

Answer by [Ethan Hein](#), master's candidate in music technology at NYU, composer, teacher, all-around music dork:

The academic music world is slowly coming to grips with the ways that the **conventional teaching of music theory** serves practicing musicians pretty poorly. The pop music pedagogy movement, spearheaded by [Lucy Green](#), is doing some creative work aimed at aligning music education with the way people experience and understand music in the present. Rather than trying to identify a canonical body of works and a bounded set of rules defined by that canon, we should take an **ethnomusicological** approach. We should be asking: What is it that musicians are doing that sounds good? What **patterns** can we detect in the broad mass of music being made and enjoyed out there in the world?

I have my own set of ideas about what constitutes common-practice music in America in 2014, but I also come with my set of biases and preferences. It would be better to have some **hard data** on what we all collectively think makes for valid music. [Trevor de Clercq](#) and [David Temperley](#) have bravely attempted to build just such a data set, at least within one specific area: the **harmonic practices used in rock**, as defined by *Rolling Stone* magazine's list of the **500 greatest songs of all time**. De Clercq and Temperley **transcribed** the top 20 songs from each decade between 1950 and 2000. You can see the results in their paper, "[A Corpus Analysis of Rock Harmony](#)." They also have a **website** where you can download their raw data and analyze it yourself. The whole project is a masterpiece of **descriptivist** music theory, as opposed to the stodgy **prescriptivist** kind.

Of course, the *Rolling Stone* top 500 has some problems as a data set. First of all, there's no common agreement as to what the word *rock* even refers to. De Clercq and

Comment [1]: This is very surprising. I thought it would be the opposite.

Comment [2]: I remember seeing this word come up in my search for contacts

Comment [3]: This is the strategy I usually take when analyzing music. Interesting to see how to same is discussed in this article.

Comment [4]: Ethnomusicology is the study of music with a more scientific approach rather than an abstract approach.

Comment [5]: Example of music theory in modern music.

Comment [6]: Musicians are still transcribing!

Temperley identify two main senses of the word. There's the sense *Rolling Stone* uses, an umbrella term for late-20th-century Anglo-American popular music. By this definition, rock includes soul/R&B standards, disco hits, middle-of-the-road pop, and a few iconic country, jazz, and hip-hop songs. On the other hand, there's the more narrow and descriptive sense of the word *rock* that includes Led Zeppelin and Aerosmith but specifically excludes jazz, hip-hop, and so on. Taking this view, the *Rolling Stone* list is not really a list of rock songs; it's a list of "the greatest songs of the rock era." De Clercq and Temperley don't get too bogged down in the semantics; the *Rolling Stone* list is as complete a consensus mainstream pop collection as exists, so it's a good-enough place to start.

A few results jump out from the study. As you'd expect, the **tonic I** is the most commonly used chord in the *Rolling Stone* corpus. However, the next most common chord is IV, and it most frequently precedes I. Right away, we have a conflict with traditional classical theory, where the most basic tonal building block is the **V-I cadence**. Rock uses plenty of V-I, but it uses even more IV-I. And the third most common pretonic chord in rock is not ii, like you'd expect if you went to music school; it's bVII, reflecting rock musicians' love of **mixolydian mode**. These same three chords—IV, V, and bVII—are also the ones most likely to follow the tonic in rock, again very much at odds with classical practice. De Clercq and Temperley observe:

In light of this data, one might conclude that rock is not governed by rules of "progression" at all; rather, there is simply an overall hierarchy of **preference for certain harmonies over others**, regardless of context.

In common-practice music, conventional theory dictates that certain **root patterns are preferred over others**: ascending motion by fourths is especially normative (much more so than descending fourth motion); descending thirds are favored over ascending thirds, and

Comment [7]: Have to look into these while studying music theory.

Comment [8]: This must be the pattern for rock music.

Comment [9]: More examples of the patterns found in rock.

ascending seconds over descending seconds (Schoenberg 1969). Are these principles observed in rock as well? It can be seen immediately that the norms of common-practice music do not hold. For each interval, the ascending and descending forms are roughly equal in frequency. The ascending perfect fourth is almost exactly as common as the descending perfect fourth; for other intervals, too, a similar pattern is seen. The frequency of intervals decreases in a very regular way as circle-of-fifths distance increases.

Blues is a central pillar of rock, and blues violates quite a few tenets of common-practice classical harmony. The biggest one is the distinction between major and minor. The sound of blues is in large part the sound of **minor melodies** and chord extensions over major chord progressions. The more blues-oriented flavors of rock are similarly ambiguous in their major/minor identity. A lot of the time, rock chords are neither major nor minor, like the famous **power chord**, which is just root-fifth-root.

The harmonic situation gets more complicated still if you include hip-hop in the data set. The *Rolling Stone* list includes "**Bring the Noise**" by Public Enemy, which doesn't have any triadic harmony at all. De Clercq and Temperley dealt with that by just not including the track in their analysis, which is unfortunate. A real theory of contemporary music would have to deal with hip-hop, which may not have triads but does have strongly melodic unpitched vocal lines, modal harmonies, and sometimes very crunchy dissonances and **microtones**.

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To my mind, the most intriguing idea put forth by de Clercq and Temperley is the **supermode**, the collection of pitches most frequently used in rock melodies.

Comment [10]: It is surprising to see that the blues genre is influenced from rock.

Comment [11]: I have noticed this in past blues music.

Temperley explains:

The supermode could be viewed as the union of the Ionian (major) and Aeolian (natural minor) modes; one might also think of it as a set of adjacent scale degrees on the line of fifths, extending from flatscale degree 6 to scale degree 7. In enharmonic terms, this collection excludes just two scale degrees, sharpscale degree 4/flatscale degree 5 and sharpscale degree 1/flatscale degree 2—precisely the same degrees that are outside the “global” scale collection of common-practice music.

I like the idea of the supermode. Classical music’s obsession with the **major scale runs counter to most Americans’ intuition**. Sure, we like the major scale fine, but it doesn’t feel like the One True Generative Scale that classical music holds it to be. Flat sevenths sound as “natural” to me as natural sevenths. (Actually, flat sevenths are a lot lower in the overtone series; you could make a case that mixolydian should be the One True Scale.) I think the best idea would be to just teach kids the supermode, rather than hitting them with the confusing idea that you have to modify the major scale to get the sounds you’re used to.

Comment [12]: This shows how music theory and modern music ideas may clash.

The original version of this post appeared on [Ethan Hein's blog](#). See the follow-up post on whether [science can make a better music theory](#).