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21M.350 Musical Analysis
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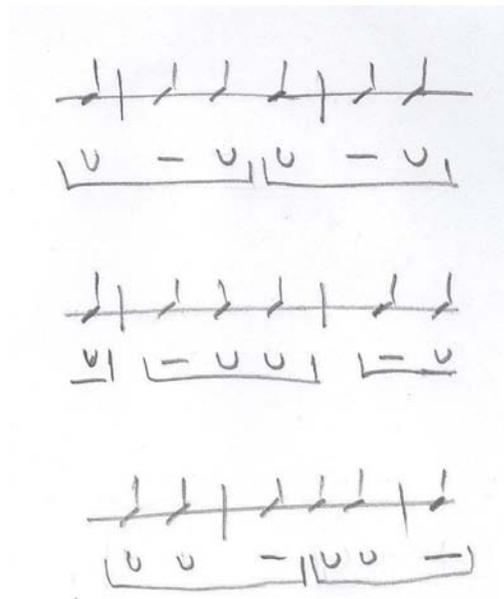
Rhythmic Structures in Mozart's Linz Symphony

This paper will examine factors in tonal music which influence our perception of rhythmic form and phrase. As with any highly developed art, there will be a multitude of factors which define such a concept as rhythmic phrase. In this paper I will look closely at the discernable qualities in the music which can help us form an intelligent conception of why the rhythm is (or perhaps is not) heard as ambiguous or unusual.

The immediate structural details which deserve a large portion of attention are meter (and its relationship to the rhythmic patterns of the music) and the prevailing harmony. Latent elements such as relationship to form, and texture (e.g. contrapuntal or singular) will also be examined in detail.

The piece of music which will be used for the subsequent analysis is from Mozart's Symphony No. 36, otherwise known as the Linz Symphony. It was written in 1783 as Mozart was travelling through the Austrian town of Linz toward Vienna. The local count announced, upon hearing of Mozart's arrival, that there would be concert. Mozart allegedly had no scores with him and wrote the symphony in four days to have it premiered on time.

The portion of Mozart's work which will form the basis of the rhythmic analysis is the Minuet and Trio. In dealing with triple meter it would be advantageous to first briefly look at how rhythmic phrases typically fall in such a framework. Triple patterns can be of three kinds – the amphibrach, dactyl and anapest.



Amphibrach

Dactyl

Anapest

We have here adapted a form of notation similar to that of Cooper and Meyer¹. ‘-’ represents a metrically accented beat whereas ‘∪’ represents a metrically unaccented beat. The bracketed groupings are an indication of rhythmic phrase. It is worth pointing out that inherent to triple meter is a very strong sense of an ‘upbeat’, and therefore, the amphibrach is a very natural way to hear triple meter.

In the above example, which is from Mozart’s Minuet in G K1 (a somewhat simple, perhaps archetypal illustration), we can see how the amphibrach pattern can easily (and justifiably) be perceived once the initial upbeat is heard. The dactyl requires that much of the structural stress coincides with the metrical stress, which results in more predictable and less flowing patterns. Note that this is a broad generalization, but still useful in terms of comparison and contrast of rhythmic feet. Finally, the anapest requires that the majority of each measure be heard as on upbeat to the downbeat of the following measure. In some sense, the amphibrach can be considered as a compromise of the other extremes – and therefore more easily heard as a natural and flowing pattern in triple meter. The reason for these comparisons is to try to elucidate whether rhythmic ambiguity arises from use of less predictable feet in situations where we are led to expect something which conforms more to a preceding or preconceived pattern.

Before we look at examples from the music, I will briefly introduce the issue of contrapuntal versus singular rhythmic analysis. In general, music is perceived in performance as a composite texture of many musical parts. Does this mean that we can justifiably analyze the music in terms of singular lines? Or is it essential to study the lines individually to understand how the unique composite rhythmic pattern arises? Or are these elements inseparable and only comprehensible in light of each others’ qualities? I will not be able to answer any of these questions definitively, but examination of the music with reference to these questions will certainly be useful in terms of understanding the inherent rhythmic structure of the music.

Below is the first extract from Mozart’s Minuet and Trio, which is taken from the first few measures of the movement.

¹ Cooper and Meyer (1960). *The Rhythmic Structure of Music*

MENUETTO.

Oboi. *az.*
Fagotti. *az.*
Corni in C.
Trombe in C.
Timpani in C. G.
Violino I.
Violino II.
Viola.
Violoncello e Basso.

Courtesy of IMSLP.

An analytic representation of the score is presented below.

EXAMPLE 1

OB
VLN
HRN (VLA) (BS)
BSN
TMP (TUT)

U - U U U - U U U - U U U - U U U
< (<) < (<) (<) <

In reducing the orchestral score I have already made assumptions about the composite nature of the music – namely that the parts that I have reduced the excerpt to are the fundamental contrapuntal contours of the music. What is lost is the full sense of instrumental texture which is only ever fully realized by the entire score. The reduced representation (“example 1”) has been notated in various ways. The metrical accents, as described in the opening paragraphs, are marked throughout. The rhythmic phrasing or feet are shown by the indicated brackets. The arrows denote points of particular structural interest. Finally, the *marcato* accents indicate structural stresses which I will examine in each individual case.

In listening to Mozart’s opening it may be difficult to determine a constant rhythmic trend throughout. The upbeat at the very beginning strongly implies the amphibrac pattern (as in the Minuet in G K1). However, the structure is shifted almost immediately as we are denied an ‘upbeat’ in the second measure; rather, the music seems to group with what came before (dactyl). This pattern continues such that we begin to feel a regular dactylic pattern, until our expectations are once again reversed when the half cadence in the fourth measure falls in beat two. The oddity of this cadential point arises from the rhythmic asymmetry of the phrase. A regular pattern has just been established but is suddenly negated at a structurally significant point. Furthermore, the slurring of the notes *into* beat two (the cadential chord) somewhat detracts from the metrical accent on beat one and empowers the arrival in beat two (a ‘tonal’ accent). Of course, this construction goes against the intuitive sense of cadential and metrical accents aligning, but this is precisely how Mozart creates subtle and interesting ambiguity in the music. This necessitates, in the analysis, a combination of dactylic, amphibrac (and in fact anapestic in measure four/five) feet. Finally, it is interesting to note the presence of the rhythmic pattern that follows the cadence, namely the ‘dotted eighth – sixteenth’ followed by quarter notes pattern. This will be examined in detail later as it provides a very interesting kernel for discussion of metric ambiguity. The effect here, however, is to immediately establish momentum following the cadence – so much so, in fact, that the measure is structurally saturated with accents (metrical on beat one, structural (slur) on beat two and structural on beat three due to the initiation of this new rhythmic pattern). This further lends to the rhythmic idiosyncrasy of the music.

In terms of contour, the patterns in measure one and two can be seen to descend and then ascend in measure three in approach to the cadence in measure four. The singular structures tend to align with these general contours. What is more significant here is the placement of rests in the singular voices. The lead voice (notated on the top staff) prominently features a pattern of a half note slurred into an eighth note followed by a rest (indicated by the arrow). The rests here explicitly deny us the chance of hearing amphibrachs throughout. Furthermore, the initiation of the amphibrac idea on the first upbeat creates an unusual feel in the half note (which might be expected as two quarter notes), and although the other voices fill in this space on beat two there is a registral significance to the long lead note which produces an *implied* accent on beat two. In some senses this could be thought of as an accent because of *lack of accent*. This construct makes the accent no less significant, as it is perfectly justified to feel abstract accents due to a composer’s idiosyncratic phrase, and perhaps even more significant because this type of accent is undoubtedly more rare than conventional structural accents. These were notated in the example by bracketed *marcato*s. The other point notated in this way is beat one of measure four. This point is marked because it is in fact a metrical accent, but this sense is strongly negated by the slurs to beat two, which effectively transfer some of the structural accent from the downbeat.

The following example is taken from measure 11 of the music.

EXAMPLE 2

DB VLN

HRNS

BSN (VLA) (BS)

TMP (TPT)

ETC.

SVA (TPT)

> (>) > (>)

The full score of this part can be found in the appendix – example 1 indicated the nature of the analytic reduction from the scored part so it is not necessary to show the full part in every subsequent instance.

This example is similar to the first in many respects. The main difference arises from the contour in the lead voice, which is now ascending. A pattern of large intervals into the third beat could be very suggestive of amphibrabic phrasing, although Mozart still insists upon the eighth note rests. Therefore it seems reasonable that again the phrasing is initially amphibrabic and then immediately morphs into a dactylic pattern. The characteristic intervallic ‘upbeats’ are therefore a subtle reminder that the rhythmic patterns are not as clear cut as perhaps we may assume on initial scanning of the score. It is worth noting also that the supporting voices suggest a constant dactylic pattern.

The following example concerns an extract from the music which contains the most rhythmically ambiguous motif found in the minuet (bracketed below). The pattern is first introduced in measure 4.

4

V V7 I

Here, as alluded to in example 1, we see the dotted eighth – sixteenth leading into a measure of quarter notes. Also similar to example 1 is the arrival of the cadence on the *second* beat. In fact, the arrival on the tonic is so emphatic that one's sense of metric security might be upset. However, the registral and structural accent (the trill) on beat one still give us the sound sense of a downbeat. Thus, if one agrees with this analysis, then the metrical structure is unambiguous but the harmonic structure is displaced. We may want to know, then, what must be done in order to achieve a distinct *undermining* of meter, as opposed to a lesser structural displacement? The following example a more powerful sense of metrical ambiguity is suggested.

18

V7/ii ii

Here the same (bracketed) pattern appears. The cadence (in C: V7/ii – ii) is functionally identical and the resolution still falls on the second beat. What is structurally very significant now is that the downbeat of measure 20 features no registral accent (as seen at measure 6). The trill can be seen to provide something of a structural emphasis but in the context of the cadential progression and the lower register it is perhaps more reasonably heard as an upbeat. Thus the pattern preceding the cadence truly feels as if the dotted eighth – sixteenth pattern launches a measure of $\frac{4}{4}$ directly into a 'downbeat' on beat two of measure 20. This can be represented as follows-

18

etc...

4 3 3

4 4 4

I should stress that this interpretation is not in any sense a definitive hearing of the music. In fact, I rather hear the music as in triple meter throughout, but with polyrhythmic undercurrents due to the phenomena described above. This leads me to the suggestion that it is in fact possible to hear both triple (primarily) and other meters superimposed upon it simultaneously (analogous to a palimpsest in written manuscripts). Furthermore, I believe that music which allows for this kind of interpretation and hearing has in fact succeeded in creating an inherently interesting musical structure. This aside, the functional effect of the lower register and the harmonic displacement on the metric structure can be seen clearly in this example.

It will also be useful also to examine a section containing this distinctive pattern in terms of rhythmic feet. An analytic reduction of the music from measure 22 is shown below.

EXAMPLE 3

The image shows a handwritten musical score for Example 3, measures 22-23. The score is in 3/4 time and features four staves: Oboe (OB), Violin (VLN), Horns (HNS), and Bassoon (BSN). The music shows a rhythmic motif of a dotted eighth-sixteenth note followed by a quarter note. Below the score is a rhythmic reduction diagram with arrows and labels 'V - I' and 'V/IV - IV' pointing to specific beats. The diagram also includes circled greater-than symbols (>) and question marks to indicate structural analysis.

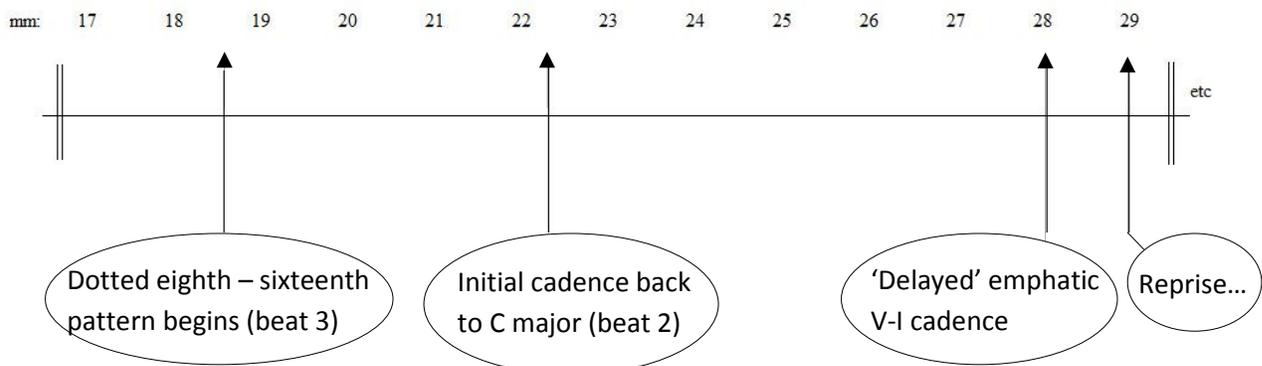
The initial dotted eighth – sixteenth is an upbeat, but also carries some structural emphasis due to its placement (following directly from a cadence). It also carries *motivic* stress since it is a very specific pattern which appears only in the context of the three following quarter note pattern. Therefore I have marked it with a bracketed marcato. The quarter note pattern in measure 23 is inherently dactylic, so the downbeat must pivot from an iamb to a dactyl to accommodate this change in feel. This pattern also seems to be dactylic due to the preceding sixteenth note ‘launching’ the quarter note pattern, and transferring structural stress to the downbeat. However, the following cadence must be grouped as an amphibrach because of the resolution on beat two - it seems essential that we group the tension and resolution together in this case (I have shown a bracketed marcato leading to a marcato to indicate the transfer of structural accent to the cadential point). As a result, we have implied *two* separate metric overlaps in measure 23. This in itself could be a sound indication that Mozart is playing games with the rhythmic patterning and that there is justification for hearing the rhythm as interesting or ambiguous.

If we were to apply a parallel analysis to measures 19 – 20 (which feature the same rhythmic motif) we may be forced to drastically alter our grouping to account for the implied change in meter. However, such a grouping analysis is limited in its notation as there is no way to represent an implied metric alteration. One could conceive of a layered structure based on superimposed structures which would notate both the conventional metric analysis and an altered analysis (incorporating a change in meter) simultaneously. Nevertheless, I think this would be ineffective, and it seems that more insight would be gained in analyzing the music as simply as possible according to the notated meter and then considering any *implied* metric feel through the existing framework provided by this Cooper & Meyer style analysis.

In any case, this analysis would come out identical to example 3. The difference between measures 20 and 24 is, of course, the all important registral accent (or lack thereof cf. m.20), which was the main justification for the implied $\frac{4}{4}$ meter at measure 19. In the grouping analysis, however, there is no other way we can describe the cadence differently to further stress the second beat. An amphibrach lends the most emphasis to the second beat since the dactyl treats it as an intermediate element and the anapest suggests it has much more of an ‘upbeat’ quality. The conclusion here is that rhythmic subtleties beyond a certain level of complexity are lost in a Cooper & Meyer style analysis. What is reassuring here, however, is that the brackets marked “?” in example 3 are the very points where we felt a change in meter was implied. This is also the point that the Cooper & Meyer style analysis picks out as being distinct, due to the dense overlap of metrical feet.

We should note that the composite pattern felt here is very similar to the singular pattern in the lead voice. This is obvious in that the only other voices that have parts adopt a very supportive role in the music. Thus, metric ambiguity is arising from harmonic and rhythmic elements, rather than contrapuntal voices. There is more detailed interaction between the voices in example 1 as the entry of the horns on beat two can be felt as reinforcing the implied stress (on beat 2, as discussed above) in the lead voice. Here we can say that the idiosyncratic rhythmic detail is very much intertwined with the contrapuntal structure of the music.

Finally, given that we are studying a minuet and trio, we would expect each rounded binary to contain a reprise. The modulation from the dominant key of G to the home key of C is strongly suggested at the tonic C chord in measure 22. Following this is another V-I further outlining the tonic of C, until finally we hear a satisfactory cadence on the downbeat of measure 28. (Note that this is one of the few cadences that actually resolves on beat one.) Only after this do we see any form of reprise, indicating that the original modulation back to C does not coincide with the reprise, as expected. In the context of the pattern introduced in measure 19, we see that not only does it introduce rhythmic ambiguity, but it is accompanied by a structural displacement in the traditional form of a minuet and trio.



The final musical example is taken from the reprise of the trio, at measure 48.

EXAMPLE 4

In this example we are forced to address the issue of contrapuntal versus singular parts in terms of rhythmic analysis since the imitation of the lead line provides us with two distinct voices. The singular voices would be simple to analyze if isolated-

However, the compound structure presents us with some problems. Example 4 shows how two overlapping feet may be used to describe the pattern. The amphibrach foot initiates the pattern on the first upbeat, and indeed, another amphibrach must be used at the start of the imitation. However, we still have to account for the ending of the first pattern on the first beat of measure 50, along with the supporting voices in measure 50. The anapest seems adequate at the end of measure 50, and the preceding and following anapests can be justified by considering them as a termination of the top staff lead voice phrase. The result of this analysis is a repeating, overlapping pattern of amphibrachs and anapests. It is questionable how useful it is to maintain an entirely new layer of feet; after all, the pattern could be described more simply by the amphibrach pattern alone, treating the imitation as nothing more than that. Also noteworthy here is that we are in no danger of feeling metric ambiguity since our ear is well accustomed to hearing imitative patterns. The significance is therefore a sense that it may well be more instructive to label rhythmic groupings in terms of the most fundamental structure possible (considering, for example, the lead voice as carrying most of the structural weight) and build up a description of the more involved and perhaps more subtle elements independently of this notation. Consequently, the more detailed examples of overlap of metric feet (as in example 3) can be reserved for indication that something more fundamentally intricate is occurring in the rhythmic structure.

In summary, we have discovered that a Cooper and Meyer style analysis can be very limiting and somewhat ambiguous if it is stretched beyond its intended applications. It was useful in distinguishing the metric overlap in the pattern in example 3, however, we saw that application to cases such as alternate meters or imitations can be confusing. In these cases it would be better to allow the rhythmic analysis to form a fundamental groundwork for further analysis which would be done without this notation.

Contrapuntal structures were shown to influence groupings (e.g. the structural weight of the secondary voices in example 1), but, similar to what we found in the Cooper and Meyer analysis, it seems advantageous to simplify the compound structure as far as possible. This is obvious in example 4 where treatment of the lead voice as structurally superior to the imitation allowed us to group the music as amphibrachs, with little notational confusion. Caution must be exercised, however, in any reduction of the compound structure, to ensure elements that are in fact vital to the music are not lost.

Finally, as I alluded to in my introduction, the amphibrach is a very natural way to hear triple meter. In almost all the examples where rhythmic ambiguity is present, we see an amphibrachic pattern shift to another metric pattern due to structural accents. This is interesting because it suggests that the music is capitalizing on the sense of what we want to hear naturally and working against it. Overall we can conclude that any instance of rhythmic subtlety in the music can arise from a range of combinations of rhythmic, motivic, harmonic, and contrapuntal elements (as well as any range of structural accents). Suitable analysis of such points requires due consideration of all of the above, as well as acknowledgement of form and more general qualities of the music.

Appendix - Below is a copy of the full score for reference.

MENUETTO.

The image displays a page of a musical score titled "MENUETTO." The score is written for a full orchestra and includes the following parts: Oboi, Fagotti, Corni in C, Trombe in C, Timpani in C. G., Violino I, Violino II, Viola, and Violoncello e Basso. The music is in 3/4 time and begins with a forte (f) dynamic. The Oboe part has an accent (a2) over the first note. The Violino I part features trills (tr) in the later measures. The score is presented in a standard musical notation format with various clefs, time signatures, and dynamic markings.

Courtesy of IMSLP.

The first system of the musical score consists of six staves. The top two staves are vocal lines, both marked with *a. z.* (ad libitum). The piano accompaniment is spread across the bottom four staves. The music is in a 3/4 time signature. The first vocal line begins with a *p* (piano) dynamic, while the second vocal line begins with a *f* (forte) dynamic. The piano accompaniment features a steady bass line and chords in the right hand. The system concludes with a *f* dynamic marking.

The second system of the musical score consists of six staves. It begins with a *f* dynamic marking. The top two staves are vocal lines, and the piano accompaniment is on the bottom four staves. The system is divided into two parts by a vertical bar line. The first part continues the previous system's dynamics. The second part is marked **Trio. I.** and features a change in time signature to 3/4. The piano accompaniment in the Trio section is marked *sempre p* (piano throughout). The system concludes with a *f* dynamic marking.

The first system of the musical score consists of two systems of staves. The upper system contains a vocal line in treble clef and a piano accompaniment in bass clef. The piano accompaniment features a steady eighth-note pattern in the right hand and a more active bass line in the left hand. A first ending bracket labeled 'I.' spans the final two measures of the system, with a piano (*p*) dynamic marking. The lower system contains two systems of staves for a grand piano, with the right hand in treble clef and the left hand in bass clef. The piano part features a complex texture with sixteenth-note runs in the right hand and a bass line in the left hand.

The second system of the musical score continues the composition. It features a vocal line in treble clef and a piano accompaniment in bass clef. The piano accompaniment maintains the eighth-note texture from the first system. A first ending bracket labeled 'I.' spans the final two measures of the system. The lower system contains two systems of staves for a grand piano, with the right hand in treble clef and the left hand in bass clef. The piano part continues with its intricate sixteenth-note patterns and bass line.

Minuetto da Capo.