THE ROLE OF HARMONY IN EXPRESSED METER:
A HISTORICAL REVIEW AND ITS PLACEMENT IN CURRENT PEDAGOGY

by

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Current curricula for beginning courses in undergraduate tonal-music theory are mainly oriented towards composition. However, most undergraduate students are performers, and this pedagogical orientation provides little basis for them to improve their performances through music analysis. They especially lack the ability to locate and project metrical shifts and changes, often resulting in stilted performances that rigidly adhere to the notated meter. Instruction in how to analyze such “expressed” meter should enable students to locate accentual shifts themselves, and provide them with a better understanding of the pieces they are playing. This thesis examines how several current undergraduate textbooks deal with issues of expressed meter, and reviews non-pedagogical studies of the last half century that have given expressed meter more attention. The studies assert that accents of harmony are accentually most salient, and so can change metrical perception. Accordingly, the thesis provides a lesson plan for a unit on the relation of harmony and expressed meter that complements the current undergraduate curriculum, integrating the issues of metric perception discussed in the textbooks with those set forth in current theoretical studies. The concepts and vocabulary it presents will help students analyze the perceived meter of the tonal music they are performing.
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INTRODUCTION

Many instrumental instructors expect their students to have an analytical grasp of the music they are learning to play. In college and university music programs, this expectation is only heightened by the instructor's knowledge that their students are concurrently studying music theory. Unfortunately, most undergraduate theory curricula are oriented towards composition, not performance, so that students gain little or no experience in applying analysis to improve their performances. Most early undergraduates have yet to specialize their study, and concentrate mainly on instrumental lessons. Very few are actual composers who can benefit from a theory program that is entirely compositionally based. Thus a curriculum oriented more towards performers and listeners would benefit the majority of students. Analytical knowledge of a piece can help improve understanding, and allow a performer to project that comprehension and a listener to enjoy a piece more fully.

Take, for example, a second-year undergraduate piano student studying Brahms' "Capriccio," Op. 116 No. 1. This is a piece with constant accentual shifts, as described by Menahem Pressler in the "Suggestions for Performance" for the 1981 Wiener Urtext Edition:

This Capriccio must be played with extremely intense feeling, observing the phrasing with great care. In the theme as in all the figures deriving from it the accentuation is on the third quaver in each case, reinforced by \textit{sf} in bars 4, 5 and 6. By contrast, in bar 8 it is the first quaver which carries the metrical stress, and this must be conveyed with warmth of expression... From bar 21 onwards: consistent alternation of both hands in hemiolic rhythm.\footnote{Menahem Pressler, suggestions for performance, \textit{Fantasien Op. 116}, by Johannes Brahms (Vienna: Musikverlag Ges. m. b. H. & Co., 1981) vi.}

The piano student does not, however, have this helpful edition. After several weeks of deliberation, her note accuracy is flawless, the dynamic markings are precisely yet sympathetically projected, and the tempi are sensitively followed. She expects her instructor to be impressed, but is instead chastised for incorrect accentual placement. "I don't understand," she objects, "I emphasized the beginning of each measure!" That, unfortunately, is her problem.
The belief that the meter signature and barlines always indicate the meter is common among undergraduate students. If she were able to locate accentual shifts herself, she would have better interpreted the piece.

The origins of the confusion experienced by that second-year piano student are ideas of eighteenth- and nineteenth-century theorists such as Jean-Phillipe Rameau, Johann Kirnberger, Simon Sechter, and Hugo Riemann, ideas that also underlie many current textbooks. In the eighteenth- and nineteenth-centuries, the majority of musicians were also trained as improvisers and composers. Accordingly, most of the theoretical treatises from these centuries dealt with music from a composer’s perspective. Those that did include performance-oriented discussions, such as Riemann’s, kept studies of harmony and meter separate.

Consequently, issues of rhythmic and metric perception are not a central element in the traditional curriculum of undergraduate music theory. Compositionally based programs, drawing from the earlier theories, concentrate on the placement of harmonies within a given metric scheme. More recently some textbooks have begun to cover music analysis. For the most part, they focus on identifying harmonic functions and progressions, often including consideration of linear process, influenced by the theories of Heinrich Schenker. Most, however, neglect to comprehensively treat metric issues, namely those involving harmony, from a performer’s or listener’s perspective. Is harmony pre-determined by meter, as implied by most textbooks’ concentration on the placement of harmonies within a metric scheme? Or do harmonic devices create their own accents, accents that are strong enough to influence metric perception? This common debate, which may be termed as treating the difference between “notated” versus “expressed” meter, will be the central issue addressed in this thesis.

Modern-day theorists such as Wallace Berry, Fred Lerdahl and Ray Jackendoff, Joel Lester, and Joseph Swain have explored further the idea of harmonic devices having an influence on metric perception. They believe that accents arising from harmonic processes can shift or
change the perceived meter. Although most current textbooks ignore this specific idea, they do not completely disregard the possibility of an expressed meter. A select few even devote entire sections to introducing terminology associated with metric perception. In Chapter I, this paper will explore several representative textbooks, reviewing to what degree each deals with expressed meter. Chapter II will discuss non-pedagogical works of the latter half of the twentieth-century that have given expressed meter more attention. Finally, Chapter III will provide a lesson plan, complete with examples, treating expressed meter in a way that complements the current undergraduate curriculum. This unit integrates the traditional curriculum discussed in the first chapter with the newer issues approached in the second. In the appendices are provided a sample schedule for the unit, a glossary of rhythmic and metric terms dealing with metric perception, and a breakdown of harmonic devices that are influential in creating expressed meters. The unit on expressed meter is designed to provide new insight in listening to and performing music for both the typical student and the 'performer' in an undergraduate classroom. After completing such a unit, the undergraduate pianist will be able to devise an accentual analysis of Brahms' "Capriccio" that will improve her metrical interpretation in performance.
CHAPTER I

Notated and Expressed Meter in Current Curricula and Their Basis in Eighteenth- and
Nineteenth-Century Theories

Current textbooks draw most of their material from earlier theorists such as Jean-Phillipe Rameau, Johann Philipp Kirnberger, and Simon Sechter, thus their definitions of meter reflect the compositional orientation of those theories. Reviews, such as those done by William Caplin, show that theories in both eighteenth and nineteenth centuries consider aspects of harmony and melody in their discussions of rhythm and meter. Caplin points out, however, a tension common to these theories between “notated” and “expressed” conceptions of meter. Most treatises he reviews consider meter to be predetermined and indicated by the notated time signature and bar lines, but he notes, “there are some serious objections to this conception, of which the most significant is the simple observation that the notation often fails to correspond with the metrical interpretation that the unprejudiced listener actually hears.” He shows that some theorists recognize this direction and therefore consider how meter is expressed by the organization of musical parameters (dynamic, durational, and/or tonal).

A survey of current textbooks shows the same dichotomy between notated and expressed meter. As examples, let us consider six representatives: Allen Forte’s Tonal Harmony in Concept and Practice; Peter Westergaard’s An Introduction to Tonal Theory; Edward Aldwell and Carl Schachter’s Harmony and Voice Leading; Joel Lester’s Harmony in Tonal Music; Stefan Kostka and Dorothy Payne’s Tonal Harmony with an Introduction to Twentieth-Century

Music, and Robert Gauldin's *Harmonic Practice in Tonal Music*. These texts have been chosen to exemplify the entire range of pedagogical approaches. Forte, Aldwell & Schachter, Kostka & Payne, and Lester focus on harmonic functions, but they expand their discussions to include voice leading, rhythm, and meter, especially the first. Lester and Westergaard include sections on performance. Finally, Westergaard and Gauldin provide completely different approaches – from a Schenkerian (voice leading) perspective. Gauldin also includes several terms referring to expressed meter that will be further explored later in this chapter. These texts are mainly compositionally based, but each author does consider analysis to varying degrees. Although they rarely broach the subject of harmonically expressed meter, many do allow for the possibility of meter being expressed in some way.

Let us first consider the oldest textbook of the group, Forte’s *Tonal Harmony in Concept and Practice*. At the outset, he vaguely describes meter, as well as rhythm, as ways “to organize and articulate melody and harmony.” This recalls Kirnberger’s definition of meter, where tones are grouped into “units of equal length” by accent. The characteristics of meter “are represented in the notation.” This precise definition does not easily admit the possibility of meter being “expressed.” But he further refines the definition by distinguishing “metric pattern” from “rhythmic pattern”:

In contrast to metrical pattern, which is a succession of notes of equal value grouped by regular accent, *rhythmic pattern* often consists of notes of different values, notes which are grouped in various ways, often by irregular accent. Thus, if we regard metrical pattern as the constant, underlying, repetitive pattern, rhythmic pattern is the varied and flexible pattern that is superimposed on the metrical pattern.

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9 Aldwell & Schachter and Kostka & Payne are also chosen due to their popularity in recent years.
10 Westergaard does not define the terms meter or accent, and if they are defined in passing, it is not overtly clear to either this author or especially any undergraduate students. They are not mentioned in the table of contents, and there is no glossary or index.
11 Forte, 22.
13 Ibid., 23.
14 Ibid.
One feature of a rhythmic pattern is that it may either “shift or displace the metrical accent” or “coincide exactly with the metrical pattern.” When there is a shift, it is fleeting, such as a syncopation.

Kostka & Payne’s definition of meter seems to allow for possible meters other than the notated one: “Beats tend to be grouped into patterns that are consistent throughout a passage; the pattern of beats is called the meter.” But then they restrict it: “the groups of beats are called measures, and in notation the end of a measure is always indicated by a... bar line.” This does not leave a lot of room for an expressed meter other than the notated one.

Aldwell & Schachter define meter similarly as a “repetitive pattern that combines accented and unaccented beats,” pointing out that “[i]n normal musical notation, the bar line appears just before the strong beat.” Their use of the term “normal musical notation” is revealing; it suggests that there are exceptions to this rule and allows for instances of alternate, expressed meters.

Lester is even more broad-minded, simply defining meter as a pattern of strong and weak beats. He does not indicate how this distinction is created, or notated. Indeed, he specifically addresses the issue of metric perception: “There is no unanimity of opinion among musicians about what causes our perception of meter in music.”

Just as Sechter expanded Kirnberger’s definition of meter to “a hierarchy of accents and unaccent,” Gauldin goes further than the other textbook authors in his. He describes meter as “a three-tiered metrical hierarchy of relationships, moving from shorter to longer pulses – (1) beat division, (2) beat, and (3) meter or measure – producing regular recurrences at different

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15 Ibid.
16 Ibid., 23-24.
17 Kostka & Payne, 29.
18 Ibid.
19 Aldwell & Schachter, 39.
pulse or rhythmic levels. Like Lester, Gauldin does not specify how these patterns are created, nor does he require that meter strictly follow the notation.

Also crucial to the possibility of expressed meter is how a theory defines “accent.” There is some disagreement and confusion about this term among textbook authors. For some, meter defines a set pattern of accent (“metrical” accent), while for others accent derives from the actual musical events in a piece, and may determine the meter (“phenomenal” accent). Most authors choose to offer students distinct definitions for each of the types of accent, which can be used separately or together in analysis. Lester’s is the only text that does not provide the student with a definition of metrical accent; he chooses instead to focus solely on phenomenal accent. Conversely, Kostka & Payne restrict all discussion of accent to metrical accent. The degree to which the other four texts address each type of accent is further explored below.

Their definitions seem to be sourced in historical treatises. Rameau called the first beat of each measure “strong [bon] or principal, and the others weak [mauvais], except in a quadruple meter, where the first and third beats are equally strong.” Kirkberger and Sechter were a little more specific, labeling the first beat of a measure as a primary accent and following beats as different grades of secondary accents or unaccents. Even in triple meter, Kirnberger allows for an accented second beat in slow and ponderous styles such as the Sarabande and Chaconne. Forte duplicates these definitions: “The bar line indicates the placement of metrical accent, the accent which marks off each group, or measure. This accent falls on the first note of the group. Secondary metrical accents often occur, but are standardized by tradition and not indicated in the notation.” Aldwell & Schachter’s definition is the most simple: “the accent that falls on the first beat of the bar is called the metrical accent.” Metrical accent is thus portrayed to be

22 Gauldin, 20.
24 Ibid., 205.
25 Ibid., 88-89.
26 Forte, 23.
27 Aldwell & Schachter, 39.
rooted in notated meter. However, Westegaard, Kostka & Payne, and Gauldin are slightly less specific, defining metric accents as a pattern of primary and secondary stresses found in a metrical hierarchy.\textsuperscript{28} This allows that the pattern of metrical accent may differ from the notation.

Forte does not explicitly discuss any accents other than metric. He does, however, admit to rhythmic patterns, and even shifting meters, being created by irregular accent patterns. In doing so, he implies that there must be another type of accent, although he does not describe how it is created.\textsuperscript{29} Westegaard also speaks of primary and secondary beats, and of the possibility of shifting or hiding an established pattern, without describing how to achieve this.\textsuperscript{30} Their approaches recall Kirnberger's. In discussing the correlation of chord tones and accent and of non-chord tones and non-accent that give rise to meter, he suggests that notation does not always portray 'true' meter.\textsuperscript{31} Sechter, too, usually portrays meter as being determined by notation, but he is conscious of its limitations and quick to accuse composers of faulty time signatures. For him, the proper time signature can be determined by locating primary accents, whether or not they directly follow notated bar lines.\textsuperscript{32} Sechter does not provide specific criteria for locating the primary accents,\textsuperscript{33} but he does provide a vague method for determining the actual meter: "The best test is to examine whether the first note after the bar line can be strongly attacked, since this is the same in all meters. As soon as several notes of the same measure can be sounded stressed, then the time signature is false."\textsuperscript{34}

Riemann was one of the first theorists to specifically categorize the different ways of creating phenomenal accent. These include \textit{Harmoniewirkung} or "effect of harmony," which is basically an accent of harmonic change; agogic accent, which is durational; and \textit{Schlusswirkung}

\begin{footnotes}
\footnotetext{28}{Westegaard, 269-276; Kostka & Payne, 29; Gauldin, 20.}
\footnotetext{29}{Forte, 23-24.}
\footnotetext{30}{Westegaard, 276.}
\footnotetext{31}{Caplin, "Theories of Harmonic-Metric Relationships," 100.}
\footnotetext{32}{Ibid., 206-207.}
\footnotetext{33}{Ibid., 210-211.}
\footnotetext{34}{Ibid., 207.}
\end{footnotes}
or "effect of cadence," which labels cadential points as accentual. Aldwell & Schachter, Lester, and Gauldin follow suit. Aldwell & Schachter’s definition mentions several ways in which accent can be created:

Accent means emphasis. A note that receives more emphasis than the ones surrounding it is heard as accented. Accents often arise in performance when a note is stressed by being played more loudly than those around it or when the performer emphasizes the beginning (attack) of the note. Other kinds of accents are, so to speak, built into the composition itself. In general, long notes attract accents, for their long duration creates an emphasis. Unusually high or low notes come across more strongly than those in a normal register. Dissonant or chromatic elements, because of the tensions they create, tend to sound accented compared to consonant or diatonic elements.35

Gauldin’s definition is less detailed, providing almost a summary of Aldwell & Schachter’s lengthy discussion of accent. In his glossary, Gauldin describes accent as: “Emphasis on a specific tone, beat, or chord; usually through dynamic (accent mark >) or quantitative stress (agogic or duration accent).”36 Neither, however, comments on how these phenomenal accents can support, alter, or create meter.

Lester is the only textbook author who specifically describes how phenomenal accents can affect meter. Indeed, the only one to use the term perception while describing accent. In several places throughout both volumes of Harmony in Tonal Music, for instance, he shows by example that agogic accents can either support or contradict the notated meter.37 Among these he defines several types: agogic accents in the foreground rhythm, meaning the accent on the beat at which longer notes begin,38 agogic accents in the rhythm of pitch changes, which expands the previous definition to include pitches repeated in succession,39 and agogic accents in the harmonic rhythm. Concerning the latter, Lester points out that “[i]f the harmonic rhythm is syncopated... our perception of the meter may be cast into doubt.”40 Moreover:

...the placement of agogic accents in various dimensions (foreground rhythm, rhythm of pitch change, and harmonic rhythm) seems to play a crucial role in determining the points at which accents are heard, while the length and placement of pattern repetition reinforce the single metric analysis... then the meter is generally perceived with no difficulties. But if these factors imply

36 Gauldin, 654.
39 Ibid., 48.
40 Ibid.
more than one point of accent or contradictory metric patterns then there is likely to be confusion as to the meter.\textsuperscript{41}

Lester’s treatment certainly reflects current, non-pedagogical theories of rhythm that will be discussed in Chapter II. In contrast, other authors do not say much about harmonic rhythm’s effects on meter. Again this may be explained by the fact that the other authors draw from pre-twentieth-century theories, and so are concerned instead with how composers should set pitches within a predetermined metrical scheme, and how metrical placement affects harmonic and tonal interpretation.

Rameau, the first theorist of harmony, did not show an awareness of expressed meter nor describe how pitch relationships create meter. Instead, he seemed primarily concerned with how pitches should be set within a measure, and how this placement can effect harmonic interpretation – a composer’s perspective. In his dissertation, Caplin organizes Rameau’s scattered ideas on harmony’s influence on metric perception from his major works into four main points: the prohibition of harmonic syncopation; the role of meter in clarifying tonal function; the metrical placement of dissonant chords; and the use of harmonic-metric principles in identifying non-harmonic, ornamental tones.\textsuperscript{42} Kimberger and Sechter parallel Rameau’s beliefs. Kimberger uses meter as a criterion for distinguishing between consonant and dissonant chords, and between fundamental and suspension chords.\textsuperscript{43} Sechter mandates that composers must align a change of harmony with the onset of each measure.\textsuperscript{44} Both prohibit repeating a harmony from a weak to a strong beat (Rameau’s harmonic syncopation).\textsuperscript{45} Kimberger and Sechter do, however, admit that composers do not always follow these guidelines.\textsuperscript{46}

\textsuperscript{41} Ibid., 49-50.
\textsuperscript{42} Caplin, “Theories of Harmonic-Metric Relationships,” 23.
\textsuperscript{43} Ibid., 130.
\textsuperscript{44} Ibid., 212-213
\textsuperscript{45} Ibid., 141, 212-213.
\textsuperscript{46} Ibid., 107-108, 206.
Similarly, Forte approaches the relation of harmony and meter as a problem of how chords are placed in a given (notated) meter. In the first edition of his text he provides two important considerations that dwell on that problem: the Principle of Metric-Rhythmic Grouping, and the Principle of Metric-Rhythmic Placement.\(^{47}\) The first principle says that chords that belong together should be grouped together metrically. The second specifies that fundamental and/or goal harmonies must be metrically accented. He includes demonstrative examples. In Example 1-1a the grouping of harmonies, indicated by brackets, follows the Principle of Metric-Rhythmic Grouping, but the tonic is not on the notated downbeat. Example 1-1b corrects the passage by shifting it with respect to the notated meter so that the final tonic is correctly placed.

Example 1-1.\(^{48}\)

a. Wrong:

\[
\begin{array}{cccc}
\text{f} & \text{i} & \text{j} & \text{f} \\
\text{g} & \text{a} & \text{c} & \text{g} \\
\text{b} & \text{d} & \text{f} & \text{b} \\
\text{e} & \text{g} & \text{c} & \text{e} \\
\text{d} & \text{f} & \text{b} & \text{d} \\
\text{c} & \text{e} & \text{g} & \text{c} \\
\text{b} & \text{d} & \text{f} & \text{b} \\
\text{a} & \text{c} & \text{g} & \text{a} \\
\text{g} & \text{c} & \text{e} & \text{g} \\
\text{b} & \text{d} & \text{f} & \text{b} \\
\text{e} & \text{g} & \text{c} & \text{e} \\
\text{d} & \text{f} & \text{b} & \text{d} \\
\text{c} & \text{e} & \text{g} & \text{c} \\
\text{b} & \text{d} & \text{f} & \text{b} \\
\end{array}
\]

b. Correct:

\[
\begin{array}{cccc}
\text{f} & \text{i} & \text{j} & \text{f} \\
\text{g} & \text{a} & \text{c} & \text{g} \\
\text{b} & \text{d} & \text{f} & \text{b} \\
\text{e} & \text{g} & \text{c} & \text{e} \\
\text{d} & \text{f} & \text{b} & \text{d} \\
\text{c} & \text{e} & \text{g} & \text{c} \\
\text{b} & \text{d} & \text{f} & \text{b} \\
\text{a} & \text{c} & \text{g} & \text{a} \\
\text{g} & \text{c} & \text{e} & \text{g} \\
\text{b} & \text{d} & \text{f} & \text{b} \\
\text{e} & \text{g} & \text{c} & \text{e} \\
\text{d} & \text{f} & \text{b} & \text{d} \\
\text{c} & \text{e} & \text{g} & \text{c} \\
\text{b} & \text{d} & \text{f} & \text{b} \\
\end{array}
\]

Forte admits that there are exceptions that cause the goal harmony to occur on a beat that is not metrically accented: "If it is not placed on a strong beat the reason may be that harmonic expansion or ellipsis has brought about the displacement of the goal harmony from its normative accented position."\(^{49}\)

\(^{47}\) The second edition streamlines the text to a "figured-bass approach to voice leading a vertical structure," (Forte, 2\(^{nd}\) ed., v) omitting harmonic analysis-based exercises and this section, among others. The third edition brings back some of the harmonic analyses, but not this section.

\(^{48}\) Examples 255 and 256 in Forte, 1\(^{st}\) ed., 230.

\(^{49}\) Ibid., 230-231.
Apparently this discussion proved confusing to readers, because in the third edition of *Tonal Harmony in Concept & Practice*, Forte talks about harmonic progressions and goals, and the different harmonies within a diatonic key, with no mention of rhythm or meter. He provides no clue as to the role of meter in the harmonic progressions, though almost all of his examples show the harmonic goal as being metrically strong (i.e., beat 1).

Forte does not, however, completely omit any discussion of metric-rhythmic patterns in the third edition. The chapter on “Modulatory Progressions” represents the only such discussion in this later version:

> With regard to metric-rhythmic pattern the modulatory progression is the same as any other progression. The quasi-tonic triad falls on a metrically accented beat. The modulating dominant must also receive a metrical accent, and the pivot chord is almost always given a prominent position in the pattern, either by metrical or rhythmic accent.\(^{50}\)

While this is a reasonable simplification for beginning students of composition, most undergraduate students are not composers.

Like Forte’s, Kostka & Payne’s approach to the interaction of harmony and meter is founded in notated meter, with little discussion on how harmonic placement can influence metric perception. As well, their regulations are very similar. They do not propose any situations where composers deviate from the rules of metrical placement. Still, their discussion is more comprehensive than those of Westergaard and Gauldin, neither of whom addresses the topic at all.

The most extensive discussion of the metrical placement of harmonies is in Aldwell & Schachter’s textbook. It is organized into discussions of chord types such I, V, and V7; I6, V6, and VII6; inversions of V7; IV, II, and II6; and IV and IV6. Near the end of each of these chapters, Aldwell & Schachter provide guidelines for the metrical placement of those harmonies. They also advise the student that composers do not always follow these guidelines. Unlike the other textbooks, they also cite several examples of the exceptions. Indeed by presenting such

\(^{50}\) Forte, 3rd ed., 269.
passages as exceptions, textbook authors imply that the harmonic progressions are misplaced, not that they express a meter different than the notated one.

Hemiola – perhaps the most familiar and obvious device which “expresses” (albeit temporarily) a meter different than the notated one – is mentioned in all six textbooks. But not all show how harmony can create it; indeed, the topic is avoided, practically shunned by some of the authors. Kostka & Payne mention hemiola very incidentally: “Notice that mm. 200 to 201 sound as if they are in 2/4 rather than 3/4. This metric device, which is known as hemiola, has been used for many centuries and is still heard today.” Their use of language (“sound as if”) implies that listeners perceive the meter differently than it is notated. Unfortunately, the authors do not help the student identify what aspects of the music make it “sound” that way. Forte gives similarly short shrift to the topic. There is no mention of hemiola until the second edition of Forte’s Tonal Harmony in Concept and Practice, and even then only as part of a Bach example for arpeggiation: “The observant reader will notice that this latter arpeggiation is brought about by the subdivision of the six-note pattern into groups of two – an instance of hemiola.”

The other authors give more attention to this common metrical device. In a subsection entitled “Rhythmic accent versus metrical accent,” Aldwell & Schachter assert that “[r]hythmic emphases that contradict the meter sometimes set up such a consistent pattern of their own that we hear a temporary change of meter.” To illustrate hemiola, they present an excerpt from the first movement of Mozart’s Piano Sonata, K. 283, in which two bars of 3/4 are “transformed” into one bar of 3/2 (see example 1-2). If one were to harmonically analyze the excerpt, it could be clear that the hemiola is caused by accents of harmonic change. However Aldwell & Schachter do not explain this to their readers.

51 Kostka & Payne, 242.
53 Aldwell & Schachter, 40.
54 Ibid., 41.
Example 1-2. Metrical Analysis of Mozart: Piano Sonata, K. 283, I, mm. 5-10\textsuperscript{55}

Example 1-3. Metrical Analysis of Mozart: Piano Sonata, K283, I, mm. 8-9\textsuperscript{56}

\textsuperscript{55} Example 3-8 in Ibid., 41.

Lester uses the same Mozart example of hemiola to demonstrate metric change. Unlike Aldwell & Schachter, he unequivocally designates harmonic change as the cause of the hemiola:

In measures 8-9 the chord changes occur every second beat. This causes a temporary change to 2/4 in the actual meter (as opposed to the notated meter). In effect, two measures of 3/4 (3 beats + 3 beats = 6 beats) are heard here as three measures of 2/4 (2 beats + 2 beats + two beats = 6 beats). Listen to Example 15-5 [example 1-3a]. Another way of describing the change is to state that one measure of 6/4 has changed into one measure of 3/2. Listen to Example 15-6 [example 1-3b].

Lester asks the students to listen to the examples, suggesting that the notated meter is misleading.

Gauldin uses hemiola as the first example of several instances of what he calls “metrical dissonance.” In fact, Gauldin’s second chapter on rhythm and meter is entirely devoted to “devices that conflict with the established metrical hierarchy.” Unlike the other textbook authors, Gauldin introduces in this chapter concepts and terms drawn from current theoretical research, namely that on metrical dissonance done by Maury Yeston and Harald Krebs.

Krebs maintains that all metrical and rhythmic phenomenon are heard against a “primary metrical consonance” – “namely, the consonance numerically represented by the time signature:”

This “primary metrical consonance,” consisting of a pulse level plus an interpretive level of a particular cardinality, positioned in a particular manner, may not be articulated by actual rhythmic levels at all points of a work. Nevertheless, the performer, while learning the work, is constantly reminded of that primary consonance by the composer’s notation – specifically, by the bar lines. The performer’s constant awareness of the primary consonance will likely be reflected in the performance and will be communicated to the listener. Thus, the primary metrical consonance remains subliminally present where it is contradicted on the surface. It acts as a constant frame of reference for metrical perception, just as the background tonic triad in the pitch domain acts as an omnipresent subliminal reference point for the hearing of the harmonic events of a given tonal work.

When there are no rhythmic or metrical contradictions against this primary consonance, Krebs and Yeston say that the music is rhythmically or metrically “consonant.” On the other hand,

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57 Ibid., 177.
58 Gauldin, 116.
59 Lester is the only exception to this, although he draws from his own theoretical ideas rather than those of his colleagues.
62 Ibid., 103 and Yeston, 77-78.
patterns which contradict the primary consonance are called “rhythmic dissonance” or “metrical
dissonance,” the latter being a longer lasting disturbance than the former. These dissonances
may eventually “resolve” to the primary consonance. Yeston and Krebs describe several types
of such dissonances: hemiola, syncopation, and polymeter, among others.

Krebs and Yeston use definitions and descriptions that are often complex and extremely
detailed. Gauldin manages, however, to present a portion of their research in a pedagogically
accessible way. He reminds the student of the three-tiered metrical hierarchy: beat division,
beat, and meter. The “extended regularity” of the meter “establishes a basis of rhythmic
consonance,” an interruption of which constitutes “rhythmic dissonance.”

In some cases this dissonance may produce only momentary disruptions, while in other cases it
may influence long passages. Like dissonant intervals, this momentary dissonance usually
“resolves” back to the established rhythmic consonance. The possible range of rhythmic
dissonance is considerable, extending from being barely perceptible to destabilizing the entire
metrical foundation.

Gauldin then clearly introduces several types of rhythmic dissonances, providing straightforward
examples of each. “Substituted beat division” occurs when compound metric divisions are
substituted for simple divisions, or vice versa. “Superimposed beat division” arises when the
two divisions take place concurrently. “Syncopation” displaces agogic accents to unaccented
beats or beat division, and finally “displaced accent” involves *sforzandi* accents on those same
weaker beats.

Gauldin then moves forward to more serious disruptions of the rhythmic consonance:

While the devices described above create rhythmic conflicts, they usually do not disturb our
overall sense of either the number of beats in a measure or the strong-weak positioning of those
beats. However, we will now examine some instance of metrical dissonance, where the beat
grouping and accentuation are more seriously disrupted. Like their counterparts at the beat and
subbeat levels, this “dissonance” is eventually resolved.

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63 Krebs, “Some Extensions of...,” 100, 103; Yeston, 78.
64 Krebs, “Some Extensions of...,” 114.
65 Gauldin, 117-125.
66 Ibid., 117.
67 Ibid., 118.
68 Ibid.
69 Ibid., 119.
70 Ibid., 120.
He once again illustrates several types of metrical dissonance: hemiola, substituted meter, superimposed meter, polymeter, metric shift and changes of meter. Crucially, however, Gauldin does not discuss the causes of each type of metrical dissonance. He proceeds as if the dissonance is obvious. For example, here is his explanation of meter in Schumann’s “Soldier’s March” (see example 1-4):

The notation of Schumann’s pompous little march seems at odds with the music’s natural feeling of upbeat and downbeat. Although the initial of each phrase occurs on the downbeat, it actually sounds more like an upbeat. At the conclusion of the piece, an “additional” beat, denoted by the arrow, shifts our sense of accentuation and allows the last chord to occur on the downbeat of the final measure. In this passage the implied stressed and unstressed beats are denoted with – and –, respectively.71

Example 1-4. Accentual Analysis of Schumann: “Soldier’s March” from *Album for the Young*, Op. 68 No. 2, mm. 1-4 and 25-3272

![Example 1-4](image-url)

From what specific features of the music does the putatively “natural feeling” arise? Gauldin does not say.

Nevertheless, Gauldin’s section on metrical dissonance is by far the most comprehensive account of expressed meter in all six textbooks. And beside Lester, who incorporates his own theoretical ideas into his textbook, Gauldin is the only author to acknowledge current steps in
theoretical thinking about rhythm and meter. In the next chapter, we will explore current theories further for ideas on how to explain harmony’s contribution to expressed meter more deeply than textbook authors have been willing or able to do so far.
CHAPTER II

Twentieth-Century Approaches to Notated and Expressed Meter

The previous chapter showed how the traditional curriculum proceeds mainly from a composer's perspective. Most traditional discussions of the relation of harmony and meter centre on the placement of harmonies within a predetermined meter. Analytically minded modern theorists offer many new insights that can be integrated in the undergraduate curriculum to solve the pedagogical problems raised in the introduction.

Interest in rhythm as a topic distinct from other aspects of music did not begin until the second half of the twentieth century. The first theorists to approach the topic insightfully were Grosvenor Cooper and Leonard Meyer in 1960.\(^1\) A number of other theorists followed in their path, including Wallace Berry, Fred Lerdahl and Ray Jackendoff, Joel Lester, and Joseph Swain. This chapter reviews those theories that have the most substantive and pedagogically suggestive discussions of the role of harmony in the creation of meter.

Wallace Berry describes his 1976 book, *Structural Functions in Music*, as "an inquiry into tonal, textural, and rhythmic structures in music, and into conceptual and analytical systems for the study of these fundamental elements."\(^2\) He emphasizes rhythm and texture, clarifying that "this book is concerned with grouping of many kinds and at diverse levels."\(^3\) Berry followed up his book in 1985 with an article focusing on the metric and rhythm articulations that form, and are found within, these grouping structures.\(^4\) Here he defines meter as "a punctuation of time by events of the classification 'accent'"\(^5\) and as a "dynamic, organic element of rhythm."\(^6\) Berry believes different rhythms – harmonic, textural, and others – can work

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3. Ibid., 1.
5. Ibid., 7.
6. Ibid., 31.
separately or together within a piece as “discrete active streams.” These different rhythms are then grouped together by accent and meter.

In *Structural Functions* Berry provides the following definition for accent:

*Accent* is a theoretical term denoting the relative projective, qualitative strength of a given impulse as compared with others which precede and follow it and, with it, form a metric unit at a given level.

Thus meter is formed by accent.

Like Berry, Fred Lerdahl and Ray Jackendoff consider meter to arise from accent, but their book *A Generative Theory of Tonal Music* offers a more explicit theoretical framework that helps clarify this process. Lerdahl, a composer with some linguistics experience, and Jackendoff, a linguist as well as a musical performer, collaborated on a theory of musical grammar, seeking “a synthesis of the outlook and methodology of contemporary linguistics with the insights of recent music theory.” Its goal is to describe “the musical intuitions of a listener who is experienced in a musical idiom.”

The theory treats “those components of musical intuition that are hierarchical in nature:” grouping structure (motives, phrases, and sections); metrical structure (the regular alternation of strong and weak beats); time-span reduction (the hierarchy of the structural importance of pitches with respect to position in grouping and metrical structures); and prolongational reduction (the hierarchy of harmonic or melodic tension and relaxation). In their concept, meter is a hierarchy composed of two or more levels of equally spaced durationless beats. Meter is thus “inherently periodic” and it provides measurement for the music: “...its function is to mark off the musical flow, insofar as possible, into equal time-spans.” Normally, there are five or six metrical levels in a piece. These levels are not equally salient perceptually—

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7 Ibid., 30.
8 Berry, *Structural Functions*, 335.
10 Ibid., xii.
11 Ibid., 1.
12 Ibid., 8-9.
13 Ibid., 19.
the listener usually focuses on an intermediate level, which Lerdahl & Jackendoff label the \textit{tactus}. The tactus and its closest surrounding levels are preferably regular.

Lerdahl & Jackendoff consider perceived beats to arise from, among other things, regular “phenomenal” accents, that is, “[a]ny event at the musical surface that gives emphasis or stress to a moment in the musical flow... attack-points, local stresses, longer notes, and harmony.”\textsuperscript{14} Series of beats, at multiple levels, are typically established by phenomenal accents at the very beginning of a piece, and the listener prefers to maintain this initial pattern, except “in the face of strongly contradicting evidence.”\textsuperscript{15} An example of such “contradiction” is \textit{syncopation}, which arises when the cues (phenomenal accents) do not conform to the established metric hierarchy, but are not quite strong enough and regular enough to override it.\textsuperscript{16}

In sum, the listener’s cognitive task is to match the given pattern of phenomenal accentuation as closely as possible to a permissible pattern of metrical accentuation; where the two patterns diverge, the result is syncopation, ambiguity, or some other kind of rhythmic complexity.\textsuperscript{17}

Lerdahl & Jackendoff warn against mistaking \textit{structural accents} for metrical and phenomenal accents. Structural accents determine the boundaries of groupings, sometimes preceded by an anacrusis and/or followed by a cadential extension. The “structural beginning” is the “initiating event” of a phrase, and the “structural ending”, or cadence, the “terminating event.” These accents do not necessarily coincide with metrical or phenomenal accents, including those created by changes of harmony. If the resolutions of all cadences were to fall on strong metrical beats, then there would be no difference between \textit{strong} and \textit{weak} cadences (which have been traditionally called “masculine” and “feminine”). They point out, however,

\begin{itemize}
  \item \textsuperscript{14} Ibid., 17.
  \item \textsuperscript{15} Ibid.
  \item \textsuperscript{16} In “Rhythm and Linear Analysis: Aspects of Meter,” \textit{The Music Forum} 6 (1987): 5, Carl Schachter expresses the same belief: “...some kind of emphasis is required initially in order to make the listener aware of [time] spans, but \textit{equal divisions}, once established, can persist in the listener’s consciousness without special sensory reinforcement. Indeed, they can persist for a time in the face of strongly contradictory signals... The accents thus produced are true \textit{metrical accents}...”
  \item \textsuperscript{17} Lerdahl & Jackendoff, 18.
\end{itemize}
when a structural accent coincides with a type of phenomenal accent, yet falls on a weak metrical beat, the listener's perception of meter may change.

Like Berry and Lerdahl & Jackendoff, Joel Lester recognizes accent as important in the creation of meter. In The Rhythms of Tonal Music, he aims to survey past rhythmic and metric theories and to develop a new approach to the treatment of accent to integrate into those theories.¹⁸ He also adds a new perspective to the literature on rhythm and meter – that of a performer, which may give his work some added credibility with undergraduate students. The aspect of performance is not overt in his discussions, but he keeps that perspective in mind whenever making judgements about analytical situations.

Harmonic change is an important source of accent for Lester, as it is for Berry. These theorists are more specific in how harmonic change can create accent than were Riemann and Aldwell & Schachter. They also consider it from an analytical, rather than compositional, perspective. Berry considers “tonal or harmonic change of unusual degree or distance” the most important harmonic method for marking accent. This is instanced by the example 2-1, where the second chord shown receives an accent because it introduces a harmony that is not found in the key of the first chord – an applied dominant of ii.¹⁹ The criterion is supported by some of Berry’s “qualities of accent”: strong vs. weak is akin to unique or unexpected vs. common.²⁰

Example 2-1.²¹

Lerdahl & Jackendoff are of a similar opinion, although for them the length of the ensuing harmony is of utmost importance. This is evident in the set of rules they provide that

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¹⁹ Change of any musical element is considered by most theorists to be accentual. Ensuing discussions will show that Lerdahl & Jackendoff, Joel Lester, and William Benjamin, among others, concur. See as well Anne Alexandra Pierce, “The Analysis of Rhythm in Tonal Music,” Ph.D. diss., Brandeis University, 1968, 24, 42 & 47-48.
²⁰ Berry, Structural Functions, 341.
²¹ Example 3-15h in Ibid.
describes the perception of meter. These rules are divided into two different types: "Well-Formedness Rules" (abbreviated to MWFR), and "Preference Rules" (abbreviated to MPR). The MWFR describe the listener’s preference for a hierarchical, regular meter; and the MPR describe how meter conforms to various precepts, including phenomenal accent. For example:

MPR 5 (Length), final version Prefer a metrical structure in which a relatively strong beat occurs at the inception of either
a. a relatively long pitch event,
b. a relatively long duration of a dynamic,
c. a relatively long slur,
d. a relatively long pattern of articulation,
e. a relatively long duration of a pitch in the relevant levels of time-span reduction, or
f. a relatively long duration of a harmony in the relevant levels of the time-span reduction (harmonic rhythm).

This preference rule favours metrical structures in which strong beats coincide with the beginning of change, whether it is of duration, loudness, or articulation. The longer this change persists, the more its beginning is preferred as a strong beat.

With regard to harmonic change, Lerdahl & Jackendoff are quite explicit:

[T]he... phenomenon of harmonic rhythm produces strong cues for metrical structure. Harmonic rhythm can be regarded as the pattern of durations created by successive changes in harmony, not only at the musical surface but also at underlying reductional levels. The relevance of harmonic rhythm to metrical structure can be incorporated into the present theory by treating duration of a harmony as still another kind of length in MPR 5.

They consider harmonic rhythm to be the "strongest case of MPR 5," and they give the following example:

Example 2-2.  

22 Lerdahl & Jackendoff, 69-104.
21 Ibid., 83-84.
24 Ibid., 84.
25 Ibid., 85.
The melody in 2-2a would be interpreted using MPR 5 (a), relatively long pitch events, as in example 2-3a. In the harmonized version, shown in example 2-2b, however, the meter is different. Even though the slurs in the inner voices and the bass support the interpretation in 2-3a (following MPR 5 (c)), the accent produced by change to a long harmony is preferred, yielding the interpretation in 2-3b.

Berry agrees that harmonic change can create an expressed meter, but he also maintains that meter is a discrete mode of grouping, separate from harmonic and textural grouping, as well as from the notated meter. Indeed:

It is fundamental that meter is often independent of the notated bar-line, so that a necessary question in all analysis of meter is: Are the determinants of metric grouping in accord with the notated bar-line, and if not what is the “real” meter? (Or, where is the true bar line?)

Harmony and other accent-producing processes can act not only independently of the notated meter but also of each other.

Although Lester recognizes harmonic change as a source of accent that can create meter, he is more adamant about the persistence of meter once it is established.
The metric hierarchy of relatively accented and unaccented points in time colors all other types of accentuation. The regularity of accentuation in the metric hierarchy, often over long stretches of time, creates expectations according to which we expect certain points in time to be accented—hence, we may attribute accentuations to factors occurring at the metrically accented points in time even when those factors would not necessarily give rise to marked accent in the absence of that meter. Lester cites Arnold Schoenberg’s and Edward Cone’s analysis of a brief passage from Mozart’s Piano Quartet in G Minor, K478. Based on patterns created by accent, Schoenberg considered it an example of changing meters, and Cone believed the meter to be shifted by one half measure. Lester, however, asserts that these analyses take the passage out of context:

The metric hierarchy has been firmly established for many measures before the appearance of this theme... [T]he factors in this passage do not destroy the established meter—they merely add to it other accentual patterns.

Nevertheless, according to Lester, harmonic change can affect the notated meter in three situations. The first of these is by “notational default.” In the eighteenth- and early-nineteenth centuries, composers often notated Scherzi and other fast movements such that the downbeats constitute the primary metric level. Accents of harmonic change in this music can be used to help determine the perceived downbeat. These pieces also tend to feature the regrouping of pulses to form changing meters. Secondly, harmonic change can cause expressed meter to take precedence over notated meter “when the meter is being established (namely, at the beginning of a movement or after an unmeasured pause). The third situation in which this can occur is when conflicting patterns of accentuation persist and upset an already established meter.” The second situation is more common than the third is. Unfortunately, Lester does not provide any

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29 Lester, 42.
31 Lester, 81.
32 Andrew Imbrie supports this concept in his article “‘Extra’ Measures and Metrical Ambiguity in Beethoven,” where he discusses many of Beethoven’s pieces that demonstrate this phenomenon. In these cases, Imbrie notes that meter is established by a “pattern of accentual recurrence that allow[s the listener] to perceive a higher order.” In other words: “The structural role of accent is to fix or mark off those points in time which either establish, confirm, challenge, or overthrow the meter.” Beethoven Studies, Alan Tyson, ed., New York: W.W. Norton & Company, Inc., 1973, 45-66. Quotations from page 52.
33 Lester, 86.
examples where harmonic change or the rate of harmonic rhythm supports an expressed meter different from that which is notated. Instead he describes a passage from Mozart’s “Jupiter” Symphony, K551 (II, mm. 1-7), where harmonic change supports the notated meter:

Example 2-4:\(^{34}\)

This passage was also discussed by Cooper & Meyer, who believe that the second beat, although accented by texture, dynamics, and duration, is not the downbeat because the music is written in the style of a Sarabande, which is understood to have an accented second beat.\(^{35}\) Lester doubts that a listener would know to perceive the piece in this way, and thus it is weak support for the notated meter – harmonic change is its sole upholding device.\(^{36}\)

With regard to this same excerpt, Berry, to the contrary, concludes that the accent of harmonic change is not sufficient to support even the notated meter. He discusses this example both in *Structural Functions* and his article, surmising that the various types of accents marking the second beat override the accent of harmonic change falling on the first. The second beats of measures 1, 3, and 5 are accented by duration and by anacrusic support; those of measures 2 and 4 are accented by dynamics and texture (density); and those of every measure are accented by a higher pitch. Only the harmonic rhythm, with a change from I to V, or vice versa, coincides with

\(^{34}\) Reduction from Example 4-1 in Ibid., 87.
\(^{35}\) Cooper & Meyer, 89-90.
\(^{36}\) Lester, 88.
the notated bar lines of measures 1 to 2 and 3 to 4. The preponderance of second-beat accents thus expresses a meter different than the notated one, a meter where the harmonic rhythm is syncopated with respect to the notated meter.

Lester cites his conception of the strength of harmonic change to counter Berry’s argument:

But harmonic change is not so easily dismissed here as a factor. Berry’s barring insists that the dominant at the end of measure 1 and the tonic at the end of measure 3 are separate from the following downbeats. Since harmonic rhythm is such a crucial factor in established meter, and since continuity within a single harmony is such a fundamental aspect of tonality, Berry’s meter could only be projected in performance with a pronounced break between measures 1 and 2 and between measures 3 and 4 – a break that I find disruptive to the continuity of the larger phrase.37

Joseph Swain agrees with Lester that harmonic change is the most important accentual factor influencing meter. His original contribution is to refine the notion of harmony in his article “Dimensions of Harmonic Rhythm.”38 According to him, there are “multiplicities” to the definition of harmonic rhythm that involve chord function, the presence or absence of root change, the number of voices moving besides the root, and other aspects. He comments:

A simple definition of harmonic rhythm as a “pattern of chord changes” is deficient because it fails to speak to those multiplicities and thereby fails to account for the fact that a harmony may change in some of its properties while holding constant in others.39

The six dimensions of harmonic rhythm he presents – ways in which harmony can create accent – correspond to six different, although, related uses of harmony to express meter.

The first dimension, “The Rhythm of the Textures,” is, strictly speaking, not harmonic. It is the basic rhythm of the music to which harmonic rhythm can be compared – the surface rhythm created by the interaction of the various voices and instruments within a piece. The second dimension, “Phenomenal Harmonic Rhythm,” simply involves change of pitch content, without regard to root or quality.40 Thus phenomenal harmonic rhythm can be created by

37 Ibid., 89.
39 Ibid., 52.
40 Swain is clear that it is a change of pitch, not of pitch class, see pages 56-59.
changes from one chord to another having the same function, by changes within one chord from one position to another, and even by voice exchanges that do not involve the bass voice.

The third dimension is the rhythm of the bass voice. It acknowledges the listener's tendency to associate any movement in the bass with harmonic motion, and includes alternation of the first and fifth degrees under I, or the fifth and seventh degrees under V. This dimension is especially prevalent nineteenth-century music, as "such a bass allowed composers to simulate a harmonic rhythm while maintaining in the actual root movement the slower motion so important to the Romantic musical language." Swain warns that the lowest sounding voice is not always the bass – sometimes the bass voice is absent or it doubles an upper voice.

The rhythm of the change in roots and quality are combined in the fourth dimension. In this, root movement is separated from bass movement – harmonies are not always in root position.

The fifth dimension, "Root Change Density," considers the number of pitches classes that change along with the root, and allows for the noticeability of the harmonic change to be measured. "Maximal Density" is when all voices change, and Swain notes:

When a root change arrives with less than maximal density, there is either a common tone held over from the last triad, a strong-beat dissonance such as a suspension or an appoggiatura, or... pedal tones.

The closer the harmonic change comes to maximal density, the more accented the listener perceives it to be. Swain does not factor dissonance into this dimension, as he says the phenomenal harmonic rhythm will make up for this omission, "where all contributing pitches get their due." It is unclear exactly how the second dimension makes up for this omission.

The sixth and final dimension is one that many theorists discussed above believe has no influence on meter – "Harmonic Function." Swain categorizes all harmonies into Riemann's

41 Ibid., 59.
42 Ibid., 62.
43 Ibid., 62-63.
functional values of T, D, and S, while allowing for dual function and reinterpretation of function. Swain maintains that basic tonic and dominant functions can affect harmonic perception:

Function itself often indicates accented beats with tonic function and unaccented beats with dominant – conventional associations that are nonetheless extremely powerful and efficient.\(^44\) Berry believes that tonal function is “metrically neutral,” having no affect on the perception of meter.\(^45\) Swain dismisses this opinion as “implausible.”\(^46\) In a footnote, Swain describes instances of students’ metric perception where they favour the tonic as the downbeat:

...when I have played for students the beginnings of pieces such as the March from Fidelio, which begins with a dominant bass on the notated downbeat and maintains this pattern for two bars, the students invariably sense that the piece begins with an upbeat.\(^47\)

Although Swain’s division of the types of harmonic rhythm is thorough, he is unclear about how each type creates accent and how to weigh these accents against one another. Perhaps he means that more accent results from more types; or perhaps there are degrees of accent within each dimension that are worth a certain value. Swain also does not account for chromatic chords and dissonance, and the psychological effect these ‘fuller’ sounds carry. To address these problems while still retaining his ideas for teaching about harmonic rhythm and meter, his definitions can be combined with the other ideas in this chapter and used in the classroom.

The theories, definitions, and other ideas discussed in this chapter go a long way toward explaining how meter is perceived, providing insight on how harmonic devices can create accent and how these accents, in turn, affect the perception of meter. To teach about expressed meter in an undergraduate classroom, then, it seems practical to apply these theories analytically to examples from the literature, such as those from the last section of this chapter. Accordingly, the next chapter takes the concepts of Berry, Lerdahl & Jackendoff, Lester, and Swain and combines

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\(^44\) Ibid., 66.
\(^45\) Berry, 330.
\(^46\) Swain, 66.
\(^47\) Ibid., footnote 23.
them with those already present in the curriculum in a demonstration of several analyses of
notated and expressed meter that can be done together with students.
Chapter III
Towards a Revised Curriculum

In the classroom, the concepts of expressed and notated meters, as well as of the conflict possible between them, can be addressed in a series of lessons that complement the established undergraduate curriculum. Combining these lessons into a single unit is preferable to integrating the topics throughout a two-year program as it exposes the students to the different types of expressed meter over a short period of time. Once the students have learned the concept, it can become part of their musical vocabulary, used throughout the remainder of their undergraduate theory courses. Normally, this unit would be best understood after the students have developed a sufficient harmonic vocabulary to appreciate the effects that harmony has on metric perception. Although some examples of expressed meter use complex chromatic harmony, it is sufficient that students be able to identify harmonic changes, not necessarily exactly how those harmonies function. As well, students should understand the fundamental concepts of accents and meter. So the lessons on expressed meter are best presented sometime near the end of the first undergraduate year.

The unit suggested here introduces expressed meter incrementally, moving from simple types, such as hemiola and cross rhythms, to shifted and changed meters. These classifications are presented through example, and explained in terms of the concepts drawn from textbook authors and theorists reviewed in Chapters I and II. That is, Aldwell & Schachter’s concept of accent as emphasis and Gauldin’s presentation of rhythmic and metrical consonance and dissonance (taken from Yeston and Krebs) are combined with the harmonic-metric ideas of Berry, Lerdahl & Jackendoff, Lester, and Swain.

The design presented in this chapter requires six hours of class time, as well as two assignments. Two or three examples of each type of expressed meter are presented. One
assignment deals with hemiola and cross rhythms, while the other focuses on shifted and changed meters. Appendix A provides a sample schedule based on classes that meet two times per week for one hour each. Modifications, such as limiting the number of examples discussed in class, can be made based on individual needs and time restrictions. The other appendixes contain sample handouts that an instructor may find useful.

Examples are essential in an undergraduate curriculum. The majority of students do not always understand new concepts simply by explanation – they need to be shown how these new ideas work in practice. Each lesson of the unit must be reinforced by examples worked through in class and at home. All of the examples used in this unit are drawn from the literature of tonal music. This author has found most of them, but some are taken from the theoretical works reviewed in Chapter II, and from other sources. Most notable is Colin Beeson’s unpublished Ph.D. dissertation, “Rhythm in Beethoven String Quartets”,¹ which is a collection of well-ordered and categorized examples demonstrating the analysis of various aspects of rhythm. It includes a section on the conflict between harmonic change and meter, complete with many examples ordered chronologically. The reader may wish to explore Beeson’s dissertation further for other examples relevant to the discussion here. Another source of examples is Norman Wick’s “Shifted Downbeats in Classic and Romantic Music,”² which also discusses factors apart from harmony that can express meter.

The following discussion presents such examples. Using these and the terms found in the glossary, students will eventually familiarize themselves with the types of harmonic accent and how they create hemiola and cross rhythms, as well as shifted, changed, and metric transformation.

¹ University of Reading, 1976.
The ensuing examples are arranged by degree of complexity of the type of expressed meter. Within each set, the types of harmonic accent are introduced in a similar order of difficulty, as near as is possible. As well, attention is paid to the textural complexity of each score, and examples progress from simpler textures – piano pieces or reductions – to more complex ones – quartets or orchestral.

**Week 1 Day 1, part 1: Introductory Lesson**

The first class of the unit introduces students to the basic vocabulary needed for the study of expressed meter. Terms such as meter, notated meter, expressed meter, and phenomenal accent are explained by providing the students with a glossary for the terms used in this unit (see Appendix B). These definitions derive from the concepts found in Chapter II, often combining the thoughts of two or more theorists to create a comprehensive definition suitable for the analysis of expressed meter. For example, a metrical layer is defined as: “The regular alternation of strong and weak beats produces by a coincidence of two or more layers of metric context,” and metric levels are defined as: “A marking of time into equal durations, initially through the use of phenomenal accents.” These combine Berry’s definition of “a punctuation of time by events of the classification ‘accent’” and Lerdahl & Jackendoff’s in “its function... to mark off the musical flow, insofar as possible, into equal time-spans,” while including a hierarchical aspect. Students will already be familiar with some of the basic terms, and will acquaint themselves with those that are more complex as the unit progresses. The most important definition, *expressed meter*, is italicized and found at the top of the glossary, so that students will understand this concept and differentiate it from *notated meter* before attempting further study. Gauldin’s concepts of *rhythmic consonance, rhythmic dissonance, and metrical dissonance*, as taken from Yeston and Krebs, are also introduced. Gauldin omits Krebs’ term *primary metrical*
consonance from his text, but that expression is altered to *primary metrical context*, and used here to represent the most firmly established, normally notated, hierarchy of metric layers.

Students need to have a basic introduction to all of the concepts listed in the glossary before proceeding to the next portion of the introductory lesson. The types of expressed meter will be further explored throughout the unit, and terms such as *metrical consonance* and *metrical dissonance* will also be thoroughly explained by example.

Lerdahl & Jackendoff’s approach to the subject of metric perception makes clear several points that can be useful to the undergraduate student:

1. Meter is established through phenomenal accents, and is only refuted when evidence to the contrary is very strong.

2. There are other factors involved that can create conflicting phenomenal accents, but accents of harmony are usually stronger than these are.

3. The rules provided are preference rules – many are operative at once and the student must carefully weigh all factors and not assume all situations are the same.

The first lesson should also present the various types of harmonic accent covered in Chapter II by Lerdahl & Jackendoff as well as Berry, Lester, and Swain, distinguishing three types: harmonic change, length of harmony, and harmonic function. (A handout summarizing them is given in Appendix C.) Berry, Lester, and Swain designate harmonic change as accentual. Swain identifies several types of change, but only three are useful in the analysis of expressed meter. The first of these is change of pitch content, including octave shift, while the second implies a change of chord with the movement of the bass voice. The third involves an actual change of root and/or quality, such as the movement from I to V, ii to IV, or even iv to IV, and is normally bound up with one or both of the others, which rarely work alone. Another of Swain’s “dimensions,” length of harmony, is also noted by Lerdahl & Jackendoff. This implies that the longer the harmony is present, the more its onset is preferred as a point of accentuation.
The last device, harmonic function, is highly subjective. It is often difficult to differentiate between harmonic progressions that affect meter and those that do not. A rule of thumb is that the *stronger* the progression (the pull towards the tonic, or other chord to which a progression moves toward), the more students should prefer that final chord as a strong beat. For example, in a V-I progression the I is often preferred as a strong beat. This is measured in the same way cadences are: goal harmonies in root position are stronger than those that are inverted; those with the root in the soprano are stronger than those with the third or fifth; the goal harmony following a dominant seventh is stronger than that following a triad; and other regulations familiar to any undergraduate student in theory.

The instructor can use several examples to demonstrate the above terms and ideas. These examples deal with how the various harmonic devices create accent to support an ordinary, consonant metric situation. The opening of the first movement from Schubert’s Piano Sonata in A Major, D. 664, uses regular harmonic change combined with length of harmony and harmonic function to unequivocally establish a common time meter, as example 3-1 clearly shows. Harmonic change always occurs on the first beat of each measure. When there are two changes in mm. 1, 5, and 6, the length of the subsequent harmony in mm. 2 and 7 confirms the common time meter. In the first two measures, the resolution of V4/3 to I on the first beat of m. 2 further strengthens the meter. The primary metrical context has been firmly incorporated.

Another Schubert Piano Sonata in A Major, this time the second movement from D. 959, illustrates harmonic support for the meter indicated by the bass voice (see example 3-2). In this case, although the harmonic analysis is quite simple, it is not needed to find harmonic support for the notated meter. The bass notes circled in example 3-2 show that, in one quick glance, students can clearly note the points of harmonic change implicit in the lowest notes of the left hand, defining the primary metrical context.
Example 3-1. Schubert: Piano Sonata in A Major, D. 664, I, mm. 1-9

Example 3-2. Schubert: Piano Sonata in A Major, D. 959, II, mm. 1-16

Finally, the end of the introductory lesson tells students that they will next clarify and exemplify the theoretical concepts through excerpts from the literature. They will encounter excerpts where the notated meter is so firmly established by various harmonic devices that rhythmic dissonances such as syncopation occur, rather than alternate expressed meters. Most importantly, they will encounters situations where harmonic devices create accents strong enough to cast doubt on the notated meter.
**Week 1 Day 1, part 2 and Day 2, part 1: Hemiola**

Hemiola is a common type of expressed meter wherein the accentual or motivic pattern of two measures in triple time is altered to form three measures in duple time or vice versa, although the first is more common. This can be accomplished through various types of accent, but harmonic accent is by far the most common. Chapter II showed that Berry and Lester emphasize harmonic change as *the* most important factor in expressed meter. As hemiola is familiar to most undergraduate students, this lesson simply focuses the student’s attention on the central role that harmonic accent plays in creating “rhythmic dissonance.”

One type of harmonic change that influences expressed meter is the change of root and quality. An example is from the first movement of Mozart’s Piano Sonata No. 12 in F Major (K. 332) (see example 3-3). Kostka & Payne cite this passage in their discussion of diatonic seventh chords.³ They mention this hemiola but do not explain why it is perceived.

Have the students determine when the root changes. Beginning at m. 192, either the root or the quality changes consistently with each measure. At m. 200, the change accelerates to once every half note, creating the temporary perception of 2/4 before returning to 3/4 at m. 202.

Example 3-3. Mozart: Piano Sonata No. 12 in F Major, K. 332, I, mm. 191-203

A similar hemiola pattern may be found in the excerpt from Mozart's K. 283 cited by Aldwell & Schachter and Lester and discussed in detail in Chapter I of this paper. That passage can also be used as part of this lesson.

The next example of hemiola acquaints the student with the role of harmonic function in expressed meter. In Haydn's String Quartet Op. 64 No. 5, shown below, two measures of 3/4 (mm. 52-53) are transformed into three measures of 2/4 by a string of applied dominants (see example 3-4). According to criteria outlined in the introductory lesson, the goal harmonies receive strong accents, and are thus preferred as the downbeats. The strength of each goal harmony is reinforced by an accelerating pattern of repetition. The dominant resolutions begin several measures earlier, leading into m. 50. At first, V7 in F major resolves to the first beats of measures 50, 51 and 52 to emphasize the current 3/4 meter. When this is repeated and transposed through V7/vi resolving to vi, V7/IV to IV, and V4/3 of IV to IV6, the rate of change accelerates to create a hemiola.

Example 3-4. Haydn: String Quartet, Op. 64, No. 5, III, mm. 49-54

Through these examples of hemiola, students should now be comfortable with the two most common devices that can create expressed meter: harmonic change and harmonic function.
For practice, each student should find one example of hemiola created by a harmonic device before the next class.

**Week 1 Day 2, part 2: Cross Rhythms**

Depending on the class size, students could begin this lesson with a discussion of the examples of hemiola they found since the last class – of how harmonic devices create rhythmic dissonance in a representative selection of excerpts. After the students are clearly comfortable with hemiola, it is time to move an incremental step beyond hemiola to cross rhythms.

Like hemiola, a cross, or counter, rhythm arises when one or several phenomenal accents contradict the established meter but are not strong enough to overthrow it. This is also called syncopation. Cross rhythms create a rhythmic, rather than metrical, dissonance. A *rhythmic* dissonance occurs when the primary metrical context is unquestioned, whereas a *metric* dissonance occurs only when the primary metrical context is in doubt. In his dissertation, Carl Beeson presents several examples from Beethoven’s Op. 18 string quartets. The fourth movement of Op. 18, No. 1, is especially useful as an example of cross rhythms for this lesson. In measures 143-150 (and also 199-202), changes of root or quality occur on the second eighth note of each notated measure (see example 3-5).

The harmonic progression itself is not important, simply the change from one sonority to another. The accent created by each change is emphasized by a *sforzando* with every occurrence. At this point of the movement, the meter is well established, so the conflicting harmonic rhythm creates an anacrusic drive that intensifies the concurrent modulation from Db major to C major. An undergraduate student would not necessarily understand this detail, but she should realize that a cross rhythm has been created. The lesson should emphasize that the points of harmonic change shift the strong beats away from the first beat of the primary metrical context. This context, however, is too firmly established to

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4 Example III.2 in Beeson, 23. The example is discussed in pages 23-24.
be easily forgotten, causing the shift to create a rhythmic, rather than metrical, dissonance. In other words, a cross rhythm is created instead of an entirely new, expressed meter. Beeson also remarks that all melodic lines have been dispensed with so that harmony alone is responsible for the interest in the excerpt.

Example 3-5. Beethoven: String Quartet No. 1 in F Major, Op. 18 No. 1, IV, mm. 143-150

Students may assume that all instances of harmonic change on the notated weaker beats create a strong cross rhythm (syncopation) or a shifted meter. Occasionally, other devices such as dynamics, motives, or the use of sforzandi, contradict the harmonic rhythm and support a notated meter. In these cases, the support for the notated meter is so strong that syncopation that results is extremely mild. Another of Beeson's examples, the second movement from Beethoven's String Quartet Op. 18, No. 3, is an ideal example of harmonic change that does not create a strong cross rhythm (see example 3-6).\(^5\) In this case, both harmony and motivic pattern change one sixteenth note after the notated meter. But unlike the previous example, where the composer uses sforzandi to emphasize the cross rhythm, in this example Beethoven's sforzandi align with the notated meter. As well, the passage both begins and ends with harmonic change on first beat of the notated measure (mm. 130, 133, and 134). In this case, then, the shifted harmonic change results in a very subdued syncopation, not disruptive enough to be considered a strong cross rhythm.

\(^5\) Example III.1 in Ibid., 22.
End of Week 1: First Assignment

The third movement from Schubert’s Piano Sonata in D Major, D. 850, is fitting as a first assignment. It demonstrates both hemiola and cross rhythm, supported by change of bass voice and change of root and/or quality. Students should be able to provide a written analysis similar to the following discussion. They should supplement their prose by marking the score of the scherzo section, indicating the expressed meter using brackets and the designations given in the introductory lesson. The instructor can provide clues, such as the extended nature of the hemiola, if she feels they are necessary.

In this movement, Schubert uses a hemiola so persistently that it becomes the perceived meter. Because this expressed meter continues throughout an entire section, it also becomes the primary metrical context instead of the notated meter. During measures 1-50, bass movement and change of root and quality consistently support a 3/2 meter. Example 3-7a shows the opening of the piece, where the root, quality, or both change at least every second notated measure. The bass movement emphasizes every half note, which confirms the hemiola – a audible division of every two written 3/4 measures into three half-note beats. Repetitions of melodic motives also play a part. The anacrusic figure \( \text{\texttt{\textbackslash{}fig}} \) consistently leads to a perceived downbeat every second notated measure.
At m. 51, some rhythmic dissonances begin that are valuable to analyze with the students (see example 3-7b). These are rhythmic rather than metric dissonances because the primary metrical context (the hemiolic pattern established at the opening of the movement) is not under question. The bass begins to support the notated 3/4 meter by sounding a low note every three quarter-note beats. The harmonic accents in the preceding music have, however, firmly established an alternate expressed meter. As well, the melodic grouping and the notated accents continue to support the 3/2 meter to which the listener has been inured, and even though the root is sounded every notated measure, the root and quality change at most every second notated measure. Therefore, the established 3/2 meter continues. Thus we see that motivic structure can take over the role that harmonic change had in creating hemiola. In class, the instructor should generalize this example, explaining that harmonic devices rarely work alone when creating an expressed meter (as was mentioned in Chapter II). Since 3/2 is perceived as the primary metrical context, the bass movement at m. 51 sounds simply as a rhythmic dissonance – a cross-rhythm. After m. 69, this cross rhythm ends, and 3/2 is once again the only meter present, firmly re-established by regular changes of harmony at m. 73 (see example 3-7c).

This assignment will prepare the student for subsequent sections dealing with more complicated aspects of expressed meter. Once the students are comfortable with how harmony creates hemiola and cross rhythms, they are ready to move forward to more complex shifted and changed meters. Therefore, it is important that the instructor work together with the students to provide a detailed metrical analysis of the assigned excerpt during the class at which it is submitted.
Example 3-7. Schubert: Piano Sonata in D Major, D. 850, III

a. mm. 1-8

Allegro vivace.

b. mm. 51-59

c. mm. 70-80
The study of cross meters in the previous lectures leads directly to that of shifted meters. Recall that these occur when accents contrary to the notated meter are so strong that they invalidate, temporarily or permanently, the notated meter instead of simply creating a cross meter. As discussed by Lester, shifted meter is most likely to displace the notated meter when the meter is being established or when a conflicting accentual pattern becomes prominent. This lesson begins with examples suggested by two pedagogues, Swain and Gauldin. However, it explains them more deeply and as part of a larger, progressive introduction to harmony and meter.

Swain suggests a demonstration that clearly shows how shifted meter can result purely from harmonic function:

...when I have played for students the beginnings of pieces such as the March from Fidelio, which begins with a dominant bass on the notated downbeat and maintains this pattern for two bars, the students invariably sense that the piece begins with an upbeat.\(^6\)

This experiment is exactly how to introduce example 3-8 to the students. It moves the student forward to the next degree of expressed meter – one where the notated meter is in doubt and it exemplifies the principle that shifted meter is most likely to be perceived while the meter is being established. Begin by playing the first three measures of the March at the piano and having the students indicate where they believe the downbeat should fall. Prepare a score without barlines for this exercise – students unfamiliar with the piece may not even realize they are witnessing an instance of expressed meter. Together, discuss the reasons for their choice(s). Most undergraduates will concur with Swain’s students, and cite the resolution of dominant to tonic as their reasoning. Generalize their observations to a statement of principle about the accentual role of harmonic function. With reference to a measured score, demonstrate that the shifted meter dominates until the notated meter is established. The students should then work

\(^6\) Swain, 66.
together with the instructor to provide a detailed analysis of expressed meter for the first twenty measures, as follows:

Example 3-8. Beethoven: “March” from Fidelio, Op. 72 No. 6, mm. 1-21

In measures 1-3, as students first observed, the downbeat is indicated by harmonic function. It is also supported by harmonic length. At m. 4, the onset of long notes in the upper and lower treble voices supports the notated downbeat. As well, the A major triad is the goal of a Phrygian cadence, creating accent of harmonic function. These work together to form a metrical ambiguity, paralleling an ambiguity of key, as the piece is modulating at this point through d minor on its way to F Major. Accent of harmonic function calls the established meter (that which is shifted) into question on the first beats of measures 4 and 5, with the resolution of
vii°6/V to V of F Major. The next three measures continue to support the notated meter with the alternation of dominant and tonic harmony on weak and strong beats respectively. The notated meter has not been firmly established, however, and at m. 9 the return to the opening key and motives restores the shifted meter. Measures 9-16 follow the same pattern as the first eight measures. At m. 17, all metrical ambiguity is eliminated with a rhythm of harmonic function in the opening tonic that substantiates the notated meter.

This example is similar to Gauldin's demonstration of shifted meters, Schumann's "Soldier's March," which can also be presented to the class:


The accentual shift should be explained as the result of phenomenal accents created by harmonic change and harmonic function. As shown in example 3-9, the piece opens with an anacrusis that provides durational accent as the melody reaches scale degree 5. Opening anacrusic patterns often use the same harmony as the first downbeat. This, combined with the anacrusic character of the opening figure, contributes to the perception of the second notated beat as the stronger phenomenal accent. From this primary tone proceeds an expansion of I over the first
two expressed measures. Harmonic function soon confirms the shifted meter: in the last two measures of each phrase harmony repeatedly changes to the tonic on the second notated beat. On the first notated beat of the last measure of the piece, harmonic function 'resolves' the metrical dissonance to the primary metrical context with a perfect authentic cadence. Schumann could have deliberately constructed a context in which no meter is primary, but harmonic devices provide stronger support for the shifted meter.

The Largo from Beethoven's Piano Sonata, Op. 7, demonstrates an initially shifted meter supported by a different harmonic device (see example 3-10). In this case, harmonic function is not as salient metrically at first as in the previous example, as Beethoven moves between tonic and dominant harmony on both strong and weak beats. Instead, the length of these particular roots instigates a shift. The second notated beats of mm. 1-4 are preferred as downbeats because the harmonies that begin then last for two to three beats, and the harmonies on the notated first beats last for only one beat. Harmonic length is also essential in resolving the metrical dissonance to the notated meter or primary metrical context. The notated first beat of m. 5 initiates a prolongation of I lasting three beats, creating a metrical accent. Retroactively, this converts the last two quarter notes of m. 4 into a truncated measure of 2/4, and aligns the downbeat with the notated bar line.

Meters that shift after the notated one has been established are more difficult for the listener to perceive, but they can be created simply through a change of root every perceived measure. The first movement of Haydn’s Piano Sonata, Hob. XVI: 32, does exactly this:

Example 3-11. Haydn: Piano Sonata Hob. XVI: 32 in b minor, I, mm. 29-38

The development begins at m. 29 with the notated meter supported by several harmonic devices. The treble voice consistently changes every half note until m. 32. The root and/or the bass voice change at the same rate for two more bars. At m. 34, however, the pattern of change slows to only once per measure, and the change occurs on the third beat of each notated measure instead of on the first, establishing a shift in the perceived meter. Several other devices also contribute to the shift. Beat 3 of m. 34 is preferred as the strong beat as both its new harmony and its bass voice last longer than those in beat 1. The continued pattern of the change of bass voice and root once every whole note confirms the shifted meter until the end of m. 37. Function continues to
support the shifted meter in m. 37, where an Italian sixth resolves to the dominant on the new downbeat. Considering harmonic function, it is possible to perceive a metric shift as early as m. 32. In measures 32, 33 and 34 there are resolutions to the local tonic, e minor, on notated beat 3. None are strong dominant-tonic movements, iv(7), V6, and vii°6/4 resolving to i6, i, and I6, and they would not normally indicate a shifted meter. Nevertheless, when coupled with the pattern of harmonic change that begins two measures later, m. 32 can be heard retrospectively as the initiation of a series of changes, each lasting a whole note, on the notated third beats. The notated meter is reestablished as primary at m. 38, repeating the material that opened the section at m. 29. The last two beats of the preceding expressed measure sound as though they are missing, while the material beginning at beat 1 of m. 38 sounds as though it were entering early.

As an assignment, students could be asked to find an example of shifted meters from the literature or to compose a basic example of shifted meter supported by harmony.

**Week 3 Day 1: Changed Meters**

Unlike shifted meter, where the meter remains the same but is shifted forward or backward, changed meter results when phenomenal accents change metrical grouping, for example from duple to triple time, or from simple to compound meter. Changed meters are much more difficult to establish than shifted ones, and are therefore less common.

Beethoven presents a clear example of changed meter in his second Piano Sonata (see example 3-12). The second movement, a Largo appassionato, is slow enough that the primary metrical context does not easily become fixed with the listener. Although written in triple meter, the opening sounds in 4/4, then moves through the notated 3/4, a shifted 3/4, and 2/4 as the movement continues. The changes occur throughout the movement, but always during a repetition or variation of the opening material. The texture of the movement is simple and,
although there is bass patterning in support of the notated meter, the instances of expressed meter are mainly straightforward and strongly supported by harmonic devices.

The opening six measures set the standard for what is to come. They are analyzed in example 3-12a. Three measures of 4/4 are preferred over four measures of 3/4 due to support by change of root and quality and the length of those harmonies. Function also plays a part with inversions of V7 resolving to the tonic on the downbeats of expressed measures 2 and 3. In the third perceived measure (notated measures 3-4), the support weakens. While function creates an accent on the last notated beat of m. 3, harmonic length creates another accent on the notated first beat of m. 4. This prepares the listener for the establishment of the notated triple meter in m. 5. Although the downbeat of m. 6 sounds rushed, it is confirmed both by change of root and quality and a sforzando in the upper voice.

The opening returns at m. 13, this time supported by a sforzando on the first beat of the second expressed measure. The primary metrical context – a triple meter – has only been established for eight measures, and the expressed meter therefore returns easily to a quadruple meter. This time, it moves forward in a different direction (see example 3-12b). The same three devices (change of root and/or quality, harmonic length, and harmonic function) used in the opening cooperate to create a shifted 3/4 meter over notated measures 14-17, with continued support by sforzandos in the upper voices. Measures 17-18, however, are less clear. Several different interpretations are possible, showing that in cases of expressed meter, there is not always one right answer. Nearly all explanations, however, will bring the meter back to that which is notated by m. 19. The brackets in example 3-12b show one possible interpretation of the ambiguous measures, with perceived measures positioned so that dominant harmonies resolve to the tonic on downbeats, creating accents by harmonic function. At m. 19, this once again brings the perceived meter back to that which is notated.

7 This sforzando occurs in most urtext versions of the Sonata, although some editions omit it or notate it as [sfz].
Example 3-12: Beethoven: Piano Sonata in A Major, Op. 2 No. 2, II

a. mm. 1-6

b. mm. 13-19
c. mm. 58-61

The first section of expressed meter is repeated exactly in mm. 32-37, and with ornamental variation in mm. 68-73. The second section recurs in mm. 44-50. There is one further instance of metric dissonance, a brief lapse into duple time, in mm. 58-61 (see example 3-12c). This occurrence begins the same as those previously, but is cut short in m. 60 with an abrupt modulation to Bb. The V7, repeated three times with sforzando accents, unequivocally re-establishes the notated meter, creating a shortened 2/4 measure in notated m. 59. At these points, the notated triple meter is more firmly established, and therefore more difficult to supersede. These instances of rhythmic dissonance allow the listener or performer to recall the initial metrical ambiguity without destabilizing the notated triple meter.

Although expressed meter conflicts with notated meter throughout this movement, it is very clear and strongly supported. It is, therefore, an excellent pedagogical example. After working through the entire movement, students should be quite comfortable with changed meters expressed through harmonic devices. They will be more than prepared to tackle the questions dealing with changed meters in their next assignment.

*Week 3 Day 2: Transformed Meters*

As defined in the glossary, transformed meters can result when a meter is a changed or a shifted version of that which is notated. They occur when an entire piece or section of a piece is changed or shifted, rather than it being a temporary alteration. This causes the primary metrical
context to differ from the notated meter. In retrospect, the Schubert movement used in the first assignment is an example of transformed meter, created by an extended hemiola. Another example is Brahms' *Intermezzo* in E major, Op. 116 No. 6, which can be examined in class (see example 3-13). As Wick explains:

The example illustrates Brahms’s use of an unspecified change of meter to shift the metric pulse away from the notated downbeats. This entire section is in a hemiola rhythm (in groupings of two quarter notes, as shown by the first set of brackets above the score), but the hemiola rhythm is not set against the pulse of the notated meter in any voice. The section can be effectively played and projected in 2/4 meter. Performance of the section as if in duple meter produces a charming contrast to the opening and closing material of the piece. Considering both the scope of the section and the lack of a three-beat pulse, this passage produces a feeling of metrical change that is left unspecified by the notation.\(^8\)


\(^8\) Wick, 81.
\(^9\) Example 3 in Wick, 80.
It is valuable for the student to articulate the causes of the metric shift Wick notes. Specifically, harmonic change creates an accent every half note. Occasionally, the change is delayed by a further half note, but there are no harmonic durations of three quarter notes. According to Wick:

The outcome of this interpretation indicates that the phrases contain six hypothetical measures in duple meter that would most logically divide into $2 + 2 + 2$ measures on the basis of their tonal organization.\(^\text{10}\)

The brackets shown above the score notate the resulting measure and hypermeasures. Students should also be encouraged to suggest reasons why Brahms chose to notate this section in $3/4$ rather than $2/4$ or $4/4$.

**End of Week 3: Second Assignment**

The second assignment involves excerpts from two Piano Sonatas: one by Haydn demonstrating shifted meters; and another by Beethoven dealing with changed meters. They are both more intricate in their use of expressed meter than the examples presented in class. Therefore, an entire week should be given for completion of the assignment so that students can discuss problems with their instructor(s) during office hours.

The Finale from Haydn’s Piano Sonata Hob. XVI: 51 in D major demonstrates both metric shift and change on a larger and more complex scale than the examples discussed in class (see example 3-14). The movement, notated in triple time, opens with metrical ambiguity. As indicated in the example, the melodic line doubled in both hands outlines an alternation of dominant and tonic harmonies. Harmonic function and length of harmony work together to express a $4/4$ meter. The metrical dissonance is fleeting, however, as the held ‘A’ in the third notated measure creates a new accent of harmonic length that conforms to the notated meter. In mm. 5-8, the regular change of root and quality on the downbeats easily establishes the notated

\(^{10}\) Wick, 81.
3/4. Beginning on the third beat of m. 8, however, the meter shifts backward by one quarter note. Included in example 3-14 is a harmonic analysis of the shift, lasting from m. 8 through to m. 15. A single harmony is expanded over the three beats of each expressed measure. Grouping structure is also important in creating the expressed meter, but this structure is itself created by the expansion of each harmony. The ascent spelled out by the first bass pitch in each of the four perceived measures (g-a-b-c#), supports the pattern of change of the roots and qualities. Near the end of the shifted section, harmonic function confirms the metric alteration with an applied vii°4/3 of V leading to V6 on the perceived downbeat (notated m. 12). At first glance, if one assumes the notated meter is correct, the notated m. 12 appears to be a simple neighbour expansion of V6. By this point, however, a pattern has been created through harmonic expansion that supports a stepwise, descending three-note motif in the soprano. One expects the downbeat to fall on the final beat of the notated twelfth measure. As the section comes to a close, harmonic function (vii°6 to I in A major) creates two expressed measures of 2/4. This brings the piece back to the notated meter for the next section at m. 15.

The same pattern occurs several times throughout the movement in different keys, including mm. 31-38, 76-94, and 138-145. At m. 152, a slightly altered motivic pattern causes the same shift supported by change of root, quality, and bass voice. Although the notated meter is already established, harmonic expansions create accents that are strong enough to create a temporary expressed meter. Students should be expected to provide the above analysis, perhaps in response to leading questions, both in prose and by marking the score.

Unlike all of examples of metric change discussed in class, the third movement from Beethoven's Piano Sonata, Op. 31, No.2, displays changed meters not at first but further into the movement (see example 3-15). The metrical dissonance begins with a motivic change, from m. 43 to m. 56. The movement is quite long, and students may therefore have difficulty pinpointing the exact location of the metric changes. As such, some instructors may wish to provide a
general location of the expressed meter, on the first two pages, or somewhere in the vicinity of measures 39 to 67. Upon completion of a basic harmonic analysis, the location will be clear.\(^\text{11}\)

After completing a modulation to a minor in m. 44, Beethoven regularly alternates two inversions of V7: V4/3 and V6/5. This demonstrated Swain’s idea of harmonic rhythm, where change of pitch content in any way can create a phenomenal accent. The length of each of these inversions is one quarter note. Thus through a regular change pitch content, Beethoven temporarily changes the meter to duple. At m. 49, harmonic function brings the meter back to the primary metrical context with a movement from V6 to I on the notated downbeat. As in the first example for this assignment, the harmonic devices create a pattern strong enough to refute the notated meter. This pattern is temporary, and creates a temporarily changed meter rather than one that is incorrectly notated.

Example 3-14. Haydn: Piano Sonata Hob. XVI: 51 in D major, II, mm. 1-15

\(^{11}\) If students are still unfamiliar with modulations of the type that occur here, an outline of the keys used and analysis of the modulation points should be given with the assignment.
Example 3-15. Beethoven: Piano Sonata in d minor, Op. 31 No. 2, mm. 43-49

The two examples in this final assignment allow students to apply all the concepts of this unit to analyze expressed meter. They will be intimately acquainted with terms such as primary metrical context, rhythmic dissonance, and metrical dissonance, as well as various types of expressed meter. They will also understand the harmonic devices associated with the creation of rhythmic and metrical dissonance. This will facilitate future studies of tonal music, both for analysis and performance. Not all the possible harmonic devices that can create meter have been demonstrated, but students should grasp a basic understanding of how they all work. They will also realize that meter is usually expressed by harmonic devices, and that it is often supported – or occasionally contradicted – by grouping structure. Most importantly, students will see that what is notated is not always what is perceived, or what should be projected in performance. This unit on expressed meter will improve the listening skills and performance practices of any undergraduate student.
CONCLUSION

The introduction posited a quandary faced by a second-year undergraduate piano student studying Brahms' "Capriccio," Op. 116 No. 1. She was having difficulty understanding the meter, as she consistently emphasized the notated downbeats. She had no concept of an expressed meter, and she only conceived of downbeats as the notated ones. After undertaking the supplemental unit on expressed meter outlined in Chapter III, her rendition of the "Capriccio" is strikingly different. Finally, she is able to impress her instructor. She is even able to explain where the expressed downbeats fall, and why.

She is able to describe how the piece begins, very briefly, on the notated downbeat. After only two eighth-notes, however, the metric progression is interrupted by the last eighth-note of the first notated measure (see example 4-1a). This is signified by a change of harmony to VI6. Although the actual root 'Bb' does not enter until one eighth-note later, the change in bass pitch alerts a listener for the change to come. The duration of the bass D3 acts as additional support. Through changes of harmony on every notated third beat, this shifted expressed meter continues until m. 8, where a written out pause on the first notated beat brings the meter back to that which is notated. As indicated by Menahem Pressler in the introduction, this shift recurs with each repetition or variation of the opening theme.\(^1\) The closing of the first repetition of the theme is elided with the opening of the second, meaning that after only two eighth-notes in the notated meter, the meter shifts back again by one eighth note in m. 10 for a repeat of the opening theme. So far, the piano student notes that the expressed meter coincides exactly with the changes of harmony.

This support continues at m. 21, when the meter changes from triple to duple (see example 4-1b). Here, the bass movement initially indicates the harmonic changes. The

\(^1\) See this paper, 1.
harmonic change regularly occurs every quarter note, which firmly establishes a hemiolic duple meter even with the rhythmic dissonance in the upper voices. The remainder of the piece continues in the same vein, varying the pattern at times, and hiding it beneath melodic and rhythmic figurations. Various harmonic devices, namely harmonic change, however, continuously support the underlying expressed meter.


a. mm. 1-12

Presto energico

The piano student establishes a triple-time primary metrical context. Each time the perceived triple meter shifts, a phrase elision or a written-out fermata causes it. The duple hemiolic patterns are instances of metrical dissonance.
The terms and techniques learnt in a unit on expressed meter have helped this piano student to interpret the expressed meter in Brahms’ *Capriccio*. Many other undergraduate students, as they are primarily performers, would benefit similarly. Those who enjoy studying the analytical and historical sides of tonal music would find these tools not only beneficial, but also interesting. A curriculum based solely in composition does little to help students such as these to understand the metrical perception of the tonal music they are studying. By complementing the few ideas on expressed meter found in the current curriculum with the newer ideas of theorists from the second half of the twentieth-century, students can easily learn to interpret expressed meters.
BIBLIOGRAPHY


APPENDICES

Ideas for the Classroom
### APPENDIX A

**Expressed Meter Unit Schedule**

<table>
<thead>
<tr>
<th>Week 1</th>
<th>Day 1</th>
<th>Day 2</th>
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| • **Introductory Lesson**  
  ▪ Presentation and discussion of basic concepts and terminology needed for the unit.  
  ▪ **Hemiola:**  
    ▪ Mozart Piano Sonata (K332), I  
    ▪ Mozart Piano Sonata (K283), I  
    ▪ Haydn String Quartet (Op. 64 No. 5), III | • Finish Hemiola  
  ▪ **Cross Rhythms:**  
    ▪ Beethoven String Quartet (Op. 18 No. 1), IV  
    ▪ Mozart Symphony (No. 40), I  
    ▪ First Assignment – Hemiola, Cross Rhythms (due next class):  
      ▪ Schubert Piano Sonata (D850), III |

<table>
<thead>
<tr>
<th>Week 2</th>
<th>Day 1</th>
<th>Day 2</th>
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| • Discuss Assignment  
  ▪ **Shifted Meters:**  
    ▪ Beethoven March from *Fidelio* (Op. 72 No. 6)  
    ▪ Schumann: “Soldier’s March” from *Album for the Young* (Op. 68 No. 2)  
    ▪ Beethoven Piano Sonata (Op. 7), II  
    ▪ Mozart Violin Sonata (K378), I  
    ▪ Haydn Piano Sonata (Hob. XVI: 32), I | • Finish Shifted Meters |

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<thead>
<tr>
<th>Week 3</th>
<th>Day 1</th>
<th>Day 2</th>
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| • **Changed Meters:**  
  ▪ Beethoven Piano Sonata (Op. 2 No. 2), II  
  ▪ J.C. Bach Concerto for Harpsichord or Piano and Strings (Op. 7 No. 5) | • Finish Changed Meters  
  ▪ **Transformed Meters:**  
    ▪ Brahms Fantasien Op. 116 No. 6 (Intermezzo)  
    ▪ Second Assignment – Shifted & Changed Meters (due in 1 week):  
      ▪ Haydn Piano Sonata (Hob. XVI: 51), II  
      ▪ Beethoven Piano Sonata (Op. 31 No. 2), III |
APPENDIX B

Glossary

Expressed Meter: The meter that is perceived but that differs from the meter that is notated. Usually arises when phenomenal accents, or motivic structures, conflict with the notated meter.

Notated Meter: The meter indicated by the meter signature, usually supported by phenomenal accents and/or grouping, at least initially. Also known as the Primary Metrical Context.

Cross Rhythm (Counter Rhythm, Syncopation): A rhythm in which one or several phenomenal accents contradict the established meter but are not strong enough to displace it.

Harmonic Accent: An accent created by a harmonic phenomenon such as change of harmony on one or several levels, length of harmony, or harmonic function.

Hemiola: A common occurrence of expressed meter wherein two measures in triple time are altered to form three measures in duple time or vice versa, although the first is more common.

Layers of Metric Context: The different layers of meter found within a piece of music, of which there are usually five or six. These include hypermeter, hypometer, and the notated meter, which usually falls somewhere in the middle.

Meter: The regular interaction of concurrent metric levels.

Metric Change: A type of expressed meter where the type of meter changes through the use of phenomenal accents. For example, from duple to triple time or from simple to compound meter, or both.

Metric Level: A marking of time into a series of metric layers, usually of equal durations, initially created through the use of phenomenal accents.

Metric Shift: A type of expressed meter where the type of meter remains the same but is shifted forward or backward by one or more beats and/or fractions of a beat.

Metric Transformation: Can result from a meter that is a changed or a shifted version of that which is notated. Occurs when an entire piece or section of a piece is so altered, when the alteration is not temporary. In this case of expressed meter, the primary metrical context is not the notated meter.

Metrical Consonance: When the perceived meter of a piece of music aligns with the primary metrical context.
**Metrical Dissonance:** When the perceived meter of a piece of music contradicts the primary metrical context.

**Metrical Layer (or Grid):** The regular alternation of strong and weak beats produced by a coincidence of two or more layers of metric context.

**Phenomenal Accent:** An accent created by a musical phenomenon, such as a change in harmony, dynamics, and/or texture. If phenomenal accents consistently contradict the notated meter, an expressed meter may result.

**Primary Metrical Context:** The hierarchy of layers of metric context most firmly established in a piece of music, normally that which is notated.

**Rhythmic Consonance:** When the rhythmic patterns present on the surface of a piece of music align with the primary metrical context.

**Rhythmic Dissonance:** When the rhythmic patterns present on the surface of a piece of music contradict the primary metrical context, but are not strong enough or persistent enough to change the metrical perception.
APPENDIX C

Harmonic Devices that Create Accent

A. Harmonic Change:

The following changes are preferred as stronger beats, in incremental order of strength:

1. change of pitch content in any way;
2. change of bass voice; and
3. change of root and/or quality.

B. Length of Harmony:

The longer a harmony persists, the more its beginning is preferred as a strong beat.

C. Harmonic Function:

A perceptual preference wherein goal harmonies are the preferred downbeat. The stronger the progression (the pull towards the tonic, or other chord toward which a progression moves), the more students should prefer that final chord as a strong beat.