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RIEMANN'S PERIODIZATION

REVISITED AND REVISED

Ivan F. Waldbauer

INTRODUCTION. Between 1884 and 1919, the dates of his first and last major works on the subject, Hugo Riemann developed a comprehensive system to deal with musical periodization and phrase structure. It was the last such theory for some time to come, and it enjoyed, at least for a while, a degree of general acceptance. This alone would be sufficient reason to interest the present-day student in Riemann's theories, but there are more compelling ones. Ian Bent puts the case for Riemann succinctly in *The New Grove*: "It is in his theory of phrase structure, much disputed and now somewhat neglected, that Riemann has most to offer: in the field of metre and rhythm where analysis has been most deficient, offering a set of criteria for segmentation and at the same time a means of defining functions of large time spans."¹ Fortunately, a fair number of studies have appeared in recent decades that go a long way in repairing deficiencies in the analysis of meter and rhythm, but the neglect of Riemann continues. Some of his ideas and notions keep cropping up in these studies, mostly, however, to be criticized or dismissed. The positive potential of Riemann's analytical system and particularly its capacity to "define the function of large time spans" is rarely discussed.²

It is for the purpose of remedying this situation that the present study is undertaken. After a preliminary sketch of the historical context in which

Riemann's theories arose, I will attempt a brief review of his system and will identify its main divergences from the theories of his most important 18th-century predecessor, Heinrich Christoph Koch. Subsequently, I will offer certain revisions of Riemann's system. The revisions are based in part on Koch, in part on ideas and comments appearing in Riemann's own later analyses, and in part on insights expressed in recent studies on rhythm and meter. They are intended to meet various criticisms which can be, and have been, brought against Riemann. In the final portion of this study I will undertake to demonstrate to what extent Riemann's adjusted system remains a suitable analytical method for dealing with phrase structure, if not in all music, as Riemann once hoped, at least in Western music composed in divisive dance meters during the Classical and Romantic periods and in a great deal of music of earlier times.

THE HISTORICAL BACKGROUND. Riemann's system is the final stage of an era in the history of music theory that viewed all music, regardless of genre and medium, as the hierarchical organization of phrases prototypically four measures long. The era begins with the publication of Joseph Riepel, *Anfangsgründe zur musikalischen Setzkunst* in 1752–68³ and produces its first peak soon after, in the *Versuch einer Anleitung zur Composition*, 1782–93, of Koch.⁴ The purpose of these theorists is avowedly pedagogical. In his enormously detailed and comprehensive work, Koch states repeatedly that his goal is to teach the student the mechanical rules of musical composition—the ways in which basic four-measure phrases are constructed, modified by various types of extensions, and connected with each other to produce both smaller and larger musical forms. Some contemporary and also later theorists refer to the basic four-measure unit as “Rhythmus,” but Koch consistently uses the terms “Satz” and “Absatz” for it, in keeping with his intentions of setting down the grammatical rules of music in analogy with the grammar of language.⁵ Koch's immediate successors rarely cite him, yet it seems as if the *Versuch* would set the agenda of music theory for the entire first half of the 19th century. Writers such as Jérôme-Joseph de Momigny and Anton Reicha who probably did not know Koch's *Versuch*, or Gottfried Weber, Adolph Bernhard Marx, and others who did, are somewhat more inclined to confront esthetic, as distinct from grammatical or mechanical, matters than was Koch; yet their purpose is still largely pedagogical, and their technical assumptions are also essentially the same as his.⁶ Perhaps the most important single technical feature that emerges from their writings is the gradually increasing emphasis on the eight-measure unit. Koch also identifies this as the “kleine Periode” of two four-measure phrases, but he does not assign particular status to it, at least not in the larger forms, which is easily understood when one views actual musical practice prior to the writing of the *Versuch*. A new element

enters the realm of music theory in 1853. *Die Natur der Metrik und der Harmonik* of Moritz Hauptmann is a general theory of rhythm and meter, as well as of harmony, not a practical tutor like the works of the earlier theorists.⁷ Hauptmann's avowed aim is to formulate theories of universal validity. In keeping with his high purpose, he establishes a philosophical foundation for them, based on the dialectical method of Hegel.

Whether on metrics or any other theoretical field, Riemann's theories too are characterized by a philosophical approach and an aspiration to universal validity. In one respect, however, he stands apart and above all his predecessors and contemporaries. His quest for universal validity spurred him to undertake a truly prodigious amount of music historical research as a means to the end of testing his theories on an ever increasing variety of musical materials. The gradual evolution of Riemann's ideas on the temporal organization of music took 35 years, the entire second half of his life. The first of the three milestones, his *Musikalische Agogik und Dynamik* published in Hamburg in 1884, is a continuation and a revision of Hauptmann's work. During the following 19 years Riemann published a series of *Phrasierungsangaben* (editions of music with novel analytical phrasing instructions), a host of essays devoted to phrase structure, and a thoroughly revised new edition of three of the four volumes of A.B. Marx's composition tutor.⁸ These led up to his second major work on the temporal organization of music, the *System der musikalischen Rhythmik und Metrik* (hereafter *System*) of 1903, the fullest statement of Riemann's theories and the sum and critique of all earlier ones on the subject.⁹ Whatever details are not fully clarified in the *System* are added by Riemann in numerous analyses produced after 1903.¹⁰ Most important among these are the exceptionally detailed and closely argued analyses of Beethoven's piano sonatas (hereafter *Beethoven Sonatas*), the publication of which was completed in 1919, just weeks before Riemann's death.¹¹

During and for a while even after Riemann's lifetime, his theories exerted widespread influence.¹² They provoked, however, also a great deal of criticism. Some of Riemann's tenets may well be attacked by a critic who argues from within the framework of a system based on eight- and four-measure phrase structure, as we shall see shortly. Yet, I suspect that the principal cause for that neglect into which Riemann's theories have fallen after the 1920s is not this kind of criticism, whatever its merits, but the very claim of universal validity for the framework itself. Music written towards the end of Riemann's life by R. Strauss or Mahler or Debussy shows the framework in an advanced state of disintegration, and it is clearly irrelevant to newer music composed in additive rhythms, such as some of even the earliest works of Bartók or Stravinsky, as it is to most of the then newly discovered pre-Baroque music. With the fall of the framework the trust in all other aspects of Riemann's theories also disappears. Indeed the whole question of general theories concerning rhythm and

meter becomes a subject that is largely avoided by serious writers on music between the two world wars.

For a re-awakening of interest in the concerns of Riemann, although not in Riemann himself, we may be thankful to historians of music. Leonard G. Ratner leads the way in 1947 with the publication of the first of a series of studies that examine 18th- and early 19th-century theorists, Koch among them, and develop what amounts to a style-critical method.¹³ The historical approach soon engenders new theorizing. Howard Smither may be singled out as an example for developing novel theories on the basis of a thorough review of 19th-century writers, Riemann among them (cf. notes 2, 6 and 7). The first study that examines the subject from a primarily theoretical rather than historical viewpoint is the seminal work of Grosvenor Cooper and Leonard B. Meyer, *The Rhythmic Structure of Music* of 1960.¹⁴ Since that time the number of valuable theoretical, critical, and historical studies dealing directly or indirectly with rhythm and meter has been steadily growing.¹⁵ With respect to the historical and general musicological equipment the authors of these contributions bring to bear upon their work, they are all indebted to Riemann. But precisely because their equipment is hugely expanded compared to his, they all manage to avoid the dangers inherent in any attempt to create the kind of comprehensive and universal system that was Riemann's goal.

RIEMANN'S SYSTEM IN OUTLINE. The fundamental assumption shared by all theorists between Riepel and Riemann is that metric expectation goes beyond the beat and the measure to larger units. Riemann, however, goes further in this than others. He regards the fundamental metric unit of this expectation as a necessary and integral part of the framework in which *all* music is perceived; he seems to think of it as having a force comparable to that of tonal expectation. He identifies the fundamental unit of metric expectation as the eight-measure period. This is the first of four principles on which his system rests. He defines the period as the musical statement comprising eight true downbeats (*Taktschwerpunkte*), whether notated in eight actual bars, or half as many or twice, four times, etc., as many. A given musical statement may be contracted or extended in various ways to contain fewer or more than eight true measures, but Riemann argues that it is possible at all times to determine which of the eight measures, that is, which of the eight discrete events necessary for the formation of a full musical statement are omitted or elided and which are repeated or extended. Thus for Riemann the measure, or rather the unit he prefers to call the *Motiv* (measure-motive) is a subdivision of the period. In accordance with this observation I shall use the term "measure" only in reference to Riemann's true measure, that is, one eighth part of the period and one fourth part of the phrase, leaving extensions and elisions out of considera-

tion. The term 'bar' will be retained exclusively for referring to the actual notational unit of a given piece.

Riemann's next two principles concern the internal construction of the period. It is composed of two four-measure phrases, antecedent and consequent, with some kind of homogeneity in their materials. Further, the cadences of these phrases are produced by chords or chord progressions that are felt as complementing one another. Criteria for such a complementary relationship are problematical. The four permutations of full and half cadences (dominant and tonic, tonic and dominant, weaker and stronger tonic, weaker and stronger dominant, e.g., cadence *on* or *in* the dominant) are certainly complementary, but Riemann sees other possibilities as well. His analyses, both in the *System* and in later works, show a variety of cadences on degrees other than the dominant and tonic, and he feels compelled to justify some of these:

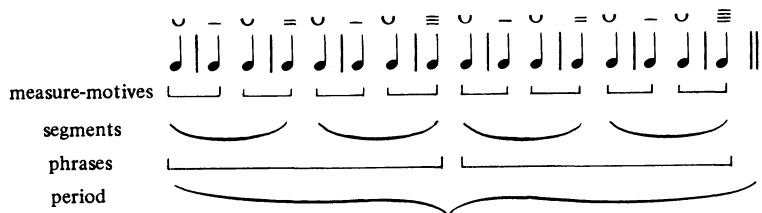
" . . . I warn here *once and for all* against attaching too strictly conceived notions to the fourth and eighth measure. In general the eighth measure is nothing more than the value answering the fourth, surpassing it *thereby* in weight. That it would be necessary for it to bring about any kind of definitive close cannot be positively asserted. It is clear, though, to be sure, that as its proportions grow, the answering member is increasingly likely to lead to an ever more noticeable resting point." (*System*, pp. 200–01, my translation and emphases.)

The tone of the statement even more than its content indicates how vexing the problem of complementary cadences was for Riemann.

Finally, Riemann regards it as axiomatic that the above-described organization of the period is the logical outgrowth of the inherently anacrusic nature of music. According to this doctrine of *Auftaktigkeit*—I will make no attempt to find an English equivalent for this term—the smallest unit of musical energy is the measure-motive. It begins with a growth phase in the anacrusis, reaches a central point of stress in the downbeat (*thesis*), and this is followed by a decay phase leading to a weak beat (*arsis*).¹⁶ Occasionally the final *arsis* of one measure-motive may also serve as the starting point for the anacrusis of the next one. The same kinetics apply, according to Riemann, to the larger temporal units of the period as well. Thus the *thesis* of the first measure-motive within a two-measure segment (*Zweitaktgruppe* for Riemann, *vollkommener Einschnitt* for Koch) is anacrusis in this sense to the thesis of the second, the first segment in a four-measure phrase (*Halbsatz* for Riemann) is anacrusis to the second segment, and the antecedent phrase is anacrusis to the consequent phrase. This hierarchy may continue to the double period and possibly further but with lessening practical significance. Example 1 is a schematic representation of Riemann's prototypical period. The symbol \cup shows the *arsis*; single, double, triple, and quadruple dashes show the hierarchy of *theses*.

In accordance with the idea that answering values surpass in weight the values they answer (see the previously cited passage), all units of Riemann's period are accented at the end. The only form of musical motion recognized by Riemann as natural is the iamb. How pitches and harmonic factors enhance this motion form is discussed sometimes by Riemann in connection with particular analyses, but he does not construct any cohesive theory concerning their role. The closest I can come to identifying the assumptions guiding him in this regard is to suggest that within the phrase this iambic, or rather anacrustic, motion is normally supported by harmonic change of some sort from the penultimate to the final measure and often also from the initial to the second measure. Neither part of this rule is, however, without numerous exceptions, nor is it possible to deduce any consistent rule concerning the nature of harmonic changes in question, or for that matter the role of harmony in setting apart units on different levels, such as segments and phrases, from one another.¹⁷ As we shall see in a little while, Koch provides somewhat better guidance in this respect.

From this theory Riemann develops an analytical shorthand employing the numbers from 1 to 8 for the eight discrete values of the period. The shorthand is useful even for those who would alter, as I will, some of the criteria for the choice of numbers. The numbers 8 and 4 denote, respectively, the final and medial cadences; 7 and 3 stand for the measures leading up to these; and 5-6 and 1-2 denote comparable initial pairs of measures to which the cadential pairs provide the answer. When a given period contains more or fewer measures than eight, the numbers show the precise nature of the extension or the elision. Within the period they may indicate which values are extended by elongation, which others by repetition (non-literal and sequential repetitions included), and which values are elided, either simply left out or contracted (e.g., 4=5, 8=1, 8=5, etc.). Two other kinds of extension may occur as additions to a phrase or a period complete in itself. They are the preface (*Vorhang*) and the appendix (*Anhang*). The former is one or more measures preceding the phrase proper, often a fanfare, as the first two-bar measure in the Third Symphony of Beethoven.¹⁸ For prefaces Riemann uses the number 8 by itself, for according to him—and he may well have a point in this—they are perceived as the final measure(s) of a preceding unstated period (in my own analyses I will also use these symbols, but I will circle the number(s) denoting such prefaces, and not only when they stand by themselves, but also when they are actually final measures of a preceding phrase or period). The appendix is one or several (literal or non-literal) repetitions of a cadence after a fully stated period or phrase, and it may include one or several shifts to other scale degrees (*Kadenzverschiebung*). Appendices are denoted by repetitions of the number 8, or 8(=7) - 8, or 8(=6) - 7 - 8, even 8=5 - 6 - 7 - 8, etc. When Riemann finds a phrase standing by itself, that is, one that



Example 1. Diagram of Riemann's prototypical period

Allegro

The musical score for Example 360 in Koch, *Introductory Essay*, p. 163, is presented in four staves. The key signature is one sharp (F#) and the time signature is common time (C). The tempo is marked **Allegro**. The score includes various musical notations and annotations:

- Staff 1:** Features a trill (*tr.*) and a fermata. Below the staff, there are square brackets containing symbols: [□], [Δ], and □.
- Staff 2:** Includes a five-measure rest (*5*) and a trill (*tr.*). Below the staff, there are square brackets containing symbols: [Δ], [Δ], [Δ], [Δ], and □.
- Staff 3:** Starts with a piano marking (*p*) and a fermata. Below the staff, there are square brackets containing symbols: Δ and □.
- Staff 4:** Includes a ten-measure rest (*10*) and a forte marking (*forte*). Below the staff, there are square brackets containing symbols: Δ, [□], and [Δ]. The score ends with the word *etc.*

Example 2. Example 360 in Koch, *Introductory Essay*, p. 163

does not form a full period with either the preceding or the following phrase, he uses the numbers from 5 to 8.¹⁹

While Riemann approaches musical periodization from the direction of kinetics as represented by his doctrine of *Auftaktigkeit*, Koch's approach is based upon the presumed analogy between the grammars of music and language and upon the presumed intrinsic esthetic value of symmetry. Apart from this difference in approach, the two theorists differ from one another in four particulars. As mentioned before, Koch regards the four-measure phrase rather than the two-phrase period as the fundamental unit, for such a basic phrase is already capable of containing a musical thought complete in itself. Although not stated by him explicitly as a criterion of phrase construction, a principle guiding him in perceiving (or achieving) this sense of completeness nevertheless does emerge from his examples in the *Versuch*. Practically all phrases contain at least one true tonal movement or change. If this is not always a Schenkerian fundamental chord progression it is at least a prolonged departure from and return to the tonic (sometimes another) harmony.²⁰ This principle seems significant to me, and I will adopt it as a general guide for the present study, even though Riemann does not seem to have adopted it himself, as we have seen earlier. It also explains why Koch can feel comfortable in relying on the basic four-measure phrase as his fundamental unit. As regards larger units, for Koch these are all composites of phrases, each or any of which may be extended by various means. A period of two or three such phrases makes up normally the reprises of smaller forms. Four or more phrases constitute what he calls the principal periods (*Hauptperiode*) of larger forms, for instance the units that would be identified by modern terminology as the exposition of a sonata form and the entire section formed by the development and the recapitulation taken together.²¹ While Koch gives no special status to the eight-measure unit, many such units occur in his examples, both within his principal periods and by themselves. Some of these he considers as extensions of four-measure phrases, others as varied repetitions of the same phrase, but most of them would be identified in Riemann's system as periods.²² Thus, the difference here is not quite as great as it appears.

The same may be stated concerning the second area on which the two differ. As Koch sees the four-measure phrase as the practical minimum unit capable of containing a fully stated musical thought, and not as the result of universal kinetic law, as does Riemann, he allows, at least in principle, that genuine five-, six-, and seven-measure phrases (*Fünfer*, *Sechser*, and *Siebener*) exist that are not modifications of basic *Vierers*. Yet he himself actually derives most of his own examples for such larger phrases from basic four-measure units, and the method he uses for these reductions can be easily applied to his few remaining examples.²³ His methods of reduction are, of course, the same as the techniques of phrase-extension, only in

reverse, and all are adopted by Riemann, albeit sometimes with a different nomenclature.²⁴

Of greater importance is the third area of divergence between Koch and Riemann, their respective positions in regard to phrase-ending cadences. For Koch, phrases normally end on either the tonic or the dominant (*Grundabsatz* and *Quintabsatz*). The fourth degree, for instance (and other degrees by implication), is not suitable for a cadence, “. . . for such triads seem to be unable to give a quality of completeness to the thoughts that end with them.”²⁵ Only modulating phrases may end on other triads, but in these cases the final is actually either the tonic or the dominant of the new key. Koch states the norm here, as is his avowed purpose throughout his treatise in all other matters, and adds immediately an example to show an exceptional phrase which ends on the subdominant triad and “which our feeling judges to be fairly complete.”²⁶ One may, however, judge the force of the norm, when one considers that the phrase given as the exception is the only one of its kind among all the examples in the *Versuch*, whether composed by Koch or anyone else.

The last and most important area on which views of the two theorists do not coincide concerns covert change of meter within a composition. Neither of them addresses the issue as a separate topic, but both deal with it in some form or other. Koch lists “equality of meter and similarity of tempo” among the conditions under which phrases may be connected with each other to form larger periods.²⁷ This would suggest the requirement that the same meter be maintained throughout a composition. Yet he presents two particularly intriguing examples in which phrases in 2/4 and 2/2 follow one another. In the first of these, part of an aria by Koch’s own teacher, Christian Gotthelf Scheinpflug (1722–70), Koch invites the reader to guess the special reason for this expansion of the meter: the words in the 2/2 phrase are “*in Langen, langen Trauertönen*.”²⁸ The second is so instructive that I shall cite it here in Example 2.²⁹

The example is a portion of a principal period. According to Koch’s comment, the first six notated bars contain twelve 2/4 measures, the meter changes to 2/2 for bars 7 through 13, and back to 2/4 for the last two bars. In modern terms the example can be described as an excerpt from a sonata exposition. Bar 1 is the concluding segment of a phrase the beginning of which is not given; bars 2–3 contain a phrase in four measures, modulating to the dominant; bars 4–6 confirm the modulation and complete the first theme group in a phrase extended to six measures (1–2–1a–2a–3–4); bars 7 to the downbeat of bar 14 present a full parallel period in 2/2 time, which is the first full member of the second theme group; and the rest of the example (bars 14–15) contains appendices to this theme in 2/4 meter. For Koch, the example illustrates a “special kind of parenthesis . . . the insertion of melodic sections of a simple meter [2/2] in a piece composed in a compound meter,” that is, in C, which is for him the compound of two real 2/4

measures, and he goes on by cautioning the student to exercise great care in the use of this technique "if good taste is not to be offended." What is a special practice for Koch, strikes the latter-day student as that frequent procedure of metric expansion and contraction which characterizes, according to at least one modern observer, a great deal of music in larger forms of the Classical period. As Edward T. Cone writes:

Even within a single tempo not all parts of a movement progress at the same speed. It is this changing rate of progression, rather than the multiplicity of musical subject matter, that is basic to the bi-thematic and polythematic forms of the period.³⁰

It is not easy to summarize fairly Riemann's position vis-a-vis covert meter change. On the one hand, in allowing for it he goes beyond Koch and reflects late 18th- and 19th- century practice. On the other hand, he falls far short of making the insight expressed by Cone an integral part of his system. Taking the Beethoven Sonatas one at a time, for instance, he finds such prolonged stretches of metric expansion-contraction in the development section of the first movement of Sonata No. 2, (Op. 2, No. 2), also in the exposition of the first movement of Sonata No. 5 (Op. 10, No. 1), but then not again until the first movement of Sonata No. 21, ("Waldstein," Op. 53), where he identifies the first theme group as being essentially in two-bar measures (correctly, in my opinion), and changes to single-bar measures in the notated meter C for the beginning of the second group. In the remaining sonatas he diagnoses metric changes somewhat more frequently than in the earlier ones, but he seems to feel the need to argue every one of these cases separately, as if they were anomalous, and fails to develop any cohesive set of principles by which such covert meter changes could be systematically identified in analysis.

Riemann's analyses thus show him to be aware of that aspect of the temporal organization of music, which I will call its pacing. On the subsequent pages "pacing" will always refer to that "changing rate of progression" from one thematic entity of a larger form to the next which Cone speaks about. As can be seen in the Koch excerpt cited in Example 2, also in Beethoven's "Waldstein" Sonata as analysed by Riemann, this changing rate of progression is accomplished primarily by a change in the rate of harmonic progressions (in the Schenkerian foreground or middleground) and results in *de facto* metric change. Although Riemann does take occasional cognizance of changes in pacing in this sense, he nevertheless sees the temporal organization of music, as does Koch, almost exclusively in terms of changes in what I will call "musical density." As used on the following pages, the term "musical density" refers to that property of the temporal organization of phrases, periods, appendices, and extended anacruses, which is a function of their internal construction. Density is considered greatest in basic phrases and periods without a preface or with at most one measure of a

preface. Varying degrees of the intermediate range of density result from applying various kinds and various amounts of internal extension to phrases. Density is minimal in passages consisting entirely of appendices that do not form phrases by themselves (for instance, codettas, some dominant preparations, also extended anacruses or prefaces). Riemann's concentration on variations in musical density as the primary tool in shaping musical form may well be the reason that he often overlooks variations in musical pacing. Usually, his analyses proceed on the assumption that a given piece is in the same meter throughout. Most if not all complexities that occur in portions of Riemann's analyses—some of his critics label them contortions, and not without justification—are the result of this assumption. As we shall see later in connection with some examples (particularly Examples 4a, 7a and b, and 13a and b) these complexities tend to disappear once a given passage is considered in a meter other (usually twice larger) than the one assumed by Riemann.

Criticism of Riemann's system focuses mainly on three points. First, its complexities are questioned, together with his inconsistent or arbitrary manner of applying some or other of his own criteria to practical analyses.³¹ Second, objections are raised against Riemann's excessive reliance on *Vierhebigkeit* (*carrure*), that is, his reluctance to admit of ternary units larger than the measure on an equal footing with binary units. Finally, third and most serious, his doctrine of *Auftaktigkeit* strikes many critics as unwarranted and untenable. The premise that a given unit, say, a measure, providing an answer to the one preceding it should become *ipso facto* a stronger metrical accent is unacceptable, if it is assumed that stronger metrical accent means stronger tonic accent. The central point of the present essay is that as these criticisms touch upon detail rather than upon the underlying principle, grounds for them can be removed by applying one or another of the three correctives which I propose to Riemann's fundamental theory. The first of these, to be presented in the section immediately following, is a relatively simple addition for the purpose of dealing with Riemann's supposedly inflexible attitude towards ternary units. The second and third correctives both aim at producing criteria for covert metric change. The second defines the phrase, at least in part, by adopting Koch's norms for phrase ending cadences, as well as his implied principle of at least one tonal change per phrase, with the result that phrases, and therefore true measures, will be of varying length. Finally, the third corrective rejects Riemann's doctrine of *Auftaktigkeit* as the principle governing the hierarchy of stronger and weaker tonic accents and replaces it with a working hypothesis. This is based on the same observation that has prompted Riemann's doctrine, namely that *theses* within a segment are indeed unequal, one is stronger than the other (or others). However, the pattern in the alternation of stronger and weaker *theses* is neither pre-determined nor predictable. It may be regular in a given phrase, but normally changes at least

once within the course of the next larger unit, the period. The effect of the last two correctives taken together is a partial shift in the focus of analysis. The question is no longer merely *how* a phrase or a period is constructed but rather *on which metric level* it is constructed. A secondary effect is that practically all the forbidding complexities of Riemann's analyses disappear. A great many passages that can be related to Riemann's prototypical period only at the cost of ingenious and unconvincing contortions as long as they are assumed to be in the notated meter will be seen on the subsequent pages as fitting the very same prototype rather easily if they are assumed to be in a meter twice (or half) the size of the one initially assumed.

TERNARY UNITS. Ternary units have a relatively restricted role in any system that is based upon the question-answer relationship of *carrure*, whether described in terms of subject and predicate, as by Koch, or in terms of *Auftaktigkeit*, as by Riemann. In Koch as often as in Riemann, the number three as a multiplier of measures and phrases appears to be illusory in practice. When phrases contain three two-measure segments, they are usually interpreted either as alternative first segments to a single answering segment, or as the reverse, a single segment receiving two alternative answers. The same applies to periods containing three four-measure phrases. It should be added that in most cases this interpretation strikes most of us as convincing. The situation is a little different, with segments of three measures. While Riemann allows for the number three as a divider of beats and measures, he considers it anomalous as a divider of segments. Yet he makes allowance for the occasional three-measure unit, and offers three methods to deal with them in analysis.³²

First, he recognizes that a single three-measure segment may occur within a period constructed otherwise of normal two-measure segments, and coins for it the term *Taktriole*. Whether such *Taktriole* resist further breakdown or admit of being analysed as one shorter and one extended measure (e.g., the first three bars in each of the five-bar phrases of the theme chosen by Brahms for his Haydn Variations, Opus 56a and b) this method is not likely to raise the eyebrows of Riemann's critics.³³ Second, when three-measure units occur seriatim forming a complete unit at least as large as a period, which is then said to be *in ritmo di tre battute*, Riemann argues that they are not in fact three-measure segments but large ternary measures notated in three bars. This proposition may seem controversial but is probably correct, as I will attempt to show presently. Finally, when he encounters three-measure segments accented in the first and third measures, and finds several of these in conjunction with several two-measure segments, he again argues that these are not in fact segments but truncated four-measure phrases, in which the first measure is omitted

or suppressed. This method is apt to be highly controversial, and I will deal with it at some length after disposing of the subject of periods *a tre battute*.

It is rather difficult to find entire units *in ritmo di tre battute* in Western music of the last three or four centuries, but Beethoven so marks two passages (one in the Ninth Symphony, the other in the C sharp minor Quartet, Opus 131), and passages without being expressly so identified occur in the music of other composers. I hope that a single example of my own choosing supported by a modicum of arguments will suffice to show that Riemann is probably right in considering such passages as consisting of large ternary measures.

Example 3 contains the full opening theme of Haydn's D Major Quartet, Opus 20, No. 4, written c. 1772. The theme consists of five six-bar units but is actually complete after four of these. The fifth unit is only an appendix supplying the full cadence expected but avoided in bar 24, and it merely confirms the sense of the preceding six-bar unit. The analysis given in Example 3 reflects Riemann's position in regard to such passages. The true measure is assumed to be 9/4, and both the harmonic rhythm of the theme as a whole, as well as the repeated quarter-note figure of the first violin in bars 1, 7, 13, 19, and 25, suggest that these bars are anacrusis. These are thus found in bars 2, 5, 8, 11, 14, 17, 20, 23, 26, and 29. This interpretation probably strikes most of us as reasonable on the face of it, but examination of three other possible interpretations, one in 3/4 time (interpretation 1) and two others in 6/4 time (interpretations 2 and 3), is necessary for demonstrating that the analysis given in Example 3 is the only one that is truly convincing.

Interpretation 1 assumes that each six-bar unit is a full phrase, thus bars 1-12 and 13-24 are periods, the two halves of a parallel double period. The theme would be *a tre battute* in that sense of the term which is not acceptable to Riemann (nor to myself), namely that the three-measure segments in bars 1-3, 4-6, etc. would be functioning the same way as the more usual two-measure segments function in the more usual eight-measure periods. A glance at the music refutes interpretation 1 on two grounds. More immediately noticeable but less important is the impossibility of dividing the six-bar units into three-plus-three bars. Such a division in the face of harmonic, rhythmic, and melodic motivic forces seems, to say the least, perverse in the first three units, and downright nonsensical in the last two. A more important objection is that bars 1-6 (and 13-18) do not contain a musical thought complete in itself, as required by Koch. The reason for this is precisely the principle deduced earlier from Koch's examples: A phrase must contain at least one tonal motion in order to be perceived as a phrase. Bars 1-6 (and 13-18) contain only momentary ornamental neighboring chords over the tonic pedal, a true tonal progres-

Allegro di molto

1 2 3 4 5 6 7 8 7a 8a

Example 3. Haydn, String Quartet in D, op. 20, no. 4, mm. 1-30

sion does not occur until the end of the next six-bar unit. Bars 1–12 and 13–24 are thus seen not as periods but as phrases.

This leads to interpretations 2 and 3, both in 6/4 time. Each six-bar unit now would contain three true measures, that is to say, the period would still be a *tre battute* in the unacceptable sense of the term. Interpretation 2 starts out with one bar of an anacrusis and continues with pairing together bars 2–3, 4–5, etc. The result of this barring can be eliminated on a technical ground alone—our sense of harmonic rhythm is turned upside down by the cadential six-four chords falling on *arses* in bars 11 and 23. Not impossible but similarly grating are such features as placing the high d's in bars 5 and 17 on *arses* and placing an accent on the a' of bar 22, a note tied over from bar 21. In a different context this tied a' may possibly be heard as an intensification of accent through syncopation, but in the actual context the superior force of the cadential six-four chord following in the next bar (bar 23) disallows this interpretation. The figure of the three quarter notes presents somewhat more complicated interpretive problems. The figure is clearly anacrustic in bars 1, 7, 13, 19, and 25. This may suggest at first that interpretation 2 derives a modicum of support from the bass which contains this figure in bars 5, 17, and 27 and a related figure in bars 11 and 29. I believe, however, that the melody exerts greater control over the perceiver's sense of meter. We tend to accept Haydn's treatment of the bass as a subtle witticism (leading to further witticisms in all four voices in the last two six-bar units) but we tend to reject the necessity of assuming that the figure of three quarter notes is always an *arsis* at the beginning of a segment and always a thesis in the middle of it as too mechanical and too crude.

As for interpretation 3, which is to pair all odd-numbered bars with the even-numbered ones following them (1–2, 3–4, etc.), no technical objection exists, but the esthetic ones are even more severe, at least in bars 1 through 18. Having the repeated quarter-note figure as a *thesis* seems perverse to begin with, and then alternating this figure with the related quarter-note figure beginning on an *arsis* is as grating here as it was in interpretation 2. Perhaps most ludicrous is the effect of placing metric accents on almost every one of the ornamental neighboring chords (bars 3, 9, 15, 21) as if they were all appoggiature. None of these things are impossible in themselves, but heard repeatedly and in conjunction with each other they counsel rejection of this interpretation as well, particularly in comparison with the one given in Example 3. The 9/4 interpretation contrasts with the others in that the figure of the three quarter notes is usually an anacrusis, as expected; most ornamental neighboring chords fall on *arses*, as expected; cadential six-four chords fall on *theses*, as expected; and the whole accentuation pattern requires no special effort on the part of the performers—it hardly goes beyond what a synthesizer would automatically produce. Similarities between this case and those argued in the *System* convince me of the practical value of Riemann's position, even if they do not

necessarily constitute incontrovertible proof of its absolute correctness.

The last one of Riemann's methods to deal with three-measure units, that is, to consider them as truncated phrases, is the most likely candidate to be labeled a contortion by his critics. The only thing that can be brought in its defense is that it happens to get hold of an important corner of musical truth in one piece that Riemann analysed in 1890, that is to say, at a relatively early stage in his study of metrics.³⁴ The passage, a strain from Mozart, String Quintet in G minor, K.516, is given in Example 4a, along with Riemann's analysis in which the numbers in brackets are my supplements to those of Riemann.

Riemann interprets each of the six three-bar units as phrases in which the first measure-motive is elided, that is, in which the first growth phase of one phrase coincides with, and is thus suppressed by, the final central point of stress of the preceding phrase. In the *System*, besides reiterating the above explanation, he marshalls many more examples, including Bach fugues and the Menuet of Mozart's G minor Symphony (K.550).³⁵ None of these are as convincing as the example from the String Quintet because none of them contain the one contextual feature that may have guided Riemann in the Quintet and that might tip the balance in favor of his interpretation. The first two and the last two three-measure units of the strain in Example 4a are literally extracted from the cadential appendices (last six measures) of the preceding Menuet, and in these appendices they function indeed in the above described manner, as shown by my numbers accompanying the final strain of the Menuet given in Example 4b. The six measures at the end of the Menuet form two phrases, each beginning with the final measure of the preceding phrase. Thus, when we hear the musical materials contained in them at what turns out to be the beginning of the Trio, our first inclination is to interpret them as we first heard them, that is, as truncated four-measure phrases.

Analyzing the cited Mozart strain in this manner reveals something about it that we can hear, and undeniably there are other cases where such an analysis is supported by some contextual circumstance.³⁶ For Riemann, however, this is the preferred schema to deal with all three-measure units with accents in the first and third measures. I believe that he is wrong in this, and that most or all of such three-measure units are better interpreted as extended segments, or in other words, as a special class of *Taktriolen*. Since this simpler schema leads usually to a simpler analysis of the entire period containing this type of three-measure segment, I propose it as the first corrective to Riemann's system—more an extension of it than a revision—and will, for want of a better term, coin the label *branle-triplets* for the resulting class of *Taktriolen* after the 16th-century family of dances, which is the earliest known natural habitat of the type.

According to the *Orchèsographie* of Thoinot Arbeau (pseudonym of Jehan Tabourot) published in 1588, the family of *branles* comprises four

- a. Mozart, String Quartet in G minor, K. 516, III, mm. 43–62 (beginning of Trio) with Riemann's analysis from the *Handbuch der Phrasierung*

43 p [8=1] – 2 – [3] – 4 [=5] – 6 – [7] – 8 [=1]

50 2 – [3] – 4 [=5] – 6 – ... –

55 [7] – 8 [=1] – 2 – [3] – 4 [=5] – 6 – [7] 8

- b. The strain preceding the Trio (Ex. 4a), mm. 26–43 of the Menuet, with author's analysis
MENUETTO. Allegretto

30 f p f p 1 – 2 – 3 – 4 f ...5 – 6 – ...

35 p f p f p ...5a – 6a – f ...5b – 6b – 7 – 8=5 p

40 6 – 7 – 8=5 – 6 – 7 – 8=1

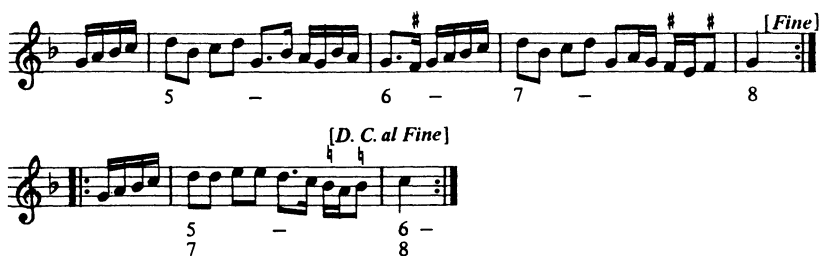
Example 4

main types. The *branle double* consists of two plus two so-called double-step units performed to four-measure strains of music in 4/4 time; the *branle simple* regularly alternates double- and simple-step units to music in 4/4 plus 2/4 time; the *branle gay* is in ternary meter like a galliard; and *branles coupés* are irregular and unpredictable mixtures of the first two types. *Branles coupés* are danced very fast, to music in which 4/4 measures are coupled either with other 4/4 measures or with 2/4 measures, and the musical sources show that the odd 4/4 measure is not a rarity either.³⁷ The bonny brawl resulting from this last type—recommended by Arbeau only for the very young—must have been a sight to behold. Whether a listener hears a *branle simple* such as the one given in Example 5a as one normal long measure plus one truncated measure, or the other way, as one extended plus one normal short measure, is a moot point. It is, however, easier to hear the 4/4 measure as normal in the *branle coupé* given in Example 5b, because they outnumber the 2/4 measures. A 2/4 measure may be heard truncated even when in fact it extends rather than shortens the phrase in which it is found, as in Example 5c. Many other examples could be cited to demonstrate a dizzying variety of methods of extension and elision as well as the delightful doubt they generate in the perceiver's mind as to whether they are in fact elisions or additions. Even before branles begin to appear in 16th century prints, the effect of their metric construction is already to be detected in chansons of the 1530s, for instance, in the “D’où vient cela” of Claudin de Sermisy, one of the hit tunes of the century, given in Example 5d.³⁸

It is clear, however, that branle-triplets, whether in extended or truncated measures, constitute segments at most, never phrases; and it is equally clear that they originate in, and fit into, the *carrure* system much more directly than Riemann's “truncated-phrase” interpretations. Their historical importance can hardly be overestimated, for they permeate not only 16th-century chanson composition from Claudin to Lasso, but find their way into all kinds of music, then and later, composed by musicians, most of whom are quite unaware of the 16th-century prototype. Froberger is particularly fond of them and so are French musicians throughout the last four centuries in general, not to mention Haydn and Mozart. It is worth noting that those two of Koch's six examples for six-measure phrases which he does not himself derive from *Vierers*, are in fact composed of such branle-triplets. I give these in Example 6a and b, so that they may be compared with a particularly sophisticated use of the same device in a strain from the slow movement of Beethoven, Sonata in C, Opus 2, No.3, given in Example 6c.³⁹

Of the four different analyses in Example 6c the first three are mine, and the fourth is Riemann's. Only the first, interpreting the antecedent as two branle-triplets and the consequent as a four-measure phrase joined to the antecedent by cadential overlap, is correct. Bars 1–6 and 6–9 are both

- a. "Branle simple," after Henry Expert, ed., *Les maîtres musiciens de la renaissance française*, vol. 23, 1908, p. 54



- b. Arcadelt, "Margot, labourez les vignes," after Everett B. Helm, ed., *The Chansons of Jacques Arcadelt*, I, 1942, p. 20 (branle coupé)



- c. "Branle de Bourgogne (branle coupé) first strain, after Expert, pp. 85-86



- d. Claudin de Sermisy, "D'où vient cela," after Lionel de la Laurencie, A. Mairy, and G. Thibault, eds., *Chansons au luth et airs de cour français du XVI^e siècle*, 1934, p. 32



Example 5. Four 16th-century tunes with note values reduced and with author's barring

a. Example 52 from Koch's *Introductory Essay*, p. 18, with author's analysis

b. Example 53 from Koch's *Introductory Essay*, p. 18, with author's analysis

c. Beethoven, Piano Sonata in C, op. 2, no. 3, II, mm. 11-19, with three analyses by the author, and a fourth by Riemann

(1) 1 (ben tenuto) — 2 —
 (2) (5) — 6 —
 (3) (5) — 6 —
 (4) 2 3 4 [=5]

(1) 3 — 4=5
 (2) (5a) — 6a
 (3) (5a) — 6a
 (4) 6 — 7 — 8=5

(1) 6 — 7 8
 (2) (7) — 7 8a)
 (3) (—) — 8)
 (4) 6 — 7 8

phrases, as they both contain the requisite tonal progression. My other two analyses are given only for the sake of argument. The second one assumes bars 7–9 to be a *Takttriole*, but not a branle-triplet analogous to bars 1–3 and 4–6, for the accent pattern is weak-strong-weak. I rule it out on the basis of a Riemannian principle stated by him time and again in many different contexts: “This interpretation is not impossible, but as it may well be unnecessary, it is *of course* false.”⁴⁰ My third analysis can be ruled out on the same ground. It could be accepted only if the continuation would somehow justify it, which is not the case here, as the reader may verify by consulting the score. I reject Riemann’s analysis on the grounds that there is no conceivable reason to consider bars 1–6 as a complete period in two truncated phrases rather than a single phrase with one tonal progression in it (I–III). Further, his interpretation does not highlight here the kind of contextual feature that justified it in Example 4a. It seems both overly ingenious and superfluous; my first analysis can be substituted for it without difficulty and to more telling effect.

In Example 6c the long measures of the branle-triplets are extensions. In the first strain of the Menuet of Mozart’s G minor Symphony, K.550, and in the strain cited previously from his String Quintet (Example 4a) they are felt as normal 6/4 measures followed by foreshortened 3/4 measures. I give my analysis of these two Mozart excerpts in Examples 7a and 7b to show that interpreting the consequent phrases of these in 6/4 time (i.e., in two-bar measures) fits into Riemann’s system much more easily than do his own analyses. While I do not reject Riemann’s analysis of the Quintet (Example 4a) I consider the one in Example 7b a valid alternative. If it is not conspicuously simpler, it has the advantage of showing that the final portion of the strain, bars 56–62, contain a pair of cadential appendices, that is to say, a passage of lesser musical density than the full period preceding it. I believe this to be a musical fact at least as important as the one Riemann is attempting to show when he calls attention to the origin of the first six bars of this Trio in the last six bars of the Menuet. The contortions of his analysis of the Symphony (example 7a) are a direct consequence of his doctrine of *Auftaktigkeit*—a heavily accented beginning must be an even numbered measure—of his reluctance to assume in practice covert meter change, and of his general preference for shorter rather than longer units as the true measure. In view of Riemann’s position vis-a-vis passages *in ritmo di tre battute* his preference for shorter measures in other contexts seems paradoxical.

Examples 3, 4, 5, 6, and 7 demonstrate that two of Riemann’s schemas dealing with three-bar units have much to recommend them. *Takttriolen* and the assumption of large ternary measures for passages *in ritmo di tre battute* are useful concepts in a system based on *carrure*. His third schema, however, interpreting three-measure units as phrases with their first measure missing is most of the time both unnecessary and confounding. It may

- a. Mozart, Symphony in G minor, K. 550, III, mm. 1–14, with Reimann's analysis (1), and the author's analysis (2)

MENUETTO. Allegretto

(1) *f* 2 [3] – 4 [=5] – 6 [7] – 8 (=1) 2

(2) 1 – 2 – 3 – 4 – 5

(1) [3] 4 (Anhang) 4a [=5] 6 7 8

(2) – 6 – 7 – 8 –

- b. Mozart, String Quartet in G minor, K. 516, III, mm. 43–62, author's analysis (cf. Ex. 4a)

43 45

p ⑧ 1 2 3 4

50 5 6

55 60 62

7 8 7a 8a 7b 8b

Example 7

be discarded from his system without loss, and my schema of branle-triplets may be profitably substituted for it. Branle-triplets are always segments, not phrases, whether they result from the extension of a measure, as in Example 6c (and as we shall see later in Example 13a), or from the foreshortening of a measure, as in Examples 5b, 7a, and 7b (and as we shall see later in Example 8a).

THE LENGTH OF THE PHRASE DETERMINED BY CADENCES AND THE PATTERN OF ACCENTS. The remaining two correctives or revisions of Riemann's system are intended to serve as criteria for determining the length of the phrase and thus the length of the true measure defined earlier as one fourth of the phrase when extensions and elisions are left out of consideration. From a practical viewpoint the first of these, adopting Koch's norms for phrase ending cadences along with his implied principle of at least one tonal change per phrase, is the more important of the two, and needs only minor qualifications. Accordingly, some form of full and half cadences is the rule, but modulation may shift the cadence to other degrees of the scale. The progression V-VI is acceptable as a weak tonic cadence, but when it occurs at the end of the period it should normally be followed by a cadential appendix that supplies the actual tonic, as is the case at the end of Examples 3 and 4b, where these special appendices are felt to belong more organically to the period proper than do such appendices which are added to a period *after* a full tonic cadence. A rare exception will be shown in Example 9a, in which the antecedent phrase ends on the super-tonic yet "our feeling judges [the phrase] to be fairly complete" because all other conditions of period construction are satisfied.

It is only on account of some problems in its practical application that the second criterion for determining the length of the period may seem to be of lesser importance than the first. The second is indispensable as a complement to the first, but its very nature requires qualifications that are more complex and more extensive than those needed for the first. Caution dictates that the practical observation underlying this working hypothesis be stated first: A period will be certainly perceived *as* a period, whenever it contains at least one perceptible irregularity in the pattern in which stronger *theses* alternate with weaker *theses* (hereafter *st* and *wt*). Both the hypothesis and the observation underlying it may be expressed graphically by freely adopting the technique of durational reduction advocated by Carl Schachter.⁴¹ In a durational reduction graph each actual measure is reduced to a single beat (usually the quarter note or the dotted quarter note) and the beats thus obtained are grouped into hyper-measures. When barring is so used as to create one hyper-measure per phrase, two types of patterns may result: either | C *st* - *wt* - *st* - *wt* | and its variant form C *st* - *wt* - | - *st* - *wt*, or the Riemannesque patterns C *wt* - *st* - *wt* - | - *st* and

C *wt* - | - *st* - *wt* - *st*. According to my hypothesis, either a switch from one type of pattern to the other will normally occur from the first to the second hyper-measure of one period, or else a syncopation will occur in one or the other (or both) of the two hyper-measures.

It can be seen that rigorous application of this working hypothesis brings into play a number of complex issues. How many different types of accents are there in general? What constitutes a metric accent? Is a thesis always a tonic accent, an agogic accent, or both? How do we distinguish between stronger and weaker *theses* in general? These questions would require a separate study beyond the scope of the present one, and it is doubtful indeed whether in the current state of music theory a consensus concerning these questions could soon be achieved.⁴² This circumstance suggests a certain limit to the applicability of the working hypothesis outlined above. The question is, how much of a limit. Observation shows that in an overwhelming majority of cases at least some of those accents which are decisive in determining whether a given musical entity is or is not a period are established beyond reasonable doubt. Further, even on those rare occasions when this is not the case, it is often possible to find arguments based on a variety of disparate accent creating factors that lead to the satisfactory solution of given problems. In the light of this, the limits to which the working hypothesis is applicable are not very severe. It seems nevertheless advisable to restate the second criterion in such terms that take into account the limiting circumstances and make at the same time the ramifications of the working hypothesis more readily apparent. This can be done in four steps. (1) *Within* the measure the hierarchy of beats and their subdivisions is constant and predictable throughout, repeated from one measure unit to the next. (2) *Beyond* the measure, that is, in segments and phrases, alternation of stronger and weaker *theses* is not predictable, *st* - *wt* is as likely in terms of metric expectation as is its opposite, *wt* - *st*. (3) Within a single phrase, and consequently within both phrases of a parallel period, the pattern of alternation may be (but does not have to be) regular. (4) In all periods, however, that are not parallel periods (or parallel double periods) the pattern of alternation must change at least once, either within one of its phrases or from the first phrase to the second. If this does not happen, the musical entity in question will be perceived not as a period but as a single phrase in measures twice larger than initially assumed. The rationale for excepting parallel periods from this requirement is the same as the one allowing occasional cadences on degrees other than the tonic and dominant: since *all* other conditions of period construction are satisfied, that is, symmetry, complementary cadences, and homogeneity of materials (this last one to the ultimate possible degree of complete identity), the parallel period is sufficiently coded to be accepted as a period even without a break in the accent pattern.

With the two criteria thus stated in abstract terms, we may proceed to

concrete examples. The primary concern of Examples 8 through 12 is with such musical entities in which one meter is clearly established. This is normally the case with theme statements. Since, however, Example 11 contains an entire sonata exposition, such aspects of larger forms as covert meter change and metric ambiguity, the latter a characteristic of transitional passages, will also be discussed. These and other aspects of larger forms will be more fully examined in connection with Example 13.

The two themes that begin the two theme groups in the first movement of Mozart's much analysed G minor Symphony, K.550, are given in Examples 8a and 8b.⁴³ They were chosen because they provide a fairly typical illustration of the validity and usefulness of the two criteria as well as of the kind of arguments their analysis with Riemann's method entails. Applying the first criterion yields rather straightforward and immediate results in both themes. In Example 8a the I chord in bar 9 and V in bar 16 suggest 4/2 meter in two-bar measures; the cadences of example 8b, V in bar 47 and I in bar 51, show the latter to be in the notated C meter. The 4/2 meter in Example 8a is further confirmed by the caesura in bar 5. Since this is on a II chord in four-two position, it separates segments, not phrases. The opening theme is expected to continue beyond bar 9 and would be expected to do so even if the cadence were made stronger, say, by adding a d bass note in bars 7-8 and leading the melody in some pedestrian way to the tonic; the theme in Example 8b gives every indication of being complete after eight measures. What the cadences suggest in regard to meter is born out by applying the test of *st* - *wt* alternation. In the first nine bars of Example 8a harmonic rhythm and low bass notes clearly show that the odd-numbered bars are *theses*, the even-numbered ones are *arses*, and that the unit is a phrase. For the limited purpose of establishing the whole theme as a period, one does not need to determine which of the *theses* are stronger in the antecedent phrase, for clearly some kind of syncopation occurs somewhere in bars 10-13, because *theses* shift from odd-numbered bars to even-numbered ones for bars 14 and 16. Complexities can be avoided, at least for the time being. Equally simple is the case in Example 8b. The cadential six-four chord renders the tonic accent on the *thesis* of bar 47 stronger than that of the preceding bar, and this strong *thesis* is immediately followed by another strong *thesis* in bar 48. The strength of the latter hardly needs to be argued—it is a long note on a previously established beat, it is the highest note of the theme, and its harmony is the pungent *non sequitur*, a subdominant chord following a dominant. Further inquiry is not necessary, the requisite irregularity in the pattern of *st* - *wt* alternation becomes sufficiently clear. Either the first phrase is syncopated, or if that phrase is assumed to begin with a *wt*—a highly dubious proposition—a shift from one type of pattern to the other occurs from antecedent to consequent.

Application of the two criteria brings us thus far in the analysis of the

a. Mozart, Symphony in G minor, K. 550, I, mm. 1-16

Molto allegro

① *p* ⑤ ⑨ ⑬ ⑮

1 2 3 4 5

6 7 8

b. Ibid., mm 44-51

④④ *p* ④⑧ ⑤①

p 1 2 3 4 5 6 7 8

Example 8

c. Four analyses of mm. 9–16

⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯

(c-1)	4,	1	–	2	–	3	–	4=5	–	6	–	7	–	8
(c-2)	4,	5	–	6	–	5a	–	6a	–	7	–	–	–	8
(c-3)	4	–	–	7	–	–	–	7a	–	–	–	–	–	8
(c-4)	4	–	–	5	–	–	–	6	–	7	–	–	–	8

d. Durational reduction of mm. 1–21

① ③ ⑦ ⑩ ⑭ ⑱ ⑳

unacceptable alternative barring

Example 8 (continued)

two themes. The second half of Example 8a must be approached by other avenues. Since we know already that bars 1, 3, 5, 7, 9, and bars 14 and 16 are *theses*, and that a half-measure is missing somewhere in bars 10–13, the simplest solution is to count back three two-bar measures from bar 16. The resulting analysis, adopted in Example 8a, indicates that it is the first anacrusis of the consequent phrase that is shortened by the missing half-measure. As this is now only one quarter note long, rather than five quarter notes long as are the anacrusis to bars 3, 5, 7, and 9, the branle-triplet is located in bars 7–9. Testing this attractive interpretation against all other possible analyses given in Examples 8c-1 through 8c-4 will turn out to be of more than academic interest. The first two of these are based on the unlikely assumption that the meter has changed somehow at bar 10 to the notated 2/2 (C). Example 8c-3 proceeds from the tenable assumption that the pattern of *theses* in the odd-numbered bars continues for a while beyond bar 9. Indeed, nothing within the four bars 10–13 indicates whether the diminished four-three chords in bars 10 and 12 are anacrustic *arses* or appoggiatura-like *theses* vis-à-vis the tonic six-chords in bars 11 and 13. Example 8c-3 assumes further that the third segment of the period (i.e., true measures 5 and 6) is elided, and thus the seventh true measure (bars 11–12) is repeated in varied form (bars 13–15) with its second half elongated. All three of the above analyses contain forbidding complexities. They may be rejected outright on the basis of Riemann's dictum "possible but unnecessary and therefore false." In contrast, Example 8c-4 presents a viable alternative to the analysis in Example 8a. Both contain all four true measures of the phrase, both take all pitch events and all rhythmic events into account, and minor details do not give us unequivocal indication whether the metric continuity of the period should be interrupted by a branle triplet at the beginning or in the middle of the consequent phrase.

Choice between these two interpretations is not easy, for each has at least one feature to recommend it over the other. A listener's tendency to stick with an established pattern until forced to change favors Example 8c-4. Yet a certain element of consistency that can be observed only in the context of the entire period gives a slight edge to the interpretation in Example 8a. The melodic and durational reduction graph of Example 8d shows this context. In the graph rhythmic values are reduced fourfold, and the melodic as well as harmonic content of each actual bar is represented by a quarter note (occasionally subdivided) constituting the substance of the bar in question. The first four full hyper-measures contain the four segments of the period, the rest of the graph shows the cadential appendix and the anacrusis to the (varied) repeat of the theme. The harmony in bars 20–21 indicates that this unit is a gavotte-like anacrusis, and identifies thereby bars 1–2 also as such. Consequently the barring given underneath the system in Example 8d cannot be right, and is rendered even less likely by the unwarranted separation of the identical a-g quarter-note pairs (bars 10–13) as

parts of two different hyper-measures. On the basis of the graph the entire theme can be seen as four pairs of melodic (though not necessarily harmonic) appoggiature and their resolutions, d-c, c-bb, a-g, and g-f#. The first two pairs of notes, d-c and c-bb, and the last pair, g-f#, will certainly be heard as melodic appoggiature. A quest for consistency may, therefore, make the perceiver understand—or want to understand—the a-g pairs also as appoggiature. This would render the interpretation given in Example 8a preferable to the one in Example 8c-4. Nevertheless, the choice between them must be considered idiosyncratic. It depends on whether the esthetic goal of a given performance is to emphasize or to de-emphasize an irregularity that is there in any case.

If the analysis of Example 8a was argued at some length, this was because its purpose was not only to demonstrate application of the two revisions to the Riemannian method of determining phrase length, nor was it only to find the best interpretation(s) of a given musical entity, but also to demonstrate the operations of the method as such. As a number of issues have already been covered, briefer treatment will suffice to deal with the remaining examples. Example 9 presents two themes in which medial cadences raise the question whether these themes are indeed periods or only phrases. In Examples 10 and 11 three themes will be examined in which cadences allow (or seem to allow) various interpretations, and in which only the pattern of *wt* - *st* alternation is capable of deciding the issue. Finally Example 12 contains two themes of a movement, the second of which has a sufficiently elusive accent pattern to allow two equally valid interpretations on a considerably larger scale than was the case in Example 8a.

The first member of the double-period constituting the entire second theme in Brahms, *Intermezzo* in B-flat minor, Opus 117, No.2, is given in Example 9a. The theme is in D-flat major, it has its medial cadence on the supertonic, its final cadence is on V of the submediant, yet it is clearly perceptible as a full period for every other condition of period construction is satisfied. The two four-measure phrases produce the requisite symmetry, the material is homogeneous, the cadences are complementary, and the antecedent hyper-measure is clearly syncopated.⁴⁴ The *st* - *wt* - *wt* - *st* pattern is hardly in doubt. The first measure is stronger than the next two which are only varied repetitions of the first, and the fourth is strong again, not only because it is an appoggiatura, but because it contains the only change of harmony and the only change in rhythm in the entire phrase. Applying the same kind of reasoning to the opening theme of Beethoven, *Sonata* in G, Opus 14, No. 2, given in Example 9b, leads to the opposite conclusion. This theme is only a phrase (and since it stands by itself, without antecedent or consequent, the numbers 5 to 8 are used for its analysis, in keeping with Riemann's practice). Despite its symmetry and its material homogeneity it is not a period, because the supertonic cadence of bar 4

a. Brahms, Intermezzo in B-flat minor, op. 117, no. 2, mm. 22-29

legato

p

espress. e sosten.

rit.

p

*

b. Beethoven, Piano Sonata in G, op. 14, no. 2, I, mm. 1-8

Allegro

p legato

5 - 6 - 5a - 6a -

5b - 6b - 7 - 8

Example 9

c. Example 188 from Koch, *Introductory Essay*, p. 57



d. Example 374 from Koch, *Introductory Essay*, p. 216



Example 9 (continued)

does not complement the tonic cadence in bar 8, and because the notated *theses* display the constant *st* - *wt* pattern throughout.⁴⁵ In this instance, the constancy, taken together with the nature of the musical materials, suggests an extended phrase in 2/4 time rather than a basic phrase in 4/4 time, for the first three two-bar pairs are free repetitions of each other, and any of the three pairs could form a complete phrase when combined with the final segment in bars 7–8. Interpretation in 4/4 time gives no account of the cumulative effect of these repetitions, but the analysis adopted in Example 9b does, and is also in line with two of Koch's extended phrases given in Example 9c and d. His explanation for the first of these is worth citing: "... The punctuation formula of the second [segment] may be made the same as the punctuation formula of the first . . . Then the first phrase in [the] example is made incomplete, and the second phrase, even though complete in itself, is yet necessary to finish the first. By this means, two complete phrases are given the form and value of a single integral phrase, that is, they are compounded."⁴⁶ Two comments need to be added to Examples 9a and 9b. Cases analogous to the Brahms theme are rather rare in the music of other 18th- and 19th-century composers, and cases that are analogous in some way to the Beethoven theme are usually best interpreted in double-bar measures (as we have already seen in Example 8a and will see in further examples).

In the next group of themes (in Examples 10 and 11) an over-abundance of possible cadence points places the burden of decision almost entirely on the pattern of *st* - *wt* alternation. Example 10, the theme opening the slow movement of Beethoven, Sonata in C, Opus 2, No. 3, is particularly intriguing, for the perceiver who only hears the music (or reads it from an unbarred score) discovers its true meter only gradually, in three distinct stages. At the first stage three different meters, 2/8, 2/4, and 4/4 (see dotted bar lines) are all possible, and as is shown in analyses 2 and 3, the last two meters are capable of being heard in either a *thesis-arsis* or in an *arsis-thesis* pattern (to reject *a priori* the *arsis-thesis* pattern would be as precipitate, I believe, as would be assuming it by preference, as Riemann does.) The only thing a listener can be sure of at this point is that in case the beat is the quarter note, the *thesis* of the first bar (whether on the first or on the second quarter note) is stronger than the one in the second bar, for the second bar is but a free repetition of the first. This fact will be the more readily remembered by a listener, as the same condition obtains throughout bars 3–4 and 5–6, the second stage. All that happens at this second stage is the elimination of analysis 1, for the perception of 2/8 time cannot be maintained in the face of four pairs of regularly repeated accent patterns (in bars 1–4). The quarter notes are thus established as beats, although we still do not know which one is the *arsis*, which one the *thesis*.

It is only in the third stage that the exceptionally strong accent on the first beat of bar 8 resolves all ambiguities on every level. The strength of

12 20 28 32 36 44 52 60 68 76 84

8 - 1 - 2 - 3 - 4 - 5 -

6 - 7 - [8 - 5 - 6 7 - 8 - 5 - 6 - 7 -

[8b - 7c - 8c - 7d - 8d 8e

8f 7 8g] 8 1

2 - 3 - 4 -

5 - 6 - 6 extended

Example 11. Beethoven, Piano Sonata in C minor, op. 13 ("Pathétique"), I
durational reduction of the exposition, mm. 12-133

7 - 8=5 - 6 - 7 -

8=5 - 6 - 7 - [8 - 7a - 5 - 6 - 9]

[8a - 7b - 8 - 5 - 6 - 7] (8b) 7c - 8c 7d 8d 7e -

Example 11 (continued)

this accent derives only in part from its being a cadential six-four chord. The principal reason for its paramount force is that the accents of the preceding bar are only implied—they are all but obliterated by syncopation (which prevent us from knowing even whether the tied sixteenth notes are weak eighth notes delayed or strong eighth notes anticipated). Thus we know not only that the first beat of bar 8 is a *thesis* in relation to the *arsis* of the second beat, but also that within the segment of bars 7–8 it is the strong *thesis*. We now realize that a *thesis-arsis* assumption throughout the first six bars was the correct perception all along, and not the *arsis-thesis* one of analysis 3, which is now eliminated. Further, we also realize that the *st - wt* pattern noted throughout in the first three two-measure segments is giving way in the fourth segment to the *wt - st* pattern which eliminates the possibility of a 4/4 interpretation and creates the syncopation in the second hyper-measure (i.e., bars and true measures 5–8) that establishes the theme as a period in 2/4 time. The cadential appendix in bars 9–11 needs no other comment than that the elongation of the repeated penultimate measure places a strong accent on the delayed tonic of the repeated final measure (bar 11). Thus this beat, which also begins the theme cited in Example 6d, is assured of being heard as strong.

The two themes in the first movement of Beethoven's "Pathétique" Sonata that are of primary interest for our present purposes are in bars 12–28 and 52–90, at the beginning of the first and second theme groups, respectively. As the musical materials surrounding these themes are pertinent to their interpretation, the entire exposition is given in the durational reduction graph of Example 11. Actual note values are reduced fourfold in the graph, that is, each actual whole note is represented by one quarter-note. Bar lines are drawn to produce hyper-measures in 4/2 meter in bars 12–75 and hyper-measures of varying sizes after bar 76. As a visual aid, subdivisions of hyper-measures are drawn in dotted bar lines. My analysis appearing, as usual, beneath the staves identifies the true measures of any given part of the movement. The terms "true measures" and "true meter" in the following discussion must not be confused with either the bars of the score or the hyper-measures of the graph.

The theme in bars 12–28 is one full parallel period with a preface. The two halves of it are phrases, not periods. The reason for this is neither the insufficiency of harmonic-melodic materials to make them periods, nor the lack of suitable cadence points, but metric properties—the notated bars alternate regularly in a strong-weak pattern, making us hear eight beats in four true measures. The alternation is regular also on the level of true measures throughout bars 12–28, but as we now have a parallel period, the break in the pattern is dispensable. The theme is, incidentally, one of those in the literature that happens to fit Riemann's *Auftaktigkeit*, because it begins with the preface 8, rendering the subsequent first measure a relatively weak *thesis* and because the *wt - st* pattern from odd-numbered to

even-numbered measures can be maintained throughout in this parallel period.⁴⁷

The other theme, in bars 52–90, requires somewhat more complex arguments. Cadences with phrase ending potential seem to abound here too, and the hyper-measures are also regular, at least up to bar 76. So it would seem that the first portion of this theme (bars 52–68) is a parallel period similar to the opening theme. This is not so, however. The E-flat cadence in bar 60 is not complemented by the D-flat cadence in bar 68, for this is an unexpected tonal shift away from the tonic key. This portion of the theme is thus neither parallel nor a period, and the regular alternation pattern identifies it as a phrase in true 4/1 time (i.e., hyper-measures contain segments only, not phrases as before). It requires the answering phrase of bars 68–90 that provides the long-expected return to the tonic. Unlike in the antecedent phrase, in the context of the entire period the E-flat and the (earlier) D-flat cadences now complement one another. In fact, the entire theme in bars 52–90 appears to be a special case of a parallel period, and as such it could dispense with a break in the regular *sr* - *wr* alternation. Such a break does occur nevertheless. Effected by the extension of the true sixth and seventh measures, the break dispels whatever doubts may have lingered on in the perceiving mind concerning the period construction of this long theme.⁴⁸

Interpretation of the two themes in true 4/2 time and in true 4/1 time, respectively, is further enhanced by the other passages of the exposition. As these are all phrases and smaller units, the criterion of change in accentuation pattern does not apply to them. Consequently, with the exception of the theme in bars 90–102 (repeated in bars 102–114), they admit of two equally valid interpretations. These appear in the analyses beneath one another and are connected with brackets. To be sure, in these instances a player can do little to vary his actual performance to suggest now one now the other interpretation. Bars 28–32 (and 32–36) will be accentuated the same way, whether one interprets them as a phrase in four true measures (in true 2/2 time) or as two (true 4/2) measures of a cadential appendix. Similarly, one may think of bars 36–51 as one phrase in four true measures (in true 4/1 time) or as just a new set of appendices (in true 4/2 time) with sequentially shifted cadences and with the last cadence repeated several times. The pattern of accentuation will be the same in either case. What is important in these passages is that, even if performed on a synthesizer, they impress upon the perceiver that a change is taking place in what was called earlier the density of the music and that a comparable change in the pacing of the music is also under way or is already accomplished in bars 36–51. Metric ambiguity is an asset, not a liability, for it produces a sense of continuity at the same time that it signals change. Despite the acceleration of the harmonic rhythm over the dominant pedal of bars 28–32 and 32–36 the continuation of 4/2 meter is still felt as a possibility, but the accelerated

pace suggests 2/2 meter as well. Further, the new meter increases our awareness of the slower pace of both the preceding period (bars 12–28) and the passage that comes next, in bars 36–51. This new passage may be heard as resuming (or continuing) the earlier 4/2 time, but since the harmonic rhythm is slower here than it was in the opening period, the passage may also be heard in 4/1 meter. The stage is thus set for the double period already discussed (bars 52–90) at the beginning of the second group. The second member of the second group (bars 90–102 and 102–114) is a repeated phrase in 4/1 meter—in view of the absence of a medial cadence no other interpretation is possible—and what follows is perhaps the most remarkable feature of the movement, the remainder of the exposition accomplishes a metric contraction that systematically reverses the earlier metric expansion. Bars 114–118 (and 118–122) are in their ambiguity analogous to the passage in bars 28–32 (and 32–36) and lead to the return of the opening phrase in extended form, which re-establishes, if only by association, the true 4/2 meter of the beginning. The design that results is unique to this exposition. In one respect, however, it is typical of all larger forms of the Classical era from Haydn to Schubert. It gives every indication of being calculated to appeal to our rational sense and it seems to be executed systematically.

Before going on to explore further implications of metric change and metric ambiguity in larger Classical forms, one more pair of themes will be examined for the purpose of demonstrating that two evenly balanced possibilities of metric interpretation may exist throughout entire large themes—and choice between them means a choice between two conspicuously different practical performances. Once again durational reduction in the proportion of 4:1 is employed in the graphs of Example 12 to show that the opening theme of the Mozart Piano Concerto in A, K.488, is indeed a period (actually the first member of a double-period), in which the *st - wt - st - wt* pattern of the first hyper-measure gives way to the syncopated *st - wt - wt - st* pattern in the second. The syncopation is produced, as so often, by the cadential six-four chord in bar 8. It establishes 4/4 meter both for the first eight measures and for the largely analogous answering period in bars 9–16, even though the decisive syncopation is absent from the latter. The same metric interpretation seems to be applicable to the theme in bars 229–236, shown in Example 12b (these bars correspond to bars 31–38 in Example 12c). It is clear, however, that because of the lack of a medial cadence these eight bars contain a phrase only, not a period. Such a medial cadence could possibly have been produced if bar 232 (=34) had been written differently, for instance if the actual d bass note had been replaced by an e and if the continuous figuration of the melody had been interrupted at a suitable point. As it is, however, emphasis is on the passing character and on the continuity of all harmonic and rhythmic-melodic elements (if these are separable), and no phrase ending cadence is heard until bar 236(=38).

Being a phrase, the passage no longer needs the syncopation to clarify its construction, and it is possible to consider another interpretation in which bar 236(=38) is a regular metric accent. This alternative is given in the graph of Example 12c, which further simplifies melodic elements so as to make their inner logic more readily apparent.

The complete absence of any objective criteria (at least any criteria known to me) that would compel a choice of one interpretation over the other is a forceful indication and reminder that ambiguity inheres in rhythm and meter, as it does in the materials of music in general. When Koch is forced to admit in the *Versuch* that it is not possible to determine whether a given musical entity corresponds to a subject or to a predicate, he draws the line where the logic of language and music part company.⁴⁹ In the present case the analogy is rather with the second degree equations with their alternative solutions. Either interpretation of the theme may be chosen in a particular performance, and not just from one performance to another, but from one occurrence of the theme to the next within the same performance. Indeed, such an interchangeability of interpretations is suggested by the context. In the orchestral tutti the theme begins on the weak *thesis* of the preceding hyper-measure, as shown in Example 12c, while in the solo exposition and the recapitulation, the latter shown in Example 12b, it begins on a strong thesis following a complete hyper-measure.⁵⁰

Examples 8 to 12 were presented in the order dictated by the purpose of demonstrating the effect of the two revisions of Riemann's system. The criterion of cadence type presents few problems and is seen to give straightforward and immediate indications as to the length and true meter of the phrase in a considerable number of cases. When it does not, a useful complement is provided by the second criterion, that is, by the hypothesis concerning the role stronger and weaker *theses* have in determining the structure of periods. As the hypothesis rests on the observation that musical entities displaying a regular alternation of stronger and weaker beats tend to be perceived as one unbroken chain of measures, making up at most one phrase rather than a period, this pragmatic foundation seems to give greater weight to its negative implications. Thus the hypothesis denies period rank to the first nine bars of Mozart's Symphony (Example 8a), to Beethoven's opening themes in the G major Sonata (Example 9b) and his "Pathétique" (Example 11), not to mention such other cases in point as the first 21 bars of Beethoven's Fifth symphony, often cited for the grandeur of its themes.⁵¹ But the rational extension of the practical observation that requires a break in the regularity of *st* - *wt* alternation in periods seems also to be justified by some of the above examples (certainly by Examples 8a, 9a, 10, and 12a), and many others could be cited in its support, among them Haydn, Symphony in D, No.104, with the decisive *st* - *wt* - *wt* - *st* pattern dominating in the 16 measures (in this case 16 bars) that open the Allegro of the first movement.

a. Mm. 1-8

1 - 2 - 3 - 4 5 - 6 - 7 - 8

b. Mm. 225-244 (from recapitulation, identical with mm. 95-114 of the solo expositions; mm. 229-244 and mm. 99-114 are identical to mm. 31-46 of the ritornello given in Ex. 12c)

8=7a - 8a - 1 -

2 - 3 - 4 -

5 - 6 - 7 - 8

Example 12. Mozart, Piano Concerto in A, K. 488, I: durational reduction graphs

c. Mm. 26–46 (from m. 31 identical to mm. 229–244 of Ex. 12b) further simplified in comparison with Ex. 12b

26 28 30 31 32

7 - 8(=7a) 8a 1

34 36 38 40 42 44 46

2 - 3 - 4 - 5 - 6 - 7 - 8

Example 12 (continued)

The group of examples presented on the last few pages (Examples 8–12) may also be considered from the viewpoint of the practical effect their analysis has upon actual performance. In the B-flat major theme of Mozart's Symphony (Example 8b), the opening theme of his Concerto (Example 12a), the Brahms theme (Example 9a), the opening theme of the Beethoven G major Sonata (Example 9b) and the three themes from his "Pathétique" Sonata (Example 11) the performer has no choice—only one correct interpretation is available. In the slow movement of Beethoven's C major Sonata (Example 10) several choices seem possible at first, but at the end only one solution fits all the musical facts. An interpretation that reflects from the beginning the metric decision dictated by the final segment is certainly correct, but a performance that carefully avoids the metric decision in the first six measures is as good and may indeed be superior. A performance, on the other hand, that flirts inadvertently or on purpose with those metric interpretations that turn out to be incorrect as the theme progresses is wrong-headed. The transitional passages of Beethoven's "Pathétique" (Example 11) offer genuine interpretive alternatives but no choice in the tangible matter of accentuation. One performance may differ from another in nuances, for instance, how much music will be played in one breath, or how small or how large the minute deviations from metronomic time will be. These are important from the viewpoint of the total musical experience, and yet, since ambiguity inheres in these passages, the logic of one alternative may be as compelling as that of the other.

The case is a little more complicated in the opening of the Mozart Symphony (Examples 8a and 8c-4) where a genuine choice between two possible accent patterns is offered in bars 10–13. Even if one of these is considered superior to the other—and I for one do not find it easy to decide on principle whether rigorous logic is always preferable to flight of fancy—the doubt generated by these possibilities is such an important part of the esthetic experience, that it seems almost mandatory for a performer to avoid making the choice clearly perceptible. Because of the brevity of the passage in question, this is much easier to do here than in Example 10. The decision, however, cannot be avoided in the theme at the beginning of the second group of the Mozart Concerto (Examples 12b and c). An attempt to do so—unlikely to succeed in view of the length of the passage—results *de facto* in a choice for that metric interpretation which continues the previously established pattern. It would seem logical to continue the pre-established pattern in both the orchestral tutti and the solo exposition—or to discontinue it in both places—in which case the accent pattern of the theme itself cannot be the same in both places. It would be, however, equally logical to keep the accent pattern of the theme identical both in the tutti and in the exposition, which requires that the pre-established pattern continue in one place but change in the other. The logic of one considera-

tion excludes the logic of the other, one of them must be sacrificed—our quest for consistency encounters a genuine dilemma.

ANALYSIS OF LARGER FORMS. The analytical method as formulated by Riemann had as its practical goal the identification of the organization of musical entities that make up larger musical forms and sections. The method determines whether these smaller entities are basic phrases and periods, or internally extended phrases or periods, or just strings of smaller particles (appendices). The method thus defines the larger form in terms of the fluctuations of musical density. The goal is valid and so is, generally speaking, the method. Its weakness is in that systemic foundation Riemann has sought in the axiom of *Auftaktigkeit*. The axiom, coupled with Riemann's preference to choose the smallest conceivable unit for the measure in practical analysis, leads to two particular contortions, both of which generate further contortions in their turn. One of these, the "truncated phrase" interpretation of certain three-measure units, has been dealt with earlier. The other, Riemann's assumption that periods that begin with a strong *thesis* which is not a preface are to be considered as actually beginning with the second measure, remains to be dealt with.⁵² I will do this in connection with two passages in the exposition of the first movement of Beethoven, Sonata in E-flat, Opus 31, No.3, given in Example 13a, which is then to be compared with Riemann's analysis of these two passages, given in Example 13b. My analysis will show that the "beginning on two" contortion (in bars 25–32 and 46–53) is easily eliminated by the revisions proposed earlier, but more importantly it will also serve to demonstrate all other beneficial effects the revisions have upon Riemann's method in analyzing larger forms. In other words, it continues where Example 11 left off.

Before arguing the merits of the analysis, let us turn to the two passages that contain, according to Riemann, periods beginning on the second measure. The first, in bars 25–32, is not a period because of its regular *st* - *wt* alternation. Its character is stagnant, particularly in comparison with the passages preceding and following. Thus it will be heard either as a cadential appendix in true 6/4 time, as shown in my first analysis (but not as a phrase in 6/4 time, which would rank it with the opening theme in bars 1–8) or it will be heard as a phrase in 3/4 time loosened by extensions. The other passage in bars 46–53 is even clearer. *Theses* and *arses* alternate bar by bar regularly, and there is no medial cadence.⁵³ This theme is thus a phrase in 6/4 time. There are no "periods beginning with the second measure" anywhere among Riemann's analyses in the *System* or in the *Beethoven Sonatas* that could not be simplified by assuming larger measures as I have done above, although an alternative analysis in single bar measures is sometimes also available, as in bars 25–32.

Before the analysis in example 13a is considered in its entirety, a few

analytical choices in the first group need supporting arguments. The player-analyst faces a true problem right at the beginning. Is bar 1 (same as bars 10 and 33) a *thesis* or an *arsis*? As bar 2 is a repetition of bar 1, it will sound as an *arsis*, the first three bars as one *thesis* followed by two *arses*, suggesting true 9/4 meter. Since, however, bars 4, 6, and 8 establish a clear *wt - st - wt* pattern, it seems as if bars 1-3 would be better interpreted as *anacrusis - thesis - arsis*, at least in retrospect. Yet, bars 8-10 again place a relatively strong tonic accent on bar 10 (identical with bar 1), but this time Beethoven provides a more immediate signal in the opposite direction. His grace note, b natural in bar 11, is that rare thing, an accent by fiat of the composer, and it tips the balance ever so slightly in favor of the anacrusis-cum-true 6/4 measure interpretation once again. These conflicting signals cannot fail to have their effect in bar 33, where the performer encounters the same problem once more. A slight hesitation will occur and is made practically unavoidable by the Beethovenian *subito piano* that follows his crescendo in bars 31-32. If this hesitation is parlayed into the choice of placing a slightly greater tonic or agogic accent onto bar 34, the decision will be rewarded at the end of the exposition, where the last hyper-measure (bars 86-89) finally shows that the doubtful figure is unequivocally an *arsis*, and thus the repeat of the exposition begins with what is now contextually proven as an *anacrusis*.

It is thus, with qualifications, that the hyper-measures of the graph have been drawn. They show the exposition as it is heard the second time around, and take account of the conflicting signals only by query marks placed over those bar lines that are doubtful when the exposition is first heard. They make the most conspicuous feature of the first group immediately noticeable. The organization of bars 2-7 as th(esis) - a(rsis) - th - a | th - a is reflected on the next lower order of metric magnitude in bars 8-10, which is one true measure extended into a branle-triplet. Indeed, the juxtaposition of branle-triplets and of the two kinds of ternary hyper-measures (2 + 1 as well as 1 + 2) are the recurring feature of the first group as a whole, and they will have their particular role in the second, as we shall see shortly.

The three smaller entities in the remainder of the first group present only lesser analytical problems. Bars 18-21 and 22-25 are either cadential appendices in true 6/4 time, or they contain a repeated phrase in true 3/4 time, as the departure from and return to the tonic, even though constituted by passing motion over a tonic pedal, seems sufficiently prolonged and elaborate to allow perception of a phrase. The latter interpretation, an attractive proposition in view of bars 18-21 being a recognizable variant of the opening theme in compressed form, necessitates syncopation in the hyper-measures by placing some kind of an accent in bars 18 and 22 to suggest the character of a strong *thesis* for the beginning of the phrase. Carrying this syncopation further by accentuating also bars 20 and 24 is a

Allegro *rit.* *a tempo*

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89

p *cresc.* *p* *cresc.* *p* *f* *p*

5 - 6 - 7 8 - -
 5 - 6 - 7 - 8 [5 - 6 - 7 - 8 5a -
 7b - 8b=7c - 8c=7d - 8d=7e 8e [1
 6a - 7a - 8a 5 - 6 5a - 6a - 7 - 8
 [5 - 3 - 4 3a - 4a - 5 - 6 5a - 7a - 6a - 7
 [8a] *f* *f* *p* 5 - 6 - 7 -
 8 [8a 5 - 6 - 7 - 8=5] - 6 -

Example 13a. Beethoven, Piano Sonata in E-flat, op. 31, no. 3, I: durational reduction of the exposition, mm. 1-89

61 63 65 67 68

8

7 - 8 --- = 7a

$\left[\begin{array}{l} 8a=7b \\ 8=1- \end{array} \right. \begin{array}{l} - \\ 2 \end{array} - \begin{array}{l} 8b=7c \\ 3 \end{array} - \begin{array}{l} - \\ 4 \end{array} - \begin{array}{l} - \\ 5 \end{array} - \begin{array}{l} - \\ 6 \end{array} -$

70 *sf sf sf* 72 73 75 77

$8c=7d - - -$
 $7 - 8=7-8=7- - -$ $8[d]$ 7 - -

cresc. f fp

78 80 82 84

8

7 - *cresc.* - -

$\left[\begin{array}{l} 8 \\ 8 \end{array} \right. - \begin{array}{l} 7a \\ 5 \end{array} - \begin{array}{l} - \\ 6-7 \end{array}$

86 88 89=1 90=2

cresc. *f* $[f]$ *p*

$8a$ 8 $5a - 6a - 7a -$ $8=5$

Example 13a (continued)

Musical score for Example 13b, showing measures 25-32 and 46-53 of Beethoven's Sonata in E-flat, op. 31, no. 3, I. The score is in 3/4 time and E-flat major. It features two systems of music. The first system contains measures 25-32, with annotations 8=2, [7a=3], 8a=4, and [7b=5] below measures 25, 26, 27, and 28 respectively. The second system contains measures 29-32, with annotations 8b=6, [7c=7], 8c, and 8d below measures 29, 30, 31, and 32 respectively. The third system contains measures 46-49, with annotations 2, [3], 4, and [5] below measures 46, 47, 48, and 49 respectively. The fourth system contains measures 50-53, with annotations 6, [7], 8, and 8a below measures 50, 51, 52, and 53 respectively. The notation includes various note values, rests, and phrasing slurs.

Example 13b. Beethoven, Sonata in E-flat, op. 31, no. 3, I, mm. 25-32 and mm. 46-53, as analysed by Riemann in *Beethoven Sonatas*, 2:433 and 2:433-34

possibility, and would perhaps be in keeping with Beethoven's *maniere* observed in the first theme, yet it would sound eccentric in view of the figure in bars 20 and 24, which has been hitherto, and will be again throughout the rest of the first group, consistently anacrusic. Re-drawing the hyper-measures one bar to the right would be no calamity in itself, but the redrawn bar lines would have to be pushed back again for bars 25–32. Accents in bars 26 and 28 are rather awkward and are downright ludicrous in bars 30 and 32, where they would fly in the face of harmonic rhythm and destroy the hemiolas implicit in bars 29–30 and explicit in bars 31–32.

The final portion of the first group, the bridge in bars 33–45, is especially intriguing from the viewpoint of metric ambiguity. Similarity to the opening theme suggests true 6/4 meter, but bridge and theme are not quite analogous. Unlike the first four bars of the theme, bars 33–36 of the bridge contain enough of a tonal progression to allow them to be heard as a phrase, and the diminished chord in six-five position in bar 36 provides a satisfactory medial cadence. Thus analysis as an extended period in true 3/4 time is possible *per se*, possible also in view of bars 25–32, and actually quite attractive in view of bars 18–21 and 22–25. That certain hesitation in the area of bars 33–34 which is caused by Beethoven's conflicting signals and by his dynamics certainly makes it legitimate for a performer to manipulate the hesitation in such a way as to place an accent on bar 33 and establish thereby the requisite syncopation that would render bars 33–36 to be heard as the antecedent phrase of the extended period constituting the bridge. Perhaps the best solution would be that when the exposition is first played, choices maximizing the effects of metric variability in the first group are to be preferred, while in the repeat, that is to say, after bar 1 (= bar 89) is already established as an anacrusis, interpretation in 6/4 time throughout (interrupted only twice by additions of 3/4 beats) should be favored.

Since the second group contains no problematic analytical details, the analysis of this exposition can now be examined as a whole. The variable and elusive metric organization of the first group is of paramount importance for the entire exposition. It provides both a sharp contrast to the overall metric stability of the second group and an intriguing link between the two groups at the same time. Those two-plus-one and one-plus-two juxtapositions that render even the opening of the first group elusive are found in the second group exclusively in what is clearly connecting tissue. The themes of the second group are so stable that the first of them, in bars 46–53, can even accommodate the anacrusis figure of bars 3, 5, 7 (and analogous bars) in a metrically strong position (in bars 48 and 52, also 59 and 63). Although the other theme in this group, in bars 82–86, allows technically two different analyses, the distinction between the two is without difference. The accent pattern is clear enough by itself, it is reinforced by the similarity of this theme to the one in bars 18–21, and this time the unac-

cented position of bar 85 (the anacrusis figure) is further reinforced by Beethoven's dynamic markings in the varied repetition of this phrase in bars 87–90 which make it impossible to place any kind of an accent on bar 89. Thus the hyper-measures are not subject to doubt. The exceptionally clear definition of hyper-measures throughout the group render even the connecting tissue less equivocal than is the case in the first group (or for that matter in the exposition of the “Pathétique,” as shown in Example 11). We hear bars 54–56 primarily as a cadential extension. Their interpretation as a phrase is distinctly secondary, even though as a phrase the passage is a recognizable metric reference to the first group. Similarly, bars 65–71 and 72–82 are perceived primarily as cadential appendices that develop these metric references yet further. On the secondary level, bars 65–72 may possibly be heard as some kind of a period, but bars 72–82 are so stagnant harmonically that even on that level they do not constitute a phrase, merely two hugely extended measures subdivided in the metric style of the first group. All these metric references in the connecting tissue of the second group are exaggerations, perhaps playful exaggerations, of the genuine complexities of the first group. Playful or not, however, their function is all-important from the viewpoint of overall form. They tie the two theme groups together as securely as any motivic relationship would and, conversely, they would be without rhyme or reason in any other context.

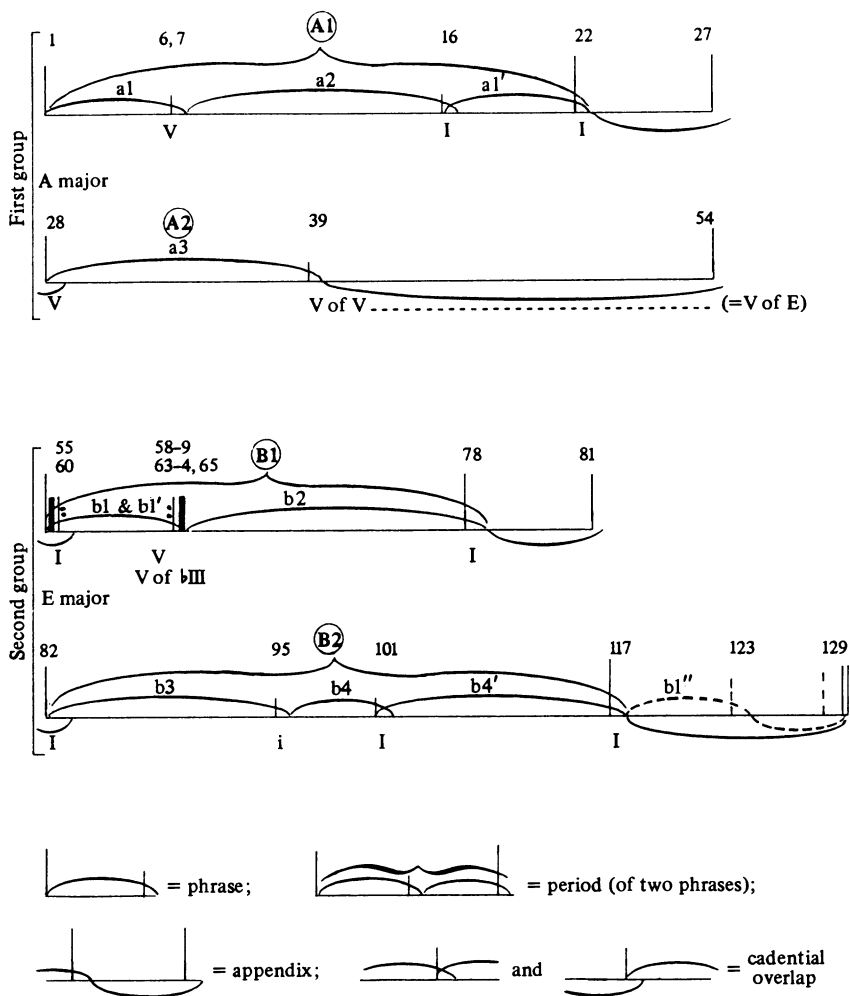
The other important conclusion that may be drawn from applying Riemann's adjusted analytical method to this exposition concerns its proportions. A count of bars would make it seem that the two theme groups are about equal, 45 and 43 bars long, respectively. This is very much like saying that two statues are equally tall without saying that one represents the Christ child, the other Saint Christopher. The first group with its two larger phrases and two smaller phrases followed by an extended phrase of an appendix and by one more phrase (or even one more period) of an even more extended bridge is decidedly longer than the second, containing only two larger phrases separated by a cadential extension and followed by two cadential appendices that lead to two more smaller phrases. The six or seven phrases in the first group certainly outweigh the four phrases of the second, and this could be expressed also in terms of true measures. A count of the longest possible (i.e., minimum number) of true measures shows the first group 21 measures long and the second only 18, but a count of the shortest possible measures is more realistic, showing the two groups to be 34 and 24 measures long, respectively. The pacing of the music is laid bare.

To sum up what we learned from analyzing this Beethoven exposition with Riemann's adjusted method we may proceed in the order from least to most important results. Finding the similarity among various entities, such as bars 18–21 and 83–86, is relatively trivial (and discoverable even without the method). Finding the kind of detail such as the metric play that

places the anacrusic figure of bars 3 and 5 into a metrically strong position in the second group seems more significant. Finding the metric relationship between the first group as a whole and the connecting tissues of the second is quite important. Together with finding the true proportions of a composition, such as those existing between the first and second groups, these discoveries go to the heart of the question of musical form in general. Since it is pacing and density that give a piece the form that is uniquely its own and distinguishes it from all other pieces belonging in the same general category, it may be fitting to take at this point a second look at Beethoven's "Pathétique" Sonata from the viewpoint of its proportions.

The two theme groups of the "Pathétique" are 40 and 81 bars long, respectively. That its hyper-measures are uniform for the most part (and, with the exception of bars 83-88, could be made entirely uniform were they drawn by every four rather than every eight reduced quarter notes) already tells us something about its form in comparison with the E-flat Sonata, but it would not correct the false picture gained from the count of bars, which tells us that the second group is twice the size of the first. Counting, however, the true measures of the analysis by Riemann's adjusted method allows us to describe its form as follows. The organization of the first group consisting of one full parallel period followed by a repeated smaller phrase and by one longer phrase of a bridge is comparable to that of the second group which also consists of one full parallel period followed by repeated phrases (two of them this time, one larger the other smaller) and by one more phrase of a codetta. Expressing the proportions in terms of true measures, a minimum count shows the first group to contain 16 of these against 24 of the second, the more realistic maximum count shows the two groups to be 24 and 27 true measures long, respectively. The last count comes closest to expressing my own musical experience.

Proportions thus corrected tell us something about the rationality of Classical forms, as do the various kinds of correspondences within these proportions that have been pointed out in the two expositions analyzed. A greater number of analyses would be needed for placing the role of true proportions and of correspondences in phrase structure in perspective. To show that this may well be a promising avenue I should like to conclude the discussion of the analysis of larger forms by giving, in Example 14, the diagram of one more exposition, that of the first movement of Schubert Piano Sonata in A, D.959. In a recent study I have shown, among other things, that in the final three-phrase period of this exposition the meter is expanded from $2/2$ time through $3/2$ time to $4/2$ time.⁵⁴ Once again, counting bars results in a distortion of the true proportions. The second theme group is indeed longer than the first. The difference is, however, not the nearly 40 percent as indicated by the number of bars, but only about half of that, since the second group contains only one more phrase than the first.



Example 14. Schubert, Sonata in A, D. 959, I: diagram of the exposition, mm. 1-129

CONCLUSION. This study demonstrates, I believe, that Riemann's method has (and always had) the capacity to measure what I have called musical density. Adjustments of the method by the three correctives proposed in this study have two different kinds of beneficial results. On the one hand, in ridding the method of its most criticized premise, the axiom of *Auftaktigkeit*, they free it from its most glaring contortion (the period beginning for one reason or another with its second measure) and free it thus from all other contortions that follow from this first one. On the other hand, they enable the method to realistically measure what I have called the musical pace. By determining true meter and thus covert meter change, the method determines both the size of a given musical entity and its rank (as a large phrase or a small period, or vice versa). As regards the distinction between theme statements, usually in unequivocally defined meter, and transitional passages, usually with varying degrees of metric ambiguity, the adjusted method makes this distinction both clearer and more sophisticated than does the measurement of density alone. Further, at least in the two instances of larger formal sections examined, it reveals both their internal proportions and certain proportional and metric correspondences within them that are distinctly similar to the kind of tonal and harmonic parallelisms discovered so often by Schenkerian analysis. These proportional and metric parallels (or contrasts) have a form-shaping function comparable to that of harmonic parallels, and just as harmonic parallels, proportional and metric parallels exert their form-shaping function even when they are only subliminally perceptible. It would be fatuous to claim that such parallels could not be discovered in any other way; it may be claimed, however, that no other analytical approach can discover them as systematically as Riemann's adjusted method. Thus I believe that Ian Bent's judgement of Riemann's approach, cited at the beginning of this study, is vindicated.



NOTES

I would like to thank Professor James Baker, my friend and colleague at the Department of Music of Brown University, for his many valuable suggestions, both those he made while this essay was in preparation and those he offered after his careful reading of the draft. Whatever is of merit in this essay owes much to his judgement. It goes without saying that the errors and shortcomings that remain are my own.

1. "Analysis," *The New Grove*, 1980, I, pp. 340–88. The cited passage ends the section dealing with Riemann, pp. 375–76.
2. Bent's cited article is a notable exception. Another is Howard A. Smither, "Theories of Rhythm in the Nineteenth and Twentieth Centuries . . .," Ph.D. diss. Cornell University, 1960, the most detailed treatment of Riemann's theories in English known to me.
3. *Anfangsgründe zur musikalischen Setzkunst*, 5 vols. Frankfurt, Leipzig, and Augsburg. Beethoven owned a copy of this work, as shown by the auction catalogue of his estate, published in English in Eliot Forbes, *Thayer's Life of Beethoven*, rev. ed. 1967, Princeton University Press, pp. 1062–70. Riepel's *Tonordnung, Contrapunkt, Setzkunst*, in five volumes are listed as part of item 249, on p.1070. Useful summaries of Riepel's work may be found in Arnold Feil, "Satztechnische Fragen in den Kompositionslehren von F.E. Niedt, J. Riepel und H. Chr. Koch," Diss. Heidelberg, 1955, and in Peter Benary, *Die deutsche Kompositionslehre des 18. Jahrhunderts*, Leipzig, 1961.
4. *Versuch einer Anleitung zur Composition*, 3 vols., I. Rudolstadt and Leipzig, 1782, II and III, Leipzig, 1787 and 1793, facsimile edition Hildesheim: Georg Olms Verlag, 1969. English translation of the second half (dealing with the mechanical rules of melody, phrase construction, and smaller and larger forms) by Nancy K. Baker, *Heinrich Christoph Koch, Introductory Essay on Composition*, New Haven and London, 1983 (henceforth *Introductory Essay*). Recent studies dealing with the *Versuch* in detail include Leonard C. Ratner, "Harmonic Aspects of Classical Form," Ph.D. diss., University of California at Berkeley, 1947, article of the same title in *Journal of The American Musicological Society*, II (1949), 159–68, and "Eighteenth Century Theories of Musical Period Structure," *The Musical Quarterly*, XLII (1956), 439–54; the previously cited studies of Arnold Feil and Peter Benary; Nancy K. Baker, "From *Teil* to *Tonstück*: The Significance of the *Versuch eines Anleitung zur Composition* by Heinrich Christoph Koch" (Ph.D. diss., Yale University, 1975), "Heinrich Koch and the Theory of Melody," *Journal of Music Theory*, XX (1976), 1–48, and "The Aesthetic Theories of Heinrich Christoph Koch," *International Review of the Aesthetics and Sociology of Music*, VIII (1977), 183–209; Elaine R. Sissman, "Small and Expanded Forms: Koch's Model and Haydn's Music," *The Musical Quarterly*, LXVIII (1982), 444–75; Ian Bent, "The 'Compositional Process' in Music Theory 1713–1850," *Music Analysis*, 3:1 (1984), 29–55.
5. Near the end of the second volume of the *Versuch* (2:356, *Introductory Essay*, p. 6) Koch abandons further pursuit of the language-music analogy. He does this in part, "because subject and predicate cannot be differentiated enough in melodic sections," in part (as he adds in a footnote) because the beginning music student is not sufficiently versed in grammar and its logic to benefit from the analogy.
6. Momigny (1762–1842), *Cours complet d'harmonie et de composition*, Paris, 1803–6;

- Reicha (1770–1836), *Cours de composition musicale* (Paris, 1816–18) and *Traité de haute composition musicale* (Paris 1824–26); Weber (1779–1839), *Versuch einer geordneten Theorie der Tonsetzkunst*, Mainz, 1817–1821, Eng. transl. 1851; Marx (1795–1866) *Die Lehre von der musikalischen Komposition, praktisch-theoretisch*, 4 vols., 1837–47, vols. I, II, and IV revised by Hugo Riemann, 1887–90; Eng. transl. 1910. For thorough summaries of the last two works see Smither, op.cit.
7. Leipzig, 1853, Eng. transl. 1888. A thorough summary may be found in Smither, op.cit.
 8. The most important of these studies are the *Praktische Anleitung zum Phrasieren*, with Carl Fuchs, Leipzig 1886, Eng. *A Practical Guide to The Art of Phrasing*, New York [1890]; *Grundriss der Kompositionslehre*, Leipzig, 1889; and *Katechismus der Phrasierung*, with C. Fuchs, Leipzig 1890, 2nd ed. as *Vademecum der Phrasierung*, Leipzig, 1900, 8th ed. as *Handbuch der Phrasierung*, Leipzig, 1912 (this edition was consulted for the present essay). Other studies appear in *Präludien und Studien: Gesammelte Aufsätze zur Aesthetik, Theorie und Geschichte der Musik*, I, Frankfurt a. Main, 1895, II and III, Leipzig, 1900 and 1901. The first volume of the *Grosse Kompositionslehre* (3 vols. Berlin and Stuttgart, I 1902, II 1903, III 1913) contains several sections dealing with phrase structure.
 9. *System der musikalischen Rhythmik und Metrik*, Leipzig, 1903, rpt. Wiesbaden: Sändig, 1971.
 10. These include analyses of some orchestral works of Brahms (1908), Schumann (1911), and Tchaikovsky (1911) in Schlesinger's *Meisterführer* series, also *Beethovens Streichquartette*, Berlin, 1903, rpt. 1910.
 11. *Ludwig van Beethovens sämtliche Klavier-Solosonaten: aesthetische und formal-technische Analyse*, 3 vols., Berlin, 1918–19.
 12. In addition to Riemann's many pupils and followers in Germany, the Englishman Ebenezer Prout (1835–1909) and the American Percy Goetschius (1853–1943) are among those who acknowledged their indebtedness to him.
 13. See the studies cited in note 4. In addition *Classic Music, Expression, Form, and Style*, New York, 1980 is particularly important.
 14. *The Rhythmic Structure of Music*, Chicago: Chicago University Press, 1960.
 15. I should like to acknowledge my particular indebtedness to the following studies: Edward T. Cone, "Analysis today," *The Musical Quarterly*, XLVI (1960), 172–88, and *Musical Form and Musical Performance*, New York, 1968; Peter Westergaard, "Some Problems of Rhythmic Theory and Analysis," *Perspectives of New Music*, I (1962) 180–91, and *An Introduction to Tonal Theory*, New York, 1972; Robert P. Morgan, "The Delayed Structural Downbeat and Rhythmic Structure in Sonata Form Recapitulation," Ph.D. diss. Princeton University, 1969, and "The Theory and Analysis of Tonal Rhythm," *The Musical Quarterly*, LXIV (1978), 435–73; Maury Yeston, *The Stratification of Musical Rhythm*, New Haven, 1976; Carl Schachter, "Rhythm and Linear Analysis," two studies to date, the first "A Preliminary Study," *The Music Forum*, IV (1976), 281–334, the second "Durational Reduction," *ibid.* V (1980), 197–232; Charles Rosen, *Sonata-Forms*, New York, 1980; Fred Lerdahl and Ray Jackendoff, *A Generative Theory of Tonal Music*, Cambridge, Massachusetts, 1983.
 16. In using "thesis" to denote the downbeat and "arsis" the weak beat, I conform to standard American practice. Some writers, such illustrious authorities among them as

Béla Bartók and Knud Jeppesen, adhere to the opposite usage, which is closer to the Greek meaning and to the usage in quantitative poetic meter.

17. There are fewer exceptions to the first part of the rule, requiring harmonic change from the penultimate to the final measure of a phrase, than to the second. One is the first phrase (in four two-bar measures) of Beethoven, Sonata in A, Opus 2, No.2. An exception to both parts is the four-measure phrase in the first four bars of Beethoven, String Quartet in G, Opus 18, No.2, containing just two harmonies, I-I-V-V. Yet Riemann's deduced principle appears to be vindicated by the free repetition, or rather reformulation, of this theme in bars 9–20. In this the repeated antecedent phrase contains both times I - V (four-three) - I - V.
18. Unlike most other types of extension found in Riemann, prefaces are not discussed by Koch under a separate heading. Koch nevertheless explains this construction in connection with two examples in the *Versuch* (2:379–80 and 381–82, *Introductory Essay*, pp. 17 and 18, examples 49 and 54–55). The reader will find other instances of it in Examples 8a and 11. In the latter the preface actually ends the last phrase of the introduction and is at the same time the first measure of a new period. The opening six bars of Beethoven, Symphony No. 5 may be cited as an interesting case of a double preface.
19. I adopt this practice in the present study. Distinction between themes consisting of a single phrase and those of two-, three-, and four-phrase periods is one of the important form-shaping tools in most music, particularly so c.1770–1830. It is also something of an historical criterion, for single-phrase themes are so frequent in the decades before 1770 as to constitute the norm, and they become comparatively rare after Beethoven and Schubert (with Brahms, as usual, the exception).
20. Carl Schachter in his "Rhythm and Linear Analysis, Durational Reduction," *The Music Forum*, V (1980), 203, notes that in the present day musical vernacular the term "phrase" usually denotes "a unit of tonal motion as well as of duration." This usage is applicable to Koch's examples but not always to those of Riemann.
21. Examples 361–62 in the *Introductory Essay*, (pp. 163–65, *Versuch*, 3:226–30) show the extension of a 16 measure principal period (four four-measure phrases in 2/4 time, notated in eight C bars) into a sonata exposition. Koch also identifies the first section, i.e. the exposition, of a symphony as a principal period (*Introductory Essay*, p. 199, *Versuch*, 3:304–5).
22. For three of these see Examples 2 and 9c and d below.
23. According to Koch, such genuine five-, six-, and seven-measure phrases must be distinguished from other phrases of the same length, "because the former require different treatment from the latter in joining of [several] phrases and periods" (*Introductory Essay*, p.14, *Versuch*, 2:374). There is hardly any follow-up on this observation in the further course of the *Versuch*. For two examples of six-measure phrases that are not derived by Koch from basic four-measure phrases see Examples 6a and b where I show that these, too, may be so derived.
24. Only Koch's so-called "parenthesis," ("*Parentese*," and "*verwickelter Satz*") discussed briefly in the *Introductory Essay*, pp. 53–4 and 160–163 (*Versuch* 2:460–63 and 3:218–26) does not reappear in the *System*. This involves various ways in which "unessential melodic ideas" are inserted between parts of a single phrase. For a special case of parenthesis see example 2.
25. *Introductory Essay*, pp. 36–7, *Versuch*, 2:415–17.
26. Bars 3 and 4 of this example outline the harmonies I and IV. An accompaniment

could easily convert the I chord into V of IV. In the “modulating” example that follows it is precisely this conversion that is brought about by melodic means. Koch states that “such [modulating] phrases appear very frequently,” and adds that “one must consider it as a I-phrase (Grundabsatz) in the key of F, to which the melody has been led through the tone B flat,” rather than as a cadence in C on the IV-th degree.

27. *Introductory Essay*, p. 64; *Versuch*, 3:5.
28. *Introductory Essay*, pp. 77–8; *Versuch*, 3:35–38.
29. *Introductory Essay*, pp. 162–63; *Versuch*, 3:223–25. The symbols of a square and a triangle are used throughout the *Versuch* to show the endings of phrases and segments, respectively. Koch considers two-measure segments (*Einschnitt*, in Baker’s translation “incise”) complete, one-measure segments incomplete. Two (or more) of the latter may be substituted for one complete segment within a phrase. In the present example Koch marks almost all phrase endings, but only those segments that are relevant to his commentary (in which a few errors had to be corrected by Baker in the translation). I have supplied all missing symbols in brackets.
30. *Musical Form and Musical Performance*, New York, 1968, p. 73.
31. Typical of Riemann’s reaction to this charge are the words that begin his introduction to the *Practical Guide to The Art of Phrasing*, 1890. “‘Too complicated!’ is the watchword among the opponents of the new phrasing marks. With this ‘weighty’ word, serenely and haughtily pronounced, the majority of ‘university-taught musicians’ turn their backs on a reform which aims at relief, and would fain hush it up. Fafner crawls back to the Neidhöle: ‘Let me sleep!’” (p. III). The introduction closes with an “appeal to all who take the matter of phrasing to heart, to apply themselves thereto diligently that they may be able to participate in the great work . . .” and with the assertion that no element of the work is arbitrary (p. IX).
32. Riemann’s views on ternary segments are scattered over the pages of the *System*. The chapters dealing with them in greatest detail are *Grosse Triolen* and *Widerspruch zwischen Motivlänge und Takt*, pp. 101–121, and the last chapter, *Verkürzung der Sätze durch Verschränkungen und Elisionen*, pp. 270–304.
33. The second and third bars of these phrases constitute their second true measure. The five-bar scheme for these phrases is kept intact in all Brahms’s variations, but the extension is fashioned differently each time.
34. The example is cited here after the *Handbuch der Phrasierung*, Leipzig, 1912, which is the 8th edition of the *Katechismus der Phrasierung* of 1890.
35. *System*, pp. 298–304. Riemann discusses this phenomenon also in the first volume of the *Grosse Kompositionslehre*, where he includes a number of 16th-century examples (pp. 146 ff.) from Pierre Phalèse, *Recueil de danceries*, Antwerp and Louvain, 1583, a veritable anthology of dance-music of the entire period, as it is pirated in large part from various prints of the preceding decades. The analysis of the strain of the Mozart Quintet presented in the *System* (p. 301) differs slightly from the earlier one cited in Example 4a. The word “komplet!” is added underneath bar 52, indicating that it functions now solely as the fourth measure, rather than being 4=5, and bars 53–54 now function as the true fifth and sixth measures and not as just the sixth measure in hemiola. For yet another interpretation of this strain see Example 7b.
36. A particularly interesting example is Brahms, *Intermezzo* in B-flat, Opus 76, No. 4. It is an A-B-A form in two-bar measures. The first A section is composed of a period of one three-measure and one four-measure phrase, in bars 1–13(14), with appendices added in bars 15–20. Since bars 5–6 are heard as a medial cadence, it appears as

if the first true measure were missing. This impression is confirmed by the recapitulation. The period in bars 33–45(46) is here preceded by another measure in bars 31–32 which is clearly the first measure of a two-measure segment; thus it supplies the measure that was missing from the beginning. The case is rather complex, for bars 31–34 function not only as the first segment of the recapitulated period but simultaneously also as the final segment of the B section. A somewhat similar but considerably simpler case of missing opening measures is provided by Mendelssohn, *Lieder ohne Worte* in A, Opus 38, No.4. In this A-B-A form (framed by an introduction and a postlude) we hear a period in two-plus-four measures (bars 4–9, repeated in 10–15). After the B section (bars 16–19) A is recapitulated, this time, however, with bars 20–21 adding the two measures that were felt to be missing in the antecedent phrase. The first A section is thus seen in retrospect as having begun with the proper third measure.

37. In 16th-century sources of dance music neither the *tempora* of mensural notation nor the bar lines of tablatures provide a reliable guide in grouping beats together to form musically meaningful measures. Barring of transcriptions in modern notation is, therefore, necessarily a matter of interpretation. It is usually not difficult to isolate the six beat segments in *branles simples* and *coupès*, but subdividing them can be problematic at times. In many cases, perhaps the majority of them, subdivision into four-plus-two beats is supported by musical forces, but two-plus-four is not unusual, and three-plus-three can also be found on occasion. There are even a few *branles simples* in which a steady $3/2$ meter seems preferable to a $4/4 + 2/4$ interpretation, resulting in *ritmo di tre battute* of the kind found in Example 3. The tunes cited in Example 5 and their analyses require three more comments. Note values are reduced in each of them so as to make the quarter note the beat of the transcription, regardless of whether the sources give the semibreve or the minim as the beat unit. In the analyses I have used the numbers from 5 to 8 to indicate that the basic unit is the four-measure phrase rather than the eight-measure period (usually the case in dances of the 16th century, except in settings of one or another of the eight-measure harmonic grounds, such as the Passamezzo Antico or Moderno, the Romanesca, etc.). Finally, no source known to me designates Arcadelt's chanson "Margot" as a *branle coupé*. I identify it as such only on the grounds of its metric structure and of its marked melodic similarity to scores of French branle tunes.
38. The chanson was first published by the Parisian Pierre Attaignant in 1531 (RISM 1531²) and reprinted frequently in various forms throughout the century. Symon Cock uses its tune for his translation of Psalm 72 in 1540, and Clemens adopts it from Cock for the polyphonic setting of this Psalm in the *Souterliedekens* (modern edition Karel Philippus Bernet Kempers, ed. *Jacobus Clemens non Papa: Opera Omnia*, II, 1952, p. 53).
39. The period preceding the one in Example 6c is analysed in Example 10.
40. *Beethoven Sonatas*, 3:158, my translation and my emphasis. It is with these words that Riemann rejects an analysis he has considered for the beginning of the second movement of the Sonata in F-sharp, Opus 78.
41. In his "Rhythm and Linear Analysis, Durational Reduction," Schachter has devised this method "to reveal connections between durational and tonal organization . . . in some types of music" (p. 198). Although relating actual music to a four-measure prototype is not Schachter's primary purpose, his analyses reveal such a relationship more than once. Whenever his hyper-measures comprise entire phrases, they are in

- an *st - wt - st - wt* pattern. This reflects Schenker's view that phrases normally begin strong and come to rest on a weak thesis. It is the easier to accept this view as it is held with no trace of the unfortunate dogmatism that characterizes Riemann's opposite view.
42. Characteristically, in *The Rhythmic Structure of Music*, Cooper and Meyer warn that in the face of the absence of any consensus concerning matters of rhythm their work is intended as a starting point rather than a formulation of a comprehensive theory (p V). Their caution is echoed in almost all writings on the subject to date. Particularly eloquent is Schachter in stating his doubts ("Rhythm and Linear Analysis, A Preliminary Study," pp. 299–311) concerning the possibility of such a general theory and in dealing with some particular obstacles in its way. Yeston, too, concludes the *Stratification of Musical Rhythm*, with a chapter (pp. 148–53) carefully delineating the limits of his own theory and addressing certain difficulties that face any general rhythmic theory.
 43. The analysis presented in Lerdahl and Jackendoff, *A Generative Theory of Tonal Music*, pp. 21–25 and 258–60, is of particular interest from the viewpoint of the present study.
 44. Considered by itself, this period may not show its material homogeneity as conspicuously as it does when it is viewed in the context of the entire piece. The four-note motive at the beginning of the period is a rhythmically smoother version of the one permeating the entire first theme. Thus even the casual listener is alerted to the importance of both the motive and the technique of rhythmic transformation, and will, therefore, experience no difficulty in recognizing the motive in the consequent phrase, where it appears in augmented and metrically displaced form.
 45. Schachter ("Rhythm and Linear Analysis, a Preliminary Study," pp. 326–27) makes the material homogeneity of this theme more readily apparent. He reduces the rhythm of the six-note motive of the first four bars to eighth note (anacrusis)—eighth note (thesis)—quarter note (in syncopation), thus showing its relationship to the rhythmic pattern of bars 7 and 8 and to further recurrences of this pattern in the first theme group.
 46. *Introductory Essay*, p. 57, (*Versuch*, 2:458–60). I have substituted 'segment' for 'incise' in Baker's translation for the sake of keeping the terminology consistent in the present study. Baker's usage is, of course, amply justified in the context of Koch's work.
 47. Riemann analyses this exposition in two-bar measures throughout. My analysis agrees with his only up to bar 28. It is worth noting that in shaping this theme Beethoven had other options before him. A minimum of re-composing could render bars 18–19 and 26–27 final measures rather than penultimates. Were the resolution of the six-four chord of bar 18 to come at the beginning rather than in the second half of bar 19, and were the six-four chord of bar 26 to resolve on the second half of that bar to be followed in bar 27 by a tonic chord, a grammatically correct eight-measure period would result. It would not begin with the preface 8 but with the simple cadential overlap 8=1, and the cadences would be in the measures of bars 18–19 and 26–27. Beethoven's solution in manipulating the surface events of these measures so as to carry the phrases beyond them to the *theses* of bars 20 and 28 may be seen as a grammatical choice of significant esthetic consequence.
 48. In the recapitulation this theme (bars 222–54) is not extended. As my analysis places stronger accents on the even-numbered true measures (bars 52 and 222, 60 and 230,

68 and 238, 76 and 246, 90 and 254) there is no break here in the pattern of *st* - *wt* alternation. There would be one, however, were the odd-numbered true measures assumed to be generally the stronger theses. Since bar 250, representing the *thesis* of the true 7th measure, is part of a passing motion from I (246) to V (252) and thus weak in relation to both 246 and 254, the pattern of the consequent phrase is synco-pated, *st* (242) - *wt* (246) - *wt* (250) - *st* (254). Although several considerations make me disinclined to revise the analysis of Example 11, the desirability of a break in the pattern—even though not necessary in this case—could be an argument for such a revision.

49. See note 5, above.

50. In general, ritornello concerti from J.C. Bach and Mozart to Beethoven and Hummel offer a fertile ground for the study of all kinds of rhythmic phenomena, particularly of metric expansions and contractions. Bars 19–30 of the tutti of K.488, for instance, contain a passage in the notated C measures, which is transformed in bars 83–98 of the solo-exposition into a modulating passage extended by passage work. From bar 87 on, interpretations in C (2/2) and in 4/2 meter are equally valid.

51. Donald Francis Tovey, *Essays in Musical Analysis*, London: Oxford University Press, 1935, I, p. 40, calls this phrase the first half of a big sentence.

52. In the discussion of "Anfänge mit dem zweiten Takt" (*System*, pp. 213–220), Riemann uses the theme in bars 46–54 of Example 13a and b as an illustration.

53. In the *System*, bar 54 is numbered 9 rather than 8a. As Riemann explains, all even numbers represent strong *theses*, but only 3 and 7 of the weak measures serve as growth phases to the strong 4 and 8, respectively, 5 and the new symbol 9 represent an "Anschluss der leichten wirklichen Takte an die vorausgehenden schweren," in other words, they are prolongations of the decay phase. Their function is to bring the number of measures in the period to eight.

54. "Recurrent Harmonic Sequences in the First Movement of Schubert's Sonata in A Major, D. 959," *19th Century Music*, XII/1 (Summer 1988), 64–73.

