Hypermetrical Ambiguity
In Sonata Form Closing Themes

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Hypermeter

In recent years, hypermeter in tonal music has become the object of considerable attention. While early studies of rhythm and meter offered a variety of approaches to the subject, more recent work--that of Carl Schachter, William Rothstein, Joel Lester, William Benjamin, and Fred Lerdahl and Ray Jackendoff, among others--reflects a broad consensus on several key issues. Foremost among these is the nature of meter and hypermeter itself. While meter interacts in complex ways with the harmonic, melodic and rhythmic dimensions of music--both influencing and being influenced by these dimensions--meter itself is, in principle, an independent musical parameter. An important consequence of this view is that cadential tonics and other structurally important events are not inherently metrically strong; they may or may not occur on strong beats.[1] Similarly, phrases and larger formal units do not necessarily begin or end on metrically strong beats; they may or may not do so. It is widely agreed, also, that meter is primarily a local phenomenon. At the level of the measure and below, metrical structures in tonal music are generally clear and uniform within a piece; at somewhat higher levels (so-called "hypermetrical" levels), they may exist but are usually somewhat irregular; and at still higher levels, it becomes inappropriate to speak of meter at all.[2] Finally, it is generally agreed that, at hypermetrical levels, there is a norm of duple meter, that is, of strong beats placed two, four, and eight measures apart; and when irregular structures are found, they can frequently be explained as deviations from regular ones. Much recent work in hypermeter has involved exploring the various ways that irregular metrical and phrase structures can be generated from regular ones: as expansions, contractions, overlaps, and the like. It is also agreed, however, that not all irregular hypermetrical

patterns can be explained in this way; some are best regarded as being fundamentally irregular.[3]

This body of work would seem to provide a strong foundation for further study of meter and hypermeter. About the lowest levels of meter, where uniformity is the rule, and the highest formal levels, where there is no meter at all, there would seem to be little more to say. The area of greatest interest, clearly, is the intermediate levels: the levels where metrical structures are present but are often irregular or ambiguous. In this regard, two broad questions suggest themselves. First of all, under what circumstances does hypermetrical irregularity occur in tonal music? Is it equally likely to be found in all areas of, for example, a sonata form movement, or is it more often found in some circumstances than others? A second question is both related and much more difficult: if it is found that hypermetrical irregularity occurs most often in certain conditions, *why* does it occur there: what structural function does it serve? It seems fairly clear that hypermetrical irregularity serves certain general purposes: it creates tension, by disrupting a previously regular pattern, and it provides continuity, by blurring the boundaries between spans of music which might otherwise seem overly detached. But is this all there is to it, or are there more specific functions that hypermetrical ambiguity may perform? In this paper I hope to offer a partial answer to this question.

Among the various kinds of hypermetrical ambiguity that have been explored, one might be termed "melody-accompaniment conflict". This is a case where the melody of a passage seems to imply one metrical structure, the accompaniment another. This was perhaps first observed by Heinrich Schenker in *Free Composition*. Schenker cites the example of the closing theme of Mendelssohn's Symphony #3 (1979, 1:124, fig. 147 #4).

Here the accompaniment seems to suggest that odd-numbered measures are metrically strong; the melody emphasizes even-numbered measures (see example 1). More recently, others have explored this phenomenon. William Rothstein, in *Phrase Rhythm in Tonal Music,* discusses a number of cases of conflicting patterns between the melody and accompaniment, particularly in Mendelssohn's "Songs Without Words" (1989, 58-61, 199-213). Roger Kamien (1993) has also pursued the issue, discussing cases in Mozart and Beethoven where melody and accompaniment appear to imply different meters. Schenker's example is a particularly significant one, however, because it exemplifies a much wider phenomenon. It seems that the sonata-form closing theme is an especially common site of hypermetrical ambiguity. In the following discussion, I will investigate several cases of hypermetrically-ambiguous closing themes. Then I will offer a rather speculative explanation as to why hypermetrical ambiguity in closing themes is particularly common.

Hypermeter in Closing Themes

It is perhaps wise to explain, first of all, what is meant by a closing theme. A closing theme is a passage occurring towards the end of the second theme group (the section in the second key) in a sonata-form exposition (and, normally, in the recapitulation as well). It is usually regular in length (4 or 8 measures), and often repeated exactly. It must be reasonably "theme-like", that is, somewhat melodic in character, rather than purely filigree or passagework; and it must be firmly grounded in the local tonic (that is, the key of the second theme group). Frequently, the closing theme

is preceded by a passage of tonal instability which ends in an extended perfect cadence in the tonic; the closing theme immediately follows. Defined in this way, there is often room for disagreement about whether something is a closing theme or not. There may be cases where there is only a single theme which is clearly in the second theme group (that is, in which the second key has been firmly established), and it is unclear whether to regard it as a second theme or a closing theme (Haydn's Symphony #103 and Beethoven's Sonata Op. 28 are examples); or there may be cases where there are several possible candidates for closing themes (Mozart's "Figaro" Overture, Mozart's Piano Concerto in C minor, K. 491, and Beethoven's Symphony #3 are examples). It is particularly common to have a series of closing themes, each one shorter and more cadential than the last. But there are a large number of cases where the presence and identity of a single closing theme (or at least, a single major closing theme) is fairly clear. The evidence presented here will offer another reason for thinking of closing themes as a "natural kind".

Consider, first of all, Mozart's Symphony #40 in G minor (example 2). The closing theme, at mm. 72-88, fits the definition prescribed above quite nicely. The theme itself is an 8-measure repeated phrase, firmly grounded in the tonic; it follows a very pronounced cadence at mm. 64-6. (Between this cadence and the closing theme is a 7-measure phrase which in itself contains an extended IV-V-I cadence; this is better regarded as an echo of the previous cadence rather than as a genuine closing theme.) The meter of the closing theme is clear enough up to the level of the measure. But which is stronger, the odd-numbered measures (shown as hearing A in the example) or the even-numbered measures (hearing B)? If one considered the passage in isolation, hearing A would surely be favored. Mm. 73-80 form a fairly conventional 8-measure phrase, with a

I 6/4-V-I cadence in the last two measures (metrically, this setting of a cadence--with a I 6/4 on a strong downbeat, the V on an upbeat, and the I on a weak downbeat--is a particularly common one). Also, since the first downbeat of the melody is at m. 73, there is a strong tendency to hear that measure as metrically strong. (The main melody here is assumed to be the clarinet-bassoon line rather than the slower string line; the former is surely much more salient, quite apart from its connection to the opening theme.) However, other factors argue for hearing B. For one thing, the previous measure, m. 72, is quite clearly metrically strong at the 2-measure level (there has been a clear pattern of metrically-strong even-numbered measures for most of the movement, perhaps going back as far as m. 16). Texturally, too, there is a change at m. 72, which tends to make this measure metrically strong. And if we turn to the end of the closing theme, mm. 88, we find that the final measure becomes the first measure of a new theme, thus reinforcing hearing B in retrospect (although since the new phrase is itself irregular, with a repetition occurring after 3 measures, it does not strongly argue for either hearing of the previous passage). Altogether, hearing A seems preferable to hearing B, but there is a significant degree of ambiguity here. (At a higher level, one could also posit a 4-measure metrical level, with strong beats at either m. 72 or m. 73; but that is not my main concern at present.)

It is interesting to note that almost exactly the same situation is found in a number of other pieces. Consider Haydn's String Quartet, Op. 76 #1, shown in example 3. Here again we find a highly regular, tonally stable closing theme (mm. 73-80). As in the Mozart, the theme is (almost exactly) repeated, although in this case it is only 4 measures long instead of 8. Once again, the question is, which is metrically strong, odd-numbered

measures (hearing A), or even-numbered measures (hearing B)? Again, if one considers the passage in isolation, hearing A is favored. By this hearing, the phrase fits nicely into an conventional 8-measure pattern, with the first downbeat of the melody metrically strong. But other factors favor hearing B. The harmonic rhythm of the previous context suggests that even-numbered measures are strong; the texture change at m. 72 supports this hearing; and the half notes in the melody add weight to even-numbered downbeats. Another factor is also present here: the bass drops an octave at m. 77, adding a little more weight to hearing A. (Oddly, the closing theme is immediately followed by an unusual 3-measure phrase, just as in the Mozart; again, this does not seem to favor either hearing of the previous passage.)

A third, slightly more complex example is seen in Beethoven's Waldstein Sonata (example 4). The same two alternatives present themselves. A repeating 4-measure phrase is found (mm. 75-82). The melody, considered alone, suggests that measure 75 is strong (hearing A); this hearing lines up the cadence optimally as well. But, again, the harmonic rhythm of the previous passage has strongly established a pattern of strong even-numbered measures; the striking texture change at m. 74 reinforces this. The following context slightly favors hearing B; by this hearing, the return to the main theme in the repeat (or, if one is proceeding to the development, the shift to the main theme in F major) emerges as metrically strong. (Moreover, the forte-piano at m. 78 certainly adds weight to this hearing--could this have been Beethoven expressing his own opinion on the matter?) In this case, however, yet a third hearing suggests itself: one in which the third beat of m. 74 is strong at the 2-measure level. This hearing may seem odd at first; not only does it contradict the notation, but it yields a highly unorthodox hearing of the

cadence, in which the V7 is metrically stronger than either the I 6/4 or the I. But this hearing has two things to recommend it. In the first place, the rapid sixteenth-note figure in mm. 74-6 is very reminiscent of the figure presented in m. 23 (see example 5); and there we find that the sixteenth notes begin on the second beat of the measure (although the first one is tied to the previous quarter). In order to hear the figure at m. 74 as parallel with this earlier figure, we must hear the third beat of m. 74 as metrically strong. Secondly, the quarter-eighth-eighth motive which we hear in the second half of the phrase begins on the third beat of the measure; the factor of parallelism therefore suggests a strong metrical beat at the beginning of this pattern. The extraordinary hypermetrical richness of this passage--combined, of course, with the dramatic shift to the minor--might account, in part, for its striking effect. The main point here, however, is that there are at least two reasonable interpretations of the passage which correspond to the two hearings of the Mozart and the Haydn examples discussed above.

Finally, let us consider Schenker's example: Mendelssohn's Symphony #3. In some ways, this example is similar to those discussed above. One interpretation is implied by the accompaniment and the preceding context; another is implied by the melody. This case is slightly different from the others, however; for one thing, the theme is unusually long, involving two repeated four-measure phrases. More interestingly, the bass-line--rather than being compatible with either hearing--strongly favors hearing B. The B in the bass at m. 190, under an E minor harmony, would be highly unusual at the beginning of a phrase; rather, it can only be heard as an arpeggiation down from the previous E, implying that the previous measure is strong. From this moment onwards, it is very difficult to entertain hearing A; the passage loses its ambiguity.[4]

On the whole, then, these four pieces--Mozart's 40th, Haydn's Op. 76 #1, the Waldstein, and Mendelssohn's 3rd--all present strikingly similar situations. In each case, one hypermetrical interpretation is favored by the grouping of the melody (and, in the Mozart and Beethoven, the setting of the cadence); another interpretation is favored by the preceding context and the accompaniment texture. The same phenomenon is found in a number of other pieces; not only is the closing theme ambiguous, but we find, to a large extent, the same cluster of factors favoring the two interpretations. A few other examples are Beethoven's Sonata Op. 31#3 (mm. 82-8), Haydn's Symphony #104 (mm. 99-107), Mozart's String Quartet K. 458 ("The Hunt") (mm. 77-85), and Mozart's Serenade K. 525 ("Eine Kleine Nachtmusik") (mm.35-51). There is some variation in these cases in the factors that are found and the way they reinforce each other; and there are individual circumstances in each one that would merit discussion. But my main objective here is to focus on the general pattern that is common to all these cases. That such a pattern exists seems undeniable; and the fact that I can point to eight occurrences of the phenomenon, while hardly venturing beyond the Top 20 Greatest Hits of the classical period, is, I think, some indication of its frequency. Clearly, there is something to be explained here. In the following discussion, I will focus on the first three examples discussed above--Mozart's 40th, Haydn's Op. 76 #1, and the "Waldstein"--but the thrust of the explanation applies to the other examples as well.

Hypermetrical Ambiguity in Closing Themes: An Explanation

Consider the Mozart closing theme in isolation (beginning at m. 73). Somehow it seems appropriate for a closing theme; even on its own, it sounds "closural". It would seem much less appropriate as, for example, the first or second theme of a sonata movement (just as the first theme and second theme of this movement would be inappropriate as closing themes). What is it about this theme that makes it seem inherently closural? For one thing, of course, the theme ends with a cadence: not merely V7-I, but the more emphatic ii-I 6/4-V7-I. Also important, it begins not with a tonic chord, but with a less stable dominant (indeed, a V 4/2); this also makes it sound like an "ending phrase", since the normal shape of a period is from stability to instability back to stability again. (This pattern of departure and return is found in many classical themes--for example, the main theme of Mozart's 40th, in which the first four-measure phrase moves away from the tonic and the second phrase moves back; it also occurs in many four-phrase periods, such as rondo themes and variation themes.) Indeed, it seems clear that part of the function of the Mozart closing theme is exactly this: by resembling the final phrase of a period (both in its non-tonic beginning and its cadential ending), it adds a sense of closure to this section of the piece.[5] Now, in fact, it is not at all clear that this eight-measure phrase *is* serving as the final phrase of any period. Indeed, by the time the closing theme begins, the main action of the second theme group would appear to be over. This is true not only for the Mozart but for Haydn and Beethoven examples as well. In each case, the main second theme leads to an area of tonal instability--a departure from the tonic--which is then resolved in an extended, highly emphasized cadence.[6] (The cadence is emphasized in the Mozart and Beethoven by a fortissimo dynamic and an agitated, tremolo texture; in the Haydn, by an equally dramatic descent to piano and a

slow, chordal texture.) In Schenkerian terms, it would surely be this extended cadence that served as the main structural descent of the section; the closing theme then acts as a prolongation of this structural tonic. The function of the closing theme, then, is not to actually serve as the ending of a period, but rather to mirror this large-scale closure on a smaller level. By being inherently closural, it suggests that some kind of large-scale ending is taking place; it provides a easily-grasped cue to larger structural events.

How does the metrical structure of these closing themes relate to their closural function? This brings us to the issue of the interaction between meter and phrase structure. As mentioned above, it is generally agreed that phrase structure and metrical structure are in principle independent, and may be aligned in many different ways. It is also agreed, however, that a certain alignment of the two is normative: it is most common for the odd-numbered measures of a phrase to be metrically strong, and the even-numbered ones weak; the ending of a 4- or 8-measure phrase, therefore, is typically metrically weak.[7] This is reflected in hearing A of Mozart's 40th; indeed, as mentioned above, it is partly the fact that a melodic phrase seems to begin on m. 73 that makes us want to hear that measure as metrically strong. In this hearing, the cadence emerges as metrically weak, and therefore as a natural phrase ending. By this criterion, then, hearing A would seem to be more compatible with the "closural" nature of the phrase.

The role of meter here is complex, however. While it is true that a cadential tonic on a weak measure is in a sense normative, it is also true that metrical strength reinforces the stability and finality of an event. This is a delicate point, requiring some explanation. Metrical accent is, in principle, independent from tonal accent, as it is from phrase structure; tonally important events need not necessarily be metrically strong, and indeed,

often are not. Even so, it is clear that the structural importance of an event can be greatly affected by metrical accent. A simple example can illustrate this point. Each of the segments in example 6 sounds like an ending of some kind. But while the first two examples could only the be end of a phrase, the last example could be the end of a period (or perhaps even a short piece). The reason is that it is only in the last case that the cadential tonic has sufficient metric strength to qualify it an event of primary structural importance.[8]

Now, at the conclusion of an extended section of music such as a sonata exposition, we might expect to find a structural ending that is metrically reinforced in this way. Again, it seems clear that in the cases discussed above, the structural ending is the extended cadence just preceding the closing theme. If we examine these structural cadences, we find that, indeed, the cadential tonic in each case arrives on a hypermetrically strong measure (m. 66 in the Mozart, m. 72 in the Haydn, and m. 74 in the Beethoven). The closing theme cadence itself, then, is not serving as a structural ending here. But by being metrically strong, the closing theme cadence could reinforce the effect of the preceding structural cadence--again (but in a slightly different way), drawing attention to the large-scale closure that is taking place. This reasoning suggests that a metrically strong cadential tonic would be most appropriate for a closing theme. This raises a quandary, however. As noted earlier, a phrase is inherently more stable if its ending is metrically weak; if the ending is strong, it becomes unstable as a phrase ending. This quandary is illustrated in the Mozart. If we assume hearing B, the cadential tonic is now metrically strong; but note that this has an effect on the phrase structure as well. The cadence now feels less like the final measure of the previous phrase, and more like the

first measure of a new one. (These possibilities are illustrated in example 7.) There would seem to be a paradox: adding closural force to the ending of a phrase by giving it metric strength weakens its closural force by making it inherently unstable.[9]

This argument has an air of sophistry about it; yet it captures a real and important intuition. By hearing A, the closing theme in the Mozart is a fairly convincing final phrase; but the final tonic is metrically weak, and therefore, in a sense, lacking in structural force. It sounds like an ending, but not a big ending. By hearing B, the final tonic is, in one sense, a much stronger event; it now strongly reinforces the closural effect of the big structural tonic that preceded. But now, the cadential I begins to sound like the beginning of the following phrase, and the sense of finality is weakened. Now, that is, the cadential I sounds like a big event--but not like an ending! The impossibility of having a cadential phrase which is closural by all criteria is absolutely real.

It is here that metric ambiguity becomes useful. Suppose that, rather than choosing either hearing A or hearing B of the Mozart, we entertain both of them simultaneously. Hearing A gives us a conventional "final" phrase: the cadential tonic is metrically weak, and thus easily heard as a phrase ending. Hearing B, on the other hand, gives us a phrase whose cadential tonic is metrically very strong, and thus--in another way--maximally stable and closural. Somewhat paradoxically, then, the hypermetrical ambiguity of the phrase allows us to perceive the cadential tonic of the closing theme as "closural" by criteria which, within a single interpretation, would contradict. Metrical ambiguity creates structural clarity. This same explanation applies with equal force to the situations discussed in the Haydn quartet and the Waldstein sonata, as well as the other cases mentioned earlier. In each case, by creating a situation of metrical ambiguity, the

composer is able to present a cadential tonic which is both metrically accented and a convincing phrase ending.

It may be felt that this explanation is highly selective in its treatment of the evidence. By hearing A, the cadence of the closing theme is metrically weak but stable as a phrase ending; by hearing B, it is metrically strong but unstable as a phrase ending; by entertaining both hearings, we can understand it as being both metrically strong and stable as a phrase ending. But, one might suggest, if we entertain both hearings, we are at the same time hearing the cadence as metrically weak (by hearing A) and as an unstable phrase ending (by hearing B)! It is, then, a sort of zero-sum game. My response would be as follows. If we considered musical perception to be a sort of mechanical, objective analysis of the input, such a criticism would be totally justified. But musical perception is clearly not at all that way; it is highly top-down or "concept-driven" activity. At any point in a piece, we are actively *looking* for certain cues to reinforce our beliefs about where we are. At the end of the exposition, we are looking for cadential tonics that are a) clearly the ends of phrases, and b) metrically strong. If we have to find one of the cues in one metrical interpretation, and the other in another interpretation, then this is what we will do. We use our knowledge and expectations to interpret the input in the most appropriate way, to make as much sense out of the situation as possible.

Viewed in this way, the metrically ambiguous closing theme brings to mind the concept of a musical "schema". A schema is a higher-order concept that is abstracted from lower-order perceptual features of some kind. No single feature is necessary to the schema; it is defined as a "bundle" of features. Moreover, schema perception is a highly top-down activity; once we suspect the presence of a schema by detecting certain of its

features, we actively search for other features.[10] In this case, we might posit a large sonata-form schema, in which certain features are expected at certain points. At the end of the exposition, for example, we expect an emphatic structural cadence, followed by stable "ending-phrases" and emphasized, metrically-accented tonics. In addition, however, the examples discussed above suggest a more specific closing-theme schema in which these features are presented in a particular way. This schema involves a hypermetrically ambiguous phrase, with one interpretation reinforcing the previous metrical context and providing metrically strong cadential tonics, and the other interpretation providing internally stable ending phrases. The schema view also suggests a link with the "melody-accompaniment conflict" phenomenon discussed by Schenker, Rothstein, and Kamien. The "melody-accompaniment conflict" is itself a schema, which is composed of smaller perceptual features. It may occur in a variety of situations, as these authors show; but it is particularly common as a component feature of the more complex ambiguous-closing-theme schema discussed here.

It hardly needs to be said that this phenomenon, though common, is not universal, and that there are many closing themes which do not fit the schema. In some cases, a certain similarity to the schema can be found, in that hints of both metrical interpretations are present, but because of one contextual factor or another, one interpretation is completely dominant and there is no sense of ambiguity. Consider Haydn's Symphony #102, shown in example 8. This bears a superficial resemblance to the cases discussed above. At m. 92, we find a cadence on the tonic and a change in texture; in the following measure, an 8-measure closing theme begins, leading to a cadence in mm. 99-100. Thus we might expect to hear an ambiguity between hearing A and hearing B, as shown; but in

fact, no ambiguity arises. One reason is that here, the prior context of the passage makes measure 92-- the measure of texture change and tonic arrival--metrically *weak* rather than metrically strong. Moreover, the harmony moves to V at m. 93 and then stays there for 5 measures; thus the harmonic rhythm, too, favors measure 93 as strong. (This is unlike the cases discussed above, where the harmonic rhythm is such that a change of harmony takes place on each strong beat under either interpretation; thus harmonic rhythm is not a decisive factor.) In short, all factors point to hearing A except for the texture change; and this is not enough to tip the balance. In this case, then, Haydn creates a stable ending phrase, but one in which the cadential tonic is clearly metrically weak. Interestingly, this phrase is immediately followed by an irregular 5-measure phrase which lands on the tonic in m. 105; thus a metrically strong tonic is provided in another way. For a contrasting case, consider Mozart's Symphony #41 (example 9); this represents, in a sense, the other side of the schema. In this case, there is a potential metrical conflict at the half-note level. The previous context and accompaniment texture support the notated meter. The melody weakly suggests an alternative meter; if one considers the melody in isolation, one can easily entertain hearing A. Again, however, no ambiguity arises in this case. The decisive factor here is again the harmonic rhythm, which unequivocally supports hearing B (the placement of the bass notes is also a factor). In this case, then, Mozart chooses to emphasize the "metrically-strong tonic" effect rather than the "stable ending phrase" effect. The result is that the cadential I's of the phrase--while uncontested in metric strength--seem to lack finality; each one, while ending the previous two-measure phrase, seems to imply that another one will follow. And indeed, this closing theme *does* lack finality: it is followed by two other closing themes, each one repeated,

neither one of which offers us a convincing ending phrase. Mozart's strategy here, it seems, is to completely forego ending phrases, but to compensate for this with an unusually large dose of metrically-accented tonics.

This argument is offered, then, as an explanation of why hypermetrical ambiguity--and a certain kind of hypermetrical ambiguity--is so often found in closing themes.[11] It is, essentially, an explanation of compositional practice: that is, a hypothesis about why composers chose to write pieces in a certain way. But, at the same time, it is a highly "perceptual" explanation, in that it assumes that the choices composers made were highly constrained by the facts of musical perception and can only be explained in those terms. Beyond this, the current study points to two other general conclusions. First, it suggests that hypermetrical ambiguity may do more than simply provide continuity and tension (although in some cases it certainly does serve these functions); it may also offer a way of providing multiple perceptual cues which could not be combined within a single hypermetrical intepretation. More generally, the current study illustrates the tremendous complexity of the interaction between metrical structure and other kinds of structure in music. Metrical structure is, obviously, determined by low-level musical details such as texture, melodic grouping, and harmonic rhythm. Less obviously, once formed, it has complex effects on other higher-level (i.e. more abstract) aspects of perception: in this case, the perception of phrase structure schemas and structurally important events, and--at a still more abstract level--of large-scale structural boundaries. In this sense, metrical structure is best regarded as an intermediate level of representation, between very superficial aspects of structure and very abstract ones. Now that the idea of meter as a fundamentally independent musical parameter is fairly widely accepted, there is much

interesting work that could be done in examining how this level interacts with both lower and higher levels of musical structure.

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Footnotes

1. Regarding this point, see Schachter 1976, 303-7; Rothstein 1989, 11-13, 37-8; Lester 1986, 169-77; Benjamin 1984, 358-68; and Lerdahl and Jackendoff 1983, 25-34.

I should stress that some theorists hold diverging viewpoints on these issues, notably Berry (1983) and Kramer (1988). These authors agree with the view presented here in terms of the independence of metrical structure from other kinds of structure (see Kramer 1988, 86-7; Berry 1983, 304); but they differ from the "consensual" view on other points, as noted below.

2. See Schachter 1987, 16-17; Rothstein 1989, 13-14; Lester 1986, 160-1; Benjamin 1984, 403-13; and Lerdahl and Jackendoff 1983, 18-25. For a constrasting viewpoint see Kramer 1988, 112-20, and Berry 1983, 317-19; these authors maintain that meter is present even at the very highest levels.

3. See Schachter 1980, 197-205; Rothstein 1989, 33, 74-92; Benjamin 1984, 390-403; and Lerdahl and Jackendoff 1983, 25, 99-104. Lester diverges somewhat from this view, arguing that irregular hypermeters can very rarely be explained as deviations from regular ones (1986, 187-9). Kramer seems to concur with the consensual view here (1988, 98-107); Berry, however, maintains that meter is often pervasively irregular (1984, 317-19).

4. It is true that the melody continues to favor hearing A, notably the clear beginning of a melodic phrase at m. 190 as well as the melodic parallelisms in mm. 190-1 and 192-3. However, the strong pressure for hearing B exerted by the bass line overrides this factor.

5. I do not mean to suggest that any of the closing themes I have discussed really sound like the second phrase of a two-phrase "departure-return" theme. (For one thing, both the Haydn and Beethoven closing themes feature a tonic pedal.) However, they bear a significant similarity to such a phrase, since they begin on a non-tonic harmony and move to the tonic.

6. See Caplin for an insightful discussion of these structural cadences, which he calls "expanded cadential progressions".

7. For discussions of this point, see Rothstein 1989, 5-11, and Lerdahl and Jackendoff 1983, 32, 75-6.

8. This is not to say that all pieces must end on metrically strong beats; for example, many Mozart slow movements do not.

The interaction of metrical accent and tonal or "structural" accent is an issue which deserves further study. As mentioned above, it is only recently that theorists have realized that the two things are essentially distinct; but now that this point is generally accepted, there is a need to reexamine the complex relationship between the two. Among the few authors who have done so are Lerdahl and Jackendoff and Schachter. Lerdahl and

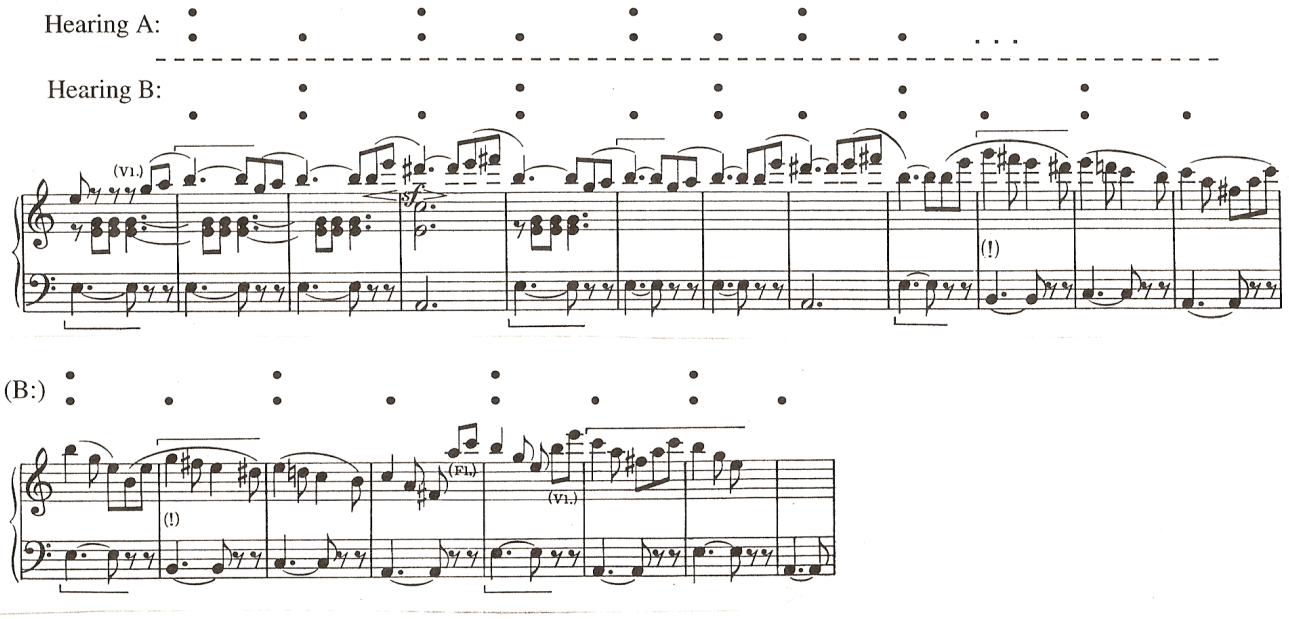
Jackendoff note on several occasions that the reductional importance of an event can be enhanced by a metrical accent (1983, 118-9, 160); this is captured in their Time-Span Reduction Preference Rule 1, which states that metrically strong events are to be preferred in reductional importance. Schachter notes that, although metrical accent and tonal accent are fundamentally distinct, "the two frequently coincide and one can add to the force of the other" (1976, 320). Schachter cites an excellent example in the Allegretto of Beethoven's Sonata Op. 14 #1: he notes that "[i]t is very instructive to compare the rhythmic effect of the final tonic [m. 51], which falls on a true downbeat, to that of the tonic that closes the first A section on a metrically weak bar" (1980, 220). Schachter does not elaborate on this difference in effect; what he means, I believe, is that the final tonic has a sense of structural arrival and closure which the earlier one does not, and this is due largely to its metrical strength. See also Schachter's discussion of the Bach Lute Suite in E minor (1976, 324).

9. There is yet another possibility besides the ones shown in example 7. The catential tonics could be regarded as metrically strong, with a phrase beginning and ending on each tonic, so that each phrase overlapped with the following one. Phrase overlap is a well-known and important phenomenon in classical phrase structure (see Rothstein 1989, 44-52). However, this interpretation is not really preferable to the others shown in example 7. The phrase overlap solution makes each the end of each phrase metrically strong, which is inherently unstable (notwithstanding the fact that each phrase ending is also a phrase beginning).

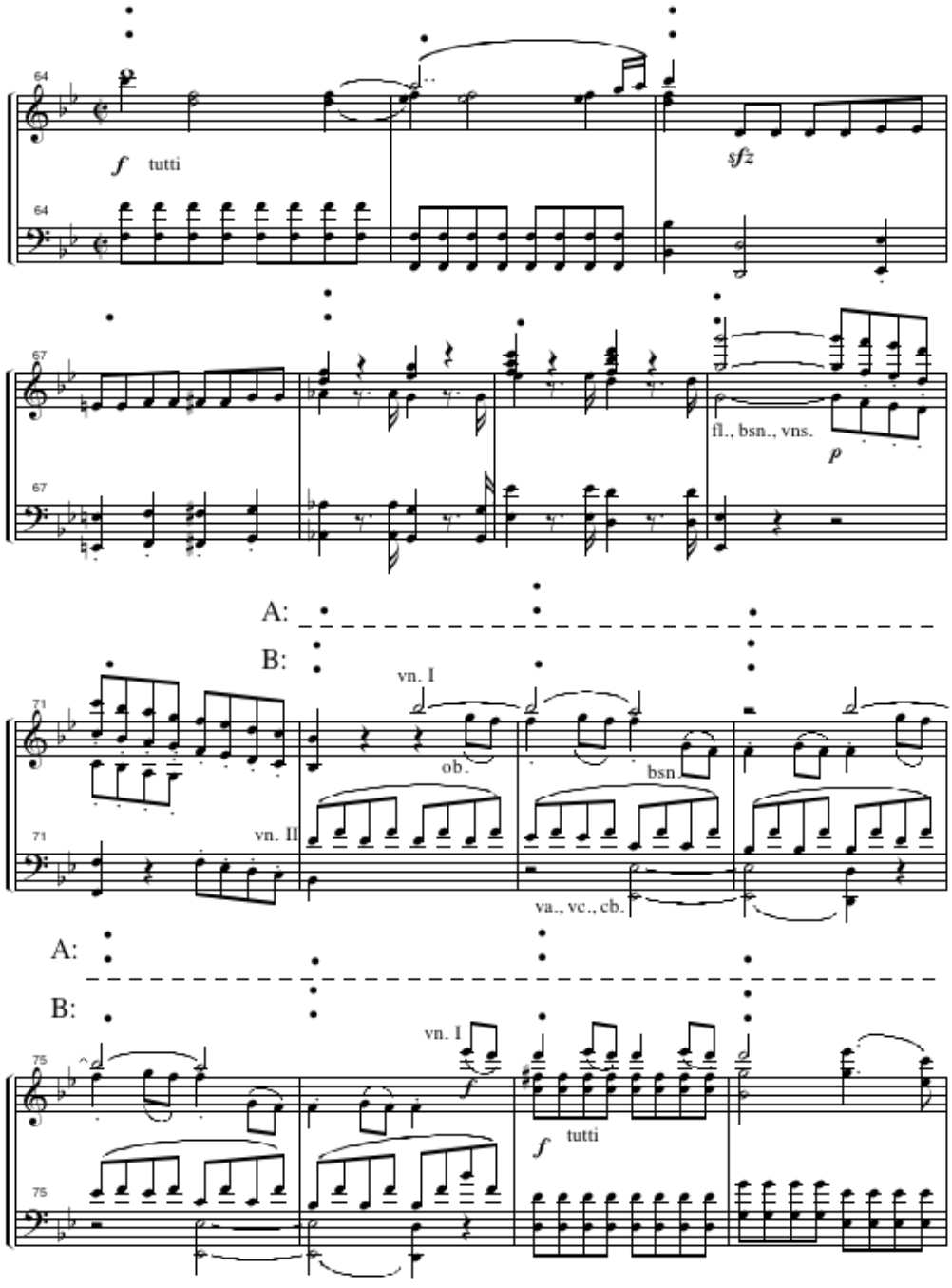
10. For an extended analytical study based on the "schema" approach, see Robert Gjerdingen, *A Classic Turn of Phrase* (1987). Gjerdingen examines a particular melodic schema (1-7-4-3) and its rise and fall in the classical period.

11. I have not shown that hypermetrical ambiguity is less common in other areas of sonata form; while my sense is that it is, I am unable to prove this.

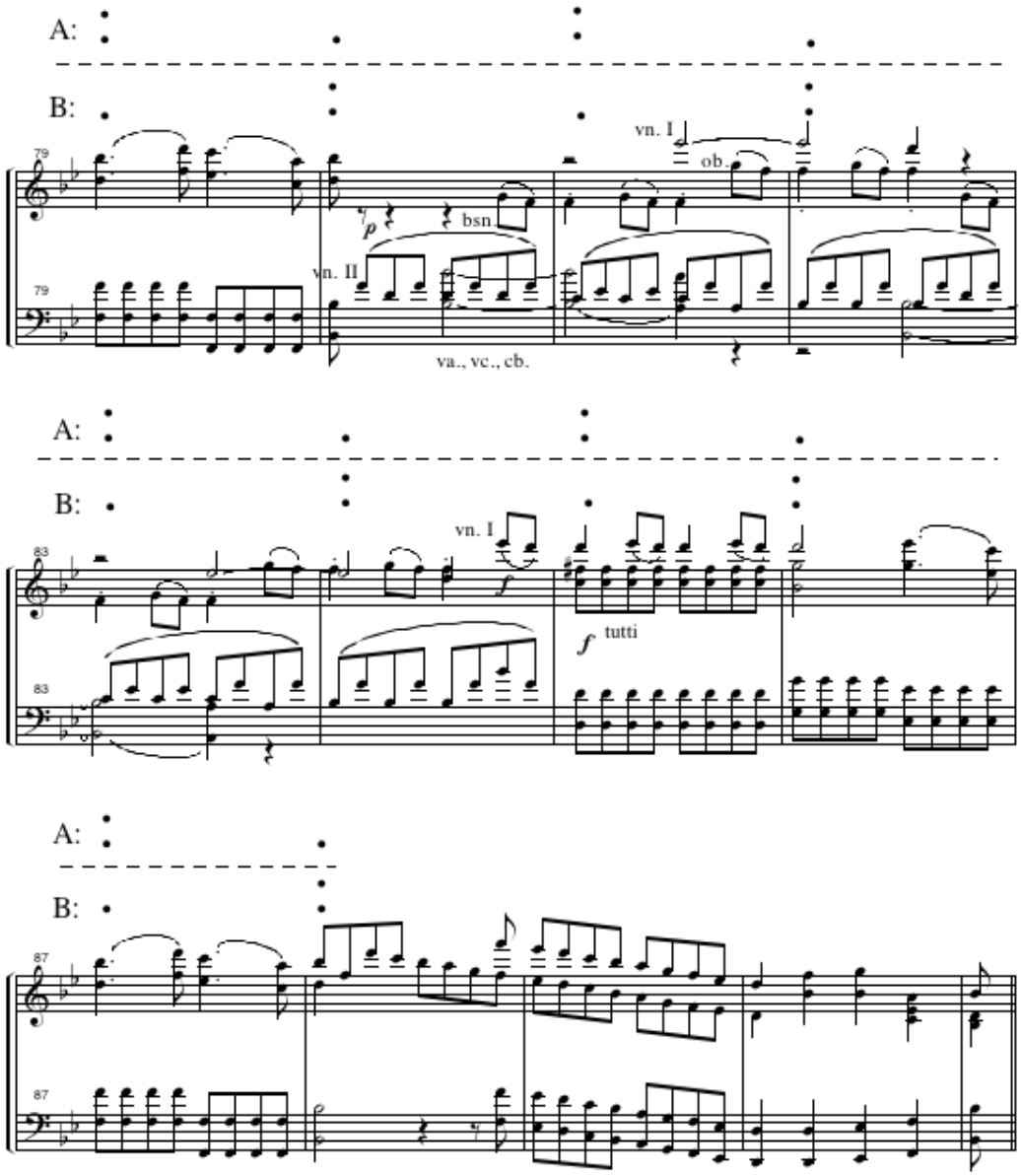
Ex. 1. Mendelssohn, Symphony #3, I, mm. 181-200. From Schenker, *Free Composition*, Fig. 147 #4.
(Metrical symbols added by the author.)



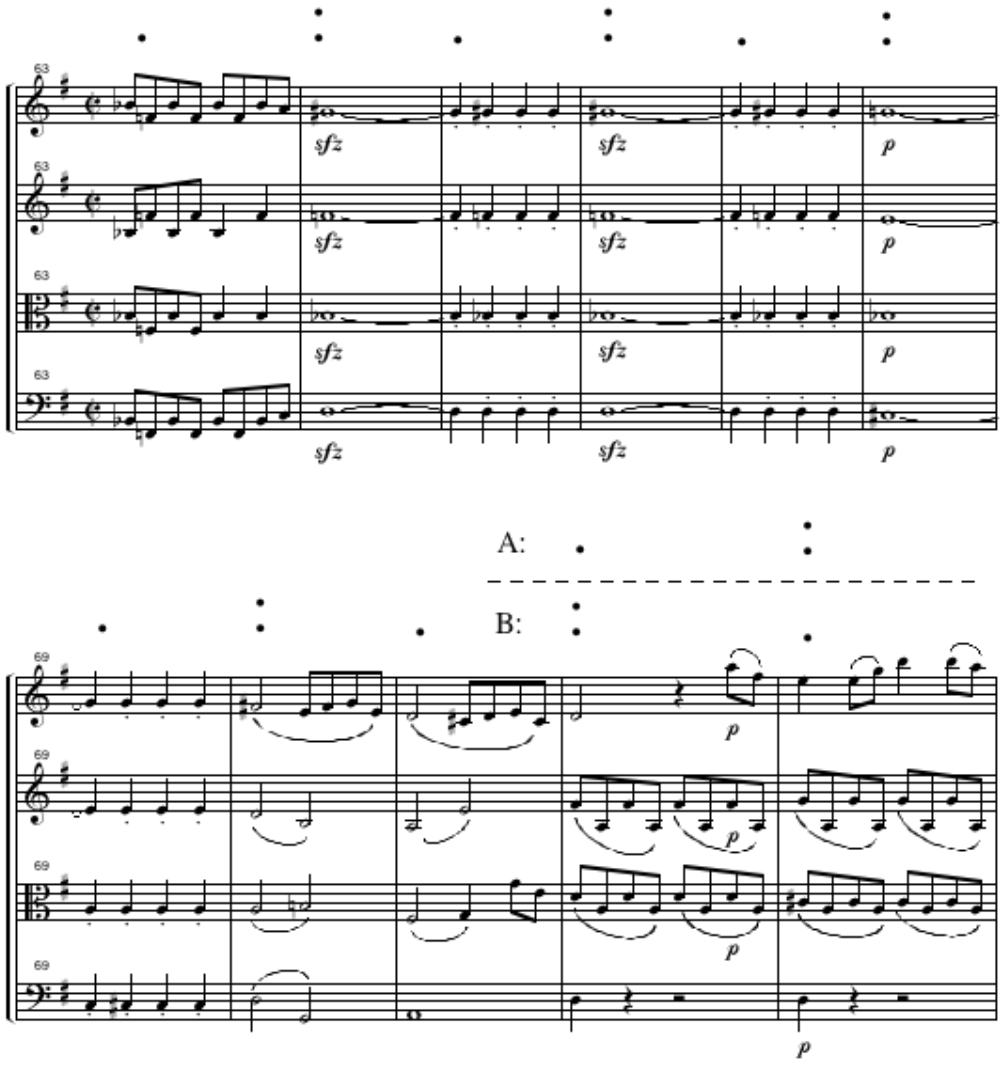
Ex. 2. Mozart, Symphony #40, I, mm. 64-91.



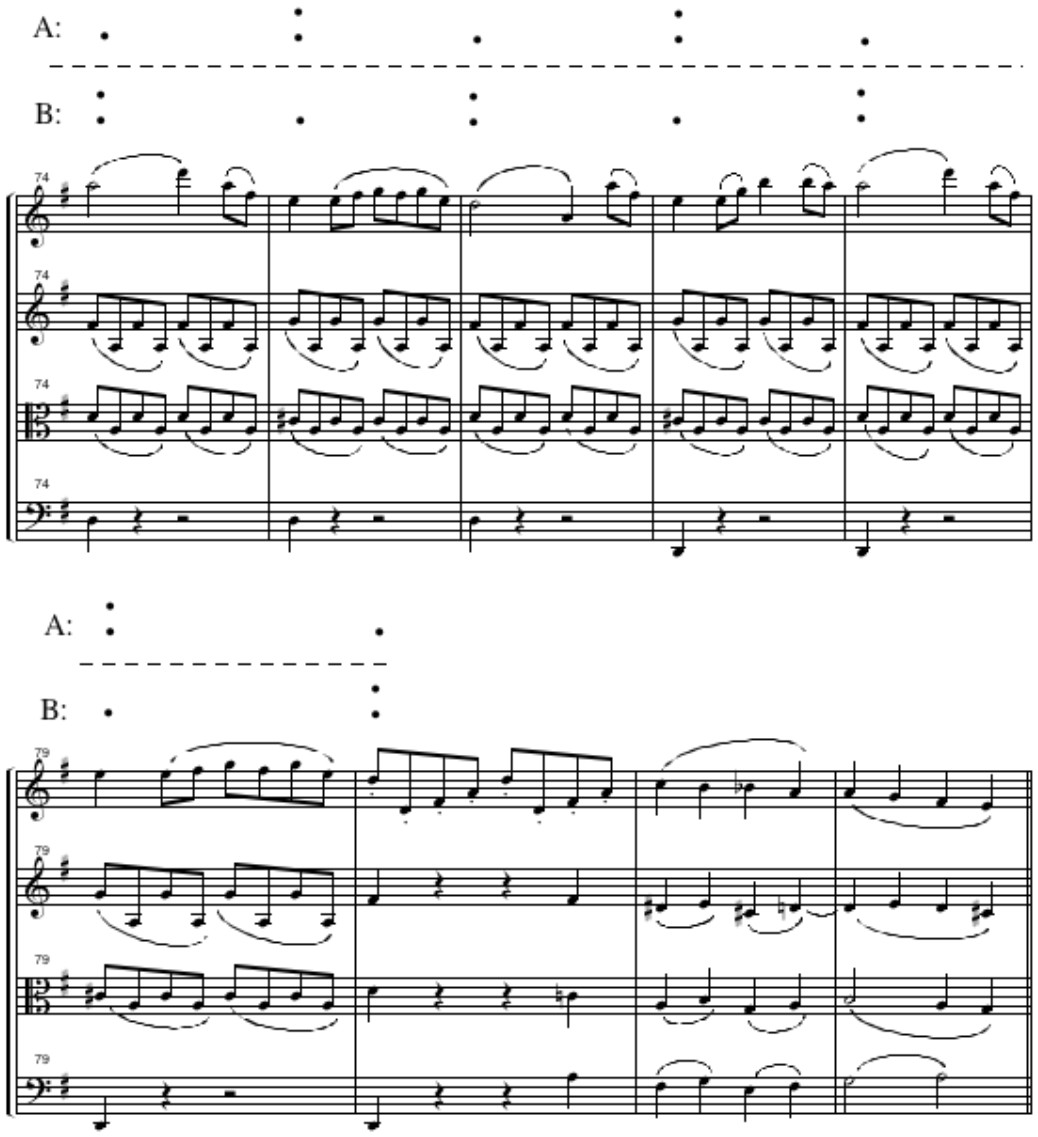
Ex. 2, cont'd.



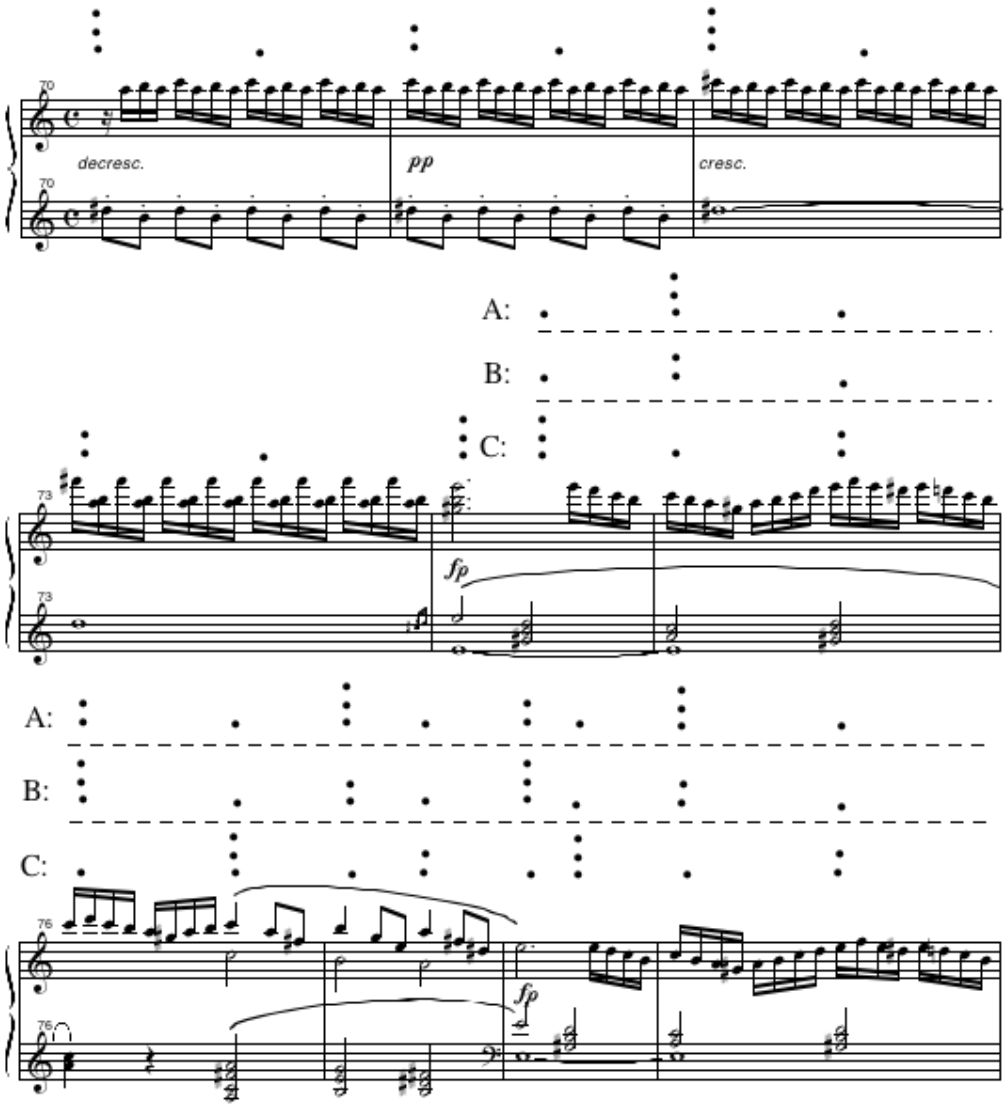
Ex. 3. Haydn, String Quartet Op. 76 #1, I, mm. 63-82.



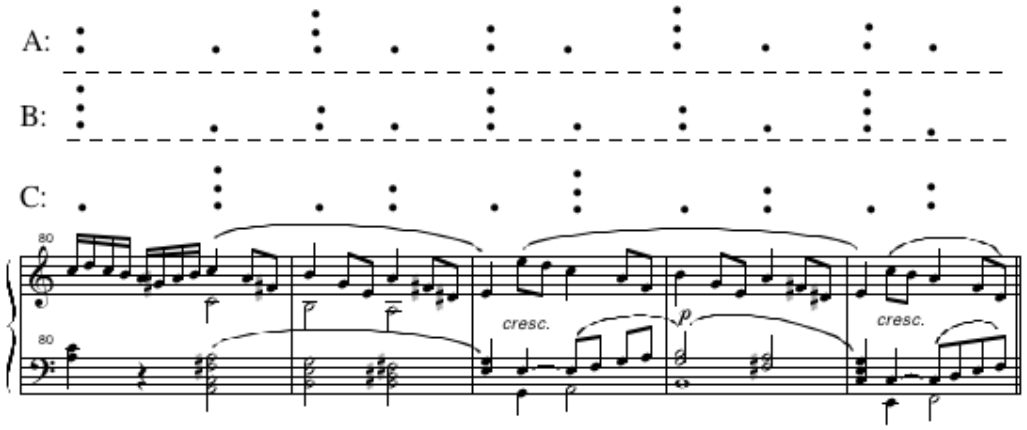
Ex. 3, cont'd.



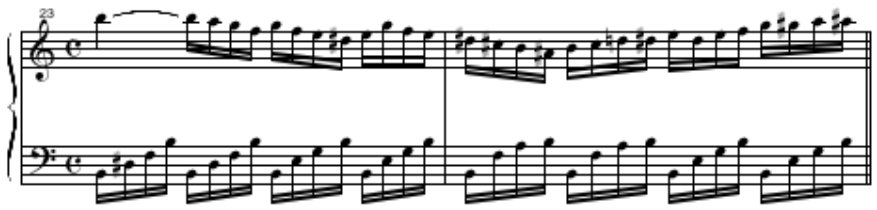
Ex. 4. Beethoven, Sonata Op. 53 ("Waldstein"), I, mm. 70-84.



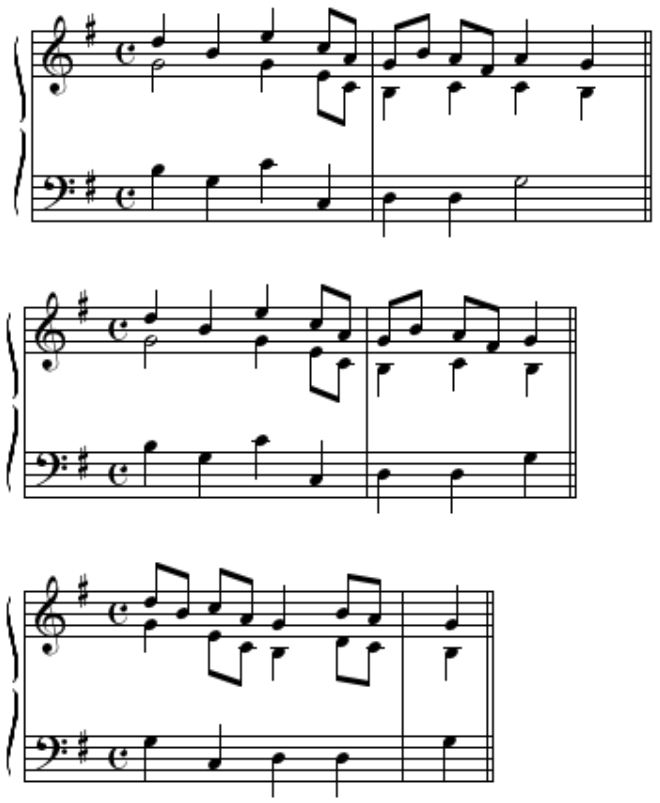
Ex. 4, cont'd.



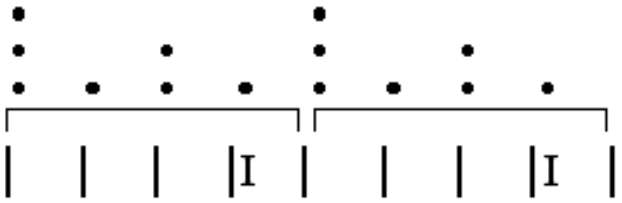
Ex. 5. Beethoven, Op. 53, I, mm. 23-4.



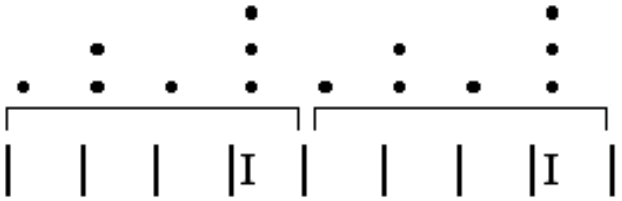
Ex. 6.



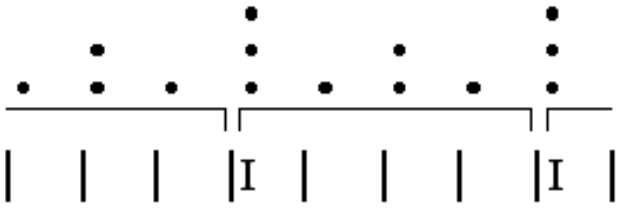
Ex. 7. Possible metrical-phrase structures for closing themes



Here, the alignment between meter and phrase structure is maximally stable. But the cadential tonics are metrically weak, and, thus, lacking in structural force.

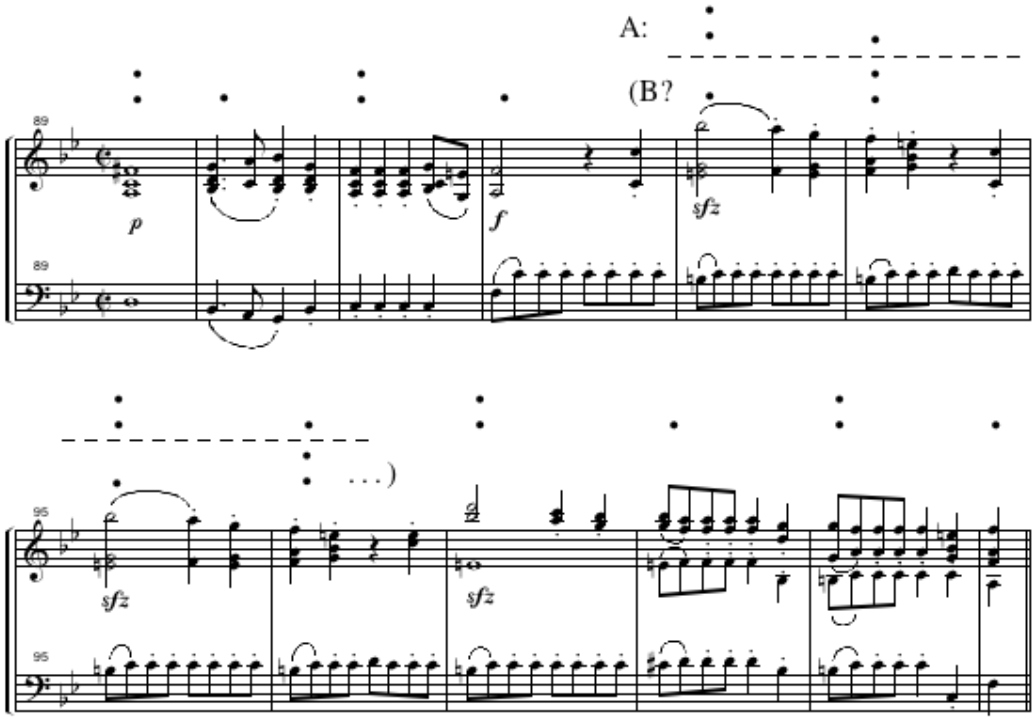


Here, the cadential tonics are metrically strong; but now the ends of the phrases are metrically strong, which is unstable. Given this metrical structure, we will tend to hear...



...this, where the meter and phrase structure are once again aligned. But now the cadential tonics are no longer at the ends of phrases; hence they are no longer good "ending phrases".

Ex. 8. Haydn, Symphony #102, I, mm. 89-100.



Ex. 9. Mozart, Symphony #41, I, mm. 99-109.