Tonal Function and Metrical Accent: A Historical Perspective

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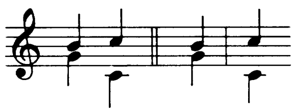
One of the most interesting and contentious issues in modern music theory concerns the way in which functional harmonic progressions relate to the metrical organization of music. By functional harmonic progressions, I am referring primarily to the motion within a given tonal region between tonic and dominant harmonies (and occasionally, even tonic and subdominant). By metrical organization, I mean the more-or-less regularly alternating succession of accented and unaccented beats (also termed strong and weak beats) at one or more levels of musical structure. Now, at least one prominent theorist maintains that there is absolutely no inherent relation between a given harmonic progression and meter: Wallace Berry, in his recent work *Structural Functions in Music,* argues that "tonal function . . . is in and of itself *metrically neutral.*" For instance, the harmonic progression of Example la "is not . . . more or less plausible" than that of Example 1b.[1]

Example 1. Berry, *Structural Functions in Music,* p. 330



[1]Wallace Berry, *Structural Functions in Music* (Englewood Cliffs, N.J., 1976), p. 330.

Other theorists, however, believe that the innate stability of tonic harmony naturally associates it with metrical strength. Yet the analytical conclusions that these theorists draw from this harmonic-metric relationship vary widely. Some writers look to the progression of dominant to tonic as a major criterion for establishing metrical weight at higher levels of structure. For example, Carl Dahlhaus has argued that a theory of "metrische Qualität" (metrical quality) is based upon the premise that "the weight of a measure is primarily founded in its harmonic function. The tonic should be valued as 'strong' and the dominant as 'weak.' "[2] Dahlhaus illustrates this principle with the cadential progression tonic-subdominant-dominant-tonic (Example 2). Inasmuch as the initial tonic chord can be viewed as a secondary dominant to the following subdominant harmony, the complete progression represents the metrical quality of weak-strong-weak-strong. Dahlhaus understands this correlation of harmony and meter to be an analytical norm against which irregular, though not nonsensical, passages can be identified.[3]

[2]" . . . das Gewicht eines Taktes [sei] primär in seiner harmonischen Funktion begründet. . . . Die Tonika soll als 'schwer,' die Dominante als 'leicht' gelten" ("Über Symmetrie und Asymmetrie in Mozarts Instrumentalwerken," *Neue Zeitschrift für Musik* 124 [1963]: 209).

[3]See also Carl Dahlhaus, "Zur Kritik des Riemannschen Systems," in *Studien zur Theorie und Geschichte der musikalischen Rhythmik und Metrik*, by

Example 2

T - S - D - T
(D - T)

weak - strong - weak - strong

A more cautious approach to the relationship of tonal function and metrical organization is taken by Carl Schachter, who admits that "downbeats and other important accents would seem to correspond to stable tonal events." But after analyzing what he considers some important differences between tonal stability and metrical downbeats, Schachter concludes that this "analogy . . . ought not to be overdrawn," and that "contradictions are so frequent that we can hardly consider them abnormalities." Indeed, Schachter presents some actual musical passages in which "it is precisely from the conflict between accent and tonal stability that the rhythmic effect of the excerpts comes." (Example 3)[4]

An investigation into the history of this controversial problem reveals that a number of prominent theorists in the eighteenth and nineteenth centuries also believed that tonal function and meter directly interrelate. Within the writings of Jean-Philippe Rameau, Georg Joseph (Abbé) Vogler, Simon Sechter, Moritz Hauptmann, and Hugo Riemann, we can find important statements positing a definite connection between tonic harmony and metrical accent. The attempts of these theorists to describe and explain the complexities of this relationship form a fascinating chapter in the history of music theory, one whose contents I wish to outline here.

To begin, let us then turn to the very founding of modern harmonic theory and examine the views of Jean-Philippe Rameau, who in his treatise *Nouveau système de musique théorique* introduces an important discussion of how meter can help define the tonal function of harmonic progressions.[5] Rameau opens his remarks by observing that when we hear a single note as a fundamental bass, we also imagine at the same time its third and fifth. Furthermore, he claims that a fundamental bass not only generates a consonant triad, but also gives rise to a tonality.[6] In isolation, an individual sound naturally functions as a *ton principal* or *note tonique,* and the triad that is built upon that note represents the tonal center of a key. Rameau is so convinced of the power of a single triad to express itself as a tonic that he extends this capability to the triads built on the two other fundamental tones of a key—the dominant and the subdominant—and thus concludes that "each of the three fundamental sounds that constitute a key can, as soon as each is heard as a fundamental, communicate to us, in its turn, the idea of its own tonality, since each of the sounds bears a consonant

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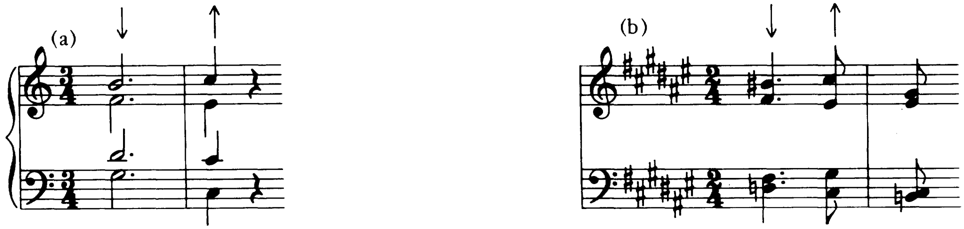
Ernst Apfel and Carl Dahlhaus, 2 vols. (Munich, 1974), 1: 185–87. The idea that cadential function is related to higher-level accentuation also finds expression in the views of a number of theorists associated with Princeton University: see Roger Sessions, *The Musical Experience of Composer, Performer, Listener* (Princeton, N.J., 1950), pp. 13–14; Edward T. Cone, *Musical Form and Musical Performance* (New York, 1968), pp. 25–31; Arthur J. Komar, *Theory of Suspensions* (Princeton, N.J., 1971), pp. 155, 158; Robert P. Morgan, "The Theory and Analysis of Tonal Rhythm," *The Musical Quarterly* 64 (1978): 444–51.

[4]Carl Schachter, "Rhythm and Linear Analysis," in *The Music Forum*, vol. 4 (New York, 1976), pp. 319–20.

[5]Jean-Philippe Rameau, *Nouveau système de musique théorique* (Paris, 1726 ; reprint ed. *Jean-Philippe Rameau: Complete Theoretical Writings*, ed. Erwin R. Jacobi, vol. 2 [Rome, 1967]).

[6]"Si nous ne pouvons entendre un Son, sans être en même tems frappez de sa *Quinte* & de sa *Tierce,* nous ne pouvons, par consequent, l'entendre, sans que l'idée de sa *Modulation* ne s'imprime en même tems en nous; . . ." (ibid., p. 37). Rameau does not expressly refer to a *tonalité,* a term introduced a century later by Fétis; rather, he uses the expression *modulation,* which in eighteenth-century theory covered a variety of theoretical concepts, ranging from simple melodic motion to the modern sense of "change of key." In the context of the passages considered here, the term clearly refers to a single key or tonality.

Example 3. Schachter, "Rhythm and Linear Analysis," p. 321



Mozart, Symphony no. 41, Trio of Menuetto

Beethoven, Sonata, op. 78

harmony."[7] But now Rameau is presented with a difficult situation: how can the composer create a melody, accompanied by a progression of triads, that remains in one tonality? How can he avoid the impression of a constant, if only fleeting, change of key? For a solution to this dilemma, Rameau appeals to the effect of meter:

The harmony of the fundamental sound whose tonality one wishes to introduce is inserted into the first beat of the measure, because this first beat is the most perceptible of all. . . .however, if I want to go into the key of one of the other fundamental sounds, I will preferably assign that sound to the first beat of the measure.[8]

Rameau illustrates his point with a fundamental bass line that represents a succession of triads (Example 4). According to his original idea, each of these consonant chords could be considered a tonic. On account of the effect of meter, though, only those triads on the first beat of the measure are perceived as tonics, whereas the chords on the upbeat of each measure function as subdominants or dominants within the keys defined by the tonics.

Example 4. Rameau, *Nouveau système,* p. 38

[F.B.] 

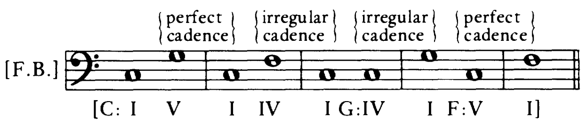
At this point in his argument, Rameau now formalizes the notion that a tonic triad represents a point of repose by terming this moment a "cadence." The cadential chord is always a tonic, but the repose that it creates is made more-or-less complete by the harmony that precedes it. In the "perfect cadence," the tonic is preceded by the dominant; the sense of conclusion, of repose, is strongest because in descending a fifth (from the dominant to the tonic) the fundamental bass "returns to its source." In the "irregular cadences," the repose is less complete because the tonic is now preceded by the subdominant, whose fundamental bass lies a fifth below. To exemplify these two kinds of cadences and the significant role that meter plays in defining

[7]". . . chacun des trois Sons fondamentaux qui constituent un *Mode,* peut à son tour imprimer en nous l'idée de sa *Modulation,* dès qu'il se fait entendre comme fondamental; puisque chacun d'eux porte une Harmonie également parfaite(ibid.); translations from *Nouveau système* are by the author, with reference to B. Glenn Chandler, "Rameau's *Nouveau système de musique théorique:* An Annotated Translation with Commentary," Ph.D. diss., Indiana University, 1975.

[8]". . . c'est d'inserer dans le premier *Tems* de cette *mesure,* l'Harmonie du Son fondamental dont on veut annoncer la *Modulation*; parce que ce premier *Tems* est le plus sensible de tous: . . . au lieu que si je veux entrer dans la *Modulation* de l'un des autres Sons fondamentaux, je lui destineray par préference ce premier *Temps* de la *Mesure*" (*Nouveau système*, pp. 37–38).

them, Rameau presents another succession of triads (Example 5) along with an analysis of the cadences that are thus created. Notice that the same series of four notes found at the beginning of the passage—C, G, C, and F—is repeated in the second half. But as a result of changing the metrical placement of the notes, their respective tonal functions change as well. Each chord located on an accented beat becomes a tonic; indeed, Rameau specifically states that measures one through three are in C, measure four is in G, and measure five, in F.[9] The harmonic analysis that I have added below the example shows the changing harmonic functions.

Example 5. Rameau, *Nouveau système,* p. 39



Now what are we to make of Rameau's statements and examples? It is evident that he posits a definite relationship between tonic harmony and metrical accent. And this relationship is meant to have a genuine musical significance insofar as meter has the power to clarify which harmony functions as a tonic in ambiguous situations involving consonant triads. But unfortunately, Rameau provides no explanation for this effect outside of a vague reference to a "greater perceptibility" that a chord acquires when it is placed on a metrically strong position. Furthermore, he ultimately makes little practical use of his appeal to meter in the resolution of tonal ambiguity, for as soon as he introduces the notion of dissonance into his harmonic system, the need for meter to help define tonality is largely eliminated. Inasmuch as a dissonant chord lacks the necessary sense of repose to be a tonic, the composer can mitigate the potential tonic function of a given triad by adding to it a dissonance. And indeed, this structural function of dissonance becomes such an important part of his theory that Rameau does not find it necessary in any of his later treatises ever again to invoke the idea that meter can play a role in the expression of tonality. Nevertheless, despite Rameau's failure to provide any serious explanation for the phenomenon that he describes and the minimal application—either compositional or analytical—that he draws from his observations, his brief remarks on the relationship between tonal function and metrical accent in the *Nouveau système* represent a significant first attempt in the history of music theory to confront this difficult issue of harmonic-metric interaction.[10]

Let us now examine how, later in the eighteenth century, the rather eccentric German theorist Georg Joseph (Abbé) Vogler goes much further than Rameau in relating harmonic progressions to meter. In attempting to discover the reason why a listener sometimes perceives a metrical interpretation that conflicts with the notated meter, that is, the meter indicated by the

[9]Rameau does not clearly specify the point at which the change of key occurs, but he implies that the new key is confirmed at the downbeat of the measure and that the preceding chord is reinterpreted as either a dominant (in perfect cadences) or subdominant (in irregular cadences).

[10]Hans Pischner suggests that antecedents of Rameau's views on the relationship of tonal function and metrical accent are found in the writings of Charles Masson and Michel de Saint-Lambert (*Die Harmonielehre Jean-Philippe Rameaus* [2d. ed.; Leipzig, 1967], pp. 51, 124); it is difficult to verify this claim, however, because Pischner does not cite a single reference. To be sure, Saint-Lambert does refer to situations that call for the accompanist to bring a dominant seventh on a weak beat followed by a tonic on the downbeat of the next measure, but he describes this completely in the language of thoroughbass theory, that is, without any mention of tonal function: "The tritone is accompanied by the octave and sixth when the following note descends a fourth, being accompanied by a perfect chord and falling on the first beat of the measure" ("Le Triton s'accompagne de l'Octave & de la Sixiéme, quand la note suivante descend d'une quarte, étant accompagnée d'un accord parfait, & tombant sur le premier tems de la mesure.") (Michel de Saint-Lambert, *Nouveau traité de l'accompagnement du clavecin, de l'orgue, et des autres instruments* [Paris, 1707; reprint ed., Geneva, 1972], p. 14).

time signature and the bar lines, Vogler concludes that such a problem can be traced back to an incorrect metrical placement of the harmonies. He thus formulates a single rule for harmonic settings that a composer must always follow:

> Just as . . . the tonic takes precedence over its dominant in impression and strength on the ear, so too is the first eighth note stronger than the second, and the first quarter note stronger than the second, and the first half note or whole measure stronger than the second half note or whole measure. The tonic must thus belong to the strong beat and the dominant to a weak beat.[11]

Here then is a remarkable statement: Vogler describes both tonic harmony and metrical accent as possessing "emphasis" and "strength," and these common attributes provide the link between the two musical dimensions. Harmonic strength and weakness should correspond respectively with metrical strength and weakness; in passages where this relationship is wanting, "the ear must be offended."[12]

Needless to say, Vogler's rigid rule of composition can all too easily be refuted by the overwhelming evidence offered by actual practice, where composers are clearly not bound at all by Vogler's restriction on the placement of harmonies. But more interesting than this manifest weakness in Vogler's approach is the fact that when he tries to explain specific questions of harmonic and metrical theory or even to criticize passages from actual compositions, Vogler consistently misapplies his own principle of harmony and meter in some respect or another.

To take just one example, he initially raises the question of how tonal function and meter relate while attempting to justify the traditional rule of setting the suspension dissonance on a strong metrical position.[13] Comparing Examples 6a and 6b, Vogler notes that the former case violates the rule because the harmonies are poorly distributed within the measures: in the first place, the dominant arrives too early in measure one which, because it is an odd-numbered, and hence accented, measure, should contain only tonic harmony; in the second place, the tonic is incorrectly set on the second half of measure two, because this even-numbered, unaccented measure should be occupied only by dominant harmony. Moreover, the addition of dissonances, which "make the strongest impression on the ear," renders the poor effect of the misplaced harmonies all the more offensive.[14]

It can be questioned, however, whether Vogler has correctly accounted for the faulty placement of both the harmonies and the dissonances in Example 6a. The difficulty that Vogler encounters concerns the question of hierarchical levels, for it can be observed that whereas the alternation of tonic and dominant harmonies occurs at the level of the full measure, the succession of preparation, dissonance, and resolution occurs at the half-measure level. Any statement about the misplacement of chords at one level, however, will not necessarily pertain to the location of the dissonances at a lower level. This point can be seen by placing Vogler's corrected version, Example 6b, in the context of (say) an eight-measure phrase, such as that shown in Example 7.

[11]"Gleichwie . . . der Haupton an Eindruck und Gewalt auf das Gehör seinem fünften vorgeht: so ist auch das erste Achtel stärker als das zweite, das erste Viertel stärker als das zweite, der erste halbe oder ganze Schlag stärker als der zweite halbe oder ganze. Der erste Ton muß also auf den starken Theil . . . und der fünfte Ton einem schwächeren zukommen" (*Betrachtungen der Mannheimer Tonschule* 2 [April-May, 1780]: 368 [394]). (The page number in brackets refers to the reprint edition [4 vols.; Hildesheim, 1974].)

[12]"Wenn man nun an dem Plaz des fünften Tones den ersten; an den Plaz des ersten Tones den fünften leget, . . . so muß das Gehör beleidiget werden" (*Tonwissenschaft und Tonsezkunst* [Mannheim, 1776, reprint ed., Hildesheim, 1970], p. 37).

[13]Ibid., pp. 35–38.

[14]Since Vogler does not use musical notation in *Tonwissenschaft*, Example 6 is a realization of the tablature system that he presents:

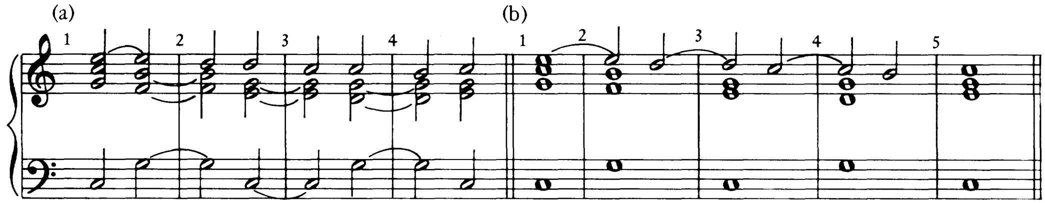
Example 6a:

			9	8			
	6	5	5	–	5		
	7	7	3	–	4	3	
c	g	g	c	c	g	g	c

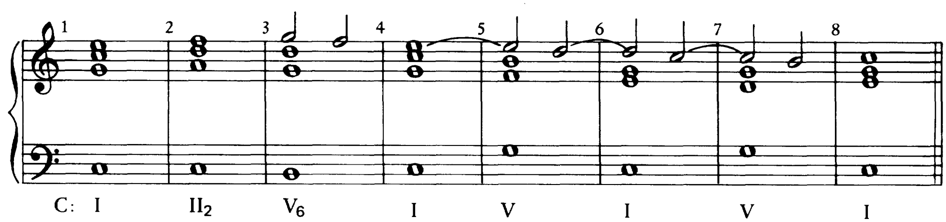
Example 6b:

	6	5	9	8	5		
	7				4	3	
C	G		C		G		C

Example 6. After Vogler, *Tonwissenschaft und Tonsezkunst,* p. 36



Example 7



After the initial tonic in measure one, all of the remaining tonic chords fall on even-numbered, and hence unaccented, measures in violation of Vogler's principles. Yet, at the same time, each of the dissonances is prepared on a weak beat, sounded on a strong beat, and resolved on a weak beat, fully compliant with the traditional rule. Therefore, Vogler's appeal to the tonal function of harmonic progressions for explaining the metrical location of the suspension dissonance is misdirected. The problem with the harmonic placement of Example 6a is not one that involves whether the chords are tonics or dominants, but rather it is the general syncopation of the individual chords, regardless of their harmonic content, that causes the disturbance in the passage.

The mistake of confusing hierarchical levels, as seen in this last example, is repeated by Vogler on a number of other occasions throughout his writings. Moreover, he often misapplies his rule in other ways as well. For instance, in one passage he misinterprets the key in which the music is set; in another, he confuses dominant harmony with the establishment of a dominant tonal region. Even more interesting are several situations in which he uses his rule (unsuccessfully, I believe) to explain the metrical placement of chords within the circle of fifths sequence.[15]

Thus considering Vogler's failure to provide convincing applications of his one harmonic-metric principle, it is little wonder that his dogmatic ideas on the relationship of tonal function and

[15]For a more complete examination of Vogler's difficulties in applying his rule of harmony and meter, see William Earl Caplin, "Theories of Harmonic-Metric Relationships from Rameau to Riemann" (Ph.D. diss., University of Chicago, 1981), chap. 4.

meter had little influence on succeeding theorists.[16] In fact, I have yet to discover any other theorist who goes so far as Vogler in insisting that tonic and dominant functions have a determinate metrical location; to do so, of course, would run directly counter to the empirical evidence offered by actual compositions, where these harmonies are freely placed on any metrical position. Nevertheless, the notion of an important connection between tonic function and metrical accent persisted throughout the nineteenth century and found important expression in the writings of three of its leading music theorists—Simon Sechter, Moritz Hauptmann, and Hugo Riemann. Thus, in the rest of this study, I wish to examine how these thinkers approached the problem that had interested Rameau and so obsessed Vogler in the preceding century.

In his monumental treatise *Die Grundsätze der musikalischen Komposition,* Simon Sechter, the foremost theorist of mid-nineteenth-century Austria, devotes a complete chapter to "The Laws of Meter in Music," wherein he offers instructions to the composer for insuring that the downbeat of each measure is clearly articulated by the succession of harmonies.[17] Among his principles for the correct metrical placement of chords is one that touches upon the relationship of tonal function and meter. In ranking the metrical decisiveness of various fundamental-bass progressions, Sechter notes, "Leaps of a third are weak, but leaps of a fourth or fifth are decisive; however, leaps of an ascending fourth or descending fifth are the most decisive."[18] Unfortunately, Sechter does not explain why a descending fifth progression of the fundamental bass is the most powerful articulator of metrical strength. So a complete interpretation of his views must go beyond what he himself has offered. Nevertheless, in one way Sechter does provide the basis for a likely explanation when he notes early in his treatise that all descending fifths are "imitations" of the V-I cadential progression (1:17) and specifically shows that a dominant-tonic relationship is announced at each step in the circle of descending fifths (Example 8).

Although Sechter stops short of connecting such dominant-to-tonic motion directly to meter, it is not difficult to presume that a notion of tonal function as an expression of metrical accent lies at the heart of his observations. Unlike Vogler, Sechter does not insist that all tonic harmonies be placed on metrically accented positions. Rather, he takes a more subtle approach by characterizing the descending-fifth motion of the fundamental bass as the most metrically decisive harmonic progression and uses this observation as a guide for the composer, not as a strict requirement of compositional practice.

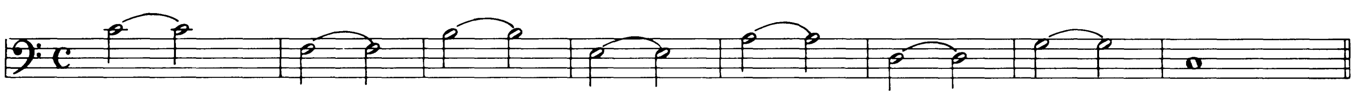
Writing at about the same time as Sechter, but from an entirely different theoretical orientation, Moritz Hauptmann also finds an important relationship between tonal function and metrical accent. But the nature of this relationship is difficult to interpret because of the very abstract mode of Hauptmann's argumentation. Hauptmann formulates his theory of music from a

[16]For example, Gottfried Weber, who is highly indebted to Vogler on many issues, does not at all discuss any special principles for the metrical placement of tonic and dominant harmonies.

[17]Simon Sechter, *Die Grundsätze der musikalischen Komposition,* 3 vols. (Leipzig, 1853–54), vol. 2, chap. 1.

[18]"Matt sind Terzensprünge, entscheidend aber die Quarten- und Quintensprünge; der Quartsprung aufwärts und der Quintsprung abwärts sind aber am entscheidendsten" (ibid., 2:19).

Example 8. Sechter, *Grundsätze der musikalischen Komposition,* 2:26



dialectical point of view, wherein every stage in the development of a harmonic and metrical system begins from a state of unity [thesis], to which an element of opposition [antithesis] appears; a third element [synthesis] then emerges to reconcile the opposition and to bring into being a new state of unity at the next stage of the system. Thus, in the case of harmony, Hauptmann finds the interval of an octave to represent unity; the fifth creates an opposition to this unity and the third unifies this opposition, creating at the same time a new unity, the major triad.[19] The metrical manifestation of the same dialectical development involves the duple meter as a unity, the triple meter as an opposition, and the quadruple meter as a reconciliation of this opposition (pp. 223–29).

With the statement "Meter only repeats what harmony has already set forth," Hauptmann makes it clear that relationships between harmony and meter are not merely incidental, but rather, fundamental to his theory of music.[20] But needless to say, the relationship between intervals and meters that Hauptmann thus establishes is entirely abstract and devoid of any specifically musical meaning. Indeed, he expressly denies that "in a triple meter we ought to perceive the interval of a fifth, . . . and in a duple meter to perceive an octave, . . . and in a quadruple meter, a third."[21] Rather, these harmonic and metric phenomena are associated with each other by virtue of their mutual expression of the same dialectical concept.

In addition to these three logical components of unity, opposition, and unified opposition, Hauptmann also differentiates between entities that express a positive or negative unity. For example, within his theory of harmony, a major triad is considered to be positive, whereas a minor triad is negative (p. 34); likewise, within meter, a metrical unit made up of an accent followed by an unaccent is positive; however, the reverse sequence, that is, an upbeat motive, is negative (pp. 248–49). Like the previous relationship between harmonic intervals and metrical quantities, this new connection of major-minor modality with metrical accentuation is also purely conceptual, for a meaningful musical relationship here is inconceivable: Hauptmann is in no way suggesting that downbeat metrical motives naturally occur in a major mode or that upbeat motives are more appropriately used in a minor mode.

When Hauptmann addresses the question of how harmonic progressions relate to metrical organization, he once again invokes the contrasting concepts of positive and negative, the latter of which he now terms a "relative":

> The first metrical determination is the succession of a first and second, a positive and relative, an accented and unaccented. . . . Harmony also has in the notion of succession its positive and relative, . . . namely, the relation of a dominant or subdominant triad to its tonic triad. . . . The metrically positive corresponds directly to a tonic chord, and the metrically relative corresponds to the upper and lower dominants.[22]

Unlike the fully abstract harmonic-metric connections discussed before, the relationship of triads and accentuation that

[19]Moritz Hauptmann, *Die Natur der Harmonik und der Metrik* (Leipzig, 1853), pp. 22–23.

[20]"Es wiederholt sich in der Metrik nur, was die Harmonik schon dargelegt hat: . . ." (ibid., p. 291). English translations are by the author, with reference to Moritz Hauptmann, *The Nature of Harmony and Metre*, trans. W. E. Heathcote (London, 1893).

[21]"So wenig uns nun zugemuthet werden soll, im dreitheilig-gegliederten Metrum eine Klangquint . . . zu vernehmen, ebenso . . . im zweigliedrigen Metrum eine Octav, . . . und im viergliedrigen Metrum eine Terz; . . ." (*Harmonik und Metrik*, p. 240).

[22]"Die erste metrische Bestimmung ist aber die der Folge eines Ersten und Zweiten, eines Positiven und Relativen, des Accentuirten und Nichtaccentuirten: . . .

Auch die Harmonie hat im Begriffe der Folge ihr Positives und Relatives. . . . als die Beziehung eines Dominantaccords,—des Ober- oder Unterdominant-dreiklang,—zu seinem tonischen Dreiklang . . ." (ibid., pp. 371–72). "Einem tonischen Accorde . . . entspricht direct das metrisch-Positive . . .; dem Accorde der Ober- oder Unterquint . . . das metrisch-Relative . . ." (ibid., p. 376). Although Hauptmann simply asserts here that the tonic triad expresses a positive and that the upper and lower dominants ex-

Hauptmann now draws can have a true musical realization, inasmuch as it is possible to associate these two musical phenomena directly with each other in a compositional context: a tonic harmony can be an accented event, and a dominant, an unaccented one. But as he continues with his discussion, Hauptmann insists that all combinations of triads and metrical positions are usable in a musical work. It is not "contradictory to rational meaning" if a harmonic relative is combined with a metrical positive, or vice versa (p. 372).

Clearly, Hauptmann realizes that an approach such as that taken by Vogler is false, because tonic harmonies are not confined to metrically strong positions. And Hauptmann is ever careful throughout his writings to avoid making claims that contradict musical practice; indeed, he is so cautious in this respect that it becomes difficult to assess the actual musical significance of the relationship that he finds between tonal function and meter. On the one hand, Hauptmann may understand this relationship to be merely conceptual and thus implying no musical realization whatsoever; on the other hand, he might be hinting that the varying metrical placements of harmony and melody produce a perceived aesthetic effect based upon a normative connection of tonic harmony and accent. This idea is suggested when he notes that whereas the metrical placement of triads may be unrestricted, the effect that they have in relation to meter is not merely neutral:

> The same series of consonant chords may assume metrically the most varied forms and, thereby, can also be most manifoldly different with respect to their inner meaning. . . . And if we continue with further triads in more advanced metrical formations . . . we may be led to the greatest diversity of harmonic-metric meaning.[23]

Unfortunately, Hauptmann does not spell out what such an "inner meaning" of harmony and meter might be. Again, this meaning may be purely conceptual, in the sense of the common meaning shared by an octave and duple meter or that by a major triad and a downbeat motive. But it is also possible that Hauptmann has in mind a more specifically musical meaning, one that informs a harmonic progression at the time that it obtains a metrical interpretation. In other words, Hauptmann may very well be suggesting that we perceive varying aesthetic effects arising out of the many metrical arrangements of triads. And thus by specifically relating metrical accent with tonic harmony as expressing a "positive unity," the placement of this harmony on that metrical position can be regarded as a kind of harmonic-metric norm against which other combinations, ones that are nonetheless musically intelligible and aesthetically pleasing, can be distinguished. Unfortunately, Hauptmann's remarks remain at such a high level of abstraction that a definite conclusion about the true musical significance of his ideas cannot be made on the sole evidence of his text.

One thing is certain though: Hauptmann himself may have been reluctant to draw musical conclusions from the logical relationship that he had established, but his most important successor, Hugo Riemann, had no such hesitation. Indeed, Riemann launches his career as a music theorist by reformulating Hauptmann's abstract conceptions into more specifically

press a relative, he provides no additional justification or explanation for his claim. Indeed, he does not once refer to this meaning of the triads in the entire first part of his treatise devoted to harmony. Rather, in a chapter on "The Major Key," he shows how an individual triad represents unity, how the relationship of this triad to its upper and lower dominants represents opposition, and how the emergence of this triad as a tonic of a key represents unity of opposition (pp. 25–30). Furthermore, in chapters on the progressions of chords and on the cadence, Hauptmann discusses the dialectical meanings of individual notes within the chords but makes no reference to the meanings of triads as a whole. Consequently, Hauptmann's assertion that the tonic harmony is a positive, to which the upper and lower dominants are relative, comes as an entirely new idea, one that he does not integrate into his general theory of harmony.

[23]"Dieselbe consonante Accordreihe kann metrisch verschiedenste Gestalt annehmen und wird dadurch auch ihrer inneren Bedeutung nach aufs Mannigfaltigste verschieden sein können. . . . so wird eine fernere Dreiklangsfortsetzung in weiterer metrischer Formation. . . zu grösster Verschiedenheit harmonisch-metrischer Bedeutung führen können" (ibid., p. 373).

musical principles of harmonic-metric interaction. In his very first publication, a fascinating article entitled "Musikalische Logik," Riemann proclaims that he "will seek to carry on [Hauptmann's] theory by beginning where he leaves off, namely by applied harmony and meter."[24] According to Riemann, Hauptmann developed theories of absolute harmony and absolute meter and, in so doing, created a gap between theory and practice that can be corrected only by realizing that "harmony and meter go hand in hand; one requires the other."[25] Thus Riemann proceeds to describe a metrical system at once in terms of a harmonic context, and he establishes a relationship between the tonic harmony of the cadential progression and metrical accentuation as expressions of the dialectical concept of *thesis*. (Riemann also discusses the harmonic-metric expressions of *antithesis* and *synthesis,* but these remarks do not pertain to the issue at hand.) Thus, in connection with the emphasis associated with the first beat of a measure, he notes that,

> Strictly speaking . . . this is not an emphasis [*Hervorhebung*] but rather only a stepping forth [*Hervortreten*]. . . .
>
> Thus in the case of peaceful and fully emotionless progressions of alternating chords, the thesis, the first tonic, is that which chiefly impresses itself upon us and of which we therefore become fond and desire a return. . . . I would like to call the accent of the beginning time element the *thetic accent,* which is especially widespread in the strict church style, but which cannot free itself from a certain monotony.[26]

As Riemann develops this idea of thetic accent in the course of his essay, there are some indications that this logical relationship between tonic and accent may be purely abstract in a Hauptmannian sense.[27] But a closer examination of Riemann's description suggests that he might also be referring to a genuinely musical connection of harmony and meter. By mentioning the "peaceful and fully emotionless" progressions of chords most appropriate to a "strict church style," Riemann seems to be describing a performance situation that avoids any kind of outside accentuation that might be imparted by the performer. Under such circumstances, the tonic chord "impresses itself upon us," and we "desire its return." In other words, Riemann specifies the appropriate conditions under which the tonic harmony itself would create, so to speak, its own metrical accentuation. This idea is further implied by Riemann's explicit preference for the term *Hervortreten* over *Hervorhebung*: the former carries an association of emphasis arising from within, the latter, of emphasis imposed from without.

Despite his declared intentions to render Hauptmann's abstractions more concrete, Riemann does not actually discuss in this article any practical applications—either for the composer, the performer, or the analyst—that this relationship between tonal function and metrical accent might yield. But in his first major treatise on harmony, *Musikalische Syntaxis*, Riemann presents this same correlation of harmony and meter in a somewhat more definite compositional and analytical context.[28] Within the course of developing a system of harmonic dualism, inspired by the theories of Arthur von Oettingen, Riemann en-

[24]"*Auf Moritz Hauptmanns Harmonik fussend* . . ., werde ich suchen, eine Fortführung seiner Theorie zu geben, indem ich da anfange, wo er aufhört, nämlich bei der angewandten Harmonik und Metrik" ("Musikalische Logik," reprinted in Hugo Riemann, *Präludien und Studien* [3 vols.; Leipzig, 1895–1901], 3:1).

[25]"Harmonik und Metrik gehen Hand in Hand, eins bedingt das andere . . " (ibid., p. 11).

[26]"Strengenommen ist das aber keine Hervorhebung, sondern nur ein Hervortreten; . . .

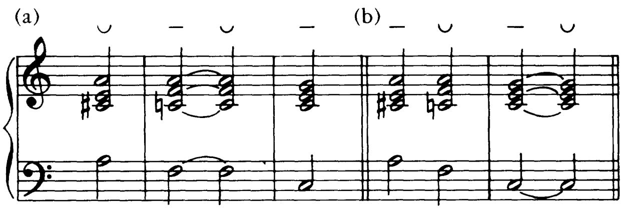
Bei ruhigem und völlig leidenschaftslosem Fortgange des Akkordwechsels ist also die These, die erste Tonika das uns sich zunächst Einprägende, welches deshalb von uns lieb gewonnen und zurückverlangt wird. . . . Ich möchte den Accent der Erstzeitigkeit den *thetischen Accent* nennen, der besonders im strengen kirchlichen Stil der verbreitetste ist, eine gewisse Monotonie aber nicht los werden kann" (ibid., pp. 13–14).

[27]See, for example, Riemann's discussion (p. 18) of the rhythm that opens the last movement of Beethoven's *Piano Sonata, op. 14, no. 2,* where his reference to harmony and meter is simply metaphorical and not based at all on the actual harmonic content of the passage.

[28]Hugo Riemann, *Musikalische Syntaxis* (Leipzig, 1877).

counters a problem confronted by Rameau at the very beginning of harmonic theory: how can the tonal center of a progression of harmonies be determined? And like his French predecessor, Riemann appeals to the force of meter for defining tonic function in cases of ambiguous harmonic progressions: "We must therefore come to the conclusion that in the case of all two-chord progressions, the metrical accentuation decides which chord is to be considered the actual tonic."[29] As an example, he compares two different metrical settings of the same chord progression (Example 9) and notes that in the first case, the F-major triad is accented and thus becomes the tonic in relation to the other chords; whereas in the second case, the unaccented F triad is merely a "chord of mediation" and the entire progression should be understood in C major.

Example 9. After Riemann, *Musikalische Syntaxis*, p. 82



In attempting to account for this effect of meter, Riemann offers an explanation that goes beyond Rameau's rather meager comments on the "greater perceptibility" that an accent can impart to a chord:

> The accented beat . . . always has precedence over the unaccented one; . . . that is, the unaccented beat appears to follow or precede the accented one and thus to be related to it; the accented beat has a similar meaning to the tonic chord in a harmonic progression. It is therefore conceivable that a progression appears more easily understandable if the tonic chord occurs on an accented beat.[30]

It is interesting to observe that Riemann no longer speaks of any special emphasis associated with an accented beat and tonic harmony, but instead now refers to the common meaning shared by these phenomena. He thus continues strongly in the tradition of Hauptmann by appealing to categories of musical comprehension, but even more than his predecessor, Riemann suggests that this relationship of tonic harmony and metrical accent is an aesthetic norm, one that has at least a minimal application in composition and analysis.

Unfortunately, Riemann develops his idea no further and does not really clarify how this principle of harmony and meter is to function within a more comprehensive analytical system. Indeed, in some of his later writings, he seems to reverse his position entirely on the relationship of harmony and accentuation. In his major study on principles of musical phrasing, *Musikalische Dynamik und Agogik*, Riemann proposes that the fundamental dynamic of the "metrical motive" consists first of a steady growth, a becoming, a "positive development." This is then followed by a passing away, a dying off, a "negative development."[31] In more concrete musical terms, the metrical motive contains a fluctuation in tonal intensity characterized by a crescendo to a "dynamic climax" and a subsequent decre-

[29] "Wir müssen daher zu dem Schlusse kommen, dass bei allen zweiklängigen Thesen die metrische Akcentuation entscheidet, welcher Klang als der eigentlich thetische, . . . ist" (ibid., p. 79). In *Syntaxis*, Riemann uses the term *These* to mean the establishment of a tonic through a progression of chords. The *thetischer Klang* or *thetischer Akkord* is the actual tonic harmony (ibid., p. 15).

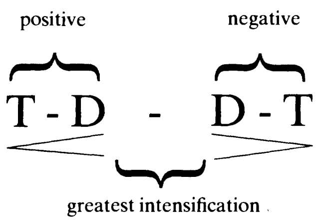
[30] "Der gute Takttheil . . . hat immer den Vorzug vor den schlechten . . . d.h. die schlechten erscheinen ihm folgend oder vorausgehend, also auf ihn bezogen, er ist von ähnlicher Bedeutung wie der thetische Klang in der harmonnischen These. Es ist daher begreiflich, dass eine These desto leichter verständlich erscheint, wenn sie die Tonika auf dem guten Takttheil bringt; . . ." (ibid., p. 76).

[31] Hugo Riemann, *Musikalische Dynamik und Agogik* (Hamburg, 1884), p. 11.

scendo. When Riemann turns to the issue of how harmonic progressions are to be expressed dynamically, we learn that the motion from a tonic to a dominant represents a harmonic becoming, a positive development, and that the return back to the tonic is a passing away, a negative development. Thus, "the simple connection of both factors must be the crescendo for the harmonic positive and diminuendo for the harmonic negative."[32] As illustrated in Example 10, the dominant harmony is therefore directly associated with the dynamic climax of a metrical motive.

Example 10

dynamic shading:



There is much evidence throughout Riemann's treatise that the dynamic climax, the moment of greatest intensity, corresponds to the primary metrical accent of a measure as defined by the traditional theory of meter. For example, Riemann notes early in his treatise that "the bar line indicates the position of the dynamic climax of the motive. The note that follows the bar line always forms the strong point of the motive."[33] But if the dynamic climax is meant to represent a metrical accent, then the relation between harmony and meter presented here is exactly the opposite of that proposed in his earlier works, where the tonic harmony, not the dominant, is linked to the accented beat of a metrical unit. Has Riemann now completely changed his view? Or can some way be found to reconcile these apparently opposing positions? I believe that further examination reveals an answer to these questions.

Despite the strong evidence suggesting that the "dynamic climax" is Riemann's reformulation of the traditional "metrical accent," he discusses a number of anomalous situations that point to a fundamental incongruity of these two concepts. For example, in his treatment of syncopation, Riemann first raises the possibility of "displacing" the dynamic climax away from the event following the bar line (p. 52), and he returns to this idea of dynamic displacement when considering the effects of harmony. Thus, in some of his examples (Example 11), the dynamic climax, which is associated with the dominant harmony, is moved back from the metrical accent, and Riemann does not suggest at all that this displacement in any way upsets the basic metrical organization, as indicated by the bar lines.[34]

Thus we could perhaps conclude that, despite a number of statements to the contrary, Riemann's theory of dynamic shading is not a theory of meter at all, in that it is not a theory of metrical accent, but rather that it is exclusively a theory of performance. Therefore, the relationship that he draws between harmony and dynamics must not be compared in the same terms with his earlier speculations on the connection between tonal function and metrical accent. In fact, the two apparently conflicting positions actually complement each other: if tonic harmony naturally expresses itself as metrically accented, or at least possesses some intrinsic accentuation, then it is unnecessary, and perhaps even undesirable, for the performer to add

[32]". . . die schlichte Verbindung beider Faktoren muss das crescendo für das harmonisch-positive und das diminuendo für das harmonisch-negative sein; . . . " (ibid., p. 186).

[33]". . . der Taktstrich [anzeigt] die Stelle des dynamischen Höhepunkts des Motivs. . . . Die dem Taktstrich folgende Note bildet stets den Schwerpunkt des Motivs" (ibid., pp. 12–13).

[34]Riemann has added the crescendo-decrescendo signs to these examples in order to indicate his understanding of their dynamic shading.

Example 11. Riemann, *Musikalische Dynamik und Agogik,* p. 188

(a)

Beethoven, Sonata, op. 31, no. 1

(b)

Beethoven, Sonata, op. 57

any special intensification to the tonic chord. Indeed, a more interesting and expressive aesthetic effect would be created by imparting dynamic stress to the dominant harmony in order to offset the accents created by the tonic harmony.

This attempt to reconcile Riemann's complex views brings to a close my survey of how earlier theorists treat the relationship of tonal function and metrical accent. The results can now be summarized by delineating the spectrum of possible stances that a theorist can take when confronting this problematic issue. At one extreme, a theorist can simply deny that any kind of relationship exists; this would appear to be Wallace Berry's position when he states that tonal function is metrically neutral. But of the major eighteenth- and nineteenth-century theorists, I have not yet discovered any who explicitly reject the notion that harmonic progressions have metrical consequences. This is not entirely surprising, however, because questions of harmonic-metric interaction were not sufficiently developed during this period so that a theorist felt himself compelled to treat the topic. It appears, then, that we have heard only from those theorists who believed in some genuine correlation between these harmonic and metric phenomena.

At the other extreme of the spectrum, a theorist can be convinced that metrical accent and tonic harmony are so powerfully interrelated that they must always be coupled in actual musical practice. Such a theorist would argue that just as a suspension dissonance must always be placed on the downbeat of a measure, so too must a tonic fall at all times upon a metrical accent. This, of course, is the view advocated by Vogler throughout his writings, a view whose inadequacies are so apparent as to require little refutation.

Between these two extremes lies a variety of possible positions on the extent to which harmony and meter relate and the actual consequences to be drawn from this relationship. For example, a theorist may recognize a conceptual or metaphorical connection between the phenomena without exactly specifying what musical results thereby arise. Thus Hauptmann relates tonic harmony to metrical accent as a mutual manifestation of a logical category of perception but specifically states that any actual combination of harmonic progressions and accentual patterns has equal syntactical validity in a musical work. And even when he claims that varying arrangements of harmonies within a metrical scheme yield different "inner meanings," it remains unclear whether he is referring to a specific, musical meaning or rather a general, metaphysical one.

Less abstract are the views of Rameau and Sechter; both of these theorists propose a relationship between tonic harmony and metrical accent that has distinctly musical consequences. For Rameau, this correlation of harmony and meter manifests itself in the ability of an accent to determine tonal function in cases of ambiguous progressions of consonant triads. For Sechter, this same harmonic-metric relationship produces quite the opposite results, whereby it is the motion from dominant to tonic that is used by the composer to determine, or at least to articulate decisively, the intended metrical accent.

The views of Hugo Riemann, which represent the most complex attitude toward this issue, also lie between the two extreme positions mentioned before. Starting his career with rather abstract Hauptmannian principles of musical logic, Riemann develops an incipient notion of tonal function as an expression of metrical accent, one that recalls Sechter's concern with the metrical articulation of harmonic progressions. Riemann then applies this idea more concretely along lines suggested by Rameau, whereby metrical placement is seen as decisive for clarifying an ambiguous tonal function. Finally, in his theory of musical phrasing, Riemann seems to contradict this relationship between harmony and meter by associating the dominant harmony, not the tonic, with the dynamic climax of a metrical motive. I suggested, however, that insofar as dynamic climax is not a determinant of metrical accent, then Riemann's apparently conflicting views can actually be regarded as compatible, whereby the inherent accentuation of tonic harmony is balanced by a performed accentuation of dominant harmony.

To conclude, the historical evidence clearly indicates that although some of the most important theorists of the eighteenth and nineteenth centuries recognized a significant relationship between tonic harmonic function and metrical accentuation, they achieved little consensus on the nature of this relationship and the musical consequences—be they compositional, analytical, or generally aesthetical—that follow from it. And as noted at the very beginning of this study, this lack of general agreement continues to haunt present-day inquiries as well. I would hope, then, that this examination of the historical record might help to throw into relief some of the many problems that remain to be solved and to stimulate further investigation into this controversial issue of music theory.