

— On Modulation —

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Some Definitions

- “...modulating [is] going smoothly from one key to another...”¹
- “Modulation is the process by which a change of tonality is made in a smooth and convincing way.”²
- “In tonal music, a firmly established change of key, as opposed to a passing reference to another key, known as a ‘tonicization’. The scale or pitch collection and characteristic harmonic progressions of the new key must be present, and there will usually be at least one cadence to the new tonic.”³

Some Considerations

- “Smoothness” is not necessarily a requirement for a successful modulation, as much tonal literature will illustrate. A “convincing way” is a better criterion to consider.
- A clear establishment of the new key is important, and usually a duration to the modulation of some length is required for this.
- Understanding a modulation depends on the aural perception of the listener; hence, some ambiguity is inherent in distinguishing among a mere tonicization, a “false” modulation, and a modulation.
- A modulation to a “foreign” key may be easier to accomplish than one to a diatonically related key: the ear is forced to interpret a new key quickly when there is a large change in the number of accidentals (i.e., the set of pitch classes) in the keys used.

¹ Max Miller, “A First Step in Keyboard Modulation”, The American Organist, October 1982.

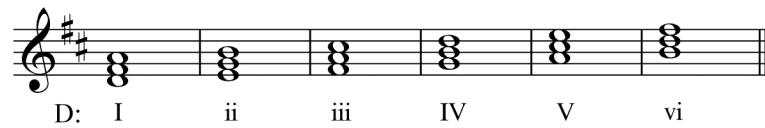
² Charles S. Brown, CAGO Study Guide, 1981.

³ Janna Saslaw: “Modulation”, Grove Music Online ed. L. Macy (Accessed 5 May 2008), <http://www.grovemusic.com>.

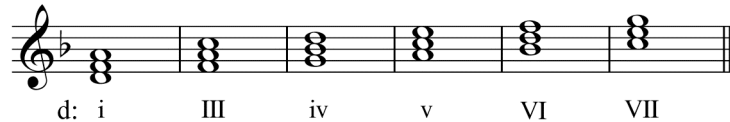
Diatonic Key Relationships

Closely-related keys: keys whose signatures differ by no more than one accidental; *or* keys whose tonic chords can be found as diatonic triads in the original key. The following tables show the keys closely related to D Major and to d minor.

<u>One sharp less</u>	<u>2 sharps</u>	<u>One sharp more</u>
G (IV)	D (I)	A (V)
e (ii)	b (vi)	f# (iii)



<u>One flat less</u>	<u>1 flat</u>	<u>One flat more</u>
a (v)	d (i)	g (iv)
C (VII)	F (III)	B _b (VI)



Other relationships can be grouped together as “distant” or “foreign”, although it is possible to subdivide these relationships further (see Appendix).

Establishing a Sense of Key

“...one needs to make a complete review of the new key by sounding all the diatonic pitches found in that tonality.” (Charles S. Brown, CAGO Study Guide) Dr. Brown recommends memorizing a progression similar to this one in all major and minor keys:

I vi IV ii⁷ I₄⁶ V I

This example does sound all the diatonic pitches in A Major. But sounding all seven pitches may not be as important to establishing the sense of key as the use of the cadential I₄⁶ in the third measure.

Chord Functions to Establish Key Centers⁴

P (pre-dominant)	D (dominant)	T (tonic)
IV, IV ⁷ and inversions	V	I
ii, ii ⁷ and inversions	I ₄ ⁶ — V	
^b II ⁶ (Neapolitan)	vii ⁰⁶	
Augmented 6 th Chords		
vi (somewhat less common)		

- Applied (secondary) chords, such as V⁷/V or vii⁰⁷/V, can embellish or intensify P or D functions.
- A cadential I₄⁶ chord will intensify the dominant if used in a rhythmically strong position. You may wish to avoid other second-inversion triads altogether, as these may have the unintended consequence of reinforcing the “wrong” key.
- Many different types of harmonies can serve as “P” chords.

⁴ See Wittlich, Gary, and Deborah Martin. Tonal Harmony for the Keyboard.

- Many types of “P” chord have scale degree 4 in the bass. You can practice cadences by playing a bass line that moves 4–5–1 or 4–[#]4–5–1 and then harmonizing the bass.
- Authentic cadences can be understood as P—D—T progressions.
- Develop cadence progressions using a variety of combinations of the elements and use them as transposition exercises.
- Other cadence types (e.g., Plagal, Phrygian) can be learned as formulas and transposed as well. Use these as supplemental methods for establishing a key.

A Modulation Preparatory Exercise

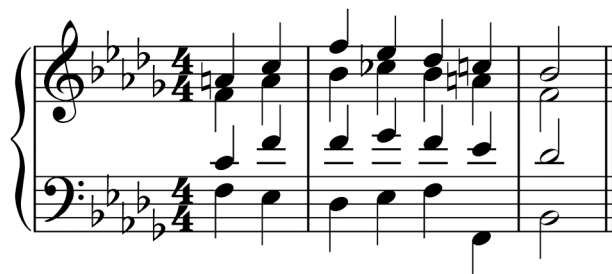
Take a major or minor triad and lead it convincingly to an authentic cadence in every key to which it belongs. For example, besides being I in F major, an F major chord is:

- III in d minor
- IV in C Major
- V in B_b Major (and minor)
- VI in a minor
- VII in g minor

This example uses the F major chord to function as VI in a minor. The cadence is intensified through the use of an applied vii^{o7}/V.



This example uses the F major chord to function as V in b^b minor. The cadence is intensified through the use of a Neapolitan chord. (This example also illustrates a basic use of mixture.)



An F minor chord is:

- ii in E_b Major
- iii in D_b Major
- iv in c minor
- v in b_b minor
- vi in A_b Major

This example uses the F minor chord to function as iv in c minor. The cadence is intensified through the use of a French Augmented Sixth chord.



Different Ways to Conceive of a Modulation⁵

- With a Pivot (or “Common”) Chord: one chord is chosen to function in both the old and new keys. Chords with “pre-dominant” function in the new key (II and IV are the most typical), while not the only possibilities, are most effective and often used in classical literature.
- Without a Pivot Chord: the new key area is thought of as a “goal” key or chord. Begin by expanding or elaborating the original key. Then move directly to a P—D—T progression in the new key. At least one harmony can be analyzed as a pivot, but this doesn’t need to be planned.
- By harmonizing a melody that implies a modulation. This last method may lend itself to hymn melodies, and the CAGO option of creating a modulating bridge between two hymns. This example uses the opening of GROSSER GOTT. The end of the melody could cadence in a minor (closely-related to F Major), A Major, or f# minor.



⁵ See Brings, et al. A New Approach to Keyboard Harmony for numerous examples and practice methodologies for these approaches.

Mixture and Chromatic Pivot Chords

The use of mixture (substitution of major and minor mode for each other), and/or chromatic or altered pivot chords provide means for modulating to numerous “foreign” keys. This example illustrates a pivot chord (tonic in the original key) that becomes interpreted as a Neapolitan chord in the new key.

G: I⁶
f#: ^bII⁶

A number of additional similar examples can be found in the books by Brings and Roig-Francoli. Max Miller’s article “A First Step in Keyboard Modulation” describes formulas for modulating to various keys that imply mixture.

Modulations to “foreign” keys are more likely to avoid pivot chords altogether, and employ techniques such as common-tone, and “phrase” or “direct” modulation.

Respelling (Reinterpretation) of Diminished Seventh Chords

Two special and colorful techniques used by 18th and (especially) 19th century composers involve the enharmonic respelling of dominant seventh chord as a German augmented sixth (or vice versa), and the enharmonic respelling of diminished seventh chords. The latter device is somewhat easier to practice systematically.

For Further Study

Reinterpreted diminished sevenths, because of their nature as unexpected events, tend to be used by tonal composers for dramatic effect. The following excerpts are particularly interesting examples of composers using texture, rhythm, dynamics, and phrase structure to enhance the effect of this device.

- Mozart, Symphony No. 40 in g minor KV 550, First Movement, mm. 99-105.
- Beethoven, Piano Sonata No. 8 in c minor Op. 13 (“Pathétique”), First Movement, mm. 133-137.
- Beethoven, Piano Sonata No. 12 in A^b Major Op. 26, Second Movement, mm. 13-21.

The symmetrical properties of the fully diminished seventh chord in equal temperament mean that any of the four pitches of this chord can be interpreted as its root.

Preparatory exercise #1:

Practice the following exercises, continuing each sequence through at least one octave.

a.

b.

Note that the second of these sequential exercises can be transposed a half step in either direction without repeating the same chords. Other similar patterns can be devised, and are valuable for developing the connection between the ear and fingers.

Preparatory exercise #2:

Play a diminished seventh chord in any convenient four-voice texture, e.g.,

Choose one of the four pitches of this chord as the root, resolve the diminished seventh to the major triad a half step above this pitch (using as economical voice-leading as possible), and continue to a cadence in that key. Example: (d becomes the root)



- Variation 1: resolve to a *minor* triad, rather than *major*.
- Variation 2: make the chord of resolution a diatonic triad in the key you are heading for.
- Variation 3: make the chord of resolution a non-diatonic triad (such as the Neapolitan) in yet another unrelated key.

Appendix

Key Relationships from a Major Tonic
(ex. C Major)

Closely-related	ii iii IV V vi	d minor e minor F Major G Major a minor
Related through Modal Interchange	v iv \flat III \flat VI III \sharp VI \sharp \flat iii \flat vi	g minor f minor E \flat Major A \flat Major E Major A Major e \flat minor a \flat minor
Neapolitan Relationships	\flat II \flat ii VII \sharp vii	D \flat Major d \flat minor B Major b minor
Ambiguous Relationships	II \sharp \flat VII \flat vii	D Major B \flat Major b \flat minor
“Unrelated”	\sharp IV \sharp iv	F \sharp Major f \sharp minor

Key Relationships from a minor Tonic
(ex. c minor)

Closely-related	III iv v VI VII	E \flat Major f minor g minor A \flat Major B \flat Major
Related through Modal Interchange	V IV \sharp iii \sharp vi iii vi \sharp III \sharp VI	G Major F Major e minor a minor e \flat minor a \flat minor E Major A Major
Neapolitan Relationships	\flat II \flat ii \sharp VII \sharp vii	D \flat Major d \flat minor B Major b minor
Ambiguous Relationships	II \sharp ii vii	D Major d minor b \flat minor
“Unrelated”	\sharp IV \sharp iv	F \sharp Major f \sharp minor

This table attempts to describe ways that various “foreign” key relationships can be interpreted as non-diatonic relationships involving modal interchange or Neapolitan relationships. “Ambiguous” or “Unrelated” keys are of course still possible modulation goals, although composers have often found them problematic in various ways.

Selected Bibliography

1. Brings, Allen, Charles Burkhart, Roger Kamien, Leo Kraft, and Drora Pershing. A New Approach to Keyboard Harmony. New York: W. W. Norton, 1979.
 - An excellent book designed to supplement an undergraduate theory curriculum. Contains numerous creative exercises at all levels of difficulty emphasizing training the mind and the ear.
2. Keller, Hermann. Thoroughbass Method. New York: W. W. Norton, 1965.
 - Contains modulating figured basses to all keys taken from *Pratica d'accompagnamento sopra bassi numerati* by Padre Stanislao Mattei (1750-1825). Keller's book is out of print, but used copies are on the market, and it can be found in many libraries.
3. Kostka, Stefan & Dorothy Payne. Tonal Harmony - With an Introduction to Twentieth-Century Music, 5th ed. New York: McGraw-Hill, 2004.
4. Morris, Reginald O. Figured Harmony at the Keyboard. London: Oxford University Press, 1933.
 - Volume 1 contains many examples of cadences that make excellent exercises for transposition.
5. Ottman, Robert. Music for Sight Singing, 5th ed. Englewood Cliffs, NJ: Prentice-Hall, 2002.
 - Contains several chapters of melodies that modulate. While intended for sight singing, these can also serve as harmonization exercises.
6. Roig-Francoli, Miguel. Harmony in Context. New York: McGraw-Hill, 2003.
7. Wittlich, Gary, and Deborah Martin. Tonal Harmony for the Keyboard. New York: Schirmer Books, 1989.
 - A Schenkerian orientation to the subject, with fine insights and exercises for the more advanced student. This work is out of print, but used copies are on the market.

From AGO Resources

8. CAGO Study Guidelines, ed. Max Miller.
9. Preparing for AGO Examinations (articles reprinted from The American Organist).