

Standard Jazz Harmony and the Constraints of Hypermeter

Some Thoughts on Regular and Irregular Repetition

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As unpredictable as jazz may seem, standard jazz repertoire is usually underpinned by regular and repetitive metric structures.¹ These structures induce periodicity at multiple levels. Let us consider the structure of a basic thirty-two-bar jazz standard with four eight-bar sections: the $\frac{4}{4}$ meter establishes regularly alternating strong and weak beats at the level of the measure;² however, the measures themselves group into quadruple hypermeasures, with their own alternating strong and weak hyperbeats consisting of a measure apiece; and at another level, pairs of measures may group into larger hyperbeats so that each section of a tune is heard as a single hypermeasure.

Several writers have commented on the pervasiveness of hypermeter in standard jazz repertoire.³ Keith Waters takes the idea to its logical culmination when he examines how alternating strong and weak eight-bar sections create thirty-two bar quadruple hypermeasures at the level of a standard's form—the highest level at which one would expect repetition to occur (1996: 22). As for Steven Strunk, he comes closest to summarizing the role that jazz's foursquare metric background plays in establishing expectations in standard jazz, noting how “the utter simplicity and rigidity of these rhythmic structures highlight the complexity and subtlety of the jazz rhythmic nuances and syncopations which proliferate against the basic duple pulse” (1979: 6).

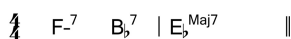
Amongst the elements that proliferate against jazz's various metric levels is the II–V–I progression (hereafter, “cycle”). A perusal through any jazz fake book or primer on jazz theory will confirm that cycles (and their incomplete II–V half-cycles) are ubiquitous in straight-ahead jazz, usually occurring in various keys within the same arrangement. However, the repetition of cycles is highly

irregular; cycles vary in length, and often overlap with or interrupt other cycles. Consequently, this chapter considers two kinds of repetition along and between two parameters: harmony and meter. It investigates how the irregular yet frequent repetitions of the aforementioned cycles interact with jazz's regularly repetitive and multi-leveled metric structure.⁴ In dealing with harmonic groupings and their interaction with various metric levels, it also puts finishing touches on our 2016 study on the conditions under which certain harmonic patterns occur—in short, the latter study addressed the most common of those patterns, whereas the present chapter focuses on less frequent patterns in an effort to identify more specifically the constraints that hypermeter, as a regularly repetitive phenomenon, places upon harmonic organization in jazz.

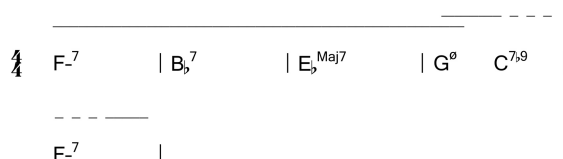
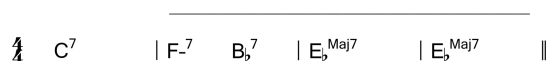
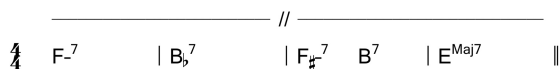
The interaction of repeating parameters: cycle length and cycle strength

In the following pages, we try and explain how two domains characterized by repetition in standard jazz repertoire (namely the metric and harmonic domains) interact. Given the irregularity of cycle lengths and repetitions, is it possible to be more specific about how cycles fall across the foursquare metric structures that underlie so much of this repertoire? What exactly do we mean by a “II–V–I cycle”? Even though cycle lengths vary, harmonies in a normative cycle take on a harmonic rhythm with the succession of proportions 1+1+2, as shown in example 8.1.⁵ In practice, however, cycles are not always so “pure.” Often, the tonic is embellished by a substitute harmony such as VI or IV (see Example 8.2a).⁶ A new cycle may also begin in the second half of a cycle tonic's sounding space, creating overlap (see Example 8.2b). Or, a cycle tonic's sounding space may even be extended (usually doubled, as shown in Example 8.2c), or interrupted (Example 8.2d). All in all, such variations make recurrences of cycles very irregular.

In our 2016 study on the taxonomy of cycles (Salley and Shanahan 2016), we discuss how cycle tonics—as locally important points of arrival, or “structural accents”—sound against strong and weak hyperbeats. We explain how weak cycles reach tonic resolution on weak hyperbeats 2 and 4, while strong cycles



Example 8.1a Normative two-bar cycle.

**Example 8.1b** Normative four-bar cycle.**Example 8.2a** Common variations on the cycle: embellishment of a tonic's sounding space.**Example 8.2b** Common variations on the cycle: overlap of a two-bar cycle upon a purported four-bar cycle.**Example 8.2c** Common variations on the cycle: extended tonic space in a two-bar cycle.**Example 8.2d** Common variations on the cycle: interruption of a purported four-bar cycle by a two-bar cycle.

reach tonic resolution on strong hyperbeats 1 and 3. These relationships hold so far as prominent cycles (i.e., those occurring at or near the onset of a hypermeasure) or recurrent cycles of the same length encourage hearing at specific hypermetric levels. For example, the tonics of weak and strong two-bar cycles in Table 8.1 interact with four-bar hypermeasures, with weak cycles reaching tonics on weak hyperbeats, and strong cycles falling on strong hyperbeats. Similarly, the tonics of weak and strong four-bar cycles fall on the onsets of weak and strong hyperbeats of eight-bar hypermeasures, respectively.⁷

Taking into account the various forms that cycles may take, but also the effects that these cycles create as their structural accents fall against rigid hypermetric structures, a compelling interplay of harmony, rhythm—and, ultimately, form—emerges. At the center of this interplay are repetitions of two kinds: the irregular repetitions of harmonic (i.e., cyclic) activity, and the regular repetition of alternating strong and weak hyperbeats. These pages engage with standard jazz

Table 8.1 Weak and strong cycles at two- and four-bar levels.

	Weak				Strong			
Four-bar cycles	₁	V	₂		₁		₂	V
	₃	V	₄		₃		₄	V
Two-bar cycles	₁ V	₂	₃ V	₄	₁	₂	₃	₄ V
	₁	₂ V	₃	₄ V	₁	₂ V	₃	₄ V

repertoire at this level of interplay, showing how the rigid periodicity of hypermeter provides a steady backdrop against which the nuances of harmonic rhythm come to light.

Hypermetric constraint

The relationship between cycle length and hypermetric orientation is difficult to address, as listeners can always direct their attention to whatever hypermetric level they wish (or to none at all, perhaps), regardless of a composition's harmonic profile. Between the repertoire's consistent segmentations of four and eight bars and the cycle's even alternation of weak (pre-dominant–dominant) and strong (tonic) functions, we find the aforementioned interplay of harmony and form that is essential to jazz's momentum. This raises some important questions: why do cycles typically either reinforce hypermetric patterning by placing their weak and strong harmonic functions in perfect alignment with weak and strong hyperbeats, or sound directly against them, aligning weak harmonic functions with strong beats, and strong harmonic functions with weak ones? What accounts for the rarity of cycles that align with hypermeasures asymmetrically? To answer these questions, we must address what cycles do *not* do, which brings us to the topic of “hypermetric constraint” (hereafter, HC). In 2016, we briefly introduced this topic, observing that a cycle is generally constrained to begin at divisions of a hypermeasure that are equal to half of that cycle's length.⁸ Example 8.3 models weak and strong cycles at the two-bar, four-beat, and four-bar levels (compare this with Table 8.1). It also models unlikely settings—those that would violate HC—at each of these levels.

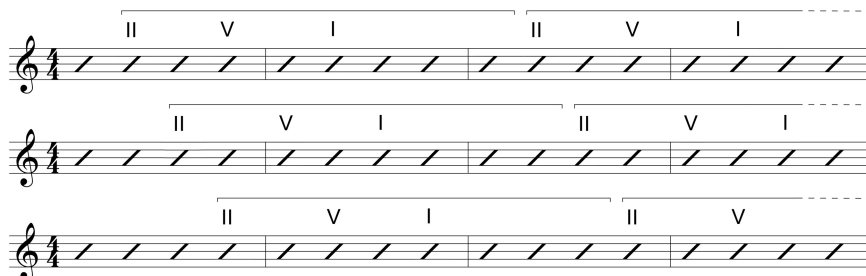
Weak



Strong



Unlikely



Example 8.3a Likely and unlikely settings of cycles: two-bar cycles and four-bar hypermeasures.

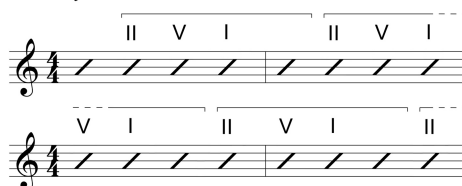
Weak



Strong



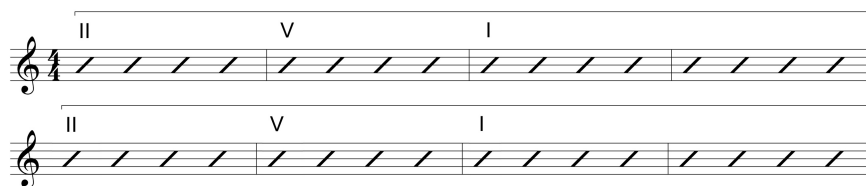
Unlikely



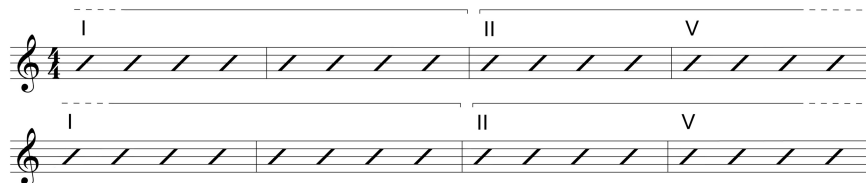
Example 8.3b Likely and unlikely settings of cycles: Four-beat cycles and two-bar hypermeasures.

This study's corpus—a digital collection of 688 jazz standards from the years 1920 to 1959⁹—features few passages that do violate HC. In fact, no true violations occur with four-beat and two-bar cycles. One might already expect that to be the case with two-bar cycles, since tonics generally fall on the downbeats of measures. While this is true, weak four-beat cycles are also known to occur where tonics sound at the relatively weak mid-measure point—the only true violations we discovered involved purportedly four-bar cycles in patterns similar to the unlikely cycles shown in Example 8.3c.¹⁰ Moreover, each violating cycle began on a downbeat. This consistency with downbeats suggests that there may be some underlying constraint that limits either cyclic patterning or harmonic

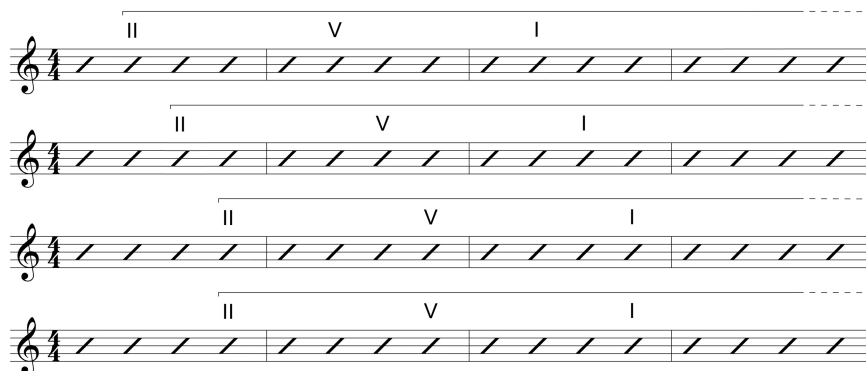
Weak



Strong



Unlikely



Example 8.3c Likely and unlikely settings of cycles: Four-bar cycles and eight-bar hypermeasures.

rhythm even more generally than HC—at least with respect to the level of specificity afforded by lead sheets.

For our present purposes, it is nevertheless clear that one cannot answer the questions raised at the beginning of this section without addressing HC. Considering the irregular yet persistent cyclic activity that sounds across such repetitive and recursively hierarchical metric structures in standard jazz repertoire; we find the idea that meter seems to place a constraint on harmonic organization curious indeed. Amongst other things, this chapter aims at explaining those few actual and apparent violations of HC.

Violations of hypermetric constraint: Bookending and sequences

Most arrangements of tunes in standard jazz repertoire respect HC, whether the original tunes are written by “American songbook” composers or jazz musicians themselves.¹¹ Amongst the 688 jazz standards of our corpus, a surprisingly small number truly violate HC.¹² This section discusses those violations and the very limited contexts in which they arise, as well as near-violations and the processes/phenomena that put cycles back into alignment. In so doing, it speaks to the ongoing issue of how periodic hypermetric structures interact with irregularly repetitive harmonic patterns.

Bookending

Outright violations of HC—where a cycle reaches tonic between hyperbeats—seem to occur only in two contexts: “bookending” and falling-fifth sequences.¹³ In the case of “bookending,” a tonic precedes a cycle within a hypermeasure in such a way that the tonic places the following cycle out of alignment. As a result, tonics appear to play the role of “bookends,” with a II–V progression between them. Example 8.4 illustrates where (what would seem to be) a four-bar cycle starts in the second measure of an eight-bar section, and again in the fifth measure.¹⁴ Often, the initial tonic in a bookended progression is embellished with a passing chord (e.g., Edim7 at m. 2, G \flat dim7 at m. 5). At first, the cycle and its constrained relationship with meter seem subordinate to the need for an opening gambit that establishes tonic, just as many classical phrases open with the progression I–V4/3–V6/5–I, with no change in harmonic rhythm. In such situations, the repetition of

E_b^{Maj7} E^{o7} | F^{-7} | B_b^7 | E_b^{Maj7} |
 (2) -----
 (1) -----
 E_b^{Maj7} G_b^{o7} | F^{-7} | B_b^7 | E_b^{Maj7} | E_b^{Maj7} | E_b^7 ||
 1. 4. 2. 4.

Example 8.4 “Among My Souvenirs” (Horatio Nicholls/Al Dubin-Edgar Leslie), mm. 1–17.

tonics at half-section “bookends” (mm. 1, 4, 5, and 8) would seem to override HC, as the tonics of four-bar cycles should not occur at the fourth and eighth measures of a section. In effect, however, this violation is illusory: the tonic harmonies at mm. 5 and 9 effectively accommodate the four-bar cycles’ length despite their apparent misalignment, so much so that we recognize how m. 1 actually functions as an anacrusis. This adjustment shifts the hypermetric downbeat to m. 2 and makes an extra measure at the end of the second A section necessary. Despite the change in chord quality over E_b in the second ending, this added measure accommodates the four-bar cycle’s length, and preserves the length of hyperbeat that four-bar cycles establish. In this way, the effect of the violation is nullified. Chord substitutions may also obscure the bookending phenomenon, as in Example 8.5 (mm. 6–8, 14–16), a true violation where the initial $Em7$ at m. 5 sounds instead of $CMaj7$ ¹⁵ (the subsequent E_b dim7 is a passing chord).

Bookending almost always occurs in A sections, serving an expository, tonic-prolongational function. An unusual case involves our corpus’s arrangement of Hoagy Charmichael’s “Stardust” (see Example 8.6). In this example, a number of embellishing chords mask what is essentially an eight-measure bookend in the global tonic, D_b major.¹⁶ Several factors make this cycle difficult to perceive. One such factor is length—spanning eight measures, this cycle is relatively large. The resultant effect is exacerbated when performers play the tune at ballad tempos, as they typically do. Furthermore, the extra chords (especially the embellishing

C^{Maj7} A^{-7} | D^{-7} G^7 | D^{-7} G^7 | C^{Maj7} F^7 |
 (2) -----
 (1) -----
 E^{-7} E_b^{o7} | D^{-7} | G^7 | C^{Maj7} G^7 | C^6 ||
 1. 2.

Example 8.5 “I’m in the Mood for Love” (Jimmy McHugh/Dorothy Fields), mm. 1–16.

D_b^{Maj7}	F^{-7}	B_b^7	E_b^{-7}	B_b^7	E_b^{-7}	
I			II			
A_b^7	E_b^{-7}	A_b^7	D_b^{Maj7}	E_b^{-7}	E^{o7}	F^{-7}
V			I			B_b^{-7}

Example 8.6 “Stardust” (Hoagy Charmichael), mm. 5–12.

harmonies at mm. 6, 7, and 10) also detract from the effect of this larger-scale bookend progression, as the resultant harmonic rhythm certainly discourages hearing at the level of the sixteen-bar hypermeasure. Perhaps most unusual is the fact that this segment straddles two eight-bar hypermeasures, crossing over from an A section into what one would consider the B section of a thirty-two bar ABAC chorus.

Falling-fifth sequences

The second context in which violations occur involves falling-fifth harmonic sequences. Here, another type of repetition—a simple pattern of root motion—takes place, the continuation of which detracts significantly from our ability to notice the violation. As in common-practice tonality, harmonic norms are often not heeded in sequences.¹⁷ In standard jazz repertoire, this disregard may affect cycle placement.¹⁸ Example 8.7 presents a very well-known standard in which what purports to be a four-bar cycle begins at m. 2. This is the “wrong” place for a cycle of this length to begin (i.e., between hyperbeats) and the cycle reaches tonic at m. 4 at an equally “wrong” place. In all such occurrences in our corpus, the sounding time for the cycle’s tonic is cut in half as falling-fifth motion continues through the section. The tonic is established weakly in this hypermetric position, and here—as in most cases where cycles occur within falling-fifth sequences—a tonic is more strongly established shortly thereafter (mm. 6–7). As for Example 8.8, it presents an especially interesting case, as two violations occur within the same falling-fifth sequence. Still-stronger resolutions to the global

F^{-7}	B_b^{-7}	E_b^7	A_b^{Maj7}	
D_b^{Maj7}	D^{-7}	G^7	C^{Maj7}	C^{Maj7}

Example 8.7 “All the Things You Are” (Jerome Kern/Oscar Hammerstein II), mm. 1–8.

A ⁻⁷	D ⁻⁷	G ⁷	C ^{Maj7}	
F ^{Maj7}	B ⁹	E ^{7,9}	A ⁻⁷	A ⁷

Example 8.8 “Fly Me to the Moon” (Bart Howard), mm. 1–8.

©	D ⁷ /F [♯]	G ⁻	D ⁷	G ⁻	B ⁹⁷	C ⁻⁷	G ^{7,9}	C ⁻⁷	
VI					II				
---	F ⁷	F ⁷	B _♭ ⁶	B _♭ ⁶					
V					I				

Example 8.9 “Bouncing with Bud” (Bud Powell), mm. 33–40.

tonic occur later in the section (mm. 9–16, not shown). A more exceptional situation arises in Example 8.9, where an embellished eight-bar cycle in the key of the global tonic, B_♭, arrives at the very end of an eight-bar section. The embellishing harmonies across the first four measures of this group detract from the effect of the cycle onset at the third measure.¹⁹ As in Example 8.6, a purported eight-bar cycle is truncated by constraints imposed by the standard length of sections in this repertoire.

These examples present several violations and near-violations of HC. In each of these cases, however, a listener’s sense of hypermeter—that sense of weak/strong rhythmic periodicity that structures expectations—is clearly maintained. Furthermore, we note the diminished effectiveness of cycles that do violate HC, and how such passages often lead to non-violating cycles that are more effective in establishing their respective keys. As hypermeter is the parameter of jazz that is more regularly repetitive, it appears to exert a controlling influence in both directions. At the macro level, it typically determines the durations of formal units, but at the micro level, it influences harmonic content.

Near-violations of hypermetric constraint

The foregoing discusses conditions in which recognizable cycles occur in hypermetrically unusual situations—situations where cycle tonics sound between the hyperbeats suggested by the prevailing harmonic rhythm. In these cases, cycles are typically truncated in order that harmonic groupings fit within

hypermeasures or sections (see Examples 5, 7, 8, and 9), further demonstrating that the hierarchy of standard jazz's regular and periodic metric structure places limits on its harmonic organization. In the examples that follow, other adjustments are made to either align the tonics of cycles with regular hypermetrically salient positions, or avoid closure altogether.

Dominant extension

Our first type of adjustment is dominant extension. In general, instances of dominant extension are marked by cycles whose dominants sound twice as long as they normally would. Usually, extension accomplishes one of the two following things: it either moves the subsequent tonic into a position that is more metrically stable or it provides a similarly auspicious place for an interruption by another cycle. In either case, direct repetition of the local dominant distorts the normative proportions of the off-kilter cycle to bring cyclic activity back into alignment. Example 8.10 illustrates a situation where extension allows for a more metrically stable cycle tonic. Given the somewhat unusual entrance of the modally borrowed II chord at mm. 6 and 14, the normative harmonic rhythm of cycles would lead one to expect a G major tonic to follow after only two beats of D7. However, the sounding space of the dominant harmony is extended, so it allows the G major tonic to sound on a downbeat—the proper place for the structural accent of a two-bar cycle to sound.

Example 8.11 shows a similar situation at a slower harmonic rhythm. Here, the resolution to A7(b 9) after one measure of Em7(b 5) suggests that a four-bar

G^{Maj7} E⁷ | A⁻⁷ D⁷ | A⁻⁷ D⁷ | G^{Maj7} A⁻⁷ D⁷ |

(2) ————— - - - - -
 (1) —————

D⁻⁷ G⁷ | C^{Maj7} A^ø | D⁷ | 1. G⁶ A⁻⁷ D⁷ || 2. G⁶ G⁷ ||

Example 8.10 “It’s Only a Paper Moon” (Harold Arlen), mm. 1–16.

D- D^{-Maj7} | D⁻⁷ D⁻⁶ | G⁻⁶ D- | E^ø ||

Ⓑ — - - - -
 A^{7,9} | A^{7,9} | D- | D- |

Example 8.11 “Nature Boy” (eden abhez), mm. 5–12.

cycle will follow. The additional measure of dominant harmony—essentially, repetition through extension—places the tonic in a hypermetrically strong position with respect to the eight-bar hypermeter appropriate for four-bar cycles.

Interruption

Interruption, a second type of adjustment in which a cycle begins where another's tonic would have sounded, allows passages to avoid tonics altogether. In Example 8.12, a purported four-bar cycle begins on Dm7 at m. 22 (the sixth measure of an eight-bar B section) in apparent violation of hypermetric constraint. However, a cycle of shorter duration interrupts at the eighth measure, setting up a return to the tune's global tonic at the onset of the ensuing A section. Interrupted cycles therefore do not violate HC, as they never come to closure by reaching the tonic that would accentuate a hypermeasure oddly. Interruptions necessarily turn cycles into half-cycles, but they do so by dint of irregular cyclic repetition, continuing the context of II–V and II–V–I activity, and creating a considerable sense of directed harmonic motion.

Mistaken harmonic identity

Another phenomenon that only initially appears to violate HC involves a simple case of mistaken harmonic identity—namely a confusion of II–V and VI–V/V. Unlike dominant extension and interruption, this is not an adjustment. When both progressions feature the same sequence of chord types with falling-fifth root motion (e.g., Am7[or Am7(♭5)]–D7), and when cycles are known to occur at any level of transposition, a certain degree of confusion between the two is understandable. While twenty-four arrangements in our corpus feature the progression VI–V/V in a manner that appears to violate HC, a few factors usually weigh against one's ultimately hearing that progression as cyclic. The first

_____ // _____
 E^o A^{7,9} | D⁻⁷ | G⁷ | G⁻⁷ C⁷ ||

 (A) F^{Maj7} F^{o7} | G⁻⁷ C⁷ | F^{Maj7} A⁷ | B^bMaj7 E^{b7} |

Example 8.12 “Moonlight Becomes You” (Jimmy Van Heusen/Johnny Burke), mm. 21–28.

is a well-established key center, which will prevent one's mistaking VI for II. Whenever the progression VI–V/V arises in disguise of an apparent violation of HC in our corpus, it does so within a passage that exhibits a clearly established tonality—and, in all cases, this tonality is the key of the global tonic.²⁰

Alignment

Other factors may naturally detract from one's hearing such a progression as a true cycle. One such factor is alignment. When alignment plays a role, the initial chord of an apparent cycle (i.e., the minor seventh chord) lasts for the duration of the final bar of a hypermeasure and the stronger hypermetric position of the following dominant chord encourages one to begin grouping harmonies there. This encouragement is often strengthened by the logical succession of harmonies that ensues. For instance, Example 8.13 presents a situation where alignment is a significant factor. While Am7–D7 (mm. 28–29) does suggest a II–V motion, the weak alignment of Am7 and the subsequently strong alignment of D7—followed by G7 and C6—encourages one to ignore the implication of an HC violation and hear a weak four-bar cycle with D7 (substituting for Dm7) begin at m. 29 instead (note the overlapping turnaround at m. 32).²¹ Alignment was a factor in nine of our twenty-four instances of mistaken identity (37.5 percent).²²

V/V extension

Yet another factor involves extending the sounding space of V/V, usually by doubling its purported sounding time. Such extension may be observed in ten instances where mistaken identity occurs (41.7 percent). Like the dominant extension discussed above, extension of this kind adjusts an apparent cycle that arises in violation of HC so that it is no longer in violation when the cycle tonic (or an interrupting cycle) arrives. In Example 8.14, what would appear to be a two-bar cycle in G major begins halfway through m. 22. The D7, as V/V in the global key of

①

F _# ^{o7}	C ⁶ /G	G _# ^{o7}	A-	

D ⁷	A _b ⁷	G ⁷	C ⁶	B ^o E ^{7,9}

Example 8.13 “You’d Be So Nice to Come Home To” (Cole Porter), mm. 25–32.

C⁶ | E⁷ A⁻⁷ | D⁷ | G⁷ ||

^(A)
C⁶ | A⁷ | D⁻⁷ | G⁷ |

Example 8.14 “Just You, Just Me” (Jesse Greer), mm. 21–28.

B_♭^{Maj7} | G⁻⁷ | C⁷ | C⁷ |

C⁻⁷ | F⁷ | B_♭^{Maj7} | G⁻⁷ |

Example 8.15 “The Boy Next Door” (Hugh Martin/Ralph Blaine), mm. 5–12.

C, extends an extra two beats, which accounts for G falling on the downbeat of the final measure of the section. This is a stylistically appropriate place for the tonic of a two-bar cycle to fall, so that one may experience a local cycle with extended dominant. However, one can also hear a larger cycle (with D7 substituting for Dm7) begin at m. 23—a cycle that places the tune’s global tonic at the downbeat of a new section and has no issues related to alignment. Example 8.15 shows a comparable situation with a slower harmonic rhythm. Here, where the global tonic is B_♭, a parallel interruption occurs at m. 9, where an extended V/V (C7) resolves to II (Cm7) and a weak four-bar cycle (with VI embellishing I at m. 12) ensues.²³

Linking closure

Example 8.14 exhibits what we refer to as linking closure, a factor common to cases where VI–V/V resembles II–V. Linking closure is the form-functional role of leading directly through the conclusion of a section and providing a link with a tonic at the beginning of the section that follows. Fourteen of twenty-four instances of mistaken identity feature linking closure (58.3 percent). While dominant-seventh chord qualities do sometimes substitute for tonics in jazz repertoire, the G7 at m. 24 of this arrangement sets up the return of the global tonic at the onset of the following A section. Thus, a number of factors weigh against one’s hearing the progression Am7–D7–G7 as some blues-based variant of a cycle with a dominant seventh chord type functioning as tonic. The position of G7 in this section of the arrangement, its role in setting up the global tonic (which is rather strongly established throughout the tune) at the easily predictable onset of the next section, and the extension of the D7 chord are factors that may discourage listeners from hearing a cycle there at all. A listener is more likely to hear the D7 at m. 23 as a dominant substitute for Dm7, and notice a cycle starting there.

Hypermetrically stronger cycles

In all cases of mistaken identity, a more plausible, hypermetrically stronger cycle arises, rectifying what would be a violation. In this way, repetition as cyclic (or half-cyclic) recurrence prevents a violation of HC from occurring. When alignment is a factor, the recurrence of a stronger cycle at a broader rhythmic level is preventative. In cases of extension, repetition at a lower rhythmic level (i.e., doubling the sounding space of V/V) fulfills this function. In Example 8.14, extension and linking closure work together to alter an ostensible cycle. And in Example 8.15, extension (m. 8) and interruption (m. 9) combine efforts. In truth, such factors work in concert more often than not when cycles are in play. But with standard jazz repertoire's limited number of basic chord types, its abundance of dominant seventh and secondary dominant seventh chords, and its predilection for falling-fifth motion, one might expect more than twenty-four instances of mistaken identity in a corpus of 688 compositions. That so few instances arise is testament to the subordinate relationship that harmony plays with respect to meter—and even form—in this repertoire.

This section began, however, by discussing two harmonic idioms that seem to function as adjustments preventing violations of HC: dominant extension and interruption. It is noteworthy that both of these idioms involve repetition in some way. With respect to the former, the immediate repetition of a cycle's dominant allows a cycle tonic to fall at a more hypermetrically appropriate place. When interruption occurs, it is the more abstract repetition of the harmonic convention that is the cycle. As discussed at the end of the previous section, the regular and hierarchical repetition of hypermeter appears to govern harmonic content. In that domain, standard jazz's hypermetric regularity forces adjustments—we found no instances where a violating or nearly violating cycle resulted in an adjustment of hypermetric structure. The steadfastness of hypermeter in the examples above (and throughout our corpus) suggests that it is a governing force in standard jazz repertoire—a force that constrains the placement of conventional harmonic groupings, and even leads to the creation of other harmonic idioms. In short, the repetition and regularity of jazz's hypermetric structure creates the sturdy backdrop against which less predictable—yet stylistically consistent events may happen.

Case study: Sam Lewis and John Klenner's "Just Friends"

Example 8.16 presents an arrangement of a complete thirty-two bar ABAC standard with a global tonic of G for consideration. As such, the periodic form of

on the presence of a true cycle having begun at m. 12, and any implication of arrival at a local D tonic is thwarted with the entrance of Am7 at m. 15.

The passage across mm. 15–17 is curious. As the D7 at m. 16 follows m. 15's Am7, it suggests that a strong four-bar cycle continues in the global tonic. While this cycle would reach its tonic at m. 17, the G7 in the second half of m. 16 comes too early. To put it another way, a G7-as-tonic in the second half of m. 16 (with a substitution of dominant-seventh quality) would violate HC. This chord does, however, enable a strong two-bar cycle in C major to arise (altered, with D7 substituting for Dm7). A cycle in this key is necessary for the tune's return to its A section, which starts on CMaj7.²⁵ What makes the passage doubly interesting is that, retrospectively, the Am7–D7 resolution across mm. 15–16 sounds as VI–V/V in the key of C major. In this way, a case of mistaken identity can be heard to arise in a prominent key other than the global tonic. From a broader perspective, then, the passage across mm. 12–17 features two cases of mistaking VI–V/V for II–V, as apparent half-cycles in two keys vie for some sort of closure at the end of the tune's first half. The first case—in the global key of G—involves Em7–A7 across mm. 12–13. Soon after, Am7–D7 creates mistaken identity in the “wrong” key of C major—almost by sleight of hand—just as the song's lyrics refer to one's pretending that the ending is not really near.²⁶



Another case of mistaking VI–V/V for II–V arises in the arrangement's second B section (mm. 25–32). Here, the Em7 at m. 28 is the tonic of a weak two-bar cycle, and not an embellishment of a cycle tonic, as it was at m. 12. The A7 that follows at m. 29 suggests a violation of HC, as did the harmony at m. 13. Rather than extend the A7 into another measure (as at m. 14), a parallel interruption by a strong two-bar cycle begins at m. 30. This new cycle provides closure in the global tonic at m. 31—a hypermetrically strong place. And a turnaround at m. 32 sets up the return of C major at the onset of the A section upon repeating.

In “Just Friends,” cyclic activity that is both repetitive and irregular sounds against a rigid and unvaried hypermetric structure whose periodic fluctuations of strong and weak allow us to qualify the strength of each cycle. The arrangement of cycles in this composition and their varying strengths create a compelling large-scale form as well. Strong four-bar cycles and long-sounding tonics characterize the A sections. Contrastingly, sections B and C present weaker cycles, with a greater amount of harmonic activity in general. Repetitions of grouping lengths in the A sections and fluctuations in overall activity are reflected in the melody to a certain extent (not shown). Four-bar melodic

groupings sound in the A sections as repeated musical ideas in sequence.²⁷ The B and C sections feature more two-bar segments, but also with sequential repetition. In a way, each half of the tune takes on the form of a sixteen-bar sentence, with eight-bar presentation phrases in the A sections (avoided cadences at mm. 8 and 24), followed by continuation phrases with fragmented and rhythmically busier passages that ultimately lead to strong cadences (see Caplin 1998: 69–70). The role of the VI–V/V (Em7–A7) progressions, occurring where they do, is to weaken the arrivals on the global tonic G major at m. 11 and E minor at m. 28, and allow these alleged continuation phrases to continue—while, at the same time, providing that familiar sequence of chords (i.e., the cycle) whose repetition lends the composition greater coherence.

Conclusion

The pervasiveness of regular quadruple hypermeter in standard jazz repertoire directs our attention to the consistent alternation of strong and weak beats at multiple levels. Given the near-ubiquity in this repertoire of II–V–I cycles and II–V half-cycles of various lengths sounding at various levels of transposition, we cannot help but notice how irregular repetitions of nonetheless recurrent harmonic groupings interact with these highly periodic and repetitive metric structures. Further analysis of our corpus reveals that cycles behave in manners that are, if not predictable, easily accounted for at the very least.

The examples above illustrate a number of situations in which the alignment of harmonies with respect to meter seems divergent. Throughout these situations, it is meter—the more regularly repetitive parameter—that constrains and directs harmony. When bookending occurs, an “extra” or seemingly “added” measure of harmony can preserve the foursquare hypermetric structure. In instances of falling-fifth harmonic sequences, dominant extension, and mistaken identity (with either extension and alignment), a hypermetrically stronger cycle arises that lays any ambiguity to rest. It is also notable that bookending and dominant extension entertain the idea of simple harmonic repetition, both immediate and non-immediate, respectively. On the other hand, violations of HC involving falling-fifth sequences continue an established pattern of root movement. Interruption requires cyclic repetition (usually at another level of transposition), and cases of mistaken identity require either the same, or direct repetition through dominant extension.

Our 2016 study raised the question of whether hypermetric constraint places a limit on where a cycle may start, or where that cycle may reach accentuation by resolving to tonic (13). By focusing, in the same repertoire, on instances where violations—or, at least, “near-violations”—occur, this study makes HC appear as a characteristic of standard jazz that places a limitation on where cycle tonics may fall. After all, a small number of arrangements do feature cycles that start in ways that appear to violate HC. Yet, intervening processes such as interruption and dominant extension rectify the infringements, as if the initial harmonies of the off-kilter cycles were only threatening to “offend.”

One may of course wonder what the ultimate percentage of HC violations is in our corpus, as well as how to qualify a true violation. We believe that a true violation need not be a complete cycle with normative 1+1+2 harmonic rhythm. For a cycle to truly violate HC, it must present a II and a V of equal length, and then resolve to a harmony of tonic function. The tonic chord may be of a variety of chord types (Maj7, 6, m7, m6, 7), it may be embellished, or encounter an overlapping cycle. Furthermore, the cycle may even resolve deceptively to its tonic, though the final harmony of the violating cycle must unequivocally fulfill a tonic function. Using this qualification, we find only ten arrangements out of 688 that truly violate HC (c. 1.5 percent).

When considering how cycles and half-cycles (and even apparent, or ostensible cycles) interact with hypermetric structures, creating strong and weak patterning that either aligns with hypermetric accents or aligns perfectly—that is, symmetrically—against them, we are actually considering relationships between harmony and form. Standard jazz is certainly not the only repertoire that allows us to contemplate such relationships, but its repetitive characteristics do lead to interesting questions and discoveries. One such discovery—beyond that of HC itself, or of the difference between strong and weak cycles—is that form in jazz seems to be metrically determined, with harmony and melody behaving with respect to higher levels of metric organization. Our research has addressed several questions and discoveries, but more questions remain. For example, why do none of our true violations involve two-bar or four-beat cycles? There seems to be a lower limit on cycle length in these cases—one that we suspect relates, again, to tonics and how they fall metrically. We can support this conclusion with the reasoning that a violating two-bar or four-beat cycle would place a tonic somewhere other than on a downbeat—such an alignment rarely happens in this repertoire.²⁸ Of course, this conclusion leads to more questions, such as whether there is a more general metric constraint in

standard jazz repertoire that limits harmonies of more than two beats to start on downbeats.

More generally, venturing beyond relationships between form (as macro-rhythm) and harmony in standard jazz repertoire, we hope the previous pages contribute to our understanding of the nature of repetition in popular music in general. Such research indeed raises questions about how form and harmony may relate in other repertoires, and how other stylistic aspects not necessarily related to harmony—but perhaps as ubiquitous as cycles are in jazz—relate, through their repetitions and reincarnations, to regular and predictable formal phenomena.



Appendix

The iRealB corpus used for this study is a modified version of that originally presented in Shanahan and Broze (2012), which gathered chord symbols from the “iReal Pro” suite of applications. This software is commonly used by jazz performers both as a practice aid and a substitute for collections of lead sheets. A companion web-forum (www.irealb.com/forums/) allows users to post versions of standards and playlists for others to download. The collection of pieces includes harmonic progressions compiled from various fake books and other user submissions. Each lead sheet in this dataset consists of chord symbols and metric information (no melodic information is given), which were then converted into a notational format that can be used with David Huron’s Humdrum Toolkit (1995). In addition to this dataset, a series of parsers and scripts were also released, which allow this information to be processed in a clearly structured way (Broze and Shanahan 2013). Shanahan and Broze 2012 undertook a validation of the corpus, checking a sample of the pieces against twenty printed fake books. Overall, the corpus was roughly 94 percent accurate when representing chords from commonly used fake books. Although these publications can often reflect the performance of a single version of a piece, in effect canonizing a recording at the expense of many equally viable options, they have gradually come to represent jazz practice (for better or worse) and the “iRealB” corpus draws from an array of disparate publications and sources, which could possibly make the corpus even more representative of jazz practice than many printed editions.

Because the original dataset covered a broad time period—from 1896 to 2007—it was necessary to restrict the corpus so that it would reflect the era of

jazz standards that predates post-bop, modal jazz, and bossa nova. Consequently, we only examined pieces that were composed between 1920 and 1959. Additionally, we restricted the pieces we looked at to those in which the measure count was divisible by eight. We also included twelve-bar tunes to include the many blues-derived compositions in the repertoire. These refinements reduced the original dataset of nearly 1,200 pieces to 688, with a nice representation of composers—the most frequently represented being Thelonious Monk, Duke Ellington, Charlie Parker, and Cole Porter.

While most aspects of the lead sheet were left intact when converting from the “iRealB” format to the kern format, some features could not be translated. If a piece ended with a suggested turnaround (e.g., if the last measures included a II–V that would resolve on the I chord in the first measure of the piece after a repeat), we were not able to account for this resolution. Additionally, in the chord progressions in which using a multi-measure repeat was used (resembling a percent sign), only the last chord was repeated. Both of these errors, however, happen so infrequently that we do not anticipate that it would significantly affect the results of any large-scale corpus study.


Finally, searching for standard jazz progressions digitally can create a sort of ontological dilemma. Defining a cycle as a II–V–I progression requires the assumption that such a progression can occur at any level of transposition, and is not related to the key at hand—a II–V progression obviously need not be a chord on the second scale degree moving to another built on the fifth scale degree. This is why we searched for harmonic progressions in which a minor, minor7 or minor7(b5) chord proceeded to a dominant chord (with any type of extension) by root motion of an ascending perfect fourth, and the resolution included the movement to a major6, major7, minor7, or even minor-major7 (see also Broze and Shanahan 2013). Such choices allowed us to search for any of the aforementioned patterns in a flexible yet accurate way. As for regular hypermetric units (such as a weak four-bar unit), searching for these would merely require looking for all of the above patterns that begin on mm. 1, 5, 9, etc.

Notes

- 1 As in Salley and Shanahan 2016, we define standard jazz repertoire as compositions written by North American and British songbook composers, bandleaders, and jazz musicians from the 1920s through the 1950s.

- 2 Simple triple meter is less common in jazz, but when it does occur, it usually generates regular four- and eight-bar hypermeasures. See, e.g., Thad Jones's "A Child is Born" (1969), or Sergio Mihánovich's "Sometime Ago" (1963).
- 3 See, e.g., Martin (1988); Forte (1995); Love (2012); or Mulholland and Hojnacki (2013).
- 4 This is, therefore, a matter of phrase rhythm—a consideration of the alignment of groupings against meter. While some recent publications have dealt with phrase rhythm in jazz, these have dealt primarily with melodic groupings. In addition to Waters (1996), see Love (2011, 2012, and 2013); and also Larson (2006).
- 5 Many authors present the cycle this way, rather than as a succession of chords of equal duration. See, e.g., Coker (1970: 91–172) and (1975: 33); Mehegan (1985: 93–6); Reeves (2007: 83–90); Nettles and Graf (1996: 36–7); Liebman (2001: 17–23); Mullholand and Hojnacki (2013: 32–4); and Terefenko (2014: 65–7).
- 6 Chord symbols in these examples reflect those of the authors' iRealB corpus (see appendix), but differ in some ways from those in the text. While minor seventh chords are indicated with a hyphen in examples, running text employs the equally conventional "m7." Similarly, "°7" and "dim7" are equivalent.
- 7 Although four-beat and eight-bar cycles do exist, the arrangements in this table account for the vast majority of cyclic activity in our corpus.
- 8 Strong and weak four-beat cycles are significantly less common, but they are similarly constrained to begin at divisions of an actual measure that are equal to half of their length. Six-beat cycles rarely occur in $\frac{3}{4}$ time, as harmonic rhythm does not typically exceed the limit of one chord per measure in this meter.
- 9 See the chapter's appendix for a discussion of the corpus and how we use it.
- 10 A "purportedly four-bar cycle" is one whose initial harmonic rhythm indicates a length of four bars, regardless of interruption, overlap, or other factors that may compromise cycle length.
- 11 Here, "arrangements" is preferable to "compositions" because of the difficulty in determining the actual *Urtext* of a composition. See Salley and Shanahan (2016: 5–7).
- 12 The nature and limits of our corpus are discussed in Salley and Shanahan (2016: 6–9).
- 13 Two violations not discussed here were also found in our corpus, but they are, for different reasons, not wholly representative of standard jazz. The first, across mm. 5–8 of "Just a Gigolo," presents the progression || II | II | V | I ||, an apparent cycle with elongated II and truncated I. While this progression may be heard in the tune's earliest dance recording by the European bandleader Dajos Béla (1929) [orig. "Schöner Gigolo"], it was a tango at the time. Popular jazz renditions (Louis Armstrong in 1931, Louis Prima in 1956) present harmonizations that do not violate HC. The second violation of HC in our corpus is found in the second half of the eight-bar A sections

- of “Lullaby in Rhythm” ($\parallel G \flat \text{ Maj}7 \mid Gm7 \mid C7 \mid FMaj7 (C7) \parallel$), again with an off-kilter, ostensibly four-bar cycle starting in the second measure. However, Benny Goodman’s earliest recorded arrangement (1938) does not violate HC, and uses the succession $\parallel G \flat \text{ Maj}7 \mid Gm7 C7 \mid Gm C7 \mid FMaj7 (C7) \parallel$ instead.
- 14 Some controversy exists as to who penned the lyrics to this song (see Lassler 2014: 96).
 - 15 The substitution of $III7$ for $I7$ in major keys is common in jazz. See Mulholland and Hojnacki (2013: 7), or Terefenko (2014: 43–4).
 - 16 Technically, eight-bar cycles would violate HC if they did not begin at the onsets of four-bar hyperbeats.
 - 17 One only need think of how minor mediant or root progressions by diminished fifth occur in common-practice harmonic sequences, but rarely anywhere else in that repertoire.
 - 18 For a discussion of unconventional harmonic turns in sequences (Laitz 2016: 413).
 - 19 Furthermore, this eight-bar section is not part of the arrangement’s repeating AABA form. It is a coda (C section) that is typically only played with the tune’s melody at the end of the performance.
 - 20 One exception to this claim might be found in Cole Porter’s “You’d Be So Nice to Come Home To” (1943). Here, the bulk of the tune prolongs what is ultimately the global tonic’s relative minor, and only progresses to tonic (via $VI-V/V-V-I$) within the last five measures. See Example 8.13.
 - 21 Note also the tritone substitution of $A \flat 7$ for $D7$ at m. 29. This harmony does not alter the cycle, but merely prolongs the $D7$ by retaining its active tones: C and $F \sharp / G \flat$. See Mulholland and Hojnacki (2013 :63–5), or Terefenko (2014: 152–53).
 - 22 Instances of apparent violations of this sort were not counted more than once when they occurred in a repeated section.
 - 23 Salley and Shanahan define a parallel interruption as a situation in which the initial harmony of an interrupting cycle has the same root as the dominant harmony in the interrupted cycle—hence a “parallel” change from dominant seventh to minor seventh chord types (2016: 24).
 - 24 Salley and Shanahan discuss deceptive resolutions of cycles, making note of the fact that such resolutions sometimes target the global tonic—a phenomenon suggesting that it is actually the first half of the cycle that sounds deceptively, or at the “wrong” level of transposition (2016: 20–1).
 - 25 For a discussion of substituting dominant-seventh-chord types for both II and I of a cycle, see Salley and Shanahan (2016: 21).
 - 26 The duality between these two keys plays out on larger levels as well, as both of the tune’s sections begin on $CMaj7$. This harmony would seem to represent the global tonic, but only at the conclusion of the form does the true tonic establish itself conclusively.

- 27 Note that since the accompanying four-bar cycles in the A sections are strong, they will only align with melodic groupings by 50 percent.
- 28 Weak four-beat cycles do place tonics in mid-measure, but these are very uncommon, occurring only 21 times in ten pieces. Our corpus features no misaligned two-bar cycles.  **Example 8.16** “Just Friends” (John Klenner/Sam Lewis), mm. 1–32.