

## The Logic of Six-Based Minor for Harmonic Analyses of Popular Music

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Harmony in popular music often does not follow the norms of classical music, and a variety of alternative analytical methods have been proposed. Despite the differences between these methods, a common factor is to label the minor tonic as “one.” [NEXT] To illustrate, here is Chris Doll’s analysis of the song “Down Under” by Men at Work. Doll identifies the tonic of the verse as B minor and labels it as Roman numeral one, with Roman numerals for the other chords being a consequence of this choice. [NEXT] When the chorus arrives, Doll identifies a tonal shift to D major, which requires a new “one” and thus a new set of Roman numerals for the other chords.

For me, the Roman numerals here imply rather different hearings of the verse and the chorus even though these two sections have almost identical harmonic and melodic content. [NEXT] To be fair, the switch from B minor in the verse to D major in the chorus is significant; But the Roman numerals exaggerate this shift. In the chorus, I still hear the B minor chord as the minor tonic from the verse, and I also find it difficult to “unhear” the D major of the chorus in the second verse. [PLAY]

The problem here is that the standard approach to Roman numerals presumes that harmonic function given a minor tonic is best modeled through its relationship with the parallel major. I will refer to this as a “one-based” approach to minor. In contrast, the harmonic content in “Down Under” involves a play between relative tonics. [NEXT] To better capture this relationship, I propose a “six-based” approach to the minor tonic for popular music. In a six-based approach, the minor tonic is taken to be Roman numeral “six” rather than a new or different “one” chord.

Although six-based minor is not commonly found in current scholarship or teaching, it is often used by commercial musicians. Session players in the Nashville, Tennessee area, for example, use a system called Nashville numbers, in which six-based minor is standard. [NEXT] As a brief illustration, here is the verse and chorus for “Down Under” in Nashville numbers. I don’t have time to get into the details of Nashville numbers, but it should be enough to say that they use Arabic numbers instead of Roman numerals to indicate the scale degree of the chord root, and the quality of the chord is then indicated through standard jazz/pop shorthand.

Another problem with one-based minor is that it presumes, given some span of music, that we can identify a singular tonic pitch. As music theorists have recently acknowledged, though, this is sometimes difficult. [NEXT] The conundrum is often illustrated with the “Axis” progression, in particular the rotation that starts with the minor chord, as in the song “Don’t Forget Me” by the Chili Peppers. This version of the Axis progression lends itself to two possible hearings: One–Flat Six–Flat Three–Flat Seven in the key of A minor, or Six–Four–One–Five in the key of C major. [PLAY]

[NEXT] Recently, Drew Nobile has argued that these situations involve a “special type of tonality” that he calls the “double-tonic complex,” where two different tonal centers coexist. In particular, Nobile refers to this fusion of two relative keys as an “Aeolian-Ionian complex.” [NEXT] One aspect that facilitates this tonal fusion, he observes, is that chords belong to the same functional category in relative keys. A D-minor chord, for example, typically functions as subdominant (S) in both A minor and C major.

Assuming Nobile’s notion of the double-tonic complex is valid, an analytical system that presumes a single tonic becomes awkward. [NEXT] In his own analyses, Nobile sometimes avoids Roman

numerals; other times, he uses two sets of Roman numerals as shown here. But neither approach is ideal. Without some scale-degree-based system, it is difficult to identify chord patterns through different transposition levels. And two sets of Roman numerals overstate the complexity of the harmonic palette, showing in this case seven or eight different chord types despite just four diatonic chords.

If, though, we allow six to be the minor tonic, we need only one set of Roman numerals. [NEXT] For those used to thinking exclusively in one-based minor, you may feel that it is impossible to erase the feeling that scale-degree one is inherently more central than scale-degree 6. But consider that our musical alphabet spans from A to G and that there is nothing inherently more central about the note A than any other note. The number six, therefore, does not necessarily have to lack special conceptual status because it is not the first number.

The effort of developing this new conceptual orientation may not seem worthwhile if the double-tonic complex is not common. [NEXT] But it is easy to find many other cases, as shown here. For the sake of time, I'll play just three examples of the Six-One-Five-Two chord loop. [PLAY] I can't help but point out that the last song is called "Prayer in C" yet the Wikipedia page for the song says that <QUOTE> "Despite its name, the song is actually recorded in the key of A minor" <END QUOTE>.

Chord loops that shift between relative tonics can create tonal ambiguity within a four-bar phrase. Shifts between relative tonics are also common on a larger scale, [NEXT] as seen in the song "Down Under." We might sometimes identify these situations as a modulation between relative tonics, or instances of "sectional tonality," or perhaps a large-scale double-tonic complex.

In other words, there exists a continuum of cases where one or more parts of a song will center more strongly on the minor tonic and another part or parts will center more strongly on the relative major. Ultimately, one-based minor is fairly clumsy at handling these situations, since it requires a strict dividing line where we must decide if and when to change tonics. In contrast, six-based minor allows us to compare songs on this continuum in a more consistent way.

[NEXT] Consider, for example, the song "Innocence" by Avril Lavigne, as transcribed in this Nashville number chart. [NEXT] The verse is centered on the minor tonic—C sharp minor—which eventually leads to a chorus using the Axis progression. If we used one-based minor, we would have to make some difficult choices. [NEXT] Does the major tonic in the chorus mean we are now in E major? If so, does this affect the overall key of the song, such that the verse should be charted in E major as well? If not, then if we chart the verse in C# minor and the chorus in E, how should we handle the prechorus, [NEXT] since the A-major and B-major chords function as subdominant and dominant in both keys? It is not that six-based minor avoids these interesting questions, but rather that it allows us to consider these questions without the answers having a radical impact on our functional chord labels. [PLAY]

Moreover, a song does not need a major tonic chord for six-based minor to be appropriate. [NEXT] Consider, for example, the song "Miss Americana & the Heartbreak Prince" by Taylor Swift. The entire song includes only three chords, with the B-minor chord sounding as the clear minor tonic. Without a D major chord, we may think that one-based minor would be appropriate. Yet consider the vocal melody. [NEXT] The beginning of the verse emphasizes the note B, but by the fourth bar, the melody is more suggestive of D major. [NEXT]. The melody in the prechorus also emphasizes the note D in its first half and leaps from A to D in its second half. [NEXT] Then in the chorus, the

melody further suggests D major. This melodic emphasis on D is significant enough to make me want to hear D as scale-degree 1, which is in conflict with hearing B as scale-degree 1. [PLAY]

Thus far, I have focused on tonal fusion between two relative keys. But that is not the only type of tonal fusion or ambiguity found in popular music. For decades, scholars have admitted that while the tonic note of a song may be easily identified, the mode—major or minor—is often unclear. If, like Nobile, we define “key” as a single tonal center with two possible qualities, the merging of two parallel keys could be considered another type of double-tonic complex.

[NEXT] This parallel double-tonic complex is particularly endemic to blues-based rock, such as in the song “Blue on Black” by Kenny Wayne Shepherd. The tonic pitch is clearly D, although the tonality of the tonic chord is unclear. The other two chords do not resolve the issue, since the C major chord implies D minor while the G over B implies D major. Nor does the vocal melody offer much help, since it freely floats between D major and D minor. [PLAY]

[NEXT] Harmony in popular music thus involves three possible keys—the major key, the parallel minor, and the relative minor. Some songs may use only one or two of these possible key centers; but sometimes a song will employ all three, which I refer to as a “triple-tonic complex.” [NEXT] Consider, for example, the song “Gorilla” by Bruno Mars. The chorus opens with a tonic of D major. In the second bar, though, the harmony changes to C major and the melody shifts to D-minor pentatonic, creating a play between parallel tonalities. The G-major chord in the third bar harkens back to D major, but the F natural in the vocal melody continues to imply D minor. The B $\flat$ -major and C-major chords at the end of the phrase underneath a repeated F-sharp in the melody continue this play between parallel keys. [PLAY]

[NEXT] In contrast, the verse is more strongly centered on the relative minor. We might consider setting B equal to “one.” But this method is particularly awkward given the chords in the fourth bar, B $\flat$  and C major, which ideally would be analyzed analogously to how they were analyzed in the chorus. [PLAY]

The idea that popular music involves multiple tonalities is not new. [NEXT] Ken Stephenson, for example, suggests three harmonic palettes for rock music—natural minor, chromatic minor, and major—each of which has its own set of typical harmonies. [NEXT] Note that Stephenson’s chromatic-minor system includes both a major and parallel minor tonic as well as further mixture between parallel keys. [NEXT] In contrast, his natural-minor system is entirely diatonic, identical to the relative major of E-flat given his use of one-based minor. We could thus view Stephenson as offering each tonality from the triple-tonic complex: a major system, its parallel minor, and a relative minor, with a one-based approach used for both minor systems. [NEXT] In essence, my argument is that we should cast his natural minor as six-based, since it makes more sense to view the relative minor as just that—a relative key rather than a parallel key.

Six-based minor is also useful beyond just simple transpositions of A minor and C major tonalities. [NEXT] Consider the song “Radioactive” by Imagine Dragons, for example. What is the tonic here? The B minor chord is a strong contender, and so we might say that the song is in B Dorian because of the G-sharp. [NEXT] But the D major chord also possesses a sense of tonic, with the last three chords sounding like One–Five–Two, or One–Five–Five of Five. With this hearing, we might say that the song is in D Lydian. Ultimately, I see this as another case of double tonic, but not an Aeolian-

Ionian complex; instead, this is a Dorian-Lydian complex. [NEXT] For the same reasons that six-based minor was better suited to handle the former, it is better suited to handle the latter. [PLAY]

[NEXT] Stepping back a bit, what six-based minor reveals is that the system of six harmonic modes can be collapsed into just three modal complexes: Aeolian-Ionian, which would be the white-note collection and its transpositions, Dorian-Lydian, which includes transpositions of the white-note collection but with an F-sharp instead of an F-natural, and Phrygian-Mixolydian, which includes transpositions of the white-note collection but with a B-flat instead of a B-natural.

[NEXT] As a final example, consider the song “Save Me” by Fleetwood Mac. A minor acts as a clear tonic sonority. If we make that A minor chord equal to one, we would label the B-flat major chord that begins the prechorus as Flat-Two, which is exactly what Ken Stephenson does in his analysis of the song, and he uses it as an example of Phrygian mixture in an otherwise natural minor system.

[NEXT] But if we take a six-based minor approach, that B-flat major chord is Flat-Seven, which implies Mixolydian. Note that the Flat-Seven chord goes to Four, as it so often does in the relative major. But instead of the double-plagal motion ending on the major tonic, it goes to the relative minor. My point here is that six-based minor helps explain not only similarities of chord behavior within the diatonic palette, but also the behavior of chromatic chords, regardless of the relative key center. [PLAY]

In conclusion, I am not claiming that one-based minor cannot model our hearing or cannot reveal interesting patterns of harmony in popular music. I am claiming, however, that many harmonic patterns in popular music can be observed between relative key centers, and six-based minor is better suited to reveal those particular patterns.

[NEXT] More practically, if six-based minor is used by many of the musicians creating popular music, it seems reasonable that it should also be a conceptual approach used by those analyzing popular music. If our goal is to include more popular music in the classroom, in part to address the lack of diversity in the traditional music theory curriculum, our analyses of popular music will presumably require a more diverse analytical toolbox. Without question, Roman numerals and Nashville numbers are only two components of that expanded toolbox. But if we choose to employ these tools, which have historically shown themselves to be very powerful, let us recognize and appreciate the various ways that they can be wielded.

[NEXT] Thank you!