

A Systematic Method of Common Chord Modulation

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(edited August 21, 2013)

The following method was developed by Nadia Boulanger as a system of modulation to nearby keys using common chords (also called pivot chords). Each cadence models the "science of root motion" by presenting each chord in root position in a simplified rhythmic context. One can view each cadence as a "subset" of a larger, organic progression composed of many cadences linked together. Nadia wrote all the cadences herself, and taught the method to Dr. David Conte, who is now Professor of Composition at the San Francisco Conservatory. Dr. Conte gave a lecture on the subject at the European American Musical Alliance in Paris in 2010, which is where I was introduced to it.

Part I: The Table of Common Chords

		TRIAD TYPE			
		Major	Minor	Diminished	Augmented
SCALE TYPE	Major	I, IV, V	ii, iii, vi	vii ^o	none
	Harmonic Minor	V, VI	i, iv	ii ^o , vii ^o	III+
	Ascending Melodic Minor	IV, V	i, ii	vi ^o , vii ^o	III+
	Descending Melodic Minor (Natural)	VII, VI, III	v, iv, i	ii ^o	none

Across the top are the four basic triad types: major, minor, diminished, and augmented. On the left are the four scale types: major, harmonic minor, ascending melodic minor, and descending melodic minor (or natural minor). The system works best when the table is memorized according to the vertical columns (by triad). For instance, when you have a major triad, memorize that it can be I, IV, V in a major scale; V, VI in a harmonic minor scale, etc.

Part II: Last Chord's Root is Constant; Initial Triad Changes

The next step is to learn all of the following cadences in all of the 12 keys - one cadence for each triad in the table above. Notice that all the chords are in four

voices and in root position. Also notice that the three upper voices are always in close position, or "keyboard style," except for the deceptive vi and the diminished cadences. Try to memorize the outer voices, which often move in contrary motion, and then fill in the middle voices below the soprano in close position. The cadences are separated by double bar lines.

I have chosen D Major/D Minor as an example, partially because C Major is used too often as a model, but also because the parallel key of D Minor has less accidentals than C Minor. For this section, the tonic D (last chord of each example) will remain constant. The first chord of each cadence corresponds with a particular chord in the above chart. I have labeled each initial chord with roman numerals to help show this relationship. The rhythm is, in a sense, arbitrary; the relationship of the root motion is of central importance. Of course, the cadences should be practiced in all keys, not just D Major and D Minor.

The most important aspect of this first section is that the root of the LAST chord is always the same, although the key could be major or minor.

Major Triads in Major Scale:

Musical notation in 4/4 time, key of D major (one sharp). The piece consists of two systems. The first system has three measures: a D major triad (D-F#-A) in the right hand and a quarter note D in the left hand; a D major triad (D-F#-A) in the right hand and a quarter note F# in the left hand; and a D major triad (D-F#-A) in the right hand and a quarter note A in the left hand. The second system has three measures: a D major triad (D-F#-A) in the right hand and a half note D in the left hand; a D major triad (D-F#-A) in the right hand and a half note F# in the left hand; and a D major triad (D-F#-A) in the right hand and a half note A in the left hand. Double bar lines separate the systems.

DM: I

DM: IV

DM: V

Major Triads in Harmonic Minor Scale:

Musical notation in 4/4 time, key of D minor (two flats, one sharp). The piece consists of two systems. The first system has three measures: a D major triad (D-F#-A) in the right hand and a quarter note D in the left hand; a D major triad (D-F#-A) in the right hand and a quarter note F# in the left hand; and a D major triad (D-F#-A) in the right hand and a quarter note A in the left hand. The second system has three measures: a D major triad (D-F#-A) in the right hand and a half note D in the left hand; a D major triad (D-F#-A) in the right hand and a half note F# in the left hand; and a D major triad (D-F#-A) in the right hand and a half note A in the left hand. Double bar lines separate the systems.

Dm: V

Dm: VI

Major Triads in Ascending Melodic Minor Scale:

solidifies minor key

Dm: IV

Dm: V

Major Triads in Descending Melodic Minor Scale:

Dm: VII

Dm: VI

Dm: III

Minor Triads in Major Scale:

DM: ii

DM: iii

DM: vi

Minor Triads in Harmonic Minor Scale:

Dm: i

Dm: iv

Minor Triads in Ascending Melodic Minor Scale:

solidifies minor key

Dm: i

Dm: ii

Minor Triads in Descending Melodic Minor Scale:

Musical notation showing the descending melodic minor scale in G minor (one flat) with minor triads in root position. The scale is: G^b4, F4, E4, D4, C4, B^b3, A3, G^b3. The triads are: Dm: i (G^b4, F4, E4), Dm: v (D4, C4, B^b3), and Dm: iv (G^b3, F4, E4).

Dm: i Dm: v Dm: iv

Diminished Triads (in Root Position) in Major and Minor Scales:

Musical notation showing diminished triads in root position across various scales. The triads are: DM: vii^o (F^b4, E4, D4), Dm: ii^o (D4, C4, B^b3), DM: vii^o (F^b4, E4, D4), and Dm: vi^o (G^b4, F4, E4).

DM: vii^o Dm: ii^o DM: vii^o Dm: vi^o

Diminished triads most often appear in first inversion to eliminate the tritone between the bass and the other voices. Therefore, I have included the following cadences myself. Notice that regardless of the inversion, diminished chords almost always double the third. The following examples give the most common spacing for diminished chords.

Diminished Triads (in First Inversion) in Major and Minor Scales:

Musical notation showing diminished triads in first inversion. The triads are: DM: vii^o (E4, D4, F^b4), Dm: ii^o (C4, B^b3, D4), DM: vii^o (E4, D4, F^b4), and Dm: vi^o (F4, E4, G^b4).

DM: vii^o Dm: ii^o DM: vii^o Dm: vi^o

Augmented Triad in Harmonic Minor and Ascending Melodic Minor Scales:

(original to Nadia's method)

Musical notation showing an augmented triad in third inversion. The triad is: Dm: III⁺ (G^b4, F4, E4).

Dm: III⁺

Part III: Last Chord's Root Changes (modulation); Initial Triad is Constant

This section switches the variables of the previous section. Before, we used chords all derived from the D Major or D Minor scale, always ending with D Major or D Minor as our tonic. Now we begin to modulate by keeping a D Major or D Minor chord as the first chord in each of the above progressions. Notice that the first roman numeral of each cadence is still the same because the chord function hasn't changed - the cadence has simply been transposed.

The most important aspect of this section is that the root of the FIRST chord is always the same, although the key could be major or minor.

Major Triads in Major Key:

Musical notation showing Major Triads in Major Key. The piece is in D Major. The first system shows the D Major triad (D, F#, A) in the treble clef and the D Major triad (D, F#, A) in the bass clef. The second system shows the A Major triad (A, C#, E) in the treble clef and the A Major triad (A, C#, E) in the bass clef. The third system shows the G Major triad (G, B, D) in the treble clef and the G Major triad (G, B, D) in the bass clef. The labels below the notation are DM: I, AM: IV, and GM: V.

Major Triads in Harmonic Minor Scale:

Musical notation showing Major Triads in Harmonic Minor Scale. The piece is in D Harmonic Minor. The first system shows the G minor triad (G, Bb, D) in the treble clef and the G minor triad (G, Bb, D) in the bass clef. The second system shows the F# minor triad (F#, Ab, C) in the treble clef and the F# minor triad (F#, Ab, C) in the bass clef. The labels below the notation are Gm: V and F#m: VI.

Major Triads in Ascending Melodic Minor Scale:

Musical notation showing Major Triads in Ascending Melodic Minor Scale. The piece is in D Ascending Melodic Minor. The first system shows the A minor triad (A, C, E) in the treble clef and the A minor triad (A, C, E) in the bass clef. The second system shows the G minor triad (G, Bb, D) in the treble clef and the G minor triad (G, Bb, D) in the bass clef. The labels below the notation are Am: IV and Gm: V.

Major Triads in Descending Melodic Minor Scale:

Em: VII F#m: VI Bm: III

Minor Triads in Major Scales:

CM: ii BbM: iii FM: vi

Minor Triads in Harmonic Minor Scales:

Dm: i Am: iv

Minor Triads in Ascending Melodic Minor Scales:

Dm: i Cm: ii

Minor Triads in Descending Melodic Minor Scales:

Dm: i Gm: v Am: iv

Diminished Triads (in Root Position) in Major and Minor Scales:

EbM: vii° Cm: ii° Ebm: vii° Fm: vi°

Diminished Triads in First Inversion in Major and Minor Scales:

(These are my addition to Nadia's cadences.)

EbM: vii°⁶ Cm: ii°⁶ Ebm: vii°⁶ Fm: vi°⁶

Augmented Triad in Harmonic Minor and Ascending Melodic Minor Scales:

Bm: III[#]

Part IV: Application

An important aspect of this method is that the "target key" has to have a tonic chord which is a common to the "original key's" major or parallel minor scale. This relationship is called "simple mixture." For example, in simple mixture, if the initial key is D Major, available target keys are E Minor, F# Minor, G Major, A Major, or B Minor (all related by one accidental), plus those keys related to D minor: F Major, G Minor, A Minor, Bb Major, and C Major.

Modulations to more distant keys can be achieved through connecting the cadences together like links of a chain. The following is a simple application. A Major becomes III in F# Minor, which cadences using a picardy third; F# Major becomes IV in C# Minor; and finally, F# Minor becomes III in D Major (the mode change from F# Minor to F# Major in measure 5 facilitates modulation to a more distantly related key).

Example Modulating Phrase:

m = minor key
M = major key

5

DM: V
F#m: III

F#M: I
C#m: IV

C#m: iv
DM: iii

The next example is a more artistic application using inversions, suspensions, and seventh chords. The G Minor triad changes from iv in D Minor to ii in F Major in measure 4. Notice the augmented triad on the third beat of m.6 that resolves down a fifth to B-flat Major (as it does in the above cadences). The D Minor triad in m.9 becomes iii in B-flat Major. Also notice how the augmented triad on the third beat of m.11 resolves down a fifth to a Neapolitan 6 in D Minor. The unusual progression ($vi^{\circ 6} - vii^{\circ 6} - i$) from the above cadences occurs in G Minor beginning on the third beat of m.14. The F-augmented triad returns one last time as a hybrid dominant chord in the third beat of m.15, and resolves briefly down a fifth to B-flat Major before changing to D Major. This example stays in more closely related keys.

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Moderato

mp

m = minor key
M = major key

5

Dm: iv^6
FM: ii^6

V/vi?
(Dm: III^+)

FM: $V_4^6?$
Dm: $VII_4^6?$

10

15 *rit.*

f *p*

Dm: i
BbM: iii

(Gm: III^+) BbM: IV^6
Dm: N^6

Dm: $ii^{\circ 6}$

Gm: $vi^{\circ 6}$ $vii^{\circ 6}$ $i^{\circ 6}$ III^+ VI^6
Dm: iv^6 (V)

Part V: Conclusion:

As Dr. Conte says, this system of cadences is "as complete as it is original." Every function of each triad type is accounted for in the table on the first page. Expanding the cadences to include seventh chords would be missing the point - triads are sufficient to demonstrate root motion. However, my experience as an organist has found that practicing the cadences in open position has uses for practicing improvisation. The outer voices should stay the same, though:

Gm: iv

The four-part texture could also be rhythmicized to create simple accompaniment patterns. I've even experimented with plagal, rather than perfect cadences. The only difference is that the final dominant chord of each cadence is omitted or rewritten to end with IV (or iv in a minor key). This is a significant deviation from Nadia's original method, however.

Dm: ii iv i

Please contact me with any comments or suggestions you may have about the material. There are more essays about various music theory topics available on my website, shown below. I appreciate your feedback, both positive and constructive. Whatever your interests, I hope that you have found this method of common chord modulation to be interesting and of value.

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