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The Devil's Interval

BY JERRY TACHOIR

The natural progression from consonance to dissonance and resolution helps make music interesting and satisfying. Music would be extremely bland without the use of dissonance. Imagine a world of parallel thirds and sixths and no dissonance/resolution.

The prime interval requiring resolution is the tritone—an augmented 4th or diminished 5th. Known in the early church as the “Devil’s interval,” tritones were actually prohibited in official church music. Imagine Bach’s struggle to take music through its normal progression of tonic, subdominant, dominant, and back to tonic without the use of this interval.

The tritone is the characteristic interval of all dominant chords, created by the “guide tones,” or the 3rd and 7th. The tritone interval can be resolved in two types of contrary motion: one in which both notes move in by half steps, and one in which both notes move out by half steps. This resolution of tritones is typical in traditional Western harmony when a V7 chord resolves to the I chord (e.g., G7 to C).

The guide tones of G7 (the 3rd, B and the 7th, F) resolve to the root and 3rd of the C chord (C and E). This is a normal V7 to I resolution. The G7 guide tones can also resolve to B-flat and F-sharp, enharmonically forming the root and 3rd of a G-flat chord. Hence, the two possible resolutions of a G7 chord are down a fifth to a C chord, or down a half step to a G-flat chord. All dominant chords have these two possible resolutions: down a fifth or down a half-step.

The two possible resolutions are a tritone apart. The primary dominant chord relative to G-flat is D-flat 7. The guide tones of a D-flat 7 are F (the 3rd) and B (enharmonic equivalent of C-flat, the 7th). Again, this forms a tritone interval. They are also the exact same notes as in the G7 chord, only reversed; the 3rd of one chord becomes the 7th of the other, and vice versa. In other words, the G7 chord and the D-flat chord—which are a tritone apart—contain the same tritone-related B and F notes.

Since these two chords contain the same tritone, they have the same two points of primary resolution and, therefore, can substitute for each other. The G7 can resolve to C or G-flat, and D-flat 7 can resolve to G-flat or C. Each resolution is either down a 5th or down a half-step, which is known as substitute dominance (or dominant substitution).

When substitutions are made, a proper resolution of the tritones is heard. However, the bass motion creates a slight deception to our ear; the resolution is satisfied, yet the subtle movement of the bass line descending by a half-step creates interest.

Further interest is created when we take into consideration the ii7 chord associated with each dominant chord. Dm7 is the related ii7 to a G7 chord, and A-flat m7 is the related ii7 chord to the tritone-substitute chord D-flat 7. Consider the relationship of the two ii7 chords; they are a tritone apart. As you can see, the tritone tends to feed on itself.

If the two dominant chords can substitute for each other and satisfy the resolution, then we can also substitute their related

ii7 chords. In other words, Dm7 to G7 can now be A-flat m7 to G7, and both can resolve to either a C or a G-flat. Using the other dominant chord, D-flat (with the basic ii7 to V7 of A-flat m7 to D-flat 7), we can substitute the other relative ii7 chord, creating the progression Dm7 to D-flat 7 which, again, can resolve to either a C or a G-flat.

Here are all the possibilities (Note: enharmonic spellings were used to simplify the spelling of some chords—e.g., B instead of C-flat):

The musical examples show four different chord progressions in 4/4 time, each starting with a speaker icon. The first staff shows Dm7 G7 C, Dm7 G7 G \flat . The second staff shows A \flat m7 G7 C, A \flat m7 G7 G \flat . The third staff shows A \flat m7 D \flat 7 G \flat , A \flat m7 D \flat 7 C. The fourth staff shows Dm7 D \flat 7 G \flat , Dm7 D \flat 7 C. Chords are represented by notes on a treble clef staff.

Identification of a tritone substitute comes with noticing a descending half-step bass motion. This could be leading to the tonic chord, or with a minor 7th chord moving down a half step to a dominant chord—implying substitution of the relative ii7 chords.

The mathematics associated with harmony—especially tritones—is fascinating. Let’s apply to our G7 chord a Lydian-flat-7 scale—which contains the notes G, A, B, C-sharp, D, E, and F—and let’s also look at its tritone substitute of D-flat 7, to which we could apply an altered dominant scale: D-flat, D, E, F, G, A, and B. Observe that they are the same scale. This also works the other way around by using a G-altered-dominant scale and giving its tritone substitute D-flat a Lydian-flat-7 scale.



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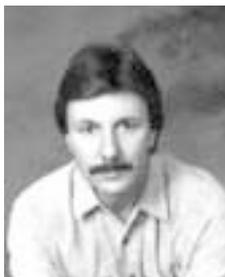
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Diminished chords manifest these possibilities twofold. All diminished chords contain two tritones, which gives diminished 7th chords the haunting sound often associated with horror-movie music. If each tritone has two possible resolutions in contrary motion, then diminished chords have four possible points of resolution to create dominant functioning diminished chords.

If either of the two tritones of a diminished chord resolve as previously described, the diminished chord is considered a dominant functioning diminished. Should either of the tritones not resolve as expected—in contrary motion in or out by half-steps—the diminished chord is considered a passing or chromatic diminished, which provides a way of smoothly getting from one chord to another.

As you can see (and hear at www.pas.org), this is all very logical and mathematically interesting. Dominant and diminished chords are extremely important in Western music, providing satisfying resolutions from dissonant to consonant chords.

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