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Abstract

This thesis explores the use of Fibonacci sequences, and other rhythmic proportions corresponding to the golden ratio in Beethoven’s string quartet No. 13, Op. 130, and its original finale, the Grosse Fuge, Op. 133. This provides a new angle for considering the problem of the “time-experience” in late Beethoven. The golden ratio not only forms a common thread in all of the late period quartets, but I argue that it is an essential “thematic idea” within the discourse of the whole work, one bearing implications for the unfolding of the temporal process.

Firstly I outline preliminary examples of how the composer “exposes” the golden ratio at the beginnings of the Opp. 127, 130, 133 and 135 quartets. They are expressed through such means as five beats on the tonic, three on the dominant, or five beats at *forte*, and three at *piano*, or through a particular rhythmic pattern lasting five beats, and another lasting eight, and so on, each amounting to a 5:3 or 5:8 ratio, corresponding to the Fibonacci sequence, and thus to the golden ratio. In order to build a framework for durational thematicism I review literature on problems surrounding the golden ratio in Western music, the nature of rhythm, metre and pulse in tonal music, and on the “time-experience” in late Beethoven. This culminates in a brief analysis of the opening bars of the Op. 135 quartet in F major, demonstrating that the “dissociation,” as the late Joseph Kerman terms it, of classical convention in the late works occurs in tandem with the “composing out” of the golden ratio itself as a thematic idea, a process common in the late quartets.

I then apply this temporal process exclusively to Op. 130, suggesting that “dissociation” here performs a similar role. In the midst of this the golden ratio assumes a significance simply by being a common thread throughout these contrasting and seemingly disconnected sections. I demonstrate that the golden ratio occurs on multiple levels of musical structure, arguing that, by emphasising the golden ratio to such an extent, Beethoven sets up a thematic discourse that becomes a central subject in the whole work. Furthermore, by contradicting eighteenth-century metre (that is to say, notated time signatures), I argue that the golden ratio undergoes a sort of dialectical conflict with the latter, expressing a narrative that is retained in following movements. Chapter 4 deals with the Grosse Fuge, showing how this conflict between the golden ratio and classical metre reaches its extreme in this complex, polyrhythmic, fugal masterpiece. After a vehement battle, the music reaches a conclusion at which point the golden ratio, for the first time in the work, becomes subtly assimilated within 6/8 metre; the two finally reach a synthesis, and the dissociation referred to above reaches the point of a new “integration.” I then show a similar process to underlie the alternate finale from 1826, despite its highly contrasting character.
Acknowledgements

First and foremost I thank my supervisor, Graeme Downes, as it is his discoveries that form the basis of this thesis. Downes provided me with an analytical method that I then applied to the Op. 130 string quartet. Downes’ own highly advanced analytical and philosophical expertise, and knowledge of late Beethoven were a constant source of insight and inspiration as I prepared this thesis. He also went above the call of duty in providing a second pair of eyes for my analysis of Op. 130.

I also thank Andrew Deruchie for his invaluable feedback when, on two occasions, I presented aspects of this analysis at music department seminars.
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Preface

The discovery that this thesis purports to present belongs to my supervisor, Graeme Downes. While he was on a cruise ship, studying Beethoven’s Op. 127 string quartet in E-flat major, he asked himself the simple question as to what significance its opening Maestoso section has in relation to the whole work, a section that is repeated twice, but then seems to disappear, with few traces. As many writers on Beethoven have observed, the composer seldom, if ever, performs a gesture for no reason, and the decision to present the opening Maestoso tempo three times ought to be taken as a hint that, in some way, it plays a significant role in the quartet as a whole. As Downes discovered, and as we will see in the first chapter, the Maestoso section presents a rhythmic proportion, one corresponding to the Fibonacci sequence, and thus to the golden ratio, which then goes on to be employed systematically throughout the remainder of the work, thus functioning as a sort of thematic idea. We then found such a treatment of the golden ratio to be a common thread throughout all of the five late period quartets, in an analysis that accordingly became one of continuously expanding scope. Downes’ discoveries, needless to say, have had the effect of giving direction to my otherwise futile endeavours to come to grips with this problematic and multifaceted music of late Beethoven.

This discovery of the golden ratio, which I term “durational thematicism,” in the late quartets shows another means of approaching the riddle presented by late Beethoven. The golden ratios can be heard as woven into a sort of “thematic discourse,” but one consisting of a theme that is purely durational by nature. This expresses a paradox that bears upon questions of form, or of “cause-and-effect” in the music because a central part of the thematic discourse is one that is not “musical” in any way; the golden ratio is articulated by notes but is itself not musical. Analysis from this perspective, I believe, gives a fresh approach to the question of the “time-experience,” as some call it, in late Beethoven through the help of a concept drawn directly from the music itself.

My job has thus been to apply this to the whole of the Op. 130 string quartet
and the *Grosse Fuge*, Op. 133, with Downes providing a second pair of eyes, in order to demonstrate how this discovery can elucidate new ways of understanding late Beethoven, ways that, we both maintain, are entirely coherent with the experience presented by the music itself. In that sense, an analytical reading of the work according to durational thematism serves the function of becoming *conscious* of another aspect of the music, one that has not been part of musicological discourse on this subject to date, although, as we will see, many have found the question of time, broadly conceived, to be a highly significant aspect of Beethoven’s late works.

This thesis, then, beginning from the simplest, most clearly articulated 5:3 ratios, expressed through means such as the proportioning between harmonic downbeats, has treated them as clues, forming a starting point from which to analyse the whole quartet. The basic method here is no different from that of conventional motivic analysis. To perform a motivic analysis, first one must consider the given “main themes,” in order to discern melodic contours and so on, before then tracing those contours throughout the rest of the movement or work. In some cases the use of that motive will be plain and obvious, while in others it will be extremely subtly woven into the music. The approach Downes and I have taken with Beethoven’s late works has been to apply this sort of approach to the question of rhythmic proportions. The Allegro “theme” from the Op. 130 quartet, detailed in chapter 1, for instance incorporates a harmonic syncopation through which it could just as adequately be notated with successive 5/4 and 3/4 bars instead of the 4/4 given. The same is the case with the Maestoso opening to Op. 127: 5/8 and 3/8, respectively. Both examples, then, express 5:3 ratios. Other examples articulate 8:5, 13:8, 16:10, 27:17, and so on, all of which correspond closely to the golden ratio. Just as with motivic analysis, we will find some examples to be very clear and audible, while others are articulated subtly through harmonic prolongation, phrasing, large-scale structural proportions, or as one of multiple possible readings courtesy of competing downbeats.
Chapter 1

Durational thematicism in the late quartets

In the early nineteenth century during, and after, the Napoleonic era, questions about time and temporality were immanent to many philosophical and artistic minds. The philosopher Hegel and the poet Hölderlin were both “attempting to discover, and to build a time design that could do justice to his epoch and respond to the experience of its historical destiny.”\(^1\) Hegel, for example, wrote: “Cronus, this chief Titan...obviously signifies time: he swallows all his children just as time annihilates everything it has brought to birth... For natural life is in fact subjected to time and brings into existence only the ephemeral.”\(^2\) Given that Beethoven was a composer whose art lay solely in the temporal it would not be folly to suggest that he ought to be added to the list of those whose leading aim was the mastery over time. Benedict Taylor certainly thinks as much, associating the success of music in climbing the social hierarchies in the nineteenth century with precisely this triumph over the temporal.\(^3\)

The question of time and late Beethoven has certainly aroused a great deal of fascination for writers over the years. The late Charles Rosen, for example, described Beethoven, in connection with the late works, as “the greatest master of musical time.”\(^4\) Similarly, Jonathan Kramer, also in connection with late Beethoven, writes that “Beethoven’s music, perhaps more than any other pre-contemporary music, deals

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with subtle and often profound structuring of the listener’s time-experience.” The philosopher, musicologist, and composer, Theodor W. Adorno writes that, “Time – as something no longer mastered but depicted – becomes a solace for the suffering represented by expression. Only the older Beethoven discovered this secret of time in music.” And, as regards rhythm, the purely durational element of music, Curt Sachs wrote: “Beethoven’s Rhythm: The nineteenth century opens with a true apotheosis of rhythm.”

Temporality considered in its broadest sense, a great deal of concepts have been formulated in connection with late Beethoven, in order to come to grips with this central problem. One example is that of “parenthetical enclosure,” coined by William Kinderman, a term used to explain the presence of coexisting tempo groups in, for example, the first movement of the piano sonata, Op. 109, or the first movement of the string quartet, Op. 130, as part of a larger temporal process. More specifically, within a primary tempo, Vivace in the case of Op. 109, and Allegro in Op. 130, slower tempos recur throughout, giving a sense that these slower tempos are “enclosed” within the larger structure. Another, also dealing with questions of form, is that of “multiple” and “non-linear” time, adapted by Jonathan Kramer from Suzanne Langer’s temporal theories of art, to the problem of late Beethoven, which will be considered later in this chapter. A more rhythmically and harmonically focused approach is Frank Samarotto’s “temporal plasticity.” Most recently is Benedict Taylor’s 2016 book which, instead of basing itself upon a single methodology, points out a large number of aspects of the last piano sonatas, Opp. 109-11, incorporating examples from those of polymetres, or of the negation of metre altogether, to Kinderman’s “parenthetical enclosures,” Kramer’s theories of non-linear time, and so on. His goal is thereby to consider the problem of time in as broad a context as possible, so as to encompass the multifacetedness of late

8. “And his [Beethoven’s] special interest in techniques of parenthetical enclosure, whereby contrasting passages are heard as an interruption within the larger context, further enriches the temporality of his musical forms…” William Kinderman, Beethoven (Berkeley: University of California Press, 1995), 12.
9. For a discussion of “parenthetical enclosure” in the former, see Taylor, Melody of Time, 23-28 and Kinderman, Beethoven, 220. For the latter see Kinderman, Beethoven, 300-02.
10. Ibid. 220, 300-02.
Beethoven’s temporality.\textsuperscript{12}

The aim of the present thesis is to augment the sort of approach taken by Taylor, drawing upon a large number of features of Beethoven’s compositional language. The purpose is to outline the use of golden ratios, which are often concurrently on multiple levels of musical structure, whether as simple rhythmic proportions, as ratios between phrases, or as large-scale structural proportions. Through doing so I hope to show an aspect of these late works that has not been considered by analysis until now.\textsuperscript{13}

The temporal questions to be focused upon in this chapter, then, will fall into two categories: the first is to demonstrate, through examples, the existence of golden ratios in the late quartets; the second is to observe the larger formal, harmonic and thematic temporal process of “dissociation” (to use the late Joseph Kerman’s term\textsuperscript{14}) which, I believe, these golden ratios can be shown to systematically transcend, giving rise to a sort of “durational-thematic” unity in conjunction with the dissolution of the conventional aspects of music.

The present chapter will consider a broader range of works from the late period for two reasons: to show that the discovery of the golden ratio in the manner to be demonstrated in this thesis does not apply solely to Op. 130; and in order to begin with the examples that seem most appropriate as an introduction. The latter part of this chapter will go on to consider literature on rhythm and metre before focusing upon questions of temporality as I develop the notion, “durational thematicism as a temporal process,” in connection with an example from Op. 135. That is to say, durational thematicism can be considered a systematic process by which Beethoven makes the golden ratio, something purely durational, into a thematic idea in-of-itself. In chapter 2 I will suggest that a similar process unfolds in the first movement of the Op. 130 quartet to that elicited from the beginning of Op. 135, whereby the golden ratio is “made thematic” in conjunction with the dissociation of conventional sonata form procedures. The third, fourth and fifth chapters will contain a “durational thematic” analysis of the remainder of Op. 130, tracing the use of the golden ratio throughout the rest of the work, including both, its initial \textit{Grosse Fuge} finale, and the alternate “Allegro” finale of 1826.

As Martin Cooper writes:

These works could be said to have moved outside the province of mu-

\textsuperscript{12} Taylor, \textit{The Melody of Time}, 1-46.
\textsuperscript{13} As mentioned in the introduction to this thesis, the discovery of these golden ratios in late Beethoven belongs to Dr Graeme Downes, and I apply them to the Op. 130 quartet with his permission.
sic proper—if by music was understood the arrangement of ‘composition’ of sounds according to fixed, symmetrical patterns which must serve as moulds for the composer’s ideas. Beethoven’s last works take little account of such moulds. It was second nature to him, after some forty years, to follow the general schemes that he had inherited from the eighteenth century; but he expanded, contracted or otherwise reshaped such schemes to suit the natural growth of his ideas, their relationship by association, their sometimes wayward character and their common inclination to protean transformations.\footnote{15}

In the context of the present thesis, the element that lies “outside the province of music proper” is the purely durational thematic idea, the golden ratio. Adorno too alludes to what Cooper observes:

What, for me at least, constitutes this element of seriousness [in the last quartets], I would say that its basis is something almost overloaded with content, although this content itself is as if veiled. It is thus very difficult to indicate what it consists of and, above all, to find out how the content is communicated within the composition.\footnote{16}

Adorno, I argue, also points precisely to the subject of this thesis: the “veiled content” of these works is the golden ratio itself and analysis of the means by which it is “communicated within the composition” will reside in showing how it is used systematically as a thematic idea throughout Op. 130. (It is worth noting that the above quote comes from a radio presentation Adorno gave late in his life in which he played the opening bars of Beethoven’s last three quartets, Opp. 130, 131 and 135. The above quote was given in connection with these examples.\footnote{17} The opening of Op. 130 will be considered in the following chapter, while that of Op. 135 will be considered later in the present chapter. The opening of the Op. 131 quartet in C-sharp minor also incorporates a golden ratio, but it will not be considered in this thesis.)

There is an important precedent to the concept of durational thematicism, which ought to be mentioned at the outset. Charles Rosen, in analysing Beethoven’s final

\footnote{16. Adorno, \textit{Beethoven}, 188.}
\footnote{17. Ibid.}
piano sonata, Op. 111, observed the use of a common rhythmic pattern throughout the second movement, the Arietta.\textsuperscript{18} This is a rhythmic ratio, two thirds to one third (2:1) which he designated as the real thematic idea that is developed throughout the movement (a theme and variation form). This is because after the initial “Arietta” theme, the melodic materials are discarded in favour of the 2:1 rhythmic ratio. The 2:1, in Rosen’s analysis, becomes compressed as the movement progresses, incorporating smaller and smaller note values: what was quaver, semiquaver, for example, later on becomes semiquaver, demi-semiquaver. Eventually this reaches the point, at the climax of the movement, of becoming pure trills as the 2:1 ratio has undergone such a compression as to have been, in effect, homogenised.\textsuperscript{19} At this moment the sense of “metre” altogether vanishes: “The trill represents the complete dissolution of even this rhythmic articulation.”\textsuperscript{20} What is significant here, then, is Beethoven’s predisposition toward making some rhythmic-durational element thematic in-of-itself, working it into a unique temporal process.

1.1 The Golden ratio

There are a large number of texts dealing with the question of golden ratios in Western music, although they are generally focused upon questions of large-scale form. The golden ratio itself is a proportion such that the smaller and larger segments of a line form the same ratio as the larger segment with the whole. This is often notated with the equation: $(\frac{a}{b} = \frac{a+b}{a} = 1.618\ldots)$ or $(\frac{b}{a} = \frac{b}{a+b} = 0.618\ldots)$. Thus if we have a line that is 1cm the larger part will be approximately 0.618cm and the smaller will be 0.382 and the ratio between the smaller and larger parts will be $\frac{0.382}{0.618} = 0.618$, the same ratio, of course, as the larger part with the whole $(\frac{0.618}{1})$. The Fibonacci series $(1, 1, 2, 3, 5, 8, 13, 21, \ldots)$ is commonly associated with the golden ratio because as the series ascends the result of division between the current number and the preceding converges upon the golden ratio $(\frac{3}{2} = 0.6; \frac{5}{3} = 0.625; \frac{8}{5} = 0.615, \text{and so on})$.

Analysis of their application in music, as in other arts, is something that can often be met with criticism for two main reasons: subjectivity on the part of the analyst as to the points at which the boundaries of the golden ratio are to be defined, as a precaution against which I will be careful to outline a systematic methodology in this chapter; and an unfounded supposition in regard to the composer’s intentions. Regarding the latter, all this thesis is able to do is to show that the golden ratios are

\begin{itemize}
\item \textsuperscript{18} Rosen, \textit{Classical Style}, 446-48.
\item \textsuperscript{19} Ibid.
\item \textsuperscript{20} Ibid. 448.
\end{itemize}
used systematically throughout these works. As Adorno writes:

One will encounter this antipathy [towards analysis] again and again, above all in the rationalisation represented by that absurd though utterly inex-
tinguishable question: ‘Yes, everything you say is all very well and good, but did the composer himself know all this–was the composer conscious of all these things?’ ... I should like to say straight away that this question is completely irrelevant: it is very often precisely the deepest interrela-
relationships that analyses are able to uncover within the compositional process which have been unconsciously produced.21

Thus listing instances in which golden ratios have appeared in music by no means precludes the possibility that the composer himself was not conscious of the process, however systematically they are employed. Nevertheless, just as with melodic analysis one speaks of motivic relationships as if they were intentional on the part of the composer, despite the impossibility of proof, I will here speak of the golden ratio as if it, too, were deliberate on Beethoven’s part.

An important text on the subject of golden ratios in Western music is J. H. Douglas Webster’s essay listing a great number of works, from Corelli and Bach to Schoenberg and Bartók, including a special focus on one of Beethoven’s early works, the C minor quartet, Op. 18, No. 4.22 This case involves the Fibonacci principle, beginning with significant events in bb. 12, 20, 32 (that is to say, 20 + 12), 52 (32 + 20), 84, and 136. The recapitulation, furthermore, begins in b. 136, 62% of the way through the movement.23 This is a highly characteristic example of the sorts of golden ratios that analysts have often discovered. For example, in many works of Haydn and Mozart, too, the recapitulation coincides with the golden ratio.24 Additionally, golden ratios have been found in works of Debussy,25 and Bartók.26 As regards late Beethoven, Daniel

23. Ibid. 240.
25. The whole book is dedicated to the use of golden ratios in Debussy’s works. Howat, Debussy in Proportion.
Chua has suggested that the *Heiliger Dankgesang* from the Op. 132 quartet employs Fibonacci sequences in its large-scale structure, but does not push his observation further by applying it to other movements from the work, nor to the other two quartets he considers.

### 1.1.1 Fibonacci proportions in Opp. 127, 130 and 133

Let us now consider examples from the late quartets that show how they occur in an essentially different manner in our case from those cited above. The first example (ex. 1-1) is from the opening to the String Quartet in E-flat major, No. 12, Op. 127. It consists of long-short, long-short rhythms that, in conjunction with the shifts between tonic and dominant, function as 5/8 and 3/8 bars respectively. Interestingly, Michael Steinberg writes that, “For some reason these four measures seem totally to confound most quartet players rhythmically... I have heard ... almost never a performance from which, if I did not know it already, I could infer what Beethoven actually wrote.”

Eric Mckee has attempted to solve the problem of this strange introduction by arguing that it represents an ordinary dotted rhythm with a “warped sense of metre.” In Mckee’s reading this passage resembles a French overture due to its use of dotted rhythms, noting also that the most common definition of Maestoso is “with majestic strength and authority.” Kerman and Mckee both state that the material presented here is discarded after the final recurrence of the Maestoso tempo (bb. 135-38), the former writing that “the Maestoso drops out of the quartet once and for all, never to be heard of again (though possibly it will be heard echoing behind certain phrases of later movements).” Similarly, Mckee, also observing that the Maestoso section happens only three times, argues that Beethoven quotes the French overture only to then discard it in favour of the “pastoral” quality that characterises the remainder of the quartet.

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30. Ibid. 5-8.
Be that as it may, however, what is of interest to the present analysis is the aspect of the Maestoso that Beethoven does not discard. The consequence of this 5/8 3/8 “warping” of metre is to superimpose Fibonacci proportions upon the music, making them clearly audible to the listener. The effect of repeating this Maestoso throughout the movement, then, in bb. 75-80, and 135-38, is to restate the 5:3 ratio, something that is then woven subtly into the music throughout the rest of the work, though showing how would be beyond the scope of this thesis. Fortunately for the present analysis, then, the 5:3 ratio is presented with the same intensity in the Op. 130 quartet, and it is thus something that transcends individual works.

The second example (ex. 1-2) is from bb. 14-20 of the Op. 130 quartet itself. Michael Spitzer writes that here “a cadenza ... breaks out in quite the wrong way... Not only does it start on the tonic, it even dominates the entire section group, so that the tonic group is swallowed up paradoxically by a cadenza.” 33 Thus, the main Allegro “first subject” of a sonata form movement consists of “cadenza material.” Charles Rosen observed that in even the greatest works of Haydn and Mozart there are entire phrases made up of “filling,” generally consisting of fast scales and arpeggios so as to delight audiences with performers’ virtuosity.34 But, in the case of the first movement of Op. 130 this sort of content is used at the very onset of the Allegro “first subject.” Just as with the Maestoso section in Op. 127, however, Beethoven permeates this simple material with durational properties which powerfully articulate the 5:3 ratio. Five beats, at forte, of descending semiquavers in the first violin accompanied, after two

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beats, by three on B-flat in the second violin, form an anacrusis to a piano dominant seventh chord in b. 16. The semiquavers change direction in tandem with the second violin’s E-flat in b. 16, for three beats at piano before the forte semiquavers return on the upbeat to b. 17, lasting another five beats. Thus we have a five beat forte anacrusis to three beats on a piano dominant seventh chord, and another five beat forte anacrusis to another three beat piano first inversion tonic chord, articulating two successive 5:3 ratios. In both Opp. 127 and 130, then, identical rhythmic proportions govern completely unrelated musical material.

There is, however, more to be observed in this latter example by way of durational proportions. The rhythmic analysis methods of Grosvenor Cooper and Leonard Meyer involving the notion of anacrusic-thetic relationships on multiple “architectonic levels” allow us to push this further. As noted, the first “thetic” moment is a dominant seventh chord in the first three beats of b. 16, but it could only be considered “thetic” in relation to the five beats of descending semiquavers preceding and following it. The stronger downbeat is the first inversion tonic beginning b. 18, to which the V7

chord is itself anacrusic. On a higher level, then, the dominant seventh is itself part of a harmonic progression toward the tonic of b. 18. In addition to the 5:3 ratios noted above, then, a thirteen beat anacrusis precedes the tonic chord, the tonic itself beginning an eight beat progression to the dominant in b. 20. This gives a 13:8 ratio inside of which the aforementioned 5:3s are contained. Three, five, eight and thirteen all belong to the Fibonacci sequence.\textsuperscript{36}


The last example (ex. 1-3) is from the very opening of the \textit{Grosse Fuge}, Op. 133, which will be considered in chapter 4 as it was the original finale to Op. 130. As William Kinderman writes, the opening of the \textit{Grosse Fuge} “entails contemplation of the entire design” of the quartet.\textsuperscript{37} One of the means by which it does so is through incorporation of the golden ratio. After the fermata in b. 2, a unison G lasting five beats precedes four dotted minims (eight beats total) unified by \textit{sforzando} markings, giving a 5:8 ratio. Afterwards is a three beat tail motive comprised of a crotchet-quaver pattern. Thus, the initial presentation of the \textit{Grosse Fuge} main subject incorporates a 5:8:3 ratio, subtly articulated through dynamic markings and note-lengths, once again based upon the Fibonacci series. What is notable about this last example is that the unit of pulse (dotted crotchets) is denied the listener until the tail motive begins,

\textsuperscript{36} For a discussion of anacrusic-thetic relationships on multiple levels that is of a similar vein to the above, see David B. Greene’s discussion of Mahler’s fifth symphony, also based upon Cooper and Meyer’s notion of architectonic levels, and his elucidation of the “double-anacrusis,” which itself forms a larger anacrusis on a higher “architectonic level.” David B. Greene, \textit{Mahler, Consciousness and Temporality} (New York: Gordon and Breach, 1984), 47-51.

and thus the listener, without prior knowledge, is not presented with the means of consciously counting beats so as to discern the 5:8 ratio. It can only be detected in retrospect. (Note the three beat duration from bb. 1-2 prior to the five. Of course it does not form a golden ratio because of the fermata, however.)

1.2 Rhythm, metre, pulse and duration

Considering that the above necessitates a consideration of the nature of pulse, metre and rhythm, such will be the focus of what follows. The two principle sources that follow, The Rhythmic Structure of Music, by Cooper and Meyer, and The Rhythms of Tonal Music, by Joel Lester, both accord with this threefold division of the durational aspect of music into pulse, metre and rhythm. Cooper and Meyer write that, “Three basic modes of temporal organization can be differentiated. They are pulse, metre, and rhythm.”

Pulse is “a series of regularly recurring, precisely equivalent stimuli” that is “generally established and supported by objective stimuli (sounds) ... [and] may exist subjectively. A sense of regular pulses, once established, tends to be continued in the mind and musculature of the listener, even though the sound has stopped.” Metre is thus “the measurement of the number of pulses between more or less regularly recurring accents.” On these two definitions Lester accords:

Establishing the metric hierarchy of a piece or section involves establishing a pulse and organizing that pulse. Pulses arise from recurring rhythmic values in a single part, in the composite rhythm, or from a regularity that occurs amid other durational patterns.

Continuous activity makes palpable every unit of a pulse. But it is not necessary to hear every unit in order to know that these units exist. many compositions open with a rhythmic value followed by a subdivision of that value. So long as the length of the subdivision is easily related to the longer value, the pulse rate represented by the shorter value is established. This occurs when the shorter value is one half, one third, or one quarter of the longer value... Often, this shorter pulse rate is then confirmed as a continuous motion in the music immediately following.

38. Cooper and Meyer, Rhythmic Structure of Music, 3.
39. Ibid. 3-4
41. Ibid. 55.
Thus Lester also refers to a temporal process by which a composer “establishes” a pulse, and thus a metric hierarchy for which pulse forms the smallest unit. Thus, in the essentials both sources are in agreement.

It is on rhythm, however, that they differ. Cooper and Meyer describe rhythm as “the way in which one or more unaccented beats are grouped in relation to an accented one.” They then simplify rhythm into several fundamental types, employing the symbols, $\uparrow$ (unaccented), and $\downarrow$ (accented). Based upon the poetic terms, iamb ($\uparrow\downarrow$), anapaest ($\uparrow\downarrow\downarrow$), trochee ($\downarrow\uparrow$), dactyl ($\downarrow\uparrow\downarrow$) and amphibrach ($\uparrow\downarrow\downarrow$) they distinguish a number of common rhythmic shapes that appear in music. Thus rhythm, as opposed to metre or pulse, arises from the specific relationship of notes, or clusters of notes, to one another, amounting to that between weak beats (anacruses), and strong beats (anacruses). In addition to this is their already discussed notion of “architectonic levels.”

Lester takes an altogether different approach in defining rhythm:

The interaction of all these aspects of rhythm—durational patterns, accent and met[re], grouping or segmentation, and musical continuity—affects every piece of tonal music. In the broadest sense, then, when we speak of the rhythm of a given piece, we are referring to the durational patterns of its harmonic changes and of its textural, timbral, dynamic, and articulation changes; to all the factors that give rise to accentuations of varying strengths on a variety of levels; to its motivic, phrasing, and formal subdivisions; and to its continuity and flow.

Lester, then, defines rhythm in broader terms, as the patterning of events by which any number of concurrent rhythms can be articulated, where as Cooper and Meyer, on the contrary, see it as the particular function of the anacrusic/thetic relationship. Metre, then, is the function, both, of an established pulse and of rhythmic articulation, the first beat of the bar being generally emphasised as a “strong” beat, preceded by a “weak” beat anacrusis.

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42. Ibid. 6. This sort of approach to rhythm, based upon poetry analysis, was common also in Eighteenth and Nineteenth century rhythmic theory as William Caplin shows. William E. Caplin, “Theories of Musical Rhythm in the Eighteenth and Nineteenth Centuries,” in The Cambridge History of Western Music Theory, ed. Thomas S. Christensen, (Cambridge: Cambridge University Press, 2002), 664-66.

43. Lester, Rhythms of Tonal Music, 12.


45. See also, Caplin, “Theories of Musical Rhythm,” 663-64.
These conceptions of pulse, metre and rhythm are useful for considering the above examples (exx. 1-1, 1-2 and 1-3). In the first example a French overture rhythm was expressed through the long-short-long-short pattern while the durational proportion was at the same time imposed through the proportioning of harmonic shifts. The anacrusic/thetic relationship, in this instance, is only relevant in the expression of the French overture rhythm while the articulation of the 5:3 ratio occurred through harmonic downbeats and *sförzandos*. The Op. 130 example, however, would appear to fit concisely within Cooper and Meyer’s approach, as it is animated by the anacrusic-thetic relationship on multiple “architectonic levels.” Two different means, then, animate the same durational proportions: the relationship between downbeats in ex. 1-1, and the anacrusic-thetic relationship in ex. 1-2. Lastly, although durations are often expressed through harmonic or voice-leading functions, they need not always be. For example, in ex. 1-3 the 5:8:3 emerges through changes in rhythmic articulation, from a five beat G to four successive *sförzando* minims, and then three crotchets separated with quaver rests.

Beethoven thus controls reconceptualises the articulation of metre through mastery of rhythm and pulse. In other words the 5:3 and 5:8:3 ratios above are expressed largely at the expense of the notated time signatures, imposing a metric articulation contrary to the notated 2/4, 4/4 or 6/8. Through control of rhythm and pulse, then, Beethoven articulates proportions which, by way of their multi-work context, become durational-thematic entities themselves.

### 1.3 The temporal question

Until now we have only considered one aspect of the temporal question: that of rhythmic proportions, which would be better termed “durational proportions.” As mentioned at the outset of this chapter, the temporal question regarding late Beethoven is multifaceted, as can be shown through consideration of the other part of the title of this thesis, “durational thematicism and the *temporal process*.“ Robert Hatten has given an outline of three methods at a composer’s disposal for “troping temporality.”46 The first such is the use of what he terms “expressive genres,” which can be taken so broadly as to refer to large-scale form, such as Sonata-Allegro, or to the use of “topics,” such as *Sturm und Drang*.47 The second level of discourse Hatten refers to

is that of “Schenkerian-conceived” harmonic prolongation, on all levels of structure. The third is that of motivic or thematic processes, such as Schoenberg’s “developing variation.”  

An essay based upon Susanne Langer’s theories of artistic meaning by Jonathan Kramer, on the first movement of Beethoven last string quartet, No. 16, Op. 135 in F major, has elucidated a dimension to the temporal experience of late Beethoven pertaining to the above. Langer writes:

For all its logical virtues, this one-dimensional infinite succession of moments [‘clock-time,’ Kramer calls it] is an abstraction from direct experiences of time, and it is not the only possible one... If we could experience only single, successive organic strains, perhaps subjective time would be one-dimensional, like the time ticked off by clocks. But life is always a dense fabric of concurrent tensions, and as each of them is a measure of time, the measurements themselves do not coincide.

Kramer uses this notion of “non-linear” time in connection with what he shows to be a scrambled sonata form in the first movement of Op. 135, beginning with what possesses the “full impact” of a “final cadence,” in b. 10 (ex. 1-4 below). From here he suggests that the “gestural” function of the music does not coincide with the processes dictated by linear “clock-time,” the latter of which would suggest that such a “final cadence” can only occur at the end of a movement. He thus construes it as an example of “non-linear” time, adding that, because this “final cadence” recurs a number of times throughout the movement, the term “multiple” time ought also be applied. He then goes on to show that events in this movement do not follow on from one another in the logical sense expected of a classical sonata form. As illustrated in ex. 1-4 (on p. 17), after the “final cadence” in b. 10 an unrelated unison crotchet idea enters, functioning as a premature transition to the dominant, the latter arriving in b. 17. From this full-scale arrival in the dominant, as Kramer suggests, we would expect a new passage to begin in the new key, but instead three beats later a diminished seventh chord leads the music back into F major by b. 21. He furthermore suggests that later in the movement a true dominant section is given that would have fit entirely appropriately


51. Ibid. 128.
at b. 17 as a second subject following the two bars on V/V in bb. 15-16.\footnote{Ibid. 128-29.} Thus the first movement of Op. 135 represents a scrambled sonata form, presenting the listener with what he calls a “non-linear” time experience.

A seldom cited essay by Judy Lochhead augments Kramer’s approach by presenting it in a more adequate historical and philosophical context. She rejects the notion of “non-linear” time as it is understood by Kramer, writing that “gestural” function is merely a set of concepts derived from linear time. That is to say, as listeners we are familiar with the notion of a “final cadence” from other works we have heard previously, and therefore the premature arrival of what sounds, by nature of such conditioning, as though it were a “final cadence” by no means entails a “non-linear” time experience.\footnote{Ibid.}

She reformulates the problem by distinguishing between three different philosophical approaches to time: those of Isaac Newton, Immanuel Kant and Martin Heidegger. The Newtonian conception sees time as something purely objective and mechanical (thus independent of human consciousness), as “undifferentiated, linear successions of now-moments.”\footnote{Ibid. 7.} Thus it is in disagreement with Kramer’s concept of “linear” time as the latter involves a subjective component: the musician’s conditioning as to the “correct” ordering of events. Kant, however, was opposed to the Newtonian conception, seeing time as a purely subjective, \textit{a priori} faculty of human cognition.\footnote{Ibid. 8. See also Kant’s Transcendental Aesthetic (quoted later in this chapter). Immanuel Kant, \textit{Critique of Pure Reason}, trans. Marcus Wiegelt, (London: Penguin Group, 2007), 69.} Heidegger’s own approach to time is based upon Kant’s, but rather than conceiving it as purely \textit{a priori}, he saw human cognition as existing in a temporal spread between past, present, and future, in which we find ourselves in certain life circumstances (what Lochhead calls the “temporal place context”\footnote{Lochhead, “Beethoven’s Opus 135,” 4.}) and gradually evolve concepts that allow us a more satisfactory understanding of the world.\footnote{Ibid. 8.} Despite being “futurally referent,” she writes, “concepts arise from past experience and undergo a continual revision by information from the present; in other words, concepts express the specifically futural side of meaning.”\footnote{Ibid.} Lochhead, favouring the latter of these three conceptions of time, considers the problem of Op. 135 from a fresh perspective. Regarding the “temporal meaning” of bb. 1-10, then, she writes:

\begin{quote}
The interpretation of these measures as a “closing” passage is based upon
\end{quote}
past experience, i.e. the experience of similar passages which have demonstrated a closing function. Its meaning, then, is due to a concept of ‘closing function’; however, it is not unaffected by other temporal factors. First, the assessment of closing function is due to certain features of the passage which are associated with ending, but since the concept of closing involves the succession of ... antecedent music → closing music, this assessment is tempered by the missing antecedent. Second, one is also aware that the passage occurs at the beginning of the movement. Such a closing function at the beginning contradicts our expectations that a beginning will be articulated with a commencing gesture.

The temporal meaning of the opening measures [therefore] arises from a conflict between its absolute temporal function (concepts) and its temporal place-context.59

Thus Lochhead does not only identify temporal effects, such as the scrambling of events Kramer describes, but a temporal process into which the listener him/herself is drawn courtesy of the questions the listener is accordingly forced to ask (such as “closing-to-what?”). This is a process of destroying the conventional aspect of music, not to its own end, but as part of the process of inviting the listener to find new bearings in the form of new concepts, and thus of bringing something else to light. In other words, Beethoven provides the listener with a “temporal place context” that contradicts expectations, forcing him/her, at that moment, to find other, more adequate concepts that bring clarity, elucidation, to the music. In chapter two I will show how a similar process takes place in the first movement of Op. 130, but for now, considering that Kramer and Lochhead focused upon the first movement of Op. 135, the opening bars of it will be our present example. The same ratios are present here as in the above three examples. Thus it will serve, both as an illustration of the topic of this thesis, and also, once again, to show that the durational thematicism and temporal processes discussed in following chapters are not unique to Op. 130.

1.3.1 Op. 135, first movement, bb. 1-18

In the opening four bars of the first movement of Op. 135 (ex. 1-4) we are presented with a multiplicity of possible durational readings. What functions as a half-diminished ii7 chord (courtesy of the G grace note in the viola and the D-flat in the cello) in F minor in b. 1 resolves to the dominant of F major on the first quaver of b. 2 through the cello’s voice-leading (D-flat to C), and again in bb. 3-4. From that perspective, then, the 2/4 time signature is unambiguous. However, another durational process

59. Ibid. 10.
60. Ibid. 9.

occurs simultaneously to this 2/4. The grace notes beginning b. 1 are repeated an octave higher in the first violin on the second quaver of b. 2, and in the viola again on the first beat of b. 3. The pattern is then emphasised more pointedly in the first and second violins on the second quaver of b. 4 with *sförzando* markings. The effect, then, is to superimpose a durational quaver 5:3 ratio onto the music, one in conflict with the 2/4 given by voice-leading in viola and cello.
Even though the musical material is altered in b. 5, another five duration is articulated, now expressed harmonically. This is made clearest by the cello part, which, after articulating a first inversion tonic chord on the first quaver, moves to a low C on the fourth before a quaver rest beginning the following bar. The effect of the cello’s quaver silence is to undermine the sense of a downbeat beginning b. 6, as the first violin alone plays an anacrusis to the second quaver. Instead, the second quaver becomes the more audible downbeat because of the root-position tonic, and the C in the first violin. Thus, another five quaver duration lasts from the beginning of b. 5. Note, however, the voice-leading of the second violin and viola on the second quaver of b. 6, contradicting the sense of downbeat given by the first violin and cello with their own anacruses to the third quaver. Thus, in the first four bars the 5:3 ratio entered as a confrontation with the harmonic 2/4 metre, where as in bb. 5-6 the 5:3 ratio is combated by competing downbeats from the second violin and viola. These competing downbeats continue until the cadence of b. 10, which is none other than a forceful relocation of the downbeat to the first beat of the bar, giving the “full impact” of a “final cadence,” as quoted above.

What is most striking, however, is what happens from b. 10 onward, with its unrelated musical material. This material itself may bear no connection with the first nine bars but another golden ratio underlines it. From the second beat of b. 10 eight beats of straight unison/octaves movement precede a shift into full harmony on the second beat of b. 14. From here a vi chord becomes V7/V for two bars, tonicising the dominant beginning b. 17. As Kramer points out, this apparent arrival in the second subject area is cut short by a diminished seventh on the second beat of b. 18. From the three beats on the dominant beginning b. 17 we can retrospectively draw an 8:5:3 ratio from bb. 10-18. Eight beats of unison/octave crotchets beginning on the second beat of b. 10 shift into full harmony on the second beat of b. 14, effecting a highly pronounced change in texture. Thus eight beats of unison/octaves are followed by a five beat dominant preparation, giving an 8:5:3 Fibonacci sequence as three beats are then spent on the dominant itself.

As the above example shows, in the midst of the scrambling of sonata form and the undermining of thematic discourse by providing seemingly unrelated material from b. 10 onwards Beethoven is able to bring something else to the fore. In other words, by giving an 8:5:3 ratio through material, and means, completely unrelated to the 5:3s of the first nine bars the golden ratio gains an exalted significance as the one element that transcends the rift between the first nine bars and what follows. This,

I believe, exemplifies Lochhead’s point that Beethoven forces us, as listeners, to find new concepts adequate to comprehending the given “temporal place context.” The “temporal place context,” then, by contradicting our pre-given expectations as to how the work of music ought to unfold, necessitates the elucidation of a new concept based upon what remains consistent in face of the seeming unrelatedness of what precedes, and follows, b. 10.

1.4 Conclusion

The above, I argue, gives a key to answering the question posed by Adorno: “in which of their sensuous aspects do these pieces point beyond their appearance?” 62 The sensuous aspect is the musical content which animates these durational proportions, while that which “point[s] beyond ... appearance” in these examples is the golden ratio itself. For this reason, it lives up to one of Hegel’s chief ideas on the dialectical relationship between outward “appearance” and the “absolute”:

It may be gathered how reflection is always seeking for something fixed and permanent, definite in itself and governing the particulars... This universal which cannot be apprehended by the senses counts as the true and essential... An action is true when it conforms to those universal formulae... In thus characterizing the universal, we become aware of its antithesis to something else. This something else is the merely immediate, outward and individual, as opposed to the mediate, inward and universal. 63

The reason that these durational proportions are so elusive to the listener could be twofold: firstly, as interpreters we naturally listen to what is immediately present (that is to say, put crudely, the notes themselves), while forming a pulse so as to bring order to what we hear (or play), inwardly giving it uniformity; secondly, the rhythmic proportions above elucidated can be presented, not only in clear ways, but woven into the music with extreme subtlety, in the midst of the poly-rhythmic complexity Beethoven is well known for. 64

This elusiveness of the purely durational as an entity in of itself, and thus of its ability to be “made thematic,” was well known to Kant, whom Beethoven is likely to

62. Adorno, Beethoven, 188.
64. A broad consideration of rhythm in Beethoven has not been given in this thesis, but a good source is Michael E. Broyles’ essay, which describes syncopation and competing downbeats as a driving force behind much of Beethoven’s music from the very earliest works. Broyles, “Rhythm, Metre and Beethoven,” 303.
have read,\textsuperscript{65} as it forms the basis of the Transcendental Aesthetic:

Time is not something which exists by itself, or which adheres to things as an objective determination, not something, therefore, that might remain when abstraction is made from all subjective conditions of our intuition of them. For in the former case it would be something actual, and yet not be an actual object. In the latter case time could not, as a determination or order adhering to things themselves, precede the objects as their condition, and could not be known and intuited \textit{a priori} through synthetic propositions. \textit{But this last is quite possible if time is nothing but the subjective condition under which alone all intuitions can take place within us.} For in that case the form of inner intuition can be represented prior to the objects, that is, represented \textit{a priori}.\textsuperscript{66} [italics mine.]

Beethoven, then, by making these purely durational proportions thematic, makes something \textit{a priori} thematic, eliciting from the listener something that is not musical \textit{per se}, but instead purely durational, and through it bringing unity to the “dissociated” music that is presented. Robert Hatten’s three temporal “tropes,” then, represent the \textit{a posteriori} aspects of music while durational thematicism itself calls forth the \textit{a priori}. The question of exactly the effect that the golden ratio, as a source of unity, has unconsciously on a listener is, obviously, one that cannot be pursued in this thesis.

\textsuperscript{65} On Beethoven’s connection with intellectualism, see Maynard Solomon, \textit{Late Beethoven: Music, Thought, Imagination} (Berkeley: University of California Press, 2003), 1-10. Additionally, Beethoven wrote: “There is scarcely a treatise which would be too learned \textit{for me}. Without making the least claim concerning my own learnedness, I have tried since childhood to grasp the \textit{meaning of the better and the wise} of each age. Shame to any artist who does not hold it to be his duty to have at least that amount of proficiency–.” Alexander W. Thayer, \textit{Thayer’s Life of Beethoven}, ed. Elliot Forbes (Princeton: Princeton University Press, 1970), 480. Lastly, from Beethoven’s notebooks is a paraphrase of the well-known Kant quote: “The moral law in us and the starry heavens above us. Kant!!!” Ibid.

\textsuperscript{66} Kant, \textit{Critique of Pure Reason}, 69.
Chapter 2

Dissociation and dialectic in the first movement of Op. 130

This chapter will take as its point of departure the idea that Beethoven subverts the dramatic function of sonata form, even though the latter is still present, with his own processes encompassing “durational thematicism.” As Charles Rosen describes, the notion of dialectic is central to the drama of classical form, and especially of sonata form, whereby the “first” and “second” tonal areas contrast one another, in terms of character, tonality, pacing, and so on, undergoing a dramatic development at the conclusion of which, whether in the recapitulation or coda, the two antithetical poles are reconciled as a synthesis in the main key. Rosen writes: “This synthesis is, in small, the basic classical form. I do not want to turn Haydn, Mozart, and Beethoven into Hegelians, but the simplest way to summarise classical form is as the symmetrical resolution of opposing forces.”¹

This notion of dialectic is thus essential for analysing this music, although in the present context the dramatic structure of sonata form itself has been far superseded. For this reason my reference of sonata form terminology appears in quotation marks. Dialectic is instead achieved in this movement through a number of means: the alternation between recurring Adagio and Allegro tempo groups, each representing its own pole; the dialectic between the process commonly referred to as “dissociation” (dissociation of classical convention) and the unity given through the systematic presence of golden ratios; and finally the dialectical relationship between music that incorporates this ratio and that which does not. Underlying the drama of the movement, then, I argue, is a process of elucidating the golden ratio through the methods of contrast (dialectic) pertaining to the classical tradition. As David Brodbeck and John Platoff

¹ Rosen, Classical Style, 82-3.
suggest: “Beethoven retained existing strategies and procedures, while investing in them something other than their traditional, tacitly accepted meanings.”

2.1 Elucidation of the 5:3 ratio

A key to finding a vantage point from which to analyse the first movement of Op. 130 regards the question of what to make of the Allegro that breaks out from the upbeat to b. 15 through b. 19. Its onset faces the listener with a case of Heideggerian “thrownness” (Geworfenheit) such as that described by Judy Lochhead: “Beethoven thrusts open both past and future temporal realms and immediately establishes a framework of past and future activity.”

What she means by that, albeit with regard to Op. 135, is that Beethoven presents the listener with an event which he/she has no possibility of comprehending at first, simply throwing him/her into it. Upon hearing such an event, the listener is naturally forced to re-evaluate previous musical material and to listen especially closely to what follows if he/she is to have any hope of finding a level footing with which to grasp the work. There are a number of cases of such “thrownness” in the first movement, as we will see, all of which are significant in articulating or elucidating the rhythmic proportions outlined in the previous chapter. It is in this process, analogous to that of Op. 135 in the previous chapter, of destroying the listener’s learned bearings such as form and genre, thus forcing him/her to find new ones, I argue, that Beethoven is able to bring what is of a purely durational nature, something a priori, to the fore as a thematic idea.

In the opening bars of the movement we are presented with an Adagio introduction, followed by a short Allegro outburst and a return to the initial Adagio tempo. This represents a duality between the Adagio and Allegro groups that is kept up throughout the whole movement, as the Adagio tempo recurs a total of seven times, thus facing any listener with a strong sense of classical convention with serious difficulties. Daniel Chua describes it as “syntactically illogical for an introduction to introduce an intro-


duction”. He characterises this problem of formal continuity by calling it a case of structural “duplicity” in which there is an unbridgeable rift between the two tempos, one that is maintained throughout the whole work in various guises. Others have also found such a “duplicity” here. Robert Hatten and Sylvia Imeson, in their own ways, describe the two tempo groups as each constituting an essential half of the dialectical struggle of the movement, whereby any such group, on its own, is incomplete, Hatten going as far as to call the duality thematic in of itself. In a similar vein, William Kinderman writes: “The apparent incompatibility of these themes lies at the heart of the movement, and forms its central compositional idea.” Leonard Ratner goes as far as suggesting that two unique musical forms unfold alongside one another, a “two-reprise form” (Adagio) and a sonata form (Allegro).

Connected to this problem of coexisting tempo groups is Joseph Kerman’s notion of “dissociation,” which has perhaps become the most commonly used term to describe the treatment of thematic material, form, and harmonic logic in Op. 130. Those who employ the term seem to agree that Op. 130 represents the greatest degree of dissociation of all Beethoven’s works while the following quartet, Op. 131, returns a new level of cohesion uncommon in the late works, which Kerman terms “integration.” Brodbeck and Platoff develop the notion of dissociation by focusing particularly on the lack of motivic development in this movement. They draw attention to isolated cadential shapes (for example, second violin, bb. 15-16, ex. 2-1, p. 28) which do not form larger melodic ideas and are thus isolated, “dissociated” fragments of thematic ideas. Thus the traditional “main theme” becomes “dissociated” into fragments. Chua further develops this idea of dissociation by suggesting that formal and harmonic logic are torn asunder in this movement (and in the work as a whole) due to the systematic

4. Chua, Galitzin Quartets, 204.
6. Hatten writes: “Both themes are marked with salient features, and thus one cannot designate either as marked or unmarked in relation to the other. Instead, it is the opposition itself that becomes thematic...” Robert S. Hatten, Musical Meaning in Beethoven: Markedness, Correlation and Interpretation (Bloomington, USA: Indiana University Press, 1994), 134. Imeson writes: “In the first movement of op. 130, the sense of differently unfolding temporal events is brought very much to the fore, underlined by the presence of a thematic complex which encompasses material in two different tempi. The two theme groups, although they share certain motivic relations, are sharply contrasted, and play out their separate courses of action over the span of the whole movement.” The Time gives it Proofe, 163.
10. Ibid.
12. Ibid.
subversion of developmental processes inherently bound up with Classical logic. For example, he writes: “Perhaps sonata form still marshals the systems of symmetry, causality, progress, and synthesis, but the narrative is one that teeters on the edge of breakdown—moving in the opposite direction, as it were, towards ‘unwholeness,’ symbolised by the ‘double introduction’ and all its paradoxical repercussions.” He thus develops Brodbeck and Platoff’s arguments, placing them in an Adornian context, suggesting that in the wake of such structural and harmonic “rupture,” the sense of forward momentum required of a sonata form movement is rendered null, and thus the logic of thematic development, (the metaphor of a heroic subject striving towards freedom belonging to the middle-Beethovenian aesthetic) is irreparably shattered.

He concludes:

With the form in confusion, perhaps the cohesion of the work relies upon the elaboration of the motifs. Analytically this is not difficult to prove; but in reality these motives are as blurred in their logic as the form is duplicitous.

In connection with this “blurred,” abstract, motivic “logic,” Carl Dahlhaus devises the term “sub-thematicism,” associating it with the “detached expressive quality that has always been remarked upon as a feature of Beethoven’s late style.” He continues, in connection with Op. 130 itself: “The thematic structure is a mere façade: the actual musical idea, instead of being presented to view as a clearly defined theme, retreats into the interior of the music, half invisible, as a subtheme... The expressive character of the themes is kept, to a certain extent, at a distance, as though held under condition.” Analysts have found many such instances of “sub-thematicism” here, including, for example, the descending thirds of each group of four semiquavers in the “five” parts of the Allegro (bb. 14-19). This relationship of thirds is to be found also in the opening, descending semitone idea of the Adagio: from the opening B-flat the music descends a minor third before the shift into full harmony at which the first violin jumps a minor sixth (the drop of a major third raised one octave), before descending by another minor third. Additionally, as the table below shows, the harmonic structure of the movement entails descending thirds: B-flat to G-flat to D and back to B-flat. Similarly,

16. Ibid. 211.
18. Ibid.
the semitone motive opening the Adagio is reflected by the D and E-flat of the first violin on the final beats of bb. 14 and 16 respectively.\textsuperscript{19} Thus these motives become “blurred” and “sub-thematic” through their layers of abstraction.

The dissociation of formal and harmonic logic alluded to is illustrated in the table below. The sense of developmental momentum common to sonata form is hindered by the recurrences of the Adagio tempo, and the I-V-I or equivalent large-scale harmonic function common in sonata form is similarly shattered by the move to G-flat in the second subject, and to D in the development.

<table>
<thead>
<tr>
<th>Section</th>
<th>Bars</th>
<th>Tempo</th>
<th>Key</th>
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<tbody>
<tr>
<td>(Exposition)</td>
<td>1-14</td>
<td>Adagio</td>
<td>Bb</td>
</tr>
<tr>
<td></td>
<td>14-9</td>
<td>Allegro</td>
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<td></td>
<td>20-4</td>
<td>Adagio</td>
<td>F</td>
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<td></td>
<td>24-52</td>
<td>Allegro</td>
<td>(F) → Bb → F</td>
</tr>
<tr>
<td>Second subject</td>
<td>53-93</td>
<td>(Allegro)</td>
<td>Gb</td>
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<tr>
<td>Development</td>
<td>94-5</td>
<td>Adagio</td>
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<td></td>
<td>96</td>
<td>Allegro</td>
<td>(F#)</td>
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<td></td>
<td>97-9</td>
<td>Adagio</td>
<td>F# → D</td>
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<td></td>
<td>100</td>
<td>Allegro</td>
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<td></td>
<td>101-3</td>
<td>Adagio</td>
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<td></td>
<td>104-31</td>
<td>Allegro</td>
<td>D → G → C → F</td>
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<tr>
<td>Recapitulation</td>
<td>132-213</td>
<td>(Allegro)</td>
<td>Bb → Eb → Db → Bb</td>
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<tr>
<td>Coda</td>
<td>214-7</td>
<td>Adagio</td>
<td>Bb</td>
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<td>218</td>
<td>Allegro</td>
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<td>219</td>
<td>Adagio</td>
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<td>220-</td>
<td>Allegro</td>
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Be that as it may, what concerns us foremost is what is absolutely coherent between the two opening sections, as an \textit{a priori} thematic idea, forming a sort of dialogue between the two tempo groups. This something represents a dialectic of its own: that between the dissociation outlined on one side, and of the unity given through the use of rhythmic proportions on the other. The process of dissociation, particularly as expressed through the recurring Adagio and Allegro groups (thus undermining the sense of forward momentum required by sonata form) faces the listener with such a

\textsuperscript{19} For all of the above examples in more detail, along with many more, see, in particular, Rudolph Reti, \textit{The Thematic Process in Music} (London: Faber and Faber, 1961), 74-75, 228-29, 234-47. Additionally, see Brodbeck and Platoff, “Dissociation and Integration,” 151-52; and Chua, \textit{Galitzin Quartets}, 211-22.
“temporal place context” as to invite the search for something common to each of the groups, much as we did in the opening bars of Op. 135.

The 5:3 ratio of the Allegro, then, gives one strong hint as to what this connection could be. To illustrate this it is worth considering the first Allegro (bb. 14-19, ex. 2-1) a second time. What is significant here, as regards these proportions, is not only the 5:3 ratio itself, but a smaller 2:3 subdivision that can be discerned in the five part. This is articulated through the second violin’s forte entry two beats after the first violin’s descending semiquavers begin. Thus, the double counterpoint here serves the function of articulating a smaller 2:3 subdivision, meaning that the 5:3 ratio can also be notated 2:3:3. In ex. 2-1 the Allegro section has been re-barred so as to illustrate this. This smaller 2:3 ratio within the five is significant as regards the surrounding Adagio sections.

2.1.1 2:3 ratios in the Adagio

At b. 20, after the Allegro ends on the dominant, the 2:3 ratio is immediately heard again in the form of a crotchet (two quavers in duration) followed by a dotted crotchet (three) in the cello. Because the Adagio is roughly half the speed of the Allegro, the 2:3 ratio has more-or-less the same duration, where quavers are the unit of measurement, as it does in the Allegro where the unit is crotchets. The second violin, similarly, plays a crotchet and a dotted crotchet in b. 21, then the viola does so in bb. 22-23, and finally the first violin in bb. 23-24. In the latter case the first violin has a jump in register of an eleventh, which causes its 2:3 ratio to stand out particularly starkly against the counterpoint. Thus it would seem that Beethoven is making a point of this 2:3 proportion. In a sense, then, the Allegro represents a “composing out,” or “elaboration” (to use Schenker’s term), or an elucidation, of the 2:3:3 (or 5:3) ratios innate to the Adagio section.

The same proportions as those which were just elicited from the Allegro and second Adagio are also present at the beginning of the quartet, even though they are unlikely to be heard as such without prior elucidation. A 2:3:3 is given immediately: a B-flat crotchet descends to a dotted crotchet A followed by three quavers before the half-cadence in bar 2. At the same time there is a crescendo whose effect is to

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20. The Lindsay, Borodin, and Emerson quartets all play the Adagio at half the speed of the Allegro. Thus very same durations, and not just proportions, permeate both sections.
22. It is fortunate, in this sense, that Beethoven includes the first Adagio in his repeat of the “exposition.”

26
underscore this ratio, as the return of the piano dynamic in bar 2 demarcates the latter as something separate. Moreover, the dotted crotchet A sounds momentarily “thetic” because the semitone descent preceding it plays a leading-note function, while the ensuing three quavers, in their continued descent, are anacrusis. This means that the 2:3:3 ratio is animated courtesy of the two part being anacrusic, the three being thetic and the following three anacrusic again. However, if the A is thetic, the most logical harmonic reading would be to see it as the dominant of D minor, something that is consequently contradicted by the further descent.

Other rhythmic readings are possible here too, ones which, however, do not correspond to the Fibonacci series or the golden ratio.23 A quaver 7:5, for example, distinguishes itself through the point at which the texture shifts from unison/octaves into full harmony. That is to say, the unison/octaves descent lasts seven quavers before the music becomes harmonized and a ii–I6–V cadence unfolds, lasting five (if we include the quaver rest on the fourth quaver of b. 2). At the same time a crotchet 4:2 reading is possible simply by seeing b. 1 and its anacrusis as a 4/4 bar, as Hatten suggests,24 and the half-cadence in b. 2 as a 2/4 bar. It is therefore Beethoven’s subsequent elucidation of 5:3 (2:3:3) in the following Allegro and Adagio sections which clarifies its significance. Nevertheless, these multiple competing rhythmic readings could supply a context for understanding Adorno’s observation that this passage is “overloaded with content” (to return to the quote from the previous chapter).

23. This gestures back to Lester’s point from the first chapter that multiple concurrent rhythms can be articulated simultaneously. Beethoven appears to be making a number of interpretations possible, before, through the elucidation described in regard to the Allegro, choosing one in particular, thus making the 5:3 ratio the “correct reading.”

24. Hatten, Musical Meaning in Beethoven, 137.
To be sure, a great deal more is to be read into the 2:3 ratio in the opening bars (ex. 2-1, bb. 2-6). In bb. 2-3 it is simply courtesy of the fact that the initial phrase repeats, albeit an octave higher and now with full harmony at the outset. (Because of being fully harmonized, the 7:5 ratio has been expunged in bars 2-3.) In b. 4 the quaver tonic chord on the second beat lasts, in effect, for three quavers due to the two quaver rests, giving the V-I cadence a 2:3 ratio. The same applies to the V-vi progression in b. 5. However here there is also a one quaver anacrusis, giving a 1:2:3 ratio in the form of an anacrusis to an anacrusis to a thesis (V-V-vi). In b. 6 Beethoven articulates this same ratio in a very different manner. This bar comprises a C seventh chord (V7/V) which lasts five quavers, resolving to an F in the last quaver. In the third quaver of the bar, however, the chord shifts from second inversion to root position with *sforzando* markings in the second violin, viola and cello articulating the continued use of the 2:3 ratio.

### 2.1.2 5:3 and 8:5 ratios on a larger durational level

Additional Fibonacci ratios are also to be found in the two Adagio sections considered above, ones that overlap with those already mentioned. For example, from the tonic chord on the second beat of b. 4 there are three beats until the next harmonic downbeat, the submedian on the second beat of b. 5, giving the first three beats of a 3:5 ratio. In b. 6 the downbeat is deflected, as the music remains on the supertonic (ii7) on the second beat. The next harmonic downbeat, is the dominant chord beginning b. 7. (The dominant on the last quaver of b. 6 was significant in articulating the 2:3 ratio considered above, but as regards the larger harmonic function the downbeat is in b. 7 itself because of the two semiquaver anacrusis in the first violin on the last quaver of b. 6.) Thus, the spacing of harmonic downbeats here gives the 3:5 ratio: three beats from the tonic chord on the second beat of b. 4 until the submedian on the second beat of b. 5, and another five until the dominant of b. 7.

An 8:5 ratio, with smaller 3:5 and 2:3 subdivisions, respectively, encompasses the second Adagio, and it is found through the same procedure as that from bb. 4-6: the location of harmonic downbeats. The dominant beginning b. 20 progresses to V6/V on the first beat of b. 21. The first beat of b. 22 is a half cadence to the V6/4/V chord on the second beat, but because the latter is in second inversion, and itself serves a dominant function to the V on the third beat, the harmonic downbeat is shifted to the latter. Consequently, from the V6/V beginning b. 21 the next harmonic downbeat is five beats later, on the third beat of b. 22, resulting in the 3:5 from bb. 20-22, illustrated in ex. 2-1. Following the same procedure, the next harmonic downbeat is
the dominant chord on the second beat of b. 24, giving another five beats from the last beat of b. 22 through the first of b. 24. This five is divided into 2:3 by the jump in register in the first violin on the second beat of b. 23, the jump in register thus performing two functions by articulating 2:3 ratios on two different durational levels. The encompassing 8:5 ratio referred to, then, is articulated by the three harmonic downbeats on the dominant: eight beats from the beginning of b. 20, five from the last of b. 22, before the final dominant chord on the second beat of b. 24 closes the section.

The opening Adagio–Allegro–Adagio sections, then, are permeated through and through by the Fibonacci proportions: 2:3, 3:5, 5:8 and 8:13. But it is also the temporal process through which they are elucidated that is so striking. The Allegro does not, as mentioned in the first chapter, present a distinctive melodic idea, but rather, “cadenza” material. Furthermore, it does not establish any clear tonic key, but rather a five beat anacrusis to a dominant seventh chord that lasts for three beats, then another five beat anacrusis to a first-inversion tonic chord. Moreover, the expected strong downbeat arrival after the five beats of descending semiquavers is deflected by the sudden change in dynamics to piano, on both occasions. Heideggerian “thrownness” thus seems apt for describing what has just occurred. The opening Adagio is loaded with durational proportions, but it is not until the subsequent Allegro that attention is drawn to them, and then the point is driven home by the return of the Adagio material, laying particular emphasis on the quaver 2:3 courtesy of the jump in register in bb. 23-24. Thus in dialectical fashion, in tandem with the “thrownness” resulting from the brief bewildering “cadenza-like” Allegro, and the equally strange return to Adagio, something “else” is made thematic by being the common thread. This something else is thereby given greater and greater elucidation as it is elicited from the listener.

2.2 Second Allegro

When the Allegro resumes, the alternation of fives and threes continues for another 9 bars in the same manner as in the first Allegro, amidst harmonic oscillations in the vicinity of the dominant. The music gravitates toward the tonic, but only arrives there fully in bar 37. As Chua puts it, from the moment of the F major arrival beginning the second Adagio (b. 20), the music spends a long time “on, rather than in” F as an
Ex. 2.2: First movement, bb. 24-49, Allegro re-barred.
anacrusis to the B-flat arrival in b. 37. A speculative golden ratio can be discerned in regard to this. It is based upon the assumption given earlier, that the Adagio is to be taken at half the speed of the Allegro. In such a case, the music spends 28 quavers (plus a fermata) in the Adagio (in F), then 49 (crotchet) beats at Allegro while still on F, which adds up to 77. Following this are 48 beats on the tonic before the transition begins in b. 49. 48/77 is equal to 0.623. Or, with the fermata from the Adagio included in our calculation it would evaluate to approximately 0.615 (if we take the fermata to add one quaver to the duration). It is believed that Beethoven was unable to multiply or divide, so his awareness that 48/77 formed a golden ratio is by no means guaranteed, although it would not be difficult to intuit that 48/77 forms a similar ratio to 5/8. The point, nonetheless, is not to suggest that Beethoven was composing mathematically, but that a golden ratio is present, one articulated through the same means as the smaller ones considered above: proportions between a harmonic anacrusis and the time spent on the tonic itself.

2.2.1 The moment of disillumination

The most obvious aspect of this second Allegro, in regard to its durational features, is the switch in b. 34 (ex. 2-2) during which the 5:3 ratio we are now used to is abruptly removed, “disilluminating” what follows. (Disillumination here refers to the removal of the golden ratio from the music, the rationale behind the term being that the durational proportions that previously illuminated the music no longer do so. This notion of “disillumination,” as we will see, forms an essential part of the design of the quartet.) This disillumination is made most apparent in two ways: firstly by the change in semiquaver pattern; and secondly by the dynamics, which no longer serve the function of articulating 5:3. Instead, the music remains at piano, with a crescendo to forte beginning on the third beat (b. 34) lasting three bars (bb. 34-36) before alternating between forte and piano each bar, on the bar line, from bb. 37-40.

Through the suddenness of this disillumination, however, a disjunct between metre and harmony results, the latter temporarily retaining a semblance of the earlier durational proportions. Beginning b. 34 the first three beats express a dominant chord, the next three a diminished seventh, and the next two the supertonic. Thus, the har-

25. Paraphrasing Donald Tovey, he wrote, “The first group is not in the dominant, as Tovey would say, but on it.” Chua, Galitzin Quartets, 205.


27. The term, “disillumination” was coined by my supervisor, Graeme Downes, during the preparation of this thesis, and I use it in this connection with his permission.
mony follows a 3:3:2 pattern, a reversal of the now familiar 2:3:3. Following this is an extraordinary harmonic acceleration resulting in what might be called an authentic cadence that lands on the tonic on the fourth quaver of b. 36. Through this harmonic dislocation a quaver 3:5 is imposed upon b. 36. Namely, a first inversion tonic chord on the first quaver of b. 36 progresses to a second inversion dominant seventh chord on the third, giving three quavers, followed by the fully harmonised tonic chord on the fourth giving a harmonic a “downbeat” halfway through the second beat of the bar. From here a V6/4-7/5/3 motion resolves to the tonic beginning the following bar. Thus, the displaced tonic on the fourth quaver gives rise to a quaver 3:5 ratio in b. 36. However, compared to the 5:3 ratios of the first nine bars of this Allegro which were absolutely clear in their articulation, this is heard more as a violent rupture between harmony and metre, a side-effect of the sudden disillumination of the musical material.

After this three bars of conflict a sort of rhythmic squareness takes over. This is expressed in the form, in the next four bars (bb. 37-40), of a return to the “anapaest” idea, as Kerman refers to it,\textsuperscript{28} from bb. 8-12, combined with oscillations between tonic and subdominant (as if foreshadowing, through subdominant leaning, the continued fifth-wise descent to be carried out in the recapitulation), and the above-mentioned alterations between \textit{forte} and \textit{piano}. After this, tonic and dominant oscillations occur (bb. 41-42). In bb. 43-44 a I-vi-ii progression is punctuated with \textit{sforzando} markings on every minim beat before four bars of unison/octaves arpeggios with \textit{sforzandos} or \textit{fortes} to accent every crotchet beat. Note the 9:7 ratio (quavers) in the harmony from bb. 45-48 resulting from harmonic changes (between I and V) that are out of sync with the bar line. This warping of harmonic rhythm thus combines with the relentless squareness of the harmony to create a particularly unsettling effect.

Here we have the third dialectic referred to in the introduction to this chapter. The first was the conflict between Adagio and Allegro tempo groups, and the second was that between “dissociation” of convention and the simultaneous elucidation of durational proportions. The third is that between “illumination” and “disillumination.” Beethoven dramatises this disillumination of the material through the descent into near barbarism, reaching its culmination with the staccato, \textit{forte}, octave/unison quavers with harmonic syncopations. In a sense, then, at the moment of disillumination, the music becomes subject to pure Newtonian time (Newtonian time becomes “thematicised”) as it was characterised by Lochhead in the first chapter: as a linear, mechanical, cause-and-effect driven “succession of now-moments.”\textsuperscript{29}

A large-scale golden ratio, however, proportions this whole section from the begin-

\textsuperscript{28} Kerman, \textit{Beethoven Quartets}, 307.
\textsuperscript{29} Lochhead, “Beethoven’s Opus 135,” 7.
ning of the second Allegro (upbeat to b. 25) until the beginning of the transition at b. 49 (ex. 2-2). The point at which the golden mean occurs is b. 34, where the music shifts from clear 5:3s into twos. There are thus nine and a quarter bars of blatant 5:3s before the squareness of common time imposes itself upon the music for fifteen bars. What results is a 9:15 ratio, 9:15, of course, being identical to 3:5 (it is actually 9.25:15 to be precise, because of the crotchet upbeat to b. 25, approximating even closer to the golden ratio). Therefore, strikingly, the fifteen bars of disilluminated “squareness” described above are enclosed within a larger golden ratio. As a general note it should be pointed out that a close approximation of the golden ratio is sufficient, in a durational art, for articulating the golden ratio given the subjective processing of time, and that, in many cases, slight rubato is employed on the part of the performer.

2.3 “Second Subject Area”

After this, what is left to happen but a further descent into banality? An outrageous, “uncaused” chromatic ascent, however, that lands the music into a harmonically far-off key, G-flat major, suddenly, and perhaps sarcastically, saves the music, throwing it a third of the way around the circle of fifths. That is to say, the two events, the descent into rhythmic unison/octave banality on the one hand, and the arrival on the dominant on the other, are both subverted by a transitional ascent to a distantly related key area. The effect of this, despite its drawing attention to a classical convention, namely, the “second subject area,” thus placing it “on a pedestal,” as Kinderman puts it, is once again to force the listener into a state of “thrownness” resulting from the arrival in a completely alien world. The motivic presence of aspects of both, the initial Adagio and Allegro groups in this new section, the Adagio chromatic descent and minor sixth jump being represented in reverse order by the minor sixth jump followed by a melodic descent (bb. 55-57), and the Allegro by the descending thirds of bb. 53-55, do little to alleviate the sense of “thrownness” resulting from the arrival in G-flat.

30. It would be mistaken to insist that this key is entirely unprecedented. For example, the very opening of the quartet comprises B-flat to A, the latter of which we above interpreted, at first, as V of D. Thus the quartet opens with what is, at first, bvi to V in D minor. At the second subject the music instead moves from V to bVI in B-flat. Additionally, as remarked above, the second subject is a major third below B-flat, reflecting the descending third pattern from earlier in the movement. See, Chua, Galitzin Quartets, 208-09.

31. As Chua notes. Ibid. 206-08. Furthermore he suggests that the effect of this is to shake the foundations of sonata form such that it becomes a caricature, undermining the function of the structural dominant.

32. Kinderman, Beethoven, 300.

33. As Reti points out. Reti, Thematic Process in Music, 74-75. See also, Chua, Galitzin Quartets, 217-18.
Ex. 2.3: First movement, bb. 51-70.
Once again the music is permeated with the durational proportions of the opening bars (see ex. 2-3). Here they are given on two levels: through the overall durations of the three phrases preceding the change of key signature in b. 71, and through the proportions of small melodic and rhythmic patterns. As regards phrasing, the first (bb. 55-58) begins when the music arrives in root-position G-flat major and lasts four bars. The second (bb. 59-64) lasts six and is an elongated repeat of the first. Then a highly contrasting third phrase begins in bar 64, also lasting six bars. Thus, the initial phrase lengths in the second subject area are four, six and six, making for a 4:6:6 ratio, an amplification of 2:3:3, now reflected on the level of phrase structure. Just as the first 2:3 parts of the 2:3:3 ratio in the first examples were similar enough that they formed a larger five, such is the case here too, the second phrase being a development of the first, giving ten bars total, the following six bars contrasting greatly. (That the second of the three phrases is actually five and three quarters bars instead of six makes for an even closer approximation of the golden ratio than 10:6, namely, 9.75:6.)

Secondly, smaller Fibonacci proportions can be discerned using quavers as our unit of measurement. The jump of a minor sixth in b. 55 from a minim B-flat to a minim G-flat lasts eight, the crotchet descent also lasts eight, but then the tail idea in b. 57 lasts five. Thus, the crotchet descent and tail motif form an 8:5 ratio. This is immediately followed by three quavers worth of semiquavers in the cello, resulting in an 8:5:3 descending Fibonacci sequence. The 5:3 is then repeated by the cello in b. 58. Changing our unit to semiquavers, more 5:3 ratios are to be found from bb. 64-70. The pattern pertaining to the whole section (with the exception of b. 66 because of the added minim rest) is that of a three semiquaver anacrusis to a crotchet and a semiquaver rest. This latter example would be un-noteworthy in a work by another composer, but in the case of Op. 130, when this ratio has already been used to such an extent, it takes on a significance that it would not otherwise possess.

After the nine beat anacrusis (ex. 2-4) in which the first violin plays a descending semiquaver pattern, another disillumination occurs, involving a three bar phrase comprising clear 4/4. But where in the first subject the consequent process was a descent into unison/octaves, in what follows the case is the opposite. Through the competition of downbeats, the entries of the slurred, descending semiquaver motive during harmonic downbeats, the use of “chordal skip” gestures which are also dislocated from the harmonic downbeats, and so on, the music gains an uncanny “lightness” altogether free of structural downbeats. The end result of this, however, is that when the downbeat does occur, it is displaced, resulting in aggressively articulated fours in discordance with the bar line.
Ex. 2.4: First movement, “second subject,” bb. 70-90.

Let us consider this more closely, starting from where the downbeats are still clear: bb. 77-79. B. 77 begins with an unambiguous first inversion tonic chord, moving to the submediant beginning b. 78. In b. 79, however, semiquavers enter on the final beat which continue through the first three beats of b. 80. In b. 80 itself the second violin plays a 4-5-1 chordal skip shape which emphasises the third beat through its 5-1 movement onto an implied dominant chord. However, on the same beat the viola and cello play a descending semiquaver pattern that is anacrusic to the fourth beat tonic, on the latter of which the first violin enters with its own semiquaver anacrusis. For similar reasons, there is no clearly audible downbeat in b. 81.

From b. 82 “downbeats” get gradually stronger again, albeit most of them are not in conjunction with the bar line. The first beat indeed has a crotchet A-flat in the first violin preceded by anacrusisic semiquavers, but at the same time there are descending semiquavers in the viola and cello, which are anacrusic to the second beat. Furthermore, the first beat of the bar is what can be designated either as an F diminished triad, or a second inversion A-flat minor seventh chord (ii4/3). The third beat of b. 82, on the other hand, outlines a root-position submediant chord, albeit one again accompanied by semiquavers in viola and cello, making it nevertheless a stronger downbeat than the first. B. 83 begins with a dominant chord resolving to
the tonic on the second beat, giving a harmonic downbeat on the second beat of the bar, and setting the precedent for what follows. Similarly, a vi chord on the second beat of b. 84 is prepared by V/vi on the first. On the second beat of b. 85 Beethoven drills the point home with a second beat sforzando, further articulating off-beat 4/4 with another sforzando on the final beat, and on the second of b. 86. In terms of rhythmic proportions, the downbeats, which gradually get stronger from bb. 82-87, can be designated as 2:3:4:4:4:3 (ex. 2-4), although what seems to be the primary issue is the syncopation whose consequence is that an effective 3/4 bar results in b. 86 as the music returns to the “correct” downbeat beginning b. 87. Note, however, that from the first, and weakest, of these downbeats, the vi chord beginning b. 82, we are given five bars of progressively stronger downbeats until the clear three bar phrase beginning b. 87. Thus a 5:3 ratio results as the music “returns to earth” in the wake of what preceded it.

2.4 Development section

As the second subject area winds down the Adagio-Allegro alternation returns. G-flat major is reinterpreted as F-sharp major in bb. 96-97, the third of D major, the latter of which is confirmed as the new key by a cadence in b. 99. This eases the music into what is possibly the strangest development section Beethoven ever wrote, one which Brodbeck and Platoff described as having an “unusual dreamy effect” because of the sense of timelessness it evokes. The development “proper” (Allegro), lasting from bb. 104-31, is eased in to by the above-mentioned Adagio-Allegro alternations.

The development is highly “non-developmental” by nature. Let us first consider it motivically. The Allegro proper (b. 104 onwards, ex. 2-5) consists of four motives: the cadential idea from the Adagio, now an ostinato pattern (labelled a, b. 104); occasional groups of isolated semiquavers from the Allegro (labelled b, b. 105); the so-called “cadential idea” from the first-subject Allegro (labelled c, bb. 105-06); and a reworked iteration of the initial motive from the second subject (labelled d, bb. 106-07). These ideas all enter the music seemingly ignorant of one another, simply as melodies that temporarily float to the surface, then disappear again, weaving in and out of the texture (with the exception of the ostinato figure a which remains throughout). Motive c is, in almost all of its instances, five beats in duration with a smaller 3:2 subdivision at the point of its jump. Similarly, motive d is eight beats

34. Brodbeck and Platoff, “Dissociation and Integration,” 158.
35. As Kerman noted. Kerman, Beethoven Quartets, 305-06.
Ex. 2.5: First movement, “development,” bb. 104-32.

in duration, but the ratio between the initial note and its octave jump, on one side, and the descent on the other, makes for a 5:3 ratio. Furthermore, there is a smaller 2:3 division in the five part articulated by the point at which the jump occurs. These ideas repeat, with little alteration, in a sort of hypnotic succession over the ostinato
backdrop of a and their effect is to create a rhythm which naturally lends itself to the 5:3 ratio. Thus, the stasis of motivic forms weaving in and out of the musical tableaux gives rise to what is the antithesis of a “developmental” development.

That is only the beginning of the development’s peculiarities, however. Through the weaving of melodic ideas no truly thetic event occurs at any point. That is to say, between the oscillating harmonic rhythm and the inter-lapping succession with which the two main melodic ideas (motives c and d) enter, any conceivably thetic moment is simultaneously refuted. Furthermore, the development, considered harmonically, is a gradually descending cycle of fifths from the beginning key of D major through G, C, and to a dominant chord of B-flat before the “recapitulation” begins. What is more extraordinary, however, is the pattern that we will find to emerge from this as regards the golden ratio. After eight bars in D major the music becomes disilluminated, before dropping to G major, at which point the golden ratio reappears. In b. 118, as motive c becomes fragmented, the music is again disilluminated, before dropping to C minor in b. 123, where the golden ratio again floods back into the texture. What is to be read into this observation, however, will have to be left for future analysis. Note, however, that something similar occurred in the first subject, second Allegro, where, after nine bars in B-flat major, the music became disilluminated, remaining so until the key change to G-flat.

Let us now consider all of this in detail. From the beginning of b. 104 the viola and cello oscillate between dominant seventh and tonic chords (with the dominant sevenths occurring on the downbeat), and it so happens that five beats later the first violin enters with motive c. This takes the form, as it always has, of a three beat anacrusis, thus distinguishing a three beat duration from the five preceding beats of oscillating a. When it lands on the D in b. 106 the cello enters with motive d, which, because of its rhythmic qualities already mentioned, presents another 5:3. The next four bars (bb. 108-11) are essentially a repeat of bb. 104-07, although the music is now on the subdominant, and its harmonic oscillations are between I6 and vii6/4 chords.

In bb. 112-3 the 5:3 ratio temporarily disappears. The cello’s melody from bb. 110-11 spills over into b. 112 with a crotchet A slurred to a G quaver. This puts the rhythm of 5:3s somewhat into confusion because it supposedly places a downbeat on the second beat of the bar. But, the first violin also enters on the second beat with its three beat anacrusis (c). The same happens when the first violin’s motive c resolves in b. 113. Here the first violin attempts to cadence onto a C chord, but the harmony underneath gives a second inversion G major chord. The cello then enters on beat two with the first three beats of motive c, but it is an anacrusis to nothing, as
the oscillating figure \((a)\) is what follows, as V6/5-I progressions in G major \((b. 114)\). Therefore, bb. 112 and 113 show a momentary lapse in the periodicity of 5:3, in the midst of competing rhythmic readings. The 5:3 ratio returns with full clarity in b. 114 as there are another five beats of harmonic oscillations before the first violin enters with motive \(c\). Similarly, the cello asserts the 5:3 ratio in bb. 116-17 with \(d\).

Another disillumination occurs in bb. 118-22 in the form of straight 4/4. Here motive \(c\) is shared between the cello and first violin such that the first beats of bb. 119 and 120 are both accented with strong beats, giving a clear sense of fours. Note that once again the prospective downbeats are weakened by an uncooperative harmony underneath. For example, in b. 119, the first violin’s high D is only supported by an A and C, expressing a second inversion dominant seventh chord. In bb. 120-21 the cello’s “cadences” onto G are ignored by the middle parts as second violin and viola play a C and F-sharp respectively. In each of these two bars, the inner parts do resolve to G chords on the second beat, but on both occasions it is at the same time that the first violin enters with a quaver-quaver anacrusis to beat three. The violin’s high Ds are also refuted as downbeats in these cases because of the E-naturals in the viola (beat 3 of bb. 120-21). All of this corresponds to a truncation of motive \(c\) according to the Fibonacci series from bb. 120-22: from a five beat duration, down to three, then to two in the cello \((b. 122)\) then finally to one courtesy of the first violin’s one beat anacrusis to motive \(d\) in b. 123.

From b. 123 the 5:3 ratio returns, again courtesy of the rhythmic form of motive \(d\), by the first violin \((bb. 123-24)\) followed by the cello \((bb. 125-26)\). At this point, a number of other, overlapping Fibonacci proportions appear. For example, the music spends four bars in C minor \((bb. 123-26)\) immediately followed by two and a half in C major \((bb. 127-29)\). Measured in minims, that makes for an 8:5 ratio. After this another five \((crotchet)\) beats are spent in C minor. Meanwhile, in b. 129 the first violin plays one last instance of motive \(d\) which continues even while the development abruptly ceases. There are other 5:3 ratios to be found in the development section, courtesy of articulation in the ostinato pattern, as shown by the second violin and viola, but they will not be discussed here \((see \ ex. \ 2-5)\).

The same sort of transcendence of musical time, then, is at work in this development as in the Op. 111 slow movement. Rosen wrote, “the slow movement of op. 111 succeeds as almost no other work in suspending the passage of time at its climax,”\(^{36}\) before continuing: “The development section of the first movement of the Quartet Op. 130, with the continuous soft pulsation, the tiny ostinato theme, the long repeated

\(^{36}\) Rosen, Classical Style, 446.
lyrical phrase all combined into one, suspends motion in the same way as the quiet beginning of the development of the Ninth Symphony..."37 The transcendence of time, then, is very much what is at issue in this development section. The non-congruence of thematic materials with any ordinary sense of developmental logic, the harmonic stasis from the V-I oscillations of motive \(a\), and the absence of conventional metre all contribute to the uniqueness of this section.

Thus Dahlhaus’ suggestion that late Beethoven holds everything at a distance remains true, even though the above is almost the exact opposite of “sub-thematicism.”38 That is to say, all of the thematic ideas (the four motives outlined) remain on the surface, entirely distinct from one another, repeating with little alteration as mere objective entities. A section such as this, then, epitomises the implications of the famous quote from Thomas Mann’s novel, *Dr Faustus*:

> The relation of the later Beethoven to the conventional, say in the last five piano sonatas, is, despite all the uniqueness and even uncanniness of the formal language, quite different, much more easy-going. Untouched, untransformed by the subjective, convention ['melodic materials' being something belonging to 'convention'] often appeared in the late works, in a baldness, one might say exhaustiveness, an abandonment of self, with an effect more majestic and awful than any reckless plunge into the personal.39

In a similar vein, Rose Subotnik writes (summarising Adorno) that the central event in a middle period sonata form concerns the predetermination with which the musical subject “returns to itself” at the moment of recapitulation: “The general principle of form through which Beethoven’s second-period subject asserts its freedom is what Adorno, borrowing a term from Schoenberg, calls ‘developing variation’.”40 Then, describing the second period “development section,” she continues:

> Development is the process through which the musical subject demonstrates its self-generated powers as it ‘goes out,’ in dialectical terms, from itself into the generalizing world of Other or Object, through which it demonstrates, in other words, its freedom in objective reality... The emphatic reassertion of self in Beethoven’s recapitulation is equally important in the developing variation theory, for it is through the recapitulation that the subject demonstrates its power to return to itself, no matter how vigorously and far it has travelled into the world of object.41

37. Ibid. 448.
41. Ibid. 249.
That the first words used to describe the Op. 130 development are “dreamlike” and “stasis” already implies a contradiction of the middle period notion of development. Furthermore, the absence of clear causation with which the recapitulation begins shows that the latter is the result of, not the subject’s power to “return to itself,” but rather of an outside force dictating: the recapitulation shall begin now. However, just as in the case of the Adagio-Allegro alternations from the beginning of the movement, it was the switch-like contrast that elucidated the golden ratio, here the sudden shift from “development” to “recapitulation” once again highlights that which is common to both: the 5:3 ratio. The golden ratio and this “outside force” referred to again suggest themselves to be conceptually related.

2.5 Recapitulation and Coda

What is extraordinary about the recapitulation is the extent to which Beethoven reworks a number of the exposition’s features, yet retains the overall structure and proportions, articulating them differently. To begin with, the fifth-wise plummet, beginning in the development in D, continues throughout the recapitulation ending at the onset of the second subject area. It descends all the way to D-flat, from B-flat (where the recapitulation begins), through E-flat and A-flat before reaching D-flat.\footnote{Imeson, The Time gives it Proofe, 160.} Because B-flat proves unsustainable in the wake of the continued fifth-wise descent, Chua suggests that this is actually an E-flat recapitulation.\footnote{More strikingly, he suggests that both the alternate finale and the Grosse Fuge too have E-flat recapitulations (the latter of which he interprets as a sonata form). Chua, Galitzin Quartets, 229.}

The recapitulation, due to word-count limitations, will not be considered here in great detail, but some of its most salient features are certainly worth mentioning. The larger golden ratio from the exposition’s first subject is also found here, although it is now 10:16 instead of 9:15. From the beginning of the upbeat to b. 132 there are ten bars before that which corresponds to b. 34 is reached, where the 5:3 ratio is abandoned (b. 142).\footnote{This is ignoring the temporary shift into twos at b. 137, which is reflected, albeit more subtly, in the exposition too through the lack of a crescendo in b. 29.} On this occasion there is no such disagreement between the semiquavers in the upper parts and the underlying harmony (as there was in bb. 34-36) because the slurring now clearly expresses threes (b. 142). From here, the afore-mentioned harmonic descent is articulated through strong downbeats every three bars: E-flat major in b. 145, E-flat minor in b. 148, and D-flat major, with dominant (A-flat) oscillations, at b. 151. After this is the unison/octaves idea (bb. 154-57) now serving...
to consolidate D-flat major as the new key. Thus, there are ten bars of B-flat, from bb. 132-41, followed by sixteen bars in which the descending cycle of fifths resumes and the 5:3 ratio disappears. This gives 10:16.

The last section of the movement that appears to exhibit these Fibonacci proportions is that pertaining to the final instances of the Adagio and Allegro alternation, from bb. 217-22, in the coda. Brodbeck and Platoff argue that Beethoven here achieves a sort of integration between the Adagio and Allegro tempos which until this point had represented nothing but formal dissociation, an idea that has been echoed by Imeson. Connecting the two tempo groups here, according to Brodbeck and Platoff: is the ascending chromatic line which continues after the full-blown return to Allegro in b. 223; the coexistence of the Adagio and Allegro themes, along with the successive alternation of the two main motives, the semitone “cadential idea” of the Adagio, the perfect fourth cadence of the Allegro (in addition to the semiquaver pattern); and, “finally, in mm. 223-26 both patterns seem to emerge from one and the same rhythmic shape.” But, as Hatten suggests, there is only the “illusion of thematic resolution

Ex. 2.6: First movement, “coda” rebarred, bb. 217-22.

of the Adagio theme (with its expressive content) into the Allegro,"\(^{48}\) as the rift between the two tempos remains as strong as ever, due to their starkly contradictory characteristics. It can be furthermore noted that a 3:2 proportion unites these two alternating tempos. Ex. 2-6 shows this by rewriting the Adagio at the Allegro tempo, whereby crotchets become minims. But, once again, this is merely the illusion of a synthesis between the two tempo groups, as the characteristics of the two remain as starkly contrasted as ever.

With the exception of the example just outlined, the coda is remarkably “square” in nature, suggesting that the integration referred to has occurred in conjunction with the departure of the 5:3 ratio, and thus the complete disillumination of the material. For example, from bb. 231-34 the last instances of the semiquaver pattern clearly articulate fours, complete with changes of direction on each bar line, for the first time in the movement. The harmony expresses simple V-I progressions alternating from one to the other each bar. The dynamics remain at \textit{pianissimo} throughout, thus not articulating any sort of durational proportions. Almost as an act of boredom, the movement closes with a sudden \textit{forte} cadence. Thus, only by the end of the movement is what Spitzer called “cadenza” material, or what Rosen would call “filling” revealed for what it is in actuality. Earlier in the movement it was illuminated with a rhythmic energy that is withdrawn in the disillumination of the closing bars.

\section*{2.6 Conclusion}

Thus, through his mastery of classical conventions Beethoven was able to transform them, making the golden ratio into a thematic idea, one that, because of its purely durational nature, is able to transcend the boundaries of tempo and thematic material. That is to say, not only is it present in each of the two tempo groups, it is used to illuminate musical material in every section of the movement: the Adagio, the “first” and “second” subjects, as well as the development. Only by the coda does it mostly disappear, as if at the flick of a switch. Indeed, it is by presenting the golden ratio in so many and varied contexts, and repeating them, that it is able to come to the fore as an all-embracing thematic idea. The coda has the effect, then, of drawing the listener’s attention to the fact that something is \textit{no longer} present, thus heightening the drama of its re-entry later in the work.

This “dissociation,” then, is analogous to what Kramer and Lochhead referred to in connection with Op. 135. As Kerman suggests, this process entails the demotion

\footnote{48. Hatten, \textit{Musical Meaning in Beethoven}, pp. 141-42.}
of sonata form from its place as the primary vehicle of the work’s drama:

Beethoven was looking for alternatives to sonata form; that is easy enough to see. The years of his interest in fugue are also years of de-emphasis of the symphonic ideal established in the second period, in the image of the *Eroica* Symphony and the ‘Rasumovsky’ Quartets. As he now shied away a little from sonata form, treated it more and more freely, and deflected it ironically to lyrical ends, fugue still offered him a fresh means to attain vehemence— but vehemence without the drama inherent in the classical style.49

Needless to say, Beethoven’s greater use of fugue only forms one part of his late period “de-emphasis” of sonata form. In addition to the constant alternations between Adagio and Allegro, and of “sub-thematicism,” both of whose effect is to destroy any conventional sense of forward progress (“development”), is the systematic removal of the large-scale dominant (V-I) function, courtesy of the move to G-flat major for the second subject, as Chua suggests.50 Graeme Downes has developed this notion by showing how in works of late Beethoven, Brahms, Mahler, and others, the composers were able to delay the use of the structural dominant until later movements, effectively shifting their centre of gravity to a much later point. He argues that through such a process (generally involving whole-tone related harmonies, the G-flat of the “second subject” being two whole-tones below B-flat, and the D major “development” two above in our case) one is able to retain harmonic tension throughout an entire work, solving the problem of an “imbalance in the distribution of symphonic weight.”51 Here he not only avoids the dominant as a key centre in the first movement, but also through all of the four middle movements, with the partial exception of a few bars of the “trio” section of the second movement, and, in the case of the *Grosse Fuge* finale, until what is essentially the coda.

In this movement Beethoven reconceptualises a great number of features of the classical style. The most apparent consequence of this demotion of traditional harmonic relationships, of thematic development, and so on, in tandem with the emphasis on durational thematicism is that it bears severely upon the sense of causality. The use of “thrownness” to make something inaudible thematic (the golden ratio being purely durational), and the switches between illumination and disillumination all amount to a causality by nature of which future events are not to be derived predictably from past

ones. Thus the cause-and-effect relationship in this music is that which Beethoven
dictates through his own concepts, and his own artistic thinking, for which reason the
rules of traditional forms and genres, when followed at all, become, arguably, little
more than a way of relating to his audience.
Chapter 3

The middle movements of Op. 130

The middle movements of Op. 130 are very unusual, and not just because there are four of them. Perhaps to a greater extent than the middle movements of any of the other four late quartets, each possesses a distinctly individual character making it seem, at first blush, entirely unrelated to the quartet as a whole. Kerman wrote: “Except for the Andante con moto, all the movements are in one way or another extreme; more than that, something essential about their character resides exactly in their extremity.”¹ For this reason, and that there are six movements, some have felt inclined to describe the work as “suite-like.”² The second movement is a short, aggressive, parodistic scherzo in B-flat minor,³ while the third is a lively Andante with a Poco scherzoso expressive indication. The fourth is another short dance movement, entitled “Alla danza tedesca.” Then the famous lyrical Adagio Cavatina, which allegedly brought Beethoven to tears whenever he reread the score, shifts the quartet into an altogether different expressive world.⁴ This, of course, leads to the Grosse Fuge, or its alternative, the Allegro finale.

There are, however, a number of elements that connect the middle movements to one another. Robert Hatten has provided a concise outline of these, showing, in particular how they split into dance-slow movement pairs.⁵ What connects the second

3. A term Kerman, among others, was fond of, in connection with the scherzo from the Ninth symphony. Kerman, Beethoven Quartets, 320. Similarly, Tovey wrote: “after tragedy comes the satiric drama,” Donald Francis Tovey, Beethoven’s Ninth Symphony, (London, 1927), 24. Quoted in Maynard Solomon, “The Ninth Symphony: A Search for Order,” 19th Century Music, 10, No. 1 (1986): 5.
5. Ibid. 216.
and third movements on one level is the tonality, the third being in D-flat major, the relative major of the B-flat minor of the preceding. Moreover the third movement begins in B-flat minor before “settling” into D-flat major in b. 3. Hatten suggests that the third movement “creatively fuses the playfulness and rhythmic drive of a scherzo [as in, the preceding movement] with the tunefulness of an Andante.”6 After the third movement a big “tonal rift,” as Chua calls it, opens up where the D-flat of the third movement gives way to its antipole, G major, for the beginning of the next pair of movements,7 also a dance-slow pair. Once again, as Hatten suggests, there is an expressive link connecting these two. He argues that the connection lies in the contrast between the “peasant-dance” genre represented by the Alla danza and the “high-style vocal genre of the Cavatina.”8 This is in addition to the G common tone connecting the Danza with the Cavatina, and the Cavatina with the fugue.9 There are a great deal more such connections but it would take us too far adrift to consider them all here.10

As regards the question of durational thematicism, it is needless to say that we will find other connections between these movements, ones more in kind with the topic of this thesis. The movement pairs alluded to can be considered in relation to the features discerned in the first movement. Broadly considered, the second and fourth movements are relatively straightforward in rhythm, with small exceptions in both cases, while the third movement employs a great deal of syncopation through which Beethoven infuses the golden ratio on multiple structural levels. The Cavatina (fifth movement) represents a more complex problem as it is almost entirely devoid of the golden ratio but, due to its ambiguous and uncanny treatment of metre and phrasing, also merits discussion. In a sense, the absence of the golden ratio seems to be its very point as it precedes the reillumination to take place in the mammoth, and cosmic, Grosse Fuge. The third and fifth movements, then, will be the main focus of the chapter, although there will necessarily be some discussion of the second and fourth.

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6. Ibid.
7. Chua, Galitzin Quartets, 165.
10. For more in-depth discussions of these see Hatten, “Plenitude as Fulfilment,” 216-24. Additionally, Chua, Galitzin Quartets, 165.
3.1 Second movement

The second movement is mostly conventional in its rhythm, but there is one feature that Beethoven exploits to great disruptive effect. Chua describes this by drawing upon the rhythmic theories of Cooper and Meyer. He notes, to begin with, that the F to G-flat motive in b. 1 lends all of its weight to the G-flat (ex. 3-1), making the F anacrusis. This is because the music moves harmonically from the tonic (B-flat minor) to a G-flat major chord on the second beat (corrected to the E-flat minor subdominant on the fourth quaver), giving the first violin’s F a leading-note function to the second beat G-flat. Certainly this is a small gesture in the opening bar, but it is what Beethoven makes of it later on that gives it its significance. Chua has demonstrated how this pattern of giving weight to the second half of the bar continues throughout the trio section (ex. 3-2), with *sforsandos*, and tutti in the second half of each bar. There is thus a disjunct between the first violin part, articulating the harmony through its arpeggios on the first beat while the rest of the ensemble accentuates the second beat, resulting in disagreement between parts as to where to locate the downbeat.

![Ex. 3.1: Second movement, bb. 1-4. Lean toward second half of bar.](image)

This process reaches its most extreme in the “rupture” following the trio (ex. 3-3), in bb. 56, 60 and 64. After the dotted minim ascending scale, resembling that which moved the music into G-flat in the first movement, the first violin sits on a C (V of F), followed by a chromatic scale descent. After this (b. 50) is a loud interruption by

12. Ibid. 172.
13. The music is notated 6/4, but it functions as triplet double time because of the “L’istesso tempo” marking, hence my division of each bar into two beats.
14. Ibid.
Figure 3.2: Second movement, bb. 17-20.

Ex. 3.3: Second movement, bb. 47-64.
the whole ensemble, F to G-flat, the latter on the second beat. Then a scale descends chromatically from E-flat. Once again the ensemble violently corrects F to G-flat. On the third occasion, however, the violin begins on G-flat, with which the ensemble is satisfied, and the first section returns, albeit somewhat sarcastically.\footnote{Ibid.} Thus, in addition to the rhythmic gesture outlined, there is also a parodistic reference to the first movement, through the scalar ascent followed by a violent correction from F to G-flat. In the first movement the music arrived on F before the surprise chromatic ascent “corrected” it to G-flat. Kerman thus summarises the above with the apt words: “The much-repeated doublet phrase keeps grumbling around the note G-flat, in both its top and bottom lines, a detail whose importance is vouched for by a flash of Beethovenian temper just before the \textit{da capo}.”\footnote{Kerman, \textit{Beethoven Quartets}, 313.}

3.2 Third movement

Concerning the 5:3 ratio, the Andante con moto ma non troppo is the most laden of all the middle movements. In terms of character, it possesses a strange double-nature. Kerman, who was particularly fond of it, dubbed it “one of his [Beethoven’s] most original in character.”\footnote{Ibid. 316.} Bathia Churgin has drawn attention to this movement’s extraordinary “liveliness” in spite of its “mechanically” rigid backdrop.\footnote{Bathia Churgin, “The \textit{Andante con moto} in Beethoven’s String Quartet Op. 130: The Final Version and Changes in the Autograph,” \textit{The Journal of Musicology}, 16 (1998): 230.} Leonard Ratner picked up on this mechanical aspect too, suggesting that the mechanical clock was in some way an inspiration.\footnote{Ratner, \textit{Beethoven String Quartets}, 391. Quoted in Chua, \textit{Galitzin Quartets}, 175.} In the same vein Chua writes, “one need only think of the sudden crashes in Haydn’s ‘Surprise’ Symphony, in which the contradiction between mechanical and musical time is made into a joke.”\footnote{Chua, \textit{Galitzin Quartets}, 177.} This idea will be my point of departure in showing how the ratio floods into the third movement at a number of points, seemingly whimsically, shattering the façade of “clock-like” squareness. It is \textit{how} Beethoven achieves this that is most interesting because it is these “sudden crashes,” that is to say, musical accidents, that give rise to the golden ratios. This represents, just as with the first movement, Adorno’s vision of Beethoven exerting his intellect on the music from a distance; not arbitrarily, but for a very specific outcome, disrupting the logical flow of events.\footnote{That is to say, the invisible subject that is “seldom showed or expressed directly.” Subotnik, “Adorno’s Diagnosis,” 256.}
As mentioned at the beginning of this chapter, the movement takes two bars to “settle in” to its key of D-flat major, during which we hear the semitone stepping motive from the first two movements. On the first beat of b. 1 the first violin plays a lone B-flat, which becomes harmonised as a C minor seventh chord on the second beat, when second violin and viola enter, progressing to a diminished seventh for the second half of the bar. As Daniel Gregory Mason suggests, the notation of A as B-double-flat in the diminished seventh of b. 1 suggests the key of D-flat major, while the A in that of the following bar is more characteristic of B-flat minor (A being the leading note). Of course, this could not be heard by the listener unless the performers made some subtle distinction between the two notes, B-double-flat and A. Either way, the tonic B-flat minor chord on the first beat of b. 2 suggests that the B-double-flat was mistakenly resolved to B-flat minor when it ought to have been D-flat major. This sort of gesture is very Haydnian in nature. Additionally, through the pitch-relationship, B-flat to A to A-flat in b. 2, reference is made to the opening B-flat–A–A-flat of the first movement, as Kerman points out, also mentioning the G-flat in the second violin on the final beat, referencing a significant note from the first movement.

Another subtle echo the first movement here, one more relevant to our topic, is the 5:3 ratio in the first two bars (ex. 3-4). The five part is comprised of the B-flat minor (i)-ii7-dim7-i6 progression while the following ii7-dim7 to V7 of D-flat in the second, third and fourth beats of b. 2 comprises the three. This on its own would not suggest a 5:3 ratio but the boundary points of the 5:3 are articulated through the sudden octave jump in the first violin combined with the cello entry on the second beat of b. 2. Furthermore, the three part of the ratio corresponds to the high B-flat–A–A-flat quotation referred to above. Thus in the midst of harmonic unsettledness, and of allusions to the first movement, a slight 5:3 ratio is superimposed upon the texture.

A lurking remnant of the harmonic unsettledness of the first two bars is retained throughout b. 3. Because of the A-flats starting in the violins on the last quaver of b. 2 the cello rhythm, and the sense of a downbeat, is slightly marred by the sense of a non-ending “anacrusis.” Furthermore, at the end of the bar an A-flat lasting three semiquavers, a G-flat lasting two, and a C lasting one in the first violin gives rise to a semiquaver 3:2:1 (Fibonacci) ratio, also detracting from the solidity of the prevailing cello rhythm. This pattern is repeated by the second violin in the last three quavers of b. 5.

24. Kerman, Beethoven Quartets, 314.
Ex. 3.4: Third movement, bb. 1-20.
In bb. 8-10 a long and drawn out cadential idea unfolds, an idea that will become, as the movement continues, far more thematically significant than the theme from bb. 3-8.\textsuperscript{25} The theme referred to, moreover, is completely square in rhythm while the ensuing cadential idea incorporates a 3:5:3:5 ratio. This, then, is the third instance already in the movement of Beethoven overloading what surrounds the main theme with significance. The other examples are those described above: the 5:3 before D-flat has arrived; and the 3:2:1 on top of the theme in bb. 3 and 5.

What makes the cadence (from bb. 8-10) so interesting in character is, in addition to the large harmonic territory covered, the use of what one could call “serial dynamics.” At the beginning of b. 8 are the last three quavers of the contrasting melodic idea that began in b. 7, outlining a vi7-V7/vii-vii progression over a crescendo. This crescendo is broken off on the fourth quaver with a return to the piano dynamic, resulting in a boundary between it and the first three. From the dominant seventh chord of the fourth quaver the music works its way to a V6/ii chord that tonicises the supertonic beginning b. 9. Furthermore, a crescendo begins on the last quaver of b. 8\textsuperscript{26} serving a double purpose: it strengthens the harmonic lead-in to the ii chord beginning b. 9; it also generates the next three quaver boundary courtesy of the return to piano on the fourth quaver of b. 9. This cadential idea eventually winds to a conclusion on the tonic, remaining for two quavers. This all gives a 3:5:3:5 ratio.

There is also a potential 3:5 ratio in the immediately following “transition section.” As Bathia Churgin notes, this is a three beat transition because the tonic of the new key, A-flat major, arrives a beat early.\textsuperscript{27} A-flat is fully harmonised on the last beat of b. 10 and given emphasis courtesy of the fact that every instrument is playing. The following bar, then, works as a prolongation of the new tonic, in the form of two more beats of I, then V7-I. Hence, the transition section lasts three beats. The \textit{fp} beginning b. 11 seems to be an attempt to “correct” the mistake of an early arrival through force of dynamics. The arrival on A-flat major signals the beginning of the second subject area.

The new theme is interrupted prematurely, after a mere two bars (b. 13), again

\textsuperscript{25} Chua gives a good account of how Beethoven uses cadential ideas in this movement to such a degree that, ironically, they no longer form any traditional function of “closure.” Chua, \textit{Galitzin Quartets}, 179-88.

\textsuperscript{26} Conflicting dynamics are given for this section in different editions of the score. The dynamics in ex. 2 here are, however, given in both, the autograph version and the urtext edition. The conflict relates to the \textit{crescendo} on the last quaver of the bar. Some editions place the \textit{crescendo} a quaver early. Ludwig van Beethoven, \textit{Beethoven Werke: Streichquartette III}, ed. Emil Platen and Rainer Cadenbach (Germany: G. Henle Verlag München, 2015), 111.

\textsuperscript{27} Churgin, “The \textit{Andante con moto} in Beethoven’s Op. 130,” 230.
devolving into “cadential clichés.” Here it is sudden harmonic mistakes, musical blunders (of course, deliberately imposed by Beethoven), that give rise to more 5:3 ratios, throwing the music entirely from its bearings. The first occurs in b. 13. Here a V7/ii chord resolves to ii, which one would presume to be preparation for a V–I, or ii–V cadence. But, instead, the music suddenly shifts to the tonic, accented by a \( fp \) giving V7/ii-ii-I. This chord progression comprises the five part. The three that follows is the aftershock of the early tonic, a V7/IV chord on the second quaver of beat 3. The harmony is able to right itself again by b. 14. Beethoven imposes another blunder in b. 17. Here, the first three quavers involve a V4/3-I progression into A-flat followed by a \( fp \) dynamic on the fourth quaver where, out of nowhere, a first inversion C major chord is heard, lasting the remainder of the bar (five quavers). This C chord then becomes a dominant seventh of F in the following bar. Thus, the key of A-flat is uprooted by the same musical “accidents” that articulate the 3:5 ratio.

From here the above processes become even more explicit. The primary cause is the lone, accented D-flat on the third beat of b. 19. Its abruptness on its own suggests that it will be important in demarcating durational proportions, which indeed it is. At first, what one would have expected on the third beat of the bar (after V of F on the fourth quaver) is a tonic F chord, but this D-flat functions as the minor ninth of a continued dominant of F, thus preserving the dominant of the previous quaver. As a consequence, from the tonic chord beginning b. 19 the music arrives on the dominant on the fourth, lasting through the remainder of the bar, articulating 3:5. The possibility that the C will resolve to F (the dominant of B-flat, incidentally) is further renounced as the music remains in C major when the main theme returns in b. 20, thus ignoring the harmonic implications of the previous bar. Moreover, a high level golden ratio connects this whole section from bb. 14-19. In b. 14 the clock-like motive winds up again after the small crash of the previous bar. From here there are 27 quavers in the orbif of A-flat major before the sudden change in harmony to V of F accentuated with a \( fp \), from which there are another 17 quavers before the D-flat denies the cadence onto F, ushering the return of the main theme in C major. 27:17 approximates very closely to the golden ratio.

In bb. 27-30 (ex. 3-5), another concentrated nest of golden ratios appears, one more immediately apparent than that above. For example, in b. 27 the first violin plays semiquavers, three tied followed by five staccato, giving a straightforward, low-level, 3:5 ratio through contrast in articulation. The same applies to b. 30. Furthermore, b. 28 comprises a quaver 5:3 ratio courtesy of the V7 chord (of A-flat) on the sixth 28. Chua, *Galitzin Quartets*, 177.
Ex. 3.5: Third movement, bb. 27-30.

quaver. This 5:3 is echoed in b. 29 through harmony. Here a I6-IV-I6/4 progression in A-flat major lasting five quavers demarcates the five and a V7/IV chord the three, the latter preparing the return to D-flat. A similar shape in the second violin in the following bar closely reflects the 5:3 of b. 29, articulated by the octave jump between the fifth and sixth quavers. On this occasion it is not supported in the harmony, however. (It could alternately be notated 3:2:3 because of the downward octave jump between third and fourth quavers).

The necessary scope of this thesis precludes a detailed examination of the ratios that ensue, but it is worth, in overview, outlining a number of features of the following bars. At the opening of the recapitulation, bb. 36-37, the opening B-flat to A motive returns, but, on this occasion there is no 5:3 ratio present. The recapitulation follows with only subtle alterations from the exposition, two of them with significant consequences, however. The transition section of b. 45 is different from b. 10 in that the final beat now articulates a V7 chord, and thus, with no early arrival on a new tonic, the 3:5 ratio has been expunged. Similarly, in b. 48, the fp crash corresponding to
that of b. 13, expresses a V7/IV chord from the outset (where formerly the V7/IV came a quaver after the fp), once again at least severely undermining the 5:3 ratio. In most ways, however, the recapitulation repeats the proportions of the exposition: the 3:5:3:5 of bb. 8-9 are repeated in bb. 43-44; the 27:17 is articulated through the same means (bb. 49-54); and the 3:5 ratios of bb. 17 and 19 are repeated in bb. 52 and 54.

3.2.1 Coda

The coda, however, certainly requires consideration in greater depth. As the descending semitone idea from the beginning of the movement returns (bb. 71-73, ex. 3-6), an extreme harmonic dislocation occurs, skirting around a vast tonal area. Here the “main theme” of the movement (treated as such only in bb. 3-8 and 38-43) is a subordinate murmur, in the last three quavers of each bar, while the descending semitone that opened the work comprises the first five quavers. If this voicing in any way implies a 5:3 ratio, it is not followed in the harmony, however. In b. 71 the music progresses from a diminished seventh chord to a dominant chord of D on the third beat, in b. 72 a diminished seventh resolves to the dominant of D-flat, and in b. 73 a diminished supertonic of B-flat minor to the dominant seventh of B-flat.

The main theme shifts to the downbeat in the first violin from b. 74, beginning another three bar phrase (bb. 74-76). But the harmony, outlining a descending cycle of fifths, does not follow the notated downbeat because a chord change to V7 of E-flat occurs on the second quaver of the bar, with the first violin’s A-flat being thus based upon the seventh scale degree. This staggering of harmonic movement such that it is out of sync with the supposed downbeat sets the precedent for the whole phrase. In the sixth quaver of the bar, the harmony moves to a dominant seventh chord of A-flat, and again the melody, now in the second violin, is based upon the seventh degree of the chord (and the viola the fifth). Both of these observations are also true of b. 75: V7/D-flat on the second quaver, with the first violin’s G-flat being based upon the seventh; V7/G-flat on the sixth quaver, with a C-flat (seventh degree) in the second violin. Thus, over the descending cycle of fifths the main theme, especially because of being played at the seventh scale degree, once again remains relegated from its position of importance, in favour of other, underlying processes.

This rhythmic disjunct between harmony and melody is abandoned from b. 76, however not through any change in the established harmonic rhythm. Instead the harmony again changes on the second quaver, now to a second inversion G-flat chord, but the melody in the second violin and viola resolves downward on the second quaver.

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Ex. 3.6: Third movement, bb. 70-88.
facilitating this harmonic movement. Thus, the “downbeat” has been displaced by a quaver such that it still occurs every four quavers, but not in accordance with the bar line. This pattern continues when the tonic chord is given on the sixth quaver of the bar. The downbeat suddenly returns, with a jolt, to the first beat by b. 77, beginning the next three bar phrase. Here the golden ratio returns in immense concentration, having final word in the last twelve bars.

The first, and most readily apparent is the three bar phrase from bb. 77-79 followed by a five bar phrase from bb. 80-84. Within the former are semiquaver and quaver 5:3 ratios resembling those from bb. 27-30 above (ex. 3-4), which thus need not be rehearsed here. The case from b. 80 is more complicated. The B-flat major downbeat beginning the bar is immediately contradicted by the second violin’s lone E-flat on the second quaver, the latter of which begins five (crotchet) beats of E-flat minor. This alternation between E-flat minor (ii of D-flat) and D-flat corresponds to the 5:3 ratio. An implied D-flat chord on the fourth quaver of b. 81 again becomes ii, on the second quaver of b. 82, five beats from which is another D-flat chord (fourth quaver of b. 83). This latter D-flat chord, however, now only lasts five quavers, instead of six, as it cut short by the IV6 chord beginning b. 84.

The golden ratio presents itself in three ways in the last four bars. In bb. 85-86 five beats of tonic prolongation precede a V7/IV chord on the second beat of b. 86. In this beat the melodic line also begins a descent that continues through the remainder of the bar. This gives a simple 5:3 ratio. A possible quaver 13:8 ratio also appears here, however. The V7/IV chord on the second beat of b. 86 does not resolve to a root-position subdominant until the last quaver of b. 87, thirteen quavers later. From here it reverses its way back to the tonic, but not before sitting on a dominant seventh chord with a fermata rest in b. 88. If this fermata rest adds approximately one quaver, then the duration from the IV chord to the forte final chord would be approximately eight quavers, articulating 13:8. One final golden ratio is presented in b. 87. If we count demi-semiquavers, then we find that the V7/IV chord is articulated as a third inversion chord for the first seventeen, and that in the next eleven it changes to first inversion, with the cello playing a low F. Thus a 17:11 ratio, closely approximating to the golden ratio, is superimposed onto the V7/IV chord in the penultimate bar.³⁰

Thus the coda of this movement, in many respects, represents the dissolution of the materials of the movement—materials which were, throughout the movement, fleeting in comparison to the “counterpoint” between concurrent durational proportions. In the final two bars the point is driven home when the second violin, viola and cello play

³⁰ 11/17 equates to approximately 0.647. This is not as close an evaluation to 0.618 as many others shown above, but it still forms a close approximation of the golden ratio.
non-melodic demisemiquavers, and the first violin plays a scale followed by staccato quavers whose highest note corresponds with the above-mentioned 13:8 ratio. Thus, the melodic is cast aside in favour of the durational. In other words, Beethoven relegates the traditional thematic relationships in favour of the \textit{a priori} thematic idea, the golden ratio.

The first, and most obvious connection between the second and third movements, as a pair, is the moments of rupture resulting from competing rhythmic and harmonic downbeats. In the second movement we were given unambiguous cut-time, but with a slight lean towards the second beat. This is a gesture not uncommon in music, but in this case, as Chua demonstrated, Beethoven pushed it to the point of complete structural collapse. In the third movement ruptures occurred also. But, in the latter case, they were musical accidents giving rise to golden ratios, which are not to be found in the second movement. Thus, the second movement functions as a continuation of the disilluminated squareness ending the first movement, while the third reincorporates golden ratios in concentration, showing the latter to be a thematic idea that transcends individual movements, before another disillumination in the fourth movement, Alla danza tedesca on the other side of the “tritonal gap” between movements (from D-flat to G major).\textsuperscript{31}

\section*{3.3 Fourth movement: Alla danza tedesca}

Interestingly, it was only when Beethoven was well advanced in the composition of the \textit{Grosse Fuge} that it became clear to him that he needed another, more serious, slow movement in addition to the Andante. This gave rise, not only to the Cavatina, but also to the transcription of the Alla danza tedesca, initially intended for use in the A minor quartet (Op. 132), into G major for Op. 130.\textsuperscript{32} Thus, if the second and third movements formed a dialectical relationship to one another, it would seem that in Beethoven’s decision to add \textit{two} movements, and not just one, he also desired for the Cavatina to have a dialectical pair within the quartet’s middle movements.\textsuperscript{33}

\begin{footnotesize}
\begin{enumerate}
\item Chua, \textit{Galitzin Quartets}, 165.
\item Barry Cooper has shown this by tracing the genesis of the work through analysis of the sketches. In short, the \textit{Grosse Fuge} was arrived at as a finale after Beethoven had worked through a number of possible finales. As the finale began to take on the mammoth proportions of the \textit{Grosse Fuge} it became clear to Beethoven that another, more serious, slow movement was needed in order to lead in to the \textit{Grosse Fuge}. (However, as Cooper also points out, aspects of what eventually became the Cavatina also derive from earlier sketches for a D-flat movement that ultimately became the third movement.) See Barry Cooper, \textit{Beethoven and the Creative Process} (New York: Oxford University Press, 1992), 197-214.
\item Hatten, “Plenitude as Fulfilment,” 215.
\end{enumerate}
\end{footnotesize}
An exhaustive analysis of the Alla danza will not be given, but there are two small aspects in particular that we will find very fruitful later in analysing the Cavatina. The first relates to the presence of chordal skips (ex. 3-7) that are out of sync with harmonic function, and the second to the use of hemiola, which Kerman has also referred to in the stormy “trio” section from b. 25 onwards. In regard to the first point, there is a small disjunct between the first violin and cello in b. 8: the voice-leading of the first violin has a 7-8 motion cadencing onto the tonic on the second quaver while the cello plays a low D on the second quaver, suggesting a V-I motion resolving on the third quaver. This subtle competition between parts at the point of cadence, involving use of chordal skips, is a common feature of the movement, right until the final bar. This would appear to be a very small, and thus insignificant, observation but we will find such gestures to be of far greater significance in the Cavatina that follows. Thus, what is trivial in one movement becomes important in the other.

Regarding the second point, the first two four bar phrases of the trio section (beginning b. 25) follow a simple trajectory: I-V-V4/2-I, with the harmony in each case changing in conjunction with the bar line. Thus the 3/8 metre and four bar phrasing are presented with perfect clarity. In b. 33, however, a number of competing processes combine, undermining this established simplicity. It again begins with a tonic chord moving to what one could describe as a dominant chord in the following bar, however, this is not the only possible interpretation. As ex. 3-8 shows, because of the subdominant chord on the final quaver, one could hear the first beat as a V/IV chord resolving to IV. This is justified by the fact that there is a C suspension in the second violin on the first beat, “conditioning” the listener for the subdominant with a weak IV6/4

Ex. 3.8: Fourth movement, Alla danza tedesca, bb. 25-42.

chord, and by the muddied downbeat beginning the following bar due to the ties over the bar line in the viola and cello parts. This alludes to a more pervasive aspect of this section: superimposed 3/4 undermining the 3/8 time signature. The second violin plays a crotchet F-sharp in b. 34 followed by a two crotchet anacrusis beginning on C, arriving on a G by b. 36. This same shape persists in the second violin, viola and cello throughout the bars that follow, and to add to the sense of competing downbeats, the “3/4” pattern in cello and viola is a bar out of sync with the second violin. All

35. From this perspective, it also subtly prepares the music for the movement to C major in b. 41.
the while, the first violin plays unambiguous 3/8. Once again this hemiola is a small
gesture, one that would not be uncommon in middle Beethoven, but one nonetheless
worthy of mention.

3.4 Fifth movement: Cavatina

This brings us to the Cavatina, which is also almost entirely devoid of the golden ratio
(with one important exception), but is, nevertheless, fruitful for consideration. As
regards its character, Michael Steinberg remarked that “the first violin is the principle
singer, and at no point, were the song to break off, could we foretell its continuation,
for all that whatever does come always sounds like the inevitable way.”36 On the one
hand, Steinberg is drawing attention to what seems to be the absence of causality, a
consequence of which one cannot predict the “continuation” of ideas. On the other is
what paradoxically represents, in retrospect, causality to the highest degree, such that
“whatever does come always sounds like the inevitable way.” This suggests that there
is a conceptual process at work, one that forces a high degree of determinism upon the
movement (hinted at by the common translation of “Beklemmt” as “oppressed”), yet at
the same time gives the listener no possibility of predicting future events. Steinberg’s
two points, needless to say, will be central to the analysis that follows.

If we consider two definitions of phrasing, from the composers Roger Sessions and
Peter Westergaard, Steinberg’s point will make more sense. Sessions wrote: “The
phrase is a constant movement toward a goal–the cadence.”37 Similarly, Westergaard
writes that: “A phrase ... establishes one set of pitches and then ... moves to a second
set of pitches in such a way that ... a. we expect those pitches ... b. we have some
sense of when they are about to occur, and ... c. once they have occurred we know the
phrase has gotten where it’s going and that no further pitches are needed to complete
that phrase.”38 These points can be equally valid on the level of metre because, for
example, in a 3/4 bar the “goal” of the third beat is generally to function as anacrusis
to the “strong” beat beginning the following bar.39 Thus, the point of departure here
will be to show that Beethoven achieves the effect Steinberg alluded to by undermining

38. Peter Westergaard, An Introduction to Tonal Theory (New York: Norton, 1975), 311. Quoted
in Rothstein, Phrase Rhythm, 4.
in The Cambridge History of Western Music Theory, ed. Thomas S. Christensen (Cambridge: Cam-
or subverting the goal-directedness of metre and phrasing resulting in irregular, and often ambiguous, proportions.

Lockwood has already drawn attention to aspects of the Cavatina’s large-scale structural organisation, showing how its sections do not conform to any regular shape: a thirty-six bar A section is followed by three nine bar sections (36:9:9:9).\(^{40}\) Dahlhaus, analysing from a different perspective, describes the movement as being built largely from regular, eight bar periods, unfortunately giving little explanation, but he does acknowledge the presence of “irregular sections.”\(^{41}\) These above points, however, do not get to the bottom of the issue. In the second subject area of the first movement (bb. 80-82), as we observed, there was a process of rhythmic destabilisation whose consequence was the dislocation of metre from the “correct” bar line ending with what functioned as a 3/4 bar, in b. 86, as a consequence of the music returning to its proper downbeat. This process becomes the mainstay of the Cavatina. It alternates between what appear to be 2/4, 3/4 and 4/4 bars, such that metre always remains ambiguous, 3/4 thus always in dispute. And, moreover, this process is achieved through means that we are now familiar with: the use of “chordal skip” gestures beginning on harmonic downbeats resulting in a dispute between parts as to where to locate the downbeat. Instead of the golden ratio, then, in the Cavatina we will find, as a recurring theme, a 4:3:2 ratio by which bars become, in terms of harmonic downbeats, progressively shorter throughout a given phrase. Phrasing also, however, in many instances, becomes ambiguous because of competing harmonic and thematic functions amounting to disagreements between parts.

The first example of ambiguity in the Cavatina, from the very opening bar (ex. 3-9), has already been referred to by Adorno: “the tonic [in the Cavatina] occurs too early, not at the entry of the main theme but already in the introduction, so that the perception of where the passage actually starts is blurred.”\(^{42}\) In other words, because of the tonic chord at the very beginning of the movement, we hear the first bar as the beginning of a phrase, but the first violin anacrusis on the third beat, leading to another tonic chord in b. 2 corresponding with the entry of the first violin, shows the latter to be the beginning of the phrase, thus reinterpreting the first bar as introductory. The sense of 3/4 metre is, nevertheless, largely unambiguous for the moment. The only exception is the hemiola in the second violin (accompanied by the cello’s dotted crotchet A-flat) in b. 3 whereby double-neighbour notes on the second

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42. Adorno, *Beethoven*, 192.
Ex. 3.9: Fifth movement, Cavatina, bb. 1-10.

and third quavers supply the fourth quaver with the sense of a slight downbeat on the supertonic.

However, in b. 4 we are given conflicting readings with consequences for both metre and phrasing. The first violin enters with what would be the dominant repetition of the “basic idea” (from b. 2) in a traditional classical sentence, but it is foiled by a tonic chord on the second beat, emphasised by a 5-1 movement in the cello (from B-flat to a low E-flat). The consequence of this is that it contradicts the first violin’s dominant entry by placing a harmonic downbeat on the second beat of the bar. The first violin’s phrase beginning is then firmly rejected by the starkly contrasting idea of b. 5. As Hatten points out, b. 5 is an “intensification,” in all parts, of melodic contours from the first four bars, but one, nevertheless, that presents itself, courtesy of its straight crotchet rhythm, as a new idea.43 Beethoven thus interrupts what seemed to be a new phrase in b. 4, after renouncing its dominant harmony, with yet another phrase beginning in b. 5, one that further affirms the tonic of E-flat. Thus, we have found, already in the first five bars, an extraordinary number of ways in which the goal-directedness of phrasing is shattered: phrases begin, but lead nowhere, thus supplying analysis to Steinberg’s remark quoted above.

43. Hatten, Musical Meaning in Beethoven, 208.
Because of the crescendo through b. 5 and the first beat of b. 6, over a I6-V7-I-V motion, the notion of “intensification” also applies to its durational aspect. In bb. 3-4 the V-I motion referred to above gave the sense of a 4/4 bar followed by 2/4 from the tonic chord on the second beat of b. 4. Thus the first violin’s two 3/4 bars are contradicted by the respective 4/4 and 2/4 in the other parts. In bb. 5-6 the motion in first violin and cello, the crescendo, and harmonic motion “collapse inward,” onto a diminished seventh chord.44 This articulates another four beat duration from the beginning of b. 5. This is not to imply that b. 5 functions as a 4/4 bar, but rather that there is an echo of the earlier four duration in bb. 5-6. Then, through the descending melodic line in the first violin from the second beat of b. 6 through the first of b. 7, a three beat duration is alluded to, and the jump of a fifth combined with the cello’s drop to a low E-natural articulate a final two before b. 8. These 4:2 or 4:3:2 ratios will be significant later in the movement.

What the first ten bars amount to, then, is the oppressive gravitational force of the E-flat major tonic. In the first bar the “early tonic” was an expression of this, as was the denial of the dominant in b. 4, and the emphatic assertion of the tonic in b. 5. The music remains rooted in E-flat and every possible movement to the dominant (B-flat being the key of the work), collapses back onto E-flat, with consequences, as we have seen, for the goal-directedness of metre and phrasing. Similarly, the small excursion to the submediant at the behest of a diminished seventh chord in b. 6 is quickly followed by a descending cycle of fifths back to the tonic. This sets the precedent for the whole movement that follows.

Ex. 3.10: Fifth movement, Cavatina, bb. 11-17.

The return of the theme from b. 2 in b. 11 (ex. 3-10) begins what some call a failed transition section because, instead of arriving in a new key it merely slumps, albeit

44. Hatten, Musical Meaning in Beethoven, 208.
reluctantly, back onto E-flat for the B section (b. 23).\footnote{Ibid. 207.} For the moment, however, a V7/vi chord on the first beat of b. 12 becomes vi on the third, but instead of marking a transition to the submediant, a ii7 chord follows on the first beat of b. 13. It then oscillates directionlessly between vi4/3 or vi6/4 and ii7 chords, instead of successfully tonicising the dominant. Here another 4:3:2 ratio emerges. Because of the accented minimis in all playing parts on the second beats of bb. 15 and 16, ii7 chords in both cases, the downbeat is shifted from that which is notated as so. Thus a four beat duration from the beginning of b. 14, three from the second beat of b. 15 and two from the second beat of b. 16 before returning to the piano dynamic, after a crescendo, beginning b. 17.

![Ex. 3.11: Fifth movement, Cavatina, bb. 20-22.](image)

From here the music descends through a cycle of fifths, from the dominant of C in b. 17 to the dominant of E-flat by b. 20. In b. 20 (ex. 3-11), however, the music shows a strong reluctance to resolve back onto the tonic, instead hovering above it in the preferable world of B-flat major where the quartet began. Here metre and harmonic function again become ambiguous as a consequence of the effort to defy gravity. On the first beat of b. 21, for example, the first violin plays an anacrusis to the second beat A-flat, the latter of which, however, articulates a vii4/2 chord. On the fourth quaver of b. 21 the second violin and viola take over the melody with a condensed version of the first violin’s theme beginning the previous bar, now lasting five quavers instead of eight. The first beat anacrusis in b. 22 again “resolves” to a vii chord on the second beat. Finding downbeats, and thus metric proportions, means finding the points at which the music “sits.” It does so, paradoxically, on the second beat of b. 21, despite the vii4/2 chord because of the first violin’s strong anacrusis on the first beat.
Again it “sits” on the vii chord on the second beat of the following bar because of the first beat anacrusis in the second violin and viola. This gives a subtle crotchet 4:3:2 ratio, although the bigger issue here is the dissolution of metre as the music resists the tonic, avoiding the implications of its dominant functioning harmony.

3.4.1 Elucidation of 4:3:2 in B section

In the B section that follows (ex. 3-12), the juxtaposition of fours, threes and twos reaches its greatest concentration, both on the levels of metre and of phrasing. In outline, from bb. 23-24 is a two bar phrase, then a three bar phrase from bb. 25-27, and a contrasting four bar phrase from bb. 28-31 (the thick bar lines in ex. 3-11 indicate phrasing). A 2:3:4 ratio articulating phrasing thus goes in tandem with 4:2, 4:3:2 and 4:3:3:2 metric proportions.

Let us first consider the two bar phrase from bb. 23-24. The second violin’s chordal skip on the first beat of b. 24 combines with the second inversion dominant preparation chord (V6/4) which resolves to the dominant on beat two, thus the downbeat is deflected to the second beat. In bb. 25-27 the four crotchet duration is articulated in the same way, through a deflection of the downbeat of b. 26. The 3:2 that follows is more ambiguous, however. That is because, both, the first and second beats of b. 27 function somewhat like downbeats. The first beat functions as a downbeat because it is preceded by a third inversion dominant with a descending melodic line in the violin as an anacrusis, and is itself a tonic chord (first inversion). However, the forte on the second beat of b. 27, and the major tenth jump in the first violin emphasises the latter as significant. The proportions of bb. 25-27 are thus either 4:2:3 or 4:3:2.

The four bar contrasting phrase from bb. 28-31, beginning on the subdominant, consists of a less ambiguous 4:3:3:2 ratio. The idea in the first violin ascends from a B-natural to an E-flat which functions as the minor seventh of a ii7 (or V7/V) chord, in turn an anacrusis to the weak, second inversion tonic (or V6/4) chord on the second beat of b. 29. This weak second beat becomes a downbeat because of the chordal skip preceding it in the first violin and because of the greater dissonances of the first and third beats of the bar (both containing minor sevenths). Thus, the second beat of b. 29 is the beginning of a three beat unit lasting through the first of b. 30. B. 29 ends with a dominant seventh chord followed by the tonic on the first beat of the following bar, which would, of course, make the latter a clear downbeat if it were not for the 4-5-3 chordal skip in the first violin part. This chordal skip has the effect of placing a conflicting downbeat on the second beat, which is also a root-position tonic chord. Another chordal skip on the first beat of the following bar serves the same function,
Ex. 3.12: Fifth movement, Cavatina, bb. 23-39.

again shifting the sense of downbeat to the second beat. From this 4:3:3 there is a simple tonic to second inversion dominant seventh progression, giving the final two beats, completing the 4:3:3:2, and preparing the tonic for the next phrase.

From bb. 32-36 the two and three bar phrases from bb. 23-27 are repeated with only minor alterations. The same proportions are present, with one exception. The four bar phrase from bb. 28-31 becomes a three bar phrase from bb. 37-39 with a 4:3:2 ratio. The four is given in the same way as bb. 28-29, and once again the three is the result of a chordal skip in the first violin on the first beat (b. 39), and then there are only two more beats before the beginning of the Beklemmt section which throws the music into an altogether different world.
3.4.2 **Beklemmt** section

Ex. 3.13: Fifth movement, Cavatina *Beklemmt* section, bb. 40-49.

Comprising a straight triplet rhythm in the lower three parts throughout (ex. 3-13), the *Beklemmt* section is underscored by the aural image of Newtonian time, a relentless tick-tock pulse. The mostly off-beat first violin part, then, is “oppressed” by the rhythm underneath, just as, to quote Hegel again, “time annihilates everything it has brought to birth.”\(^{46}\) The very “three-ness” that has been so strongly in dispute throughout this movement thus becomes the force of oppression here. Additionally, it

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\(^{46}\) Hegel, *Fine Art*, 459.
begins with E-flats in all of the lower three parts, an emphatic assertion of the weight that consigns this movement to its oppression.

The harmonic structure of the *Beklemmt* section is of interest. Firstly, two bars in E-flat major in the form of a I chord (b. 40) followed by implied V4/2/IV (b. 41) prepare what one would expect to be a move to the subdominant (A-flat). During b. 41 there is also a G-flat in the first violin, a note which has, by this point, become very significant in of itself. It is not, contrary to what one might at first expect, treated as part of a minor dominant seventh chord of A-flat minor (the minor subdominant), but rather as the fifth degree of an anacrusis to C-flat major, into which the music arrives in the following bar.\(^\text{47}\) Next are three bars in C-flat major, in the form of a I-ii\(^6\)-V progression. Thus a 2:3 ratio encompasses the first five bars, between the two bars of E-flat and the three of C-flat. In b. 45 the music, as if C-flat were a mistake, gives another dominant of A-flat minor, this time resolving to a i chord on the final beat. The music remains in A-flat minor until the second beat of b. 47, at which it lands on a first inversion D-flat minor chord, the subdominant of A-flat minor. In b. 48, a strange E-flat seventh chord appears on the first beat, but another first inversion D-flat minor chord follows, this time lasting three quavers. In the last quaver, however, seemingly devoid of any causality, the music returns to E-flat major, launching into the final section. Note, then, that the E-flat chord beginning b. 48 lasts two quavers, the first inversion D-flat minor chord three, and the root-position E-flat major chord a further three. Thus, at the end of the *Beklemmt* section where the music returns, without causation, to E-flat, a radiant 2:3:3 ratio appears, again usurping Newtonian time and echoing the very opening of the quartet. The dotted crotchet in all parts (excluding first violin, who is not playing) from the second beat of b. 48 makes the reference to the first movement Adagio particularly striking as the second note, and the first three part of its 2:3:3 was also a dotted crotchet in all parts, this similarity enhanced by the fact that the Cavatina is also at Adagio.

### 3.4.3 Final eighteen bars

After the *Beklemmt* section a recapitulation of certain features of the movement unfolds,\(^\text{48}\) in tandem with a sort of disillumination similar to that of the first movement’s coda. Bb. 50-52 are a repeat of bb. 2-4 with all its rhythmic ambiguities still present. The 5:4:3 of bb. 5-8 is repeated in bb. 53-56. However, from b. 57 the music is funda-

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\(^{47}\) This is another example of the use of major third or whole-tone related harmonic progressions discussed in the conclusion of chapter 2.

\(^{48}\) Dahlhaus also refers to this section as a recapitulation. Dahlhaus, *Beethoven*, 235.
mentally different. Where formerly b. 10 launched a repeat of the first phrase which became a failed transition section in b. 12, here the violin launches into something entirely different. Dahlhaus has demonstrated how the first violin’s melody from bb. 57-59 is based upon the same melodic contour as that from the *Beklemmt* section, bb. 41-43. Here, however, the rhythm has been entirely purged of the syncopated character it had in the *Beklemmt* section. In fact, the whole section from bb. 56-64 is an absolutely clear, almost banal articulation of triple time as if the veil of rhythmic ambiguity has suddenly been lifted, and thematic material presented as it could have been all along: “correctly,” as an expression of 3/4 metre. Similarly, in bb. 63-64 (ex. 3-14) the formerly ambiguous 4:3:2 from the B section is now absolutely clear; the first beat of b. 64 expresses a straight dominant chord to accompany the chordal skip in the first violin and it is therefore clear that the downbeat is shifted to the second beat; there is no longer any disjunct between players, and thus all parts are in agreement. However, the disjunct returns in the penultimate bar courtesy of the first violin’s high E-flat on the second beat while the chordal skip shape in the cello on the second beat attempts to place the downbeat on the third. Finally, four sonorous E-flat major chords close the movement.

Ex. 3.14: Fifth movement, Cavatina, bb. 63-66.

### 3.5 Conclusion

Lewis Lockwood has remarked that ‘in many contemporary [early nineteenth century] German operas [the cavatina] often provides a serious, deeply felt lyrical utterance by

49. Ibid.
a major character, who comments introspectively upon a dilemma of the plot and thus deepens the emotional seriousness of the dramatic action as it moves toward crisis and resolution.”  

From this observation he argues that the Cavatina plays a similar role here in Op. 130, raising the quartet’s level of seriousness courtesy of being an “intense melodic Adagio that just precedes the monumental fugue...”  

(He is, however, also careful to point out that the alternate finale too functions as a satisfactory conclusion to the Cavatina in its own right by “restor[ing] balance and grace [to the quartet].”  

However, the manner in which the Grosse Fuge follows from the Cavatina is certainly not that of a seamless flow from one to the other. It is a switch from one form of seriousness to another, calculated to have maximum disruptive effect. The onset of the Grosse Fuge “casts the Cavatina into the past,” as Richard Kramer puts it.  

The most commonly given reason for this is the loud unison/octave Gs with which the Grosse Fuge begins, effectively ripping the G out of the sonorous E-flat major chord ending the Cavatina.  

But, also of importance here is the return of the golden ratio, in the form of the fortissimo 5:8:3 which opens the Grosse Fuge (discussed in chapter 1). If Barry Cooper is correct that the Grosse Fuge comes as an “intrusion into the quartet,” then perhaps the absence of the golden ratio in the two preceding movements is such that what was made thematic in the first movement has now become a stranger to the work. Its re-entry is such as to shatter the middle movements, that have already become far-gone history upon the onset of the Grosse Fuge, into nothingness in face of what is to follow. These middle movements, then, while heightening the dialectical conflict between the golden ratio and “classical” metre exposed in the first movement, also play the role of creating a vacuum into which the contents of the Grosse Fuge can enter with full force.

51. Ibid.  
52. Ibid.  
54. Ibid.  
55. Barry Cooper, Beethoven and the Creative Process, 214.
Chapter 4

The *Grosse Fuge*

Regarding the *Grosse Fuge*, Daniel Mason wrote:

*[T]he ‘Big Fugue,’ great as it also truly is in parts, is likely to remain as a whole the most disappointing episode in the entire series of the Quartets. Every conscientious music-lover will naturally wish to hear it as many times as he can, to analyse it as carefully as he can, perhaps to read a few of the mystical paens about it and the virulent condemnations of it so profusely available. At the end of all such study he may find scarcely modified his spontaneous reaction to its music.*

This sort of conclusion is what inevitably results from interpreting the *Grosse Fuge* only in regard to traditional contrapuntal, harmonic, or formal terms. For instance, Warren Kirkendale’s famous reading of Beethoven’s “Art of fugue” couches the work in terms of fugal techniques the composer learned from his old counterpoint teacher, Johann Georg Albrechtsberger, showing that Beethoven employed them all in one way or another. The analytical observations of Kirkendale’s essay become insufficient when he uses them to insist that the function of the *Grosse Fuge* was to serve as a sort of academic self-challenge on Beethoven’s part to combine as many fugal techniques as possible into one work, a view that helps little to understand the real problem of the work. Other writers, such as Stephen Rumph attempt to build upon Kirkendale’s observations by placing the *Grosse Fuge* at the core of the work’s drama, insisting that the real issue behind the quartet lies in treatment of double counterpoint, for which the *Grosse Fuge* is, naturally, the apotheosis. But, as Stephen Husarik points out,

3. He writes that “Once we stop hunting down motives and pay attention to the overall contrapuntal texture, a common pattern emerges” between the first movement and the *Grosse Fuge*. Stephen C.
“little more than a third of the entire Grosse Fuge is purely fugal ... and what remains is couched in homophony, or the gallant style.”

Kerman made a real effort to bring the musicological appreciation of the Grosse Fuge to maturity through his exploration of the roles played by fugues in Late Beethoven. As quoted in the first chapter, Kerman pointed out that the scope of fugues in late Beethoven steadily increased in tandem with the “de-emphasis” of sonata form. Thus he saw it, not as a stiff, academic representation of the old, but as part of an entirely new late Beethovenian aesthetic, a form of dramatic expression that would not have been possible, for example, within a traditional sonata form (or sonata-rondo, as in the alternative finale) structure. Beethoven himself suggested this by saying that a “poetical element” must be added to fugue writing. Daniel Chua was eager to take this sort of angle with his Adornian reading, augmenting Kirkendale’s reading by arguing that the fugal techniques in question do not function as an intellectual self-challenge, instead suggesting: “In the Grosse Fuge, the contrapuntal laws laid down by Albrechtsberger invert into a disorder of polyphony that dismembers the very logic which fugue symbolises.” He writes, furthermore, that “Bach’s Art of Fugue asserts the mathematical order of the medieval world: Beethoven’s smashes it.” Thus the “poetical element,” for Chua, is that of destruction.

Others too have taken up the search for alternative aesthetic approaches to the role of the Grosse Fuge in Op. 130 (as the original finale). Rumph, for example, suggests that the Grosse Fuge “does not so much balance the rest of the quartet as reconsider it at a transcendent level.” Richard Kramer sees it as “an extravagant essay toward both the reconciliation and renunciation of all those disparate musics in Op. 130.” William Kinderman states that: “The music shows us that more lurks behind the surface of things [in this quartet] than might appear.” Thus, in seeing the Grosse Fuge as the apotheosis of the quartet, one must ask, precisely what lurking aspects of the quartet are brought to the fore? This brings us back to the question of golden

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5. Kerman, Beethoven Quartets, 273.
6. He reportedly said to Karl Holz: “To make a fugue requires no particular skill, in my study days I made dozens of them. But the fancy wishes also to assert its privileges, and today a new and really poetical element must be introduced into the old traditional form.” Thayer, Life of Beethoven, 692.
8. Ibid.
ratios, which were made thematic in the first movement, and are expressed with such intensity in the very opening of the Grosse Fuge, as was shown in the first chapter. Tracing the use of durational thematicism, then, I argue, gives a means for analysing the Grosse Fuge in a way that grounds itself in the process underlying it.

The question to be followed in this chapter, then, will be to ask how the Grosse Fuge fits into the rhythmic-temporal process of the quartet, and thus as a central part of the drama elucidated in the first three chapters. We have already observed the 5:8:3 ratio of the Grosse Fuge opening, so that will be our starting point. From here the B-flat fugue is thrown at the listener, containing a great deal of 5:3 ratios in direct conflict with other, often highly disruptive, rhythmic processes. This gives the impression of a sort of battle between the two main subjects as a consequence of their conflicting rhythmic and harmonic implications. Then, following a dramatic crash onto G-flat, reflecting the surprise G-flat of the first movement, “second subject,” the music finds itself in a world of almost alien simplicity, as if such simplicity has now become completely “other-worldly” in the wake of the intensity of the first fugue. But, as we will see, the same Fibonacci proportions are soon to be found in the G-flat fugue, as in the B-flat. This is followed by a small scherzo interlude in B-flat major leading to the colossal A-flat fugue, which employs the proportions (5:8:3) in the clearest way yet, by returning to the motto that opened the Grosse Fuge “overtura.” This culminates in the frightful climax of the work, before a sarcastic recommencement of the scherzo, and a transcendental coda which makes concentrated use of the golden ratio. Thus, by tracing the use of durational thematicism in this work new analytical readings become possible which, I believe, heighten the experience of the work, thus augmenting traditional concerns with pitch-relations, counterpoint, Schenkerian harmony, or large-scale form, with an underlying durational-thematic process.

4.1 Overtura

Joscelyn Godwin has pointed out that the eight note motive of the Grosse Fuge is based on the opening eight notes of the first movement. The descending semitone beginning the first movement is now inverted, and the relation of the first note to the third which was a major second is now shifted up an octave in the Grosse Fuge, giving a minor seventh. The continued descent of the first movement opening is thus expressed in the F-E movement beginning here in bb. 6-7. The minor sixth jump that followed in the first movement is here inverted, becoming the drop of a minor sixth. Similarly, the ensuing semitone descent is also inverted here. Finally, the tone descent from b.
2 of the first movement is loosely reflected in the semitone ascent ending the *Grosse Fuge* subject, as both are stepwise cadential motions.\textsuperscript{12} Additionally, we have already observed that the Fibonacci proportions are also given here, but there is one more connection between the opening of the *Grosse Fuge* and the first movement. That is the use of unison/octaves. Where in the first movement, however, the unison/octave texture of the opening was experienced as a sort of mystique, in the *Grosse Fuge* it is blurted out *fortissimo*, with a force unparalleled, except perhaps by what follows the ensuing descending cycle of fifths. Thus the opening of the *Grosse Fuge* not only explicitly forecasts the contents of the fugue to follow, as many have noted, by calling the overture a “table of contents,”\textsuperscript{13} it is also implicitly rooted in the contents of the quartet as a whole.\textsuperscript{14}

### 4.2 B-flat major fugue

To understand the battle that takes place in this fugue between two types of metre (4:4 and 5:3), it will be necessary to first consider each of the fugue subjects in isolation. The afore-mentioned “battle” takes place between the contradictory rhythms pertaining to each of these subjects,\textsuperscript{15} and the temporal dynamic of this fugue as a whole is an ebb and flow between one rhythmic process gaining dominance, for a short while, over the other, and vice versa. In the first movement, “first subject,” Allegro, the sudden shift to clear 4/4 from 5:3 “exposed” the durational conflict that invests the whole work; here the clash is represented in the simultaneous clash between the two.

When heard in b. 26, before the entry of the countersubject in the first violin (upbeat to b. 31), as many point out, the main subject does not sound as though syncopated because the listener is given no reference point from which to hear it as so.\textsuperscript{16} The music, then, can be heard as 4/4, but with its “downbeat” on what is


\textsuperscript{13} Kerman, *Beethoven Quartets*, 277.


\textsuperscript{15} Which subject to designate the “main subject” and which to designate the “countersubject” has been a subject of disagreement but I will simply designate the idea that the movement opened with as the main subject, as does Richard Ormesher. For an account of arguments either way, see Richard Ormesher, “Beethoven’s Instrumental Fugal Style: an Investigation of Tonal and Thematic Characteristics in the Late-Period Tugues.” (PhD diss., University of Sheffield, 1989), 160.

\textsuperscript{16} Ibid. 159. See also, Husarik, “Beethoven’s High Comedy,” 65. For an overview of the “attacking rhythm” of the countersubject, see Ormesher, “Beethoven’s Instrumental Fugal Style,” 154-60.
notated as the second beat of the bar. Thus it does not sound as though syncopated. This “offbeat downbeat” is retained in every main subject entry until the further syncopation of b. 111 (see ex. 4-6 below), which itself does anything but clarify the downbeat.

Ex. 4.1: First movement, bb. 14-17 and *Grosse Fuge*, bb. 30-35 comparison.

What about the countersubject? As Ormesher points out, it is a source of immense rhythmic energy throughout this fugue. Its features can be best elucidated through comparison with the first movement Allegro, bb. 14-17 (ex. 4-1). Rumph suggests that the pairing of the two subjects of this fugue bears a strong resemblance to the

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17. This is one of Michael Broyles’ three examples of Beethoven beginning sections with metric ambiguity. Broyles, “Rhythm, Metre and Beethoven,” 306.
18. He draws attention to a great deal of other works by Beethoven from the 1810s and later which also use this rhythm. Ormesher, “Beethoven’s Instrumental Fugal Style,” 154-57.
first movement, first subject Allegro through its use of double counterpoint, whereby one idea enters on the upbeat, and the other on the second beat of the following bar.\textsuperscript{19} Similarities here can be pushed further. If we consider the countersubject motivically, there are two components: a “static” one typified by the three beats of Ds and Fs\textsuperscript{20} in b. 31, or of octave E-flats in b. 33; and a “moving” one expressed in the five beats from A-flat descending stepwise to E-flat from the upbeat to b. 32 through b. 32, or the G to D from the upbeat to b. 34 through b. 34. Thus the five beat descending semiquaver pattern from the first movement is reflected in the “moving” part of the first fugue countersubject, also lasting five beats, and the three part of the semiquaver idea is reflected in the “static” parts, again lasting three. Thus the countersubject corresponds to the semiquaver motion from the first movement (ex. 4-1), in this case providing a constant 5:3:5:3 motion throughout much of the first fugue.

4.2.1 Information overload as “atonality”

But it is how these two fugue subjects join together that perhaps gave rise to a contemporary critic labelling it “incomprehensible, like Chinese.”\textsuperscript{21} Cooper and Meyer have provided a starting point for grasping the source of rhythmic conflict here. The countersubject has its upbeats on the second and fourth beats of the bar (for instance, in b. 31), while the first and third are comparative downbeats.\textsuperscript{22} Therefore the forced combination of the syncopated main subject and the on-beat articulation of the countersubject cause competing downbeats, strategically designed for maximum conflict, lending colour to Stravinsky’s observation that, “Hardly birthmarked by its age, the Great Fugue is, in rhythm alone, more subtle than any music of my own century.”\textsuperscript{23}

That this conflict also has consequences for the harmony similarly lends colour to Schoenberg’s remark: “I have heard many a good musician, when listening to Beethoven’s Great Fugue, cry out: ‘This sounds like atonal music’.”\textsuperscript{24} If, to begin with, we consider the countersubject, again in isolation, the three “static” beats in b. 33 comprise an E-flat (IV) chord, and the five beats preceding are one long vii/IV chord (D–A-flat). The B-flat in the main subject on the last beat of b. 31, then, alters

\begin{enumerate}
\item[19.] Stephen C. Rumph. \textit{Beethoven After Napoleon}, 148.
\item[20.] I say three beats and not four because the first beat of the countersubject, the upbeat to b. 31 is anacrusis, as we learn in subsequent entries.
\item[22.] See Cooper and Meyer, \textit{Rhythmic Structure of Music}, 164-65.
\end{enumerate}
that to V7/IV, thus affirming the impetus towards the subdominant. Additionally, the G in the viola on the second beat of b. 33 strengthens the E-flat triad. However, other harmonic processes also present themselves here. For example, William Caplin hears the first three beats of b. 33, not as an E-flat chord, but as C minor and does not even consider the possibility of the former. The two main justifications for Caplin’s reading appear to be: after the V7/IV (upbeat to b. 31) is what could be heard as a V6/ii (second beat of b. 32), thus asserting a three beat V/ii anacrusis to b. 33, in conflict with the five beat V7/IV anacrusis; and, secondly, in the second tonic entry (bb. 39-42, ex. 4-3 below), when all the voices are present, the music indeed arrives on the supertonic (b. 41). But, given the context of b. 33, the listener has little reason to hear this as a supertonic chord instead of a subdominant; it could, for example, just as well be heard as a continued descent through the cycle of fifths, from the G beginning the Grosse Fuge, to B-flat beginning the first fugue, and to E-flat by b. 33. Furthermore, note the A-flat in the viola on the last beat of b. 32, whose impact upon the sense of a downbeat beginning b. 33 is highly destructive because of being harmonically unrelated to either chord (except as IV/IV). Because of this, the A-flat is still vividly in the listener’s mind as the first violin, on its own, plays E-flats on the first beat of b. 33. Thus a great deal of harmonic and rhythmic confusion results from the clash between subjects, between the syncopated 4/4 of the main subject, and the 5:3 anacrusic-thetic proportions of the countersubject.

The conflict between the two subjects remains in subsequent entries (ex. 4-2). Firstly, the 5:3 of the countersubject, almost ubiquitous throughout much of the B-flat fugue, continues while the syncopated 4/4 of the main subject is now strengthened by the rhythmic doubling in the first violin. The last beat of b. 36 comprises what at first appears to be an E-flat minor chord, again confusing the downbeat. It is thus not until the second beat of b. 37 that the submediant chord, prepared as it is by a V6/vi chord on the second beat of b. 36, is heard. Thus, syncopated 4/4 continues to clash with the 5:3 of the countersubject.

In the next tonic entry, beginning in b. 39, the above is subtly altered, presenting the 5:3 with more clarity. This is because the cello part (tied quavers) now falls

26. Ibid.
27. For more on the descending cycle of fifths from G to B-flat see Kramer, “Between Cavatina and Ouverture,” 173-75.
Ex. 4.2: Grosse Fuge, bb. 35-51.

onto the notated downbeat, partially cancelling out the effect of the syncopated main subject in the second violin. In other words, there are now tied quavers on every beat of the bar. The first inversion tonic beginning b. 39 lasts three beats before becoming V4/2/IV on the upbeat to b. 40, two before V/ii on the second beat of b. 40, expressing 3:2:3. The A-flat on last beat is thus reinterpreted as a dim7 chord (B–D–F–A-flat) of the supertonic. Another 5:3 (or 3:2:3) presents itself in the ensuing dominant entry (bb. 43-46): three beats on V, two on V4/2 due to the “moving” part of the countersubject, before three beats of augmented triads functioning as V/vi.

In the next passage, a three bar phrase consisting of stretto, the aforementioned 5:3 ratios disappear. Instead the first violin plays a high melody, from E-flat (anacrusis) to D to E-flat to D to C, before descending through a chromatic scale over straightforward harmony, moving from the tonic in b. 47 to the major submediant in b. 48, to the subdominant in b. 49, then finally a rootless tonic (confirmed as such by the full tonic beginning the following bar) on the third beat of b. 49 as the descending chromatic scale ends. This five minims of high melody in the first violin does, therefore, articulate an 8:5 ratio between itself and the eight minims (four bar phrase) preceding it.

When the triplets enter the texture (ex. 4-3), in b. 58, the 5:3 of the countersubject is again obscured. A particular effect of their entry is to further undermine the 5:3 of the countersubject. For example, in b. 57 the countersubject (second violin) moves to a D-flat, V7/IV, but the first violin plays the same note two triplets earlier, undermining the sense of a 3:5 ratio in bb. 58-59.

The full destructive effect of the triplets arises through the use of double neighbour-notes, whose effect is to destroy the sense of a downbeat. For example, the submediant chord beginning b. 76, (ex. 4-4) is deterred by the A and F-sharp in the cello. Thus, in b. 76 the sense of harmonic downbeat is shifted to the second beat, the latter of which articulates a clear major submediant chord, with G-B-D in the cello. The
Ex. 4.3: *Grosse Fuge*, triplet entry b. 58.

Ex. 4.4: *Grosse Fuge*, bb. 76-83.
supertonic on the third beat is treated similarly, with a stronger V/V chord on the fourth beat. From the dominant chord on the second beat of b. 78, successive 3:5 ratios can be found. V+6/V on the first beat prepares this dominant chord, three beats from which the first violin’s high F emphasises the dominant chord beginning b. 79. The vii/vi chord beginning b. 80 similarly defers the sense of downbeat to the augmented triad on the second beat, emphasised by the first violin’s off-beat F-sharp. Note that simultaneous to this 5:3 in bb. 79-80 is a 3:5 courtesy of the countersubject in viola and cello. The augmented V/vi chord on the second beat of b. 80 resolves to vi on the first beat of b. 81, a further five beats from which it becomes ii.

Ex. 4.5: *Grosse Fuge*, bb. 104-09.

By this point the main subject has disappeared, although it reappears in a new, transformed, guise in b. 111. The syncopated 4/4 that pertained to it, however, is all that remains rhythmically from bb. 104-08 (ex. 4-5). The first beat of b. 104 is a V4/2/vi chord, the second a vi6, thus the harmonic downbeat is the second beat of the bar. From here *sforzandos* accentuate each even beat until the *fortissimo* subdominant chord on the second beat of b. 107, and the tonic on the second of b. 108. From these displaced downbeats, what functions as a three beat bar repositions the harmonic downbeat to the first beat of the bar in b. 109, mirroring an analogous moment from the first movement (bb. 84-86).
4.2.2 Middle section

From b. 111 (ex. 4-6) the main subject undergoes further syncopation. In its first instance it was simply shifted to the offbeat, here it becomes entirely out of sync with the crotchet pulse. However, in tandem with this greater syncopation, a number of concurrent 5:3 ratios flood into the texture. To begin with, note that the 3:5 returns in the countersubject: three “static” beats in the cello in b. 111, and a five beat “moving” part from the upbeat to b. 112.

Furthermore, a minim 3:5 ratio becomes a prominent feature of this section. A V7/IV chord on the last beat of b. 111, contradicted by V/ii on the second beat of b. 112, arrives on a subdominant or supertonic chord on the third beat (accompanied by a slight alteration in the shape of the cello’s countersubject from that it had in previous instances). We are only supplied with an E-flat and a G, again leaving both possible interpretations (ii or IV) open. Nevertheless, it is this beat that is important as regards the 3:5 ratio. It is on the fourth minim of the phrase (bb. 111-14), the beginning of the five part of the 3:5 ratio, and although it seems insignificant (there is a ii chord beginning b. 113 that makes for a stronger downbeat), it is this 3:5 that Beethoven elucidates in subsequent entries. The dominant entry, for example, (bb. 115-18), moves to a submediant chord on the second minim of b. 116 before descending through a cycle of fifths back to the tonic beginning b. 119, also presenting a minim 3:5 ratio. The F-sharp in the cello on the first beat of b. 116 outlines a V7/vi functioning harmony supported by the first violin’s D and C and the second violin’s F-sharp, thus tonicising the second minim. Again, from bb. 119-22, the harmony supports this 3:5 ratio, beginning on I, reaching bIII (this time the lowest harmony, in terms of the cycle of fifths, to be passed through) by the second minim of b. 120, and to bVII beginning b. 123. This last 3:5 is also supported through voicing as the first and second violins play their highest notes at the fourth minim, thus emphasising it.

It will have to suffice to consider only one more example of the 5:3 ratio in this middle section, from bb. 126-27 (ex. 4-7). The V7/IV chord in b. 125 prepares the subdominant chord beginning b. 126, lasting five beats before the A-flat major (bVII) chord on the second beat of b. 127. The latter lasts three beats before returning to the subdominant beginning b. 128. This gives a crotchet 5:3 ratio.

4.2.3 Closing section

In regard to the last part of this fugue, bb. 139-58, the final transformation of the main subject, in which the rests are removed, let us begin with the most obvious
Ex. 4.6: Grosse Fuge, bb. 111-23.
observation (ex. 4-8). The tonic chord on the third beat of b. 138 lasts eight quavers, but the main subject enters after five in the viola for three quavers before moving to B-natural. This divides the tonic into five and three. Another quaver 5:3 lies between the weak subdominant (or supertonic) beginning b. 140 and the equally weak tonic chord on the sixth quaver, caused by the B-flat in the viola and the F–E-flat–E-flat–D voicing in the first violin. The subdominant, then, lasts five quavers, and the tonic three, before the dominant of the following bar.

What this final transformation actually appears to represent is something paradoxical due to the degree of syncopation of the main subject: a sudden shift into on-beat squareness. From b. 145 (ex. 4-9 begins at b. 147), the last full entry of the main subject, this can be discerned best as the harmony changes, in all cases, on the bar line, imposing a rhythmic uniformity of downbeats. Beginning b. 145 is a dominant chord, b. 146 is a first inversion submediant, b. 147 a tonic chord, b. 148 a subdomi-
nant and in b. 149 a first inversion dominant. In all of these cases there is not a single dissonance, and thus nothing to dispute the sense of downbeat.

Ex. 4.9: Grosse Fuge, first fugue closing section, bb. 147-55.

However, bb. 149-50 (ex. 4-9) disrupt this, asserting another minim 3:5 ratio. From the dominant chord beginning b. 149 the downbeat of the following bar is marred by the IV chord ending b. 149. However, a V4/3 chord tonicises a I chord on the third beat of b. 150, effecting a larger V-I progression from b. 149 to the third beat of b. 150. A further five minims later is the decisive, yet devastating, event which marks the climax of the first fugue: the victorious re-entry of the countersubject, which had been absent in its original form since b. 138, in conjunction with the disappearance of the main subject.

In the first movement the conflict between the 5:3 ratio and conventional 4/4
(“Newtonian time”) was exposed to the listener through the sudden switch in b. 34 from the former to the latter. Then, throughout the remainder of the first movement, as if at the flick of a switch, the music would alternate between that illuminated by the golden ratio, and that which re-emphasised 4/4 time. The same applied to the middle movements, further establishing the conflict between the golden ratio and eighteenth/nineteenth century metre. In the first fugue, then, the conflict between 4/4 and the golden ratio reaches a new height through the simultaneity of the two; it is no longer one or the other, but a vicious battle between the two, one whose purpose, as we will later observe, is to reach a sort of reconciliation. Of course, if it were not for the preceding analysis of the first movement one would perhaps be justified in saying that many of the above examples are too difficult to hear, and thus do not amount to golden ratios, but merely to extreme syncopation and competing downbeats. The first movement, however, along with later parts of the Grosse Fuge cast this first fugue in a different light, showing the golden ratio here to be a latent a priori thematic idea returning to the fore later on with the full clarity that it had in the first movement.

4.3 G-flat fugue

In comparison to the “process of destruction”\(^{28}\) of the B-flat fugue, the comparative simplicity of the G-flat fugue comes as something alien, just as the G-flat section did in the first movement. It is again comprised of two subjects, a crotchet variation of the main subject, which enters after the eight bar opening refrain (bb. 159-66), and a fluid semiquaver countersubject. As we will see, however, this fugue soon becomes anything but simple as it “comes to life” rhythmically and the initial squareness is transformed by the Fibonacci proportions. Moreover, just as the first fugue presented a simultaneity of conflicting rhythms, syncopated 4/4 with 5:3 ratios, the case is similar here: within the regularity of phrasing, subtle proportions emerge. To avoid excessive word-count and laborious reading much of the analysis that follows will be only touched upon briefly. The examples hopefully provide sufficient information for following what is meant in the text.

Caplin has noted that the harmonic rhythm implicit in the main subject is more regular in the second fugue than the first because of harmonic accents every two bars (ex. 4-10).\(^{29}\) Thus b. 167 is a tonic chord, b. 169 a subdominant (or supertonic) and b. 171 a tonic chord again. Within this squareness, however, a 3:2:3 ratio lies

\(^{28}\) Chua, Galitzin Quartets, 230.
\(^{29}\) Caplin, “Genesis of Countersubjects,” 240.
Ex. 4.10: Grosse Fuge, bb. 167-75.

implicit. Three beats after the G-flat entry on the second beat of b. 167 is the ii or IV chord beginning b. 169. Then, two beats later a ii chord ushers the move towards the dominant arriving on the second beat of b. 171, another three beats later. In other words, because the dominant entry begins on the second beat of b. 171, the tonic chord on the first is a passing harmony toward the dominant. Similarly, from the dominant entry, three beats ensure until the submediant beginning b. 173 and another two before the second submediant (b. 174). The dominant chord beginning b. 175 is, however, a full harmonic downbeat as there is nothing on the second beat to contradict it. Thus this phrase becomes 3:2:2 instead of 3:2:3. Following this, the opening eight-bar refrain resumes, now on the dominant.

The same applies to the second tonic entry (ex. 4-11), beginning b. 183. Here, however, the initial 3:2 becomes a larger five because the first ii chord (b. 185) is second inversion, thus lending more weight to the subsequent ii chord (b. 186), thus expressing a 5:3 ratio. Then, three beats beginning from the tonic chord in b. 192 precede the dominant entry on the last beat of b. 193, giving a 3:5 ratio as b. 196 is the next clear harmonic downbeat (a vi chord). From this last dominant entry a larger (minim) 5:3:2 also appears, encompassing the overarching harmonic process: five bars from b. 193 to the F chord beginning b. 198; then three on F before moving to B-flat major (b. 201) to begin a descending cycle of fifths. It reaches E-flat in b. 203 and
Ex. 4.11: *Grosse Fuge*, bb. 183-208.
A-flat in b. 205. From b. 205 a simple 3:5 appears in the cello, three beats on A-flat, and five on D-flat. From here, however, the music becomes disilluminated, with small exceptions that will not be discussed here.

4.4 Scherzo

As the G-flat fugue abruptly ends, a scherzo interlude begins on the tonic, B-flat. Two and three bar phrases with a clear 6/8 pulse are the norm throughout as a new lightness takes over the music. Just as the G-flat fugue began with an opening refrain, so too does the scherzo, beginning with the second of the two transformations of the main subject from the overture.

Ex. 4.12: Grosse Fuge, bb. 268-74.

It ends as quickly as it begins, however, with the intrusion of A-flat major in b. 272. How it ends, however, is highly noteworthy (ex. 4-12). The 6/8 duple metre is suddenly broken from b. 269 onward with what functions as a I–V/ii three beat bar comprising the B-flat chord to unison/octaves G to B-natural. The next harmonic downbeat is thus the C minor (ii) on the second beat of b. 270, beginning what functions as a four beat bar ending on a second inversion seventh chord of the new key, A-flat major. Thus we have a 2:3:4 ratio from bb. 268-72. However, also note that the tonic of the new key, A-flat lasts for five beats (second beat of b. 272 to b. 274) the boundaries of which therefore articulate 2:3:4:5. The time signature is simply ripped open as the A-flat fugue becomes immanent, signalling the reillumination about to take place.
4.5 A-flat fugue

With this main subject being almost identical to that which opened the *Grosse Fuge* the golden ratio already imprints itself upon this fugue in a very significant way (ex. 4-13). As mentioned in the first chapter, the 5:8:3 is articulated through the five beats on A-flat (cello, bb. 272-74), eight of straight minims articulated with *sforzandos* (bb. 275-78), and a tail motive which now lasts five beats and not three, but note that the viola enters on the second beat of b. 280 intruding upon the five beats of tail motive after a mere three. This version of the main subject enters four times before undergoing stretto, with the exception that in the third of these the initial five part is truncated by two quavers (b. 288), entering instead on the last quaver. For simplicity, each of the three components of the main subject will be designated $a$, $b$, and $c$, as in ex. 4-13. The “countersubject” (second violin, b. 274) in this fugue is a retrograde inversion of the tail motive ($c$), albeit with a quaver-crotchet-quaver rhythm. The dotted crotchet motive in the second violin from bb. 281-82 is thus also based upon $c$. The following golden ratios can only be pointed out briefly, but the corresponding examples should provide greater clarity.

Just as in the first fugue, the sheer number of competing harmonic processes, in tandem with the perhaps unparalleled levels of syncopation, give rise to a great deal of rhythmic confusion. To begin with, note that throughout most of ex. 4-13 the countersubject accentuates the second beat of each bar through its quaver-crotchet-quaver motion, thus combining with the offbeat entries of the main subject ($a$ part) to give a sense of competing downbeats. Furthermore, and courtesy of the above syncopation, more Fibonacci proportions can be found in addition to the above-mentioned 5:8:3, through consideration of harmonic function. For example, the first harmonic downbeat after the A-flat entry in b. 272 would be the cello’s F in b. 277 because the harmony of the prior two bars implies either V/IV or vii/ii. However, this F is not harmonised until the second beat of the bar, by the second violin’s B-flat. Thus it becomes, in retrospect, a ii6/4 chord, prepared by the vii/ii beginning b. 275. In other words, we know the A beginning b. 275 to be the beginning of a harmonic anacrusis at the outset, whereas in b. 277 the first beat could be heard as a vi chord before it becomes ii6/4 on the second beat. Thus there is a 5:3 ratio, the five part between the vii/ii beginning b. 275 and the ii6/4 on the second beat of b. 277, and the three from there to the stronger ii5/3 of b. 279. The same occurs in b. 285 with a iii chord reinterpreted as vi6/3 on the second beat, and in b. 293 with vi becoming ii5/3, in all cases the latter signalling a harmonic downbeat, articulating the 5:3 ratio. Thus, in the interplay between competing downbeats and harmonic function, additional 5:3
ratios appear.

After the relatively unambiguous 6/8 metre of bb. 303-08 the return of the a part in the cello ushers more concurrent, and contradictory, 5:3 ratios. The entry of a on the second beat of b. 308 lasts five, while the b part, truncated to four beats, is interrupted after three by the second violin’s fortissimo entry on the submediant, again lasting five beats. Thus, 5:3:5 results. Harmonic function, however, shows a contradictory 3:5 ratio: three bars from the C major chord beginning b. 309, accompanied by trills in the second violin, precede the major supertonic chord beginning b. 312, accentuated by jumps in second violin and cello. This II chord reinterprets what would otherwise be a submediant entry on beat two of b. 312 as V/ii, and thus as prolongation of the chord beginning the bar. Another II chord begins b. 317 showing bb. 312-16 to be a five bar phrase. This gives 3:5 from bb. 309-16. After the first violin entry beginning b. 320 a descending cycle of fifths begins, encompassing bb. 327-50, progressing from A-flat and ending on the dominant, in which the rhythm becomes momentarily disilluminated as it progresses linearly through the cycle in dotted crotchet fours.

When the quavers enter as a further rhythmic compression of c more entries of the

truncated main subject express 5:3 ratios (ex. 4-14). The b part has here been removed leaving only a and c, thereby encompassing a 5:3 ratio over a further descending cycle of fifths (C–F–B-flat–E-flat). More specifically, the C entry in the viola on the second beat of b. 350 comprises five beats of a followed by c, to be interrupted after three beats by the second violin’s F entry. The viola then enters again, on B-flat, in b. 358, followed by the cello in b. 362.

### 4.5.1 Moment of disillumination

Husarik points out, from sketch analysis, that at some stage of composition Beethoven intended to end the fugue here, returning immediately to the scherzo intermezzo from
earlier. But instead, what follows is a significant period of disillumination, a plunge into barbarism. The music finds itself again in G-flat major by b. 370 (ex. 4-15), on the second beat of which the first violin enters on top of B-flat trills in the viola and motive c, as triplets, in the second violin. The first violin plays a slightly truncated version of the main subject (5:6:3) before joining the trills, on G-flat, in what Chua calls the “registral climax” of the fugue (b. 377). On the second beat of b. 378 is an F entry in the cello, clashing with the high G-flat trill in the first violin, making further reference to the clash between F and G-flat major from the first movement. A cadence onto B-flat (minor) in b. 385 fails due to the continuing C trill in the first violin, and is followed by another G-flat chord in the following bar, thus destroying the possibility of a G-flat to B-flat resolution. The means by which Beethoven brutalises the implied harmonic processes, then, are partially rhythmic, as they pertain to the non-synchronicity of the players through the above-mentioned trill suspensions in the first violin, and, more emphatically, a result of the melodic shape of the main subject. For example, the undermining of the B-flat cadence of b. 385 is, firstly, the consequence of the continued C trill in the first violin, and secondly, a result of the motive c in the cello, bb. 383-86 with its A-natural–B-flat–G-flat, implying a B-flat minor:V6–i–bVI (G-flat) progression (or G-flat: V6/iii–iii–I as notated in ex. 4-15). Another B-flat arrival in b. 399 fails, for a comparable reason: firstly, the E-flat suspension in the first violin; and secondly, the B-flat (b. 399) to G-flat (b. 400) in the viola. Following this the music descends into ten bars (bb. 404-13) of trills and cadential (semitone) shapes at the end of which it finds itself on the dominant of E-flat for what Chua calls the recapitulation.

In b. 414 (ex. 4-16), the arrival in E-flat, the countersubject from the first fugue returns, in the form of a piano murmur, one that is, notably, in conformity with the 6/8 metre and outlining a clear harmonic triad, as if to suggest that the struggle underlying this movement has been resolved, in tandem with this gesture of recapitulation. However, not only is it in the wrong key, this rhythm is immediately destroyed when the first violin enters with an aggressive fortissimo on the second beat of b. 416 with an anacrusis D and E-flat to a high E-flat on the last quaver of the bar, the latter of which functions as the downbeat. What follows is a prolonged train-wreck in E-flat before the music returns to A-flat in b. 453, superseding the E-flat sonata-form recapitulation by returning to the main key of the A-flat fugue. Now the note-lengths

31. Chua, Galitzin Quartets, 238.
32. As Chua observed. Ibid.
33. Ibid.
Ex. 4.15: *Grosse Fuge*, bb. 370-404.
of the main subject (the three notes that have remained, motive c, cello, b. 453) have lost the rhythmic proportions that previously animated them, now conforming to the bar line, a consequence of the continued disillumination.

Ex. 4.16: *Grosse Fuge*, bb. 414-21.

This fugue culminates with a return of the Meno mosso e moderato tempo from the G-flat fugue, now in the key of A-flat (bb. 493-532), what Rumph calls “the climax of the fugue [I believe he means of the whole *Grosse Fuge* and not merely the A-flat fugue], a moment of genuinely erotic communion.” The character then, needless to say, is one of barbarism (the antithesis of the G-flat fugue) as each beat is here aggressively punctuated with *forte* or *sforzando* markings, and the rhythmic squareness returns, at first, with harmonic downbeats every two bars.

### 4.5.2 Illumination and the abyss

What follows is quite possibly the most extraordinary moment of the whole work, coinciding with the re-entry of the 5:3 ratio (ex. 4-17). As the Meno mosso reaches its climax five staccato quavers in the first violin are followed by three of absolute silence in all parts. This silence takes on an unprecedented significance, not only as an articulation of the three part of the 5:3 ratio, but also because of the point in the work at which it happens. The unresolved chaos of both, the B-flat and A-flat fugues does not so much conclude with some form of cadence, but rather disappears into the abyss with an immediacy more akin to the pure expression of dread. As Heidegger suggests, in the experience of dread one is brought face-to-face with “Nothing” as an entity in-of-itsel: “Dread strikes us dumb. Because what-is-in-totality slips away and thus forces Nothing to the fore, all affirmation ... fails in the face of it... In dread there is a retreat from something, though it is not so much a flight as a spell-bound

34. Rumph, *Beethoven after Napoleon*, 149.
Ex. 4.17: *Grosse Fuge*, bb. 493-535.
... peace...” The “what-is-in-totality” is the musical content of the previous three fugues, which progressed from one to the next with no silences in between, now to be usurped by the confrontation with Nothing itself. Moreover, the 5:3 ratio, the *a priori* transcending the *a posteriori* “what-is” hovers over this abyss, revealed as the truly enduring element; the golden ratio, as something purely durational, transcends Nothing.

As a consequence of the above, all that preceded it slips away, to be replaced with alternations between chords accompanied by trills in the cello, and silence. This very confrontation with Nothing, furthermore, coincides with a sort of recapitulation section for the whole work, in which the golden ratios are made quite possibly the most explicit they have been since the Allegro “first subject” of the first movement. 3:5 ratios are here articulated by trills in the cello. The cello plays a three beat tied trill in bb. 511-12, followed by five beats of non-trills. This section is an instance where publishers have inaccurately reproduced the score. The *urtext* edition notates the cello part as comprising a three beat tied trill from the upbeat to b. 512 through b. 512, then a non-tied E-flat beginning b. 513, a pattern repeated in bb. 515-17, 519-21, and only slightly altered from b. 523-25 and 527-29 with the last crotchet instead becoming a quaver. (Hence the above three beats trills, five beats non-trills assertion.) Other editions, however, present the cello’s E-flat in b. 513 as tied to the minim of b. 512, and some even extend the trill to a four beat duration. Presumably publishers conceived the lack of a tie as a mistake on Beethoven’s part because of the ties in the other three instruments, but the lack of a tie in the cello part, in conjunction with the three beat trill, is how the 3:5 ratio is articulated. In bb. 515-19 the ratio is further expressed by a change of harmony coinciding with the end of the cello’s trills (E-flat to V6 of F). (The accelerando in this section need not impact the 5:3 ratio as it is very gradual.) The cello’s three beat trills, five beat “non-trills” pattern remains until the return of the scherzo in b. 533.

Harmonically, however, this section, far from being recapitulatory, functions as a transition back to B-flat. The chord from bb. 511-3 articulates V of A-flat, that from 515-17 a progression from V to V6/vi. From the VI chord (V of B-flat) in b. 523 the music begins to stammer. The initial dominant of B-flat on the second beat of b. 523 is instantly repudiated by the first violin, moving from a C to a D-flat on the first beat of b. 524, then by the second violin which moves to a B-flat on the second beat in tandem with the viola entering with an E-natural, the latter of which becomes an F.

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on the second beat of b. 525. The first violin’s D in b. 527 resolves to an E-flat on the first beat of b. 528, the second violin and viola resolve to a C and an F respectively on the second beat, outlining a third-less F7 chord. However, on the second beat of b. 529 the viola plays a G-flat, thus undermining the dominant of B-flat with what has been its nemesis throughout the whole work. In b. 531 the second violin plays a B-natural, moving to a C on the second beat of b. 532, at which point the viola enters again with a G-flat. The move to the dominant of B-flat is therefore muddied and ultimately foiled, highlighting the inappropriateness of what follows.

In the wake of the seriousness of the foregoing, the return of the scherzo material is a perfect joke. Its B-flat key has not been successfully prepared, and its content is entirely dismissive of the calamity preceding it. It merits another Heidegger quote: “The fact that when we are caught in the uncanniness of dread we often try to break the empty silence by words spoken at random, only proves the presence of Nothing.”37 The scherzo here is of a similar vein as “words spoken at random.” Needless to say, the music becomes again disilluminated with the return of the scherzo section.

4.6 Flooding of the golden ratio

In the wake of this short scherzo new material bearing little semblance to that of the first three fugues begins, in B-flat major. Four bar phrases are the norm in this section, but what is more paramount to its vitality is the syncopation between parts. For example, in b. 594 (ex. 4-18), the first violin and cello emphasise the first beat as the downbeat while the second violin continues a tied note that began on the second beat of b. 593, a pattern that remains until b. 597 when the first violin’s first beat is also obscured by a tie over the bar line on the second beat of the bar. Thus competing downbeats and metric ambiguity remain a prevalent feature.

From b. 593, furthermore, the golden ratio floods back into the texture. The phrase beginning b. 593 lasts nine beats instead of eight (eight beats comprising a four bar phrase) because of the harmonic suspensions beginning b. 597, resolving to IV on the second beat. The second beat subdominant, moreover, coincides with the entry of a new pizzicato treatment of the main subject, shared between viola and cello. This pattern lasts until b. 605, expressing a 9:15 ratio from bb. 593-604. The next phrase, beginning in b. 605 is also elongated by a beat in the first violin due to the C suspension on the first beat of b. 609, and the high octave B-flat on the second beat clearly articulating the beginning of a new idea. However, at the same time the

37. Ibid. 367.
(Allegro molto e con brio)

9 beats because of weak minor dominant beginning 597
15 beats of pizz, main theme

15 beats of chord
Ex. 4.18: *Grosse Fuge*, bb. 593-641.

first beat of b. 609 also forms a clear downbeat, because of the sudden change to *pianissimo* and clear articulation of the submediant in second violin, viola and cello. Thus the rhythmic proportions issuing from both the first violin, and from the other parts are worthy of separate consideration in what follows.

From the second beat of b. 609, the main subject re-enters in the high register of the first violin. According to Richard Kramer this is the moment to which the whole *Grosse Fuge* “gravitates,” in which hidden harmonic properties of the main subject are at last “realised.”

In particular, precisely at the point in which the subject would be expected to resolve back to the tonic or (b. 617) it instead moves from an F major chord to a second inversion A minor triad, resolving to a half cadence on E major in b. 620, the antipole of B-flat. This sudden elevation to far away harmonic regions, it so happens, occurs fifteen beats after the first violin’s entry with the main subject (second beat of b. 609), again presenting a 9:15 ratio between it and the nine beats preceding. Furthermore, from here a further 25 beats lead to the *forte* F chord on the second beat of b. 629, beginning a series of *forte* crotchets punctuated by rests, making for a 15:25 ratio: 15 from the second beat of b. 609 to b. 619, and 25 from the latter to the *forte* crotchets beginning on the second beat of b. 629. Additionally, the alternating V-I chords from the second beat of b. 629 also last fifteen beats. Over this whole section, then, from bb. 593-641 is a 9:15:9:15:25:15 ratio. (Also note the nine beats on a long F in the cello from bb. 637-41.) 9:15 and 15:25, needless to say, are all amplifications of the 3:5 ratio, giving 0.6, a close approximation of the golden ratio. Also note that from the return to B-flat major in b. 627, five beats are spent on the long dominant chord, then there are a further eight from the second beat of b. 629 until the change of rhythm on the second beat of b. 633, expressing 5:8.

As suggested above, different golden ratios can also be found from the submediant chord beginning b. 609. Sixteen beats (eight bars) lead from here to the second inversion A minor chord of b. 617, and another 27 beats to the tonic chord of b. 630. If the sudden elevation to A minor or E major were a harmonic “accident,” then the tonic chord of b. 630 “corrects” the accident by resolving to the correct tonic. This gives 16:27: sixteen beats from b. 609 to the A minor; 27 to the B-flat major “correction,” evaluating to approximately 0.59, another near approximation of the golden ratio.

4.6.1 Return of the main subjects

All that is left after the radiant golden ratios of the above is to recapitulate each of the Grosse Fuge’s main subjects, thus returning to the content preceding the confrontation with Nothing. As Michael Steinberg writes of these three entries (ex. 4-19):

The music loses momentum, then stops, uncertainly, on a dissonance. Silence. The two violins offer to start the fugue over from the beginning... This is a bad idea. Silence again. Then what about the gentler Meno mosso e moderato...? Also not the right thing.39

Thus, the recapitulatory gesture is, as much as anything, another confrontation with “Nothing” as a rejection of the by now discarded contents of the first three fugues. Steinberg does, however, describe the long unison/octaves that follow (bb. 662-81) as “strong octaves like those at the beginning.”40 The only difference, however, is that they are now completely devoid of the 5:8:3 ratio: now 6:2:2:2:2, and so on, as a long, disilluminated unison/octaves spiral aggressively articulated with forte or sforzando markings.

However, from the climax of this section, the high G in b. 67541 the ratio once again floods into the music, returning life to the main subject. Eleven beats after the high G is a tonic B-flat chord (b. 681). From here the main subject from the scherzo returns, but is cut off prematurely as it would be expected to resolve from the dominant chord on the second beat of b. 684 back to the tonic, but it instead halts, remaining on a long dominant chord. Thus, retrospectively, the dominant chord on the last beat of b. 683 forms the beginning of a new idea, and for this reason, the eleven beats from the climax of b. 675 to the tonic of b. 681 forms an 11:7 ratio with

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40. Ibid.
41. As Kerman designates it. Kerman, Beethoven Quartets, 278.
the seven beats from b. 681 to the long dominant beginning on the second beat of b. 684. Furthermore, from the tonic chord beginning b. 681 sixteen beats lead to the subdominant entry of the main subject, over cello trills, in b. 689. A further 25 beats precede the tonic chord, prepared by a V7 chord, on the second beat of b. 701. This results in a 16:25 golden ratio.

4.7 Reimagination of fugue subject

From b. 701 Beethoven plays a simple but powerful, rhythmic and harmonic game of “gravitation” that is continued right up to the final four bar phrase beginning b. 737. What is of most importance about the above is that the tonic chord of b. 701 occurs on the second beat, contradicting the location of downbeats in the previous twelve bars, thus undermining its sense of finality. This is continued through the bars that follow, bb. 702-15, in addition to the beginning of the final reanimation of the *Grosse Fuge* main subject on the second beat of b. 716. This creates the sense of being “suspended in air,” while the bars that follow represent a gradual process of landing, accompanied by a crescendo beginning b. 716, lasting until the fortissimo of b. 737. Only in b. 721 is the harmonic downbeat clearly returned to the first beat of the bar, albeit in the form of a second inversion supertonic. Note the 5:3:5 beginning with the high A-flat in the first violin on the second beat of b. 718, identical to those of the countersubject from the first fugue (see above): a five beat anacrusis from A-flat to the E-flat of b. 721, lasting three, then another five beat anacrusis from the second beat of bb. 722 through 724. From here the process of grounding continues in the form of first violin suspensions on the first beat of each bar, marring the harmonic downbeats. For example, the tonic chord of b. 725 is weakened by the first violin’s high E-flat, the subdominant of b. 729 by its A-flat. The downbeat is also weakened
in b. 733 by the second inversion tonic. Only in b. 737 is a fully rooted tonic chord given, leading to the final chord in b. 741.

All of this, furthermore, is proportioned by one large golden ratio. From b. 701, the moment the music becomes “suspended,” fifteen bars precede the entry of the main subject and countersubject in b. 716, from which another 24.5 bars lead to the final chord of b. 741. Thus, the closing section of the coda is proportioned by a golden ratio approximating to 0.612. In the final 200 bars of the Grosse Fuge, then, golden ratios flood the music with a volume comparable to that which began the first movement, but here they are subtly and powerfully integrated with the musical material, showing a sort of final reconciliation between the a priori durational-thematic idea, the golden ratio, and conventional metre, in this case 6/8. Rumph, curiously, also finds a sort of “fusion” in the final bars, between the 4/4 of the first fugue and the 6/8 of the majority of the second half of the movement.42 “The tempo, metre, and note values belong to the latter, but the quirky manner of tying notes together derives from the former. When the countersubject of the opening Fuga returns at bar 717 in 6/8, the fusion is complete.”43 But the more paramount “fusion,” as I see it, is that of the golden ratio with the motivic materials and time signatures of the Grosse Fuge.

### 4.8 Conclusion

As a consequence of his own analysis Chua was forced to conclude:

Of course, there are 200 bars of ‘resolution’ (bars 533ff), led by the scherzo-like march that, after being shunted aside by the development [A-flat fugue], is now gesturing towards some kind of victory. But what kind of parade is this? As with the A major twist in the previous quartet [Op. 132, finale], the Utopian vision of Classical forms is conjured up at the last moment, seemingly divorced from the heroic process typical of Beethoven or even from the spiritual transcendence of the late sonatas. The Enlightenment sense of ‘overcoming’ carries no conviction. The victory parade of the Grosse Fuge is a sudden assertion, as though it were posing the question, can there be a resolution after such a process of disintegration and negation?44

The appearance of incongruity to the last bars that Chua refers to is the result of, I argue, his failure to observe the thematic idea that transcends the process of “disintegration” he alludes to. At the moment of the confrontation with “Nothing” at the

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42. Rumph, Beethoven after Napoleon, 149.
43. Ibid.
44. Chua, Galitzin Quartets, 243.
culmination of the A-flat fugue the golden ratio itself is the enduring thematic idea that accompanies the music over the abyss. Thus the enlightenment of the final 200 bars is the aftermath of “overcoming” the abyss during which the purely durational thematic idea, the golden ratio, integrates itself with the music in the subtlest of ways. This gives a means for understanding what takes place in this movement as a whole.

In the first fugue the 5:3 ratio, for which the countersubject was the primary source, was in direct conflict with the aggressive syncopation of the main subject. This ratio proved to be the indomitable element as it animated the G-flat fugue to follow, and then the A-flat fugue, as a battle waged to “integrate” the golden ratio with classical metre. Thus the golden ratio appears to be what is in confrontation with the process of rhythmic (and thus harmonic) disintegration, ultimately guiding the music over the abyss, and reanimating it in the coda. Strangely, Franz Grillparzer, the orator of Beethoven’s funeral, once wrote, perhaps sensing something of the like: “... I did not want to give Beethoven cause, misled by a half-diabolic subject, to step still closer to the extreme limits of music, which were there in any case, like a threatening abyss.”

In face of these “extreme limits” Beethoven made something non-musical thematic, something that because of being non-musical, but instead purely durational, can be expressed as a proportion between “something” and “Nothing.”

Chapter 5

The alternate finale

All that remains is to consider the alternate finale. Now that we have analysed the Op. 130 quartet in its original version it is possible to pose the two questions: which aspects of the Grosse Fuge are reflected in the alternate finale, which are discarded? And, how does the alternate finale bring conclusion to the quartet as regards durational thematicism? As a replacement to the Grosse Fuge the Allegro finale of late 1826 could not be, at face value, of a more contradictory character. Compared to the contrapuntal, rhythmic, harmonic and formal complexity of the Grosse Fuge this sonata-rondo movement possesses a simplicity and lightness that appears, on the surface, to renounce the very essence of the former finale. In particular, the alternate finale remains in one tempo throughout, unlike the first movement or the Grosse Fuge, in a mostly unambiguous 2/4 metre, and covers a less expansive harmonic terrain due to the second subject remaining in F major instead of making the excursion to G-flat it did in the first movement and the Grosse Fuge.

For these reasons some writers have taken offence at the Allegro finale, finding it to be an insult to the integrity of the quartet, as does Robert Kahn, who writes: “It [the alternate finale] is frivolous, unbearably light, wholly lacking in substance and weight, particularly as the finale to a six-movement quartet. It degrades the work from philosophy to slapstick.” ¹ This is the view that many proponents of the Grosse Fuge appear to hold, even though most are not quite as blunt in their disdain for the alternate finale as is Kahn. For example, Sylvia Imeson writes:

This movement, composed by Beethoven in the last year of his life in response to a request from his publisher and the urgings of his friends, and perhaps also in response to a sense on his own part that the issues raised

in the quartet were not yet settled to his complete satisfaction (although I think his first solution was the better one), offers an extreme contrast to the original final movement. Beethoven, as was his wont, did not compose the original version of the quartet without a considerable expenditure of time, effort, and sketching; it would seem to be a useful exercise, then, to examine the quartet in the guise in which this most thorough of composers first meant his audience to experience it.²

Many arguments have thus been advanced by proponents of the *Grosse Fuge*. William Kinderman has argued that, because of Beethoven’s use of the term *Leibquartett* in conversation books in early 1826, which he translates as “favourite quartet,” then Op. 130, with the *Grosse Fuge*, must therefore have been Beethoven’s “favourite quartet.”³ But as Theodore Albrecht shows, not only is this translation of *Leibquartett* incorrect, Beethoven was referring, not to the Op. 130 quartet itself, but to the ensemble performing it, calling them his “personal quartet.”⁴

Others have justified their preference for the *Grosse Fuge* on grounds of thematic and stylistic relationships between movements. For example, Robert Kahn insists that “the outer movements of the Quartet in B-flat are thematically related, but only with the *Grosse Fuge* as finale,” noting, as an example, the fact that the *Grosse Fuge* re-enacts the surprise G-flat arrival of the first movement, while the alternate finale does not.⁵ For Stephen Rumph, connections between the first movement and the *Grosse Fuge* are so numerous that the alternate finale cannot live up to the former. Rumph, after noting that both, the first movement, and the *Grosse Fuge*, begin with something analogous to a “table of contents,”⁶ argues that because the first movement and *Grosse Fuge* comprise so many instances of double counterpoint, a key issue of the quartet inevitably becomes that of “double counterpoint.”⁷ He thus insists: “Those who would substitute the 1826 finale (and here I must enter the fray [over the merits of the two finales] after all) lose out on a crucial element of Beethoven’s original design”: double counterpoint.⁸

A simple example, however, shows the problem with Rumph's reasoning. Richard Kramer, in an essay on the *Grosse Fuge*, quoted in the previous chapter, uses the G². Imeson, *The Time gives it Proofs*, 155.
6. Rumph here adapts Kerman’s argument that the *Grosse Fuge* begins with a “table of contents” also to the two contrasting tempos opening the first movement, which “serves as a preview of virtually every idea of the following movement.” Rumph, *Beethoven after Napoleon*, 143-44. Also Kerman, *Beethoven Quartets*, 277.
8. Ibid.
opening the *Grosse Fuge* to build a narrative in which the “G brazenly repudiates” that of the Cavatina, thus giving it a narrative meaning not possessed by the Allegro finale.\(^9\) But, as Barry Cooper points out, a different narrative could be equally well formed connecting the alternate finale with the Cavatina:

For example, this finale [alternate] begins with a G major figure leading to a C minor tonality, echoing both the G major of the fourth-movement Danza alla tedesca and the C minor of the first full chord of the whole quartet; then after its B flat tonality is established it is again undermined, this time by E flat (bars 25-30), recalling the key of the Cavatina.\(^{10}\)

His point, then, is that a narrative is something that is applied *to* a work, and can be formed to connect any two events to one another. Cooper thus goes on, “Which of these two narratives is preferable depends on one’s personal emotional response and cannot be argued on a rational basis.”\(^{11}\)

Similarly, then, focusing analysis on certain aspects of the work, such as the use of double counterpoint in Rumph’s case, in order to argue for the superiority or inferiority of one movement over the other misses the real issue. It could just as well be argued that Beethoven, by not using double counterpoint in great abundance in the alternate finale, is informing us that the issue of the quartet is *not* double counterpoint. Furthermore, if Beethoven himself found the alternate finale to be satisfactory, and there is no evidence to the contrary, then the chief issue of the quartet, at least by the time of composing the latter, must be something else.

This partisanship toward the *Grosse Fuge* as the “true” finale does not appear to have been something Beethoven shared with the musicologists cited above. One of Beethoven’s closest friends in his later life, Karl Holz, sent by Beethoven’s publisher Artaria to convince the him to compose the new finale because of the complexity of the *Grosse Fuge*, anticipated a great deal of protest, but in reality the case was quite the contrary: “Beethoven told me he would reflect upon it, but by the next day I received a letter giving his agreement.”\(^{12}\) Barry Cooper’s 2012 study has clarified a great deal regarding this. He notes that during the arrangement of the *Grosse Fuge* for piano,

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11. Ibid.
four hands, Beethoven came to realise that the *Grosse Fuge* would function perfectly adequately as a quartet of its own because of its inherent three movement structure, something Holz had suggested: “You could have easily made two quartets out of the B flat quartet.”13 As regards the golden ratio, the independence of the *Grosse Fuge* as a work in its own right can make full sense: it begins with a *fortissimo* proclamation of the 5:8:3 ratio, just as Opp. 127 and 130 began with expositions of 5:3. From here, each of the fugues, functioning as independent movements, incorporates golden ratios in conflict with conventional eighteenth century metre before the final 200 or so bars affect a sort of reconciliation, or synthesis, between the two. Thus the *Grosse Fuge*, in these respects, incorporates the whole Op. 130 quartet in one movement. I will not fall into the trap of suggesting that the above was Beethoven’s rationale, or even of insisting that he was conscious of these characteristics. Nonetheless, as regards the function of durational thematicism as it has been elucidated in the first four chapters, there is no reason why the *Grosse Fuge* could not function adequately as a work of its own. Thus Beethoven set about writing a new finale from a fresh perspective.

An agreeable point of departure for considering the two finales, then, is that of Maynard Solomon:

Beethoven poses the most difficult questions [in the Cavatina]–how to endure pain of this intensity, how to awaken from a burdensome nightmare, how to breathe freely again ... And the fact is that Beethoven found two satisfactory answers to those questions in the alternative closing movements of the B-flat String Quartet that he left for posterity to puzzle over.

... Whereas the *Grosse Fuge* is learned and encyclopaedic, the rondo is a Haydnesque romp, illustrating that healing can be effected either by way of wisdom or by way of innocence. Both endings are authentic versions of the dialectic of suffering and healing central to Beethoven’s creative project.14

Additionally, he writes: “Beethoven discovered two strategies that would complete his conception: one is a powerful and multivalent structure, a battleground adequate to encompass the triumph of will over mortality (or some such metaphor); the other is the simplest of rondos, steeped in the play impulse, dealing with memory rather than anticipation.”15

If we look at the alternate finale from the perspective of durational thematicism it may be possible to consider its relation to the Op. 130 quartet, and to the *Grosse Fuge* in a different light. As we will find, the light-hearted two and four bar phrases common throughout much of the movement are often subtly interwoven with 5:3, presenting a different solution to the dialectic underlying the quartet. But, as the retransition section progresses, failing to establish the tonic of B-flat, a moment of rupture occurs (bb. 207-22), at the climax of which 5:3 and 8:5 ratios tear through the façade of lightness, over *fortissimo* unison/octaves movement in all parts. Thus, Solomon is not entirely correct in his assertion that the alternate finale is “the simplest of rondos, steeped in the play impulse.” There is an aspect to the movement that transcends the simplicity, and that aspect is what is grounded in the contents of the quartet as a whole, as best illustrated by what occurs in that moment of rupture. This chapter will only point out some aspects, rather than considering the whole movement.

### 5.1 Durational thematicism in alternate finale

It begins with a two bar refrain followed by two unambiguous four bar phrases over a descending cycle of fifths, from G to B-flat (ex. 5-1). This theme is, however, infused with subtle, implicit, Fibonacci proportions from the outset. A 5:3 (or 3:2:3) ratio emerges when we consider the descending cycle of fifths itself. The V/ii in b. 3 resolves to a ii chord in b. 6, and a V7 in b. 7 to the tonic in b. 8. B. 9 confirms the tonic with a IV-V-I cadence to the tonic in b. 10. Thus: three bars as V7/ii when the main theme enters, two from ii-V7, and three on I. The 3:2:3 is admittedly less convincing here than the 5:3 because the ii chord of b. 6 arrives on the second quaver. This delay of the ii chord by one quaver, however, gives rise to a smaller 5:3 ratio: five quavers from the V/ii chord beginning b. 5, and three on ii from the second quaver of b. 6. More of this harmonic syncopation expresses 5:3 ratios in bb. 11-14. The V7/ii chord of b. 11 lasts five quavers, becoming ii by the second quaver of b. 12, lasting three quavers before again becoming V/ii beginning b. 13. Another five quavers later a ii chord begins on the second quaver of b. 14, lasting three. The larger 5:3 is also repeated in bb. 11-18: five bars from V7/ii, through ii and V6/5, to three on the tonic from b. 16.

Therefore, the opening bars of the movement simultaneously combine squareness of phrasing (a two bar refrain followed by four bar phrases) with subtle 5:3 ratios on two different metric levels: quavers and minimis (bars). That all of this occurs over a descending cycle of fifths at *pianissimo* accounts for the sense of “lightness,” the first five
bars of the main theme being, as a consequence, a long anacrusis to the tonic, loosely reflecting the 5:3 ratios of the first subject Allegro in the first movement, in which the five part was anacrusis to the three. Moreover, Beethoven here re-contextualises
both, the descending cycle of fifths that opens the *Grosse Fuge*, and what was, in the first fugue, a vicious battle between 4:4 and 5:3. This subtle juxtaposition of 2/4 and the 5:3 ratio becomes a main feature of this movement as a whole, indicating a new means of answering the primary dialectical question of the quartet: the reconciliation between conventional metre, the ordinary, and the golden ratio, the extraordinary.

When, in bb. 25-32, the main theme is given again, over a B-flat to E-flat progression, the above proportions are removed, signalling a disillumination. As has been common throughout this work, the golden ratio is absent while the music is on the subdominant (E-flat), and thus the harmonic durations are subtly altered. The clearest examples of disilluminated subdominants we have considered are the Cavatina, in E-flat, discussed in chapter 3, and the E-flat major “recapitulation” in the *Grosse Fuge*, chapter 4. Unfortunately this aspect cannot be explored in detail in this thesis, but it is nevertheless worthy of note. In the present movement, after a six bar phrase on the tonic, bb. 19-24, the continued descending cycle of fifths tonicises the subdominant. A V7/IV chord in b. 25 is followed by a IV chord beginning b. 26, lasting nine quavers before another V7/IV lasting seven, beginning the second quaver of b. 28, before another bar on the subdominant (b. 30). By b. 31, however, we are given another subtle 5:3 ratio as the music re-tonicises B-flat: five quavers of V7, and three on I beginning the second quaver of b. 32.

The music arrives on the dominant in b. 53, with nothing but two and four bar phrases, until b. 67. Six bars of canonic entries from bb. 67-72 are followed by another six of diminished sevenths and second inversion tonic chords (bb. 73-78) over a *diminuendo* to *pp*. A four bar phrase over D-flat–C oscillations in the cello (possibly a lurking remnant of the F–G-flat dichotomy of previous movements) begins in b. 79 followed by two three bar phrases (bb. 83-85 and 86-88) before two bar phrases close the remainder of the exposition. This 6:6:4:3:3:2 (ex. 5-2) could be considered a reference to the consecutively decreasing phrase-lengths (4:3:2) common in the Cavatina. Thus a moment of turmoil, or rupture, in the otherwise lightweight, “integrated” movement, dramatised by a sudden flare of dynamics, corresponds with allusions to both, the durational aspect of the Cavatina, and possibly to the F to G-flat dichotomy first adumbrated in the first movement and *Grosse Fuge*.

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16. This is also true of other late works. For example, in Op. 127, first movement, after the initial Maestoso section lands on the subdominant (as if the Maestoso were actually an introduction on the dominant of A-flat major), the 5:3 ratio becomes absent in favour of clear 3/4.

17. In the recapitulation, bb. 319-21 this is voiced as G-flat–F in the cello, representing a momentary unsettling of the dominant.
Ex. 5.2: Allegro finale, bb. 79-92.

5.2 Development

As the development proceeds, the music arrives in the key of A-flat major, reflecting the corresponding moment of the Grosse Fuge, the A-flat fugue. Unlike the Grosse Fuge, however, the A-flat section here begins with nothing by way of golden ratios, with the possible exception of bb. 121-30 (ex. 5-3). Here, through harmony, a 7:11 ratio (crotchets) is superimposed onto the four bar phrasing. The phrase, bb. 121-24, begins with a tonic chord and its last bar (b. 124) comprises a V4/2 chord on the 18. The harmonic antipole of the D major development in the first movement, as Chua observes. Chua Galitzin Quartets.
Ex. 5.3: Allegro finale, bb. 109-32.

first beat to I6 on the second beat, seven beats later. The next phrase (bb. 125-28) begins with vii6/V, working through a descending cycle of fifths and not returning to the tonic until b. 130. Thus the spacing of tonic chords from bb. 121-30 articulates a 7:11 ratio.

With the subtle illumination above as a precedent, Fibonacci proportions return in great quantity throughout much of the remainder of the A-flat section (ex. 5-4). A four bar phrase (eight crotchets) in bb. 140-3 prepares a dominant chord beginning b. 144 lasting five beats, resolving to the tonic on the second beat of b. 146, demarcating 8:5:3, as the tonic begins the last three beats of the phrase. From bb. 148-52 the first violin’s long minims articulate a five bar phrase over a I-IV-V progression, followed
Ex. 5.4: Allegro finale, bb. 140-62.

by three and two bar phrases respectively, from bb. 153-55 and 156-57, giving 5:3:2.
Lastly, five beats after the tonic chord on the second beat of b. 155 a V7 chord tonicises
the A-flat chord beginning b. 158, a four bar (eight crotchets) refrain preceding the re-
entry of the main theme in b. 167. This expresses another 5:8 ratio between the second
beat of b. 155, the beginning of b. 158, and the return of the main theme in b. 162.
Thus, in this development section Beethoven “composes out” the subtle durational
proportions beginning the movement, making them more explicit as it progresses.

This ushers a “retransition” section that seems out of place given the lightness of
the movement up to now, one perhaps corresponding to the E-flat “recapitulation” in
the Grosse Fuge and its ensuing catastrophe. It begins with a return to F major with
canonic entries of the main theme, beginning b. 168, leading to a failed arrival in B-flat:
ii6/4-I-ii-V6/5/IV (bb. 178-82) before a move to C minor from b. 183. The continued
failure to establish the tonic culminates in the violent fortissimo unison/octaves from
bb. 207-22 (ex. 5-5). Here the 5:3 ratio tears through the surface, articulated by
changes in note-pattern. Five bars from bb. 207-11 primarily outlining arpeggio
movements are followed by three bars of E-flat, C, D, C staccato quavers in all parts with *sforzando* markings beginning each bar (bb. 212-14). In the next four bars the C is sharpened, thus causing a change in pattern. From b. 219 the E-flat becomes E-natural until the second beat of b. 221 where it is flattened again. A retrospective 8:5:3 ratio thus emerges from b. 215, where the C-natural becomes C-sharp, if we consider the highest note in isolation: eight beats of E-flats, five of E-natural from b. 219, and three of E-flat again from the second beat of b. 221. Lastly, from b. 212 three bars comprise C-naturals as their lowest note, followed by five with C-sharps. In the most violent part of the movement, then, the façade of lightweight finale, and of squareness, is torn apart and a number of simultaneous Fibonacci proportions rise

Ex. 5.5: Allegro finale, bb. 207-32.
to the surface. Thus, the retransition fails to establish the tonic, but instead presents
the golden ratio with an overtness comparable to that of the end-point of the A-flat
fugue in the *Grosse Fuge*: five staccato quavers followed by three quavers of silence.
In both cases what was implicit becomes explicit.

This failure to establish the tonic becomes absolutely clear in what follows. The
main theme returns, beginning some form of recapitulation in what appears to be the
far away key of D major. Here a rupture in the cycle of fifths appears between the
first four bar phrase (bb. 225-28), beginning on V/vi in B-flat major, and the second,
beginning on V7/IV in b. 229, throwing the music from the distinctly sharp-ward
region to the flat-ward. Thus the cycle of fifths is broken by a further denial of B-flat
major, jumping from vi in b. 228 to V7/IV in b. 229, and to IV in b. 230 for the
last three bars of the eight bar theme. Nevertheless, the minim 5:3 ratio of the main
theme remains: five bars after the beginning of this theme in b. 230 the music arrives
on the subdominant, lasting three beats.

5.3 Final examples

Ex. 5.6: Allegro finale, bb. 456-59.

The recapitulation need not be considered in great detail. Once the tonic of B-
flat is settled the harmonic divergence of the retransition is put to the side and the
recapitulation closely resembles the exposition, but now with the second subject in
the tonic, as one might expect of a conventional recapitulation. As the coda begins
a 5:3 ratio appears from bb. 345-52, articulated by a change of pattern in the first
violin in b. 350. From b. 353 the A-flat section of the development repeats, now in
the tonic, B-flat, repeating the golden ratios of the former. When the main theme is
Ex. 5.7: Allegro finale, bb. 468-93.

given for the last time in the coda it is “straightened out,” presented absolutely square, and thus disilluminated. For example, in b. 430 a clear vii/IV chord at fortissimo is followed by two bars on IV, two of V7/IV, another of IV before a I-V-I cadence in bb. 436-37. In all cases, in other words, the underlying 5:3 harmonic syncopations have been expunged. Again, from bb. 441-48 the above holds true: one bar of V/ii, then of ii, V/ii, ii, two bars of V, before I-V-I in bb. 447-48. From b. 456, however (ex. 5-6) the cadential part of the main theme is treated in fragmentation in the cello, outlining a quaver 5:3 demarcated by five quavers on the dominant and three on the tonic. This pattern continues through bb. 458-59, 463-64, and 465-66. However, note the sforzando markings in all cases conflicting with the 5:3 ratios.

Considered superficially, the final bars (ex. 5-7) juxtapose four and five bar phrases: five bars from bb. 468-72, four from bb. 473-76, five from bb. 477-81, four from bb. 482-85 before four two bar phrases close the movement. However, on more careful examination, the harmonic implications indicate an 11:7 golden ratio (crotchets). The first phrase outlined above, beginning with a forte tonic downbeat (b. 468) lasts five and a half bars (eleven beats) as the final beat of b. 472 articulates the beginning of a V7/IV chord, one that continues through the first beat of b. 473. The A-flat and F are thus played in b. 472, and the chord continues to be outlined on the first beat of b. 473, with the D and B-flat. Thus what could have appeared as the beginning of another phrase is delayed until the second beat of the bar, as the V7/IV resolves to IV accompanied by a sforzando. This second phrase, bb. 473-76 lasts seven beats because of the three beats of V6/4 from the second beat of b. 475 through 476, tonicising the fortissimo octave B-flats beginning b. 477. The same 11:7 is found in bb. 477-85.
5.4 Conclusion

What can be concluded from the above, then? Firstly, there are only two instances in the alternate finale in which the golden ratios are easily audible: the unison/octave eights, fives and threes of bb. 207-22, and the 11:7 ratios of bb. 468-85. It is these two instances, combined with the concentrated use of such proportions in the first and third movements along with the *Grosse Fuge* that elucidate the more subtle examples found throughout this movement. Otherwise, the 5:3 ratios found in the main theme, bb. 3-18, for example, would be seen as nothing more than the sort of syncopation common in earlier Beethoven. They are illuminated for analysis by their context. As regards the two questions posed at the beginning of the chapter, then, the alternate finale is steeped in the very same contents as the *Grosse Fuge* and of the Op. 130 quartet as a whole, as regards durational thematicism. Thus durational thematicism can elucidate the processes underlying both of the finales to Op. 130, showing that any partisanship toward either finale can, from this perspective, be no more than a matter of taste.

After the *Grosse Fuge*, then, Beethoven found another answer to the Cavatina when composing the alternate finale, as Solomon suggests. The former, the *Grosse Fuge*, was to shatter the Cavatina with intensity and intellectual force, taking us through the abyss, after which the golden ratio reigned triumphant. The latter, a lightweight finale composed after the fact, infuses Fibonacci proportions with an unambiguous squareness of metre so subtly as to enrich the old, Haydnesque sonata-rondo with a durational thematicism from the peak of Beethoven’s compositional output.
Conclusion

This thesis, beginning from the simplest, most clearly articulated 5:3 ratios, has treated them as clues, forming a starting point from which to analyse the whole quartet. In other words, in the first movement, bb. 14-20, of Op. 130 Beethoven presents the listener with material unbecoming of a sonata form first subject. By discerning exactly what pertains to it, one can then form a starting point for analysing the rest of the work. It contains the “cadenza” element referred to by Spitzer, the double counterpoint observed by Steven Rumph, along with a number of motivic aspects common to the whole quartet, which many writers have teased out, such as the descending third, or semitone motives. However, another aspect that pertains to it is the 5:3 ratio, which, as this thesis has demonstrated, forms a commonly recurring thematic idea in-of-itself throughout this quartet, and other late works by Beethoven.

The second chapter, then, taking the 5:3 ratio, and other proportions based upon the golden ratio or the Fibonacci sequence, as its point of departure, demonstrated an analytical reading of the first movement by showing how Beethoven re-conceptualises sonata form as part of a temporal process of “exposing” the golden ratio as a thematic idea. What this entails is the demotion of the conventional elements of music (the “dissociation” of form, or as Adorno calls it, “disintegration”\textsuperscript{19}), and the promotion of the \textit{a priori} golden ratio as a thematic idea. In a sense, the golden ratio, as something purely durational, is a “non-musical” thematic idea. The consequence of this, of ordering the music according to \textit{a priori} concepts is that what, for a lesser composer, would present an ineluctable logic (sonata form, thematic development, metre) becomes, in Beethoven’s case, something volatile, unpredictable, and highly dynamic because of being subject to an invisible process. In a sense, the confrontation with “Nothing” described in connection with the \textit{Grosse Fuge} (chapter 4) is something that the whole quartet lies on the edge of, because of the conventional thematic materials (pitch relationships), the “what-is,” Heidegger would call them, being secondary to the purely durational, thus “empty,” thematic idea. In this sense the middle movements

(chapter 3) become far more significant upon deeper consideration. For example, the “accidents” in the third movement that give rise to the golden ratio represent a confrontation with “Nothing” as the purely durational element repeatedly disrupts the anticipated order of “what-is,” in the form of musical accidents, ruptures in its “clock-like” rhythm. Thus, even the seemingly “lightweight” becomes infused with the profoundly serious and existential. The Grosse Fuge, then, merely pushes this confrontation to its conclusion at the culmination of the A-flat fugue before, the reconciliation of the two poles (the a posteriori “what is” and the a priori) was allowed to take place. The alternate finale re-enacts the process of the Grosse Fuge within a completely different aesthetic. The confrontation with Nothing in the latter movement was symbolised by the unison/octaves at the moment of retransition in which the ratio again became explicit.

Rose Subotnik writes that when Beethoven, in the wake of Napoleon’s defeat, became thoroughly disillusioned with Austrian society, it became clear, according to Adorno, that the subject-object synthesis sought after and achieved in the middle period works, became an impossibility. That is to say, the individual’s (subjective) freedom within society (objective) became forever an impossibility.20 Thus, “aware of his inability to satisfy both himself and society, he [Beethoven] must fashion his art more single-mindedly than ever before to the specifications of his own imagination, deriving from the latter both his rules of procedure and his criteria of artistic success. His art must become consciously and implacably autonomous.”21 He did so, in regard to the late quartets, by making the a priori thematic, and thus composing according to a logic by which the “what-is” (musical convention) is in perpetual relation to “Nothing” (the purely durational and the conceptual processes underlying the works). Adorno described something similar when considering the needs of art in contemporary society:

Art must turn against itself, in opposition to its own concept, be dismissed simply by its abstract negation. By attacking what seemed to be its foundation throughout the whole of its tradition, art has been qualitatively transformed; it becomes qualitatively other.22

21. Ibid. 255.
The purpose of this thesis was to lay building blocks for the future study of Beethoven, illuminating the late works from another angle, and as a result it finishes with more questions than with which it began. It would take too long to list every problem, such as the relationship between the subdominant and notion of disillumination (as mentioned elsewhere, the subdominant key area often coincides with the disappearance of the golden ratio); or that of formulating more concretely the question of how the golden ratio, in these works, relates to Beethoven’s broader treatment of rhythm and metre over the course of his life, and, especially, how that treatment changed with the onset of his “late period.” Suitable next steps would be to ask at which point Beethoven began to use the golden ratio in this late period guise (that is to say, as durational thematism), and whether, indeed, it occurs in earlier works as a precursor.

At the very least, this thesis has hopefully contributed to the endeavour to understand why the “time experience” of Beethoven’s late music is of such a different nature to that of his predecessors. David Greene writes that “Bach’s music is an aural image of Newtonian time” in that “the totality of material entities constitutes a universe in the sense that they all operate according to the same laws which exhaustively explain their behaviour.”23 He continues, “Bach’s inventions, sonata movements, fugues, concerto movements, arias and choruses are the aural image of ... an unfolding necessity” (that is to say, of “cause and effect,” something Greene acknowledges Beethoven as having surpassed).24 One pre-eminent feature of nineteenth-century romanticism, however, is the widespread opposition to the Newtonian conception of the universe.25 A well-known example of the rejection of Newton from one of Beethoven’s esteemed contemporaries is Goethe’s Theory of Colours in which Goethe emphatically rejects Newton’s mechanistic theory of colour with his own phenomenological one.26 I would thus argue that a central part of Beethoven’s usurpation of Newtonian time is the use of an a priori “compositional logic” involving a durational thematic idea which is, at its core, Nothing. Thus he supersedes traditional cause-and-effect relationships by instituting a causality which lies outside the a posteriori logic of a thematic, harmonic and conventional formal discourse.

It is possible to describe a sort of “narrative” of the work, seeing it as a cyclic form, bearing in mind, of course, that a “narrative” can only ever be a work-in-

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24. Ibid.
progress as the real conceptual process will always reveal the narrative, upon further
analysis and reflection, to be one-sided or simplistic, and thus unsatisfactory. This
narrative encompasses the process by which the golden ratio, presented with such
“rawness” in the first movement, becomes subtly sublimated, interwoven, with the
thematic materials by the end of the work. In the first movement the dissociation
of sonata form occurred in conjunction with the clearest expressions of the golden
ratio to be found through the whole quartet. As many analysts have pointed out,
the music starts to become “integrated” by the coda of the movement, but, as we
noted, this occurs in tandem with a disillumination, which is continued throughout
the second movement. The third movement reincorporates the golden ratio, but only
through its “effect” upon the music, bringing disruption to the fore while the durational
proportions themselves are difficult to discern, but nevertheless present. The Cavatina
encompasses the tragedy of the irreconcilability of the two expressions of musical time
before the golden ratio returns will full force in the Grosse Fuge, reminding us of
what underlies the work. All of this culminates in the most direct confrontation with
“Nothing” yet, at the climax of the A-flat fugue. Finally, what follows the scherzo
shows a synthesis between the two as golden ratios subtly animate the musical material
in what follows. Similarly, the alternate finale achieves an assimilation between the
golden ratio and musical material despite its character being contradictory to that of
the Grosse Fuge, through the 7:11 ratios of the final bars.
Bibliography


Kramer, Jonathan D. “Multiple and Non-Linear Time in Beethoven’s Opus 135.” *Perspectives of New Music,* 1973, 122–145.


Tovey, Donald Francis. *Beethoven’s Ninth Symphony in D. minor (op. 125): an Essay in Musical Analysis.* London: Oxford University Press, 1927.


