semitone to C#.

Two major difficulties present themselves in this example, first, the irregular five-measure approach to the second subject entry, mm. 24-28, and second, the perception of mm. 20-23 at the eight-measure level. On the one hand, if these measures are incorporated into the previous eight measures then the eight-measure beat expected in m. 20 is delayed until m. 24 (as shown), adding strength to the V/V preparation beginning at m. 24, but retaining mm. 24-28 as a five-measure group at the eight-measure grouping level. On the other hand, the addition of mm. 20-23 to mm. 24-28 merely retains an irregular approach to the second subject at the eight-measure level.

With Example 3, the second continuity draft, these difficulties are neatly solved. The V/V preparation to the second subject is expanded to eight measures, mm. 28-35, preparing the entry of the subject by rhythmic regularity. The downbeat now falls on the first beat of m. 36, as is

Example 2: Transition to the Second Subject
Revision to the first continuity draft (p.1), line 13 m. 18
-- lines 15/16 m. 23 and line 5 m. 13 -- line 6 m.3

The image displays a handwritten musical score for Example 2, consisting of two systems of music. Each system includes a treble and bass staff, with various annotations and performance markings.

System 1:

- Staff 1 (Treble): Contains musical notation with a measure number '5' above it. An arrow labeled '2m.' points to the right above the staff.
- Staff 2 (Bass): Contains musical notation with measure numbers '13' and '16' in boxes above it.
- Below the staves: A series of horizontal lines with arrows and dots, representing a continuity draft. A bracket labeled '7' spans across these lines.

System 2:

- Staff 1 (Treble): Contains musical notation with measure numbers '20' and '25' above it. There are several '(b)' annotations above the notes.
- Staff 2 (Bass): Contains musical notation with measure numbers '15b' and '20' above it. There are several '(b)' annotations above the notes.
- Below the staves: A series of horizontal lines with arrows and dots. Brackets labeled '4' and '3' are present. A question mark '?' is also visible.

Example 3: Transition to the Second Subject
Second continuity draft (p.2), line 5 m. 17 -- line 8 m. 9

The image displays a musical score for a piano, divided into four systems. Each system consists of a musical staff with notes and rests, and a bracketed section below it indicating specific measures. Above the first system, there are vertical dots labeled '5M.', '4M.', '2M.', and '1M.' with arrows pointing to specific measures. Above the second system, there are vertical dots with arrows pointing to measures. Above the third system, there are vertical dots with arrows pointing to measures. Above the fourth system, there are vertical dots with arrows pointing to measures. The score includes various musical notations such as trills (tr), slurs, and dynamic markings. The bracketed sections are labeled with numbers: 5, 6, 7, 12, 8, 4, 4, and 4. The first system has a bracket labeled '5' under measures 1-5 and '6' under measures 6-7. The second system has a bracket labeled '7' under measures 1-7 and '12' under measures 8-19. The third system has a bracket labeled '8' under measures 1-8, '4' under measures 9-12, and '4' under measures 13-16. The fourth system has a bracket labeled '4' under measures 1-4.

expected up to the sixteen-measure level of the metrical hierarchy, and the transition is now rhythmically as it will be in the remaining versions. Unfortunately however, the second continuity draft is not completely trouble free. Mysteriously, Beethoven has inserted an additional four-measure group, mm. 5-8, with a further implied full cadence in F major prior to the transition and after the opening 20-measure first key area. This leads to an investigation of another difficult problem, the second of three.

Few clues lead me to understand what Beethoven is searching for through this insertion. One clue may be the change of register of mm. 1-4 in Examples 2 and 3, for is Beethoven worrying about the manner in which he will provide continuity into the transition? He is caught, I suggest, between picking up the register of the beginning of the transition, or resolving the opening tonic period satisfactorily. The solution that is provided in the first (and final) version (Example 5, mm. 21-29) is to lengthen the insertion to nine measures, which, first, accommodates the eight-measure grouping level, and second, resolves the ascending implications of the opening measures stepwise to f^3 . The second violin and viola then provide the accompaniment that allows continuity into the transition. The irregular nine measures may be explained by considering the extra measure here as balancing the elided measure between m. 36 and m. 37 in the transition, where the succession of two-measure cello motives is broken. The result is to create a type of rhythmic arch-form (Example 4). The revision to the close of the first key area may also be accounted for by considering the second subject, where the resolution to C major is suspended until its conclusion. As a result, strong tonal arrivals now characterize the end of the first and second subject areas.

Example 4: Rhythmic Arch

1st	mm.	1 - 8	8	
key		9 - 20	12	
area		21 - 29	9	} 16
tran-		30 - 36	7	
sition:		37 - 48	12	
		49 - 56	8	

Allegro con brio $\text{♩} = 54$ L. van Beethoven, Op. 18 No 1
(1770 - 1827)

Violino I
Violino II
Viola
Violoncello

5

30

10 15

35

ardec.
cresc.
cresc.
cresc.

20 25

Example 4: Opus 18, No. 1; Final Version, mm 1-29

The third and final problem, concerning the measures from the resolution to C at the close of the second subject, is the most complex. Examples 6 and 7 are transcriptions of the first and second continuity drafts, respectively, and Example 8 is the closing section of the final version. The difficulties in Example 6 are similar to those in Example 1, relating to rhythmic irregularity and ambiguity. Specific difficulties are the three-measure groups at mm. 18-20 and mm. 26-27, the five-measure group at mm. 21-25, and the thirteen measures, mm. 29-41. Even the replacement of five measures for two measures indicated by Beethoven by "Vi-de" on p. 1 of *Grasnick 2* does not solve any of these problems, but only creates a seven-measure group (Example 6).

The solutions to many of these difficulties are found in the second continuity draft (Example 7). For example, if the last measure of Beethoven's replacement in Example 6 is compared to mm. 19-20 in Example 7, the pitches g^1 and d^2 have been expanded to fill two measures, and thus an original seven-measure group has become eight measures. At m. 25 and m. 34 in Example 7 one-measure rests are inserted, and as a result previous three-measure groups become four measures in length. However, difficulties still remain, one being the series of dotted half-notes from m. 35. A brief look at the final version (Example 8) shows how these particular difficulties are resolved. The five-measure group from m. 26 in Example 7 is amended so that it is now a four-measure group, mm. 89-92, and the dotted half-notes are compressed from twelve measures to just four, mm. 97-100.

One final difficulty that remains is the nature of the final measure of the second subject, i.e. the first measure of Examples 6 and 7, and m. 72 of Example 8. In Example 6 I have assumed the measure, even with the turn motive, not to precipitate a beat anticipation, which would imply the elision of one measure. The lack of metric deviation seems to be confirmed in Example 7 where the motive is omitted and replaced by rests. However, the first and final versions reintroduce the turn motive in m. 72 of Example 8, creating some rhythmic ambiguity. The essential problem is whether a metric jolt is perceived at m. 72 of Example 8, i.e. do we sense an elision, or does the measure resolve the previous passage and simultaneously initiate a new group without metric deviation? My preference in the final version is for the latter. This is based not solely on my intuition, but also viewing the passage as a whole, since if the alternation of strong-weak beats is preserved, four-measure level beats occur when expected from m. 73 through m. 109.

At three points within the exposition I have traced Beethoven's struggle to produce what is, finally, part of a vital and arresting movement. In the large part he has

Example 6: End of exposition from the end of second subject
First continuity draft (p.1) line 7 m. 5 -- line 11 m.9

The image displays a handwritten musical score for a first continuity draft, consisting of five systems of music. The notation is primarily in treble clef with a key signature of one flat (B-flat). The score includes various musical notations such as notes, rests, and accidentals, along with performance markings like slurs, ties, and dynamic markings. Annotations include measure numbers (e.g., 5, 10, 15, 20, 25, 30, 35, 40, 45), fingering numbers (e.g., 1, 2, 3, 4, 5), and specific performance instructions like '(4) (4)', '(4) (4)', and 'tr'. There are also some question marks and circled numbers (e.g., 7, 8, 11) indicating areas of interest or uncertainty in the draft. The systems are connected by horizontal lines, and some measures are grouped with brackets. The overall appearance is that of a working manuscript for a musical piece.

Example 7: End of exposition from the end of second subject
Second continuity draft (p.2), line 10 m. 3 -- line 15 m.1

The image displays a handwritten musical score for piano, consisting of five systems of music. Each system includes a treble clef staff with notes and rests, and a corresponding bass clef staff with chords and bass notes. The score is annotated with various markings:

- System 1:** Treble clef staff with notes and rests. Bass clef staff with chords. Annotations include a measure number '5' and a bracketed section labeled '11'.
- System 2:** Treble clef staff with notes and rests. Bass clef staff with chords. Annotations include measure numbers '15', '16', '17', and '18', and a bracketed section labeled '12'.
- System 3:** Treble clef staff with notes and rests. Bass clef staff with chords. Annotations include measure numbers '20', '21', '22', '23', '24', and '25', and a bracketed section labeled '13'.
- System 4:** Treble clef staff with notes and rests. Bass clef staff with chords. Annotations include measure numbers '30', '31', '32', '33', '34', '35', '36', '37', '38', '39', and '40', and a bracketed section labeled '14'.
- System 5:** Treble clef staff with notes and rests. Bass clef staff with chords. Annotations include measure numbers '45', '46', '47', '48', '49', '50', '51', '52', '53', '54', and '55', and a bracketed section labeled '15'.

The score is written in a clear, legible hand, with various musical notations such as notes, rests, and chords. The annotations and brackets provide a detailed analysis of the musical structure.

Musical score for measures 65-70. The score is in 4/4 time and consists of three staves: Treble, Bass, and Piano. Measure 65 starts with a piano (p) dynamic. Measure 66 has a piano (p) dynamic. Measure 67 has a piano (p) dynamic. Measure 68 has a piano (p) dynamic. Measure 69 has a piano (p) dynamic. Measure 70 has a piano (p) dynamic. Dynamics include *cresc.* and *sf*.

Musical score for measures 71-76. The score is in 4/4 time and consists of three staves: Treble, Bass, and Piano. Measure 71 has a piano (p) dynamic. Measure 72 has a piano (p) dynamic. Measure 73 has a piano (p) dynamic. Measure 74 has a piano (p) dynamic. Measure 75 has a piano (p) dynamic. Measure 76 has a piano (p) dynamic. Dynamics include *cresc.* and *f*.

Musical score for measures 77-84. The score is in 4/4 time and consists of three staves: Treble, Bass, and Piano. Measure 77 has a piano (p) dynamic. Measure 78 has a piano (p) dynamic. Measure 79 has a piano (p) dynamic. Measure 80 has a piano (p) dynamic. Measure 81 has a piano (p) dynamic. Measure 82 has a piano (p) dynamic. Measure 83 has a piano (p) dynamic. Measure 84 has a piano (p) dynamic. Dynamics include *cresc.* and *fp*.

Musical score for measures 85-94. The score is in 4/4 time and consists of three staves: Treble, Bass, and Piano. Measure 85 has a piano (p) dynamic. Measure 86 has a piano (p) dynamic. Measure 87 has a piano (p) dynamic. Measure 88 has a piano (p) dynamic. Measure 89 has a piano (p) dynamic. Measure 90 has a piano (p) dynamic. Measure 91 has a piano (p) dynamic. Measure 92 has a piano (p) dynamic. Measure 93 has a piano (p) dynamic. Measure 94 has a piano (p) dynamic. Dynamics include *cresc.* and *f*.

Musical score for measures 95-104. The score is in 4/4 time and consists of three staves: Treble, Bass, and Piano. Measure 95 has a piano (p) dynamic. Measure 96 has a piano (p) dynamic. Measure 97 has a piano (p) dynamic. Measure 98 has a piano (p) dynamic. Measure 99 has a piano (p) dynamic. Measure 100 has a piano (p) dynamic. Measure 101 has a piano (p) dynamic. Measure 102 has a piano (p) dynamic. Measure 103 has a piano (p) dynamic. Measure 104 has a piano (p) dynamic. Dynamics include *cresc.* and *ff*.

Musical score for measures 105-110. The score is in 4/4 time and consists of three staves: Treble, Bass, and Piano. Measure 105 has a piano (p) dynamic. Measure 106 has a piano (p) dynamic. Measure 107 has a piano (p) dynamic. Measure 108 has a piano (p) dynamic. Measure 109 has a piano (p) dynamic. Measure 110 has a piano (p) dynamic. Dynamics include *cresc.* and *f*.

Musical score for measures 111-114. The score is in 4/4 time and consists of three staves: Treble, Bass, and Piano. Measure 111 has a piano (p) dynamic. Measure 112 has a piano (p) dynamic. Measure 113 has a piano (p) dynamic. Measure 114 has a piano (p) dynamic. Dynamics include *cresc.* and *f*.

Example 8: Final Version, mm. 65-114

molded his subject matter into, at the four-measure level, regular groups, articulated by definite boundary breaks, such as cadences, or by major structural articulation, such as the harmonic arrival at V/V in the transition. However, the question remains, can we define what, for Beethoven, constituted a viable rhythmic framework for a large structure?

To some facets of rhythm Beethoven is evidently very sensitive, in particular to the first beats of measures alternating strong-weak, as shown in terms of a metrical structure in Example 9. As has been noted by many commenta-

Example 9

2m.	•	•	•	•		
1m.	•	•	•	•	•	etc.
m.	1	2	3	4	5	6

tors, including Joseph Kerman,⁷ this movement is permeated throughout by the two-measure turn motive first presented at the opening. The rhythmic structure incorporating two-measure beginning-accented groups is therefore established from m. 1 (Example 10),⁸ and once the norm has been set up,

Example 10

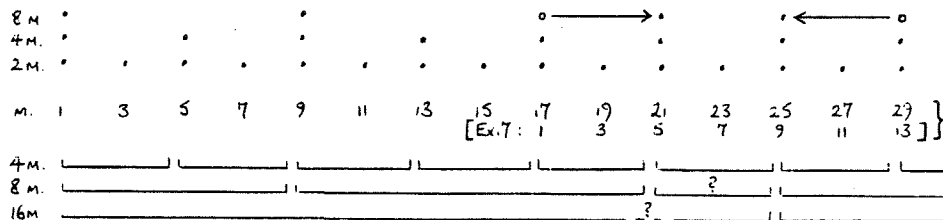
2m.	•	•	•	•		
1m.	•	•	•	•	•	etc.
m.	1	2	3	4	5	6
2m.						etc.

then Beethoven can play with it at will, e.g. the expanded nine-measure insertion, mm. 21-29 (Example 11).

⁷Joseph Kerman, The Beethoven Quartets (London: Oxford University Press, 1966), p. 31.

⁸This interpretation is the opposite to that of Roger Sessions in The Musical Experience of Composer, Performer, Listener (Princeton: Princeton University Press, 1950), p. 13.

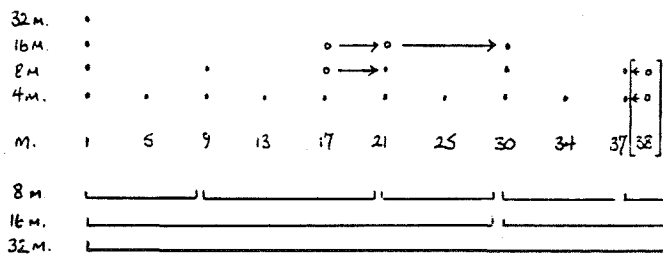
Example 14b



measure or a sixteen-measure group at the eight-measure level results in the perception of mm. 21-24 as merely an unbalanced insertion, not relating coherently to the preceding measures.

Example 15 describes the larger-scale rhythm of mm. 1-38 of the first (and final) version. With the expansion of the four-measure insertion to nine measures from m. 21 there is now no problem in the grouping structure. There is even created a parallelism between the ternary rhythmic construction of the twelve-measure group from m. 9, and that of the whole first key area, mm. 1-29.

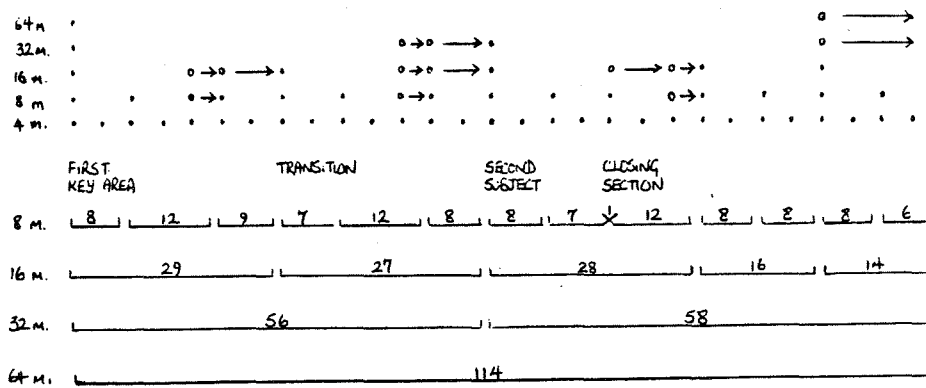
Example 15



Example 16 views the larger rhythmic structure of the entire exposition of the final version, describing its relative stability through the lack of excessive deviations in either the metrical or grouping structures. The interest lies in the dualistic nature of expectation: while major boundaries, i.e. between the first key area and the transition, and between the transition and the second subject, occur at the four- and eight-measure levels with regular preparation, expectation is heightened through beat delays

at higher levels, these arising from the ternary construction of many of the groups.

Example 16



Underlying this conception of a rhythmic hierarchy is the idea of low levels that correspond to our normal understanding of meter and phrases, and of higher levels that equate with our perception of form. Thus, while the eight-measure grouping level in Example 16 conforms to our perception of phrases, the sixteen-measure level follows our understanding of form. This idea explains the incongruous length of the transition in the first continuity draft. There, two sixteen-measure level groups would have to occur where only one formal division is evident.

It appears therefore that two, or at most three, groups should be combined together to create the next higher level, and that each level must be associated with a particular level of the structure in order for the structure to be syntactically well-formed in this piece by Beethoven. Two hypotheses may follow: one, that for a well-formed grouping structure, a group should contain two, or at most, three groups at the next lower level, and two, that the length of a group at one level is limited by the designated length of adjacent levels, e.g. at an eight-measure level the limits are from five measures to fifteen measures. Deviation from the mean, e.g. eight measures at an eight-measure level, defines a certain degree of instability, the degree dependent upon the amount of deviation, e.g. a fourteen-measure group is more unstable at an eight-measure level than a nine-measure group. This would explain my unease with the four-measure insertion in the second continuity draft, Exam-

ple 3, and strengthen my argument concerned with the same measures in Examples 14a and 14b.

On the one hand, therefore, these sketches and versions of this exposition give a valuable insight into Beethoven's compositional process, while on the other, they provide the basis for a study into what constitutes a well-formed structure, and into structure as a component of style.