METER MATTERS

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People move to music. We dance, march, tap our feet, bob our heads, swing our arms—in time to the beat. In other words, we entrain our bodily rhythms to those of the music we hear. We may sing tunes, but we *feel* meter. Yet we often take meter for granted. Whether we are primarily performers, composers, or students of music, we rarely question what meter is or how it operates. Several music theorists have concerned themselves with meter (and with rhythm, which is not at all the same thing). These theorists have proposed various ways to understand meter—ways that often disagree in nuance or even in fundamental principles. This article uses some of their more cogent ideas on meter to offer an introductory overview to this fascinating topic. Its aim is to provide a vocabulary and a set of precepts to enable students to talk about and analyze the experiences of listening to and performing meter in tonal music.[1] A bibliography is given at the end for those who wish to read further about musical meter. This article assumes that the reader has some background in tonal theory, such as would be acquired in a first-year course in harmony.

First, an informal definition. Let us say that **meter is a more or less regularly repeating pattern of strong and weak beats.** This unassuming explanation needs some further exegesis. Why is the regularity "more or less"? What exactly *is* metric regularity? What makes a beat strong or weak? And just what is a musical beat? We will attempt to answer these questions.

To understand what a beat is, we need to introduce the concept of a timepoint, which we should contrast to a timespan. A timepoint is an infinitely short instant in the temporal continuum, while a timespan is a finite duration bounded by beginning and ending timepoints. A timespan (whether a note, chord, silence, motive, phrase, or whatever) has a specific duration, while a timepoint really has no duration. We hear events

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[1]Some of the ideas presented here can be applied to pre- and post-tonal music, but with caution. Non-tonal music is often far less regular metrically, and some of what defines the metric regularity of tonal music—in particular chord changes—depends on a clearly defined harmonic functionality, which does not characterize a lot of post-tonal music. The harmony that influences meter need not be tonal, but the regularity and clarity of tonal harmony make it particularly relevant to the articulation if not creation of musical meter.

that start or stop at timepoints, but we cannot hear the timepoints themselves. A timepoint is thus analogous to a point in geometric space. By definition, a point has no size: it is not a dot on the page, although a dot can be used to represent a point. Similarly, a *staccato* note or the attack of a longer note necessarily falls on and thus may represent a timepoint, but a timepoint in music is as inaudible as a geometric point is invisible. A geometric point may mark the end of one line segment and the beginning of the next, as shown in Example 1. Point Y marks the end of line segment XY and the beginning of line segment YZ (reading from left to right). Similarly in music, a timepoint may mark the end of one timespan (represented by a note, rest, measure, etc.) and the beginning of the next timespan. In music the temporal continuum has one dimension (extending from earlier to later), but a timepoint has no temporal dimensions. Musical events give us information about which timepoints are significant, but we intuit rather than literally hear the musical importance of each timepoint.

Example 1. Geometric lines segments and points.

X Y Z
/))))))))))))))))))3))1

Just as there is an infinite number of points between any two points in geometric space, so there is an infinite number of timepoints between any two timepoints in music, no matter how closely together they occur. Not all these intervening timepoints are important, however. Meter singles out certain timepoints from the infinite succession and marks them for musical significance (accent). These timepoints are beats.

A strong beat is an accented beat; a weak beat is unaccented.[2] The concept of musical accent is critical to musical structure. Performers may feel that an accent is an emphasis they add to a note, as indicated in the score (by, for example, the symbol >) or as decided on intuitively in the process of interpretation. But there are other meanings of the term *accent.* To see that there are different types of accents, consider the musical excerpt in Example 2.

Example 2. Mozart, Piano Sonata in C Major, K. 309, second movement, mm. 1-4.

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[2]As we will discuss presently, the terms *strong* and *weak* are relative: a particular beat may be stronger than the beats just before it or after it, but simultaneously weaker than beats in adjacent measures.

The numbers 1-10 indicate beats that, for one reason or another, are candidates for strong accentuation.[3] Which of these are the strongest accents in Example 2? Here are some of the factors that suggest why each of these beats may be a strong accent:

1. The beginning of the piece. The first statement of tonic harmony.
2. A local highpoint, underlined by the indication ***fp***, which is similar to the accent indication >.
3. Inception of a relatively long duration: this is the only place so far where there are no notes struck between one beat (third beat of m. 1) and the next (first beat of m. 2).
4. First change of harmony (from I to IV). The incidental suggestion of a ii chord on the second half of the first beat of m. 1 is really just a pair of passing tones: the B is part of a stepwise motion from the initial A to the high C, and the thirty-second note G is part of a passing motion from the thirty-second F to the sixteenth A.
5. A new highpoint and return to tonic harmony, emphasized by the ***fp***.
6. Like (3), this chord is accented because of the subsequent full beat with no new notes.
7. Change of dynamic level to ***f***.
8. Highest note in the phrase.
9. First substantial change of harmony (the IV in m. 2 having turned out to be incidental to a continuing, or prolonged, I chord), marking the push toward the cadence.
10. Cadence point. The goal of the phrase.

Not all ten of these accents are equally strong. However, each of them is stronger than the unmarked beat and than *all* of the notes that do not fall on a beat. But which of the notes that occur on these ten beats is the *strongest?* It is impossible to answer this question, because some of these notes are strong—accented—in ways different from the others. For example, the first beat of m. 1 is accented not because of performer emphasis, since it is played ***p***. The first note is accented because it falls on a *metrically strong* beat. But the accent on the second beat is louder (owing to the sudden appearance of a full chord and to the ***fp***) and hence more emphasized. So, which is stronger, a note on a metrically strong beat, or a loudly played chord? There is no answer. The degree of metric strength is not comparable to the degree of emphasis or loudness. In other words, no matter how loudly the second beat is played, it still sounds like a second (i.e., relatively weak, in terms of meter) beat; playing the chord ***fff*** would only serve to overemphasize its metric weakness. To compare the strength of a note on a strong beat and that of a loud chord is like trying to decide which is healthier, eating a banana or doing twenty push-ups. Each is healthy in its own way, but neither activity is healthier than the other.

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[3]All of the reasonable choices for strong accent in this excerpt are on beats, but in other music it is possible to find accented off-beats.

There are several different kinds of accent, the strength of which cannot be compared. We are not referring here to accents of duration or registral height—note length and height are factors that influence the degree of accentuation, but they are not *types* of accent. We will differentiate three types of accent (although some music theorists posit fewer and some identify more types): **metric, stress** (or phenomenal), and **rhythmic** (or structural).

Events 1, 4, 7, and 9 in Example 2 are **metrically accented.** More strictly stated, they fall on metrically accented beats. A metrical accent is a downbeat, a first beat of a measure (or, as we shall see, of a hypermeasure), a beat that we call *one* when counting off the beats of a measure.

Events 2, 5, and 7 have **stress accents,** because they are played suddenly louder than the preceding music. These stress accents are provided by the performer, following the ***fp*** and ***f*** signs that Mozart wrote into the score. Notice that event 7 both falls on a metrically accented beat *and* receives a stress accent.

Events 3, 6, and 10 are relatively long (the amount of time from the attack of these events to the next attack is a full beat). This duration factor gives these chords a degree of emphasis, making them into (slight) stress accents, even without the performer playing them loudly.[4]

Event 1 initiates the first phrase;[5] event 6 terminates the first half-phrase; event 7 initiates the second half-phrase; event 10 terminates the first phrase. These four events are harmonically stable (tonic harmonies), and they are either beginning points or goals of the motion of a phrase or half-phrase. These events are said to be **rhythmically accented.** A note or chord having a rhythmic accent is relatively stable and is located near or at the beginning or ending (or, in the case of an overlap, both) point of a musical unit, such as a phrase, half-phrase, period, section, etc.[6]

Because our topic is meter, we will concentrate more on metric than on stress or rhythmic accents. The most common patterns of metric accentuation are

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[4]We might think that an accent of duration is impossible, since we cannot know the ultimate length of a note at its onset. Actually, as psychologists have shown, our experience of the present is not of a single instant but of a finite duration (of variable length). Hence, except with very long notes, we experience the entire duration at once. When we hear a note end, its point of initiation is usually still active in our perception of the now. Hence we can still feel the strength of accent at a note's beginning under the influence of the note's entire timespan.

[5]A phrase is a rhythmic group of approximately the duration that would be sung on one breath, if the music were vocal.

[6]The general term for all such musical units is *rhythmic group,* or simply *group.* We shall discuss principles of grouping later.

(1) strong / weak

(2) strong / weak / weak

(3) strong / weak / moderately strong / weak

(1) is a two-beat metric pattern, as found in 2/4 or 2/2 time; (2) is a three-beat metric pattern, as found in 3/4 or 3/8 time; (3) is a four-beat metric pattern, as found in 4/4 or 4/8 time. Other meters, sometimes called “compound,” combine some of these basic patterns. 6/8, for example, can be understood as

strong / weak / weak // moderately strong / weak / weak.

5/4 can be understood as

strong / weak / weak // moderately strong / weak

or

strong / weak // moderately strong / weak / weak.

Since metric accents are applied to beats, which are timepoints, a metric accent is inaudible (whereas a stress accent is applied to a note or chord and hence is audible, and a rhythmic accent is a stable note or chord and hence is also audible). We *sense* or *feel* metric accents more than we hear them. We hear notes and chords that occur on metric accents, but we do not hear the accents themselves. This fact explains how and why we can feel a metrically accented silence. One of the most powerful metric accents in the tonal literature is, in fact, silent. It occurs in the first movement of Beethoven’s *Eroica Symphony* (see Example 3).

Example 3. Beethoven, Symphony Number 3 in E-Flat Major, Opus 55, *Eroica,* first movement, mm. 272-84.

At m. 280 in Example 3, we feel a strong sense of accent—a strong first beat of the measure, a powerful *one*—precisely where there is no sound (other than lingering reverberation). How is this possible? The answer is that meter has to do not only with what we hear and sense but also with what we anticipate hearing and sensing. We know that the music is in 3/4 time; the syncopations[7] in the first measures of Example 3 do not destroy the sense of where the strong beats are in each measure. We expect strong beats to recur every three beats. Hence we expect a strong beat on the downbeat of m. 280, and we *feel* this metric strength even when that beat happens to be empty of sound.

It is because meter is patterned that we have expectations of where strong beats and weak beats will fall. When factors contradict meter's patterns of strong and weak beats, the result is syncopation—but our metric expectations remain. In Example 3, for instance, there is a stress accent on the second beat of m. 272; there is also a stress accent on the first beat, but—owing to the relative fullness of the orchestra—the stress at beat 2 is stronger than that at beat 1. Yet, despite the stronger stress at beat 2, beat 1 is *metrically* stronger than beat 2. In other words, beat 1 retains its sense of metric accent, despite the syncopation which places considerable stress emphasis on beat 2. Similar things can be said of the third beats of mm. 273 and 275, and of the second beat of m. 274. Despite the regular recurrence of stress accents every two beats, the music remains in 3/4 time. It does not switch to 2/4, and hence all the *stress* accents (other than those that fall on beat 1) are syncopations: stresses occurring at metrically weak beats. The durability of 3/4 in the face of the contradictory stress accents is proven by the strength we feel at the silent downbeat of m. 280. If the pattern of stresses every second beat were to become the meter, then the (written) downbeat of m. 280 would be weak. But we *know*—we *feel*—that beat to be strong.

Meter can change, as we shall see. If there are sufficient factors supporting a syncopated pattern, that pattern can (temporarily or permanently) become the meter that we sense, regardless of whether or not the time signature actually changes in the score. The main reason that the meter does not change to 2/4 in Example 3 is that a three-beat (3/4) pattern of accents is stated clearly in m. 276 and then immediately reiterated in mm. 277 and 278.

While it may be not be possible to compare the strength of a metric accent with that of a stress accent, we can certainly compare the strengths of successive metric accents. Aware that downbeats are metric accents, we may ask whether, in Example 2, the downbeat of m. 2 is metrically stronger or weaker than the downbeat of m. 1. This is not an idle question: it goes to the heart of our sense of musical motion. If we decide that the downbeat of m. 2 is stronger than that of m. 1, then in some sense m. 1 may be understood as leading to the downbeat of m. 2. The downbeat of m. 1 would paradoxically also be an upbeat to the downbeat of m. 2. On the other hand, if we decide that the downbeat of m. 1 is stronger than the downbeat of m. 2, then m. 1 does not lead to m. 2 so much as m. 2 leads away from m. 1. Under this reading, the

[7] A syncopation occurs when the strongest metric accent in a timespan occurs not at its beginning but later.

m. 1 does not lead to m. 2 so much as m. 2 leads away from m. 1. Under this reading, the downbeat of m. 2 is also an afterbeat to the downbeat of m. 1 (and also an upbeat to the first beat of m. 3).

These ideas lead us to the notion that meter is hierarchic. A beat is not simply strong or weak, but is strong or weak with respect to another beat. Tonal music's archetypal four-bar phrase, for example, unfolds over a series of measures that are related to each other in terms of degree of metric strength of their respective downbeats.

Example 2 contains only three and a half measures of music, but it is considered a four-bar phrase because it includes four measure-downbeats. What are the relative strengths of the four metric accents in a normal four-bar phrase? There are three alternatives worth considering:

Possibility (1): strong/weak/weak/strong
Possibility (2): strong/weak/strong/weak
Possibility (3): weak/strong/weak/strong

If Possibility (1) properly describes the pattern of metric accents of the typical four-bar phrase, then it is difficult to maintain that meter is hierarchic, since a regular alternation of strong and weak beats is not normative even on the moderately large structural level of four-bar units. A typical eight-bar unit would have the decidedly nonmetrical pattern

strong/weak/weak/strong/strong/weak/weak/strong

Possibility (1) does have the advantage of allowing the formulaic authentic cadence in the fourth bar to be metrically accented (in Example 2, the metric accent would fall on the ii^7 chord in a ii^7—V^7—I cadence).

If Possibility (2) is correct, then the pattern of accents in the four-bar phrase mirrors that of a 4/4 measure. Thus meter would be hierarchic, but it becomes difficult under this Possibility to account for the accentual strength of phrase endings.

Possibility (3) allows for both cadential metric accents and a metric hierarchy, but it makes phrases—even those without anacruses—necessarily out of phase with their metric units. Example 2, for example, would have to be understood as beginning with a downbeat that functions analogously not to the first but to the fourth beat of a large, slow 4/4 measure.

Each of these three possible accentual readings of a four-bar unit seems to have problems, and each differs from the others fundamentally. We should not argue that any of the three ideas is unequivocally useless, but rather that they depend on different understandings of accent. Possibility (3), which has been criticized widely in the theoretical literature, seems the least useful, although it does nicely model certain musical phrases. Try to conduct Example 2, marking just the downbeats of successive measures. If those downbeats are respectively

4 - 1- 2 - 3   Possibility (3)

the conducting feels wrong. It feelings out of sync with the music.

> Possibility (3) may not be normative, but it can be found in certain passages. In contrast to Example 2, Example 4 does not have a particularly strong metric accent at the downbeat of m. 1. The strongest metric accent in the first phrase occurs at the downbeat of m. 4. Example 4 begins with a large anacrusis to the first complete hypermeasure (not shown beyond its initial downbeat), beginning at the downbeat of m. 4. The appropriate way to conduct Example 4 is:

2 - 3 - 4 - 1   another version of Possibility (3)

Example 4. Mendelssohn, Symphony Number 4 in A Major,
Opus 90, *Italian,* third movement, mm. 1-4.

Thus Possibility 3 applies to some music, but Possibility (2) is far more common. For most four-bar phrases, Possibility (2) feels much more comfortable. It agrees with the underlying metric structures of most four-bar units.

1 - 2 - 3 - 4   Possibility (2)

The discrepancy between possibilities (1) and (2) first arises at the downbeat of the third measure and becomes critical at the downbeat of m. 4. The essential difference between these two possibilities boils down to the question of whether or not cadences are accented. They are, of course, but their accentuation is rhythmic, not necessarily metric (although there are certainly phrases that cadence at metrically strong downbeats—see Example 4, m.4, and Example 13, m. 22). In Example 2, the downbeat of m. 4 (closely associated with the stability of the cadence that comes a beat later) is *rhythmically stronger* than the downbeat of m. 3; but the downbeat of m. 4 is *metrically weaker* than the downbeat of m. 3. Thus we see the importance of differentiating the various types of accents. Possibility (2) shows how meter operates not only within measures but also on the level of the four-bar phrase. Possibility (1), by contrast, does not show metric patterning at all, but rather indicates how the first events of each measure fit into a scheme of rhythmic accents and unaccents. Thus we are faced with a paradox: the cadence of a four-measure phrase is often strong (rhythmically accented) in one domain (that of timespans) and *simultaneously* weak (metrically weakly accented or unaccented) in another domain (that of timepoints). From this paradox comes much of the complexity and experiential richness of even the simplest music.

The existence of a regularly recurring pattern of metrically strong and weak beats—Possibility (2)—in the archetypal four-bar phrase (such as that in Examples 2 and 7), underlies the metric hierarchy. While listeners tend to focus on one level of metric activity (called the *primary* level, usually corresponding to the notated measure), both faster and slower metric structures exist in most tonal music. For example, between the first and second beats of a measure, there may be several notes (e.g., sixteenth notes) that articulate timepoints, all of which are weaker than either beat 1 or beat 2 but all of which may nonetheless be experienced metrically. Also, as we have just seen, measures are often paired, so that, for example, the first beat of a first measure may feel metrically stronger than the first beat of a second measure.

Example 5. Melody that Shows Metric Hierarchy.

In Example 5, the F , G, and A between the first G and the first B are all metrically unaccented. They occur at timepoints, but not at accented timepoints. The metrically accented notes in the first measure are G (on the first beat), B (on the second beat), D (on the third beat), and F (on the fourth beat). These four notes are all metrically accented, but not equally strongly. The G is the strongest of the four notes. The G which begins the second measure is also strongly accented metrically—more strongly than any subsequent note in m. 2. But the G that begins m. 2 is not as strongly accented as the G that begins m. 1.

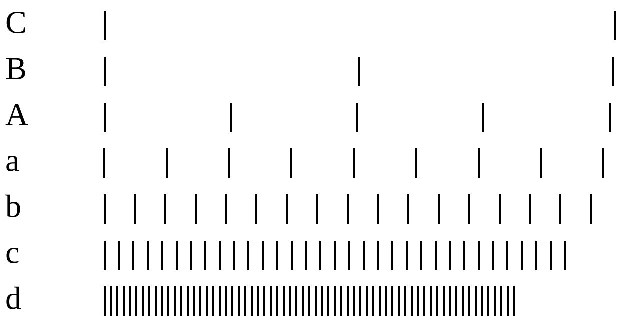
We have seen how the respective first beats of four successive measures can act like the beats of a large, slow 4/4 measure (Possibility (2)): in the context of the four-measure metric unit, these beats are respectively strong, weak, moderately strong, weak—despite the fact that each beat remains the strongest in its respective measure.

Meter operating on various hierarchic levels slower than the primarily level is called *hypermeter*. A succession of several adjacent measures that act like a large measure is called a *hypermeasure.* The beats of a hypermeasure are called *hyperbeats.* In Example 2, the four-bar phrase unfolds over a four-bar hypermeasure which contains four hyperbeats, arranged as in a slow 4/4 measure. The first four measures of Example 5 also constitute a four-bar hypermeasure. Each arrow in Example 5 marks a hyperbeat. The last note of the example is the first note of the subsequent hypermeasure (not shown).

Hypermeter should not be a completely unfamiliar concept. It underlies compound meter. A measure of 6/8, as shown above, can be understood as a hypermeasure that consists of two successive 3/8 measures. Performers and composers may insist that there is a difference in the way they conceive of a 6/8 measure vs. two 3/8 measures, and this is undoubtedly true. But listeners do not necessarily pick up this distinction. If you play a passage for a group of musically sophisticated listeners, and ask them whether the meter is 6/8 or 3/8, you will not find unanimity of opinion (although the fact that 6/8 is more common than 3/8 may tend to make more people favor 6/8 as the perceived meter).

Similarly, 4/4 can be thought of as a compound meter in which each measure is comprised of two successive 2/4 measures. Again, performers and composers may think of one 4/4 measure as distinct from two 2/4 measures, but listeners often do not. If they do, it is more because of the different characters of 2/4 and 4/4 music. It is because of 4/4 acting like a compound meter that we posited three degrees of metric strength in a 4/4 measure: strong, moderately strong, and weak, distributed S-W-MS-W. In our view of hypermeter, a beat is either accented or not at a particular hierarchic level. A "moderately strong" accent, such as that on the third beat of a 4/4 measure or at the third bar of a four-beat hypermeasure, is a timepoint that is accented on some levels but not others. Specifically, the third beat is not accented on the level of the measure or of the four-bar hypermeasure. At this level, the only metric accent in the (hyper)measure is at the first (hyper)beat.[8]

Example 6. Schematic representation the timepoints of Example 5.



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[8]Casting metric accents as either accented or unaccented is an oversimplification, undertaken so that we can make meaningful analyses of the metric hierarchy. Different degrees of metric accentuation can in part be modeled by a hierarchic analysis: a beat that is accented on, e.g., three hierarchic levels feels more strongly accented than one that is accented on only two levels. Still, making binary decisions on accentuation—the beat in question either is or is not accented at each particular level—is somewhat crude when compared to the finely nuanced network of metric accentuation in actual music as performed and heard.

Example 6 is a schematic representation of Example 5. Each vertical line indicates a timepoint at which a note begins. Thus level d models the continual sixteenth notes. Level b shows the beats of each measure. Of those beats, only those that are strong or moderately strong appear on level a. Level A shows the measures; each vertical line on level A corresponds to a written barline in Example 5 and also to an arrow in Example 5. The arrows mark the downbeats—the strongest metric accents—within each measure, which are also the hyperbeats of the four-bar hypermeasure.

Level B shows only the strong and moderately strong hyperbeats, and level C shows the strongs—the hyperdownbeats of the largest hypermeasures shown in Example 5. Thus the lines at level C delineate the four-bar hypermeasures. The lines at level B also delineate hypermeasures, which are only two measures long each. Thus level B is called the two-bar level. The lines at level A show the one-bar level, the actual measures. Level a shows how the 4/4 meter is compound: each 4/4 measure could be considered two 2/4 measures. Level b shows the beats, level c shows the half beats, and level d shows the sixteenth-notes.

It is impossible to comprehend hypermeter thoroughly without contrasting it to rhythmic grouping. While a thorough study of grouping would take us too far afield, an overview of grouping enables us to understand the differences and interactions between two types of timespans—rhythmic groups and hypermeasures. In Example 2, all the notes of m. 1 belong together. They form a rhythmic group, separated by silence from the rhythmic group in m. 2. Example 2 is rather special in that, at least in its first two measures, rhythmic groups coincide with measures. But this is not necessarily the case elsewhere, as rhythmic groups often begin with anacruses—a series of notes that lead up to a metric accent. All the rhythmic groups in Example 7 (indicated with brackets) cross barlines, since they begin with anacruses.

Example 7. Mozart, Piano Sonata in B-Flat Major, K. 281, third movement, mm. 1-4.

In order to make sure that hypermeasures are understoood as a different phenomenon from rhythmic groups, it is useful for us to consider the nature of groups. A *rhythmic group* can be defined as a set of sounds that belong together and are hence experienced in some sense as a unit. Factors that influence grouping include temporal proximity, pitch proximity, similarity of loudness, timbral similarity, and registral closeness, among others. All the notes in m. 1 of Example 2 are relatively close together in time, at least compared to the temporal gap between the onset of the last chord in m. 1 and that of the first sound in m. 2. Also, all notes in the melodic line (right hand) of m. 1 are relatively close together in pitch: the largest skip, a perfect fourth, is smaller than the skip of a major sixth between the last melody note of m. 1 and the first of m. 2.

A rhythmic group tends to revolve around a single point: the preceding notes lead to the central point and the succeeding ones fall away from it. In Example 2, the high C on beat 2 of m. 1 is such a point. With larger rhythmic groups, this point is called a highpoint or climax. Hence the highpoint of the phrase in mm. 1-4 falls on beat 2 of m. 3. A highpoint may or may not coincide with a metric accent (in Example 2, the highpoints do not occur at metric accents; in Example 7 they do); it may or may not be a rhythmic accent; it may (but need not) receive a stress accent.

Rhythmic groups are delineated by their boundaries, the timepoints at which they begin and end. The following factors govern the formation of rhythmic groups but do not involve locating accents, which can occur anywhere within rhythmic groups.

- RG1. Any contiguous sequence of pitch (or nonpitch) events can constitute a rhythmic group.
- RG2. A rhythmic group may contain smaller rhythmic groups.
- RG3. If a rhythmic group contains part of another rhythmic group, it must contain all of the other group, except where an overlap of groups occurs. At a group overlap, some portion of the music simultaneously begins one rhythmic group while ending another (overlaps are discussed further below).
- RG4. Rhythmic groups tend not to consist of only one event, unless that lone event is quite isolated from other events.
- RG5. Notes close together in time or slurred together tend to be grouped together.
- RG6. Notes separated by silence tend not to be grouped together.
- RG7. Notes close together in pitch, or in dynamics, or with similar articulation, or with similar timbre, etc., tend to be grouped together.
- RG8. Rhythmic groups (at the same hierarchic level) tend to have approximately the same duration.
- RG9. Successive similar patterns tend to form separate groups.
- RG10. Stress accents tend to be heard as beginnings of rhythmic groups.
- RG11. Dissonances tend to be grouped with their resolutions.

It is rare for all of the above factors to contribute to rhythmic grouping simultaneously. Usually there are conflicting factors, some trying to create one particular grouping and others working against that grouping in favor of another one. Different performances of the same passage may bring out different groupings. This does not mean, however, that there is no such thing as an inappropriate grouping or an incorrect analysis!

In order to see some of these tendencies in action, let us look at (and listen to) some very small rhythmic groups, considerably shorter than those discussed in Example 2. These groups consist of only two notes. Example 8 shows the opening melody of the second movement of Haydn's *Surprise Symphony*. The brackets above the music indicate the low-level (i.e., smallest possible) rhythmic groups. According to RG7, the pitch proximity (in this case, identity) of the two C's, two E's, two G's, etc., produces the groupings as shown. The E in m. 2 is not an isolated event: since it is not followed immediately by another note, it groups with the preceding G. The note on beat 2 of m. 2, then, belongs to two overlapped groups.

Example 8. Haydn, Symphony Number 94 in G Major, *Surprise*, second movement, main melody.

It is possible—with a bit of effort—to hear different groupings in Example 8, as shown by the brackets below the music. If the m. 1 group C-E is heard, the subsequent groups (E-G, G-E) would be heard because of pattern repetition (RG9), the pattern being a leap of a third in even quarter notes. The first note, C, is perceived as being grouped with the next note because there is no other note with which it might be grouped; thus a group overlap occurs on the second note of m. 1.

If it takes "a bit of effort" to produce the groupings indicated by the lower brackets in Example 8, what form does that effort take? If we want to perform Example 8 to bring out the groups indicated by the lower brackets, we will do something like what is shown in Example 9A. Try actually playing or singing Example 9A, and feel how the rhythmic groups have changed to those indicated by the lower brackets.

Example 9. Two performance interpretations of Example 8.

The performance indicated in Example 9A does three things: (1) It adds stress accents on the notes that fall on weak beats. Since stress accents tend to be heard at the beginnings of groups (RG10), playing or singing stress accents on weak beats in Example 8 produces the groups shown in the lower brackets. (2) Also, the performance indicated in Example 9A makes notes on the strong beats (beats 1 and 3 of each measure) staccato, thereby introducing a brief silence between groups. According to RG6, the break in the sound continuum by a silence—even a brief silence—tends to create a group boundary. (3) The third thing a performer may do to try to project the groups shown by the lower brackets cannot be notated easily. The notes on the second and fourth beats of each measure will be played or sung very slightly late. Doing this moves those notes a bit closer in time to the notes with which they want to be grouped (RG5). The slurs in Example 9A (RG5) serve to emphasize the distinction between a note that flows smoothly into the next note and one that is cut off from the next note.

It is possible to perform Example 8 in a manner that emphasizes the upper-bracket groups, making them the unequivocal grouping that is heard and thereby suppressing even a hint of the lower-bracket grouping. Such a performance, shown in Example 9B, also involves stress accents, staccato notes, and moving of notes slightly close in time to the notes with which they group—in this case, the notes on beats 2 and 4 are performed slightly early.

To differentiate the two groupings shown by the brackets in Example 8, let us call the upper bracket groups *beginning-accented groups* and the lower bracket groups *end-accented groups.* We must be careful to understand exactly what is meant by these labels. The accents referred to are *metric,* not rhythmic or stress. The different feels of the two groupings are characterized by where within the group the strongest *metric* accent occurs.[9] The location of the strongest metric accents tell us whether the groups primarily feel in motion toward a strong point or primarily feel in motion away from a strong point. Back in Example 2, the m. 1 group is beginning-accented; so are the m. 2 group and the mm. 3-4 group. The entire phrase of Example 2 is a large beginning-accented group. The entire phrase of Example 4, as already discussed, is a large end-accented group.

There is a third type of rhythmic group, namely *middle-accented,* which occurs on larger hierarchic levels (where there are more than two notes in a group) or in triple meter. Example 7 contains a several middle-accented rhythmic groups.

Returning to the Haydn tune of Example 8, let us demonstrate the principles of rhythmic grouping by composing a series of variants of this tune.[10] Each variant alters a different aspect of the music, either bringing out the end-accented groups or emphasizing the beginning-accented groups.

Example 10 contains eight variants of the tune. In accordance with RG7 they alter, respectively, register, dynamics, timbre, and pitch proximity in ways to support either beginning- or end-accented groups.

Example 10. Variants on the melody of Example 8, supporting beginning- or end-accented groups.

The variants in Examples 10G and 10H that deal with pitch proximity need some comment. In the original tune, pitch proximity, or identity, supports beginning-accented groups. But identity is not necessarily the strongest instance of pitch proximity. If one pitch moves pointedly, e.g. by semitone, to another pitch, the two notes tend to group together not only be-

[9]Thus, a more complete terminology might invoke the cumbersome labels *metrically beginning-accented rhythmic groups* and *metrically end-accented rhythmic groups.*

cause of pitch proximity (RG7) but also because of dissonance resolution (RG11). In Examples 10G and 10H, the altered tones are dissonant with respect to the implied harmonies. These dissonant tones group with their respective tones of resolution to produce end-accented and beginning-accented rhythmic groups respectively.

Example 11 creates end-accented groups not by altering the melody but by setting it over a bass line that is clearly end-accented. Given that the melody allows for the possibility of end-accented groups, even though beginning-accented groups are more readily heard, all it takes to bring out the end-accented possibility is to accompany the melody with an end-accented bass line.

Example 11. Bass line set to the melody of Example 8 in order to support end-accented groups.

Needless to say, the variants in Examples 10 and 11 were devised for pedagogical purposes, in order to bring out one grouping or another in an unequivocal manner. These variants are not intended to be musically subtle. In listening to real music, we are often aware of simultaneous contradictory groupings, even when one grouping is predominant. The variants in Examples 10 and 11 try to suppress one grouping in favor of the other. In actual music, we tend to find such unequivocal groupings in passages of deliberate simplicity or of outright resolution.

Example 9 shows, with decided exaggeration, some of what performers do when interpreting music. By subtle (in contrast to the obviousness implied in this example) shifts of notes a bit early or late, by applying slight stress accents, by creating the continuity of slurs or the discontinuity of shortened (quasi-staccato) notes, a performer favors one rhythmic grouping over another, or—perhaps more interestingly—heightens the ambiguity in order to create a subtly unsettled rhythmic inflection. Performers may not think in the terms we are developing here, and may in fact not be conscious that they are moving notes, creating slurs, shortening notes, injecting silences, or applying or suppressing stress accents, but indeed this is exactly (part of) what they do in creating nuanced interpretations.

In some instances, the rhythmic grouping is so clear in the music that nothing a performer can reasonably do will alter it. But often more than one grouping is possible (although not necessarily equally comfortable). In such cases a performer must project one grouping, project another grouping, or preserve (or heighten) the ambiguity. There is no single right or wrong way to interpret grouping. Thus we as listeners are happy to hear the same music again

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[10]These variants, which are unrelated to the variations Haydn actually composed, are based on a similar demonstration in Grosvenor Cooper and Leonard B. Meyer, *The Rhythmic Structure of Music* (Chicago: University of Chicago Press, 1960) pp. 12-36.

and again, in the hands of performers with different ideas about the way its rhythmic groups should unfold.

The same cannot be said about meter and hypermeter, however. Meter is far less susceptible to performance interpretation. Except when the meter is ambiguous, there is nothing a performer can do to alter it. When the meter *is* ambiguous—when it can be heard in more than one way—cues which normally do not affect which beats are metrically accented (e.g., stress) can take on metric significance. Because meter is inherently less malleable than grouping, we should expect there to be a set of principles that serve to tell listeners where metric accents occur (and hence where measures and hypermeasures begin). Indeed there are such factors, but before we list them we need to introduce a graphical method, based on Example 6, for analyzing hypermeter.

Example 12 shows a representation of the metric hierarchy of Example 2.[11] Three levels of metric organization are shown. The smallest level, Level A, corresponds to the written meter. Each small vertical line in Example 12 corresponds to a barline in Example 2. The vertical lines on Levels B and C show hyperbeats. The metric organization—the hypermeter—on Level B is duple: the hypermeasures of Level B act like 2/4 measures, but with a tempo three times as slow as that of the actual music. Level B shows that the downbeats of mm. 1 and 3 are metrically stronger than the downbeats of mm. 2 and 4. The metric organization of Level C is also duple (although the downbeat of the second hypermeasure, which occurs at the downbeat of m. 5, is not shown in Example 2), and the tempo of the hyperbeats (the downbeats of mm. 1, 3, and 5) is six times as slow as that of the actual music. The downbeat of m. 3 is shown to be metrically weaker than the downbeats of mm. 1 and 5. The figures “2" and “3" act like time signatures: they tell the number of (hyper)beats in a (hyper)measure at each hierarchic level.

Example 12. Hypermetric analysis of Example 2.

C |2
B |2 |
A |3| | |

We shall return to this kind of graphical analysis in a more complex example later. But first, it is appropriate to list musical factors that cause us to sense metric accents and the (hyper)measures they create on various hierarchic levels. These factors help us justify the decisions behind an analysis such as that in Example 12, but—because of their large number and

[11]This graph also analyzes the hypermetric structure of Examples 5 and 7, and of countless other musical phrases, but not that of Example 4.

the many ways they can interact—they do not allow for unequivocal or mechanical decisions about hypermeter.

HM1. Metric accents tend to be equally spaced in time.

HM2. Metric patterns tend to continue once established, unless definitively contradicted.

HM3. Two-beat, not three-beat, (hyper)measures are normative. In other words, most levels in most tonal pieces contain two-beat hypermeasures (strong/weak). Often, however, we do encounter three-beat hypermeasures (strong/weak/weak). When that happens, the reason may be that the expected length is elongated (we get 2+1 where we expect 2) or truncated (we get 2+1 where we expect 2+2). But the reason may instead be that a *metric overlap* (see HM16) has occurred. Occasionally a hypermeasure will contain only one hyperbeat (strong). Hypermeasures with more than three hyperbeats are exceedingly rare, because it is hard to experience three successive beats (on any level) as equally strongly accented (metrically).

HM4. A metric accent can occur anywhere within a motive, phrase, period, or section, although it tends to occur at or near the beginning of such rhythmic groups. Metric accents tend to coincide with the beginnings of notes or chords (syncopations and suspensions are exceptions).

HM5. Suspensions tend to be metrically stronger than their resolutions.

HM6. When a bass line and a melody do not seem to project the same points of metric accent, the bass line tends to exert a stronger influence over the perceived accentuation.

HM7. On large hierarchic levels, harmony is important to the determination of metric strength. Thus, root position chords tend to be metrically stronger than inversions, consonances stronger than dissonances, tonics stronger than tonicized dominants, tonicized dominants stronger than other scale degrees, etc.

HM8. Cadences are not *inherently* strong or weak in a metrical sense. More often than not, however, they are metrically weak. But there are many instances of metrically strong cadences (e.g., Example 4). As we shall see, when they are metrically overlapped (see HM16), they are strong in one sense and weak in another.

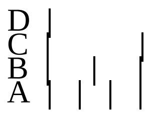
HM9. When a single harmony extends over several measures, there is a tendency for its beginning to be its strongest metric accent. One notable exception occurs when a phrase ends (at a metrically weak accent) with the same harmony that the next phrase begins with (at the next metrically strong accent). This happens in Example 2, mm. 2-3, and in Example 15, mm. 50-51.

HM10. A repetition (or repeat) of some material (harmony, motive, theme, etc.)—whether literal, varied, or sequential—tends to be less metrically accented than the original statement. A return (or recapitulation) can be more or equally accented, because a return feels like a goal of intervening contrasting music. How can we tell the difference between a repeat and a return? If some contrasting music has intervened, then we have a return. If the music has remained consistent, then we have a repeat. Admittedly, there are grey areas of ambiguity between the clearcut extremes of repeat and return. Furthermore, an event may simultaneously be a return on one hierarchic level and a repeat on a larger level.

HM11. Other things being equal, stressed notes, high notes, long notes, loud notes, notes after leaps, and unexpected notes tend to be metrically accented. Also tending to be metrically accented are first notes in series of repeated notes, beginnings of structural harmonies, inceptions of particular dynamic levels, beginnings of slurred patterns, and arrivals of structural harmonies. There are many exceptions to these tendencies, however, since they rarely all agree.

HM12. Other things being equal, change—in register, loudness, timbre, texture, harmony, harmonic rhythm, direction of melodic motion, tempo, tonal area, dissonance level, etc.—tends to produce metric accents.

HM13. If a beat is strong on some level, it must be strong on all smaller levels. In other words, this is meaningless:



HM14. If two adjacent levels seem to have the same metric accentual pattern for more than two successive beats, then something is wrong. For example, this is most unlikely, because levels B and C are identical:

```
D |         |

C | | |     |

B | | |     |

A | | | | |
```

HM15. The same series of measures will usually not function as a hypermeasure on two different levels. Occasionally this does happen, however. But the same series of measures will never function as a hypermeasure on three levels. Thus the following is impossible, because the same timespan is trying to be a hypermeasure on levels B, C, and D simultaneously:

```
E |                         |
D |             |    |      |
C |   |         |    |      |
B |   |    |    |    |      |
A | | | | | | | | | | | |
```

HM16. A metric overlap (sometimes called an *elision)* occurs when a hyperdownbeat is weak with respect to the preceding hyperbeat (for example, it begins the fourth measure of a 4-bar hypermeasure) and simultaneously strong with respect to the subsequent hyperbeat (for example, it begins the first measure of the next 4-bar hypermeasure). What happens, in essence, is that two 4-bar hypermeasures share one measure, so that they add up to a 7-bar hypermeasure on the next larger level. A metric overlap is simultaneously weak and strong *on the same hierarchic level.* We should label metric overlaps when we make metric graphs.

A metric overlap is felt as weak in the context of the preceding music and strong in the context of the subsequent music. In Example 13, if we were to stop at the downbeat of m. 18, we would not suspect a metric overlap; similarly, if we began to listen at m. 18, we would not hear a metric overlap. Mm. 15-18 constitute a four-bar hypermeasure; the next four-bar hypermeasure is mm. 18-21. Therefore, the downbeat of m. 18 is both the fourth (i.e., weak) hyperbeat of one hypermeasure and the first (i.e., strong) hyperbeat of the next hypermeasure. As a result of the metric overlap, the hypermeasure at the next larger level (mm. 15-21) is seven bars long.

Example 13. Mozart, *Eine Kleine Nachtmusik,*
K. 525, first movement, mm. 11-27.

Example 14. Hypermetric analysis of Example 13.

```
D |           |
C |     |    |      |
B |  |  |  ||  |  |  |  |
A |||||||||||||||||
          ov
   11        15      18        22
```

Actually, there are two kinds of overlap that need to be carefully differentiated: metric and grouping. An overlap of rhythmic groups necessarily occurs where there is a metric overlap, but a rhythmic overlap may occur without a metric overlap. Example 13 contains a rhythmic overlap that coincides with a metric overlap (m. 18). Example 13 also has a rhythmic overlap that does not take place at a point of metric overlap (m. 22).

In contrast to a metric overlap, a grouping overlap involves some segment of musical time—some timespan, not just a timepoint—that is simultaneously the end of one rhythmic group and the beginning of another. The phrase-level group that begins in m. 18 cadences at the first chord of m. 22, which is simultaneously the first chord of the subsequent phrase. Similarly, the first chord of m. 18 is simultaneously the cadence of one phrase and the beginning of the next phrase. Because there is no metric overlap at this grouping overlap, the hypermeasure at the next level (mm. 18-25) is ten—expanded from the normative eight—measures long.

We should refrain from attempting to establish a hierarchy of importance among the factors (HM1-HM16) that influence meter and hypermeter, just as we did with the rhythmic grouping tendencies. Meter would be mechanical if a list of rules could be applied to any passage to discover its unequivocal meter. Music is too flexible and too complex to allow for a foolproof algorithm that could be applied automatically to determine (hyper)meter. It often happens that different tendencies suggest conflicting metrical interpretations. When this occurs, we as listeners or performers rely on our intuitions, which either allow us to make an unambiguous judgement or tell us to preserve the ambiguity as a valid aspect of the musical expression. In either case, our intuitions are informed by an abundance of information—from the piece itself, from our knowledge of its historical context, and from our own musicality. It would be impossible to account for all these factors objectively. The beauty and richness of musical meter lies precisely in the impossibility of totally objectifying it. Metric ambiguities, like harmonic and rhythmic uncertainties, are a source of much of music's beauty, depth, and meaning.

Let us now look at an entire section of a composition. Example 15 shows the trio of the third movement of Beethoven's Piano Sonata in F Minor, Opus 2, Number 1. We will trace the hypermetric structure on levels B, C, and D.

Example 15. Beethoven, Piano Sonata in F Minor, Opus 2, Number 1, third movement, trio section.

Level B is duple (2-bar units) almost throughout the section.[12] Since two-bar hypermeasures are normative in most tonal music, at least at levels larger than the surface, we should not be surprised that Level B is preponderantly duple. Nonetheless, there are specific factors that create or reinforce hyperbeats every other measure. The following measures have metric accents on level B:

!m. 41, because it is the beginning of the trio section and the first statement of tonic harmony (HM4, HM7, HM9, HM11).

!m. 43, because of the first change to dominant harmony, the melodic highpoint, and the bass lowpoint (HM3, HM11, HM12).

!m. 45, because of the change of texture and the stark open octave (HM1, HM2, HM3, HM4, HM12).

!m. 47, because of the change of texture, introducing a rest on the strong beats of the melody (HM1, HM2, HM3, HM4, HM7, HM12).

!m. 49, because of the relatively long length of the bass G and its being momentarily unaccompanied (HM1, HM2, HM3, HM4, HM7, HM11, HM12).

!m. 51, because it marks the beginning of a four-bar pedal, representing a large dominant harmony (HM1, HM2, HM3, HM4, HM7, HM9, HM11, HM12).

!m. 53, mainly because we expect the pattern of strong downbeats every other measure to continue unless contradicted, and nothing happens at m. 53 to contradict this pattern (HM1, HM2, HM3).

!m. 55, because of the change of texture and because of the melodic highpoint (HM1, HM2, HM3, HM4, HM11, HM12).

---

[12]The only exception occurs at mm. 63-65.

!m. 57, because of the subsequent change in texture (HM1, HM2, HM3, HM12).

!m. 59, because of the subsequent change in texture to three voices moving in parallel eighth notes, and because of the first clear appearance of subdominant harmony (HM1, HM2, HM3, HM9, HM12).

!m. 61, because of the melodic highpoint and the dynamic level of ***ff*** (HM1, HM2, HM3, HM4, HM11)

!m. 63, because of the extreme textural change and because of the new dynamic level (HM1, HM2, HM3, HM4, HM11, HM12).

!m. 66 (not m. 65, as expected!), because of the change of texture, the return of long-absent tonic harmony, and the recapitulation of the opening theme (HM4, HM7, HM10, HM12).

!m. 68, same as m. 43 (HM3, HM4, HM11, HM12).

!m. 70, same as m. 45 (HM1, HM2, HM3, HM4, HM12).

!m. 72, because it marks the first statement in a long time of root-position dominant harmony, which turns out to be the cadential dominant (HM1, HM2, HM3, HM7, HM14).

Level C (the four-bar level) exhibits greater hypermetric irregularity than does Level B. Four-bar hypermeasures are still normative (by convention if not by context), but some of the hypermeasures are six measures long (in other words, hypermeasures on Level C contain either two or three Level-B hyperbeats). Why?

!The downbeat of m. 45 is stronger than the downbeat of m. 43, because of the extreme change in texture (HM3, HM4, HM10, HM12).

!We expect the downbeat of m. 49 to be as strong as that at m. 45, but the cadence two bars later, followed by a metrically strong return to the opening (on repeat) (HM10) or the textural change at m. 51 (continuing on) (HM11, HM12), marks a strong downbeat that renders the downbeat of m. 49, in retrospect, relatively weak on Level C. What results is a three-beat hypermeasure (mm. 45-50) where we had expected a two-beat hypermeasure (HM4, HM9).

!Shifts in register at m. 55 create a new texture, which makes the downbeat of m. 55 feel stronger than those at m. 53 and 57 (HM3, HM4, HM11, HM12).

!There is a degree of ambiguity over which is stronger, the downbeat of m. 59 or that of m. 61. If, on the one hand, m. 59 is stronger, then the two-beat (four-bar) hypermeasure of mm. 55-58 is followed by a three-beat (seven-bar) hypermeasure in mm. 59-65. If, on the other hand, the downbeat of m. 61 is considered to be stronger than the downbeat of m. 59, then a three-beat (six-bar) hypermeasure in mm. 55-60 is followed by a two-beat (five-bar) hypermeasure in mm. 61-65. Both possibilities are shown in Examples 14-17.

Factors supporting the first reading (m. 59 as stronger) include the change of harmony to a fresh IV chord (HM7) and the change of texture (HM12) to three voices moving in parallel eighths. Working against hearing m. 59 as stronger is the fact that the eighth-note motion from m. 58 continues in m. 59 (HM10), and that the IV chord is really just a passing chord, as the essential bass line moves up a step per measure from the E in m. 54 to the D in m. 61.

Factors supporting the second reading (m. 61 as stronger) include the registral highpoint in both outer voices at the downbeat of m. 61 (HM11), along with the loudest dynamic marking in the section and the change in melodic direction (HM12). Working against hearing m. 61 as stronger are the lack of textural change (HM11, HM12) there and the fact that the harmony at the downbeat, IV^6, can be understood as an arpeggiation of the IV chord at m. 59; in other words, the harmony at m. 61 is not as fresh as the harmony at m. 59 (HM9).

Given the ambiguity, what a performer does has a greater impact on the feel of the hypermeter than can occur in less equivocal passages. If the performer makes m. 59 a bit of an arrival—perhaps by pausing infinitesimally just before it (HM11)—the IV chord will sound more like an independent harmony and less like a passing chord (HM9). Then m. 59 would seem stronger than m. 61. If, by contrast, the performer smoothes over m. 59 and makes m. 61 an arrival point—possibly by exaggerating the ***ff*** (HM11)—then m. 61 will seem stronger than m. 59. The performer may choose to do neither (or both), thereby preserving rather than solving the ambiguity. Ambiguity can be useful in keeping the level of tension high in preparation for the resolution of recapitulation at m. 66.

Considering the impact of performance interpretation on the hypermetric interpretation of an ambiguous passage such as this one, the type of hypermetric graphs we have been developing could be used to analyze not only scores but also performances.[13]

[13]The same is true of our means of analyzing rhythmic groups.

!Regardless of how m. 59 vs. m. 61 is felt, the next Level C hypermeasure begins at the downbeat of m. 66, which marks a return of the tonic harmony (HM7) and the main theme (HM4, HM10).

!A significant change of texture at the downbeat of m. 70 marks the last hyperdownbeat on Level C (HM3, HM12).

At Level D the first hypermeasure, mm. 41-49, is duple (HM3), with the second hyperbeat falling at the textural change at m. 45 (HM12). The next Level D hypermeasure begins at the downbeat of m. 51 and extends through either m. 58 or m. 60, depending on which interpretation of the strength of m. 59 vs. that of m. 61 is preferred. The subsequent Level D hypermeasure begins at the downbeat of either m. 59 or m. 61 and extends through m. 65. The final hypermeasure of Level D is the metrically regular (HM3) 4+4-bar hypermeasure in mm. 66-73.

In the above discussion, the repeats were not taken into account, in order to keep the discourse from becoming excessively repetitious. But, in fact, the repeats *are* taken in performance, and they do matter to the hypermetric structure. A segment of music literally repeated normally tends to begin with a weaker downbeat, because in place of the impact of hearing something new we experience the comfort of hearing something familiar (HM10). Hence the first hypermeasure of Level E consists of three hypermeasures of Level D: (1) mm. 41-50; (2) mm. 41-50 repeated; (3) mm. 51-65. In other words, the first hyperbeat of the first Level-E hypermeasure is the downbeat of m. 41; the second hyperbeat of this hypermeasure is the downbeat of m. 41 played on repeat; the third hyperbeat of this hypermeasure is the downbeat of m. 51 played the first time.

Examples 14-17 summarize the hypermetric analysis just presented, now in graph form. There are two versions of the chart given, in order to model both ways of understanding the strength of the m. 59 downbeat compared to that of the m. 61 downbeat. The repeats are “written out” in Examples 14-17. Strong metric accents are identified by measure numbers along the bottom of each graph: “41a” refers to the downbeat of m. 41 as played the first time, while “41b” refers to the same downbeat played on repeat. Level E is included for completeness, but it is unlikely that this level can actually be experienced metrically, since hypermeasures comprised of 35 and 31 measures respectively are probably too long to be sensed as metric units. Levels larger than Level E are not perceived metrically. It is certainly possible metrically to feel Levels A, B, and C, and—with a concentrated effort—even Level D.

Example 16. Hypermetric analyses of Example 15.

version 1

```
E |3                         |
D |2      |       |3         |2     |3         |2
C |2  |3   |2  |3   |2  |   |3    |2  |  |  |  |3    |2  |
B |2| | | | | | | | | | | | | | |  | | | | | | | | | | |3 |2| | |
A ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
   41a   45a      41b   45b      51b   55a    59a      66a   70a    51b   55b   59b      66b
```

version 2

```
E |3                         |
D |2      |       |3         |2     |3         |2
C |2  |3   |2  |3   |2  |3   |2  |  |  |  |3   |   |2  |
B |2| | | | | | | | | | | | | | |  | | | | | | | | | | |3 |2| | |
A ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
   41a   45a      41b   45b      51b   55a     61a     66a   70a    51b   55b     61b    66b
```

To experience the hypermeasures on each hierarchic level of Example 16, it is helpful to conduct while listening. Duple hypermeasures should be conducted with a downward motion on the first hyperbeat followed by an upward motion on the second hyperbeat:

1 - 2

Triple hypermeasures should be conducted with a downward motion (hyperbeat 1), following by a sideward motion (hyperbeat 2), followed by an upward motion (hyperbeat 3):

1 - 2 - 3

To help us sense these hypermeasures, Examples 16-110 rewrite Examples 14-17 with smaller note values and with time signatures that project the metric organization of Levels B and C respectively. Alternate versions of Level C are provided because of the metric ambiguity discussed above. It is interesting to make or find performances that project one of these interpretations or the other, or that reinforce the ambiguity. It is helpful to follow these scores while listening to (and conducting along with) a performance of this music, instead of (or in addition to) following the metric graphs in Examples 14-17 or the original score in Example 15.

Actually, listening to and conducting along with several different performances is advisable, so that decisions made by a performer in the process of interpretation are not mistaken for aspects of the music inherent in the score.

Example 17. Example 15 rewritten to show hypermeasures at the two-bar level.

Example 18. Example 15 rewritten to show hypermeasures at the four-bar level, first version.

Example 19. Example 15 rewritten to show hypermeasures at the four-bar level, second version.

After proposing a definition of meter at the beginning of this essay, we asked a number of questions. Some have by now been answered, but we still need to consider why meter is characterized as "more or less" regular, and also just what metric regularity is. The first question can be dealt with easily now. In most tonal music, the surface-level meter does not change often. There are few changes of time signature within movements in music of the seventeenth through nineteenth centuries. But there are occasional exceptions, as in, for example, the third movement of Beethoven's *Eroica Symphony* (mm. 381-84) and the second movement of his String Quartet in A Minor, Opus 132 (mm. 218-21). There are also instances where the sounding meter changes, even though the composer may not notate a shift in time signature. This happens in many works of Brahms. In addition, we have seen (in Example 14, for instance) that on larger hierarchic levels three-beat hypermeasures can intrude in a context of two-beat hypermeasures. Thus the continual recurrence of established hypermeasures is *normative,* and we do expect most (hyper)measures to be of the same length as the preceding ones, but exceptions—irregularities—do occur with some frequency. Hypermeter is indeed "more or less" regular.

The one remaining question concerns just what metric regularity really is. It is not the repetition of beats or metric accents at precisely the same time interval. Other than some of those generated electronically by computer, musical timespans are not mechanically equal. Just as notes can be shifted slightly early or late for expressive purposes (e.g., to project certain rhythmic groupings over other groupings, as suggested in the discussion of Example 9), so beats are normally not placed exactly in time. Music psychologists, carefully measuring the timing of notes in musical performances, have discovered considerable variance. Since beats are inaudible, it is impossible to gather direct evidence about their mobility. Research into note mobility does, however, suggest that performers move beats as well as notes. Some—but certainly not all—of this variance takes place in the context of *ritardandi, accelerandi,* and *rubati.*

If metric regularity does not depend on exactly equal timespans between beats, what does it involve? It is concerned with the patterned alternation of relatively strong and weak beats, in a duple or triple pattern. Metric irregularity is recognized not primarily on the basis of an atypical **amount of time** between successive accented beats at some level, nor solely on the basis of an unusual **number of primary-level beats** between metric accents, but also by an atypical number of intervening **beats on the next lower hierarchic level.** A five-bar hypermeasure, encountered in a context of four-bar hypermeasures, will seem irregular, not primarily because it contains five measures rather than four, and probably not because it contains 20 rather than 16 primary-level beats (assuming a time signature of 4/4). Rather, the irregularity is understood as an aberration on one particular hierarchic level. On the level at which the music has been pairing measure downbeats (strong/weak/strong/weak), one extra weak beat is added, producing a strong/weak/weak hypermeasure. Thus, it is the number of weak beats between adjacent strong beats more than the elapsed time or the number of intervening beats on the surface that determines hypermetric irregularity. If we find two weak beats between adjacent strong beats where we are accustomed to finding one (or conversely), then we feel an irregularity.

But this irregularity may be subsumed into regularity on still larger levels. The five-bar hypermeasure, just like the four-bar hypermeasures that may have preceded it, may contain one relatively weak beat between two successive strong beats. Example 110 shows the opening of Brahms's Variations on a Theme of Haydn, which unfolds in five-bar hypermeasures. The graph in Example 111 shows some irregularity on Level B, where three- and two-beat hypermeasures alternate. Despite this irregularity, however, Level C is regular: each hypermeasure on Level C is consistently duple. The same may be said about Level D. Even though the two hyperbeats in each hypermeasure at Level C are not equally spaced in time, the hypermeasures do each contain **the same number of hyperbeats.** Regularity as measured by number of hyperbeats per hypermeasure is a potent force, even though (because of Level-B irregularities) those beats are not equidistant in time. The regularities at Levels C and D subsume the irregularities at Level B.

Example 20. Brahms, Variations of a Theme of Haydn,
Opus 56a, mm. 1-10.

Example 21. Hypermetric analysis of Example 20.

```
D |2              |
C |2      |       |       |
B |3    |2  |3    |2  |3    |2  |3    |2
A | | | | | | | | | | | | | | | | | | |
    1a       4a    6a       9a    1b       4b    6b       9b
```

We should not think, of course, that the difference in length between four- and five-bar hypermeasures cannot be perceived. Such a suggestion would be absurd. The difference in lengths, however, is a matter of *metric* perception (as opposed to the perception of durational proportions) only on the level where the changes originate—in this case, Level B.

All tonal music exhibits hypermeter. A lot of other music does as well. Hypermeter is much like ordinary meter, except that it unfolds at considerably slower tempos. But there is a significant difference: whereas surface-level meter is mostly regular, the higher levels of hypermeter normally—in all but the simplest music—contain some irregular hypermeasure lengths. Examples 16 and 17 shows that even a passage of only moderate complexity may contain a mixture of duple and triple hypermeasures on some hierarchic levels.

Because hypermeasures unfold slowly, we generally do not know if a non-normative three-beat hypermeasure is happening until we sense that the strong metric accent we expect to begin the next hypermeasure turns out to be less strong that we had anticipated, since it is a third hyperbeat, not a first. In some instances, we wait until the beginning of the next hypermeasure before realizing that the preceding hypermeasure was triple. Thus we are constantly revising our understanding and expectation of where hypermeasures begin and end. This process helps keep music exciting, engaging, and unpredictable. It also makes the experience of hypermeter somewhat different from that of surface-level meter, which only occasionally goes against expectations.

This essay has offered an overview of hypermeter, with some reference to accent and rhythmic grouping. These topics can become enormously complex in some musical contexts. But the basic ideas presented here should suffice to allow students to become more aware of the middle-to-large-scale temporal organization of tonal music. The terminology and analytic methodology introduced here are intended to focus in on musical experiences that we all have, even though for some of us these aspects of large-scale meter may previously have been subconscious. The analytic tools provided should be useful in understanding how listeners respond to the metric organization of tonal music, and also some of how performers make interpretive decisions. As this essay has tried to emphasize, the principles developed should be understood as an explication of, not as a substitute for, musical intuition. If hypermeter is studied along the lines suggested here, musical sensitivity as well as understanding should increase.

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