Pop/Rock Tonalities

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Tonality in pop/rock music comprises a variety of different systems of pitch organization and hierarchy, encompassing major, minor, modal, pentatonic, blues, and chromatic systems. Many analyses of pitch structures in pop/rock have focused on the ways in which tonalities most strongly diverge from common-practice norms, particularly in rock: as partially or primarily modal or pentatonic, influenced by the revival of Anglo-American folk music in the late 1950s and early 1960s; or as subdominant-biased or tending toward harmonic retrogressions, a tendency that de-

1 By “pop/rock music,” I mean the constellation of genres and styles that has arisen around Anglophone pop and rock music in the latter half of the twentieth century, including rhythm & blues and heavy metal as well as genres with “pop” or “rock” in their names, but not country, hip-hop, industrial, or electronic dance music. I use a slash rather than a hyphen to distinguish this fairly broad range of genres from the specific genre “pop-rock” (a blend of pop and rock music, lighter and more commercially-oriented than rock), but otherwise my usage is like that in Walter Everett, ed., Expression in Pop-Rock Music, 2nd ed. (New York: Routledge, 2008) and Mark Spicer, “(Ac)cumulative Form in Pop-Rock Music,” Twentieth-Century Music 1 (2004): 29–64, among others.


In Trevor de Clercq and Temperley, “A Corpus Analysis of Rock Harmony,” Popular Music 30 (2011): 47–70, the IV chord is identified as the most common harmony after the tonic and is particularly common preceding the tonic (67). Harmonic retrogression as a rock-music norm is investigated in Paul Carter, “Retrogressive Harmonic Motion as Structural and Stylistic Characteristic of Pop-Rock Music” (PhD diss., University of Cincinnati, 2005); Ken Stephenson, What to Listen for in Rock (New Haven: Yale University Press, 2002), 100–10; and Don Traut,
rives most directly from the influence of blues-based patterns, but that at a deeper level results from the tuning of guitar strings mainly in fourths, rather than in fifths as is typical of classical string instruments. Numerous scholars have emphasized that pop/rock music should be analyzed on its own terms rather than in relation to common-practice norms, because it incorporates elements from other non-classical genres such as Tin Pan Alley, folk and blues, and because the tools developed for analyzing common-practice music rely on conventional notation – which is not ordinarily part of compositional practice in pop/rock, where the basic musical text is the recorded track rather than the notated score. As I will demonstrate, however, various analytical paradigms from common-practice music can be usefully adapted and applied to pop/rock, since, in spite of surface differences in pitch syntax, many of the same or analogous underlying functional relationships persist: pitch centricity and hierarchy, harmonies based on fifths and thirds, and relative harmonic stability and instability.

Most pop/rock songs have an identifiable tonal center and a limited background collection of five to nine pitches, either throughout the song as a whole or within individual formal sections such as verses and choruses. As in art music, structural notes are normally part of the harmony or are emphasized in the melody, while


Some counterexamples of atonal pop-rock can be found in the experimental music of progressive-rock bands from the 1970s such as King Crimson and Gentle Giant, as well as in more recent genres such as punk, post-punk, industrial rock, speed metal, and death metal. Everett discusses some atonal and ambiguous passages in “Pitch Down the Middle,” *Expression in Pop-Rock Music*, 167–68.
embellishments are more often in the melody, of shorter duration than structural notes, and connected to structural notes by conjunct motion. Unlike in art music, melodic embellishments in pop/rock are frequently in the form of microtonal pitch inflections or bends that fall outside the twelve-note octave, especially in vocal and guitar parts, another aspect of pop/rock that likely derives from the blues. The basic harmonic units are power chords (open fourths or fifths, often doubled at the octave), triads, added-note triads (with seconds, fourths, or sixths), and seventh chords, although upper extensions such as ninths and elevenths are not uncommon. Tonic chords are normally stable, even when expressed as added-note or seventh chords, and other chords less so. The remaining two conventional harmonic functions of mildly unstable subdominant and more strongly unstable dominant are sometimes, but not always, distinct. Christopher Doll has described the function of non-tonic chords that anticipate the tonic, including both dominants and subdominants, as “pre-tonic” harmony. On a larger structural level, motions between stable and unstable harmonies allow phrases to be perceived as open or closed; it is worth noting that “reverse periods” and other open-ended formal structures are far more common in pop/rock than in art music.

Dmitri Tymoczko has identified two additional features linking tonal and modal art and popular musics from the eleventh century to the present in what he calls the “extended common practice”: harmonic consistency or similarity and conjunct melodic motion. These two features create “a two-dimensional coherence, both harmonic (or vertical) and melodic (or horizontal).” However, in much pop/rock music the two dimensions are only loosely temporally aligned, creating what has been called the “melodic-harmonic divorce.” Thus in some contexts, it may be appropriate to analyze the melodic and harmonic structures of a song as separate but interrelated domains rather than as expressing a single tonal system.

The most comprehensive theoretical model of tonality in pop/rock to date has been set forth by Walter Everett in “Making Sense of Rock’s Tonal Systems.” He classifies the tonalities used in rock and related genres into six categories ordered by increasing distance from common-practice tonality, further divided into nine subcategories: major, minor, modal, modally mixed, progressive, blues and minor pentatonic, triads or power chords on minor pentatonic roots, triads or power chords on minor pentatonic roots with chromatic embellishments, and chromatic. Everett’s categories are summarized in his Table 1, which is reproduced below as my Example 1.


Christopher Doll, “Listening to Rock Harmony” (PhD diss., Columbia University, 2007), 16.


Table 1. Classifications of Rock’s Preeminent Tonal Systems

1a Major-mode systems with common-practice harmonic and voice-leading behaviors. May be inflected by minor-mode or chromatic mixture.

1b Minor-mode systems with common-practice harmonic and voice-leading behaviors. May be inflected by major-mode or chromatic mixture.

2 Diatonic modal systems with common-practice voice-leading but sometimes not with common-practice harmonic behaviors.

3a Major-mode systems, or modal systems, with mixture from modal scale degrees. Common-practice harmonic and voice-leading behaviors would be common but not necessary.

3b Major-mode systems with progressive structures. Common-practice harmonic and voice-leading behaviors would be typical at lower, but not higher, levels.

4 Blues-based rock: minor-pentatonic-inflected major-mode systems. Common-practice harmonic and voice-leading behaviors not always emphasized at the surface, but may be articulated at deeper levels and/or in accompaniment.

5 Triad-doubled or power-chord minor-pentatonic systems unique to rock styles: I – III – IV – V – VII. Common-practice harmonic and even voice-leading behaviors often irrelevant on the surface.

6a Chromatically-inflected triad-doubled or power-chord doubled pentatonic systems of early metal. Common-practice harmonic and voice-leading behaviors often irrelevant on the surface.

6b Chromatically-related scale degrees with little dependence upon pentatonic basis. Common-practice harmonic and voice-leading behaviors often irrelevant at deeper levels as well as surface.

Example 1: Classifications of Rock’s Preeminent Tonal Systems, reproduced from Everett, “Making Sense of Rock’s Tonal Systems,” Music Theory Online 10 no. 4 (2004), Table 1. Used with permission.

This table provides an excellent starting point for a consideration of tonality in pop/rock music, but I propose several modifications in light of recent research: a simplification of the categories, their reordering roughly according to their prevalence in pop/rock compositional practice rather than in relation to common-practice tonality, the omission of a separate category for progressive tonal structures, and the

separation of background tonal structures from foreground harmonic units and voice-leading behaviors.

The major mode is the most common background scale in pop/rock, but conventional minor with a raised leading tone is quite rare; thus it makes sense to move minor modes with leading tones further down the list. Moreover, the subtonic is significantly more prevalent overall than the leading tone as both a melodic degree and a chord root, regardless of whether scale degree 3 is major or minor. Major and minor modes are nonetheless distinct: scale degrees 3, 6, and 7 and the secondary harmonies ii, iii, and vi are strongly correlated with one another in major modes, as are the scale degrees 3, 6, and 7 and the secondary harmonies III, VI, and VII in minor modes—although taken by itself, scale degree 6 in a melodic context tends to be raised rather than lowered in minor modes.

Example 2 offers a revised and simplified set of categories that reflect these norms. Common subsets are listed underneath each system. These subsets—pentatonic and blues scales—are more likely to be used melodically rather than harmonically because they do not allow for multiple complete triads; they also represent the most common melodic degrees within the larger systems. The first two categories are expanded versions of major and natural minor that allow for the prevalence of the lowered seventh degree in major and the raised sixth degree in minor. The expanded major mode can be interpreted as a combination of major and Mixolydian, and the expanded natural minor as a combination of Aeolian and Dorian. The “folk modes,” Mixolydian, Aeolian, and Dorian, are included here as subsets rather than in a separate modal category because they are more common in most pop/rock than Phrygian, Locrian, and Lydian; they are the closest in terms of tonal distance to the major and minor modes, and thus they are the least marked and the easiest to harmonize. Phrygian, Locrian, and mixed versions of these modes with flexible scale degrees 2 and/or 5 occur fairly often in heavy metal and related genres but are quite rare in other forms of pop/rock, so I have placed them in category 4, and I have excluded Lydian entirely because of its extreme rarity.

The third category in Example 2 comprises blues structures with major-mode harmony, usually in the form of major triads or dominant seventh chords, and minor or flexible scale degrees 3 and 7 in the melody. This system replicates the “penta-

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15 The prevalence of the subtonic over the leading tone as a melodic degree is demonstrated in Temperley and de Clercq, “Statistical Analysis,” 197, and as a chord root in de Clercq and Temperley, “A Corpus Analysis,” 60.


18 Very little analytical work has been done on heavy metal; the most comprehensive study thus far is Esa Lilja, “Characteristics of Heavy Metal Chord Structures” (PhD diss., University of Helsinki, 2004). Clement, in “Modal Tonicization in Rock,” makes a case for the analytical validity of the Lydian mode in rock music, but he offers only a handful of examples and not all of them are convincing.
tonic union” scale, identified by Temperley and de Clercq as the second most common melodic structure after major; it represents the union of major and minor pentatonic scales (or of Mixolydian and Dorian), as well as the central section of a fifth cycle. Because the blues mode is created by the juxtaposition of minor melody with major harmony, the flexible scale degrees are registraally correlated: the lowered forms most typically occur in the melody and are likely to be voiced in a higher register than their raised versions. The registral placement of minor thirds above major thirds is reflected by the chord-chart notation of a dominant-seventh chord with both thirds as $\flat9$; the $\flat9$ in the upper structure of the chord enharmonically represents the minor third. I have not included scale degree $\flat{\#}4, \flat{\#}5$, part of the traditional “blues scale,” in this background pitch collection because it is almost invariably an embellishment of scale degree 4 or 5 rather than a structural pitch.

The last category in Example 2 comprises nearly or fully chromatic collections that use multiple forms of multiple scale degrees. All of the systems just described represent points along a continuum rather than discrete categories, and could apply to entire songs or to sections within a song – or, less commonly, to passages within a formal section. Along this continuum, instances of modal mixture might fall in between major or minor and the blues, or between any of the first four categories and chromaticism, depending on whether particular scale-degree inflections are perceived as structural or embellishing pitches.

In this revised system, I have omitted any version of Everett’s category 3b, progressive tonal structures, for two reasons: first, because it is qualitatively different from the other categories, as it concerns motion between tonal centers rather than around a single tonal center, and secondly, because monotonality is not a firmly established expectation in pop/rock music to the extent that it is in common-practice music. It is very common for pop/rock songs to begin and end in different keys, or between any of the first four categories and chromaticism, depending on whether particular scale-degree inflections are perceived as structural or embellishing pitches.

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20 This chord and its voicings in the music of Jimi Hendrix are discussed in van der Bliek, “The Hendrix Chord.”
art music and in Tin Pan Alley standards still persists in many pop/rock songs, but other songs replace this tonal journey with large-scale structures defined instead by texture, timbre, register, and dynamics. Indeed, perceptual research has confirmed that most listeners are unaware of indirect key relationships even in short pieces of music.23

**Tonal Systems in Pop/Rock**

(scale degrees are shown in relation to major)

1: **expanded major mode**: 1 2 3 4 5 6 7 7
Harmony and melody are major, Mixolydian, or use flexible scale degree 7. Common subsets are the diatonic major hexachord (scale degrees 1 to 6) and the major pentatonic scale (1 2 3 5 6).

2: **minor mode**: 1 2 3 4 5 6 7 7
Harmony and melody are natural minor/Aeolian or Dorian. A common subset is the minor pentatonic scale (1 3 4 5 7).

3: **blues/“pentatonic union”**: 1 2 3 4 5 6 7 7
Harmony is basically major, although chord extensions and embellishments may be minor; melody has flexible third and seventh degrees with microtonal embellishments. A common subset is the minor pentatonic scale.

4: **other forms of minor**
   - melodic minor: 1 2 3 4 5 6 7
   - harmonic minor: 1 2 3 4 5 6 7
   - Phrygian: 1 2 3 4 5 6 7
   - Locrian: 1 2 3 4 5 6 7

5: **chromatic**: 1 2 3 4 5 6 7 7

**Basic Harmonic Units**

1: functional harmony: different chord qualities on different scale degrees
2: major-triad doublings
3: power chords (parallel fifths and fourths; may be doubled at the octave)
4: monophonic: single line; may be doubled at the octave

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*Example 2: Tonal and Harmonic Structures in Pop/Rock (after Everett 2004)*

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Another modification I have made to Everett’s system is the separation of tonal from harmonic axes. The last section of Example 2 outlines a second set of categories for basic harmonic structures. Any tonal system has the potential to be realized using different harmonic units, from functional harmonies to parallel triads to power chords to monophony. Functional harmonies, with different triad or tetrads qualities on different scale degrees, have the potential to employ conventional voice leading. This is the most common harmonic system in pop/rock; it is especially typical of pop songs and keyboard-based repertoires. Parallel triads and power chords, in contrast, are typical of guitar-based textures, because of the ease of shifting a particular chord voicing up and down the fretboard without changing hand position. These two harmonic types are unique to rock and related genres. They function as acoustical doublings that thicken the texture, not unlike the organ stops for fifths (usually labeled “quint,” “twelfth,” or “nazard”) or mixtures (added octaves, fifths, and sometimes thirds). While they often add to the surface chromatic saturation of a passage, only the chord roots are structural notes. Power chords are especially common in distorted guitar or synthesizer timbres, in which a complete triad or larger chord would sound unacceptably muddy and unclear. Monophonic melodies are typical in song introductions, which normally have a thinner texture than the rest of the song, but they are also a common texture in heavy metal, particularly in subgenres featuring heavy distortion in combination with fast tempos such as speed metal and thrash metal.

In the final section of this chapter, I offer a few illustrative examples. The verses of Elton John’s “Crocodile Rock” (1972), shown in Example 3, have a G-pentatonic melody over diatonic G-major harmony. The chord progression, I–iii–IV–V, is a moderately common alternative to the doo-wop cliché I–vi–IV–V. The E in this example, which is emphasized by its syncopation and status as the high point of the melodic contour, moves from dissonance to consonance and back to dissonance before being resolved in the chorus as the root of E minor.

Example 3: Elton John, “Crocodile Rock,” first verse

An instance of Mixolydian harmony and melody is the famous coda of The Beatles’ “Hey Jude” (1968), which repeats a circular double-plagal progression, I→VII→IV→I, in F major (not shown). The body of the song is in diatonic F major, save for F dominant seventh (V7/IV) at the beginning of each phrase of the bridge, so taken as a whole the song provides an example of the expanded major system.
The minor mode in pop/rock is exemplified by the verse of Supertramp’s “The Logical Song” (1979). The first half of the opening verse is shown in Example 4. The vocal melody is constrained to scale degrees 1 through 5, but both forms of scale degree 6 occur in the harmony, and the leading tone is not used. One unusual aspect of this example is its syncopated harmonic rhythm, which more typically changes on downbeats (as in the preceding examples) or on beats 1 and 3. Another unusual aspect is the harmonic progression, which begins like an expanded version of a descending tetrachord (Cm-B♭-A♭-G) but never reaches the dominant. Instead, the bass is deflected back upward to A♭, creating an unstable diminished triad that stands in the syntactic position of a dominant but whose scale-degree content is more typical of a subdominant.24

Example 4: Supertramp, “The Logical Song,” first half of first verse

An instance of minor pentatonic that omits any form of scale degree 6 is the power-chord riff from Deep Purple’s “Smoke on the Water” (1972), shown in Example 5. The melody moves from tonic through minor scale degree 3 up to 4 and back down, doubled at the fourth below. D♭ and A♭ in the second bar are upper chromatic neighbors, rather than structural pitches.

Example 5: Deep Purple, “Smoke on the Water,” opening riff

The verse of The Beatles’ “Can’t Buy Me Love” (1964), shown in Example 6, demonstrates the melodic-harmonic divorce typical of the blues. The harmony is a typical twelve-bar blues pattern, with dominant seventh chords on I, IV, and V. The notes of these chords add up to the blues or “pentatonic union” collection of category 3 in Example 2: both forms of scale degree 3 and 7 are used (E♭ in C7, E♭ in F7, B♭ in G7). The melody, however, is hexatonic in C minor, with no sixth degree and a minor third that directly conflicts with the major third of the C7 chord.

24 Drew Nobile argues for a model of harmonic function based on syntax rather than scale-degree content in “A Structural Approach to the Analysis of Rock Music” (PhD diss., City University of New York, 2014), ch. 2.
Example 6: The Beatles, “Can’t Buy Me Love,” first verse

A single-line melody expressing one of the rarer minor modes is exemplified by the “Hyperspace” riff, the dissonant middle section of Rush’s song trilogy “Natural Science” (1980), shown in Example 7. “Hyperspace,” with its monophonic Phrygian melody on F and then B, asymmetric meter, and dissonant guitar timbre, provides a sharp contrast to the outer sections of the song, which are more tonal, with functional harmonies in 4/4 and more consonant guitar timbres.

Example 7: Rush, “Hyperspace” riff from “Natural Science”

An instance of a triad-doubled chord progression on pentatonic roots is “Hey Joe,” recorded by The Jimi Hendrix Experience in 1966. The basic chord progression, repeated throughout the song, is C G D A E, a subdominant chain of descending fourths that ends on the tonic: VI→III→VII→IV→I. These are, not coincidentally, the major chords on the guitar that can be voiced with open strings. The chord roots form a pentatonic 4 scale on E (i.e., the fourth rotation of A minor pentatonic); however, the harmony is most readily interpreted as E minor with a major tonic, because all of the other chords are diatonic to E minor with a flexible sixth degree.

Soundgarden’s “Black Hole Sun” (1994) features more emphatically chromatic harmony throughout. The chord pattern of the verse is: G6 B6 F Em E7 Dsus4 G6-B° A in G major. This pattern includes many of the same flat-side triads as “Hey Joe” (III, VII, VI), with the addition of ii, which functions as a tritone substitute for V in the chorus, the chord in the analogous position is D7. However, the flat-side triads are not in a sequence, and they are interrupted by the descending chromatic line that connects F and D. The only chromatic pitch not used in the song is scale degree 4°5 (C/D).
Empirical research on tonality in rock music has just begun to provide a more nuanced historical contextualization of its tonal and harmonic structures. Songs from the 1950s are predominantly major and dominated by the harmonies I, IV, and V. In the second half of the 1960s, use of the minor mode began to increase, as did the use of the modal “flat-side” triads III, VI, and VII in a major key. The period from 1970 to 1990 saw an increase in the prevalence of IV and VII, with a concomitant decrease in the use of V. Further research will be able to provide a more detailed account of the development of pitch structures in rock as well as in other popular-music genres, the interaction between harmony and melody, and correlations between harmonic patterns and form. Other productive avenues for further study are harmonic rhythm and its relationship to tempo and form, melodic register and its relationship to texture and instrumentation, and associations between timbre and texture. The next important step will be to identify correlations of harmonic, tonal, and other structures with particular genres and establish generic as well as chronological norms for popular music.

Bibliography


26 de Clercq and Temperley, “A Corpus Analysis,” 64.


