Riemann's Functional Framework for Extended Jazz Harmony

James McGowan

The I or tonic chord is the only chord which gives the feeling of complete rest or relaxation. Since the I chord acts as the point of rest there is generated in the other chords a feeling of tension or restlessness. The other chords therefore must eventually return to the tonic chord if a feeling of relaxation is desired.[1]

Invoking several musical metaphors, Ricigliano's comment could apply equally well to the tension and release of any tonal music, not only jazz. Indeed, such metaphors serve as essential points of departure for some extended treatises in music theory.[2] Andrew Jaffe further associates "tonic," "stability," and "consonance," when he states: "Two terms used to refer to the extremes of harmonic stability and instability within an individual chord or a chord progression are dissonance and consonance."[3] One should acknowledge, however, that to the non-jazz reader, reference to "tonic chord" implicitly means triad. This is not the case for Ricigliano, Jaffe, or numerous other writers of pedagogical jazz theory.[4] Rather, in complete indifference to, ignorance of, or reaction against the common-practice principle that only triads or

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1 Ricigliano 1967, 21.

2 A prime example, Berry applies the metaphor of "motion" to explore "Formal processes and element-actions of growth and decline" within different musical domains, in diverse stylistic contexts. Berry 1976, 6 (also see 111–2). An important precedent for Berry's work in the metaphoric dynamism of harmony and other parameters is found in the writings of Kurth – particularly in his conceptions of "sensuous" and "energetic" harmony. For an evaluation of Kurth's ideas, see Rothfarb 1988.

3 Jaffe 1983, 14. Emphasis in original.

4 Henry Martin uses this term in reference to practical approaches to jazz theory designed to improve performance and/or composition (including improvisation and arranging) of the lay musician. Pedagogical writings generally address basic questions like "what notes, in addition to the ones of the chord, are melodically compatible with that chord and are stylistically appropriate?" See Martin 1996, 7–8. Some representative examples of these include Levine 1995, Lawn and Hellmer 1993, Benward and Wildman 1984.

their constituent intervals are consonances, the majority of jazz musicians refer to any number of chord-member configurations in the context of chords of any function.

Despite the seemingly irreconcilable difference of what constitutes harmonic consonance and dissonance,[5] the casual explanations cited above from jazz pedagogy books can engage with the seminal ideas of harmonic theory as put forth by Hugo Riemann. Riemann's writings, in particular, suggest he was deeply concerned with creating theoretical models that can pragmatically illustrate and predict the behavior of harmonic succession[6] and formal compositional practice. While his most relevant ideas predate the rise of jazz and its extended harmony, this paper illustrates how Riemann's ideas of harmonic function, harmonic syntax, and chord-type functional plurality—particularly interesting for tonic chords—are compatible with jazz practice and pedagogical theory: they provide a theoretical framework that accommodates the increased use of extensions in the harmony of tonal jazz.[7]

Before considering Riemann's use of harmonic functions and their relevance to jazz theory, we first consider a significant precedent in the work of Rameau. As evident in his first theoretical treatise, Rameau divided all chords into only two types: the perfect chord (accord parfait) or triad, and the seventh chord (dominante).[8] Of the latter, he also recognized that dominant harmony

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[5] See McGowan 2008.

[6] Cone's definition of "succession" is relevant here: "connections [between sound and syntax] at the most detailed level: the specific chords chosen, the accessory tones decorating them, the voice-leading from one to the next, and the comparative complexity of the sonorities." Cone 1974, 21.

[7] Martin notes: "the various styles of tonal jazz [include] the New Orleans and Chicago styles, swing, bop, hard bop, gospel jazz, and blues;" see Henry Martin 1988, 9. Tonal jazz does not include most free jazz, fusion, and styles that have been erroneously associated with jazz, particularly traditional blues (without functional harmony), rock and other popular musics. A compatible definition is jazz that "seeks closure," put forward by Heble 2000, 52–60.

[8] He also presented the chord of the added sixth for use in double emploi. Although he treats this chord as distinct from seventh chords, he nonetheless emphasizes the distinctiveness of the triad that is reserved for the purpose of tonic. Rameau 1971.

(dominante-tonique) was a special type of seventh chord in that it preceded the tonic.[9] Rameau not only claimed that the triad was the only possible tonic sonority, but also that the triad could only be a tonic chord. When non-tonic chords appeared as triads, Rameau imagined that the 7th was in fact present:

> Of the two sounds in the bass which prepare us for the end of a piece, the second is undoubtedly the principal one, since it is also the sound with which the whole piece began. As the whole piece is based on it, the preceding sound should naturally be distinguished from it by something which renders this preceding sound less perfect. If each of these sounds bore a perfect chord, the mind, not desiring anything more after such a chord, would be uncertain upon which of these two sounds to rest. Dissonance seems needed here in order that its harshness should make the listener desire the rest which follows.[10]

Thus, expectation for functional resolution is the result of chord membership. Although the logic is circular, Rameau believed that dominants must be major-minor seventh chords because of their function class and major-minor sevenths must be dominant because of their chordal identity.

To some extent, chord/scale theory, as found in a majority of pedagogical books on jazz improvisation, is conceptually aligned with Rameau's theories. Both reserve a specific chord/scale for harmonic functions, including tonic harmony. The fundamental difference lies in the comparison of Rameau's tonic triad with the modern-jazz tonic that can include up to seven chord tones. Though the principle is the same, the comparison highlights significant dissimilarities in musical language between common-practice classical and tonal jazz.

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9 This is further addressed in Lester 1992, 100, 107–8. Rameau's development of the idea of three harmonic functions appears in his Nouveau système. See Chandler 1975.

10 Rameau 1971, 62.

11 As taken directly from Rameau, fundamental bass theory has definite limitations, but when integrated in Schenker's highly influential theory of tonality, it becomes a more valuable tool. See McGowan 2005, 173–181.

12 Rameau, Treatise.

Chord/scale theory had its origins in George Russell's "Lydian-Chromatic Concept"[13] in response to the "war on the chord," and found its first application as a method to model modal approaches such as used by Miles Davis in Kind of Blue.[14] In present-day jazz pedagogy, chord/scale theory is generally applicable to all jazz styles, and simply allows students to start improvising with extended harmonies early on in their study, prior to learning harmonic theory in detail. Levine writes: "The reason jazz musicians think of scales, or modes, when they improvise, is because it's easier than thinking in terms of chords."[15] Instead of thinking about relationships in tertian harmony, improvisers think about specific modal patterns, memorized in conjunction with harmonic function. Gonda sums up the value of chord/scale theory by expressing: "it is not really the single chords which are important, but the functional movement embodied in the progression."[16] In this way, this pervasive harmonic "shortcut" of jazz performance, where different modal patterns stand in for different harmonic functions, draws an interesting, if indirect, parallel to the principles of functional harmony as set forth by Riemann.

Whereas Rameau created a system of harmonic function based on chord-tone membership, Riemann developed the principles of harmonic function that bypassed the tonic/triad circularity. Building upon Hegelian philosophy applied to music by Hauptmann, Riemann rooted one component of his dualist theory in the ideology of thesis – antithesis – synthesis. Considering harmonic progression in this manner, thesis presents the tonality, antithesis represents the move away from tonic (IV to I6/4), which culminates in synthesis or the resolution to tonic (V to I).[17] This

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[13] Russell 1959 and 2002.

[14] Brubeck 2002, 190–3.

[15] Levine 1995, 32.

[16] Gonda 1971–72, 204.

[17] This aspect of Riemann's theories was first presented in an early essay entitled "Musikalische Logik: Ein Beitrag zur Theorie der Musik." For a translation and discussion see Mooney 2000, 81–126. Riemann later simplifies the model to encompass a cadential progression of I–IV–V–I (in major) that signifies more an

three-termed dualism, as found in the cadential model, effectively defined consonance in its truest sense as solely Tonic-functioned,[18] not because of its triadic chord-tone membership, but because of its identity with the tonal center. Riemann states:

> If I imagine the C major triad in its meaning in the key of C major, it is the tonic itself, center, closing chord. The image of it contains nothing that would contradict its consonance. It appears stable, pure, simple. If I imagine, on the other hand, the G major chord in the sense of the key of C major, then I imagine it as the Klang of the upper fifth of the C major triad, i.e. the C major triad itself is part of the imagination as that Klang by which the significance of the G major triad is determined as something deviating from it – the center of its imagination lies, so to speak, outside of it. That is to say, a moment of instability emerges, a desire to progress to the C major triad, dissonance.[19]

Superficially, Rameau and Riemann both defined consonance as a tonic triad. Because Riemann emphasized the imagination of tonal center over actual chord quality, however, I believe that this allows the theory to be extended to accommodate variability in tonic chord membership—including Riemannian transformations of Tp and harmonic extensions such as added sixths, sevenths, ninths, and elevenths—and that this membership can have some degree of equivalence as harmonically stable chords.[20] Riemann's own understandings of harmonic function seem contradictory in

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idealized harmonic logic of a period than actual chord progressions. Rehding 2003, 73 and 100–6.

[18] This study uses lower-case harmonic labels for triads based on scale degree (e.g. tonic, dominant) and upper-case harmonic labels for Riemannian harmonic functions (e.g. Tonic, Dominant). The term "three-termed dualism" is coined by Harrison 1994, 36.

[19] Rehding 2003, 71–2 (translation by the author). A published English translation of "Die Natur der Harmonik," from which this excerpt is taken, is: Riemann 1887, 29–30.

[20] The term "consonant" could be substituted for the qualifier "harmonically stable," though the terms "consonance" and "dissonance" are burdened with a rich but confusing semantic history. Any claims that such chords be considered "consonant" would have to be contextualized in terms of historical meaning and contemporary practice, with the knowledge that Riemann did not refer to anything other than triads as consonant. See McGowan 2008.

his different writings.[21] He presented two main strains: 1) a pedagogical version that assigned the three functions—Tonic, Subdominant, and Dominant—to the three primary triads, and allowed for modification of the triads by specific transformations;[22] and 2) a conceptual version that locates the same three "harmonic pillars" within abstract categories to which specific chords and tones belong.[23] In this latter sense, it is not specifically a tonic chord that fulfills the Tonic function, but rather it is the idea of a tonic chord. Therefore, as long as they maintain a functional allegiance to Tonic, many different chords can fulfill this "tonic" ideal. Riemann, however, considered variants of the tonic triad to be "apparent consonances" that are ultimately dissonant. Wuensch notes that "Riemann reduces the possible dissonant chord formations to three principles: the addition of a sixth, seventh, or ninth to a triad; the alteration of chord members; and the replacement of a chord tone by its diatonic neighbour."[24] Though chords that fulfill Tonic function do not actually remain consonant when transformed, Riemann lists a myriad of chord choices that can manifest Tonic, absurdly including chords such as an Italian 6th, and even a vii diminished chord. But despite this "anarchic" plethora of options, Riemann clearly does not consider all options for Tonic to be equally probable.[25] Most significantly, this idea allows us to integrate chords with harmonic extensions, as is idiomatic in jazz, into a functional context.

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[21] Mooney argues that Riemann's changing understandings do not demonstrate rejection of earlier beliefs but rather a growing desire to make the theory less concerned with metaphysics and more relevant to analyzing real musical sounds. Mooney notes that his earliest dialectic conception of function "was never more than a pragmatic tool for him, a way to make sense of a richly varied musical practice … Riemann's reading of Hauptmann … was utilitarian and bore all the strains of adapting metaphysical concepts to a living musical art." Mooney 2000, 95–6.

[22] Harrison 1994, 279ff.

[23] Rehding 2003, 55.

[24] Of particular interest for this theory is the former category. These three extensions are elemental to the recognition of dialects of consonance. Wuensch 1977, 121–2.

[25] Harrison 1994, 285–7, especially Example 6.6.

Regarding Riemann's pedagogical version of function theory, Harrison believes that "Riemann did not want theory to exert undue control over analysis," and that he "preferred to deal with what he found in real music, using notation not to coerce conformity to theory but to reflect the activities of his own tonal imagination."[26] Rehding adds that this tonal imagination manifest specifically within the functional expectations of the cadential model. If one applies these views to analyzing harmony in jazz—a different, but nonetheless "real music"—one can see how thinking in terms of function theory is beneficial: tonal imagination can reflect context that can prefer one viable chord type over another. Although Riemann does not appear to have made such a comment, one could imagine that he also believed the assortment of chordal manifestations for Tonic had varying degrees of stability, both in terms of sensory consonance and satisfying the syntactic role for Tonic within the phrase. While not considering chords other than the triad to be consonant, he did provide a conceptual framework that can allow theorists today to adapt his ideas in a renewed theory.[27] Three examples include writings by Wolf Burbat, Kenneth Stanton, and Steve Strunk.

Burbat's book is an example of how Riemann's function theory can be applied to jazz harmony.[28] In the list as shown in his Table 1, for example, Burbat shows collections of chords for the different Stufen, labeled as functions (i.e. T, Sp, Tg, S, D, Tp, slash-D7).[29] Burbat lists ten different possible chords for Tonic in major keys alone, illustrated in C major, ranging from the added sixth (C6) and major seventh (CΔ) to the thirteen-sharp eleventh (CΔ13(♯11)) and six-nine-sharp eleventh (C6/9(♯11)). In later sections of the book,

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[26] Harrison 1994, 292. Emphasis added.

[27] In the past twenty years there has been a resurgence of interest in Riemann's theories. Work by Harrison, Agmon, Cohn, and others can all be seen from this perspective of a renewed theory. Harrison 1994, Agmon 1995, and Cohn 1998.

[28] Imig cites a few earlier German sources that reconcile jazz theory with Riemannian function theory, including Alfred Baresel in 1953 and Carlo Bohländer in 1956. Imig 1970, 131–33.

[29] Burbat 1994, 21. Andy Jaffe outlines similar functional categories using Roman numerals, but does not expand upon the three-part functional scheme in the book. Jaffe 2009, 30

he offers some suggestions on how such chords can be used, in relation to chord/scale theory, melody harmonization, and analysis. But despite the practical tools and demonstrable application of modified harmonic function labels to jazz, he offers few insights into the different contextual tonal environments that exist in jazz. Understandably, Burbat does not utilize any of the modal dualism that was such an important component of Riemann's original conception of function theory.[30]

Stanton also employs a type of function theory for jazz (without referring to it as such) that tries to restore the importance of subdominant (IV and iv) to major-key contexts. Presumably, he is reacting to the jazz pedagogy in other systems which downplays Subdominant function in favor of systems that highlight II–V–I structures. Calling this system the "Generalization of Cadence," he groups R- and L-related triads with added sevenths—chords that "are acoustically related by their common tones"—into function classes, and categorizes them based on their degrees of stability (e.g., I Maj7 is "most stable," VIm7 is "less stable," IIIm7 is "least stable").[31] Stanton's approach to jazz cadences gives IV chords excessive credit, recognizing plagal cadences as syntactic. However, unlike Burbat, his conception of Tonic function is much more limited in favoring the major added-sixth chord and not accounting for other more common tonic chords within his scale of relative stability. Nonetheless, while Stanton's pedagogical text does not have wide currency, it is an interesting example of an approach that indirectly builds upon tri-functional harmonic theory.

In recent academic writing, Strunk argues for a classification different than Riemannian function theory, but still featuring function classes that he calls "substitution sets." These sets are

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[30] Generally regarded as the most untenable part of Riemann's theories is that of the minor being described in mirror form due to the flawed hypothesis of the undertone series. Function theory was never fully embraced as a truly dualist system, and it is the work of his successors Herman Grabner, Hugo Distler, and Wilhelm Mäler who presented "a monistic method, major and minor receiving the same treatment." Mickelsen 1977, 92. See also 61–63, 92–94 for further discussion of problems with Riemann's conception of the minor mode.

[31] Stanton 1982, 151. These relationships behave like R-, P-, and L-relations, standard in neo-Riemannian theory; Stanton, of course, does not make any reference to these operations or the theory. See Cohn 1997 and Lewin 1996.

conceived not as harmonic functions per se, but rather possibilities for melody harmonization. In addition to the I-type, V-type, and IV-type chords, he defines the iv-type (which includes ♭VII), and the ♯iiø7-type.[32] These substitution sets are comparable to Riemann's different chordal options for harmonic functions in that they group different chords together that can serve similar syntactic functions, even while the motivations are different. There are several current sources in jazz theory, mostly found in pedagogical texts designed for the amateur jazz-musician market, that offer forms of substitutions sets and promote a variety of different options for different harmonic functions.

Both abstract and concrete strains of Riemann's function theory have latent applicability to jazz substitution sets or any conceptual model that accounts for different chordal options serving the same function and/or syntactic role. Further, the flexibility of Riemann's function theory in the abstract sense allows for a variety of different chords or notes to fulfill stable Tonic function, but only those that have an impression of "home," "restfulness," or comparable metaphor. In its concrete sense, "a function has only one pristine expression: the primary triad. All other chords having the same function are modifications, alterations, or weakenings of the function-triad." Relevant to harmonic variety in jazz practice: "a function is like a family tree stemming from a single ancestor; although the individuals are all related, they are genetically distinct."[33] The different chordal options all share their genetic origins in the triad-centered consonance of European classical harmony.

When cast in terms of "consonance" and "dissonance," the syntactic purpose of the harmonic functions can be seen as function classes, irrespective of the actual chord choice. Norman Cazden has noted his preferred understanding that identifies consonance and dissonance as functions in themselves. This belief asserts:

> The functions of consonant and dissonant moments may be identified as respectively the stable and the active poles of the resolution relationship.

[32] Strunk 1985, 100.

[33] Harrison, Harmonic Function, 39.

> Consonance and dissonance alike thus refer to moments less dependent on what harmonies are, meaning by this their concrete sonorous constitution and their resultant degree of euphony, than on what those harmonies do.[34]

Completely opposite to the Rameauian perspective as found in chord/scale theory, Cazden claims that actual notes in a chord are irrelevant as long as the latter consonant chord serves to resolve the former dissonance in some sense. This position is extreme, as well as not particularly tenable, because it disregards aspects of style and restrictions of chord-tone membership for each function.[35]

Still, this perspective encourages an understanding of functional differences as being significantly context-dependent. Since there are obvious deviations in chordal construction within the tonal-jazz harmonic language, a useable adaptation of function theory must be broad enough to account for such cases of situational particularism.[36]

While the usefulness of chord/scale theory is limited (though it is definitely of practical, if not analytical, value), its underlying premise inherited from the theoretical tradition of Rameau that motion by descending fifth establishes stability is undisputed, and of course, not original. Cast in terms of Riemannian function theory, the premise becomes highly significant for the functional interpretation of Dominant and Tonic.[37] Many believe that this root motion by descending fifth is the defining structural component of tonal-jazz pieces, far more so than in classical

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[34] Cazden 1980, 156–7. Emphasis in original.

[35] Restrictions of chord-tone membership includes such criteria as inclusion of the interval of a minor ninth and the double-semitone complex. Coker 1986, 24; and Tymoczko 1997, respectively. Further discussion of functional-harmonic constraints in chord-tone membership will be discussed in McGowan, forthcoming. Tenney further disparages this conception of consonance and dissonance because Cazden wants to rename other concepts with a longer historical tradition in favor of his Systemic approach. Tenney 1988, 99.

[36] Matthew Butterfield's dissertation introduces this term as part of a philosophical stance in analyzing jazz. Butterfield 2000.

[37] Though Riemann's work is ground-breaking, Harrison claims: "Rameau should be credited with first formulating this principle along modern lines" in his Nouveau systéme de musique. See Rameau 1726, Harrison 1994, 45 (footnote 3).

repertoire.[38] Regarding jazz harmony, Richmond Browne is quoted as saying:

> The details of exactly which form of a dominant sound is going on can be approached more fruitfully if they are all treated as variants of a position relative to the tonic. The endless variety of chords is better thought of as being controlled by questions of density, or sonority, or spacing, and not harmony in the sense of voice-leading… the one basic harmonic urge seems to be the movement of the root down a fifth.[39]

Regardless of the specific Dominant-functioned harmony chosen, the expectation generated by the "harmonic urge" of dissonance is the inevitable arrival on tonic. The actual realized Dominant chords will vary but will serve the same functional purpose. Some common choices in major keys beyond the most common V(7) include the tritone substitute (♭II), the leading-tone chord (vii) and the third-substitute (♭VII). Even though the root motion of these chords moves by step to their resolution, they all belong to the set of Dominant-functioned chords that require resolution by authentic (descending-fifth) motion.

In the past century, many of Riemann's ideas have fueled subsequent developments and related theories (in recent years, most notably applications involving the Tonnetz and neo-Riemannian theory generally). One such example is work by Hermann Erpf, a student of Riemann, who introduced the concept of Mehrklänge, combining functions to create functional mixture.[40] In this way Dominant and Subdominant functions can be combined to create Doppeldominant chords, while Tonic could be combined with Dominant- or Subdominant-functioned chords (e.g. Dominanttonikaklänge). This concept is relevant to complex jazz

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[38] See especially Martin's work that characterizes authentic motion as the defining aspect of harmonic progression. Martin 1988 and Martin 1980.

[39] Richmond Browne, quoted by Coker 1986, 78 (original emphasis). Coker does not specify the source of Browne's comment.

[40] Functional mixture is further developed for analytical application in late-nineteenth century chromatic music by Harrison, and for jazz analysis by McGowan. Harrison 1994, and McGowan 2005, 155–60. Imig also notes others who explored combining functions such as Ernst Kirsch and Friedrich Neumann. Imig 1970, 211–14.

harmonies as they are often conceived through polychords, in which chords with several chord tones are parsed into two interconnected triads (or seventh chords).[41] This allows practicing jazz musicians to work out acceptable chord tones usually more quickly than had the chord been notated with extensions. For example, notating an F over A7 chord would be equivalent to specifying A7♯9/♭13. While the diatonic superimposition of a subdominant chord over dominant chord—as is suggested by the Doppeldominant—is not a particularly common chord in jazz, the principle of combining triads that are functionally dissimilar and chromatically related does have resonance in jazz theory and practice.

As a result of functional progression in jazz being dominated by descending-fifth motion, Charles Smith recognizes that Subdominant is demoted to "dominant preparation" in the authentic-system syntax of most tonal music.[42] So while Riemannian harmonic theory provides analysts with three equal functional partners, when applied to the analysis of jazz, we can question whether we even need Subdominant. This is perhaps more true with tonal jazz with its pervasive II–V–I structures than any other tonal music.[43] But while it may be tempting to devalue the dominant-preparatory role of the first chord in the jazz cadence because of the functional importance of the other two, the distinct character of the Subdominant function is nonetheless apparent in pre-dominant harmony (Example 1) and important in other instances, such as a post-tonic arrival (Example 2).

Example 1. Opening to Body and Soul

Chords:	B♭7	| E♭m7	B♭7	E♭m7	A♭7	D♭Δ
RN Analysis:	[V7]	| ii7	[V7]	ii7	V7	I
		= i7 in E♭ minor				

[41] See, for example, Ligon 2001, 370–77.

[42] Smith uses this stance as a part of a scheme that reconciles linear analysis with function theory. Smith 1986, 110–11.

[43] Writing about jazz from a cultural perspective, Heble makes a music-theoretical claim that tonal jazz is about closure, in its sense of authentic cadence as well as in more general terms. Heble 2000, 57.

Functions: [D] Sp [D] Sp D T
or t in minor
or d7/D (minor dominant seventh of the dominant)

Example 2. Possible harmonization of opening phrase of "I Should Care" in C (as performed by Bill Evans)

Chords: F♯ø7 – B7 | Em7 – A7 | Dm7 – G7 | C – F
Functions: [Sp D] [Sp D] Sp D T S

Because harmonic goals in the home key and secondary tonal areas alike will tend to be set up by their own dominant, some chords will have their functional interpretation changed from one structural level to another. Example 1 excerpts a possible harmonic sketch to the opening of a possible harmonziation of "Body and Soul." Although E♭ minor is strongly tonicized via its dominant at the outset of the tune, it is clear two measures later that the E♭ minor was not a tonic but rather a supertonic chord with a pre-Dominant function. Riemannian function theory identifies this E♭-minor chord as a Sp, highlighting its allegiance to Subdominant function, but its pre-Dominant quality emphasizes its desire to continue via authentic motion akin to a Dominant-functioned harmony. A harmonic analysis demonstrates this dual-functioned harmony.

Theories designed for common-practice music—including those by Riemann, Rameau, Schenker, etc.—have difficulty accommodating extensions in commonplace jazz progressions such as this. When only triads are consonant harmonies, interpreting the E♭ minor seventh chords as temporary tonics creates a problem. Sympathetic analysts can simply reduce the D♭ to a linear event. Jazz musicians, however, would heartily reject the interpretation of the note as harmonically superfluous, for two equally important reasons: seventh chords are normative, and also because the minor-minor seventh quality helps to define its additional purpose as a pre-Dominant function. Having multiple chordal options for different functions including Tonic permits the interpretation of the E♭ minor 7th chord as a temporary tonic even though it also

implicates D♭ as the more structural tonic. The net effect is a richer listening experience that capitalizes on the recursive transformations possible with multiple levels of tonal structure. Admittedly, jazz rarely takes advantage of more than two levels of tonal structure—its repertoire being largely based on simple formal plans of popular songs and 12-bar blues.

Another example of the role that Subdominant function plays in the descending-fifth world of jazz progressions is that of a post-Tonic. Example 2 illustrates that the weak cadential arrival on tonic in the fourth measure of the phrase. By using authentic motion to overshoot the tonic arrival, a form of cadence occurs on the subdominant chord instead.

Functions (notably Tonic) can be realized in a variety of chordal options, and authentic motion from Dominant to Tonic dominates harmonic progressions at more than one structural level. The origin of these observations derives from the ideas of prominent theorists in the history of harmonic theory. Rameau and Riemann both created theories of harmonic function that resonate in jazz theory, especially for understanding harmonic stability in a syntactic sense.[44] Especially constructive are the seminal ideas that Tonic function is harmonically distinct from Dominant and Subdominant, and that the functional repose of Tonic is asserted via harmonic progression by descending fifth.[45] While Riemann's system included only an embryonic treatment of structural levels[46] (that is essentially non-existent in Rameau's writings), Schenker cultivated this idea of tonal hierarchy (although he rejected the principle of harmonic function per se) and successfully applied it in musical analysis.[47] But because the speculative basis for each of

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[44] Strunk states: "The present thinking about harmonic progression is the result of the contributions over several centuries of many theorists, notably Jean-Philippe Rameau, Hugo Riemann, and Heinrich Schenker." Strunk 1988, 163.

[45] Rameau wrote: "a dissonance is agreeably resolved only in the progression of the fifth, since this interval is the first interval in harmony, the octave being considered merely a replicate." Rameau 1971, 123–4.

[46] Riemann's early ideas show evidence of recognizing hierarchic levels of structure akin to linguistic theory. See Mooney 2000, 87–9.

[47] "If one were to attempt to reduce Schenker … to a single concept, 'hierarchy' would perhaps be the best choice." Drabkin 2002, 816.

their theories lay in the ontological perfection of the tonic triad, crucial modifications to their theories are critical to accommodate the ubiquitous harmonic extensions in tonal jazz.

This leads to another facet of Riemann's work, which has resonance with jazz theory: musical periodization and phrase structure.[48] He considered four-plus-four measure antecedent-consequent phrase structures to be virtually universal, accounting for irregularities through various modifications such as extension, elision, and contraction.[49] Not only did this work fail to engage with research agendas of music theorists in Europe or America after the 1920s, those who did take note of these ideas found ample criticism in Riemann's claims.[50] However, Waldbaur puts forward revisions that qualify the theory's claims and limits its applicability to "Western music composed in divisive dance meters during the Classical and Romantic periods and in a great deal of music of earlier times."[51] There are clear structural similarities with the tonal dance music of classical music and the tonal dance music of jazz, not only in the generally eight-measure formal structures, but also in the predictability of the cadence.[52]

In Riemann's theory, the fourth and eighth measures serve as medial and conclusive cadences, while the third and seventh measures contain functional preparatory harmonies that help determine the cadence. With this structure, the eight-measure normative period predicts where the cadence will arrive, and in fluid ways associates specific functions with differing parts of the period. The predictive power of hearing the phrases and period in this way prepares the listener to hearing tonic function at a specific

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[48] He most clearly presented the ideas in System der musikalischen Rhythmik und Metrik. See Hunnicutt 1999. Rehding notes: "These ideal eight-measure periods are tantamount to an immutable and transcendent law for Riemann." See Rehding 2002, 287 and Arntz 1999.

[49] See Arntz 1999 and Rehding 2002 for a discussion of Riemann's self-assessment of the value of his work

[50] Waldbaur 1989, 335.

[51] Waldbaur 1989, 334.

[52] Also relevant here is Henry Martin's work in relating formal structure with reductive techniques, in which the cadence is predicted via place in form and idiomatic harmonic structures. Martin 1988.

location in the form, thereby emphasizing functional role over chord type. This further supports hearing musical contexts in which all three functions, including Tonic, can be realized as virtually any chord type. It does not follow, though, that any tonic harmony can exude harmonic stability, which would essentially dismiss any potential difference between consonance and dissonance. That would make little sense if jazz is to maintain any sense of tonality. This is nonetheless, an entirely different matter and requires a more detailed study to explore precisely what "consonance" and "dissonance" mean and how these concepts function in jazz.

While there has been much written about the applicability of Schenkerian theory to jazz,[53] there has been little effort, especially in English sources, to explore the feasibility of applying Riemannian ideas to the study of jazz. This study illustrates that Riemann has provided a functional framework in which the plurality of chord quality and predictive harmonic syntax intersects with the study of jazz theory in meaningful ways.

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